

## **7.0 PROPOSED ENVIRONMENTAL MONITORING AND FOLLOW-UP PROGRAMS**

### **7.1 INTRODUCTION**

Follow-up programs as defined in the Act, means a program for verifying the accuracy of the EA of a project, and determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the project.

An Environmental Compliance Monitoring (ECM) program is undertaken for a project to ensure that all applicable regulations, conditions of approval, and company specifications are met during Project implementation. EEM is used to assess the accuracy of any predictions made in the CSR concerning potential effects.

Most of the monitoring activities and mitigative measures to be employed for both the construction and operation of the various Project components will be guided by the regulatory/policy regimes of the Nova Scotia and Federal government requirements and the CSR Conditions of Approval. The NSEL EA approval conditions that are relevant to the CSR will also guide the monitoring activities and mitigative measures. The relevant NSEL EA approval conditions are included in the following sections and the Proponent's adherence to these conditions will ensure compliance with federal and provincial Acts and Regulations. The Proponent's monitoring programs will address concerns identified by the residents of the Goldboro area. A number of follow-up programs are proposed for defining objectives and content of specific monitoring work-plans.

Anticipated compliance and monitoring follow-up requirements were evaluated for potential environmental effects related to each of the proposed Project facilities. These include the: 1) LNG Terminal, marine transfer pipelines, LNG storage tanks, and the regasification facilities, 2) marginal wharf and, 3) structures and equipment connected with the marine shipment of goods associated with the LNG Terminal and marginal wharf.

### **7.2 LNG TERMINAL, MARINE TRANSFER PIPELINES, LNG STORAGE TANKS AND THE REGASIFICATION FACILITIES**

#### **7.2.1 Air Quality Monitoring**

It is anticipated that air emissions from the Project (including site preparation and construction) will not exceed the ambient air quality objectives and/or regulations. To confirm this, the Proponent will undertake the following monitoring programs.

##### **7.2.1.1 Construction**

As outlined in Item 1.10 in the NSEL EA approval conditions, baseline data will be collected for all relevant chemical parameters that are expected to enter the environment or be remobilized as a result of Project Activities. As outlined in Item 1.4 in the NSEL EA approval conditions, air dispersion modelling will be completed with onsite meteorological data and more detailed design data to further assess potential Project impacts.

Typically, in rural settings, air emissions, in particular dust, are not monitored during construction. If concerns are expressed on site related to occupational health and safety,

portable PM<sub>10</sub> monitors may be used for real time measurements of PM by field inspectors. If concerns are expressed regarding dust levels off-site, the Project may elect to employ high-volume samplers to determine particulate levels at specific receptors.

#### **7.2.1.2 Operations**

The LNG facility is expected to operate with minimal emissions to the atmosphere and thus continuous monitoring for this facility is not deemed to be necessary.

Although real-time monitoring of VOCs is not contemplated, Keltic intends to commission VOC monitoring (essentially 24 hour 'grab' sampling), both prior to and during operations, in order to assess the quantity and makeup of any VOCs at a number of points which will be determined as the specific design phase is completed. In addition, should odours be detected off-site, VOC monitoring will be undertaken to determine the source(s), and allow for appropriate mitigation measures.

Efforts will be made to coordinate with SOEI regarding existing monitoring equipment utilization and data resources. In accordance with Item 2.3 of the NSEL EA approval conditions, an air monitoring program will be developed and implemented. In accordance with Item 1.1, an Air Emissions Management Plan and a Greenhouse Gas Management Plan will also be implemented for the Project.

### **7.2.2 Noise and Light Monitoring**

#### **7.2.2.1 Construction**

Monitoring will be conducted if complaints arise as a result of construction activities or truck traffic through Goldboro and/or other communities during construction.

A traffic/vehicle management system will be implemented if traffic-related noise threshold levels are exceeded.

In accordance with the NSEL EA approval conditions, a Lighting Plan will be implemented. The Lighting Plan will be reviewed and approved by NSDNR, CWS, and TC. The Lighting Plan will incorporate a program to monitor birds.

Routine noise monitoring will be conducted at both the site boundaries and nearby sensitive receptors; the measured noise levels will be compared to the DNL levels outlined in the Health Canada Draft Guidance on Noise Assessment for CEAA Projects

#### **7.2.2.2 Operations**

The Proponent will initiate a noise monitoring program in accordance with Item 2.2 in the NSEL EA approval conditions. The monitoring program will consist of sampling noise levels over a 24-hour period following commissioning. Noise sampling will be conducted quarterly and the results evaluated on an annual basis. The percentage of highly annoyed will be evaluated as outlined in the Health Canada Draft Guidance on Noise Assessment for CEAA Projects. Noise levels at designated sensitive receptor sites will also be determined through monitoring and compared to the sound levels outlined in the Health Canada Draft Guidance on Noise

Assessment for CEAA Projects. Should noise levels be consistent over the first year, noise sampling would subsequently be conducted on a complaint basis or following process or equipment changes. This will include monitoring of vehicle movement, heavy equipment operations, emergency operations, and normal operating modes.

The Proponent will notify the public in advance of any potentially unusual noise-related events. The Proponent will provide a direct contact number for a responsible company official to residents and other interested stakeholders.

### **7.2.3 Surface Water Monitoring**

In accordance with Item 1.5 in the NSEL EA approval conditions, mitigation plans for environmental impacts due to contaminated mine tailings and/or soils and sediments from the Project Site will be implemented using risk and remediation management. The Remedial Action Plan and/or Risk Management Plan, which will include monitoring as required, will be approved prior to construction. The mitigation plans will also address degradation, reduction, or loss of water quality or quantity.

#### **7.2.3.1 Construction**

To meet the requirements of Item 2.4, in the NSEL EA approval conditions, an ESC Plan will also be developed and implemented. The Erosion and Sediment Control (ESC) Plan will include a monitoring program for site runoff and will be reviewed and approved by NSEL.

Baseline information will be collected for all relevant chemical and biological parameters expected to enter the environment due to Project activities. This information will be used to predict assimilative capacity of all receiving environments and assess potential effects and/or risks on marine biota. This will be done in accordance with Item 1.10, of the NSEL EA approval conditions (NSEL, 2007).

Surface water quality monitoring programs for the construction phase will be established in consultation with regulatory agencies and as part of the permitting process through the Conditions of Approval. Notwithstanding this, a proposed water quality monitoring plan (Table 7.2.1) is presented that describes the objectives and substance of monitoring.

With the exception of Betty's Cove Brook, it is anticipated that there will be no discharges into on-site or off-site watercourses. As a result, monitoring is not proposed for the unnamed tributary to Dung Cove. As Betty's Cove Brook may receive periodic discharges from the site during construction, it will be sampled at key stream locations for TSS during storm events and during sediment pond discharge or dewatering. It will also be monitored as part of the groundwater monitoring program on the plant site (see Section 7.2.5) because of the identified dynamic relationship between groundwater and surface water in the area.

As an additional tool for assessing the water quality impacts resulting from possible spills or other unforeseen effects of the Project operations, a benthic-invertebrate survey will be conducted at relevant locations in the Keltic Study Area. A monitoring program to determine the potential for and extent of sulphide bearing material will also be implemented with a plan to manage any exposed acid generating material and associated drainage. The sulphide

monitoring program and management plan will be developed in accordance with Item 2.8 of the NSEL EA approval conditions.

