

Environmental Assessment Approval

Approval Date: March 14, 2007

Keltic Petrochemicals Inc. LNG and Petrochemical Plant Facilities

Keltic Petrochemicals Inc., Proponent

Goldboro, Nova Scotia

The Keltic Petrochemicals Inc. LNG and Petrochemical Plant Facilities Project (the "Undertaking"), proposed by Keltic Petrochemicals Inc. (the "Proponent"), in Goldboro, Nova Scotia is approved pursuant to Section 26. This Approval is subject to the following conditions and obtaining all other necessary approvals, permits or authorizations required by municipal, provincial and federal acts, regulations, by-laws, guidelines, policies or standards before commencing work on the Undertaking. It is the responsibility of the Proponent to ensure that all such approvals, permits or authorizations are obtained before commencing work on the Undertaking.

This Environmental Assessment Approval is based upon the review of the conceptual design, environmental baseline information, impact predictions, and mitigation presented in the Environmental Impact Assessment, as well as the findings and recommendations of the Environmental Assessment Board.

Terms and Conditions for Environmental Assessment Approval

1.0 Phase I - Studies, Inventory & Analysis

Prior to application for Part V approval under the *Environment Act* the Proponent must provide for review and approval:

- 1.1 a Sustainable Development Plan for the project. The plan shall include but not be limited to the following components:
- A study to re-assess possible water supplies for the project (including Meadow lake) from an environmental effects and sustainability perspective.
 - An Air Emissions Management Plan for the project. The plan will include an accounting of all anticipated air emissions, monitoring and reporting protocols, emissions management and reduction targets over the life of the project, and plans for the use of best management practices.
 - A Pollution Prevention Plan which includes measures including, but not limited to chemical recycling, reduced chemical use over time, and waste management.

- *A Greenhouse Gas (GHG) Management Plan* for the project. The plan will include an accounting of all anticipated GHG emissions, GHG monitoring and reporting protocols, GHG management and reduction targets over the life of the project, and plans for the use of best management practices.
- 1.2 details of the impacts to wetlands, methods and plans for avoidance, mitigation and/or compensation, developed in consultation with NSEL and NSDNR. The Proponent must not construct or operate within 30 metres of any wetland or watercourse unless otherwise approved in writing by NSEL.
 - 1.3 results of a project Traffic Impact Study developed in consultation with NSTPW and the Municipality of the District of Guysborough. The results of the study shall be considered in the development of a transportation management plan for the project.
 - 1.4 the following air emissions data for NSEL review prior to submission of the project air monitoring program:
 - chemical characterization of Sable Offshore Energy Inc. (SOEI) gas plant particulates and SO_x emission
 - anticipated emissions data from the proposed petrochemical plant for SO_x, O₃, known specific VOCs, and other air emissions as appropriate, based on relevant Alberta and Ontario data
 - anticipated emissions data for the proposed incinerator, including emission compounds, concentrations and incinerator hours of operation
 - two seasons of meteorological data on the site, to identify variances with data used in the existing air quality dispersion model.
 - results of an air quality dispersion modelling exercise using site specific meteorological data. The model will be used to produce maximum and annual concentration contour maps for air quality components to be determined by NSEL. The contour maps will cover a radius of 25 km from the Goldboro project site.
 - 1.5 a plan to mitigate the human health and environmental impacts of contaminated mine tailings and/or soils and sediments on the Project site, via remediation or risk management. This plan shall be consistent with the Nova Scotia Guidelines for the Management of Contaminated Sites. The Remedial Action Plan and/or Risk Management Plan shall be approved prior to commencement of construction. Upon completion of the remediation or risk management work, including any required monitoring, the Proponent shall submit a Certificate of Compliance to

NSEL to demonstrate that the remediation work has been completed and/or the Risk Management Plan is effective. The CoC shall be submitted no later than 3 years after completion of construction of the land-based components of the Project.

