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Review Panel

Cacouna Energy LNG Terminal Project

TRANSLATION

Inquiry and Public Hearing Report

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Recommendations

In its report and based on its analysis, the Panel sets forth a certain number of recommendations that are presented hereafter. The reader should nonetheless refer to the context in order to fully appreciate their significance and scope.

Feasible alternatives

Recommendation 1 – The Panel recommends that the proponent demonstrate that this project represents the only technically and economically realizable alternative for increasing natural gas supply in North America. → p. 41

Surface water management and water and soil quality

Recommendation 2 – The Panel recommends that Transport Canada require the proponent to provide a surface water management plan, including management of water from hydrostatic tests, from the time land preparation work begins. It also recommends that the proponent conduct follow-up on discharges into the St. Lawrence Estuary. → p. 67

LNG tanker and tugboat traffic

Recommendation 3 – The Panel recommends that the proponent conduct follow-up on the icing conditions on the south shore of the Gros-Cacouna port entrance in order to understand the effect of repeated passage of tugs. In case shoreline freeze-up is impacted, Transport Canada should consider measures to limit the speed of tugs in this area. → p. 72

Fish and invertebrates

Recommendation 4 – The Panel recommends that the effectiveness of the mitigation measures planned to prevent entrainment of larvae and juvenile fish during hydrostatic tests, construction of the LNG terminal, and LNG tanker ballast water pumping operations should first be demonstrated by the proponent to the satisfaction of Fisheries and Oceans Canada and the Ministry of Natural Resources and Wildlife. → p. 76

Recommendation 5 – The Panel recommends that the solution chosen by the federal and provincial governments to manage the dredged material not result in additional hazards and safety problems for the population in the surrounding area. → p. 77

Recommendation 6 – The Panel recommends that the proponent provide information to Transport Canada, Fisheries and Oceans Canada, and the Ministry of Sustainable Development, Environment and Parks concerning the construction, operation and dismantling of the temporary dock that will be

used to build the LNG terminal within the framework of this environmental assessment. The proponent shall establish the impact of this work on the natural environment and on the port's operations, as well as on the habitat areas to compensate, if necessary. → p. 77

Recommendation 7 – The Panel recommends that the proponent's fish habitat compensation plan for losses and disturbances to fish habitats be filed at Fisheries and Oceans Canada under the current environmental assessment. → p. 78

Marine mammals

Recommendation 8 – The Panel recommends that if Fisheries and Oceans Canada authorizes work in the marine environment to build the marine facilities of the LNG terminal, then this department should ensure that the mitigation measures required from the proponent are effective, or propose other measures. → p. 85

Cumulative effects on fish and marine mammals

Recommendation 9 – The Panel recommends that the proponent complete the analysis of cumulative effects on loss of fish habitat related to marine facilities as part of this environmental assessment. → p. 87

Terrestrial wildlife habitats

Recommendation 10 – The Panel recommends that the proponent propose, within this environmental assessment, mitigation and follow-up measures to ensure the longterm use of the Peregrine Falcon nesting areas, in accordance with the Action Plan for Recovery of the Species. → p. 91

Recommendation 11 – The Panel recommends that no facilities or activities related to the construction site and operation of the LNG terminal be authorized between the current access road and the Cacouna marsh, near the site entrance. It also recommends that the proponent take measures, such as the construction of a noise-abatement wall during site preparation, to screen the marsh from noise during construction and operation of the LNG terminal. → p. 95

Recommendation 12 – The Panel recommends that the blasting of the cliff be limited to removing irregular rocks in order to level the land. This aims to protect avifauna and neighbouring wildlife habitats. In addition, blasting should only be authorized outside of the nesting period, in the timeline specified by Environment Canada and the Ministry of Natural Resources and Wildlife, i.e. from October to February. → p. 95

Cumulative effects on wildlife habitats

Recommendation 13 – The Panel recommends that the proponent submit to Transport Canada and to Environment Canada, as part of this environmental assessment, pipeline route options on Transport

Canada harbour property, along with an assessment of the impacts of the pipeline including cumulative effects. → p. 97