**7.2.3.2 Operations**

Surface water quality monitoring programs for the operation phase will be established in consultation with regulatory agencies and as part of the permitting process through the Conditions of Approval. Notwithstanding this, a proposed water quality monitoring plan (Table 7.2.1) is presented that describes the objectives and substance of the monitoring.

**TABLE 7.2-1 Proposed Surface Water Monitoring Program Elements**

Project		Proposed Monitoring Program Elements
Phase	Component	
Pre-Construction	Project Site	<ul style="list-style-type: none"> <li>• Qualitative/quantitative sampling of the benthic-invertebrate community at one station on Betty's Cove Brook (upstream and downstream of site).</li> <li>• One measurement of turbidity, and TSS within on-site watercourses under typical flow conditions.</li> <li>• Water samples for mercury levels annually from watercourses that flow through or near former tailings disposal areas.</li> <li>• Prepare a report on results and analyses of benthic invertebrate surveys (ephemeroptera/plecoptera/trichoptera index, taxon dominance, density, species diversity, Hilsenhoff biotic index, etc.).</li> </ul>
Construction	Project Site	<ul style="list-style-type: none"> <li>• Inspect, monitor erosion/sediment control measures at on-site watercourses throughout construction.</li> <li>• Periodically measure turbidity and TSS in on-site watercourses.</li> <li>• Water samples for mercury levels annually from watercourses that flow through or near former tailings disposal areas.</li> <li>• Annual qualitative/quantitative sampling of the benthic-invertebrate community at one station on Betty's Cove Brook (upstream and downstream of site).</li> <li>• Prepare annual reports on results of erosion-control and benthic-invertebrate surveys (ephemeroptera/plecoptera/trichoptera index, taxon dominance, density, species diversity, Hilsenhoff biotic index, etc.), compare with previous years.</li> </ul>
Operation and Maintenance	Project Site	<ul style="list-style-type: none"> <li>• Annual qualitative/quantitative sampling of the benthic-invertebrate community at one station on Betty's Brook, during post construction years 1, 2, 3, and 5, and every 5 years thereafter.</li> <li>• Water samples for mercury levels annually from watercourses that flow through or near former tailings disposal areas.</li> <li>• Prepare annual reports on survey results (ephemeroptera/plecoptera/trichoptera index, taxon dominance, density, species diversity, hilsenhoff biotic index, etc.), compare results with previous years.</li> </ul>

A monitoring program to determine the potential for and extent of sulphide bearing material will also be implemented with a plan to manage any exposed acid generating material and associated drainage. The sulphide monitoring program and management plan will be developed in accordance with Item 2.8 of the NSEL EA approval conditions.

In accordance with Item 1.5 in the NSEL EA approval conditions (NSEL, 2007), a plan to mitigate the human health and environmental impacts of the contaminated mine tailings and/or soils and sediments on the Project Site, via remediation or risk management will be developed and implemented. This plan will be consistent with the Nova Scotia Guidelines for the Management of Contaminated Sites. The Remedial Action Plan and/or Risk Management Plan will be approved by NSEL prior to commencement of construction. Upon completion of the remediation or risk management work, including any required monitoring, Keltic will submit a Certificate of Compliance to NSEL to demonstrate that the remediation work has been completed and/or the Risk Management Plan is effective (NSEL, 2007).

## **7.2.4 Water Supply Wells**

### **7.2.4.1 Plant Site Pre-construction, Construction, and Operation**

An inventory and water sampling of many wells within 1 km of the Project Site have already been completed. Prior to construction, the Proponent will expand on this earlier work by attempting to:

- interview all well owners not yet interviewed;
- review and document (including photos) well construction not yet inspected;
- collect water samples for general chemistry, metals and coliform analysis where sampling has not yet been done; and
- collect additional samples at wells previously sampled so as to identify possible seasonal or other temporal changes in water quality.

As construction work progresses on the plant site, follow-up well sampling will be done, as required, to adequately assess general groundwater and specific well water supply quality.

To meet the requirements of Item 2.4, in the NSEL EA approval conditions, an ESC plan will also be developed and implemented. The ESC Plan will include a monitoring program for site runoff and will be reviewed and approved by NSEL. A monitoring program to determine the potential for and extent of sulphide bearing material will also be implemented with a plan to manage any exposed acid generating material and associated drainage. The sulphide monitoring program and management plan will be developed in accordance with Item 2.8 of the NSEL EA approval conditions.

During plant operation, there will be regular monitoring of well water quality at key wells located near the plant site. The post construction report will identify these wells (selected on the basis of possible exposure to detrimental effects, if any, from plant operations, and on the basis of providing optimum scientific information), other possible future monitoring needs, and protocol for modifying the proposed monitoring program so as to continually optimize scientific data quality and resource utilization. Sampling at these wells will include analysis for general chemistry, metals, coliform, petroleum hydrocarbons, VOCs, and others as deemed necessary based on plant site operations and monitoring results.

#### **7.2.4.2 Contingency Monitoring and Resolution**

The above will form part of an overall water supply well contingency monitoring and resolution program. In accordance with Item 3.3 in the NSEL EA approval conditions, the contingency plan will address any well interference effects and/or well complaints. The Proponent will deliver an arbitration and resolution document to all owners of water supply wells located within 800 m of the proposed plant site boundaries. The Proponent is prepared to provide temporary water supply during construction should existing supplies be disrupted. Additionally, in the event that wells are adversely or permanently affected by plant-site preparation, construction, or plant operation the Proponent will repair or replace any affected wells.

#### **7.2.5 Groundwater at the Plant Site**

Since petroleum hydrocarbons other than LNG (i.e. diesel fuel for back up generators) and other chemicals are to be stored on the site, a groundwater monitoring program for the particular chemical(s) of concern will be implemented. The groundwater monitoring program will be in accordance with Item 2.6, of the NSEL EA approval conditions.

To meet the requirements of Item 2.4, in the NSEL EA approval conditions, an ESC Plan will also be developed and implemented. The ESC Plan will include a monitoring program for site runoff and will be reviewed and approved by NSEL. A monitoring program to determine the potential for and extent of sulphide bearing material will also be implemented with a plan to manage any exposed acid generating material and associated drainage. The sulphide monitoring program and management plan will be developed in accordance with Item 2.8 of the NSEL EA approval conditions.

The exact nature and location of on-site storage has not yet been determined, and thus detailed groundwater monitoring requirements have not been finalized, however samples for mercury will be taken initially for all groundwater samples for which Keltic can maintain proper security and control. Once the design of the plant site, facilities locations, and storage criteria have been completed, a groundwater monitoring well system will be designed and installed to expand upon the existing seven monitoring well stations installed on-site during spring 2005. Some of the wells will be installed before any site preparation or construction activities begin while others will be completed once the storage systems are in place.

