Canadian Environmental Assessment Agency | Agence canadienne d'évaluation environnementale

Comprehensive Study Report

Donkin Export Coking Coal Project

Canadian Environmental Assessment Agency

April 2013

Canada

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Executive Summary

The Donkin Export Coking Coal Project (the Project), proposed by Xstrata Coal Donkin Management Limited (XCDM), the proponent, involves a proposal to construct and operate an underground coal mine project at the site of the existing Donkin Mine located on the Donkin Peninsula in Cape Breton Regional Municipality (CBRM), Nova Scotia. The Project consists of a multi-continuous miner underground operation producing approximately 3.6 million tonnes per annum (Mtpa) of Run of Mine (ROM) coal that is subsequently washed to provide approximately 2.75 Mtpa of product coal that is primarily suitable for coking coal markets, but may also supply thermal coal markets. A Coal Handling and Processing Plant (CHPP) capable of processing 3.6 Mtpa of raw coal from the Donkin Mine will be constructed to produce coal ready for presentation to a barge load-out facility. Product coal will be loaded onto approximately 4,000 dwt barges which will be tugged an estimated 8.8 km to a transshipment facility in deeper waters in Mira Bay where it will be loaded onto bulk carriers for transport to international markets. Waste coal and rock will be disposed onsite in surface containment systems engineered to manage runoff.

To enable the Project to proceed, Fisheries and Oceans Canada (DFO), Transport Canada (TC) and Natural Resources Canada (NRCan) may issue authorizations under the *Fisheries Act,* the *Navigable Waters Protection Act*, and the *Explosives Act,* respectively. The DFO and TC authorizations trigger the requirement for a federal environmental assessment under the *Canadian Environmental Assessment Act* (the Act). In addition to the expertise provided to the environmental assessment by these departments, Environment Canada (EC) and Health Canada (HC) participated as expert Federal Authorities.

Under the Act and the *Comprehensive Study List Regulations*, a comprehensive study of the Project is required before these authorizations can be issued. The Project is considered a major resource project and is therefore subject to the provisions of the *Cabinet Directive on Improving the Performance of the Regulatory System for Major Resource Projects*.

The Canadian Environmental Assessment Agency (the Agency) prepared this Comprehensive Study Report in consultation with DFO, TC, EC, NRCan, HC, the Province of NS and the Kwilmu‘kw Maw-klusuaqn Negotiation Office (KMKNO) following a technical review of the proponent’s Environmental Impact Statement (EIS) and an evaluation of the environmental effects of the Project.

Valued Environmental Components (VECs) are notable features of the natural and human environment that are likely to be impacted by the Project. The EIS identified and assessed the Project’s VECs; these include atmospheric resources, water resources, birds and wildlife, wetlands, rare plants, freshwater fish and fish habitat, the marine environment, commercial and recreational fisheries, land use, current use of land and resources by the Mi’kmaq for traditional purposes, and archaeological and heritage resources.

Based on the review of the proposed Project and its predicted effects on the VECs, the Agency evaluated the potential for this project to have significant adverse effects on the environment. This evaluation was completed based on technical information provided by the proponent, advice provided by federal and provincial experts, and comments provided by the Mi’kmaq of Nova Scotia and the public through various consultations.

The potential environmental effects of greatest concern identified during the comprehensive study process included the effects on fish and fish habitat, commercial fisheries, birds, wetlands, atmospheric resources, and the marine environment (due to accidents).

Methods to reduce or eliminate the Project's potential environmental effects were incorporated into the overall planning and design. The following measures were included to reduce or eliminate the Project's potential adverse environmental effects:

- Wetland and fish habitat compensation plans will be developed.
- Demonstrably affected commercial fishermen will be compensated.
- The number of overall trips between the site and the transshipment site will be reduced by using larger vessels (4000 dwt vs. 3000 dwt).
- The effects on commercial fisheries will be minimized by modifying the shipping route near the transshipment site.
- Setbacks from bird colonies will be established and noisy activities will be scheduled outside breeding seasons for most birds to minimize disturbance.
- A Greenhouse Gas (GHG) Management Plan and a dust suppression program will be implemented to minimize airborne emissions.

A follow-up program is required and has been developed under the Act to verify the accuracy of the environmental assessment and to determine the effectiveness of the proposed mitigation measures for this Project. The follow-up program will focus on the atmospheric environment, water resources, birds and wildlife, wetlands, rare plants, freshwater fish and fish habitat, the marine environment, and archaeological and heritage resources.

The Agency concludes that the Project is not likely to cause significant adverse environmental effects when implementation of the proposed mitigation measures, the follow-up program and adherence to conditions and requirements related to the necessary federal permits, authorizations and approvals are taken into account.

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List of Acronyms and Abbreviations

APA	Atlantic Pilotage Authority
API	Atlantic Petroleum Institute
ARD	Acid Rock Drainage
ARIA	Archaeological Resource Impact Assessment
CAC	Criteria Air Contaminants
CBRM	Cape Breton Regional Municipality
CCME	Canadian Council of Ministers of the Environment
CHPP	Coal Handling and Preparation Plant
CLC	Community Liaison Committee
COLREGS	*International Regulations for Preventing Collisions at Sea*
CSA	*Canada Shipping Act*
CWS	Canadian Wildlife Service
DEVCO	Cape Breton Development Corporation
DFO	Fisheries and Oceans Canada
DWT	Dead Weight Tonnage
EA	Environmental Assessment
EC	Environment Canada
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPP	Environmental Protection Plan
FSC	Food, Social, & Ceremonial
GHG	Greenhouse Gas
HADD	Harmful Alteration, Disturbance or Destruction
HC	Health Canada
IBA	Important Bird Area
KMKNO	Kwilmu‘kw Maw-klusuaqn Negotiation Office
LAA	Local Assessment Area
MBCA	*Migratory Birds Convention Act*
MCRP	Mine Closure and Reclamation Plan
MEKS	Mi‘kmaq Ecological Knowledge Study
MOU	Memorandum of Understanding
Mtpa	Million tonnes per annum
NRCan	Natural Resources Canada
NS ESA	Nova Scotia *Endangered Species Act*
NSDNR	Nova Scotia Department of Natural Resources
NSE	Nova Scotia Environment
NSOAA	Nova Scotia Office of Aboriginal Affairs
NSPI	Nova Scotia Power Inc.
NSTIR	Nova Scotia Department of Transportation and Infrastructure Renewal
NWPA	*Navigable Waters Protection Ac*t
PDA	Project Development Area
RA	Responsible Authority
RAA	Regional Assessment Area
ROM	Run of Mine
RoW	Right-of-Way

List of Acronyms and Abbreviations (cont'd)

SARA	*Species at Risk Act*
SWMP	Solid Waste Management Plan
TC	Transport Canada
The Act	*Canadian Environmental Assessment Act*
The Agency	Canadian Environmental Assessment Agency
The Minister	Federal Minister of the Environment
The Project	Donkin Export Coking Coal Project
TSS	Total Suspended Solids
UINR	Unama'ki Institute of Natural Resources
VEC	Valued Environmental Component
WHMIS	Workplace Hazardous Materials Information System
XCDM	Xstrata Coal Donkin Management Limited

1. Introduction

1.1 Project Overview

Xstrata Coal Donkin Management Limited (XCDM), the proponent, is proposing to construct and operate an underground coal mine facility at the site of the existing Donkin Mine located on the Donkin Peninsula in Cape Breton Regional Municipality (CBRM), Nova Scotia (Figure 1-1). The Donkin Export Coking Coal Project (the Project) consists of an underground mining operation producing approximately 3.6 million tonnes per year (approximately 9,972 tonnes per day) of raw coal that will be washed to provide approximately 2.75 million tonnes per year (approximately 7,620 tonnes per day) of product coal that is primarily suitable for coking coal markets—the most likely markets being Europe and Brazil. The Project may also supply thermal coal to power plants to generate electricity. A coal processing plant will be constructed to prepare the coal for shipping. Waste coal and rock will be disposed on-site in surface containment systems engineered to manage runoff.

Product coal will be loaded onto barges, each approximately 4,000 tonnes in capacity, at a new wharf to be constructed on the Donkin Peninsula. The barges will be moved by tugboats approximately 8.8 km to a transshipment facility in deeper waters in Mira Bay where the coal will be loaded onto bulk carriers for transport to international markets. While marine shipping is the primary method of product coal transportation for the Project, trucking of coal to domestic customers and the Port of Sydney may occur should marine transportation prove impractical.

Table 1-1: Project Summary

Project Summary	The Project proposes an underground mining operation producing approximately 2.75 Mtpa (approximately 7,620 tonnes per day) of product coal that will primarily be exported to coking coal markets.
Proponent	Xstrata Coal Donkin Management Limited 633 Main Street Glace Bay, NS B1A 6J3 Attention: Mr. Val Istomin, Project Operations Manager, Donkin Project E-mail: vistomin@xstratacoal.com
Location	The Project will be located at the site of the existing Donkin Mine on the Donkin Peninsula (59° 49' 38" W, 46° 10' 33" N) within CBRM, Nova Scotia.
Environmental Assessment Contact	Donkin Export Coking Coal Project, Canadian Environmental Assessment Agency 1801 Hollis Street, Suite 200 Halifax, NS B3J 3N4 Attention: Micheline Savard Email: XstrataCoalDonkin@ceaa-acee.gc.ca
Canadian Environmental Assessment Registry (CEAR)	http://www.ceaa-acee.gc.ca/050/details-eng.cfm?evaluation=63924 File number: 63924

Figure 1-1: Project Location

1.2 Environmental Assessment Process

1.2.1 Purpose of the Comprehensive Study Report

This report presents the Canadian Environmental Assessment Agency's (the Agency) analysis to determine whether the Project is likely to cause significant adverse environmental effects. The Federal Minister of the Environment (the Minister) will consider this report and comments received from the public and the Mi`kmaq of Nova Scotia before announcing his environmental assessment decision statement.

The Minister may request additional information or require that public concerns be addressed further before issuing his environmental assessment decision statement. Following his environmental assessment decision statement, the Minister will refer the Project back to Fisheries and Oceans Canada (DFO) and Transport Canada (TC), for appropriate action under section 37 of the *Canadian Environmental Assessment Act* (the Act).

1.2.2 Federal Environmental Assessment Process

The *Canadian Environmental Assessment Act (1992)* (the Act) applies to federal regulatory authorities when they contemplate certain actions or decisions that would enable a project to proceed in whole or in part.

An environmental assessment is required under the Act due to actions that may be undertaken by DFO and TC. DFO and TC may issue permits, authorizations or approvals in relation to the project pursuant to the *Fisheries Act* and

the *Navigable Waters Protection Act,* respectively. NRCan may issue a magazine license under section 7 (1) (a) of the *Explosives Act*; however, this does not constitute a trigger under the Act.

Moreover, pursuant to paragraph 16(d) of the *Comprehensive Study List Regulations,* this project is subject to a comprehensive study environmental assessment under the Act:

> *"The proposed construction, decommissioning or abandonment of a coal mine with a coal production capacity of 3 000 t/d or more ..."*

1.2.3 Provincial Environmental Assessment Process

The Project also requires environmental assessment registration under Nova Scotia's *Environment Act* and *Environmental Assessment Regulations* as a "facility that extracts or processes […] coal" (Class 1 undertaking).

The Government of Canada and the Province of Nova Scotia have signed a Federal-Provincial Environmental Assessment Agreement to coordinate their respective EA processes to reduce duplication and promote intergovernmental cooperation.

The EIS prepared by the Proponent was used to satisfy both processes and there was a joint federal and provincial public comment period associated with the EIS.

2. Project Description

2.1 Scope of the Project

The scope of this project for the purposes of the comprehensive study includes all physical works and activities associated with the construction, operation, and decommissioning of the proposed Project.

The Government of Canada and the Province of Nova Scotia have signed a Federal-Provincial Environmental Assessment Agreement to coordinate their respective EA processes to reduce duplication and promote intergovernmental cooperation.

2.2 Project Components

Land-based and marine-based components of the Donkin Export Coking Coal Project will include:

- existing and planned underground and surface infrastructure at the site on the Donkin Peninsula (including the coal processing plant, and product stockpiles and coal waste disposal piles),
- a marine barge load-out facility (Morien Bay) and transshipment site (Mira Bay) and vessel route between the two locations,
- an approximately 25 km long 138 kV transmission line within existing rights-of-way (RoWs) from Victoria Junction to the Donkin Mine, and
- the trucking haul route to be used for domestic customers and when marine transportation is considered impractical.

2.2.1 Activities

Table 2-1 lists the key Project activities associated with construction, operation and maintenance, and decommissioning and reclamation.

Table 2-1: Project Activities and Physical Works

Project Activities and Physical Works	Details
Site Preparation	• Clearing and grubbing of vegetation • Site grading and excavation • Installation of ditching, surface water controls, and erosion and sediment protection
Construction of Mine Site Infrastructure and Underground Preparation	• Installation of underground mining equipment • Installation of enclosed gantries for coal transfer • Construction of roadways, vehicle parking, laydown and stockpile areas • Installation of surface and underground electrical distribution systems • Construction of buildings and ancillary facilities • Installation of two explosives storage magazines • Installation of main ventilation fans • Excavation of a third tunnel expected to be by tunnel boring machine • Disposal of excavated material • Construction of coal processing plant and conveyors
Construction of 138 kV Transmission Line	• Right of Way (RoW) clearing • Pole and transmission line installation • Temporary watercourse crossing
Construction of Barge Load-out Facility (incl. dredging, infilling and habitat compensation)	• Dredging of sea floor (if required) • Infilling and wharf construction • Marine habitat compensation
Installation of Transshipment Mooring	• Installation of a foundation or anchoring system
Underground Mining	• Underground operation of mining machinery, plant and equipment • Mine ventilation (including methane management) • Blasting (if required) • Conveyance of raw coal from underground to surface stockpile
Coal Processing Plant (incl. coal washing and conveyance)	• Crushing of raw coal • Conveyance of crushed coal for processing • Washing and dewatering of coal in closed loop process • Conveyance of coal product to product stockpile • Building ventilation and dust control
Water Treatment (incl. mine water and surface runoff)	• Operation and maintenance of site ditching, culverts and settling systems (serpentine pond) for sediment control • Progressive development of water controls and acid rock drainage management systems as required
Coal and Waste Rock Disposal	• Conveyance of dry coal waste from processing plant rejects stockpile and on to designated coal waste disposal piles • Progressive development of coal waste disposal piles (including clearing, grading, water controls and reclamation) • Diversion and infilling of streams • Freshwater habitat compensation
Coal Trucking	• Trucking of product coal to domestic customers and the Port of Sydney, should marine transportation prove impractical

Table 2-1: Project Activities and Physical Works (cont'd)

Project Activities and Physical Works	Details
Marine Loading and Transportation	• Conveyance of product coal overland by conveyor to marine loading facility • Loading of material onto barges • Transport of material via tug and barge to transshipment mooring • Manoeuvring and mooring of coal transport vessels and coal loading
Site Decommissioning	• Removal of all mining plant, machinery and equipment • Removal of surface structures and buildings not required for future land use • Removal of topsides of wharf (breakwater left in place) and transshipment mooring (foundation left in place) • Tunnels allowed to flood to groundwater equilibrium
Site Reclamation	• Contouring and revegetation of site • Ongoing water treatment

2.2.2 Schedule

Pending regulatory approval, mine development is planned to begin in 2013. Construction and commissioning of the coal processing plant is expected to last approximately 17 months. Construction of the barge load-out facility is planned for the start of Q4 2014 with completion by Q2 2016. Production for this Project will be staged progressively with full production expected to be reached by the end of 2017. The life of the Project is expected to be approximately 30 years.

3. Scope of the Environmental Assessment

The limits of the environmental assessment were established by a process called scoping. This focused the study on relevant factors and concerns, which were outlined in the Environmental Impact Statement Guidelines.

3.1 Factors to be Considered

Pursuant to subsections 16(1) and 16(2) of the Act, the following factors were considered as part of the comprehensive study:

- the environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or shall be carried out,
- the significance of the environmental effects referenced above,
- comments from the public that are received in accordance with the Act and the regulations,
- measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project,
- the purpose of the Project,
- alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means,
- the need for, and the requirements of, any follow-up program in respect of the Project, and
- the capacity of renewable resources that are likely to be significantly affected by the Project to meet present and future needs.

Under subsection 16(1)(e) of the Act, the Agency also required the assessment of the need for the Project, an evaluation of alternatives to the Project, and an examination of the benefits of the environmental assessment to Canadians.

3.2 Scope of the Factors

In determining significant environmental effects, the environmental assessment focused on those components of the environment that have particular value or significance and are likely to be impacted by the project. They are referred to as valued environmental components (VECs).

Selection of VECs for the assessment was based on the environmental setting, professional judgment, and issues raised during consultations. The VEC selection process included consideration of the temporal and spatial scope of the Project and anticipated Project-environment interactions.

The VECs considered in this assessment are:

- atmospheric resources,
- water resources,
- birds and wildlife,
- wetlands,
- rare plants,
- freshwater fish and fish habitat,
- marine environment,
- commercial and recreational fisheries,
- land use,
- current use of lands and resources by the Mi'kmaq for traditional purposes, and
- archaeological and heritage resources.

One or more measurable parameters were identified for each selected VEC to facilitate quantitative or qualitative measurement of potential project effects and cumulative environmental effects.

3.3 Temporal and Spatial Boundaries

The temporal boundaries of this environmental assessment are defined based on the timing and duration of project activities that could adversely affect the environment. The purpose of the temporal boundaries is to identify when an effect may occur in relation to specific project phases and activities. In general, temporal boundaries for assessment include the construction, operation and maintenance, and decommissioning and reclamation phases of the Project.

The spatial boundaries for each VEC encompass the geographic extent over which the Project's potential environmental effects are expected to be measureable. These include the local assessment area (LAA) for consideration of direct and indirect effects on the selected VECs, and a regional assessment area (RAA) for consideration of cumulative effects. Spatial boundaries for each VEC are described in Table 3-1 and Table 3-2.

Local Assessment Area
The LAA boundary consists of the project footprint plus a buffer zone within which direct and indirect effects of the Project can be reasonably expected to occur. LAA boundaries for each VEC are defined in Table 3-1.

Table 3-1: VECs and Local Assessment Boundaries

Valued Environmental Component	Local Assessment Area Boundary
Atmospheric Resources	For land-based activities, the LAA is defined as an area that is 2.5 km by 2.5 km extending from the center of the land-based activities. The LAA for offshore-based activities is defined as an area extending 2.5 km by 2.5 km from the location of the transshipment area.
Water Resources	Donkin Peninsula plus the transmission line route.
Birds and Wildlife	For the mine component, the LAA is the Donkin Peninsula (east of the Long Beach Road). The marine component of the LAA includes the 1 km^2 area surrounding the barge load-out wharf and the barge swing circle; a 500 m wide corridor following the barge route between the barge load-out wharf and the transshipment location; and a 1 km^2 area surrounding the transshipment location. For the transmission component, it is an approximate 100 m wide corridor centered along the length of the proposed line.
Wetlands	For the mine component, the LAA is the Donkin Peninsula (east of the Long Beach Road) and any adjacent marine wetland habitat. For the transmission component, it is an approximate 100 m wide corridor centered along the length of the proposed line.
Rare Plants	For the mine component, the LAA is the terrestrial components of the Donkin Peninsula (east of the Long Beach Road). For the transmission component, it is an approximate 100 m wide corridor centered along the length of the proposed line.
Freshwater Fish and Fish Habitat	There are three LAAs: ● Schooner Pond and the tributaries feeding it within the Donkin Peninsula boundaries – the Schooner Pond LAA ● The remainder of the Donkin Peninsula – the Donkin Peninsula LAA ● The transmission line corridor (i.e., all watercourse crossings falling within it) – the transmission line corridor LAA
Marine Environment	The 1 km^2 area surrounding the barge load-out wharf and the barge swing circle; a 500 m wide corridor following the barge route between the barge load-out wharf and the transshipment location; and a 1 km^2 area surrounding the transshipment location. The LAA is based on the area of predicted changes in ocean currents from the construction of the breakwater, the proposed route of barge shipment and area of potential elevated marine noise levels from construction and operation.
Commercial and Recreational Fisheries	The nearshore waters around the Donkin Peninsula from Morien Bay to the transshipment area in Mira Bay.
Land Use	The Donkin Peninsula and the nearshore waters around Donkin Peninsula from Morien Bay to the transshipment area in Mira Bay.
Current Use of Land and Resources by the Mi'kmaq for Traditional Purposes	The Donkin Peninsula, the RoW for the transmission line heading west from Donkin Mine to Marconi Towers, and the proposed marine transshipment site in Mira Bay, and locations in the immediate vicinity (i.e., within 50 m) of these identified areas, including nearshore waters around Donkin Peninsula and the transshipment site.
Archaeological and Heritage Resources	The Project footprint that is bounded by Schooner Pond Cove to the west, Schooner Pond Head to the north, Northern Head to the east, and, the north end of Morien Bay to the southwest.

Regional Assessment Area

The RAA boundary for the VECs consists of the areas within each LAA boundary and also the areas related to other projects whose potential residual effects could interact with the residual effects from construction, operation and maintenance or decommissioning of the Project. RAA boundaries for each VEC are defined in Table 3-2. The defined RAA is used when the cumulative impacts evaluation for an individual effects assessment determines that a cumulative impacts assessment is warranted.