Characterization of the environment and noise impact modeling

Recommendation 14 – Since the three year duration of construction work cannot be considered to be short, the Panel recommends that the noisy work be allowed during the day only. Certain work could be allowed in the evening and at night on the condition that the proponent demonstrate to the Ministry of Sustainable Development, Environment and Parks that the noise levels, including peak noise, would be under the Ministry's criterion and that he undertakes to monitor it continuously at night and remedy the situation as required. → p. 105

Recommendation 15 – Owing to the proximity of the centre of Cacouna village, the Panel recommends that no major source of noise, such as crushers, be installed for construction purposes on the site now being operated at the Port of Gros-Cacouna. → p. 105

Recommendation 16 – The Panel recommends that noise levels from the LNG terminal construction site be monitored continuously at the sensitive receptor sites identified by the proponent and used to characterize the ambient noise environment. If the noise regularly exceeds the criteria set forth in the Ministry of Sustainable Development, Environment and Parks' guidelines, the proponent should take measures to reduce noise emissions. → p. 105

Air quality and health

Recommendation 17 – The Panel recommends that atmospheric emissions from construction of the LNG terminal be monitored continuously, so that whenever air quality criteria are exceeded, remedial action can be taken rapidly. → p. 111

Recommendation 18 – The Panel recommends that the proponent build and operate a sampling station to monitor the main compounds that could exceed standards during operations (ozone, NO₂, particulate matter), as well as fugitive emissions. This station should be installed when work begins. → p. 113

Effects of project on the visual quality of the environment

Recommendation 19 – The Panel recommends that the proponent, in collaboration with the municipal authorities and associations working in the area of heritage protection, review the visual integration of the project in an effort to make it blend into its surroundings. → p. 118

Recommendation 20 – The Panel recommends that the gas pipeline metering station be taken into account in the LNG terminal architectural integration plan. → p. 120

Impacts of the project on the Malécite nation

Recommendation 21 – Should Environment Canada establish the authenticity of the rock paintings in the cave located on the Gros Cacouna peninsula, the Panel recommends that Environment Canada supervise the blasting activities carried out by the proponent. → p. 125

Project impacts on the Port of Gros-Cacouna

Recommendation 22 – The Panel recommends that Transport Canada provide an area in the Port of Gros-Cacouna in order to continue providing recreational boaters with a safe, accessible haven at all times in case of unforeseen problems. The proponent should assume any cost for such a measure.
→ p. 130

The île Verte emergency link

Recommendation 23 – The Panel recommends that the proponent provide the île Verte health committee with the means to get around the LNG terminal berthing wharf, so that it will not constitute an obstacle for boats used to evacuate people in emergencies. → p. 133

Municipal services

Recommendation 24 – The Panel recommends that the sources of project water supply be defined and authorized as part of the this environmental assessment. → p. 135

Recommendation 25 – The Panel recommends that the proponent submit a residual matter management plan to the Ministry of Sustainable Development, Environment and Parks as part of this environmental assessment. → p. 135

Seismic risk

Recommendation 26 – The Panel recommends that discussions take place between the Ministry of Sustainable Development, Environment and Parks and Transport Canada so as to identify, at the environmental assessment stage of the project, which government authority will ensure that earthquake risks are correctly taken into account in design of the LNG terminal. → p. 141

Evaluation of technological risks

Recommendation 27 – The Panel recommends that the Ministry of Sustainable Development, Environment and Parks and Transport Canada ask the proponent to conduct, as part of this environmental assessment, an analysis for risks linked to the presence of the gas pipeline in the LNG terminal project study zone that will take into account potential cumulative effects. → p. 144

Recommendation 28 – The Panel recommends that the proponent update his technological risk assessment for the projected LNG terminal and submit it to Transport Canada and to the Ministry of

Sustainable Development, Environment and Parks as part of this environmental assessment. This updating should take into account the proponent's technical revision of the project and the various recommendations of the Panel. → p. 145

Recommendation 29 – The Panel recommends that, before an LNG tanker approach route to the LNG terminal south or north of Île Rouge is established, Transport Canada take into account the environmental impacts in addition to the safety aspects. → p. 147

Emergency measures planning

Recommendation 30 – The Panel recommends that, in addition to the warning systems planned for the Gros Cacouna peninsula trails and the municipality of Cacouna, the proponent establish a place for workers at the Port of Gros-Cacouna. In addition, warning systems established in cooperation with the municipal authorities of Notre-Dame-des-Sept-Douleurs and Les Escoumins should be planned. → p. 157