The plant site groundwater monitoring system will be designed, constructed, and maintained in accordance with Conditions of Approvals, where applicable. The system will also be used to augment current baseline data, to monitor early site preparation and construction effects, and assist the Proponent and the neighbouring community for the duration of plant operation. The intent is to incorporate data collected from groundwater monitoring stations, in conjunction with other data which may become available on the abandoned mine workings, into groundwater models so as to allow for a more a comprehensive groundwater flow migration forecasting. This information would form part of the spill response and contingency plan.

The plant site monitoring system sampling schedule will include:

- a sufficient number of monitoring stations to provide full (both background or up-gradient and down gradient) on-site and nearby off-site coverage;
- multi-level and multi-well stations at key locations;

- proximal and distal monitoring capability for all fuel/chemical storage;
- timely response to any spill event; and
- four-season and longer temporal coverage.

This will include installations inside and at plant-site boundaries, outside plant-site boundaries (particularly in the east and south between the plant and Betty's Cove Brook, west between the plant site and the ocean, and north and northwest between the plant site and the community of Goldboro). Infill monitoring stations will be installed as suggested by early monitoring results and data collected.

In addition to the on-site and site-perimeter monitoring stations, groundwater monitoring stations will be installed at select locations within the community of Goldboro so as to allow uninhibited and unbiased collection of groundwater quantity and quality data (i.e. to simulate water supply wells).

It is expected that key monitoring stations will be assessed regularly for vapours that are relevant to storage and plant operations, and for water levels (data loggers). At others, groundwater levels will be measured and water samples collected regularly for general chemistry, metals, total petroleum hydrocarbons, and VOC analysis. A protocol will be established to enable the program to be modified to optimize the use of monitoring resources, scientific data quality, and knowledge of on site hydrogeological characteristics.

Where data suggests that there may be surface-water/groundwater interaction, select streams will be sampled for such parameters as general chemistry, metals, total petroleum hydrocarbons, VOC analysis, and mercury. This will serve to give a better insight on groundwater conditions and augment the surface water monitoring program described in Section 7.2.3.

#### **7.2.6 Flora, Fauna and Terrestrial Habitat Monitoring**

Keltic proposes to conduct terrestrial habitat monitoring upon completion of commissioning and during the first 3 to 5 years operation of the Project. The proposed Study Areas and detailed scope for each of the components will be developed prior to commissioning. Monitoring of illegal off-highway vehicle use will be conducted as part of routine operation and maintenance checks of the LNG pipeline. Prior to construction, a wetland functional analysis study will be conducted. Details of the Project impacts to wetlands will be evaluated further and plans for the avoidance, mitigation, and/or compensation will be developed in accordance with Item 1.2, NSEL EA approval conditions.

A terrestrial biological monitoring program will be established that includes the principal components described below. The findings will be documented on an annual basis and the scope of the program will be evaluated annually.

### **7.2.6.1 Bird Census**

As required by Item 1.6 in the NSEL EA approval conditions, a Lighting Plan will be implemented. The Lighting Plan will be submitted to NSDNR, CWS, and TC for review and approval. The Lighting Plan will include a program to monitor birds. A breeding bird census will be carried out that monitors birds along the shoreline and Stormont Bay, and in the on-site terrestrial habitats. Counts will be taken at least twice per year for all birds (late May-early June and late August-early September), and at least once more (first two weeks of November) for sea birds and waterfowl.

In addition, routine site monitoring (i.e. daily during peak migration in the first year of operation) will be done to maintain records of bird mortality noted on site to enable identification of potential issues related to lighting. Should it be determined that significant lighting related mortalities are occurring, then appropriate mitigative strategies will need to be identified.

### **7.2.6.2 Vegetation**

In accordance with the NSEL EA approval condition 2.7, a vegetation monitoring plan will be implemented. The plan will provide details on effects levels and the effectiveness of vegetation rehabilitation, where applicable. The vegetation monitoring plan will be conducted over a three-year period, at least twice per year in late May-early June and again in late August. Appropriate restorative plantings, if required, will be done shortly after these inspections.

As mentioned in Section 5.1.9.2, a baseline boreal felt lichen survey will be conducted prior to construction. The results of this survey will be used to provide additional information for finalizing site layout, design, and perhaps operation. Where applicable, post monitoring programs for this species will be developed in consultation with regulators and incorporated into the vegetation monitoring program described above.

### **7.2.6.3 Wildlife**

In accordance with the NSEL EA approval condition 2.7, a wildlife monitoring plan will be implemented. The plan will provide details on effects levels and the effectiveness of mitigation, where applicable. The monitoring plan to assess wildlife populations will be established, with surveys carried out at appropriate times of the year as shown in Table 7.2-2.

**TABLE 7.2-2 Proposed Survey Times for Wildlife Monitoring Program**

<b>Wildlife Species</b>	<b>Survey Times, Notes</b>
Amphibians	Early May
Reptiles	June-August
Small mammals	June-July (check especially meadow vole activity)
Fur bearers	Fall and Winter (check tracks and other signs, especially in Dung Cove Pond area)
Deer	Winter (check tracks in areas of previously known concentration)



Evidence of wildlife presence and activity, and vegetation condition requiring attention, will be monitored during the surveys. Routine noise monitoring will also be conducted at site boundaries as appropriate.

As a component of NSEL Condition 2.7, the Proponent is committed to prepare an Adaptive Management Plan (AMP), consisting of various elements acceptable to EC and NSDNR, as well as a spill response plan. To address concerns with potential impacts to foraging Roseate Terns in Stormont Bay, it is expected that the AMP will include coordination with multiple stakeholders to monitor and manage potential cumulative effects on the Roseate Tern.

### **7.2.7 Freshwater Species and Habitat Monitoring**

Prior to construction, a wetland functional analysis study will be conducted. Details of the Project impacts to wetlands will be evaluated further and plans for the avoidance, mitigation, and/or compensation will be developed in accordance with Item 1.2, NSEL EA approval conditions.

Although there are no freshwater bodies associated with the Project, there are brackish water bodies and programs for monitoring fish and fish habitat in these areas will be established as required. A number of programs are proposed in Table 7.2-3 for delineating the anticipated objectives and substance of the monitoring work plan. Monitoring required for water quality is covered in Section 7.2.3.

**TABLE 7.2-3 Proposed Fish and Fish Habitat Monitoring**

<b>Project</b>		<b>Monitoring Program Elements</b>
<b>Phase</b>	<b>Component</b>	
Pre-Construction	Project Site <sup>1</sup>	<ul style="list-style-type: none"> <li>• Survey fish communities in all on-site watercourses (Betty's Cove Brook and unnamed tributary to Dung Cove) by electrofishing and by trap netting in Dung Cove.</li> <li>• Collect and determine assimilative capacity assessment for all relevant chemical and biological parameters expected to enter the environment or be remobilized due to construction activities.</li> </ul>
Construction	Project Site	<ul style="list-style-type: none"> <li>• Inspect/monitor sediment/erosion control measures at each on-site watercourse.</li> <li>• Annual fish community surveys (electrofishing) in all on-site watercourses (Betty's Cove Brook and unnamed tributary to Dung Cove) and annual trap-net surveys in Dung Cove throughout construction period.</li> <li>• Annual description/photographs of aquatic and riparian habitat at established representative locations on all on-site watercourses and in Dung Cove.</li> <li>• Prepare annual reports to present results of the erosion-control monitoring and the annual fish surveys and compare results (species presence, composition, etc.) with previous years.</li> </ul>

Project		Monitoring Program Elements
Phase	Component	
Operation and Maintenance	Project Site	<ul style="list-style-type: none"> <li>• Fish-community surveys in all on-site watercourses and Dung Cove Pond for post-construction years 1, 2, 3 and 5, and every 5 years thereafter, if required.</li> <li>• Describe/photograph aquatic/riparian habitat at established representative locations on all on-site watercourses and in Dung Cove Pond for post-construction years 1, 2, 3 and 5, and every 5 years thereafter.</li> <li>• Prepare reports on results of the annual habitat and fish surveys, compare results (species presence, composition, etc.) to previous years.</li> </ul>

Notes: 1 – Completed as part of the baseline studies for this report.