Table 3-2: Regional Assessment Area Boundaries

Valued Environmental Component	Regional Assessment Area Boundary
Atmospheric Resources	Includes the Point Aconi and Lingan power plants, given potential overlapping air contaminants.
Water Resources	Includes the portion of the watersheds that encompass the LAA, and extend to the west of Long Beach Road.
Birds and Wildlife	Limited to and includes the Bras d'Or Lowlands and Cape Breton Coastal Ecodistricts, as defined by Neily et al. (2003).[1]
Wetlands	Limited to and includes the primary and secondary watersheds within which the wetlands are situated.
Rare Plants	Limited to and includes the Bras d'Or Lowlands and Cape Breton Coastal Ecodistricts, as defined by Neily et al. (2003).[1]
Freshwater Fish and Fish Habitat	Limited to and includes the primary watershed encompassing the Donkin Peninsula and the transmission line corridor (Nova Scotia Geomatics Centre primary watershed 1FJ).
Marine Environment	Includes the coastal region from Scatarie Island in the south to Sydney Harbour in the north. This area is bordered to the west by Cape Breton Island and to the east by the navigational lanes for shipping. The RAA includes Morien and Mira Bays and borders on the St. Anns Bank Area of Interest.
Commercial and Recreational Fisheries	Includes the marine waters within administrative boundaries of 4Vn and Lobster Fishing Area (LFA) 27.
Land Use	Includes the Cape Breton Regional Municipality (CBRM) administrative boundary
Current Use of Land and Resources by the Mi'kmaq for Traditional Purposes	Includes the LAA in addition to 5 km in all directions around the lands and waters of the LAA (from the edge) and encompasses the areas of Donkin, Glace Bay, Birch Grove, Port Morien, South Port Morien, and into the Atlantic Ocean.
Archaeological and Heritage Resources	An area approximately 100 km^2 surrounding the Project footprint

[1] Neily, P.D., E. Quigley, L. Benjamin, B.J. Stewart and T. Duke. 2003. Ecological land classification for Nova Scotia: Volume 1 - mapping Nova Scotia's terrestrial ecosystems. NSDNR Report DNR 2003-2.

3.4 Purpose of and Need for the Project

The proponent has indicated that the purpose of the Project is to develop and operate a commercial underground coal mine on the Donkin Peninsula in a manner that is socially, environmentally and technically feasible and will provide a reasonable return on investment to company shareholders.

4. Project Alternatives

Based on paragraph 16(3) of the Act, the Agency required that the proponent assess alternatives to the project as part of a comprehensive study. Alternatives to the project are functionally different ways to meet the Project's need and purpose. As well, in accordance with paragraph 16(2)(*b*) of the Act, the comprehensive study included consideration of the alternative means of carrying out the project that are technically and economically feasible and of the environmental effects of any such alternative means. The evaluation of both of these factors is presented in the following sections, based on evaluations conducted by the proponent.

4.1 Alternatives to the Project

There is no alternative to the Project that would meet the stated purpose.

4.2 Alternative Means of Carrying Out the Project

The proponent reviewed the economically and technically feasible alternative means of carrying out the proposed project. The following factors were considered, along with the general environmental effects associated with such alternative means and the rationale for selecting the preferred alternative. Consideration was given to the following alternatives:

- mining method (longwall/continuous miners)
- product coal (process for preparing coal for coking and thermal markets)
- transportation for product coal (marine, rail, road)
- wharf design
- coal rejects management
- water treatment (passive and active)
- disposal of dredged material

The proponent's evaluation of the alternative means for carrying out the Project is presented in Table 4-1.

With regards to the alternatives for transportation of product coal, studies of transportation options have been conducted by independent experts. Rail transportation was found to be less preferred than marine and road options due to higher capital and operating costs, which were estimated to be more than double the costs of the marine option. The preferred option was based on economic analysis that took into account social and environmental aspects for each option.

The marine-based option (barge load-out with transshipment) was selected as the most technically and economically feasible option for the proposed Project, with road transport as a preferred alternative for domestic customers and should marine transportation prove impractical. Potential environmental effects from all transportation alternatives are considered manageable through standard mitigation. Environmental effects associated with the preferred alternatives (coal trucking and marine transport) were evaluated as relevant to applicable Valued Environmental Components (VECs).

Rail transportation was found to be less preferred than marine and road options due to higher capital and operating costs, which were estimated to be more than double the costs of the marine option.

Table 4-1: Project Alternatives Assessment

Alternatives	Technical Feasibility	Economic Feasibility	Environmental Effects	Preferred Option
Mining Method				
Longwall mining: a long wall face of coal is mined in a single slice; as an automated longwall shearer advances along a panel, the roof in the mined out area is allowed to collapse as the mining advances and coal is transported to surface by large conveyors.	Considered feasible	Economically feasible at a scale larger than the currently proposed production rate due to high capital investment.	There is no substantial difference in the environmental effects of longwall and continuous mining processes. However, longwall mining would only be completed at a larger production scale so there would likely be more wastes and potential emissions associated with a longwall mining operation than with continuous mining.	
Continuous mining – Room and Pillar system: coal deposits are mined by cutting a network of rooms into the coal seam separated by pillars of undisturbed coal left behind to support the roof. These pillars may be extracted at a later stage.	Considered feasible	Considered feasible and most efficient for the production scale proposed for the Project.	There is no substantial difference in the environmental effects of longwall and continuous mining processes. However, continuous mining would be the preferred method for a smaller scale production and therefore there would be less wastes and emissions associated with a continuous mining operation than with longwall mining.	✓

Table 4-1: Project Alternatives Assessment (cont'd)

Alternatives	Technical Feasibility	Economic Feasibility	Environmental Effects	Preferred Option
Product Coal				
Thermal Coal Product for international export or domestic customers.	Considered feasible	Considered feasible. Thermal coal has a lower market price although local markets (if available) potentially provide lower transportation costs.	Donkin coal does not necessarily require washing before use to meet thermal coal market specifications, therefore processing of unwashed thermal coal generates fewer emissions.	✓ (dependent on market conditions)
Coking Coal Product for international export metallurgical markets.	Considered feasible	Considered feasible	Donkin coal requires washing to meet coking coal specifications, therefore, there is greater potential for environmental effects due to an increased Project footprint (for coal plant and coal waste). Water consumption will be limited as the coal plant will use a closed loop system.	✓
Transportation				
Marine: Product coal is transported from the Donkin Peninsula to deeper waters to allow transshipment by floating crane to vessels up to Cape Size.	Considered feasible	Considered feasible	Marine option—will result in localized fish habitat loss and interact with fisheries and marine navigation in the area. Habitat loss will be compensated under the *Fisheries Act*.	✓
Rail: Product coal is transported by rail along a section of new and rebuilt rail line to Victoria Junction where the train enters the common rail line and goes on to Port of Sydney for transfer to ocean going vessels.	Considered feasible	Considered feasible but with higher capital and operating costs than other options.	Rail option—will have a substantial ecological footprint due to the requirement for installation of new tracks along a portion of the route. In addition, there would potentially be noise and air quality effects on the local community along the rail route.	
Road: Product coal is delivered to local markets and the Port of Sydney using an approved truck haul route.	Considered feasible	Considered feasible depending on product volume or market.	Road transport would result in localized noise and air quality effects along the haul route. There may be interactions with local road traffic although the traffic impact study indicates a satisfactory level of performance and safety once road upgrades are done.	✓ (for domestic customers and should marine transportation prove impractical)

Table 4-1: Project Alternatives Assessment (cont'd)

Alternatives	Technical Feasibility	Economic Feasibility	Environmental Effects	Preferred Option
Wharf Design				
Conveyor with Trestle (no breakwater).	Not technically feasible	Considered feasible	N/A	
Concrete Caisson Design	Considered feasible	Considered feasible, although less attractive due to the specialized labour required and potentially sourcing contractors outside the region.	A concrete caisson breakwater design will result in fish habitat loss and loss of fishing access. There is a negligible difference in environmental effects between concrete caisson design and timber crib design.	
Timber Crib Design	Considered feasible	Considered feasible with the added benefit of local labour skills availability.	Timber Crib breakwater design will result in fish habitat loss and loss of fishing access. There is a negligible difference in environmental effects between concrete caisson design and timber crib design.	✓
Rejects (coal waste) Management				
Surface Storage	Considered feasible	Considered feasible	Surface storage will result in aesthetic effects and cover an extensive area of terrestrial habitat including wetland habitat. Some freshwater habitat will also be lost. This option will also require engineered containment and treatment systems to manage the risk of acid rock drainage (ARD).	✓
Underground disposal (Backfilling).	Considered feasible	Not feasible.	N/A	
Ocean disposal	Not technically feasible	Considered feasible	N/A	
Water Treatment				
Passive water treatment	Considered feasible (for suspended solids removal)	Considered feasible	Passive water treatment has been proven to be an effective method to treat mine water and surface runoff, with negligible environmental effects.	✓ (for treatment of suspended solids in mine water and site runoff)
Active water treatment	Considered feasible	Considered feasible	Active water treatment would be required to neutralize acidic runoff from coal waste disposal piles. Without active water treatment there is a risk of pH lowering, affecting surface water and groundwater resources, terrestrial habitats including wetlands, and freshwater fish and fish habitat.	✓ (for treatment of acid rock drainage runoff from coal waste piles)

Table 4-1: Project Alternatives Assessment (cont'd)

Alternatives	Technical Feasibility	Economic Feasibility	Environmental Effects	Preferred Option
Disposal of Dredged Material				
Disposal at sea	Considered feasible	Considered feasible	Ocean disposal will result in a loss of fish habitat and potentially affect commercial and Mi'kmaq fisheries in the vicinity of the disposal area. This option would also require additional regulatory authorizations.	
On-land disposal	Considered feasible	Considered feasible	The volume of dredged material is considered relatively small. If comingled with coal waste for surface storage on land, it will have a negligible contribution to the effects discussed above for surface disposal of coal waste. If the dredged material is disposed in a dedicated dredge disposal location on land, there will be some habitat loss under the footprint of the dredge disposal.	✓

NOTE:

N/A = not applicable if alternative is not technically or economically feasible

Expert RAs and the Agency are satisfied that, according to the results of the evaluation of alternative means, the proponent has identified the technically and economically viable alternative means of carrying out the Project. The proponent has also considered the environmental effects of the alternatives and their acceptability in identifying preferred alternatives.

5. Consultation

Federal and provincial planning for public consultation during the EA process included coordination of key public consultation steps required for the provincial EA registration and the federal comprehensive study process, to promote efficiency of public engagement. Federal government agencies worked cooperatively throughout the consultation process and collaborated with the proponent on public and Aboriginal consultation activities related to the various environmental assessment and environmental approval processes for the Project.

5.1 Public Consultation Activities

The Act requires that the public be provided with three formal participation opportunities: one at the outset of the environmental assessment process (i.e., comment on the draft EIS Guidelines), one during the comprehensive study (i.e., comment on the EIS), and a final opportunity to review and comment on this report. As part of the Participant Funding Program, the Agency awarded funding to the Sierra Club Canada–Atlantic Canada Chapter (Sierra Club Atlantic) and the Ecology Action Centre to participate in this EA process.

For the third public participation opportunity, the Agency will invite the public to provide comments on the content, conclusions, and recommendations of this comprehensive study report. A summary of the comments received will be provided to the Minister of the Environment to inform his environmental assessment decision statement.

Notices of these opportunities to participate were posted on the Canadian Environmental Assessment Registry website. Notices were also provided through local media.

The proponent established a Community Liaison Committee (CLC) in 2006 to build a constructive working relationship and facilitate community engagement. Approximately 1,500 newsletters have been distributed to homes and post office mail boxes in the Donkin and Port Morien areas at key milestones of project development (i.e., in November 2011 and July 2012). The proponent also provided information packages, comprising the Newsletter and fact sheets on the Project and the federal EA process, to commercial fishing organizations, members of the local community, members of the CLC, and non-government organizations.

5.2 Aboriginal Consultation Activities

The federal government has a legal duty to consult and, where appropriate, to accommodate Aboriginal peoples when it has knowledge that its proposed conduct might adversely impact an established or potential Aboriginal or treaty right. Aboriginal consultation is also an important part of good governance and sound policy development and decision making. In addition to the federal government's broader obligations, the Act requires that all federal environmental assessments consider the effect of any project-related change in the environment, and also the effect of that change on the current use of land and resources for traditional purposes by Aboriginal persons. The Act also requires consideration of the effect of any project-related change in the environment on physical and cultural heritage, and "any structure, site, or thing that is of historical or archaeological significance," such as sites historically occupied by Aboriginal peoples.

The Agency served as Crown consultation coordinator for the federal government for the purposes of this comprehensive study. The Nova Scotia Department of Natural Resources was the lead agency for Crown consultation for the provincial government. The leads and various federal and provincial departments worked together to conduct consultations in a manner that was integrated with the environmental assessment process to the extent possible.

The Mi'kmaq of Nova Scotia were identified as having asserted and established Aboriginal treaty rights that could be adversely affected by the Project and were contacted by the NS Department of Natural Resources to inform them that the Agency will be joining them in the continued consultation activities that were initiated as part of the previously approved Donkin Underground Exploration Project. The Mi'kmaq of Nova Scotia were invited to participate in consultation activities, as described in the Draft Mi'kmaq Consultation Plan for the Environmental Assessment of the Donkin Export Coking Coal Project.

The Agency communicated with the Mi'kmaq of Nova Scotia through phone calls, emails, letters, and meetings in addition to the three consultation opportunities noted in Section 5.1. The Agency also sought their comments on the Draft CSR and made changes, as appropriate.

Funds were established through the Agency's Participant Funding Program to reimburse eligible expenses incurred by the Mi'kmaq of Nova Scotia during their participation in the environmental assessment.

The proponent also conducted engagement activities directly with the Mi'kmaq of Nova Scotia. The Agency considered the information collected by the proponent during its engagement activities in determining whether the Project would cause any potentially adverse effects on asserted or established Aboriginal rights and title, and to determine the appropriate mitigation measures.

Appendix D contains a summary of comments provided by the Mi'kmaq of Nova Scotia during the environmental assessment process.

Potential adverse impacts of the Project on asserted Aboriginal rights

The Project is located within an area of asserted rights of the Mi'kmaq of Nova Scotia. The Mi'kmaq of Nova Scotia assert a claim of rights and title to the entire province of Nova Scotia. Rights relate to the use of the land, water and other resources for traditional purposes affected by the Project. Traditional uses include hunting, fishing, and gathering activities for subsistence purposes, and use of lands and resources for social and ceremonial activities. There is also a treaty right to fish for a moderate livelihood.

Although many technical issues were evaluated and addressed within the environmental assessment, the key potential residual effects resulting from the project relate to the partial loss of access to fisheries resources for commercial and food-social-ceremonial purposes by the Mi'kmaq. Other key issues include fish habitat compensation planning, wetland compensation, archaeology, marine accidents, cumulative effects, and the development of environmental management plans.

The Mi'kmaq of Nova Scotia are expected to be able to continue their traditional resource use activities in all areas except within the project footprint.

Proposed accommodation measures within the context of the environmental assessment

The Agency also considered the engagement activities carried out by the proponent. The proponent held numerous meetings with the Mi'kmaq throughout the environmental assessment process. The proponent will continue to engage the Mi'kmaq of Nova Scotia throughout the development and implementation of environmental management plans, including fish habitat compensation, wetland compensation, and archaeological resource protection.

Within the EIS, the proponent committed to adopting the recommendation in the 2012 Project-specific MEKS report which states "the traditional use activities of the Mi'kmaq will be reflected upon in the overall environmental presentation, and any remediation or Project work will consider the interest the Mi'kmaq have in the area."

The proponent and the Mi'kmaq of Nova Scotia signed a Memorandum of Understanding (MOU). The proponent is dedicated to establishing a mutually beneficial agreement with the Mi'kmaq of Nova Scotia whereby benefits and opportunities for the community can be realized.

… any remediation or Project work will consider the interest the Mi'kmaq have in the area.

Issues to be addressed in the regulatory approval phase

The regulatory approval phase of the Project consists of federal authorizations, approvals or permits associated with Project-related effects on fish and fish habitat, fish habitat compensation, navigation and explosives storage. Various provincial authorizations will also be required, including those related to mineral resource management and wetland alteration and compensation.

The proponent is developing a fish habitat compensation plan to offset the project's effects on fish habitat. The final plan for fish habitat compensation may be revised should the information on fish habitat effects change during the Project's detailed design phase. DFO will continue to engage the Mi'kmaq of Nova Scotia during the detailed design of the fish

habitat compensation plan and regulatory phases as required.

TC will consult further with the Mi'kmaq of Nova Scotia, as appropriate, during the detailed design and regulatory phases of the project where a *Navigable Waters Protection Act* approval is required related to this project. Measures necessary to mitigate direct effects on navigation will be included as conditions of the *Navigable Waters Protection Act* approval.

5.3 Summary of Public Comments

In December 2011, a public comment period was completed on the Project and the conduct of the environmental assessment. The Agency received four public submissions related to truck transportation, wetland loss, land ownership and the impacts on commercial fisheries, especially lobster.

A second public comment period was completed from July 2012 to September 2012. This formal public consultation period was a joint federal-provincial comment period on the Environmental Impact Statement Summary and the Registration Document, as prepared by the proponent. The Agency received eight public submissions, including those from individuals, a Fishermen's Association, a Development Association, the Sierra Club Atlantic and the Ecology Action Centre.

Most of the submissions identified concerns regarding the potential effects of the project on the marine environment and commercial fisheries in the area. Several members of the public expressed a preference for the rail transportation option versus the marine transportation option. The proponent has indicated that the marine option is preferred based on economics, which took into account the social and environmental aspects for each option and involved independent study and careful decision making. The proponent states that social and environmental concerns associated with the marine option can be well managed. The proponent is committed to implementing the measures identified in the EIS to reduce effects on the fishery and marine environment and to promote the sustainability of the fishery and other aspects of the Cape Breton economy. Section 2.9 of the EIS details the alternatives considered for the project including transportation and the reason for the preferred method. Table 4-1 reproduces the summary table from this section of the EIS.

Another common concern was the potential impact the project may have on wetlands and important bird areas. Field surveys will be conducted to obtain more information on functional attributes of wetlands that are likely to be affected. Wetland assessment and compensation planning will be addressed further, with input from regulators, stakeholders, and the Mi'kmaq of Nova Scotia during the permitting stage.

Other comments included the management of GHG emissions, water resources, disposal of mine waste, accidents and malfunctions, site reclamation, economic benefits, and follow-up and monitoring.

Wetland assessment and compensation planning will be addressed further, with input from regulators, stakeholders, and the Mi'kmaq of Nova Scotia during the permitting stage.

6. Existing Environment

The project area experiences a temperate climate due to its location on the Atlantic Ocean. Winter minimum temperatures rarely drop below -20°C; however, strong winds and

the associated wind chill factor can make it seem much colder.

The Sydney coal basin is located along the northeastern coastline of Cape Breton Island, mostly offshore, under the Atlantic Ocean. The coastal areas throughout the coalfield consist of poorly drained soils, shallow sandstone bedrock protruding at the surface, and stony and sandy loam overlying glacial till. The Donkin Peninsula consists of morien bedrock overlayed with alternating beds of sandstone, silt stone, mudstone and coal seams.

The terrestrial habitats of the Donkin Peninsula are comprised predominantly of coniferous forests of white, black, and red spruce, balsam fir and intolerant hardwoods. Hardwood species provide some mixed wood stands on the property, whereas white spruce is particularly prominent in close proximity to the coastline. Towards the edges of the peninsula, the coniferous forest becomes very stunted and windswept and transitions into coastal heathland, which is particularly extensive in the northern part of the property. The proposed Project Development Area includes 25.4 hectares of mature softwood habitat, and a patch of 13.4 hectares of interior forest habitat is included in the proposed mine portion of the Local Assessment Area.

Wetlands comprise an important component of Donkin Peninsula. Swamps are abundant throughout the area and are comprised predominantly of treed and tall shrub vegetation types. Marshes are found along the freshwater water bodies of the peninsula, and other wetland classes, including bog, are also present within the property. The centre of the peninsula is currently comprised of disturbed habitat associated with historic mining activities in addition to the relatively "natural" habitats that are present on site.

The Donkin Peninsula encompasses important habitat for many bird species. The Donkin Peninsula is part of the Northern Head/South Head Important Bird Area (IBA) and is a popular area for birding. Six species listed under either the federal *Species at Risk Act* (SARA) or the Nova Scotia *Endangered Species Act* (NS ESA) or both have been recorded in or near the study area, including American Peregrine Falcon, Olive-sided Flycatcher, Common Nighthawk, Rusty Blackbird, Canada Warbler, and Harlequin Duck.

The coastal cliffs of the peninsula provide nesting habitat for large numbers of Black-legged Kittiwakes and cormorants, and Black Guillemots, gulls, and Razorbills. Colonies of Black-legged Kittiwakes and Razorbills are uncommon in the Maritimes.

The Donkin Peninsula is known as an important stopover site for Whimbrels during fall migration, where large numbers of birds congregate on the barrens habitat on the coastal headlands. The coastal waters around the Donkin Peninsula and Morien Bay are used by important numbers of waterfowl, including small numbers of Harlequin Ducks, and by other waterbirds. Morien Bay is one of the most important shorebird stopover sites in Nova Scotia, in particular for Red Knots, White-rumped Sandpipers, Greater and Lesser Yellowlegs and Willets, species not commonly seen in such large numbers elsewhere in the Maritimes.

