GENERAL REVIEW STATEMENT

NB POWER
COLESON COVE GENERATING STATION
REFURBISHMENT PROJECT

JUNE 2002

Prepared by:
Department of Environment & Local Government
1. INTRODUCTION

This General Review Statement represents the opinions of the Technical Review Committee regarding the Environmental Impact Assessment (EIA) of a proposal by NB Power to refurbish the Coleson Cove Generating Station.

The Coleson Cove Generating Station is located at Lorneville, Saint John County, on the banks of the Bay of Fundy. The station consists of three boiler and turbine generator sets, each with a rating of 350 megawatts (MW), for a total of 1,050 MW capacity. The plant has been in commercial operation since 1976 and is the Province’s largest capacity plant. It is currently fuelled by No. 6 fuel oil, which is delivered by ships through the Bay of Fundy into the Saint John Harbour at Courtenay Bay terminal.

NB Power proposes to refurbish the facility in order to reduce emissions of sulphur dioxide, nitrogen oxide and particulate emissions. In addition to improving environmental performance, the Coleson Cove Refurbishment Project (the Project) is expected to contribute to stabilizing electricity rates, ensure a reliable source of energy and would extend the life of the facility until 2030. The proposed refurbishment of the station would burn a bitumen-based fuel from Venezuela called Orimulsion®.

An EIA report, entitled “Coleson Cove Generating Station Refurbishment Project, Environmental Impact Assessment Report” was prepared pursuant to the Environmental Impact Assessment Regulation (87-83) of the Clean Environment Act. The EIA study was based on Terms of Reference developed by NB Power, which were revised through consultation with the Technical Review Committee, to fulfil the Final Guidelines, issued by the Minister of the Environment and Local Government on January 15, 2002. The first draft EIA report was submitted by NB Power on April 5, 2002 for review by the Technical Review Committee. As a result of deficiencies noted by the Technical Review Committee, the Report has been revised in order to satisfy the Guidelines. It should be noted that nine supplementary component studies, which support the EIA report were provided to the Technical Review Committee between February 28 and April 12, 2002. These have been reviewed, critiqued, revised as applicable and are available to the public as reference material.

The Technical Review Committee for this project consists of representatives from the following agencies:

- NB Department of the Environment and Local Government
- NB Department of Natural Resources and Energy
- NB Department of Health and Wellness
- NB Department of Agriculture, Fisheries and Aquaculture
- NB Department of Transportation
- NB Culture and Sport Secretariat
- NB Workers Health, Safety and Compensation Commission
- City of Saint John
- Saint John Port Authority
- Environment Canada
- Fisheries and Oceans Canada
- Transport Canada – Marine Safety
- Atlantic Pilotage Authority
The EIA Report was accepted by the Minister of the Environment and Local Government on June 17, 2002 as a document that satisfied the requirements set out in the Final Guidelines, in accordance with Section 11(4) of EIA Regulation 87-83. The report concludes that, with the proposed mitigation strategies, no significant adverse environmental impacts are predicted from the Project. It is predicted that there will be positive impacts on air quality, as well as local and provincial economies. In addition, there will be reduced risk to human health and the Bay of Fundy marine environment in the study area.

The General Review Statement summarizes the opinions of the Technical Review Committee (TRC) regarding the EIA Report. It is generally concluded that the EIA Report is a satisfactory document on which to base a public discussion of the Project and its impacts.

This General Review Statement identifies potential impacts that should be brought to the attention of the Minister and the public. Most projects have the potential to produce some level of impact on one or more natural or socio-economic components. The information in the EIA report must identify areas or actions, which have impacts that are considered significant as well as those that are considered insignificant. Thus, a scale of reference is required for determining the significance of environmental impacts in order to compare their relative importance. This is presented in Section 2.4 of the EIA Report. The potential impacts are included in Section 2.2 of this document and are presented in the order and with the headings as per the Guidelines. The EIA report has further subdivided some of these impact sections.

The nature of the impacts is such that they can be addressed in the context of subsequent regulatory approval processes or as conditions to be applied to the Project as part of the final decision by the Lieutenant Governor in Council, should the Government of New Brunswick approve the project.

2. REVIEW OF THE STUDY

In general, the EIA Report is considered acceptable as having addressed the issues outlined in the Final Guidelines.