- 1.6 a proposed lighting plan which incorporates a program to monitor impacts to birds. The plan must be submitted to NSDNR, Canadian Wildlife Service (CWS), and Transport Canada (TC) for review and approval. Based on the results of the monitoring programs, the Proponent must make necessary modifications to mitigation plans and/or operations to prevent any unacceptable environmental effects, to the satisfaction of NSEL, based on consultation with NSDNR and CWS.
- 1.7 results of a study to determine potential impacts of the Meadow Lake alterations on the salmon migration corridor. The scope of the study shall be developed in consultation with DFO, NSEL, and NSF&A. Results of the study shall also be submitted to these agencies for review, and the proponent shall develop mitigation measures as required to prevent any identified salmon migration impacts.
- 1.8 results of a phosphorus modelling exercise for Meadow Lake, using NSEL's standard lake phosphorus model, detailing the assessment of present and predicted trophic states of the lake; and results of a receiving water assimilative capacity study for Betty's Cove Brook and any other freshwaters receiving runoff or effluent from the project site.
- 1.9 an assessment of impacts associated with dam location at Meadow Lake, including but not limited to consideration of alternatives, and dam failure with associated impacts including but not limited to flooding, the movement of contaminants, and loss or damage to property.
- 1.10 to NSEL and Environment Canada for review and approval:
 - modelling to predict the assimilative capacity of all receiving environments for all relevant chemical parameters which are expected to enter the environment as a result of Project activities. Such modelling shall include prediction of the potential for bioaccumulation in organisms of any persistent compounds either emitted by the Project or re-mobilized by Project activities; and provide an evaluation of the potential effects, including both acute and chronic (long term) impacts. Effects evaluation shall focus in particular on any potential impacts on human health and/or on organisms.
 - baseline data collection for all relevant chemical parameters which

are expected to enter the environment or be remobilized as a result of Project activities in all receiving environments, including those which may impact on human health and/or on organisms;

- 1.11 to NSEL and NSTPW, a Transportation Management Plan which shall include, but not be limited to :
- the identification of primary and secondary transportation routes;
 - details of all required road realignments and upgrades
 - transportation schedules;
 - dust management measures;
 - safety management measures;
 - methods to ensure contractor compliance;
 - monitoring measures;
 - and, communication policies.
- 1.12 a project Environmental Management Plan (EMP) to be submitted to NSEL for review and approval. Any proposed modifications to the EMP and associated component plans throughout the duration of the project must be submitted to NSEL for review and approval.

2.0 Phase II - Monitoring Plans

The Proponent, as part of the application for Part V Approval under the Environment Act, must provide for review and approval a project Environmental Effects Monitoring Plan that will include, but not be limited to:

- 2.1 a detailed sampling, analysis and quality assurance plan.
- 2.2 a noise monitoring program, including the anticipated noise levels associated with the project, to be reviewed and approved by NSEL. Based on the results of the monitoring program, the Proponent must make necessary modifications to mitigation plans and/or operations to prevent any unacceptable environmental effects, to the satisfaction of NSEL.
- 2.3 a project air monitoring program. The Air Monitoring Program shall be developed in consultation with NSEL, Environment Canada, and other agencies as determined by NSEL. Based on the results of the monitoring program, the Proponent must make necessary modifications to mitigation plans and/or operations to prevent any unacceptable environmental effects, to the satisfaction of NSEL. The program, shall include an incinerator monitoring plan.

The Air Monitoring Program shall be based upon consideration of one

complete year of baseline data for ambient and peak concentrations of gases and aerosols that may be released from the proposed project, including nitrogen oxides (NO_x), sulfur oxides (SO_x), carbon monoxide (CO), ozone (O₃), volatile organic compounds (VOCs), total suspended particulate (TSP), particulate matter less than 2.5 micrometres in diameter (PM_{2.5}), and particulate matter less than 10 micrometres in diameter (PM₁₀).

- 2.4 a detailed erosion and sedimentation control (ESC) plan, including a monitoring program for site runoff, to be reviewed and approved by NSEL. Based on the results of the monitoring program, the Proponent must make necessary modifications to ESC plans and/or operations to prevent any unacceptable environmental effects, to the satisfaction of NSEL.
- 2.5 a program to monitor surface waters, including monitoring location and parameters. Based on the results of the monitoring program, the Proponent must make necessary modifications to mitigation plans and/or operations to prevent any unacceptable environmental effects, to the satisfaction of NSEL.
- 2.6 a groundwater monitoring program including location of monitoring wells and parameters. The program must be designed to evaluate potential impacts to both groundwater levels and groundwater quality. Based on the results of the monitoring program, the Proponent must make necessary modifications to mitigation plans and/or operations to prevent any unacceptable environmental effects, to the satisfaction of NSEL.
- 2.7 a wildlife and vegetation monitoring plan, developed in consultation with NSDNR and CWS. As part of the wildlife and vegetation monitoring plan, the Proponent must provide details of a bird monitoring program, to the standards as defined by NSDNR and CWS. Based on the results of the monitoring program, the Proponent must make necessary modifications to mitigation plans and/or operations to prevent any unacceptable environmental effects, to the satisfaction of NSEL.
- 2.8 details of a monitoring program to determine the potential for and extent of sulphide bearing material and a plan to manage any exposed acid generating material and associated drainage, in consultation with NSEL.
- 2.9 a Public Reporting and Communication Protocol which shall include, but not be limited to:
 - report on project activities/status
 - how results get reported
 - which results get reported

- when results get reported;
- and, details of the communication methods for reporting to the public and other stakeholders.