The diverse terrestrial habitats of the peninsula are known to provide habitat for a large number of species, including a number of birds considered to be "sensitive" within the province by NSDNR, including Boreal Chickadee, Golden-crowned Kinglet and Ruby-crowned Kinglet. The Donkin Peninsula also plays an important role as a landfall for southbound migrants and birds blown out to sea by storms.

A number of rare plants are known to be found within Donkin Peninsula and its surrounding lands. One provincially listed vulnerable species, eastern white cedar, was encountered along the transmission corridor. Thirteen

additional Species of Conservation Concern were recorded on the Donkin Peninsula and along the transmission line corridor.

Freshwater habitats on the Donkin Peninsula are a mix of still waters and actively moving water systems. Fish identified as potentially inhabiting the waters in and around Donkin Peninsula include: ninespine stickleback, banded killifish, Atlantic salmon, American eel, and brook trout.

The Donkin Peninsula is part of the Northern Head/South Head Important Bird Area and is a popular area for birding.

The waters around the peninsula also provide a rich habitat for a diversity of marine invertebrates. The major commercially-fished invertebrate species in the area are lobster, snow crab and rock crab. Sea urchins are found in shallow, rocky bottom subtidal areas along the coast of eastern Cape Breton, including habitat surrounding Donkin Peninsula and the transshipment mooring location in Mira Bay. Marine fish species found around Donkin Peninsula are those common to the nearshore waters of coastal Nova Scotia. At least 45 different fish species have been identified in the waters of Sydney Bight (Scatarie Island, Donkin Peninsula and the northern portion of Cape Breton).

In regard to the human environment, the Donkin mine site is located within the borders of the Cape Breton Regional Municipality. The history of Cape Breton is closely associated with coal mining activities. The primary Mi'kmaq traditional use activity that currently takes place near the Donkin Peninsula is fishing in the coastal waters of the region, with lobster being the most fished species by far.

7. Environmental Effects Assessment

7.1 Approach

The Agency, in cooperation with other federal authorities, the Province of NS and the Mi'kmaq of Nova Scotia, evaluated the proponent's assessment of the Project's potential adverse environmental effects on the Valued Environmental Components (VECs). The analysis of environmental effects was based on information and technical supporting documents prepared and provided by the proponent, comments received during public and Aboriginal consultation processes, and commitments made by the proponent to implement mitigation measures.

Mitigation measures were identified to reduce the potential adverse environmental effects. Many of these measures have been integrated into the project design or operational plans. The environmental effects remaining after the implementation of mitigation measures—the residual effects— were evaluated using the *Reference Guide: Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects* (Federal Environmental Assessment Review, 1994). A summary of the evaluation of the significance of environmental effects is included in Appendix A.

The requirements of the proposed follow-up program have been prepared for use in studying areas of the assessment where there may be uncertainty about the magnitude of an environmental effect and the effectiveness of proposed mitigation measures (see Section 8).

7.2 Atmospheric Resources

Atmospheric resources are studied to consider the effects of the Project on ambient air quality and the acoustic environment. They are also

studied to take into consideration Project-related greenhouse gases (GHGs).

Project construction and operation activities will result in emissions of air contaminants (e.g., sulphur dioxide, nitrogen oxides, particulate matter (dust)). Noise emissions will result in increased sound levels at the nearest residences (i.e., within 1.5 km from the source). While both air and noise emission levels will increase above baseline conditions, they are expected to be within federal and provincial regulatory limits and guidelines. The GHG emissions resulting from the operation and maintenance phase of the Project will represent approximately 0.07 to 0.2 percent of national total (2010) reported emissions (depending on methane recovery options).

The Proponent continues to investigate opportunities for methane recovery and commits to developing a GHG Management Plan. The GHG Management Plan will include minimizing GHG emissions by optimizing energy efficiency, adopting best proven methane recovery options, and continuing to examine advances in methane management in ventilation air.

Mitigation

A number of mitigation measures for the protection of air quality have been identified for this project and are described in Appendix A, Table A-1. Key mitigation measures include a dust suppression and monitoring program, and scheduling noisy activities during daytime hours. These mitigation measures will support criteria air contaminants (CAC) compliance with regulatory objectives throughout the project phases.

Government, Public and Aboriginal Comments

Health Canada, Environment Canada and Nova Scotia Environment provided a technical review of information prepared for the assessment by the proponent on air quality contaminants of concern and modeling. Health Canada requested that the proponent provide an updated analysis of worst case estimates of emissions, based on future refinement of the project design, to evaluate the potential for any adverse health effects associated with changes in air quality.

Health Canada advised that additional measures be considered because operational noise during night-time hours may exceed relevant recommended noise limits at the nearest identified receptor locations may disrupt sleep. The proponent will monitor noise levels and implement a NSE-approved complaint management process that will include investigating and addressing any identified complaints.

Key issues of concern raised during stakeholder and Mi'kmaq engagement were related to the effects and management of coal dust and noise generated during trucking. Public response to the EIS also included concern about GHG emissions and their effect on climate change.

The proponent will monitor noise levels and implement a NSE-approved complaint management process that will include investigating and addressing any identified complaints.

Agency Conclusions on the Significance of the Residual Environmental Effects

The Agency concludes that the Project is not likely to cause significant adverse environmental effects on air quality and the acoustic environment when the implementation of the proposed mitigation is taken into account.

7.3 Water Resources

Water resources are studied as a VEC to consider the quality and quantity of surface water and groundwater resources that could potentially be affected by the Project.

Approximately 20 watercourse crossings are present along the proposed power transmission line. On the peninsula, water from site operations largely drains to the Cape Breton Development Corporation (DEVCO) settling pond and discharges to Schooner Pond Cove through an overflow channel, while natural drainage water on the peninsula largely drains to Baileys Wetland and overflows to Schooner Pond Cove via a weir.

The main potential adverse environmental effects to water quality include waste water effluent from site run-off and mine discharge, which will be directed to Schooner Pond Cove and Baileys Wetland. As well, there is potential for a lowering of the shallow groundwater table in the area of the Phase III coal waste disposal pile due to the reduction of direct surface water flow to Baileys Wetland, potentially affecting domestic wells along Long Beach Road. The extent of the effect would be determined by the relative proximity of the well and the type of well (drilled versus dug).

Groundwater quality should not be affected by the presence of coal waste disposal piles because all water infiltration through the pile will be directed to a treatment system.

Mitigation

A domestic well survey and shallow groundwater monitoring program will be conducted two years prior to the construction of the Phase III coal waste disposal pile—construction is proposed for Year 13 of Project operation. If monitoring identifies significant changes in groundwater levels which could affect domestic wells, mitigation will be implemented, which could include well replacement and redirection of flows to recharge the shallow groundwater table.

To mitigate the effect of a reduction of direct surface water flow to Baileys Wetland as a result of the location of the Phase III western coal waste pile, watercourses will be rerouted around the coal waste pile and collected water will be redirected after treatment to areas upgradient of Baileys Wetland to maintain current water levels within the wetland.

Run-off from the site and mine discharge will be collected through a series of ditches and culverts and directed towards the existing serpentine-shaped sedimentation pond. Underground mine discharge will be directly pumped to the serpentine pond. The serpentine pond will serve as the treatment process for both mine water and site run-off and will be supplemented with a backup chemical feed system as needed. Coal waste disposal will generate another wastewater stream, which is expected to be acid generating, although covering the piles with impermeable liners will minimize the rate of acid generation and minimize seepage. Flow collected from lined coal waste piles will be directed to an active chemical treatment plant.

Appendix A, Table A-2 provides additional details.

Government, Public and Aboriginal Comments

The Sierra Club Atlantic expressed concern over the potential of the Project to impact currently compromised water quality (elevated levels of heavy metals) in some areas. It recommended that the CCME Water Quality Guidelines be adopted as the safe limit for all effluent and runoff from the site. The proponent will monitor water quality and limits will be observed as per approval conditions granted by regulatory authorities.

The Mi'kmaq of Nova Scotia expressed concerns regarding water quality. In particular, they were concerned about potable water and provided recommendations for monitoring that resulted from a technical review of fresh water resource issues by their consultant. The proponent will provide water monitoring results to the Mi'kmaq of Nova Scotia.

Agency Conclusions on the Significance of the Residual Environmental Effects
The Agency concludes that the Project is not likely to cause significant adverse environmental effects on water resources when implementation of the proposed mitigation and the follow-up program are taken into account.

… watercourses will be rerouted around the coal waste pile and collected water will be redirected after treatment …

7.4 Birds and Wildlife

The assessment of this VEC focused on two main environmental effects: change in wildlife habitat (e.g., habitat loss or alteration, sensory disturbance), and change in mortality risk focusing primarily on loss of species of conservation interest. The largest amount of habitat loss will occur as a result of the progressive development of coal waste disposal piles, over the life of the Project. Risks to mortality include loss of habitat through clearing, collisions with transmission lines, attraction of migrants to vessel and site lighting, accidental spills and attraction of generalist predators to the peninsula.

Mitigation
Adverse effects of the Project on birds and wildlife will be avoided or minimized through a variety of means, including, but not limited to: timing restrictions on clearing (i.e., avoidance of breeding season); use of setbacks (i.e., buffer zones) around the Northern Head seabird colony and an undisturbed corridor around the margin of the Donkin Peninsula; and site lighting design. Appendix A, Table A-3 provides details.

Government, Public and Aboriginal Comments
The main issue raised by stakeholders and community members was the potential effect of the Project on the continued use of the peninsula as a public recreational birding area. The proponent will develop terms for public access to the Donkin Peninsula based on consultation with recreation users.

Environment Canada also recommended an increased setback to 300 m for the majority of the seabird and waterbird colonies.

Environment Canada (EC) recommended a number of mitigation measures, including the operation of marine vessels in a manner so as not to disturb birds and the development of oil spill contingency plans and monitoring and adaptive management plans (e.g., seabird colonies, lighting and transmission lines).

EC also recommended the maintenance of a land and marine buffer of at least one km from seabird and waterbird colonies from April 1 until August 31 for high disturbance activities during all project phases. EC also recommended an increased setback to 300 m for the majority of the seabird and waterbird colonies. The Mi'kmaq of Nova Scotia supported the proposed setbacks and sought clarification on monitoring activities. The Proposed Setbacks for Seabird Colony map, figure 5.3.2 of the EIS, has been updated to reflect the increased setback and commitment to maintaining the coal waste piles outside the setback areas. The revised figure can be found in Appendix E.

Agency Conclusions on the Significance of the Residual Environmental Effects
The Agency concludes that the environmental effects of the Project on birds and wildlife are predicted to be not significant when implementation of the mitigation proposed, and the contingency plans, monitoring and follow-up program, and adaptive management are taken into account.

7.5 Wetlands

The Project is predicted to result in the alteration of approximately 42.2 ha of wetland habitat (approximately 35 percent of wetland area on the Donkin Peninsula) over the life of the Project. Most of this alteration is associated with the development of the coal waste disposal piles. Wetland types to be affected are primarily swamps with lesser amounts of fen habitat. Disturbances to marsh and shallow water wetland types are expected to be minor. The loss of wetland area and function will be compensated through the enhancement, restoration or creation of wetland habitat at an area ratio commensurate with the loss.

Mitigation
In addition to wetland habitat compensation, other key mitigations include avoidance of wetland habitat where possible, erosion and sediment control and management of wastewater, maintenance of hydrological connectivity to Baileys Wetland, and clearing of vegetation outside the breeding bird season. Appendix A, Table A-4 provides details.

Government, Public and Aboriginal Comments
The Mi'kmaq of Nova Scotia expressed concern with the loss of wetland area and expressed interest in participating in the development of the wetland compensation plan. Sierra Club Atlantic and the Ecology Action Centre also commented on the potential Project-related effects on the wetlands. The proponent has committed to including the participation of the Mi'kmaq and interested parties in the development of the plan as outlined in the conceptual wetland compensation plan (Appendix G of EIS). The plan will be developed prior to wetland disturbance.

Agency Conclusions on the Significance of the Residual Environmental Effects
The Agency concludes that the Project is not likely to cause significant adverse environmental effects on wetlands when implementation of the proposed mitigation and the follow-up program are taken into account.

7.6 Rare Plants

Project activities may directly disturb two species of conservation concern, Kalm's hawkweed (*Hieracium kalmii*) and Loesel's twayblade (*Liparis loeselii*), but both are known to be associated with human-modified habitats and their long-term persistence is unlikely to be at risk from the Project.

Additional pre-disturbance surveys for rare plant species and uncommon communities on the Donkin Peninsula will be conducted prior to construction activities and will include focussed surveys in wetlands and surveys dedicated to species of conservation interest.

Mitigation
Indirect effects to vegetation will be avoided through a number of mitigation measures including maintenance of hydrological conditions, treatment of wastewater from the mine discharge and surface runoff and implementation of erosion and sediment control plans. Appendix A, Table A-5 provides details.

Government, Public and Aboriginal Comments
No specific concerns have been raised by either stakeholders or the Mi'kmaq of Nova Scotia with regard to the effects of the Project on Rare Plants.

Agency Conclusions on the Significance of the Residual Environmental Effects
The Agency concludes that the Project is not likely to cause significant adverse environmental effects on rare plants when implementation of the proposed mitigation is taken into account.

7.7 Freshwater Fish and Fish Habitat

The environmental assessment of freshwater fish and fish habitat focused on two environmental effects: change in fish habitat, and change in mortality risk. Site preparation and construction activities have the potential to affect both of these. Coal waste disposal and water treatment activities have the potential to cause sedimentation, coal waste deposition and acidification of fish and fish habitat during operation and maintenance of the Project. Coal waste disposal in the vicinity of Schooner Pond (Phase III coal waste pile) will result in the permanent alteration of fish habitat through the diversion of one stream and infilling of another. These effects will be mitigated through the implementation of a DFO-approved compensation plan. Follow-up and monitoring programs will be implemented in accordance with applicable permitting and will include benthic invertebrate, fish community, fish habitat, and water quality monitoring programs.

Mitigation
The proponent has committed to implementing a water treatment system to capture and contain site and disposal pile runoff and neutralize acid waters from operations to mitigate the effects on freshwater fish and fish habitat. In addition, sediment and erosion control measures will be put in place and there will be habitat compensation. Appendix A, Table A-6 provides additional details.

Follow-up and monitoring programs will be implemented …

Government, Public and Aboriginal Comments
With respect to stakeholder concerns, the main issue raised was the potential effect on waterbodies and streams that are used for recreational fishing.

The Mi'kmaq of Nova Scotia expressed interest in participating in the development of a fish habitat compensation plan. DFO will provide them with an opportunity to participate in the development of the fish habitat compensation plan as part of its process. The Mi'kmaq of Nova Scotia also commented on the lack of assessment of freshwater resources in relation to the placement of coal waste piles and of streams along the proposed transmission line. The proponent commits to conducting studies of streams potentially affected by the Phase III coal waste pile sufficiently in advance of final design and construction of the coal waste pile to allow for adaptive management. Habitat assessments of streams are not considered to be required because disturbance to water crossings from transmission line construction is not anticipated as streams will be spanned.

Fisheries and Oceans Canada commented on the long-term effectiveness of the proposed coal waste cap and liners. The proponent confirmed that the proposed design included in the EIS (Appendix E) meets the basic requirements necessary for permitting, and the final design will take into consideration other design configurations and a more detailed maintenance management plan.

Agency Conclusions on the Significance of the Residual Environmental Effects
The Agency concludes that the Project is not likely to cause significant adverse environmental effects on freshwater fish and fish habitat when implementation of the proposed mitigation and the follow-up program are taken into account.

7.8 Marine Environment

Potential effects on the marine environment assessed in the EIS include an adverse change in marine habitat and change in mortality risk as a result of the construction and ongoing operation of the barge load-out facility and transshipment mooring. Approximately 3.3 ha of marine habitat will be permanently lost during marine construction. This loss of fish habitat will require regulatory approval under the *Fisheries*

Act and will require a detailed habitat compensation as per DFO policy. The proponent will prepare a Habitat Compensation Plan in consultation with DFO, local fishers and the Mi'kmaq to offset the harmful alteration, disruption or destruction of fish habitat.

The Project has the potential to deposit an undetermined amount of product coal in the marine environment through loading and unloading processes at both the barge load-out facility and transshipment mooring and through the release of coal dust into the atmosphere.

There will be localized mortality of benthic sessile organisms (e.g., sea urchins, starfish, and periwinkles) during construction of the barge load-out facility and the installation of the transshipment mooring. These types of species were noted to be abundant in the Project area, and the loss of these individuals is not expected to be a significant effect on local populations. No changes in mortality risk are anticipated during operation or reclamation and decommissioning.

The proponent will prepare a Habitat Compensation Plan in consultation with DFO, local fishers and the Mi'kmaq …

Mitigation

The proponent has designed the proposed breakwater to minimize the project footprint in marine habitat to mitigate the effects to the marine environment. Habitat loss will be compensated, where it cannot be avoided, by the rehabilitation of existing marine fish habitats or the creation of new habitats. An example of the compensation being considered involves artificial rock reefs constructed on sandy bottom habitats in Morien or Mira Bay to offset the rocky habitat lost from infilling for the barge load-out facility in Morien Bay. Additional options being considered include shoreline improvements, ghost trap and net retrieval, and the restoration of abandoned sites. A detailed habitat compensation plan will be developed and implemented in consultation with DFO, local fishers and the Mi'kmaq. The habitat compensation plan will be designed to achieve DFO's guiding principle of "no net loss" of productive fish habitat.

Specific design and material handling procedures will be used to minimize the loss of coal in the marine environment during handling and transport activities. Coal is not a chemical of concern in its raw form and its deposition is expected to be minimal and localized through the application of various mitigation measures. As a result, it is not anticipated that any coal or coal dust deposited in the marine environment from the Project will affect the mortality risk or health of fish and invertebrates.

Vessels will operate in accordance with applicable regulations to avoid marine pollution and will reduce speeds to reduce the potential for strikes on marine mammals and sea turtles. Follow-up and monitoring programs will be implemented in accordance with applicable permitting and will include a Fish Habitat Compensation Program, and marine sediment sampling and benthic habitat monitoring programs.

… options being considered include shoreline improvements, ghost trap and net retrieval, and the restoration of abandoned sites.

Government, Public and Aboriginal Comments

During the public engagement process, the main marine environment issues raised were potential effects on water quality, loss of habitat and the effects of dust on the marine environment. The Mi'kmaq of Nova Scotia recommended that further monitoring should include benthic invertebrates and invasive species in the marine environment. The proponent's monitoring plan includes monitoring of benthic invertebrates and

a commitment that Project vessels will comply with the *Ballast Water Control and Management Regulations* under the *Shipping Act* to reduce the risk of introducing marine invasive species.

Fisheries and Oceans Canada commented on the potential of vessels striking whales and sea turtles. The proponent indicated that vessels will travel at reduced speeds near the barge load-out facility, the transshipment facility and points between, which will reduce the potential for strikes on marine mammals and marine reptiles.

Agency Conclusions on the Significance of the Residual Environmental Effects

Best management practices will be employed throughout all phases of the Project to reduce or eliminate adverse effects on the marine environment. The Agency concludes that the Project is not likely to cause significant adverse environmental effects on the marine environment when the proposed mitigation and requirements related to the necessary federal permits, authorizations or approvals (including compensation) are taken into account.

7.9 Commercial and Recreational Fisheries

Commercial fisheries are important to the local and regional economy and traditions. This VEC included the assessment of commercial and recreational fisheries, with an emphasis on marine commercial fisheries. Ongoing consultation with local fishers, the Mi'kmaq of Nova Scotia, and DFO officials has identified concerns related to potential gear damage, and displacement of fishers as a result of marine-related Project activities. These issues could result in a change in the net income of local fishers, which is the primary environmental effect for the evaluation of this VEC. The construction of the barge load-out facility will result in a loss of benthic habitat and the suspension of sediments. Construction traffic could potentially interfere with fishing gear, and restrict fishing vessel navigation and fishing in the vicinity of the barge load-out facility. The installation of the transshipment mooring will result in limited benthic disturbance and will pose a localized constraint to navigation.

Various mitigation measures will be implemented … including ongoing consultation with local fishers and the Project's Fisheries Advisory Group.

Loss of fishing access during construction and operations will result in localized displacement of fishing activity, potentially resulting in increased pressure on other fishing locations to replace displaced activity. Increased vessel traffic during operations (e.g., operation of barges, tugs, and barge and bulk carrier vessels) could interfere with fishing gear and fishing vessel navigation in the waters between the barge load-out facility and transshipment mooring. The proponent will develop a compensation policy to address the demonstrated effects on fishers attributable to Project activities.

Mitigation

Various mitigation measures will be implemented to reduce or eliminate potential adverse environmental effects on commercial and recreational fisheries, including ongoing consultation with local fishers and the Project's Fisheries Advisory Group. The proposed shipping route near the transshipment mooring has been modified to minimize the interaction with fishers in the area. The new route was developed as a result of a recommendation from a fishery study commissioned by the proponent. Appendix F provides information on the updated shipping route.

Notices to Mariners and Notices to Shipping will be issued to inform other vessel operators

of marine construction activities and navigational hazards. Loss of fish habitat will be authorized under the *Fisheries Act* and will involve a Habitat Compensation Plan that will create new habitat or improve existing habitat to result in no net loss of fish habitat.