### **7.2.8 Inshore Fisheries Monitoring**

Monitoring of inshore fishing activity is difficult because reporting of specific fishing locations is not required for most fisheries and individual catches are considered confidential by DFO. However, since lobster is the primary species caught in Stormont Bay, a monitoring catch-rate program will be implemented in conjunction with local fishers. Such a program will be important as part of a compensation program to provide independent and objective assessment of potential impacts on the fishery. A monitoring program will document catch in different parts of Stormont Bay during the commercial fishing season. It will involve placing an observer on local fishing vessels at three different times during the fishing season, with specific criteria for consistent setting of traps.

There are different approaches that can be used to design the monitoring program. A Potential Effects Analysis will be done to determine the potential factors that could influence fishing success. The difference in catch rates will be monitored when these factors are present or absent. However, in order for the proposed “monitoring catch rate program” to be effective for comparison purposes, the program will be implemented pre-construction to establish baseline information. Details of such a program will need to be developed in consultation with local fishers and DFO. For monitoring and follow-up for fish and fish habitat, see Section 7.2.7 and Section 7.2.9.

### **7.2.9 Marine Species and Habitat Monitoring**

Minor changes in sediment type and quality near proposed shoreline facilities are anticipated as a result of wave and current action. Changes in jetty and trestle design, however, may be required as part of the federal permitting process. Once design has been finalized, modeling will be carried out in more detail to assess potential changes in substrate and a monitoring program will be developed if required. To meet the requirements of Item 2.4, in the NSEL EA approval conditions, an ESC Plan will also be developed and implemented. The ESC Plan will include a monitoring program for site runoff and will be reviewed and approved by NSEL. Mitigation plans for environmental impacts due to contaminated mine tailings and/or soils and sediments from the Project Site will be implemented using risk and remediation management as outlined in Item 1.5 in the NSEL EA approval conditions. The Remedial Action Plan and/or Risk Management Plan will be approved prior to construction.

Baseline information will be collected for all relevant chemical and biological parameters expected to enter the environment due to Project activities. This information will be used to predict assimilative capacity of all receiving environments and assess potential effects and/or risks on marine biota. This will be done in accordance with Item 1.10, of the NSEL EA approval conditions (NSEL, 2007).

### **7.2.10 Archaeological Resource Monitoring**

An archaeology and heritage resources monitoring and contingency plan will be developed prior to construction in accordance with Item 4.6 in the NSEL EA approval conditions. The plan will be developed in consultation with Mi'kmaq stakeholders, African Nova Scotia Affairs, and the Nova Scotia Museum. Archaeological compliance and monitoring programs are regulated by the Nova Scotia Museum's manager of Special Places and subject to approval. In accordance to Item 4.5 in the NSEL EA approval conditions, a complete archaeological assessment of the entire KDP site will be submitted for review by NSEL. A number of recommendations have been made to minimize impact on significant archaeological resources and are summarized in Table 7.2-4.

**TABLE 7.2-4 Proposed Archaeological Compliance and Monitoring Programs**

<b>Archaeological Site or Resource</b>		<b>Proposed Compliance and/or Monitoring</b>
LNG and Plant Site	Red Head Cemetery	Community consultation and monitoring of ground disturbance.
	Sculpin Cove 1	Monitoring of shoreline erosion. Archaeological testing as follow-up if sites are threatened.
	Sculpin Cove 2	
	Sculpin Cove 3	
	Sculpin Cove 4	
	Sculpin Cove 5	
	Hurricane Island Mine	
	McMillan Mine	Monitoring of ground disturbance.
	Dung Cove	None currently.
	Giffin's Mill	
	Hattie's Belt	
	Giffin Lead	
	Skunk Den Mine Crusher	
	South Mulgrave Lead	Monitoring of ground disturbance.
	Buckley Farm	Follow-up investigation once brush is cleared.
	Random Mining Activity	None.

### **7.2.11 Pre Blast Survey**

The locations of buildings and wells situated within 800 m of the Project Site have been identified. The design and grading details of the Project Site are not yet available. However, upon defining these criteria, and thus blasting requirements, a pre-blast survey of all homes and all wells present within 800 m of the blast zone boundaries will be carried out following the NSEL guidelines for blasting at quarries. This type of survey will include:

- an inspection of all buildings located within the pre-blast survey areas by qualified persons; and

- a complete inventory and testing, as appropriate, of all wells to determine individual pre-blast well condition and nearby aquifer capacity.

Before any blasting begins, a copy of all pre-blast survey results, along with complete description of the arbitration and resolution methods to be used will be delivered to both building and well owners and NSEL.

Blasting programs will be reviewed by qualified engineers and/or geoscientists. Trained and qualified personnel using appropriate equipment will be deployed to the field to monitor air and ground vibrations during all blasting. Blasting programs will be modified according to monitoring results so as to avoid any impacts to nearby buildings and water supply wells. Copies of all monitoring results will be available for review by NSEL.

Should any nearby building or water supply well owner claim deleterious effects from blasting activities, then qualified individual follow-up assessments of buildings (cosmetic and structural inspections and comparison to pre-blast documentation) and wells (water quality testing and other hydrogeologic evaluations as needed) will be done. These assessments will evaluate damage and recommend mitigative and/or corrective measures.

#### **7.2.12 Community Involvement**

The Proponent has already established a liaison committee to help consult and inform communities in the area. The committee was elected at a public meeting on August 2, 2004, and is represented by individuals who have expressed an interest in the Project. There are 12 individuals on the committee who represent the seven communities of Goldboro, Isaac's Harbour, Drum Head, Coddles Harbour, Stormont, Country Harbour, and Seal Harbour. The Antigonish-Guysborough Black Development Association, the Municipality of the District of Guysborough, and the District of Saint Mary's are also represented.

The liaison committee meets regularly with the Proponent and will continue to be used as a sounding board for any issues (such as safety, environmental concerns, employment, etc.) that arise. The most recent meetings were held November 8, 2005, February 13, 2006, and March 27, 2006. In addition to the liaison committee, the Proponent will continue to liaise with the GCRDA and the Guysborough Journal as a means of communicating any information. The Proponent will also liaise actively with local emergency service providers, such as the RCMP, fire, and emergency health response.