2.1 PROJECT ALTERNATIVES

The Guidelines required that an analysis of alternatives be conducted as part of the EIA study. Alternative fuels, alternative fuel delivery options, alternative pollution prevention/control technologies were to be examined by the Proponent. It was anticipated that the report would present a clear, concise comparison associated with each of the alternatives examined. The Technical Review Committee is generally satisfied that the information presented provides an adequate basis for comparison.

2.2 POTENTIAL IMPACTS

Air Quality: The Technical Review Committee (TRC) is generally satisfied with the information presented in the air quality section and generally agrees with the findings of the EIA report.

The environmental controls proposed for a refurbished Coleson Cove generating station promise positive air quality benefits from the point of view of air contaminants. Reductions in stack
emission rates of 77% are anticipated for sulphur dioxide (SO₂), 70% for nitrogen oxide (NOₓ) and 75% for particulate matter or total suspended particulates (TSP). The maximum ground level concentrations predicted from the dispersion modelling from stack emissions are expected to be substantially lower than that of the existing plant and well below the regulatory standards, resulting in improved air quality in the airshed. The TRC is satisfied with the technology being added to the refurbished station, including the addition of low NOx burners, reburn technology, flue gas desulphurisation and wet electrostatic precipitators, all of which should act to significantly reduce emissions of SO₂, SO₃, NOₓ, particulate and fine particulate. The TRC is also satisfied with the expanded Continuous Emissions Monitoring System (CEMS) proposed by NB Power for the monitoring of the refurbished facility. Contrary to the EIA report, however, the air quality experts in the TRC believe that the installation of new, additional ambient monitoring stations should be established to validate the predictions made in the air quality dispersion modeling analysis.

This Project is expected to result in only a very small reduction in greenhouse gas emission rates with Orimulsion®, relative to the current situation. Although the Kyoto Protocol has not as yet been ratified by Canada, the New England Governors/Eastern Canadian Premiers (NEG/ECP) August 2001 Climate Change Action Plan sets regional objectives for the reduction of greenhouse gases. In addition, the Province of New Brunswick is currently in the process of developing a Climate Change Action Plan. In the absence of direction for individual sources in New Brunswick with respect to management of greenhouse gases, the TRC requested that NB Power provide options for greenhouse gas management including evidence to indicate that with the proposed Project, NB Power could reduce greenhouse gases system-wide in the future. This information can be found in the EIA Report.

An assessment of the contribution of chemical transformation of emitted pollutants to the pollutant load on the environment was requested. It was determined that the predicted amounts of chemical transformation are a small fraction of the measured acidic deposition and the reduction in emissions at the source is expected to result in a reduced deposition as a result of the refurbishment.

During the establishment of the Terms of Reference for the Health Risk Assessment (discussed in the Socioeconomic Section), the TRC believed that the potential air quality impacts associated with the construction and operation of the refurbished Coleson Cove Generating Station should also be assessed. As such, an assessment of the emissions from current vehicle traffic, as well as that during the construction phase and future operations was undertaken. In addition, the emissions from marine traffic associated with the current and proposed future operation of the Station were assessed. In general, the contribution of emissions to the airshed from the proposed increased traffic was determined to be small. The predicted maximum ground level concentrations were well below the provincial ambient standards for all pollutants, and below the national ambient air quality guideline for PM₂.₅.

**Surface Water and Groundwater:** The Technical Review Committee (TRC) agrees that the potential impacts to surface water and groundwater are insignificant with the proposed mitigation measures.

Sediment and erosion control measures will be incorporated into an approved environmental protection plan (EPP), which will limit surface water contamination during construction. Leachate and surface water runoff at the solid waste management area will be directed to the wastewater treatment plant that must continue to meet Provincial and National water quality standards.

The landfill will be built in accordance with the Department of the Environment and Local Government Design Guidelines for Sanitary Landfill Sites, which require a composite geomembrane and clay liner and leachate collection. The Report indicates that the potential concentrations of chemicals in the Shannon Lake Brook from groundwater contamination
will be well below “Guidelines for the Protection of Aquatic Life” as issued by the Canadian Council of Ministers of the Environment.