Government, Public and Aboriginal Comments
In addition to concerns related to potential gear damage and the displacement of fishers as a result of marine-related Project activities, other issues raised included the effects of Project construction on lobster and lobster habitat and the marine deposition of coal dust. The proponent has committed to developing a compensation policy to appropriately address the demonstrable effects on fishers of Project activities. The Habitat Compensation Plan will compensate for the loss of lobster habitat. The proponent will use enclosed conveyors, misting sprays, dust hoods and a dust collection system to minimize airborne coal dust emissions. The Mi'kmaq of Nova Scotia identified the project area as a high-use area for fishing, considering there are a substantial number of commercial licenses that will be affected by the development of this project. The Mi'kmaq of Nova Scotia strongly advised that they be compensated for any impacts to the commercial fisheries. The proponent is in negotiations with the Mi'kmaq of Nova Scotia to develop a benefits agreement. The proponent will compensate demonstrably affected fishers.

Agency Conclusions on the Significance of the Residual Environmental Effects
The Agency concludes that the Project is not likely to cause significant adverse environmental effects on commercial and recreational fisheries when the implementation of the proposed mitigation and ongoing planned consultation with fishers are taken into account.

7.10 Land Use

Land use was selected as a VEC in consideration of potential Project-related interactions with current and anticipated land uses in the vicinity of the Project.

Change in land use was assessed as including the use and enjoyment of adjacent residential properties, recreational land use, exclusion or promotion of development, and additional housing or community infrastructure that may be required to accommodate Project activities and worker requirements. The Project will directly enhance industrial land use on the Donkin Peninsula by improving and expanding existing infrastructure and indirectly enhancing commercial, industrial and institutional land uses within CBRM due to spin-off opportunities. Therefore, a positive effect on commercial, industrial and institutional land use is predicted. Potential adverse effects on residential and recreational land use will be due to noise and dust emissions, increased traffic and an altered viewscape.

Mitigation
Adverse effects will be mitigated through noise and dust control, the progressive development and reclamation of coal waste piles to minimize visual effects, and upgrades as necessary to the road transportation network.

Government, Public and Aboriginal Comments
Public interest has been expressed with respect to continued access to the Donkin Peninsula for recreational land use by community members. Public access to the peninsula for recreational purposes will be maintained along the coastal perimeter and terms of access will be developed by the proponent in consultation with local users in consideration of safety and security requirements.

Agency Conclusions on the Significance of the Residual Environmental Effects

The Agency concludes that the Project is not likely to cause significant adverse environmental effects on land use when implementation of the proposed mitigation is taken into account.

Public access to the peninsula for recreational purposes will be maintained along the coastal perimeter …

7.11 Current Use of Lands and Resources for Traditional Purposes by the Mi'kmaq

The current use of land and resources for traditional purposes by the Mi'kmaq is defined as lands and resources of specific social, cultural or spiritual value to the Mi'kmaq of Nova Scotia with a focus on current use of land and resources (including terrestrial, freshwater and marine resources) for traditional purposes. The Mi'kmaq of Nova Scotia are the holders of information about traditional and current hunting, trapping, fishing, gathering and other land and resource uses.

The analysis of this VEC focused on a change in the current use of land and resources for traditional purposes by the Mi'kmaq and is based primarily on the results of the MEKS conducted by Membertou Geomatics Solutions (2012). The MEKS identified marine fishing as the primary traditional use activity that takes place in the local assessment area, followed by "brush picking."

A change in traditional Mi'kmaq land and resource use is attributable to direct and indirect disturbance/loss of terrestrial and marine land/water and resources, which will interfere with Mi'kmaq fishing activities and impose access restrictions.

Mitigation

Mitigation and compensation measures associated with the following VECs will be implemented to minimize the impact to the current use of lands and resources for traditional purposes by the Mi'kmaq: birds and wildlife, wetlands, rare plants, freshwater fish and fish habitat, the marine environment, commercial and recreational fisheries, land use and archaeological and heritage resources. As recommended in the 2012 project-specific MEKS report, the proponent will consider the traditional use activities and the interest the Mi'kmaq have in the project area during all project phases. The proponent is developing a benefits agreement with the Mi'kmaq of Nova Scotia.

Government, Public and Aboriginal Comments

The Mi'kmaq of Nova Scotia submitted comments, throughout the environmental assessment process, on issues pertaining to the Project's impacts on the current uses of lands and resources for traditional purposes. These comments focused on the localized displacement of fishing activity for commercial and food-social-ceremonial purposes in addition to the restrictions to hunting and gathering activities. The proponent is in negotiations with the Mi'kmaq of Nova Scotia to develop a benefits agreement. Appendix D provides a summary of concerns raised by the Mi'kmaq of Nova Scotia and the responses by the proponent and the Agency.

… the proponent will consider the traditional use activities and the interest the Mi'kmaq have in the project area during all project phases.

Agency Conclusions on the Significance of the Residual Environmental Effects
The Agency concludes that the Project is not likely to cause significant adverse environmental effects on the current use of land and resources for traditional purposes by the Mi'kmaq with the implementation of proposed mitigation to protect biophysical resources. In reaching this conclusion the Agency also considered Mi'kmaq interests and traditional use activities throughout the planning process and during all Project activities, and the proponent's commitment to provide reasonable accommodation for a demonstrable loss of access to traditional fishing grounds. Ongoing engagement activities with local Mi'kmaq will provide feedback on the effectiveness of this mitigation and confirm effects predictions.

7.12 Archaeological and Heritage Resources

The analysis of this VEC involved a review of previous archaeological resource impact assessments (ARIAs) undertaken on the peninsula and in the vicinity of the proposed transmission line corridor. A new ARIA, comprising archival review and the review of marine benthic survey videos, was undertaken to address potential submerged archaeological resources at the location of the barge load-out facility and transshipment mooring. The ARIA concluded that the potential for First Nations and historic submerged resources was low. Of greatest relevance is the presence of McDonald Farm (CbBw-01) in the vicinity of the on-land conveyor system to the barge load-out facility.

Mitigation
Proposed mitigation involves conducting another ARIA to inventory and delineate the archaeological site at CbBw-01 relative to the conveyor infrastructure. The ARIA would also involve subsurface testing to determine the nature and extent of archaeological resources. An ARIA is also proposed to update previous ARIAs conducted on the peninsula, with an emphasis on the recording of evidence and limited shovel testing to confirm the previous determination of low potential for archaeological resources.

… the potential for First Nations and historic submerged resources was low.

If, during Project construction, operation and maintenance, or decommissioning and reclamation activities, a suspected archaeological or heritage resource is encountered, an Archaeological Contingency Plan will be implemented. The Plan will specify that work will be stopped in the area of the discovery and that the Heritage Division of Nova Scotia Department of Communities, Culture and Heritage and other relevant authorities will be contacted.

Government, Public and Aboriginal Comments
There were no specific issues raised with respect to archaeological and heritage resources during stakeholder consultations, although the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO) requested to review the archaeological survey methods. XCDM has advised the KMKNO of the approach taken for the archaeological review and invited the KMKNO to comment.

Agency Conclusions on the Significance of the Residual Environmental Effects
The Agency concludes that the Project is not likely to cause significant adverse environmental effects on archaeological and heritage resources when implementation of the proposed mitigation is taken into account.

7.13 Effects of the Environment on the Project

Environmental factors that could potentially affect the Project, resulting in an interruption of service or damage to infrastructure, or could adverse effects to VECs include: climate effects (e.g., extreme weather), tidal conditions, sea ice, climate change (e.g., sea level rise), seismic events, and forest fires.

Mitigation

All facility components and operations will be designed to relevant engineering codes and standards with the knowledge of potential environmental conditions on the site including extreme weather events and predicted parameters due to a changing global climate. New data acquired on faulting will be considered in the Project design, as appropriate. In particular, operational schedules for marine transportation operations take into account severe weather conditions.

Government, Public and Aboriginal Comments

The Mi'kmaq of Nova Scotia and Environment Canada commented on the long-term effects of extreme water levels due to long-term sea level rise, waves and storm surges on the northern side of the west waste disposal pile and runoff pond where elevation levels are lower. The proponent commits to monitoring water levels and to implementing an adaptive management plan if extreme water levels threaten to encroach on the northern side of the west waste disposal pile. Factors to account for longer duration extreme rain events will be considered in future design planning of drainage collection systems, using the best available estimates of projected changes in precipitation.

Fisheries and Oceans Canada commented on the impact that sea ice may have on shipping activities. They recommended that environmental criteria for operations could be used to mitigate the risk of coal-related shipping accidents and could be described in the Terminal Operations Manual. The proponent committed to developing a Terminal Operations Manual with relevant authorities and will provide for both ice monitoring and ice forecasting.

Factors to account for longer duration extreme rain events will be considered in future design planning of drainage collection systems …

Agency Conclusions on the Significance of the Residual Environmental Effects

The Agency concludes that the effects of the environment on the Project during any phase of the Project will not likely be significant when implementation of the proposed mitigation including engineering design and equipment selection (including marine vessels), operational planning (including contingency plans), facility maintenance and employee training are taken into account.

7.14 Effects of Accidents and Malfunctions

Worst probable case Project-related accident and malfunction scenarios were determined based on the EIS Guidelines and the professional judgment of XCDM and the Stantec Study Team. The accidents/malfunctions with potential environmental effects considered in this assessment include:

- Land-based hazardous material spill (*e.g.*, fuel, oil, hydraulic fluid, explosives),
- Coal spill,
- Hydrocarbon spill in the marine environment,
- Marine vessel accident (no spill),
- Trucking accident,
- Failure of water controls, and
- Premature mine shutdown.

A preliminary screening was conducted on each VEC to determine if any of the potential

accident scenarios as described in Section 6.1.1 of the EIS were likely to affect the VECs. Table 7-1 summarizes the preliminary screening results.

Table 7-1: Potential Interactions between Project-Related Accidents and Malfunctions and Valued Environmental Components

Accidents/Malfunctions	Atmospheric Resources	Water Resources	Birds and Wildlife	Wetlands	Rare Plants	Freshwater Fish and Fish Habitat	Marine Environment	Commercial and Recreational Fisheries	Land Use	Current Use of Lands and Resources for Traditional Purposes by the Mi'kmaq	Archaeological and Heritage Resources
Land-based Hazardous Material Spill (e.g., fuel, oil, hydraulic fluid)		✓	✓	✓	✓	✓					
Coal Spill			✓	✓	✓	✓	✓	✓		✓	
Hydrocarbon Spill in the Marine Environment	✓		✓				✓	✓		✓	
Marine Vessel Accident (no spill scenario)			✓				✓	✓		✓	
Trucking Accident									✓		
Failure of Water Controls		✓	✓	✓	✓	✓	✓	✓		✓	
Premature Mine Shutdown									✓		

The following potential accidents and malfunctions were considered and could result in significant effects; however, they are unlikely to occur: an extremely unlikely vessel collision or grounding resulting in disturbance to colonial nesters or the release of oil or fuel, in which case the effects on marine and coastal birds have the potential to be significant; and, the release of untreated water due to an extreme rainfall event that exceeds the design's storm parameters (of 1:25 year return period), which could result in significant adverse effects on some of the VECs.

Mitigation

Accidents and malfunctions are unplanned, infrequent and generally short-term in nature. The environmental effects of any potential Project accidents or malfunctions that may occur can be addressed with appropriate environmental management and contingency response planning.

Government, Public and Aboriginal Comments

General concerns about the management of accidental events on land and in the marine environment, with more emphasis on potential effects to fish habitat and commercial fisheries, were identified during consultations. Transport Canada and Sierra Club Atlantic recommended that Atlantic Pilotage Authority (APA) Pilots or Mooring Masters be considered for berthing and unberthing on site to ensure the safety and protection of the environment and of company infrastructure.

The environmental effects of any potential Project accidents or malfunctions that may occur can be addressed with appropriate environmental management and contingency response planning.

The proponent's Emergency Response and Contingency Plan will be updated to address potential accident and malfunction scenarios associated with the Project and will address prevention, preparedness, response and recovery for the scenarios identified in Table 7-1. The need for a Pilotage Risk Management Methodology Assessment will be at the discretion of the Atlantic Pilotage Authority.

Agency Conclusions on the Significance of the Residual Environmental Effects

The Agency concludes that no significant adverse environmental effects are likely to occur when implementation of the proposed mitigation is taken into account and provided that appropriate response plans are in place.

7.15 Capacity of Renewable Resources

Section 16(2) (d) of the Act states that comprehensive study reports must "address the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and the future." The effects of the Project on renewable resources were assessed in detail in the EIS. The assessment focused on water resources, freshwater fish, marine fish and use of other traditional resources by the Mi'kmaq. An adverse effect on these resources could result in a reduced capacity to provide drinking water resources, support sustainable fishing and other traditional uses.

The assessment of effects on each of these resources was conducted according to the Scope of Assessment for the Project and environmental assessment methods that have been developed to satisfy the regulatory requirements of the Act. The measures for significance were determined for each VEC and were generally determined by a regulatory standard or a threshold, where available.

The Agency concluded that the Project is not likely to cause significant adverse environmental effects on the capacity of the renewable resources when implementation of the proposed Project's design and mitigation and compensation measures are taken into account.

7.16 Cumulative Environmental Effects

The consideration of other projects or activities that have been or will be carried out with potentially overlapping environmental effects is a necessary component of the assessment of cumulative environmental effects to meet the requirements of the Act. The cumulative environmental effects were assessed using the Canadian Environmental Assessment Agency's *Operational Policy Statement* (Agency, 2007) and the *Cumulative Effects Assessment Practitioners Guide* (Agency, 1999). The other projects and activities considered in the cumulative environmental effects assessment in the EIS and potential interaction with VECs are provided in Table 7-2.

Table 7-2: Scoping of Potential Cumulative Environmental Effects

Name of Project /Activity	Atmospheric Resources	Water Resources	Birds and Wildlife	Wetlands	Vegetation	Freshwater Fish and Fish Habitat	Marine Environment	Commercial and Recreational Fisheries	Land Use	Current Use of Lands by Mi'kmaq for Traditional Purposes	Archaeological and Heritage Resources
Historic Coal Mining and Remediation Activities (including Donkin Underground Exploration Project)		✓	✓	✓	✓	✓			✓	✓	✓
Historic and Ongoing Fishing Activity			✓			✓	✓			✓	✓
Lingan and Point Aconi Power Stations	✓										
Port of Sydney Dredging and Infilling							✓	✓	✓		✓
Maritime Link Project						✓	✓	✓	✓		✓
St. Anns Bank Area of Interest								✓			

An analysis of the cumulative environmental effects of the Project in combination with the residual environmental effects from past and reasonably foreseeable projects was completed to determine if there is a risk of cumulative environmental effects. Section 5 of the EIS presents the cumulative effects evaluation for each VEC.

… the cumulative effects of other projects and activities with the Donkin Export Coking Coal Project were deemed to be low in magnitude, temporary, and not significant.

In general, the cumulative effects of other projects and activities with the Donkin Export Coking Coal Project were deemed to be low in magnitude, temporary, and not significant. Current and future activities are subject to regulatory approval processes and standard mitigation measures (including habitat compensation) that would limit adverse environmental effects. Greater potential exists for cumulative effects with past projects and activities that may not have been subject to the same regulatory requirements and have had a long-lasting effect on the environment, influencing the baseline conditions for the Donkin Export Coking Coal Project. An example of this would be historic mining in the area (including the Donkin Peninsula), which has affected freshwater fish and fish habitat and terrestrial wildlife and habitats (including wetlands). There will be a cumulative

environmental effect on the Marine Environment (change in fish habitat and fish mortality) between commercial fishing activity and construction of the marine infrastructure for the barge load-out facility. However, the Project contribution to this environmental effect will be authorized under the *Fisheries Act*, loss of habitat will be compensated and the overall Project contribution to cumulative regional fish mortality and habitat change will be small.

Key projects and activities and their potential environmental effects are summarized in Table 7-3.

Table 7-3: Potential Cumulative Environmental Effects

Project	Potential Environmental Effects
Historic Coal Mining and Remediation Activities (including Donkin Underground Exploration Project)	• Change in surface water resources • Change in groundwater resources • Change in mortality risk to birds and wildlife • Change in wildlife habitat • Change in wetland area or function • Change in rare plant species and uncommon habitats • Change in freshwater fish habitat and change in mortality risk • Change in land use • Change in current use of land and resources for traditional purposes by the Mi'kmaq • Changes to archaeological and heritage resources
Historic and Ongoing Fishing Activity	• Change in wildlife habitat • Change in mortality risk to birds and wildlife • Change in marine habitat and change in mortality risk • Change in current use of land and resources for traditional purposes by the Mi'kmaq • Changes to archaeological and heritage resources
Lingan and Point Aconi Power Stations	• Change in air quality (emissions of CACs)
Port of Sydney Dredging and Infilling	• Change in marine habitat and change in mortality risk • Change to net income of local commercial fishers • Change in land use • Changes to archaeological and heritage resources
Maritime Link Project	• Change in freshwater fish habitat and change in mortality risk • Change in marine habitat and change in mortality risk • Change to net income of local commercial fishers • Change in land use • Changes to archaeological and heritage resources
St. Anns Bank Area of Interest	• Change to net income of local commercial fishers

Government, Public and Aboriginal Comments

The Mi'kmaq of Nova Scotia provided comments on the cumulative impacts from previous mines in the region on the commercial fisheries. These cumulative effects are captured as part of the baseline conditions and are therefore fully assessed and addressed in the EA.

Agency Conclusions on the Significance of the Residual Environmental Effects

The Agency concludes that cumulative environmental effects related to the Project are predicted to be not significant for all VECs when implementation of the proposed mitigation is taken into account.

8. Monitoring and Follow-up under the *Canadian Environmental Assessment Act*

The purpose of a follow-up program is to (a) verify the accuracy of the environmental assessment of a project, and (b) determine the effectiveness of any measures taken to mitigate the adverse environmental effects of the project. Where appropriate, the results of a follow-up program may also support the implementation of adaptive management measures to address previously unanticipated adverse environmental effects and environmental management systems to manage the environmental effects of projects.

The Agency is proposing a monitoring and follow-up program for the Project to verify the accuracy of the predictions of the environmental effects or the effectiveness of mitigation measures. Several VEC-specific monitoring programs have been designed and will be implemented as part of the Project. Habitat compensation monitoring will be conducted to monitor the effectiveness of compensation projects in the marine and freshwater environments. Other initiatives include a wetland compensation and monitoring project, a particulate monitoring program, surface and groundwater monitoring, bird monitoring and rare plant surveys. The proponent will undertake adaptive management practices with respect to adverse environmental effects that are identified through monitoring. Monitoring and follow-up activities are outlined in Appendix C.

The Agency
is proposing
a monitoring and
follow-up program …

9. Benefits to Canadians

The Agency, with the assistance of federal and provincial government authorities, has evaluated and assessed the proposed project with respect to its potential effects on Valued Environmental Components and other criteria of concern to Canadians. The Project has been designed, as a result of this environmental assessment process, so that adverse effects of the Project on the environment will be reduced or eliminated and, where necessary, that mitigation, monitoring, and follow-up programs are in place. Management of environmental issues through the project design and the environmental assessment process brings a net benefit to Canadians.

The public was invited to participate at key points in the process in the review of the proposed project. The Mi'kmaq of Nova Scotia also reviewed the assessments made by the proponent and the government. The proponent modified the project design, where feasible, as a result of these consultations and to accommodate the issues and concerns that were raised.

The following Project components were modified as a result of the EA process:

- A change to the proposed siting of the barge load-out facility to minimize sedimentation and construction methods to reduce the quantity of materials placed into the marine environment.
- The use of larger vessels (4000 dwt vs. 3000 dwt) to reduce the number of overall trips between the site and the transshipment site.
- Modification of the proposed shipping route near the transshipment site to minimize the effects on commercial fisheries.
- An increased setback to 300 m for the majority of the seabird and waterbird colonies and a land and marine buffer for high disturbance activities to minimize disturbance to birds.

- Stockpiling product until marine transportation facilities are operational, to reduce local trucking concerns of the public.

In summary, the EA process for the Donkin Export Coking Coal Project has shaped Project planning. This is resulting in a more sustainable Project that will create local social and economic benefits.

… the EA process for the Donkin Export Coking Coal Project has shaped Project planning.

10. Conclusion of the Agency

The Agency has taken into account the following elements in determining whether or not the Project is likely to cause significant adverse environmental effects:

- documentation submitted by the proponent
- information, analysis, and conclusions in this comprehensive study report
- views expressed by the public, government agencies, and the Mi'kmaq of Nova Scotia
- the proponent's obligations and mitigation measures, as documented in Appendix B, Table of Commitments
- requirements to be described in the *Fisheries Act* authorizations and their associated habitat compensation plans to mitigate potentially negative impacts to fish and fish habitat
- requirements to be described in the *Navigable Waters Protection Act* approval
- requirements to be described in the *Explosives Act* magazine licence
- requirements to be described in the Terms and Conditions that may be issued under the Province of Nova Scotia's *Environment Act*
- requirements of the follow-up program to be implemented by the proponent

In the event that the responsible authorities take the course of action described in paragraph 37(1)(a) of the Act, they will ensure that mitigation measures are implemented in accordance with subsection 37(2.1) and (2.2) of the Act.

The environmental effects of the Project have been determined using assessment methods and analytical tools that reflect current best practices of environmental and socio-economic practitioners, including the consideration of cumulative effects and accidents and malfunctions. It is the conclusion of the EIS that the Project can be constructed, operated and decommissioned without significant adverse environmental effects.

The Agency concludes that the Project is not likely to cause significant adverse environmental effects when implementation of the mitigation proposed, including commitments made by the proponent (summarized in Appendix B) in this report and the fulfillment of regulatory requirements are taken into account.