In accordance with the NSEL EA approval and conditions, the following plans will be developed for community involvement: Local Economic Community Benefits Plan, Community Liaison Committee Plan, and Mi'kmaq Communication Plan. As outlined in the NSEL EA approval conditions, Keltic will take steps to further assess traditional Mi'kmaq use of the Project Site lands. These steps will be developed in cooperation with the Mi'kmaq Community and will be submitted to NSEL for review. A Public Reporting and Communication Protocol will also be developed and provided to NSEL for review. The Public Reporting and Communication Protocol will be developed as requested by Item 2.9 in the NSEL EA approval conditions.

Prior to construction, as outlined in the NSEL EA approval conditions, a Cultural Heritage Plan will also be developed to ensure the Project development and operations proceed in a manner

that respects the cultural heritage value of the Red Head Cemetery site to the community, and that public access to the site is maintained (NSEL, 2007).

### **7.2.13 Other Monitoring Plans**

Other monitoring requirements may be identified as part of the terms of the CSR approval and permitting processes.

### **7.2.14 Environmental Protection Plans (EPPs)**

EPPs and emergency response plans for the construction and operation phases of the Project will be completed after CSR approval and prior to construction and will form part of the overall EMP for the Project. These plans will be submitted to NSEL for approval, which will involve circulation also to EC, DFO and other regulatory agencies as required. A draft scoping document for the EMP is provided in Appendix 1.

The EPP for the construction phase will require all contractors to work in compliance with the EPP. Key provisions of the EPP will include but will not necessarily be limited to such topics as:

- roles, responsibilities and accountabilities for EPP implementation;
- temporary storm-water management and dewatering;
- Erosion Control Plan;
- fuels and lubricant storage;
- material storage;
- spill prevention;
- emergency response (spill containment and clean up protocols and equipment);
- maintenance of machinery;
- housekeeping protocols;
- construction waste management;
- dust management;
- encounter of finds of potential archaeological interest;
- encounter of contaminated soils;
- site access and construction traffic routing;
- construction site security;
- tree protection;
- environmental supervision and inspection;
- health and Safety standards and protocols;
- community Action Plan; and
- reporting.

A response and follow up procedure will be developed should there be complaints.

The EPP is expected to contain general and specific mitigation measures for Project construction and operation, including measures specified in this document and applicable approval conditions. For example, the EPP will combine generic protection measures applicable to general industrial site preparation and construction projects, with environmental protection measures specific to this Project (i.e., use and maintenance of silt curtains, fuel handling protocol, etc.). In particular, areas of special environmental consideration (i.e., surveys and testing where there may be acid drainage potential, other areas requiring additional information) will be identified with specific protection measures included as appropriate.

The EPP will also contain requirements for the contractor to complete a work progression schedule for approval by the Project Engineer. Monitoring requirements, including, but not limited to, those noted above, will also be included. As part of the EPP, the design of the road and structures which make up the site preparation and structures at the plant site will be carried out such that contractors have clear direction for environmental controls made available to them both on the contract drawings and in Project specifications. These measures may include those described in the CSR; conditions of release from the assessment process; and other regulatory requirements and best management practices.

Similar to the EPP for the construction phase, an EPP will be developed for plant operation. The overall objective of the EPP is to ensure the plant operates in compliance with regulatory standards and permits issued by the Ministry of the Environment. Its content is briefly described here as it applies to most of the discussions of effects and mitigation measures.

The EPP will become an integral part of the plant operation manuals and protocols and will be subject to periodic reviews and updating. Plant personnel will be trained on the provisions of the EPP and will be responsible for its implementation. Key provisions will include but will not necessarily be limited to such topics as:

- responsibilities;
- environmental procedures;
- emission control systems;
- water discharges;
- waste management;
- chemical management;
- shut down policies;
- inspections;
- spill prevention;
- monitoring and reporting;
- icing and fogging;
- equipment;
- preventative maintenance;

- corrective maintenance;
- health and safety;
- policies;
- standards and protocols;
- requirements for contractors and suppliers;
- incident reporting;
- Emergency Preparedness and Response Plan;
- responsibilities;
- spill containment and clean up procedures and equipment;
- notification, training, drills;
- management of Environmental Program;
- training;
- documentation and record keeping;
- reporting;
- continuous improvement;
- management review; and
- community liaison and complaint procedure.

#### **7.2.15 Waste Management Plan**

A Waste Management Plan will be designed to meet the objectives of the Proponent's purpose, vision, and values. It will provide the basis for sound waste management practices that will focus on reduction, reuse, and recycling. The plan will cover all aspects of waste generation, storage, handling, shipping, and reporting. The plan will apply to the construction and operation phases of the Project and to all subcontractors.

#### **7.2.16 Contingency Plan**

In accordance with Item 3.2 in the NSEL EA approval conditions, a Contingency Plan will be developed in accordance with NSEL's Contingency Planning Guidelines that addresses;

- fires or other emergencies; and
- discharge, emissions, escapes, leaks or spills of dangerous goods or waste dangerous goods.

The plan will be developed in consultation with local fire and emergency service providers and will demonstrate compliance with Federal and Provincial regulatory requirements (NSEL, 2007).

## **7.3 MARGINAL WHARF**

### **7.3.1 Air Quality Monitoring**

It is anticipated that air emissions from the Project (including site preparation, construction, and shipping/receiving) will not exceed the ambient air quality objectives and/or regulations. To confirm this, the Proponent will undertake the following monitoring programs.

#### **7.3.1.1 Construction**

As outlined in Item 1.10 in the NSEL EA approval conditions, baseline data will be collected for all relevant chemical parameters that are expected to enter the environment or be remobilized as a result of Project Activities. As outlined in Item 1.4 in the NSEL EA approval conditions, air dispersion modelling will be completed with onsite meteorological data and more detailed design data to further assess potential Project impacts.

Typically, in rural settings, air emissions, in particular dust, are not monitored during construction. If concerns are expressed on site related to occupational health and safety, portable PM<sub>10</sub> monitors may be used for real time measurements of PM by field inspectors. If concerns are expressed regarding dust levels off-site, the Project may elect to employ high-volume samplers to determine particulate levels at specific receptors.

#### **7.3.1.2 Operations**

Although real-time monitoring of VOCs is not contemplated, Keltic will commission VOC monitoring (essentially 24 hour 'grab' sampling), both prior to and during operations, in order to assess the quantity and makeup of any VOCs at a number of points which will be determined as the specific design phase is completed. In addition, should odours be detected off-site, VOC monitoring will be undertaken to determine the source(s), and allow for appropriate mitigation measures. In accordance with Item 2.3 of the NSEL EA approval conditions, an air monitoring program will be developed and implemented.

Efforts will be made to coordinate with SOEI regarding existing monitoring equipment utilization and data resources.

### **7.3.2 Noise and Light Monitoring**

Monitoring will be conducted if complaints arise as a result of construction or operation activities associated with the marginal wharf.

#### **7.3.2.1 Construction**

Monitoring will be conducted if complaints arise as a result of construction activities or truck traffic through Goldboro and/or other communities during construction.

A traffic/vehicle management system will be implemented if traffic-related noise threshold levels are exceeded.



The Proponent will notify the public in advance of any potentially unusual noise-related events. The Proponent will provide a direct contact number for a responsible company official to residents and other interested stakeholders.