Horizontal directional drilling has been proposed to mitigate impacts on watercourse crossings, both for the protection of surface water, as well as for fish habitat, during the construction of the new section of pipeline between Canaport and Bayside Drive, where the pipeline would connect with the existing #6 fuel oil pipeline to Coleson Cove.

It should be noted that the construction of the new pipeline and the maintenance of the existing pipeline is the responsibility of the owner, Irving Oil Limited. The new pipeline will require approval through the Public Utilities Board (P.U.B.). The existing pipeline will require a new Approval to Operate from the Department of Natural Resources and Energy. NB Power, given its obvious interest in ensuring that the new line and the existing line provide service to Coleson Cove for the life of the proposed Project, has undertaken work to suggest environmentally acceptable route alternatives for the new pipeline and has hired an independent consultant to verify the integrity of the existing line and associated infrastructure. This expert consultant has recommended an Integrity Action Plan, which assures the service life of the line for a minimum of thirty years. The EIA report confirms that Irving Oil Limited will incorporate the recommendations contained in the consultant’s report. More detailed information is provided in Section 4.3.1 of the EIA report.

The TRC agrees that with appropriate mitigation during construction of the pipeline, homeowners with private wells will have their groundwater supply adequately protected. It should be noted that specifics for pre-construction well monitoring would be imposed as a condition through the P.U.B. process mentioned above.

**Impacts on the Bay of Fundy:** A component of the Guidelines was the requirement to undertake a comparative ecological risk assessment (CERA) of spills of Orimulsion® vs. fuel oil # 6 in the Bay of Fundy. In support of this assessment, a Spill Scenario Workshop was conducted to select the initial conditions for analysis in this ecological risk assessment, including hypothetical spill locations and volumes of hypothetical spills. Similarly, stakeholders were consulted for input into the parameters to be included in the ecological risk assessment and to evaluate the environmental fate and transport model, SIMAP, used in the CERA.

The CERA concludes that due to the behaviour, the biological effect and the reduced toxicological properties of Orimulsion®, the ecological risks to the Bay of Fundy ecosystems were found to be lower than the existing risks of spills from fuel oil #6. Based on these ecological consequences and the reduced probability of spills because of the preventative measures planned (including shipping of Orimulsion® in only double-hulled vessels), the CERA further concludes that the transportation spills of Orimulsion® in the Bay of Fundy present a lower ecological risk to aquatic resources than that which presently exists from shipments of fuel oil #6.

Transport Canada-Marine Safety administers the Termpol Review Process (publication TP743E), which enables an in-depth assessment of shipping, navigation and transshipment aspects, the establishment of effective mitigating action and contingency planning to protect the environment. It is noted that the review of the marine transportation components of this EIA was done in accordance with the standards of the Termpol Review Process.

Prior to any shipments of Orimulsion® into the Bay of Fundy, there are several elements which would need to be submitted and approved by various federal agencies. Detailed operating procedures to accommodate Orimulsion® at the monobuoy would be required. The
operator of the Canaport monobuoy would require an approved spill response plan to conduct the initial response in the event of an incident at the monobuoy. The Certified Response Organization, the Atlantic Emergency Response Team (ALERT) would also be required to have a Response Plan in order to respond to a spill. The vessel delivering Orimulsion® would require a contract with ALERT in order to be allowed to enter Canadian waters. All of these procedures and plans would be incorporated as conditions of an EIA determination if the Government of New Brunswick approved this Project.

**Transportation Issues:** A study was undertaken to determine the effects on the existing transportation network from the increased traffic associated with the construction and operation of a refurbished Coleson Cove Generating Station. The report identified one location with an unacceptable safety hazard which could be mitigated by the installation of traffic signals during construction at the intersection of the Route 1 westbound ramp and King William Road. It was recommended by the Technical Review Committee that NB Power consider incorporating shuttle service and mass transit options to order to alleviate traffic concerns during the construction period. NB Power has committed to pursuing this option with the contractors, trades and the City of Saint John.

An assessment of traffic noise determined that the effect to residents along the roadways due to increased traffic as a result of the proposed refurbishment is not expected to be substantial.