The Agency concludes that the Project is not likely to cause significant adverse environmental effects …

Appendix A: Significance of Effects Analysis

Table A-1: Summary of Project Residual Environmental Effects: Atmospheric Resources

Project Phase	Mitigation/Compensation Measures	
Change in Air Quality		
Construction Operation and Maintenance Decommissioning and Reclamation	• Dust suppression program. • Covered conveyor and transfer points. • Equipment maintenance program. • Particulate monitoring plan. • Rain Bird-type dust suppression system at open coal stockpiles. • Dust hoods on radial stackers. • Dust collection system at transfer point from overland conveyor to barge stacker. • Misting sprays at outlet of raw and product coal conveyors. • Stockpile design to minimize risk of spontaneous combustion. • Covered trucks (if coal trucking required). • Use of barges with movable covers or higher coamings around cargo to control dust and protect coal cargo. • Good management practices and sound operator training to reduce operator error and promote careful cargo loading.	
Change in Acoustic Environment		
Construction Operation and Maintenance Decommissioning and Reclamation	• Use of mufflers on all applicable equipment. • Limit construction activities to daytime. • Use of blast mats. • Enclosed conveyor and transfer points. • Enclosure of all coal washing activities in CHPP building. • Adherence to equipment maintenance programs. • Maintaining a vegetation buffer between the Project and the nearest residents. • Limit activity occurring in disposal sites (dozers) to daytime. • If coal trucking required, speed limits applied and truck hauling during daytime hours.	
Change in GHG Emissions		
Construction Operation and Maintenance Decommissioning and Reclamation	• Implementation of GHG Management Plan, assuming capture and oxidation of methane gas from mine.	

(Table A-1)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	A	M	L	ST	S	R	D	N	• Particulate monitoring program for Project construction and operation as per likely conditions of approval.
	A	M	L	LT	C	R	D	N	
	A	M	L	ST	S	R	D	N	
	A	L	L	ST	R	R	D	N	• Sound pressure level monitoring during construction and operation and maintenance as per likely conditions of approval.
	A	M	L	LT	C	R	D	N	
	A	L	L	ST	R	R	D	N	
	A	L	G	ST	R	R	D	N	• Annual monitoring of GHG emissions and reporting to Environment Canada.
	A	L	G	LT	C	R	D	N	
	A	L	G	ST	R	R	D	N	

Table A-1: Key—Atmospheric Resources

Direction: P Positive: condition of the Atmospheric Resources is improving in comparison to baseline conditions and trends A Adverse: condition of the Atmospheric Resources is worsening in comparison to baseline conditions and trends N Neutral: no change in the condition of the Atmospheric Resources compared to baseline conditions and trends ***Magnitude:*** L Low: effect occurs that is detectable but is within normal variability of baseline conditions (for GHG emissions < 10^5) M Moderate: effect occurs that would cause an increase with regard to baseline but is within regulatory limits and objectives (for GHG emissions >10^5 <10^6) H High: effect occurs that would singly or as a substantial contribution in combination with other sources cause exceedances of objectives or standards beyond the Project boundaries (for GHG emissions > 10^6) N Negligible: no measurable adverse effect anticipated	***Geographic Extent:*** S Site: effect restricted to the PDA L Local: effect restricted to the LAA G Provincial, National and Global (GHG Emissions only) ***Duration:*** ST Short term: effect occurs for less than three years MT Medium term: effect occurs for between 3 and 20 years LT Long term: effect persists beyond 20 years	

(Table A-1: Key)

	Frequency: O Once: effect occurs once S Sporadic: effect occurs at sporadic intervals R Rarely: effect occurs on a regular basis and at regular intervals C Frequently: effect occurs continuously throughout the Project life ***Reversibility:*** R Reversible: effect ceases when Project operations cease I Irreversible: effect continues after Project operations cease	***Environmental Context:*** U Undisturbed: effect takes place within an area that is relatively or not adversely affected by human activity D Disturbed: effect takes place within an area with human activity. Area has been substantially previously disturbed by human development or human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-2: Summary of Project Residual Environmental Effects: Water Resources

Project Phase	Mitigation/Compensation Measures	
Change in Surface Water Resources		
Construction	● Erosion and sedimentation controls, and collection of active yard runoff for direction to the passive treatment system. ● Collection of all water pumped from the tunnels, with direction to the passive treatment system. ● Collection of active yard runoff for direction to the passive treatment system.	
Operation and Maintenance	● Truck wash system in the active yard. ● Collection (piles are lined) of precipitation infiltration through the coal piles and coal waste disposal piles, with direction to the active treatment system. ● Re-direction of a portion of the actively treated water, once the west coal waste disposal pile (Phase III) is constructed, in order to replace the volume of surface water flowing into Baileys Wetland.	
Decommissioning and Reclamation	● Capping of coal waste disposal piles to minimize volumes of water in contact with coal waste.	
Change in Groundwater Resources		
Construction	● None required.	
Operation and Maintenance	● Replacement of any domestic wells that are affected, *i.e.* caused by a drop in the groundwater level available.	
Decommissioning and Reclamation	● Placement of impermeable caps on the coal waste piles, to reduce or eliminate infiltration.	

(Table A-2)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	N	L	S	MT	R	R	D	N	• Continuation of existing monthly and semi-annual monitoring program.
	N	L	L	LT	C	R	D	N	• Continuation of existing monthly and semi-annual monitoring program.
	A	L	L	P	C	R	D	N	
	N	L	S	MT	S	R	D	N	• Continuation of existing monthly and semi-annual groundwater monitoring program.
	A	H	L	LT	C	R	D	N	• Continuation of existing monthly and semi-annual monitoring program. • Pre-disturbance well survey will be conducted to identify all domestic wells within the RAA that might be affected. • Installation of a shallow groundwater monitoring network between the west coal waste disposal pile, and monitoring prior to the installation of the pile, to provide pre-disturbance data. • Monitoring of the shallow groundwater network after disposal starts at the west coal waste disposal pile (Phase III), to determine whether there are any effects, particularly with respect to Baileys Wetland.
	N	L	L	P	C	R	D	N	• Monitoring of the shallow groundwater network after capping to confirm that conditions return to ‘background’.

Table A-2: Key—Water Resources

Direction: P Positive: condition is improving compared to baseline water quality and quantity A Adverse: negative change compared to baseline water quality and quantity N Neutral: no change compared to baseline water quality and quantity ***Magnitude:*** L Low: affecting the available quantity or quality of water resources in the shallow or deep aquifer, at levels that are indiscernible from natural variation M Moderate: limiting the available quantity or quality of water resources, such that these resources are occasionally rendered unusable to current users for periods up to two weeks at a time H High: limiting the available quantity and quality of water resources, such that these resources are rendered unusable or unavailable for current users during the life of the Project or for future generations beyond the life of the Project	***Geographic Extent:*** S Site: effects restricted to habitat within the PDA L Local: effects extend beyond Project footprint but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short term: measurable for less than one month MT Medium term: measurable for more than one month but less than two years LT Long term: measurable for the life of the Project P Permanent: effects are permanent	

(Table A-2: Key)

	Frequency: O Once: effect occurs once S Sporadic: effect occurs more than once at irregular intervals R Regular: effect occurs on a regular basis and at regular intervals C Continuous: effect occurs continuously ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project	***Environmental Context:*** U Undisturbed: effect takes place in an area that has not been adversely affected by human development D Disturbed: effect takes place in an area that has been previously adversely affected by human development or in an area where human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-3: Summary of Project Residual Environmental Effects: Birds and Wildlife

Project Phase	Mitigation/Compensation Measures	
Change in Wildlife Habitat		
Construction	● Establish a corridor of undisturbed habitat at least 150 m wide around the periphery of the Donkin Peninsula. ● The corridor for the coal conveyor will be as narrow as safely possible. ● Where possible, phase-in the development of coal waste disposal areas (avoid clearing large areas) and employ progressive reclamation. ● Avoid/Minimize damage to wetland habitat along the transmission line route. ● Establish a land-based setback of at least 300m from seabird and waterbird colonies, and a general 600m marine setback. (The 300m buffer will be reduced to approximately 200m at the westernmost boundary to accommodate the breakwater construction, provided that a seabird monitoring program is implemented and adaptive management measures are implemented in a timely manner if adverse effects are detected.) ● During all project phases, high-disturbance activities (e.g. drilling, blasting, cutting/ripping of the cliff face) will not occur within 1 km of bird colonies from April 1 until August 31. ● Site specific mitigation at Phase III coal waste disposal area developed in consultation with CWS and NSDNR if Canada Warbler, Olive-sided Flycatcher or other Species at Risk are confirmed breeding there. ● Development of alternatives and/or mitigation for the predicted loss and fragmentation of mature and interior forest habitat for migratory birds prior to final project design. ● Compliance with *the Migratory Birds Convention Act* and associated regulations (MBCA) and the *Species at Risk Act* (SARA) during all project phases. ● Marine travel taking place at steady speeds, moving parallel to shore, rather than approaching the seabird colony directly. ● Marine vessels not pursuing seabirds/waterbirds swimming on the water surface, and avoiding concentrations of birds on the water. ● No dumping of oil or waste overboard. ● Marine vessels and equipment, as well as vehicles and machinery on the barge load-out facility/breakwater avoiding any sharp or loud noises, not blowing horns and whistles, and maintaining engine noise levels. ● Oil spill contingency and response plans, including plans to keep birds away from oil and dealing with oiled birds. ● Protocols for dealing with seabird strandings on vessels as well as for strandings of other species groups. ● Mitigation for the predicted loss and fragmentation of mature and interior forest habitat for migratory birds. No construction-related, operational, or decommissioning activities taking place within 300 m of the 9 locations where avian species at risk were detected along (i.e. on or near) the transmission line RoW from May 1 until August 31.	

(Table A-3)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	A	M	L	LT	F	I	D	N	• Implementation of a seabird monitoring program that would detect any adverse effects to the seabird colony. Adaptive management measures will be implemented in a timely manner in the event of detection of adverse effects. • A post-EA bird monitoring program will be developed in consultation with CWS. Adaptive management measures will be implemented in a timely manner in the event of detection of adverse effects. • Monitoring of water quality at ponds and measures implemented to keep birds away from ponds if hydrocarbons or other substances harmful to birds are detected.

Table A-3: Summary of Project Residual Environmental Effects: Birds and Wildlife (cont'd)

Project Phase	Mitigation/Compensation Measures	
Operation and Maintenance	● Establish a corridor of undisturbed habitat at least 150 m wide around the periphery of the Donkin Peninsula. Site specific mitigation at Phase III coal waste disposal area developed in consultation with CWS and NSDNR if Canada Warbler, Olive-sided Flycatcher or other Species at Risk are confirmed breeding there. ● Development of alternatives and/or mitigation for the predicted loss and fragmentation of mature and interior forest habitat for migratory birds prior to final project design. ● Where possible, phase-in the development of coal waste disposal areas (avoid clearing large areas) and employ progressive reclamation. ● Avoid/Minimize damage to wetland habitat along the transmission line route. ● Vegetation maintenance on the transmission line RoW scheduled to avoid breeding season for most birds (May 1 to August 31). ● Establish a land-based setback of at least 300m from seabird and waterbird colonies, and a general 600m marine setback.(The 300m buffer will be reduced to approximately 200m at the westernmost boundary to accommodate the breakwater construction, provided that a seabird monitoring program is implemented and adaptive management measures are implemented in a timely manner if adverse effects are detected.) During all project phases, high-disturbance activities (e.g. drilling, blasting, cutting/ripping of the cliff face) will not occur within 1 km of bird colonies from April 1 until August 31. ● Compliance with *the Migratory Birds Convention Act* and associated regulations (MBCA) and the *Species at Risk Act* (SARA) during all project phases. ● Marine travel taking place at steady speeds, moving parallel to shore, rather than approaching the seabird colony directly. ● Marine vessels not pursuing seabirds/waterbirds swimming on the water surface, and avoiding concentrations of birds on the water. ● Marine vessels and equipment, as well as vehicles and machinery on the barge load-out facility/breakwater avoiding any sharp or loud noises, not blowing horns and whistles, and maintaining engine noise levels. ● No dumping of oil or waste overboard. ● Oil spill contingency and response plans, including plans to keep birds away from oil and dealing with oiled birds. ● Protocols for dealing with seabird strandings on vessels as well as for strandings of other species groups. ● No construction-related, operational, or decommissioning activities taking place within 300 m of the 9 locations where avian species at risk were detected along (i.e. on or near) the transmission line RoW from May 1 until August 31.	

(Table A-3)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
	A	M	L	LT	F	I	D	N	• Conduct breeding bird surveys in the Phase III waste coal disposal area. • Implementation of a seabird monitoring program that would detect any adverse effects to the seabird colony. Adaptive management measures will be implemented in a timely manner in the event of detection of adverse effects. • A post-EA bird monitoring program will be developed in consultation with CWS. Adaptive management measures will be implemented in a timely manner in the event of detection of adverse effects. • Monitoring of water quality at ponds and measures implemented to keep birds away from ponds if hydrocarbons or other substances harmful to birds are detected. • Water levels will be monitored and an adaptive management plan will be implemented if extreme water levels threaten to encroach on the northern side of the west waste disposal pile.

Table A-3: Summary of Project Residual Environmental Effects: Birds and Wildlife (cont'd)

Project Phase	Mitigation/Compensation Measures	
Decommissioning and Reclamation	● Maintain a corridor of undisturbed habitat at least 150 m wide around the periphery of the Donkin Peninsula. ● Maintain a land-based setback of at least 300m from seabird and waterbird colonies, and a general 600m marine setback. (The 300m buffer will be reduced to approximately 200m at the westernmost boundary to accommodate the breakwater construction, provided that a seabird monitoring program is implemented and adaptive management measures are implemented in a timely manner if adverse effects are detected.) ● Compliance with *the Migratory Birds Convention Act* and associated regulations (MBCA) and the *Species at Risk Act* (SARA) during all project phases. ● Marine travel taking place at steady speeds, moving parallel to shore, rather than approaching the seabird colony directly. ● Marine vessels not pursuing seabirds/waterbirds swimming on the water surface, and avoiding concentrations of birds on the water. ● No dumping of oil or waste overboard. ● Marine vessels and equipment, as well as vehicles and machinery on the barge load-out facility/breakwater avoiding any sharp or loud noises, not blowing horns and whistles, and maintaining engine noise levels. ● Oil spill contingency and response plans, including plans to keep birds away from oil and dealing with oiled birds. ● Mitigation for the predicted loss and fragmentation of mature and interior forest habitat for migratory birds. ● No construction-related, operational, or decommissioning activities taking place within 300 m of the 9 locations where avian species at risk were detected along (i.e. on or near) the transmission line RoW from May 1 until August 31. ● During all project phases, high-disturbance activities (e.g. drilling, blasting, cutting/ripping of the cliff face) will not occur within 1 km of bird colonies from April 1 until August 31. ● Site specific mitigation at Phase III coal waste disposal area developed in consultation with CWS and NSDNR if Canada Warbler, Olive-sided Flycatcher or other Species at Risk are confirmed breeding there. Avoid/Minimize damage to wetland habitat along the transmission line route. Consult CWS in a timely manner in advance of any proposed decommissioning activities that may affect buildings or structures used for nesting Barn Swallows, or other species of migratory birds.	

(Table A-3)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
	A	M	L	MT	O	R	D	N	• A post-EA bird monitoring program will be developed in consultation with CWS. Adaptive management measures will be implemented in a timely manner in the event of detection of adverse effects. • Monitoring of water quality at ponds and measures implemented to keep birds away from ponds if hydrocarbons or other substances harmful to birds are detected.

Table A-3: Summary of Project Residual Environmental Effects: Birds and Wildlife (cont'd)

Project Phase	Mitigation/Compensation Measures	
Change in Mortality Risk		
Construction	● Schedule clearing outside of the breeding season for most birds (May 1 to August 31). ● Establish setbacks around ground nesting species and any active nests and chick-rearing migratory birds. Consultation with CWS regarding timing and width of setbacks would be recommended. ● Store food waste in appropriate receptacles and train employees and contractors regarding wildlife encounters. ● Train workers to recognize potential ground nesting birds. ● Site lighting design to minimize light spill over and attraction to birds. ● During all project phases, high-disturbance activities (e.g. drilling, blasting, cutting/ripping of the cliff face) will not occur within 1 km of bird colonies from April 1 until August 31. Establish a land-based setback of at least 300m from seabird and waterbird colonies, and a general 600m marine setback. (The 300m buffer will be reduced to approximately 200m at the westernmost boundary to accommodate the breakwater construction, provided that a seabird monitoring program is implemented and adaptive management measures are implemented in a timely manner if adverse effects are detected.) ● Compliance with *the Migratory Birds Convention Act* and associated regulations (MBCA) and the *Species at Risk Act* (SARA) during all project phases. Marine travel taking place at steady speeds, moving parallel to shore, rather than approaching the seabird colony directly. Marine vessels not pursuing seabirds/waterbirds swimming on the water surface, and avoiding concentrations of birds on the water. No dumping of oil or waste overboard. Marine vessels and equipment, as well as vehicles and machinery on the barge load-out facility/breakwater avoiding any sharp or loud noises, not blowing horns and whistles, and maintaining engine noise levels. Oil spill contingency and response plans, including plans to keep birds away from oil and dealing with oiled birds. Protocols for dealing with seabird strandings on vessels as well as for strandings of other species groups. No construction-related, operational, or decommissioning activities taking place within 300 m of the 9 locations where avian species at risk were detected along (i.e. on or near) the transmission line RoW from May 1 until August 31. Contact CWS immediately in the event of strandings/collisions/injuries/mortalities of/to 10 or more migratory birds, or of/to an individual migratory bird species at risk.	

(Table A-3)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	A	L	S	MT	R	R	D	N	• A post-EA bird monitoring program will be developed in consultation with CWS. Adaptive management measures will be implemented in a timely manner in the event of detection of adverse effects. • Monitoring of water quality at ponds and measures implemented to keep birds away from ponds if hydrocarbons or other substances harmful to birds are detected.

Table A-3: Summary of Project Residual Environmental Effects: Birds and Wildlife (cont'd)

Project Phase	Mitigation/Compensation Measures	
Operation and Maintenance	● Schedule clearing outside of the breeding season for most birds (May 1 to August 31). ● Establish setbacks around ground nesting species and any active nests and chick-rearing migratory birds. Consultation with CWS regarding timing and width of setbacks would be recommended. ● Train workers to recognize potential ground nesting birds. ● Site lighting design to minimize light spill over and attraction to birds. ● Compliance with *the Migratory Birds Convention Act* and associated regulations (MBCA) and the *Species at Risk Act* (SARA) during all project phases. ● During all project phases, high-disturbance activities (e.g. drilling, blasting, cutting/ripping of the cliff face) will not occur within 1 km of bird colonies from April 1 until August 31. Establish a land-based setback of at least 300m from seabird and waterbird colonies, and a general 600m marine setback. (The 300m buffer will be reduced to approximately 200m at the westernmost boundary to accommodate the breakwater construction, provided that a seabird monitoring program is implemented and adaptive management measures are implemented in a timely manner if adverse effects are detected.) ● Marine travel taking place at steady speeds, moving parallel to shore, rather than approaching the seabird colony directly. ● Marine vessels not pursuing seabirds/waterbirds swimming on the water surface, and avoiding concentrations of birds on the water. ● No dumping of oil or waste overboard. ● Marine vessels and equipment, as well as vehicles and machinery on the barge load-out facility/breakwater avoiding any sharp or loud noises, not blowing horns and whistles, and maintaining engine noise levels. ● Oil spill contingency and response plans, including plans to keep birds away from oil and dealing with oiled birds. ● Protocols for dealing with seabird strandings on vessels as well as for strandings of other species groups. ● No construction-related, operational, or decommissioning activities taking place within 300 m of the 9 locations where avian species at risk were detected along (i.e. on or near) the transmission line RoW from May 1 until August 31. ● Contact CWS immediately in the event of strandings/collisions/injuries/mortalities of/to 10 or more migratory birds, or of/to an individual migratory bird species at risk. ● Store food waste in appropriate receptacles and train employees and contractors regarding wildlife encounters.	

(Table A-3)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
	A	M	L	LT	R	R	D	N	● Monitor structures where light attraction may occur to determine if any mortality events occur. ● A post-EA bird monitoring program will be developed in consultation with CWS. Adaptive management measures will be implemented in a timely manner in the event of detection of adverse effects. ● Monitoring of water quality at ponds and measures implemented to keep birds away from ponds if hydrocarbons or other substances harmful to birds are detected.