In accordance with the NSEL EA approval condition 1.6, a Lighting Plan will be implemented. The Lighting Plan will be reviewed and approved by NSDNR, CWS, and TC. A program to monitor birds will be included in the Lighting Plan.

### **7.3.2.2 Operations**

The Proponent will initiate a noise monitoring program in accordance with Item 2.2 in the NSEL EA approval conditions. The monitoring program will consist of sampling noise levels over a 24-hour period following commissioning. Noise sampling will be conducted quarterly and the results evaluated on an annual basis. Should noise levels be consistent over the first year, noise sampling would subsequently be conducted on a complaint basis or following process or equipment changes. This will include monitoring of vehicle movement, heavy equipment operations, emergency operations, and normal operating modes.

The Proponent will notify the public in advance of any potentially unusual noise-related events. The Proponent will provide a direct contact number for a responsible company official to residents and other interested stakeholders.

In accordance with the NSEL EA approval condition 1.6, a Lighting Plan will be implemented. The Lighting Plan will be reviewed and approved by NSDNR, CWS, and TC. The Lighting Plan will incorporate a program to monitor birds.

### **7.3.3 Surface Water Monitoring**

In accordance with Item 1.5 in the NSEL EA approval conditions, mitigation plans for environmental impacts due to contaminated mine tailings and/or soils and sediments from the Project Site will be implemented using risk and remediation management. The Remedial Action Plan and/or Risk Management Plan, which will include monitoring as required, will be approved prior to construction. The mitigation plans will also address degradation, reduction, or loss of water quality or quantity.

To meet the requirements of Item 2.4, in the NSEL EA approval conditions, an ESC Plan will also be developed and implemented. The ESC Plan will include a monitoring program for site runoff and will be reviewed and approved by NSEL.

Baseline information will be collected for all relevant chemical, and biological parameters as well as any potential thermal plume expected to enter the environment due to Project activities. This information will be used to predict assimilative capacity of all receiving environments and assess potential effects and/or risks on marine biota. This will be done in accordance with Item 1.10, of the NSEL EA approval conditions (NSEL, 2007).

Surface water quality monitoring programs will be established in consultation with regulatory agencies in accordance with Item 2.5 in the NSEL EA approval conditions (NSEL, 2007) and as part of the permitting process through the Conditions of Approval. Notwithstanding this, a

proposed water quality monitoring plan is presented for the purpose of describing the objectives and substance of monitoring.

With the exception of Betty's Cove Brook, it is anticipated that there will be no discharges into on-site or off-site watercourses. As a result, monitoring is not proposed for the unnamed tributary to Dung Cove. As Betty's Cove Brook may receive periodic discharges from the site during construction, it will be sampled at key stream locations for TSS during storm events and during sediment pond discharge or dewatering. It will also be monitored as part of the groundwater monitoring program on the plant site (see Section 7.2.5) because of the identified dynamic relationship between groundwater and surface water in the area.

As an additional tool for assessing the water quality impacts resulting from possible spills or other unforeseen effects of the Project operations, a benthic-invertebrate survey will be conducted at relevant locations in the Keltic Study Area. A monitoring program to determine the potential for and extent of sulphide bearing material will also be implemented with a plan to manage any exposed acid generating material and associated drainage. The sulphide monitoring program and management plan will be developed in accordance with Item 2.8 of the NSEL EA approval conditions.

These and other proposed water quality monitoring programs are presented in Table 7.3-1.

#### **7.3.4 Groundwater Monitoring**

A groundwater monitoring program will not be implemented at the marginal wharf. However, groundwater monitoring will be conducted at the Plant site. For details, please see Section 7.2.5.

#### **7.3.5 Flora, Fauna and Terrestrial Habitat Monitoring**

Keltic proposes to conduct terrestrial habitat monitoring upon completion of commissioning and during the first 3 to 5 years operation of the Project. The proposed Study Areas and detailed scope for each of the components will be developed prior to commissioning. Prior to construction, a wetland functional analysis study will be conducted. Details of the Project impacts to wetlands will be evaluated further and plans for the avoidance, mitigation, and/or compensation will be developed in accordance with Item 1.2, NSEL EA approval conditions. An ESC plan will also be developed and implemented in accordance with Item 2.4 in the NSEL EA approval conditions. The ESC Plan will include a monitoring program for site runoff and will be reviewed and approved by NSEL.

A modified terrestrial biological monitoring program will include birds, inshore fisheries, marine species, and habitat monitoring. The findings will be documented on an annual basis and the scope of the program will be evaluated annually.

##### **7.3.5.1 Bird Census**

As required by Item 1.6 in the NSEL EA approval conditions, a Lighting Plan will be implemented. The Lighting Plan will be submitted to NSDNR, CWS, and TC for review and approval. The Lighting Plan will include a program to monitor birds. A bird census will be

**TABLE 7.3-1 Proposed Surface Water Monitoring Program Elements**

Project		Proposed Monitoring Program Elements
Phase	Component	
Pre-Construction	Project Site	<ul style="list-style-type: none"> <li>• Qualitative/quantitative sampling of the benthic-invertebrate community at one station on Betty's Cove Brook (upstream and downstream of site).</li> <li>• One measurement of turbidity and TSS within on-site watercourses under typical flow conditions.</li> <li>• Prepare a report on results and analyses of benthic invertebrate surveys (ephemeroptera/plecoptera/trichoptera index, taxon dominance, density, species diversity, Hilsenhoff biotic index, etc.).</li> <li>• Implement an ESC plan.</li> </ul>
Construction	Project Site	<ul style="list-style-type: none"> <li>• Inspect, monitor erosion/sediment control measures at on-site watercourses throughout construction.</li> <li>• Periodically measure turbidity and TSS in on-site watercourses.</li> <li>• Annual qualitative/quantitative sampling of the benthic-invertebrate community at one station on Betty's Cove Brook (upstream and downstream of site).</li> <li>• Prepare annual reports on results of erosion-control and benthic-invertebrate surveys (ephemeroptera/plecoptera/trichoptera index, taxon dominance, density, species diversity, Hilsenhoff biotic index, etc.), compare with previous years.</li> <li>• Implement an ESC plan.</li> </ul>
Operation and Maintenance	Project Site	<ul style="list-style-type: none"> <li>• Annual qualitative/quantitative sampling of the benthic-invertebrate community at one station on Betty's Brook, during post construction years 1, 2, 3, and 5, and every 5 years thereafter.</li> <li>• Prepare annual reports on survey results (ephemeroptera/plecoptera/trichoptera index, taxon dominance, density, species diversity, hilsenhoff biotic index, etc.), compare results with previous years.</li> <li>• Implement an ESC plan.</li> </ul>

carried out that monitors birds along the shoreline and Stormont Bay, and in the on-site terrestrial habitats. In accordance with Item 2.7 in the NSEL EA approval conditions, a bird monitoring program will be developed. Counts will be taken at least twice per year for all birds (late May-early June and late August-early September), and at least once more (first two weeks of November) for sea birds and waterfowl.