2.10 a plan for monitoring for environmental effects for all relevant chemical and biological parameters which are expected to enter the environment or be remobilized as a result of Project activities in all receiving environments, including those which may impact human health and/or organisms.

3.0 Phase III - Mitigation/ Contingency Plans

The Proponent, as part of the application for Part V Approval under the Environment Act, must provide for review and approval:

- 3.1 a project Environmental Protection Plan which shall include, but not be limited to an overall:
- mitigative measures plan;
 - mitigation monitoring plan that will describe how planned mitigation measures will be evaluated during all phases of the project;
 - quality assurance / quality control measures plan for all construction and site management activities at the site(s);
 - project sedimentation control plan;
 - dust control plan
 - wastewater management plan;
- 3.2 a Contingency Plan 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 shall be developed in consultation with local fire and emergency service providers, and demonstrate compliance with Federal and Provincial regulatory requirements.
- 3.3 a mitigation plan to address degradation, reduction, or loss of water quality or quantity of residential water supplies and a contingency plan to address any well interference effects and/or well complaints. If the mining operation causes water quality or quantity problems at existing water wells, the Proponent must rectify the problem to the satisfaction of NSEL.
- 3.4 a proposed aquaculture compensation plan to be implemented in the event that any project related adverse effects on aquaculture are

detected.

4.0 Community Involvement & Archaeological/Heritage Resources

- 4.1 Prior to construction, the Proponent shall prepare a Local Economic and Community Benefits Plan that includes:
- a Local Employment Strategy
 - a Local Supply and Procurement Strategy
 - an Equal Opportunities Employment Strategy
 - an Education and Training Strategy to support local employment
 - an Employee/Community Recreation Strategy
- The Plan shall be developed in consultation with the Municipality of the District of Guysborough, Nova Scotia Economic Development, and other stakeholders as required by NSEL.
- 4.2 Prior to construction, the Proponent must submit to NSEL for review and approval, a plan for the formation and operation of a representative community liaison committee (CLC) for the project, including a terms of reference (refer to the NSEL Guidelines for the Formation of a Community Liaison Committee).
- 4.3 Prior to construction, the Proponent shall develop a Mi'kmaq Communication Plan for the project which will include but not be limited to:
- Processes for communicating project details and seeking input from the Mi'kmaq community
 - Plans for Mi'kmaq involvement in environmental effects monitoring and other project aspects. The plan shall be developed in cooperation with the Mi'kmaq Community.
- 4.4 Prior to application(s) for Part V Approval under the Environment Act, the Proponent shall take steps to further assess traditional Mi'kmaq use of the project site lands. The Proponent shall develop the proposed steps in cooperation with the Mi'kmaq Community and shall submit the results to NSEL.
- 4.5 Prior to construction, the Proponent shall submit a complete archaeological assessment of the entire project site for review and approval of the Nova Scotia Museum and NSEL.
- 4.6 Prior to construction, the Proponent shall submit for review and approval of NSEL, an archaeology and heritage resources monitoring and contingency plan. The plan shall be developed in consultation with Mi'kmaq stakeholders, African Nova Scotia Affairs, and the Nova Scotia Museum.

- 4.7 The Proponent shall halt work and contact the Curator of Archaeology at the Nova Scotia Museum, and the Executive Director of the Union of Nova Scotia Indians immediately upon discovery of an archaeological site or artifact.
- 4.8 Prior to construction, the Proponent shall enter into an agreement with the Office of African Nova Scotia Affairs for the establishment of a memorial at the Red Head Cemetary site.
- 4.9 Prior to construction, the Proponent shall submit to NSEL for review and approval, a plan to ensure that project development and operations proceed in a manner which respects the cultural heritage value of the Red Head Cemetary site to the community, and that public access to the site will be maintained.

5.0 General Approval

- 5.1 This Environmental Assessment Approval is limited to the scope of the Undertaking as described in the *Environmental Impact Assessment*, dated July 2006, and subject to the following conditions. Any proposal by the Proponent for expansion, modification or relocation of any aspect of the project from that proposed in the Environmental Impact Assessment must be submitted to the Environmental Assessment Branch for review and may require an environmental assessment.
- 5.2 The Proponent must, within two years of the date of issuance of this approval, commence work on the Undertaking unless granted a written extension by the Minister.
- 5.3 The Proponent must implement all mitigation and commitments in the Environmental Impact Assessment, unless approved otherwise by Nova Scotia Environment & Labour (NSEL).
- 5.4 The Proponent shall apply the Canadian Chemical Producers' Association (CCPA) Responsible Care® principles to the design, maintenance, and operation of the petrochemical plant.

Original signed by

Mark Parent
Minister of Environment and Labour