Table A-3: Summary of Project Residual Environmental Effects: Birds and Wildlife (cont'd)

Project Phase	Mitigation/Compensation Measures	
Decommissioning and Reclamation	● Minimize lag time between retirement of buildings or structures and their disassembly. ● Keep retired buildings closed to discourage colonization by wildlife. ● Disassemble buildings and structures outside of the breeding season for most birds (May 1 to August 31). Alternatively, inspect buildings or structures just before disassembly to ensure compliance with *Migratory Birds Convention Act*. Also contact relevant authorities prior to site decommissioning (e.g., CWS). ● Minimize lag time between completion of coal waste deposition and commencement of reclamation. ● Conduct reclamation activities likely to interfere with birds outside of the breeding season for most bird species (April 1 to August 15). Otherwise perform nest surveys and limit activities until nests are no longer occupied. ● During all project phases, high-disturbance activities (e.g. drilling, blasting, cutting/ripping of the cliff face) will not occur within 1 km of bird colonies from April 1st until August 31st. ● Compliance with *the Migratory Birds Convention Act* and associated regulations (MBCA) and the *Species at Risk Act* (SARA) during all project phases. ● Marine travel taking place at steady speeds, moving parallel to shore, rather than approaching the seabird colony directly. ● Marine vessels not pursuing seabirds/waterbirds swimming on the water surface, and avoiding concentrations of birds on the water. ● Marine vessels and equipment, as well as vehicles and machinery on the barge load-out facility/breakwater avoiding any sharp or loud noises, not blowing horns and whistles, and maintaining engine noise levels. ● No dumping of oil or waste overboard. Oil spill contingency and response plans, including plans to keep birds away from oil and dealing with oiled birds. ● Protocols for dealing with seabird strandings on vessels as well as for strandings of other species groups. ● Monitoring of water quality at ponds and measures implemented to keep birds away from ponds if hydrocarbons or other substances harmful to birds are detected. ● No construction-related, operational, or decommissioning activities taking place within 300 m of the 9 locations where avian species at risk were detected along (i.e. on or near) the transmission line RoW from May 1st until August 31st. ● Contact CWS immediately in the event of strandings/collisions/injuries/mortalities of/to 10 or more migratory birds, or of/to an individual migratory bird species at risk. ● Train workers to recognize potential ground nesting birds. ● Establish setbacks around ground nesting species and any active nests and chick-rearing migratory birds. Consultation with CWS regarding timing and width of setbacks would be recommended. ● Store food waste in appropriate receptacles and train employees and contractors regarding wildlife encounters. ● Site lighting design to minimize light spill over and attraction to birds. ● Consult CWS in a timely manner in advance of any proposed decommissioning activities that may affect buildings or structures used for nesting Barn Swallows, or other species of migratory birds.	

(Table A-3)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
	A	L	S	ST	O	R	D	N	• A post-EA bird monitoring program will be developed in consultation with CWS. Adaptive management measures will be implemented in a timely manner in the event of detection of adverse effects. • Water levels will be monitored and an adaptive management plan will be implemented if extreme water levels threaten to encroach on the northern side of the west waste disposal pile.

Table A-3: Key—Birds and Wildlife

Direction: P Positive: condition is improving compared to baseline habitat or population status N Neutral: no change compared to baseline habitat or population status A Adverse: negative change compared to baseline habitat or population status ***Magnitude:*** L Low: effect is detectable but only on a few individuals M Moderate: effect on many individuals H High: effect occurs at the population level N Negligible: no measurable adverse effects anticipated	***Geographic Extent:*** S Site: effects restricted to habitat within the PDA L Local: effects extend beyond Project footprint but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short term: measurable for less than one month MT Medium term: measurable for more than one month but less than two years LT Long term: measurable for the life of the Project	

(Table A-3: Key)

	Frequency: O Once: effect occurs once R Rarely: effect occurs monthly F Frequently: effect occurs daily ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project	***Environmental Context:*** U Undisturbed: effect takes place in an area that has not been adversely affected by human development D Disturbed: effect takes place in an area that has been previously adversely affected by human development or in an area where human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-4: Summary of Project Residual Environmental Effects: Wetlands

Project Phase	Mitigation/Compensation Measures	
Change in Wetland Area or Function		
Construction	• Compensation for loss of wetland habitat. • Avoid placing power poles within wetlands along transmission line, where possible. • Avoid operation of machinery in wetlands along transmission line, where possible. • Vegetation clearing to be performed outside the breeding bird season. • Implementation of erosion and sediment control procedures. • Adherence to "Environmental Protection Procedures for Transmission and Distribution Facilities" (NSPI 2012) during construction of the transmission line.	
Operation and Maintenance	• Maintenance of hydrological connectivity to Baileys Wetland through final selection of coal waste pile locations and/or construction of channels. • Treatment of wastewater from mine discharge and surface runoff. • Salt management procedures for site roadways. • Adherence to "Environmental Protection Procedures for Transmission and Distribution Facilities" (NSPI 2012) during maintenance of the transmission line.	
Decommissioning and Reclamation	• Implementation of the Mine Closure and Reclamation Plan. • Use of seed mixtures free of noxious weeds and use of native species (where available) during site reclamation.	

Table A-4: Key—Wetlands

Direction: P Positive: condition is improving compared to baseline habitat or ecosystem quality A Adverse: negative change compared to baseline habitat or ecosystem quality N Neutral: no change compared to baseline habitat or ecosystem quality ***Magnitude:*** L Low: <5% of wetland area within the LAA disturbed or indirectly influenced M Moderate: 5 - 20% of wetland area within the LAA disturbed or indirectly influenced H High: >20% of wetland area within the LAA disturbed or indirectly influenced N Negligible: no direct or indirect loss of wetland area or function	***Geographic Extent:*** S Site: effects restricted to habitat within the PDA L Local: effects extend beyond PDA but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short term: measurable for less than one month MT Medium term: measurable for more than one month but less than two years LT Long term: measurable for the life of the Project	

(Table A-4)

	Residual Environmental Effects Characteristics								
	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context	Significance	Recommended Follow-up and Monitoring
									See key at end of table
	A	M	L	LT	O	I	D	N	• Develop wetland compensation plan in consultation with NSE and NSDNR. • Field surveys to obtain more information on the functional attributes of wetlands which are likely to be disturbed by the Project (*e.g.*, Baileys Wetland), including plant and wildlife surveys • Monitoring to confirm the extent and location of direct effects to wetlands (*i.e.*, infilling) on the Donkin Peninsula for both site infrastructure and waste rock disposal. • Vegetation monitoring within wetlands of the Donkin Peninsula which have potential for indirect hydrological effects. • Communication with NSPI regarding occurrence of wetlands along the transmission line route. • Monitoring of wetland compensation project.
	A	H	L	LT	R	I/R	D	N	
	A	L	L	LT	O	I	D	N	

(Table A-4: Key)

	Frequency: O Once: effect occurs once R Rarely: effect occurs occasionally (*e.g.*, monthly) F Frequently: effect occurs regularly (*e.g.*, daily) ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project	***Environmental Context:*** U Undisturbed: effect takes place within an area that is relatively unaffected by human developments or disturbances D Disturbed: effect takes place within an area that has been substantially influenced by human developments and disturbances N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-5: Summary of Project Residual Environmental Effects: Rare Plants

Project Phase	Mitigation/Compensation Measures	
Change in Rare Species and Uncommon Communities		
Construction	• Avoidance of direct effects to habitats known to support rare plants on Donkin Peninsula (*i.e.*, coastal barrens). • Compensation for loss of wetland habitat. • Avoidance of rare plants along transmission line. • Implementation of erosion and sediment control procedures.	
Operation and Maintenance	• Maintenance of hydrological connectivity to Baileys Wetland through final selection of coal waste pile locations and/or construction of channels. • Treatment of wastewater from mine discharge and surface runoff. • Salt management procedures for site roadways. • Avoidance of disturbance to rare plants along transmission line during vegetation management.	
Decommissioning and Reclamation	• Use of seed mixtures free of noxious weeds and use of native species (where available) during site reclamation.	

Table A-5: Key—Rare Plants

Direction: P Improvement compared to baseline status N No change compared to baseline status A Negative change compared to baseline status ***Magnitude:*** L Low: alteration to vegetation within the LAA but no influence on the distribution and abundance of rare plant species or unique communities M Moderate: alteration to rare plant populations or the distribution of uncommon plant communities, but no loss of rare plant species or unique communities from the LAA H High: alterations that result in the loss of a rare plant species or uncommon community from the LAA	***Geographic Extent:*** S Site: effects restricted to habitat within the PDA L Local: effects extend beyond Project footprint but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short-term: measurable for less than one month MT Medium-term: measurable for more than one month but less than two years LT Long-term: measurable for the life of the Project	

(Table A-5)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	A	M	S	LT	O	I	D	N	• Rare plant and uncommon community surveys within Baileys Wetland and other wetlands which are proposed for direct effects by the Project (including directed surveys for southern twayblade). • Vegetation monitoring within wetlands which have potential for indirect hydrological effects. • Communication with NSPI regarding occurrence of rare plants along the transmission line route and recommend rare plant survey along the portion of the abandoned transmission RoW which has not yet been surveyed. • Compensation for loss of wetland habitat.
	A	M	S	LT	R	I/R	D	N	
	A	L	S	LT	O	I	D	N	

(Table A-5: Key)

	Frequency: O Once: effect occurs once R Rarely: effect occurs occasionally (*e.g.*, monthly) F Frequently: effect occurs regularly (*e.g.*, daily) ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project	***Environmental Context:*** U Undisturbed: : effect takes place within an area that is relatively unaffected by human developments or disturbances D Disturbed: effect takes place within an area that has been substantially influenced by human developments and disturbances ***Significance:*** S Significant N Not Significant

Table A-6: Summary of Project Residual Environmental Effects: Freshwater Fish and Fish Habitat

Project Phase	Mitigation/Compensation Measures	
Change in Fish Habitat		
Operation and Maintenance (Water treatment (including mine water and surface runoff))	• Avoidance of Streams 1 and A. • No unnecessary unauthorized activities within 30 m buffer around watercourses. • Sediment and erosion control planning. • Impermeable liner under waste rock disposal piles. • Water treatment system to capture and contain site and disposal pile runoff; system will avoid direct interaction with all natural watercourses. • Water treatment system will neutralize acid waters from operations. • HADD compensation.	
Operation and Maintenance (Coal waste disposal: stream in-filling and diversion)		
Operation and Maintenance (Coal waste rock disposal: all activities other than stream in-filling and diversion)		
Change in Fish Mortality Risk		
Operation and Maintenance (Water treatment (including mine water and surface runoff))	• Watercourse alterations will be completed in the dry. • Fish salvage will be completed within alteration areas. • Watercourse alterations will avoid spawning periods of sensitive freshwater fish groups (*i.e.*, salmonids) unless authorized. Water treatment system will neutralize acid waters from operations. • Sediment and erosion control plan will be implemented. • Dust-control measures will prevent liberation of waste rock disposal pile dust.	
Operation and Maintenance (Coal and waste rock disposal: stream in-filling and diversion)		
Operation and Maintenance (Coal and waste rock disposal: all activities other than stream in-filling and diversion)		

(Table A-6)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	A	L	S	LT	C	R	U	N	Schooner Pond LAA Watercourses: ● Benthic invertebrate monitoring program (quantitative including enumeration and identification of benthic macroinvertebrates). ● Fish habitat monitoring program (including *in situ* water quality and detailed physical habitat assessment). ● Water quality monitoring program (including TSS). HADD Compensation: ● Fish habitat monitoring program testing productivity within the HADD compensation project area against reference site(s).
	A	L	S	P	C	I	U	N	
	A	L	S	LT	O	R	U	N	
	A	L	S	LT	C	R	U	N	Schooner Pond LAA Watercourses: ● Fish community survey (qualitative, non-destructive; including *in situ* water quality). HADD Compensation: ● Fish community study (quantitative, non-destructive; including *in situ* water quality and reference site fish surveys)
	A	L	S	ST	O	R	U	N	
	A	L	S	LT	C	R	U	N	

Table A-6: Key—Freshwater Fish and Fish Habitat

Direction: P Positive: condition is improving compared to baseline habitat quality or population status A Adverse: negative change compared to baseline habitat quality or population status N Neutral: no change compared to baseline habitat quality or population status ***Magnitude:*** L Low: measurable effects to habitat function anticipated in low-sensitivity habitats and no measurable reduction in number of any fish species anticipated M Moderate: measurable effects to habitat function anticipated in moderately sensitive habitats or anticipated mortality risk to non-listed species H High: measurable effects to habitat function anticipated in highly sensitive habitat or habitat designated as important for listed species or anticipated mortality risk to listed species N Negligible: no measurable adverse effects anticipated	***Geographic Extent:*** S Site: effects restricted to habitat within the PDA L Local: effects extend beyond Project footprint but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short term: effects are measurable for days to a few months MT Medium term: effects are measurable for many months to two years LT Long term: effects are measurable for multiple years but are not permanent P Permanent: effects are permanent	

(Table A-6: Key)

	Frequency: O Once: effect occurs once S Sporadic: effect occurs more than once at irregular intervals R Regular: effect occur on a regular basis and at regular intervals C Continuous: effect occurs continuously ***Reversibility:*** R Reversible: effect will cease during or after the Project is complete I Irreversible: effect will persist after the life of the Project, even after habitat restoration and compensation works	***Environmental Context:*** U Undisturbed: effect takes place in an area that has not been adversely affected by human development D Disturbed: effect takes place in an area that has been previously adversely affected by human development or in an area where human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-7: Summary of Project Residual Environmental Effects: Marine Environment

Project Phase	Mitigation/Compensation Measures	
Change in Marine Habitat		
Construction	● Geotechnical/Engineering investigations for barge load-out facility construction methods to reduce the quantity of materials placed in the marine environment (*i.e.*, marine footprint). ● Authorization of HADD and fish habitat compensation project to offset the net loss of productive capacity due to the footprint of the barge load-out facility. ● Barges will have appropriate freeboard design and efficient material handling to reduce product losses to the environment (*i.e.*, no barge overloading, avoiding transiting in high sea states). ● Project vessels will comply with all applicable legislation, codes and standards of practice for shipping, including the *Ballast Water Control and Management Regulations* under the *Shipping Act* to reduce risk of introduction of marine invasive species. The contractor will be required to use fill material for the breakwater to be free of fines, debris and any substances that would be deleterious to the marine environment.	
Operation and Maintenance	● Vessels will travel at reduced speeds near the barge load-out facility, the transshipment facility and points between which will reduce underwater noise.	
Change in Mortality Risk		
Construction	● Geotechnical/Engineering investigations into barge load-out facility construction methods to reduce the quantity of materials placed in the marine environment (*i.e.*, marine footprint). ● The contractor will be required to use fill material for the breakwater to be free of fines, debris and any substances that would be deleterious to the marine environment. ● Compliance with stipulations in the *Fisheries Act* authorizations for HADD and Section 32 approval.	
Operation and Maintenance	● Vessels will travel at reduced speeds near the barge load-out facility, the transshipment facility and points between which will reduce potential for strikes on marine mammals and turtles.	

Table A-7: Key—Marine Environment

Direction: P Positive: condition is improving compared to baseline habitat quality or population status N Neutral: no change compared to baseline habitat quality or population status A Adverse: negative change compared to baseline habitat quality or population status ***Magnitude:*** L Low: measurable effects to habitat function anticipated in low-sensitivity habitats and no measurable reduction in number of any marine species anticipated M Moderate: measurable effects to habitat function anticipated in moderately sensitive habitats or anticipated mortality risk to non-listed species H High: measurable effects to habitat function anticipated in highly sensitive habitat or habitat designated as important for listed species or anticipated mortality risk to listed species	***Geographic Extent:*** S Site: effects restricted to habitat within the PDA L Local: effects extend beyond PDA but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short term: effects are measurable for days to a few months MT Medium term: effects are measurable for many months to two years LT Long term: effects are measurable for multiple years but are not permanent P Permanent: effects are permanent	

(Table A-7)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	A	L	L	P	O	R	U	N	• Marine Sediment Sampling Program to monitor sediment chemistry in the PDA during initial stages of operation. • Marine Benthic Habitat Program to monitor colonization by marine benthic organisms of subtidal marine infrastructure during initial stages of operation, including fish habitat compensation project.
	A	L	L	LT	R	R	D	N	
	A	M	S	ST	O	I	U	N	
	A	L	S	LT	R	I	D	N	

(Table A-7: Key)

	Frequency: O Once: effect occurs once S Sporadic: effect occurs more than once at irregular intervals R Regular: effect occurs on a regular basis and at regular intervals C Continuous: effect occurs continuously ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project, even after habitat restoration and compensation	***Environmental Context:*** U Undisturbed: effect takes place in an area that has not been adversely affected by human development D Disturbed: effect takes place in an area that has been previously adversely affected by human development or in an area where human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-8: Summary of Project Residual Environmental Effects: Commercial and Recreational Fisheries

Project Phase	Mitigation/Compensation Measures	
Change to Net Income of Local Commercial Fishers		
Construction Operation and Maintenance Decommissioning and Reclamation	• HADD Authorization and habitat compensation program. • Regulatory compliance for shipping operations including proper navigation markings. • Ongoing liaison with local fishers and Fisheries Advisory Group. • Compensation for loss and/or damage to fishing gear. • Reasonable accommodation for lost access.	

Table A-8: Key—Commercial and Recreational Fisheries

Direction: P Positive A Adverse ***Magnitude:*** L Low: 10% or less change in net income of commercial fishers operating within the LAA M Moderate: from 10-50% change in net income of commercial fishers operation within the LAA H High: greater than 50% change in net income of commercial fishers operating within the LAA N Negligible: no measurable adverse effects anticipated	***Geographic Extent:*** S Site: effects restricted to habitat within the PDA L Local: effects extend beyond PDA but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short term: effects are measurable for days to a few months MT Medium term: effects are measurable for many months to two years LT Long term: effects are measurable for multiple years but are not permanent P Permanent: effects will be permanent	

(Table A-8)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	A	L	L	MT	R	R	D	N	• Monitoring as required for habitat compensation plan. • The proponent will continue to liaise with local fishers and develop reasonable accommodation measures to mitigate gear damage / loss and loss of access.
	A	L	L	LT	R	R	D	N	
	A	L	L	MT/P	O	R	D	N	

(Table A-8: Key)

	Frequency: O Once: effect occurs once S Sporadic: effect occurs more than once at irregular intervals R Regular: effect occurs on a regular basis and at regular intervals C Continuous: effect occurs continuously ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project, even after habitat restoration and compensation works	***Environmental Context:*** U Undisturbed: effect takes place in an area that has not been adversely affected by human development D Disturbed: effect takes place in an area that has been previously adversely affected by human development or in an area where human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-9: Summary of Project Residual Environmental Effects: Land Use

Project Phase	Mitigation/Compensation Measures	
Change in Land Use		
Construction Operation and Maintenance Decommissioning and Reclamation	• Acoustic and dust mitigation measures. • Traffic mitigation such as road upgrades. • NSPI transmission line standards. • Develop terms for public access to peninsula based on consultation with recreation users. Signage and fencing and public communication as required to protect public safety. • Implementation of mine closure and reclamation plan.	

Table A-9: Key—Land Use

Direction: P Positive A Adverse ***Magnitude:*** L Low: specific group, residence or neighbourhood affected such that adjacent land use activities may be disrupted/enhanced for a short period of time M Moderate: part of a community affected such that adjacent land use activities will be disrupted/enhanced such that current activities cannot continue (or will be enhanced) for extended period of time longer than two years H High: community affected such that adjacent land use activities will be disrupted/enhanced such that current activities cannot continue(or will be enhanced) for extended periods of time longer than two years and are not compensated for	***Geographic Extent:*** S Site: effects restricted to within the PDA L Local: effects extend beyond the Project Development Area but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short term: effects are measurable for days to a few months MT Medium term: effects are measurable for many months to two years LT Long term: effects are measurable for multiple years but are not permanent P Permanent: effects are permanent	

(Table A-9)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
									See key at end of table
	A/P	M	L/R	MT	C	R	D	N	• No follow-up or monitoring proposed.
	A/P	M	L/R	LT	C	I	D	N	
	A/P	L	L	P	C	I	D	N	

(Table A-9: Key)

	Frequency: O Once: effect occurs once S Sporadic: effect occurs more than once at irregular intervals R Regular: effect occurs on a regular basis and at regular intervals C Continuous: effect occurs continuously ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project, even after habitat restoration and compensation works	***Environmental Context:*** U Undisturbed: effect takes place in an area that has not been adversely affected by human development D Disturbed**:** effect takes place in an area that has been previously adversely affected by human development or in an area where human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-10: Summary of Project Residual Environmental Effects: Current Use of Land and Resources for Traditional Purposes by the Mi'kmaq

Project Phase	Mitigation/Compensation Measures	
Change in Current Use of Land and Resources for Traditional Purposes by the Mi'kmaq		
Construction Operation and Maintenance Decommissioning and Reclamation	● The proponent will consider the traditional use activities and the interest the Mi'kmaq have in the project area during all project phases. ● As recommended in the previous MEKS for the Donkin underground exploration project, future operations of the Donkin coal mine will be brought to the Mi'kmaq leadership for discussion (MGS 2006). ● Mitigation and compensation measures associated with the following VECs will be implemented: ○ Birds and Wildlife; ○ Wetlands; ○ Rare Plants; ○ Freshwater Fish and Fish Habitat; ○ Marine Environment; ○ Commercial and Recreational Fisheries; ○ Land Use; and ○ Archaeological and Heritage Resources.	