In addition, routine site monitoring will be done to maintain records of bird mortality noted on site to enable identification of potential issues related to lighting. Should it be determined that significant lighting related mortalities are occurring, then appropriate mitigative strategies will need to be identified.

### 7.3.5.2 Vegetation

There will be no vegetative monitoring program associated with the marginal wharf. However, monitoring will be conducted for the Plant site as outlined in Section 7.2.6.2.

### 7.3.5.3 Wildlife

In accordance with the NSEL EA approval condition 2.7 , a wildlife monitoring plan will be implemented. The plan will provide details on effects levels and the effectiveness of mitigation, where applicable. The monitoring plan to assess wildlife populations will be established, with surveys carried out at appropriate times of the year as shown in Table 7.3-2. Routine noise monitoring will also be conducted at site boundaries as appropriate.

**TABLE 7.3-2 Proposed Survey Times for Wildlife Monitoring Program**

<b>Wildlife Species</b>	<b>Survey Times, Notes</b>
Amphibians	Early May
Reptiles	June-August
Small mammals	June-July (check especially meadow vole activity)
Fur bearers	Fall and Winter (check tracks and other signs, especially in Dung Cove Pond area)
Deer	Winter (check tracks in areas of previously known concentration)

Evidence of wildlife presence and activity, and vegetation condition requiring attention, will be monitored during the surveys.

As a component of NSEL Condition 2.7, the Proponent is committed to prepare an Adaptive Management Plan (AMP), consisting of various elements acceptable to EC and NSDNR, as well as a spill response plan. To address concerns with potential impacts to foraging Roseate Terns in Stormont Bay, it is expected that the AMP will include coordination with multiple stakeholders to monitor and manage potential cumulative effects on the Roseate Tern.

### 7.3.6 Freshwater Species and Habitat Monitoring

There will be no freshwater species and habitat monitoring directly associated with the marginal wharf. However, monitoring will be conducted for the Plant site as outlined in Section 7.2.7.

### 7.3.7 Inshore Fisheries Monitoring

Monitoring of inshore fishing activity is difficult because reporting of specific fishing locations is not required for most fisheries and individual catches are considered confidential by DFO. However, since lobster is the primary species caught in Stormont Bay, a Potential Effects Analysis and a Catch-Rate monitoring program will be completed will be implemented in conjunction with local fishers. A monitoring program will document catch in different parts of Stormont Bay during the commercial fishing season. It will involve placing an observer on local fishing vessels at three different times during the fishing season, with specific criteria for consistent setting of traps. A catch rate monitoring program will help track Project impacts on inshore fisheries. Details of such a program will need to be developed in consultation with local fishers and DFO.

### **7.3.8 Marine Species and Habitat Monitoring**

Modeling will be carried out to assess potential changes in substrate and a monitoring program will be developed if required.

Minor changes in sediment type and quality near proposed shoreline facilities are anticipated as a result of wave and current action. Changes in wharf design, however, may be required as part of the federal permitting process. Once design has been finalized, modeling will be carried out in more detail to assess potential changes in substrate and a monitoring program will be developed if required. To meet the requirements of Item 2.4, in the NSEL EA approval conditions, an ESC Plan will also be developed and implemented. The ESC Plan will include a monitoring program for site runoff and will be reviewed and approved by NSEL. Mitigation plans for environmental impacts due to contaminated mine tailings and/or soils and sediments from the Project Site will be implemented using risk and remediation management as outlined in Item 1.5 in the NSEL EA approval conditions. The Remedial Action Plan and/or Risk Management Plan will be approved prior to construction.

Prior to implementation of a habitat compensation project, additional physical assessment of the area will be required to ensure that bottom conditions are appropriate.

Monitoring of the habitat compensation program will be carried out to document its success. The program will be developed in consultation with DFO.

Baseline information will be collected for all relevant chemical and biological parameters expected to enter the environment due to Project activities. This information will be used to predict assimilative capacity of all receiving environments and assess potential effects and/or risks on marine biota. This will be done in accordance with Item 1.10, of the NSEL EA approval conditions (NSEL, 2007).

### **7.3.9 Archaeological Resource Monitoring**

An archaeology and heritage resources monitoring and contingency plan will be developed prior to construction. The plan will be developed in consultation with Mi'kmaq stakeholders, African Nova Scotia Affairs, and the Nova Scotia Museum. Archaeological compliance and monitoring programs are regulated by the Nova Scotia Museum's manager of Special Places and subject to approval. In accordance to Item 4.5 in the NSEL EA approval conditions, a complete archaeological assessment of the entire KDP site will be submitted for review by NSEL. A number of recommendations have been made to minimize impact on significant archaeological resources and are summarized in Table 7.3-3.

#### **7.3.10 Pre Blast Survey**

No blasting will be required in association with the marginal wharf. Therefore, no pre-blast survey will be conducted.

**TABLE 7.3-3 Proposed Archaeological Compliance and Monitoring Programs**

Archaeological Site or Resource		Proposed Compliance and/or Monitoring
LNG and Marginal Wharf	Red Head Cemetery	Community consultation and monitoring of ground disturbance.
	Sculpin Cove 1	Monitoring of shoreline erosion. Archaeological testing as follow-up if sites are threatened.
	Sculpin Cove 2	
	Sculpin Cove 3	
	Sculpin Cove 4	
	Sculpin Cove 5	
	Hurricane Island Mine	
	McMillan Mine	Monitoring of ground disturbance.
	Dung Cove	None currently.
	Giffin's Mill	
	Hattie's Belt	
	Giffin Lead	
	Skunk Den Mine Crusher	
	South Mulgrave Lead	Monitoring of ground disturbance.
Random Mining Activity	None.	

### 7.3.11 Community Involvement

The Proponent has already established a liaison committee to help consult and inform communities in the area. The committee was elected at a public meeting on August 2, 2004, and is represented by individuals who have expressed an interest in the Project. There are 12 individuals on the committee who represent the seven communities of Goldboro, Isaac's Harbour, Drum Head, Coddles Harbour, Stormont, Country Harbour, and Seal Harbour. The Antigonish-Guysborough Black Development Association, the Municipality of the District of Guysborough, and the District of Saint Mary's are also represented.

The liaison committee meets regularly with the Proponent and will continue to be used as a sounding board for any issues (such as safety, environmental concerns, employment, etc.) that arise. The most recent meetings were held November 8, 2005; February 13, 2006, and March 27, 2006. In addition to the liaison committee, the Proponent will continue to liaise with the GCRDA and the Guysborough Journal as a means of communicating any information. The Proponent will also liaise actively with local emergency service providers, such as the RCMP, fire, and emergency health response.

In accordance with the NSEL EA approval and conditions, the following plans will be developed for community involvement: Local Economic Community Benefits Plan, Community Liaison Committee Plan, and Mi'kmaq Communication Plan. As outlined in the NSEL EA approval conditions, Keltic will take steps to further assess traditional Mi'kmaq use of the Project Site lands. These steps will be developed in cooperation with the Mi'kmaq Community and will be submitted to NSEL for review. A Public Reporting and Communication Protocol will also be developed and provided to NSEL for review. The Public Reporting and Communication Protocol will be developed as requested by Item 2.9 in the NSEL EA approval conditions.