**Socioeconomic Impacts:** To address the human health component of this section of the Guidelines, a quantitative *Multipathway Human Health Risk Assessment* of the Project was undertaken. This risk assessment estimated the potential risks to human health associated with the direct and indirect exposure to air emissions of the Project, utilizing fuel alternatives, including the existing (#6 fuel oil) condition, the proposed conversion to Orimulsion® and the use of natural gas. The guidance of the U.S. Environmental Protection Agency (USEPA) on the Terms of Reference for the risk assessments was augmented with input from members of the Technical Review Committee (TRC). Additionally, the TRC requested the inclusion of end points other than cancer and non-cancer. In response, a qualitative risk characterization was undertaken which reviewed and evaluated data and information on the health status of people residing in the study area as well as recent scientific research showing associations between air pollution and cardiorespiratory diseases.

The report states that there is a high degree of certainty that no adverse human health effects will occur as a result of the Project. The report concludes that cancer and non-cancer risks for all three fueling scenarios are so low that they are immeasurable and indistinguishable from each other. The risk assessment confirmed that the Coleson Cove Generating Station is not a major source of SO₂, NOx, PM₁₀ or PM₂.₅ emissions in the City of Saint John, nor would it be if the Project proceeded. The predicted decreases in concentrations of these pollutants within the City of Saint John airshed would be modest and difficult to measure. An overview of this comprehensive assessment can be found in Section 7.6 of the EIA Report and details are available in the component study entitled *Human Health Risk Assessment Report*.

The Technical Review Committee is in agreement that the economic stimulus and employment generated by the Project will benefit local area residents, provincial unions, the construction industry, the business community and the Province of New Brunswick.

**Impacts on Terrestrial and Wetland Environments:** The two pipelines associated with this Project are in very close proximity to two major wetlands, the Red Head Marsh / Hazen Creek Flats and the Saints Rest Marsh. Additionally, four wetlands are located within 30 m of the proposed new pipeline conceptual route. The proposed Solid Waste Management Area is also near four wetlands. As mentioned in the section on *Surface Water and Groundwater*, horizontal directional drilling has been proposed in order to mitigate impacts on watercourse...
crossings (including wetlands and their 30 m buffers), during the construction of the new section of pipeline between Canaport and Bayside Drive, where the pipeline would connect with the existing #6 fuel oil pipeline to Coleson Cove. As previously mentioned, the construction of this new pipeline will necessitate a subsequent review and approval through the Public Utilities Board (P.U.B.), where mitigation measures will be finalized.

The Technical Review Committee is satisfied with the review and assessment of the risk associated with ship collisions from tanker traffic on North Atlantic right whales. They are also satisfied with the review of the comparative effects of #6 fuel oil versus Orimulsion® on right whales, harbour porpoises and harbour seals in the Bay of Fundy.

Based on the Project design, no impacts are predicted on any known archaeological and heritage resources. There is, however, the potential that unknown archaeological and heritage resources may be identified during the construction, operation, maintenance and decommissioning phases of the Project. The report recommends archaeological field assessments, monitoring of construction activity in areas of elevated potential and development of a protocol in consultation with regulatory agencies. The Technical Review Committee is satisfied with this mitigation.

**Impacts on Surface Water Supply:** The City of Saint John operates the Spruce Lake water supply system that is augmented with water from the Musquash system as required. The EIA Report indicates that the additional freshwater requirement of 4320 m$^3$/day for the Project, compared to the existing 3456 m$^3$/day water, (for a total of 7776 m$^3$/day for the refurbishment) could result in an additional 0.07 m of drawdown from the Loch Alva reservoir in the Musquash system which has a maximum drawdown of about 3.5 m. The TRC agrees with the report’s assessment that the extra water requirement would not have a measurable effect on fish habitat, shoreline ecology and water quality.

**Impacts of the Environment on the Project:** The Technical Review Committee is generally satisfied with the effects assessment of climate change on the Project.

3. **SUMMARY**

It is concluded that the EIA Report is a satisfactory document on which to base a public discussion of the Project and its impacts.

The Technical Review Committee generally agrees that the project could be constructed and operated in an environmentally acceptable manner. The nature of the impacts is such that they can be addressed in the context of subsequent regulatory approval processes or as conditions to be applied to the Project as part of the final decision by the Lieutenant Governor in Council, should the Government of New Brunswick approve the project.