Table A-10: Key—Current Use of Land and Resources for Traditional Purposes by the Mi'kmaq

Direction: P Positive: condition is improving compared to baseline status A Adverse: negative change compared to baseline status N Neutral: no change compared to baseline status ***Magnitude:*** N Negligible: no measurable adverse effects anticipated L Low: no net loss in the availability of or access to land and/or resources currently used for traditional purposes by the Mi'kmaq M Moderate: a nominal loss, or substantive loss that is compensated, in the availability of or access to land and/or resources currently used for traditional purposes by the Mi'kmaq H High: a non-compensated substantive and permanent loss in the availability of or access to land and/or resources currently used for traditional purposes by the Mi'kmaq	***Geographic Extent:*** S Site: effects restricted to within the PDA L Local: effects extend beyond Project footprint but remain within the LAA R Regional: effects extend into the RAA ***Duration:*** ST Short term: effects are measurable for days to a few months MT Medium term: effects are measurable for many months to two years LT Long term: effects are measurable for multiple years but not permanent P Permanent: effects are permanent	

(Table A-10)

	Residual Environmental Effects Characteristics							
	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context	Significance	Recommended Follow-up and Monitoring
									See key at end of table
	A	M	S/L	ST/ LT	O	R/P	U/D	N	• Recommended follow-up and monitoring associated with the following VECs will be implemented: ○ Birds and Wildlife (Table A-3); ○ Wetlands (Table A-4); ○ Rare Plants (Table A-5); ○ Freshwater Fish and Fish Habitat (Table A-6); ○ Marine Environment (Table A-7); ○ Commercial and Recreational Fisheries (Table A-8); and ○ Archaeological and Heritage Resources (Table A-11).
	A	M	S/L	LT	O/C	R	D	N	
	A	N	S	P	O	R	D	N	

(Table A-10: Key)

	Frequency: O Once: effect occurs once S Sporadic: effect occurs more than once at irregular intervals R Regular: effect occurs on a regular basis and at regular intervals C Continuous: effect occurs continuously ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project, even after habitat restoration and compensation works	***Environmental Context:*** U Undisturbed: effect takes place in an area that has not been adversely affected by human development D Disturbed: effect takes place in an area that has been previously adversely affected by human development or in an area where human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Table A-11: Summary of Project Residual Environmental Effects: Archaeological and Heritage Resources

Project Phase	Mitigation/Compensation Measures	
Changes to Archaeological and Heritage Resources		
Construction Operation and Maintenance Decommissioning and Reclamation	• ARIA of mine site LAA to confirm low archaeological potential. • ARIA of terrestrial barge load-out facility with the emphasis on CbBw-01 (McDonald Farm). • Archaeological Contingency Plan (including notification of relevant authorities).	

Table A-11: Key—Archaeological and Heritage Resources

Direction: P Positive A Adverse ***Magnitude:*** L Low: no measurable adverse effects anticipated M Moderate: mitigated disturbance to, or removal of, an archaeological or heritage resource H High: unmitigated disturbance to, or destruction of an archaeological or heritage resource considered to be of major importance N Negligible: no interaction anticipated	***Geographic Extent:*** S Site: effects restricted to area within the PDA L Local: effects extend beyond Project footprint but remain within the local assessment area (*e.g.*, 1-10 km^2) R Regional: effects extend into the regional assessment area (*e.g.*, 11-100 km^2) ***Duration:*** ST Short term: effects are measurable for days to a few months MT Medium term: effects are measurable for many months to two years LT Long term: effects are measurable for multiple years but are not permanent P Permanent: effects are permanent	

(Table A-11)

	Direction	Residual Environmental Effects Characteristics						Significance	Recommended Follow-up and Monitoring
		Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Environmental Context		
	See key at end of table								
	A/P	M	S	P	O	I	D	N	• New ARIAs to be conducted at mine site and CbBw-01 (McDonald Farm).
	A	N	S	ST	O	I	D	N	
	A	N	S	ST	O	I	D	N	

(Table A-11: Key)

	Frequency: O Once: effect occurs once S Sporadic: effect occurs more than once at irregular intervals R Regular: effect occurs on a regular basis and at regular intervals C Continuous: effects are continuous ***Reversibility:*** R Reversible: effects will cease during or after the Project is complete I Irreversible: effects will persist after the life of the Project	***Environmental Context:*** U Undisturbed: effect takes place in an area that has not been adversely affected by human development D Disturbed: effect takes place in an area that has been previously adversely affected by human development or in an area where human development is still present N/A Not Applicable ***Significance:*** S Significant N Not Significant

Appendix B: Summary of Proponent's Commitments

No.	Commitment	Project Phase | Timing
1	The proponent will ensure that Environmental Management Plans are prepared and adhered to. The following plans will be developed for the Project and will include commitments made in the EIS as well as measures stipulated by government as conditions of approval: ● Environmental Management Plan (EMP) ● Environmental Protection Plan (EPP) ● Solid Waste Management Plan (SWMP) ● Emergency Response and Contingency Plan ● Spill Prevention and Response Plan ● Habitat Compensation Plan – HADD for freshwater and marine habitat and a wetland compensation plan ● Environmental Monitoring Plan ● Mine Closure and Reclamation Plan ● Communications Plan - to be developed with the Mi'kmaq of Nova Scotia and approved by NSE.	All phases
	Atmospheric Resources	
2	Dust suppression program including Rain Bird-type system at open coal stockpiles.	C, O/M
3	Equipment maintenance program.	C, O/M
4	Enclosed conveyor and transfer points; dust hoods on radial stackers.	O/M
5	Misting sprays at outlet of raw and product coal conveyors.	O/M
6	Use of mufflers on all applicable equipment	C, O/M
7	Most construction activities (including construction of coal waste disposal sites during operation phase) limited to daytime.	C, O/M
8	Enclosure of all coal washing activities in CHPP building.	O/M
9	Adherence to equipment maintenance programs.	C, O/M
10	Maintaining a vegetation buffer between the Project and the nearest residents.	C, O/M
11	Covered trucks (if coal trucking required) and use of barges with movable covers or higher coamings around cargo to control dust and protect coal cargo.	O/M
12	Good management practices and sound operator training to reduce operator error and promote careful cargo loading.	O/M
13	Implementation of GHG Management Plan, including capture and oxidation of methane gas from mine.	O/M
14	Provision of detailed noise complaint procedure to HC during the industrial permitting stage.	P/D

Appendix B: Summary of Proponent's Commitments (cont'd)

No.	Commitment	Project Phase | Timing
	Water Resources	
15	Erosion and sedimentation controls, and collection of site runoff for direction to the passive treatment system.	C, O/M
16	Collection of all mine water pumped from the tunnels, with direction to the passive treatment system.	C, O/M
17	Truck wash system in the active yard.	C, O/M
18	Coal waste piles lined to collect precipitation infiltration with direction of flows to the active treatment system.	C, O/M
19	Re-direction of a portion of the actively treated water, once the Phase III coal waste disposal pile is constructed, in order to replace the volume of surface water flowing into Baileys Wetland. Watercourses in the footprint of at the Phase III coal waste disposal pile will be avoided where possible; flows will be redirected around the pile toward Baileys Wetland if avoidance is not possible.	C,O/M
20	Capping of coal waste disposal piles to minimize infiltration and runoff.	O/M, D/R
21	Replacement of domestic wells that are demonstrated (*e.g.*, from well surveys) as being affected by the Project (*i.e.,* caused by a drop in the groundwater level available).	C, O/M, D/R
	Birds and Wildlife	
22	Establish a corridor of undisturbed habitat at least 150 m wide around the periphery of the Donkin Peninsula.	C, O/M, D/R
23	The corridor for the coal conveyor should be as narrow as practical.	C, O/M
24	Avoid/minimize damage to wetland habitat along the transmission line route.	C, O/M, D/R
25	Establish a land-based setback of at least 300m from seabird and waterbird colonies, and a general 600m marine setback. (The 300m buffer will be reduced to approximately 200m at the westernmost boundary to accommodate the breakwater construction, provided that a seabird monitoring program is implemented and adaptive management measures are implemented in a timely manner if adverse effects are detected.)	C, O/M, D/R
26	During all project phases, high-disturbance activities (e.g. drilling, blasting, cutting/ripping of the cliff face) will not occur within 1 km of bird colonies from April 1 until August 31.	C, O/M, D/R
27	Site specific mitigation at Phase III coal waste disposal area developed in consultation with CWS and NSDNR if Canada Warbler or Olive-sided Flycatcher or other avian species at risk are confirmed breeding there.	C, O/M, D/R
28	Development of alternatives and/or mitigation for the predicted loss and fragmentation of mature and interior forest habitat for migratory birds prior to final project design.	P/D, D/R
29	Where possible, phase-in the development of coal waste disposal areas (avoid clearing large areas) and employ progressive reclamation.	C, O/M, D/R
30	Project activities (including clearing during construction, vegetation maintenance along the transmission line during operation, and decommissioning and reclamation initiatives) will be scheduled outside of the breeding period for most species (May 1 – August 31) to minimize potential impacts to migratory birds, including those SAR that have been recorded in the area.	C, O/M, D/R
31	Schedule clearing outside of the breeding season for most birds (May 1 to August 31)	C, O/M

Appendix B: Summary of Proponent's Commitments (cont'd)

No.	Commitment	Project Phase | Timing
32	Locations of species at risk will be provided to NSPI for their use during construction and maintenance activities.	C, O/M
33	Establish setbacks around ground nesting species and any active nests and chick-rearing migratory birds. Consultation with CWS regarding timing and width of setbacks would be recommended.	C, O/M, D/R
34	Store food waste in appropriate receptacles and train employees and contractors regarding wildlife encounters.	C, O/M, D/R
35	Site lighting design to minimize light spill over and attraction to birds.	C, O/M, D/R
36	Marine travel will take place at steady speeds, moving parallel to the shore, rather than approaching the seabird colony directly.	C, O/M, D/R
37	Marine vessels and equipment as well as vehicles and machinery on the barge load-out facility/breakwater will avoid any sharp or loud noises to the extent possible (including horns or whistles) and will maintain constant engine noise levels.	C, O/M, D/R
38	Marine vessels will not pursue seabirds/waterbirds swimming on the water surface, and avoid concentrations of birds on the water.	C, O/M, D/R
39	Garbage or other waste will not be dumped overboard.	C, O/M, D/R
40	Minimize lag time between retirement of buildings or structures and their disassembly; keep retired buildings closed to discourage colonization by wildlife.	D/R
41	Minimize lag time between completion of coal waste deposition and commencement of reclamation.	D/R
42	Consult CWS in a timely manner in advance of any proposed decommissioning activities that may affect buildings or structures used for nesting Barn Swallows, or other species of migratory birds.	D/R
43	Post-EA monitoring plan to include regular visits to areas with high potential for migrant night attraction during all types of weather.	C, O/M
44	Adopt the storm-petrels protocol to address stranded or injured seabirds and develop and implement a similar protocol for birds stranded or injured on land and for birds other than seabirds.	C, O/M, D/R
45	Compliance with the *Migratory Birds Convention Act* and associated regulations (MBCA) and the *Species at Risk Act* (SARA).	P/D, C, O/M, D/R
46	Monitoring of water quality at ponds and measures implemented to keep birds away from ponds if hydrocarbons or other substances harmful to birds are detected.	C, O/M, D/R
47	Oil spill contingency and response plans, including plans to keep birds away from oil and dealing with oiled birds.	C, O/M, D/R
48	No construction-related, operational, or decommissioning activities taking place within 300 m of the 9 locations where avian species at risk were detected along (i.e. on or near) the transmission line RoW from May 1st to August 31st	C, O/M, D/R
49	Adaptive management measures will be implemented in a timely manner in the event that post-EA monitoring program results in detection of adverse effects.	C, O/M, D/R
50	Disassemble buildings and structures outside of the breeding season for most birds (May 1 to August 31). Alternatively, inspect buildings or structures just before disassembly to ensure compliance with *Migratory Birds Convention Act*. Also contact relevant authorities prior to site decommissioning (e.g., CWS).	D/R

Appendix B: Summary of Proponent's Commitments (cont'd)

No.	Commitment	Project Phase | Timing
51	Conduct reclamation activities outside of the breeding season for most bird species (May 1 to August 31). Otherwise, perform nest surveys and limit activities until nests are no longer occupied.	D/R
52	Contact CWS immediately in the event of strandings/collisions/injuries/mortalities of/to 10 or more migratory birds, or of/to an individual migratory bird species at risk.	C, O/M, D/R
53	Train workers to recognize potential ground nesting birds	C, O/M, D/R
	Wetlands	
54	Compensation for loss of wetland habitat. Involvement of the Mi'kmaq of Nova Scotia in wetland compensation planning.	C, O/M
55	Avoid placing power poles within wetlands along transmission line, where possible.	C
56	Avoid operation of machinery in wetlands along transmission line, where possible.	C, O/M, D/R
57	Vegetation clearing to be performed outside the breeding bird season.	C, O/M, D/R
58	Implementation of erosion and sedimentation control plan to reduce siltation of wetlands.	C, O/M, D/R
59	Adherence to "Environmental Protection Procedures for Transmission and Distribution Facilities" (NSPI 2012) during construction and operation/maintenance of the transmission line.	C, O/M
60	Maintenance of hydrological connectivity to Baileys Wetland through final selection of Phase III coal waste pile location, avoidance of streams and redirection of flows to Baileys Wetland.	C, O/M, D/R
61	Treatment of wastewater from mine discharge and surface runoff.	C, O/M, D/R
62	Salt management procedures for site roadways.	C, O/M, D/R
63	Use of seed mixtures free of noxious weeds and use of native species (where available) during site reclamation.	D/R
	Rare Plants	
64	Avoidance of direct effects to habitats known to support rare plants on Donkin Peninsula (*i.e.,* coastal barrens).	C, O/M, D/R
65	Maintain a 150 m buffer along the coast in which no habitat alterations or mining activities will occur.	C, O/M, D/R
66	Compensation for loss of wetland habitat.	C, O/M, D/R
67	Avoidance of rare plants along transmission line.	C, O/M, D/R
68	Implementation of an erosion and sediment control plan to prevent siltation of wetlands.	C, O/M, D/R
69	Maintenance of hydrological connectivity to Baileys Wetland through final selection of Phase III coal waste pile location, avoidance of streams and redirection of flows to Baileys Wetland.	C, P/D, O/M, D/R
70	Treatment of wastewater from mine discharge and surface runoff.	C, O/M, D/R
71	Salt management procedures for site roadways.	C, O/M, D/R
72	Use of seed mixtures free of noxious weeds and use of native species (where available) during site reclamation.	D/R

Appendix B: Summary of Proponent's Commitments (cont'd)

No.	Commitment	Project Phase | Timing
73	Rare plant and uncommon vegetation community surveys within Baileys Wetland and other wetlands which are proposed for direct effects by the Project (including directed surveys for southern twayblade).	C, O/M
74	Communication with NSPI regarding occurrence of rare plants along the transmission line route.	C, O/M
	Freshwater Fish and Fish Habitat	
75	Avoidance of streams where possible during final siting of the Phase III coal waste pile.	C, O/M
76	No unnecessary activities within 30 m buffer from watercourses.	C, O/M
77	Implementation of sediment and erosion control plan to prevent siltation of watercourses.	C, O/M
78	Lining and capping of coal waste disposal piles.	C, O/M, D/R
79	Water treatment system to capture and contain site and coal waste disposal pile runoff; system will avoid direct interaction with all natural watercourses. Active water treatment system will neutralize acid waters from coal waste runoff.	C, P/D, O/M
80	Compliance with conditions of *Fisheries Act* authorization, including development and implementation of habitat compensation program.	C, O/M
81	Watercourse alterations will be completed in the dry.	C
82	Fish salvage will be completed within alteration areas.	C
83	Watercourse alterations will avoid spawning periods of sensitive freshwater fish groups (*i.e.*, salmonids) unless authorized.	C
84	Implementation of sediment and erosion control plan to prevent siltation of watercourses.	C, O/M
85	Dust-control measures to reduce particulate inputs to watercourses.	C, O/M
	Marine Environment	
86	Geotechnical/Engineering investigations for barge construction methods to reduce the quantity of materials placed in the marine environment (*i.e.*, marine footprint).	P/D, C
87	Barges will have appropriate freeboard design and efficient material handling to reduce product losses to the environment. (*i.e.*, no barge overloading, avoiding transiting in high sea states).	P/D
88	Project vessels will comply with all applicable legislation, codes and standards of practice for shipping, including the Ballast Water Control and Management Regulations under the *Shipping Act* to reduce risk of introduction of marine invasive species.	C, O/M
89	The contractor will be required to use fill material for the breakwater to be free of fines, debris and any substances that would be deleterious to the marine environment.	C
90	Vessels will travel at reduced speeds near the barge load-out facility, the transshipment facility and points between which will reduce underwater noise and potential for strikes on marine mammals and sea turtles.	C, O/M
91	Compliance with conditions of *Fisheries Act* authorization, including development and implementation of habitat compensation program.	C, O/M

Appendix B: Summary of Proponent's Commitments (cont'd)

No.	Commitment	Project Phase | Timing
	Commercial and Recreational Fisheries	
92	Compliance with conditions of *Fisheries Act* authorization, including development and implementation of habitat compensation program.	C, O/M
93	Regulatory compliance for shipping operations including proper navigation markings.	C,O/M
94	Ongoing liaison with Mi'kmaq and non-aboriginal fishers, including use of Fisheries Advisory Committee.	C,O/M
95	Compensation to fishers for loss of and/or damage to fishing gear.	C,O/M
96	Reasonable accommodation to fishers for loss of access to traditional fishing grounds.	C, O/M
	Land Use	
97	Acoustic and dust mitigation measures.	C, O/M
98	Recommended mitigation identified within the Traffic Impact Study for the Underground Exploration Phase (*e.g.*, road upgrades) remain valid for the current Project.	C, O/M
99	Adherence to NSPI transmission line standards.	C, O/M
100	Develop terms for public access to Donkin Peninsula based on consultation with recreation users. Signage and fencing and public communication as required to protect public safety.	P/D, C, O/M
	Current Use of Lands and Resources for Traditional Purposes by the Mi`kmaq of Nova Scotia	
101	As recommended in the 2012 Project-specific MEKS report, the proponent will consider the traditional use activities and the interest the Mi'kmaq have in the project area during all project phases.	C, O/M, D/R
	Archaeological and Heritage Resources	
102	Cessation of construction activities if archeological resources are discovered and contacting the provincial regulating agency and other relevant stakeholders.	C
	Effects of the Environment on the Project	
103	The materials specified for the Project will be in compliance with all applicable codes and will maintain structural integrity at the anticipated minimum and ambient temperatures in the region to prevent adverse effects of the environment on the Project.	C, O/M
104	The load-out facility and the transshipment site and related equipment will be fully weather proofed and designed for a full range of climatic conditions including severe rain, wind and waves.	P/D, C
105	Vessels operating in the area will follow the directions of the Canadian Coast Guard Marine Communications and Traffic Services during severe weather events.	O/M
106	The effects of sea ice on Project marine infrastructure will be assessed on a regular basis and maintenance and repairs will be implemented as needed.	O/M
107	Water levels will be monitored and an adaptive management plan will be implemented if extreme water levels threaten to encroach on the northern side of the west waste disposal pile.	C, O/M

Appendix B: Summary of Proponent's Commitments (cont'd)

No.	Commitment	Project Phase | Timing
	Accidents and Malfunctions	
108	Construction and operations equipment will be frequently inspected for possible fuel and hydraulic system leaks and leaks detected will be repaired immediately where possible.	C, O/M
109	Lubricants and other petroleum products will be stored according to provincial regulations, and waste oils will be disposed of in accordance with provincial regulations.	C, O/M
110	Any hazardous materials will be transported in compliance with the *Transportation of Dangerous Goods Act* and Regulations, and any requiring disposal will be disposed of at an approved facility.	C, O/M
111	Storage of all hazardous materials will comply with WHMIS requirements, and appropriate material safety data sheets will be located at the storage site.	C, O/M
112	Storage and use of explosives will be done in accordance with the federal *Explosives Act* and Regulations and the NS *Blasting Safety Regulations*, respectively.	C, O/M
113	Storage of hazardous materials will not occur within 30 m of watercourses or wetlands.	C, O/M
114	Permanent storage areas for containers or drums will be clearly marked, have appropriate secondary containment, and be located on an impermeable floor that slopes to a safe collection area.	C, O/M
115	Equipment refuelling and maintenance will be conducted at designated sites and not within 30 m of a watercourse or other areas known to be frequented by migratory birds.	C, O/M
116	The risk of coal spillage will also be reduced through standard operating procedures and training of Project staff involved in marine loading and transport which will emphasize the importance of preventing coal spills into the marine environment.	O/M
117	Housekeeping procedures will be implemented at the barge load-out facility and floating crane to continuously clean spilled coal and prevent its entry to the water.	O/M
118	With respect to a coal or coal waste spill on land, surface drainage and water treatment systems on site will serve to minimize risk of contaminated runoff to enter watercourses or wetlands.	C, O/M
119	Tugboats, inspected and certified as per regulations made pursuant to the CSA 2001, have anti-collision navigational systems and competent crews who are trained in operation of the vessels.	O/M
120	Tugs will operate at appropriate speeds to avoid marine mammal and sea turtle strikes.	O/M
121	Marine forecasts and conditions will be monitored regularly and operations will be suspended in the event of inclement weather.	C,O/M
122	For the mooring site, all chains and hardware will conform to API 2F (Atlantic Petroleum Institute Mooring Chain Specification).	C, O/M
123	A Terminal Operations Manual will be developed and provided to Transport Canada for review. The manual will provide for both ice monitoring and ice forecasting.	C, O/M
124	Comply with COLREGS 72 protocol for marine vessels. This protocol provides guidance for lights displayed by power-driven vessels under a variety of operating conditions including those proposed for this Project. Lights on tugs and barges will be as per regulations made pursuant to CSA 2001.	O/M

Appendix B: Summary of Proponent's Commitments (cont'd)