Prior to construction, a Cultural Heritage Plan will also be developed to ensure the Project development and operations proceed in a manner that respects the cultural heritage value of the Red Head Cemetery site to the community, and that public access to the site is maintained (NSEL, 2007).

### **7.3.12 Other Monitoring Plans**

Other monitoring requirements may be identified as part of the terms of the CSR approval and permitting processes.

### **7.3.13 Environmental Protection Plan (EPP)**

EPPs and emergency response plans for the construction and operation phases of the Project will be completed after CSR approval and prior to construction and will form part of the overall EMP for the Project. These plans will be submitted to NSEL for approval, which will involve circulation also to EC, DFO and other regulatory agencies as required. Key provisions of the EPP are available in Section 7.2.14. A draft scoping document for the EMP is provided in Appendix 1.

### **7.3.14 Waste Management Plan**

A Waste Management Plan will be designed to meet the objectives of the Proponent's purpose, vision, and values. This plan will provide the basis for sound waste management practices that will focus on reduction, reuse, and recycling. The plan will cover all aspects of waste generation, storage, handling, shipping, and reporting. The plan will apply to the construction and operation phases of the Project and to all subcontractors.

### **7.3.15 Contingency Plan**

In accordance with Item 3.2 in the NSEL EA approval conditions, a Contingency Plan will be developed in accordance with NSEL's Contingency Planning Guidelines that addresses;

- fires or other emergencies; and
- discharge, emissions, escapes, leaks or spills of dangerous goods or waste dangerous goods.

The plan will be developed in consultation with local fire and emergency service providers and will demonstrate compliance with Federal and Provincial regulatory requirements (NSEL, 2007).

## **7.4 PROJECT RELATED SHIPPING WITHIN 25 KM OF COUNTRY ISLAND**

### **7.4.1 Air Quality Monitoring**

There will be no air quality monitoring program related to shipping activities. However, an air quality monitoring program will be implemented for the Project Site.

#### **7.4.2 Noise and Light Monitoring**

There will be no noise and light monitoring program related to shipping activities. However, a noise and light monitoring program will be implemented for the Project Site.

#### **7.4.3 Surface Water Monitoring**

This does not apply to shipping activities.

#### **7.4.4 Water Supply Wells**

This will not apply to shipping activities.

#### **7.4.5 Groundwater at the Plant Site**

This does not apply to shipping activities.

#### **7.4.6 Flora, Fauna and Terrestrial Habitat Monitoring**

##### **7.4.6.1 Bird Census**

A bird census will be carried out that monitors birds along the shoreline and Stormont Bay, and in the on-site terrestrial habitats. Counts will be taken at least twice per year for all birds (late May-early June and late August-early September), and at least once more (first two weeks of November) for sea birds and waterfowl.

In addition, routine site monitoring will be done to maintain records of bird mortality noted on site to enable identification of potential issues related to lighting. Should it be determined that significant lighting related mortalities are occurring, then appropriate mitigative strategies will need to be identified.

##### **7.4.6.2 Vegetation**

This does not apply to shipping activities.

##### **7.4.6.3 Wildlife**

As a component of NSEL Condition 2.7, the Proponent is committed to prepare an Adaptive Management Plan (AMP), consisting of various elements acceptable to EC and NSDNR, as well as a spill response plan. To address concerns with potential impacts to foraging Roseate Terns in Stormont Bay, it is expected that the AMP will include coordination with multiple stakeholders to monitor and manage potential cumulative effects on the Roseate Tern.

#### **7.4.7 Freshwater Species and Habitat Monitoring**

This does not apply to shipping activities.



#### **7.4.8 Inshore Fisheries Monitoring**

Monitoring of inshore fishing activity is difficult because reporting of specific fishing locations is not required for most fisheries and individual catches are considered confidential by DFO. However, since lobster is the primary species caught in Stormont Bay, a monitoring catch-rate program will be implemented in conjunction with local fishers. Such a program will be important as part of a compensation program to provide independent and objective assessment of potential impacts on the fishery. A monitoring program will document catch in different parts of Stormont Bay during the commercial fishing season. It will involve placing an observer on local fishing vessels at three different times during the fishing season, with specific criteria for consistent setting of traps. Details of such a program will need to be developed in consultation with local fishers and DFO.

#### **7.4.9 Archaeological Resource Monitoring**

This does not apply to shipping activities.

#### **7.4.10 Pre Blast Survey**

This does not apply to shipping activities.

#### **7.4.11 Community Involvement**

The Proponent has already established a liaison committee to help consult and inform communities in the area. The committee was elected at a public meeting on August 2, 2004, and is represented by individuals who have expressed an interest in the Project. There are 12 individuals on the committee who represent the seven communities of Goldboro, Isaac's Harbour, Drum Head, Coddles Harbour, Stormont, Country Harbour, and Seal Harbour. The Antigonish-Guysborough Black Development Association, the Municipality of the District of Guysborough, and the District of Saint Mary's are also represented.

The liaison committee meets regularly with the Proponent and will continue to be used as a sounding board for any issues (such as safety, environmental concerns, employment, etc.) that arise. The most recent meetings were held November 8, 2005, February 13, 2006, and March 27, 2006. In addition to the liaison committee, the Proponent will continue to liaise with the GCRDA and the Guysborough Journal as a means of communicating any information. The Proponent will also liaise actively with local emergency service providers, such as the RCMP, fire, and emergency health response.

In accordance with the NSEL EA approval and conditions, the following plans will be developed for community involvement: Local Economic Community Benefits Plan, Community Liaison Committee Plan, and Mi'kmaq Communication Plan. A Public Reporting and Communication Protocol will also be developed and provided to NSEL for review. The Public Reporting and Communication Protocol will be developed as requested by Item 2.9 in the NSEL EA approval conditions.

#### **7.4.12 Other Monitoring Plans**

Other monitoring requirements may be identified as part of the terms of the CSR approval and permitting processes.

#### **7.4.13 Environmental Protection Plan (EPP)**

EPPs and emergency response plans for the construction and operation phases of the Project will be completed after CSR approval and prior to construction and will form part of the overall EMP for the Project. These plans will be submitted to NSEL for approval, which will involve circulation also to EC, DFO and other regulatory agencies as required. Key provisions of the EPP are available in Section 7.2.14. A draft scoping document for the EMP is provided in Appendix 1.

#### **7.4.14 Waste Management Plan**

A Waste Management Plan will be designed to meet the objectives of the Proponent's purpose, vision, and values. This plan will provide the basis for sound waste management practices that will focus on reduction, reuse, and recycling. The plan will cover all aspects of waste generation, storage, handling, shipping, and reporting. The plan will apply to the construction and operation phases of the Project and to all subcontractors.

#### **7.4.15 Contingency Plan**

In accordance with Item 3.2 in the NSEL EA approval conditions, a Contingency Plan will be developed in accordance with NSEL's Contingency Planning Guidelines that addresses:

- fires or other emergencies; and
- discharge, emissions, escapes, leaks or spills of dangerous goods or waste dangerous goods.

The plan will be developed in consultation with local fire and emergency service providers and will demonstrate compliance with Federal and Provincial regulatory requirements (NSEL, 2007).