No.	Commitment	Project Phase | Timing
125	Standard safety procedures will be established for workers on the crane and coal barges including procedures for search and rescue, evacuation of injured personnel, and collision avoidance. Standard safety equipment such as flotation devices, signalling equipment and protective coverings will be carried as mandated along with a training program for the work force.	O/M
126	Offering information and training to local fishers and boaters to prevent incursions into the safety zones and potential collisions is also being considered by the Project.	O/M
127	Vessel operators will be certified and licensed to Transport Canada Marine Personnel Regulations and will be familiar with the current, tidal, weather, and vessel traffic patterns in the area.	O/M
128	The marine load-out facility and transshipment mooring will be constructed and operated in accordance with authorization conditions under the NWPA (*e.g.*, on nautical charts, hazard lighting).	P/D, C
129	During construction, operation and decommissioning of marine infrastructure, notices will be issued and any restrictions to navigation will be noted in the Notices to Mariners and/or Notices to Shipping.	C, O/M, D/R
130	There will be continued discussion with the commercial fishermen on construction and operation marine traffic and activities including use of a fisheries advisory group and development of a fisheries compensation policy.	C, O/M
131	To the extent practical, marine vessel routes will be established in consultation with local fishermen to minimize risk of interaction with established fishing locations.	C, O/M
132	At the load-out area the fuel storage tank will include a containment berm with a capacity of 110 percent of full tank capacity and comply with all other provisions of the Petroleum Management Regulations under the Nova Scotia *Environment Act*.	C, O/M
133	Fuel lines from the tank to the dock area will be above grade to allow for continuous inspection but will have protective barriers to prevent any damage from vehicles operating on the wharf.	C, O/M
134	Vessel fuelling will be conducted by trained competent staff following specific procedures for marine refuelling.	C, O/M
135	An Emergency Response and Contingency Plan will include spill response protocols to address concerns related to sensitive marine species including birds, as well as measures that would be taken to keep birds away from a spilled substance and for dealing with accidents where birds are oiled and/or sensitive habitats are contaminated. A copy of the plan will be provided to EC for review.	C, O/M
136	Spill response equipment will be kept on-site.	C, O/M
137	Coal trucks will be driven by trained and competent drivers who will use approved haul routes.	C, O/M
138	Improvements and upgrades to the road network along the haul route will be implemented to maintain an acceptable level of performance and safety.	C, O/M
139	The Project will work with the School Bus Conveyance officials to ensure that coal trucks do not operate on road sections at the same time as loaded school buses are using those road sections.	C, O/M
140	All highway laws will be obeyed, including seasonal weight restrictions, traffic signage and requirements for permit for any oversized loads.	C, O/M
141	The Project will work with CBRM and NSTIR to incorporate recommendations from NSTIR's Road Safety Improvement Report and the Donkin Mine Traffic Impact Study (AR&TM 2009), as appropriate. It is assumed that the necessary upgrades will be made by NSTIR and CBRM to accommodate the occasional coal truck traffic.	C, O/M

Appendix B: Summary of Proponent's Commitments (cont'd)

No.	Commitment	Project Phase | Timing
142	Follow-up and monitoring, as listed in Appendix C, will be carried out.	All phases
	Key P/D = Preconstruction/Design C = Construction O/M = Operation and Maintenance D/R = Decommissioning and Reclamation	

Appendix C: Follow-up and Monitoring

No.	VEC	Monitoring Commitment	Project Phase	Reporting to/ Shared with:
1	Atmospheric Resources	● Particulate monitoring program ● Sound pressure level monitoring program ● Annual monitoring of GHG emissions and reporting	Construction, operation and maintenance	HC, EC, NSE & KMKNO
2	Water Resources	● Continuation of existing surface and groundwater monitoring program ● Pre-disturbance well survey ● Monitoring of shallow groundwater network relative to Phase III coal waste disposal pile development and reclamation ● Water levels will be monitored and an adaptive management plan will be implemented if extreme water levels threaten to encroach on the northern side of the west waste disposal pile.	All phases	NSE & KMKNO
3	Birds and Wildlife	● Post-EA bird monitoring program developed in consultation with the CWS. Consultation and development of the monitoring program to take place in a timely manner. Adaptive management implemented in the event that adverse effects are detected. Elements of the monitoring program to include: ○ Monitoring of Northern Head seabird colony. ○ Breeding bird surveys to inform final design of Phase III coal waste disposal area ○ Monitoring of bird attraction to lights (e.g. Donkin Peninsula, barge load-out facility, trans-shipment facility, ships), and mortality monitoring and along the transmission line ○ Migration stopover studies ○ Monitoring of avian species at risk (e.g. along the transmission line), as per the requirements of Section 79 of SARA. ○ Monitoring of Whimbrel use of the coastal barrens ○ Monitoring of avian species at risk along the transmission line, as per the requirements of Section 79 of SARA ○ Communication with NSPI regarding occurrence of bird species of conservation concern along the transmission line route. ○ Monitoring of water quality at ponds and measures implemented to keep birds away from ponds if harmful substances are detected.	Construction, operation and maintenance	EC, NSDNR, NSE & KMKNO
4	Wetlands	● Wetland compensation plan and monitoring of compensation project ● Functional analyses (including plant and wildlife surveys) of wetlands affected by the Project (*e.g.,* Baileys Wetland) ● Vegetation monitoring within wetlands on Donkin Peninsula for indirect hydrological effects ● Communicate with NSPI regarding occurrence of wetlands along the transmission line route.	Preconstruction, design, construction, operation and maintenance	NSE, NSDNR, EC & KMKNO

Appendix C: Follow-up and Monitoring (cont'd)

No.	VEC	Monitoring Commitment	Project Phase	Reporting to/ Shared with:
5	Rare Plants	• Rare plant and uncommon community surveys within Baileys Wetland and other wetlands proposed for direct alteration • Vegetation monitoring within wetlands on Donkin Peninsula for indirect hydrological effects • Compensation for loss of wetland habitat • Communication with NSPI regarding occurrence of rare plants along the transmission line route.	Construction, operation and maintenance	NSE, NSDNR & KMKNO
6	Freshwater Fish and Fish Habitat	• Benthic invertebrate and fish habitat monitoring program • Fish community survey • Water quality monitoring program, including fish toxicity • Fish habitat compensation project and associated monitoring	Construction, operation, maintenance, decommissioning and reclamation	DFO, NSE & KMKNO
7	Marine Environment	• Marine sediment sampling • Marine benthic invertebrate and fish habitat monitoring to monitor recolonization • Marine fish habitat compensation plan and associated monitoring	Operation and maintenance	DFO & KMKNO
8	Commercial and Recreational Fisheries	• Monitoring as required for habitat compensation plan • Continue to liaise with local fishers and develop reasonable accommodation measures to mitigate demonstrated gear damage/loss and loss of access.	Construction, operation and maintenance	DFO & KMKNO
9	Archaeological and Heritage Resources	• New Archaeological Resource Impact Assessments (ARIAs) conducted at mine site and CbBW-01 (McDonald Farm)	Pre-construction and design	NS Department of Tourism, Culture and Heritage & KMKNO

Appendix D: Summary of Concerns Raised by the Mi'kmaq of Nova Scotia

Issue ID#	Subject	Comment	Summary of Proponent Response	Agency Response
1	Food-Social-Ceremonial Activities	• Concerned about the effect of the project on Food-Social-Ceremonial activities, especially ceremonial lobster fishing. Additional information on the FSC fishery was requested by KMKNO. All species are important, not just commercial species.	• XCDM is negotiating a benefits agreement for potential infringements and loss of traditional uses. • For eel fishing, there are several alternative eel fishing areas outside the Project area. It is expected that these resources can be readily accessed by the Mi'kmaq for traditional use elsewhere nearby. • Restrictions on land use will be addressed through implementation of mitigation measures in the Land Use VEC. • Mi'kmaq fishery representatives from relevant Mi'kmaq fishing associations will be engaged through ongoing fisheries liaison efforts to minimize any potential effects on ceremonial fishing in the Project area. • Addressed in Section 5.8 of the EIS: effects on Mi'kmaq fisheries will be reduced through implementation of mitigation measures in the Commercial and Recreational Fisheries VEC.	• Sections 5.2, 7.9, 7.11 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to the current use of lands and resources for traditional purposes by the Mi'kmaq as well as the commercial and recreational fisheries. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, including a benefits agreement, concludes that there will be no significant adverse environmental effect associated with this activity.
2	Commercial Aboriginal Fishery	• Concerned about the loss of part of fishing area, especially lobster and crab, due to breakwater construction and marine traffic to mooring site. • Requested to be involved in the development and implementation of the Fish Habitat Compensation Plan.	• Reasonable accommodation will be provided to Mi'kmaq fishers whose access to fishing areas is demonstrably affected by project infrastructure and activities. (Pg 5.392 of EIS). • Effects on Mi'kmaq fisheries will be reduced through implementation of mitigation measures in the Commercial and Recreational Fisheries VEC. Addressed on page 5.388 of the EIS. • Appendix G of the EIS outlines a Draft Conceptual Fish Habitat Compensation Plan. • The Mi'kmaq are encouraged to participate in refining and implementing the fish habitat compensation plan.	• Sections 5.2, 7.9, 7.11 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to the aboriginal fishery. • A fish habitat compensation plan is being developed to offset the impacts of the Project to fish habitat. Should the information on fish habitat impacts change during the detailed design phase of the project, the final fish habitat compensation plan may be revised. The Mi'kmaq will also be provided an opportunity to review the fish habitat compensation plan during the regulatory (permitting) phase of the Project prior to the issuance of a Fisheries Act authorization. Fisheries and Oceans Canada will engage further with the Mi'kmaq during the detailed design and regulatory phases of the Project as required.

Appendix D: Summary of Concerns Raised by the Mi'kmaq of Nova Scotia (cont'd)

Issue ID#	Subject	Comment	Summary of Proponent Response	Agency Response
				• The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.
3	Fishing Gear	• Concerned that gear damage may occur as a result of marine-related project activities. Increased vessel traffic during operations will create potential interference with fishing gear and navigation in the marine areas of the project.	• The proponent will provide reasonable accommodation to Mi'kmaq fishers whose access to traditional fishing areas is demonstrably affected by project infrastructure and activities. (Page 5.392 of EIS). • Ongoing consultation and with the Mi'kmaq fishing community and charting of Project vessel routes will serve to minimize effects on navigation and interference with fishing gear. XCDM will develop a compensation policy to address gear loss and/or damage attributable to project activities (Page 5.392 of EIS).	• Sections 5.2, 7.9 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to the commercial and recreational fisheries. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.
4	Archaeology	• Concerned that Project activities could potentially impact historical Mi'kmaq artifacts/sites. Recommend that archaeology be included in the terms and conditions of approval.	• XCDM has advised KMKNO of the approach taken for the archaeological review and invited comment. • Addressed in Section 5.11 of the EIS: mitigation measures proposed for the Archaeological and Heritage Resources VEC to minimize potential Project effects on sites or artefacts of archaeological or heritage importance to the Mi'kmaq. • New Archaeological Resource Impact Assessments (ARIAs) will be conducted at the mine site and CbBW-01 (McDonald Farm). An Archaeology Contingency Plan will be implemented including the notification of relevant authorities.	• Sections 5.2, 7.12 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to archaeological and heritage resources. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.

Appendix D: Summary of Concerns Raised by the Mi'kmaq of Nova Scotia (cont'd)

Issue ID#	Subject	Comment	Summary of Proponent Response	Agency Response
5	Medicinal Plants	• Concerned about the effects of the project on harvesting of medicinal plants. Project activities could limit access/destroy medicinal plants traditionally harvested by the Mi'kmaq thereby impacting their right to gather plants for food, social or ceremonial purposes.	• Addressed in Section 5.10 of the EIS: restrictions on land use will be addressed through implementation of mitigation measures in the Land Use VEC. As recommended in the MEKS, the proponent will consider the interest the Mi'kmaq have in the project area during all project phases.	• Sections 5.2, 7.10, 7.11 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to land use and the current use of lands and resources for traditional purposes by the Mi'kmaq. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.
6	Wetlands	• Concerned about the loss of wetlands. Request to avoid as many wetlands as possible during the construction of the project. • Requested a role in the development and implementation of the Wetland Habitat Compensation Plan.	• The proponent is committed to adopting a hierarchical process of avoidance, minimization of unavoidable impacts and compensation for residual impacts. • Appendix G of the EIS contains a Draft Conceptual Wetland Habitat Compensation Plan. • The proponent will consult with the Mi'kmaq during the development of the refined Wetland Habitat Compensation Plan.	• Sections 5.2, 7.5 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to wetlands. • Nova Scotia Environment committed to share information regarding wetland compensation options with the Mi'kmaq. • The Agency is satisfied that the proponent has considered this issue within the EIS and taking into account the identified mitigation measures concludes that there will be no significant adverse environmental effect associated with this activity.

Appendix D: Summary of Concerns Raised by the Mi'kmaq of Nova Scotia (cont'd)

Issue ID#	Subject	Comment	Summary of Proponent Response	Agency Response
7	Invasive Species	• Concerned about the introduction of invasive species through shipping (e.g., ballast water)	• Any dumping of ballast water is to be conducted in accordance with the *Ballast Water Control and Management Regulations* under the *Canadian Shipping Act, 2001,* which includes measures to protect against harmful aquatic organisms and pathogens. All vessels must comply with these regulations as part of normal operations. • To prevent the possible introduction of the invasive species from ballast water, all vessels going to the transshipment location will be required to follow internationally accepted standards and guidelines, and be subject to audits of the vessel's ballast water by Transport Canada.	• Sections 5.2, 7.8 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to the marine environment. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.
8	Water Quality	• Concerned about the impact of the management of tailings piles, wastewater treatment and water quality.	• Water pumped from the tunnels and active yard runoff will be collected and directed to the passive treatment system. The coal waste piles will be developed progressively and lined to collect precipitation infiltration with direction of flows to the active treatment system. Decommissioning will be similarly staged, with completed portions of coal waste disposal piles progressively capped to minimize infiltration and runoff.	• Sections 5.2, 7.3 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to water resources. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.
9	Coal Dust	• Concerned about the management of coal dust. Deposition of coal dust during operations could impact lobster.	• The use of enclosed conveyors, enclosed conveyor transfer points, misting sprays, "Rain Bird"-type dust suppression system, dust hoods and dust collection system at the transfer point from the overland conveyor to the barge stacker, will minimize the airborne dust emissions.	• Sections 5.2, 7.2 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to atmospheric resources. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.

Appendix D: Summary of Concerns Raised by the Mi'kmaq of Nova Scotia (cont'd)

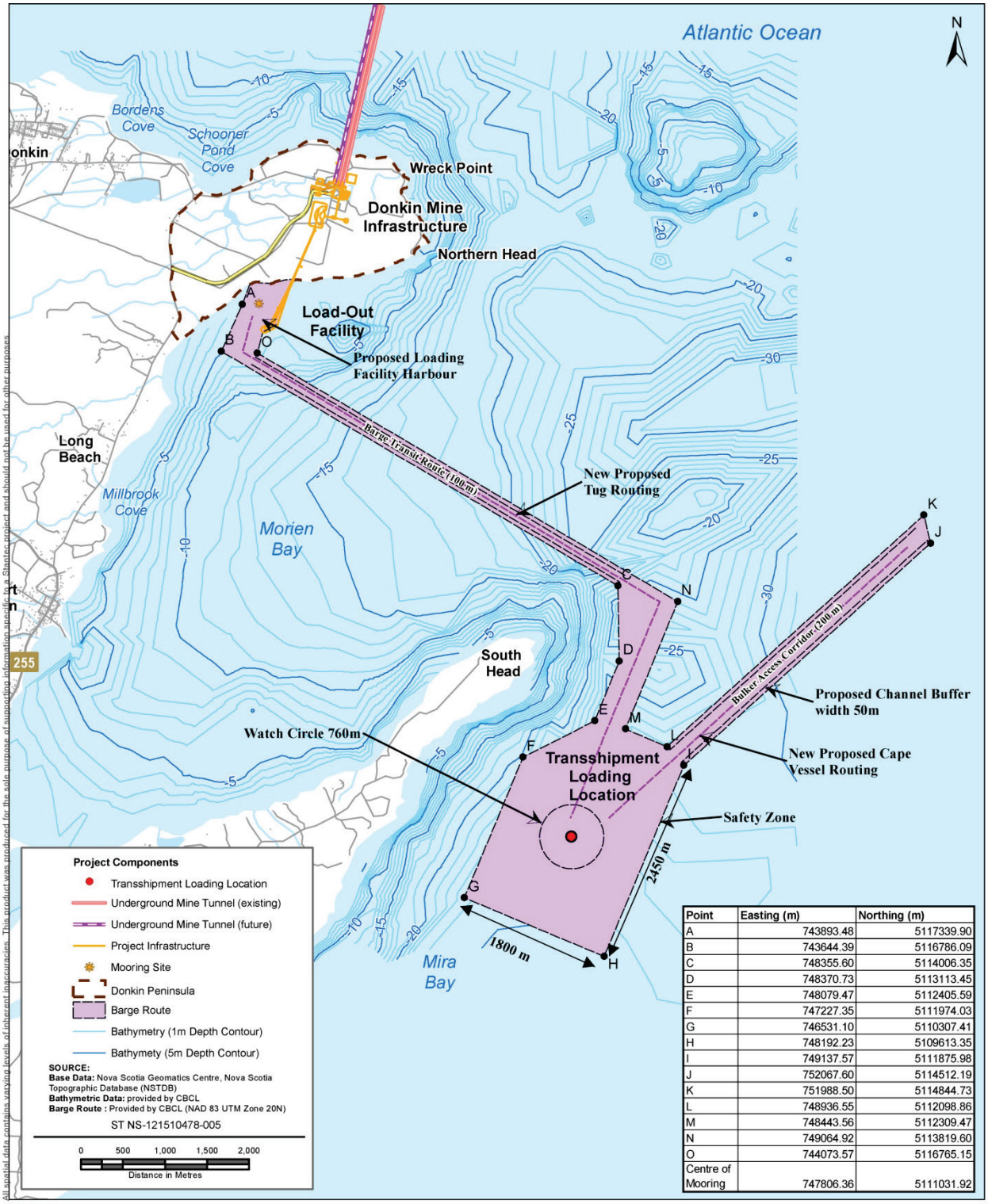
Issue ID#	Subject	Comment	Summary of Proponent Response	Agency Response
10	Methane	• Concerned about the management of methane from the mine.	• The proponent will implement a GHG Management Plan, including the capture and oxidation of methane gas from the mine. Addressed in Section 5.1 of the EIS.	• Sections 5.2, 7.2 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to atmospheric resources. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.
11	Noise	• Concerned about the noise generated by trucking.	• Ground transportation of coal off-site will only occur in exceptional circumstances and will be of short duration. Speed restrictions will be in place for all trucks and they will only be permitted to operate during daytime hours.	• Sections 5.2, 7.2 and Appendices A-C outline the potential effects, mitigation measures, environmental effects analysis, commitments and follow-up measures related to atmospheric resources, which includes changes in acoustic environment. • The Agency is satisfied that the proponent has considered this issue within the EIS and, taking into account the identified mitigation measures, concludes that there will be no significant adverse environmental effect associated with this activity.
12	Training, Employment, Procurement	• Interest in developing training, employment and procurement opportunities for First Nations people and firms as a result of the Project. •	• XCDM and the Mi'kmaq of NS have signed a MOU and are negotiating a benefits agreement.	• The Agency is satisfied that the proponent has considered this request and will address it as part of the benefits agreement.
13	Fishery Study	• Consideration should be given to involving the Unama'ki Institute of Natural Resources (UNIR) in the fisheries studies during the preparation of the EIS.	• The Commercial Fisheries Liaison Officer for the Unama'ki Institute of Natural Resources was contacted as a resource to provide information on Mi'kmaq commercial fisheries. This request was directed to the Consultation Liaison Officer for the KMKNO.	• The Agency is satisfied that the proponent offered to involve the UINR in the fisheries studies.

Appendix D: Summary of Concerns Raised by the Mi'kmaq of Nova Scotia (cont'd)

Issue ID#	Subject	Comment	Summary of Proponent Response	Agency Response
14	MEKS	• Requested an update to the original MEKS for the EIS.	• The original MEKS has been updated and is included in Appendix C of the EIS.	• The Agency is satisfied that the proponent has fulfilled this request.
15	Community Liaison Committee (CLC)	• Requested confirmation on whether the CLC includes Mi'kmaq participation.	• The Mi'kmaq of NS have been invited to participate on the CLC, and have indicated their intention to participate.	• The Agency is satisfied that the proponent extended an invitation to the Mi'kmaq of NS to participate on the CLC.

Appendix E: Proposed Setbacks for Seabird Colony

Appendix F: Proposed Shipping Route



Point	Easting (m)	Northing (m)
A	743893.48	5117339.90
B	743644.39	5116786.09
C	748355.60	5114006.35
D	748370.73	5113113.45
E	748079.47	5112405.59
F	747227.35	5111974.03
G	746531.10	5110307.41
H	748192.23	5109613.35
I	749137.57	5111875.98
J	752067.60	5114512.19
K	751988.50	5114844.73
L	748936.55	5112098.86
M	748443.56	5112309.47
N	749064.92	5113819.60
O	744073.57	5116765.15
Centre of Mooring	747806.36	5111031.92

PREPARED BY: M. Huskins-Shupe	Donkin Export Coking Coal Project	FIGURE NO.: 1.3.1
REVIEWED BY: C. Shupe	**Project Location - Concept Only**	DATE: Dec 17, 2012
CLIENT: xstrata coal		Stantec

File Path: V:\1215\active\121510xxx\121510478-Donkin Mine Enviro Assessment\geomatics\mapping\mxd\EA_Final\ST_NS_121510478-005_Project_Overview_with_Text_20121217.mxd