Recommendation 31 – The Panel recommends that the proponent implement an annual public information mechanism for people who could be affected by a technological accident at the LNG terminal or on an LNG tanker. → p. 157

Recommendation 32 – The Panel recommends that in case of an earthquake of a magnitude above or equal to the return period of 475 years, the emergency measures plan should be activated so that the authorities responsible for civil safety, at the municipal and provincial levels, are informed of the status of the situation, even if there is no liquefied natural gas leak. → p. 158

Recommendation 33 – Since Transport Canada is owner of the Gros-Cacouna Harbour facilities, the Panel recommends that that department should ensure that an emergency environmental plan is prepared for the LNG terminal project in accordance with the *Environmental Emergency Regulations*. → p. 158

Construction monitoring

Recommendation 34 – The Panel recommends that the monitoring program be developed by the proponent as part of the environmental assessment of the project. → p. 159

Recommendation 35 – The Panel recommends that a public advisory committee be established to respond to the concerns of the public. This committee would comprise citizens, the proponent, a representative of the municipality of Cacouna, a representative of the Government of Canada, and a representative of the Government of Quebec, and that it be financed by the proponent for the duration of the construction work. The results of monitoring should be public. → p. 159

Environmental follow-up during operations

Recommendation 36 – The Panel recommends that the proponent, in partnership with the Centre local de développement de la région de Rivière-du-Loup, participate in the assessment of the regional economic spinoffs of the project. → p. 160

Recommendation 37 – The Panel recommends that the public advisory committee be maintained during operations. The monitoring results would be available to the public. → p. 160

Decommissioning the site and the terminal

Recommendation 38 – The Panel recommends that the proponent complete the analysis of the environmental impacts of dismantling the terminal based on the terms of the lease reached with Transport Canada, as part of this environmental assessment. → p. 161

Recommendation 39 – The Panel recommends that Transport Canada require that the proponent's lease contain a guarantee that the harbour lands used for construction would be rehabilitated as soon as construction of the LNG terminal is completed. → p. 161

Introduction

The Cacouna Energy LNG terminal project is subject to the Quebec environmental impact assessment process as set out in Section 31.1 and subsequent sections of the *Environment Quality Act* (L.R.Q., c. Q-2), which provides for public participation. The project is also subject to an environmental assessment by the Government of Canada under the *Canadian Environmental Assessment Act* (L.C. 1992, c. 37, as modified), which also has provisions for public consultation. In this context, the project underwent a cooperative environmental assessment in accordance with the May 2004 *Canada-Quebec Agreement on Environmental Assessment*, hereafter called the "Agreement", which, among other things, provides for the possibility of creating a joint review panel when federal and provincial authorities require that a project be reviewed by an independent panel.

On the recommendation of Transport Canada and Fisheries and Oceans Canada, the two federal authorities responsible for issuing a permit for the proposed project, the federal Minister of the Environment decided, on August 19, 2005, to refer the project to a federal review panel pursuant to the *Canadian Environmental Assessment Act*. It should be noted that the project will also require a lease from Transport Canada as it is the owner of the Gros-Cacouna port area. On March 23, 2006, Mr. Claude Béchar, Minister of Sustainable Development, Environment and Parks for the province of Quebec, issued a mandate to the Bureau d'audiences publiques sur l'environnement (BAPE) to hold public hearings on the project pursuant to Section 31.3 of the *Environment Quality Act*. BAPE was also asked to establish a joint review panel, if circumstances warranted, in accordance with the Agreement.

In accordance with the provisions of the Agreement regarding the creation of a joint review panel, the president of the BAPE created the BAPE commission on March 29, 2006, and appointed the two members of this commission to the joint review panel. The federal Minister of the Environment, the Honourable Rona Ambrose, subsequently approved the appointment of these two members. The federal panel member, who joined the BAPE in order to create the joint review panel, was appointed by the federal Minister of the Environment on April 7, 2006, and by the president of the BAPE on April 10, 2006. At the end of this process, the Quebec Minister of Sustainable Development, Environment and Parks approved the appointment of the three members of the joint review panel.

The joint review panel created through the above process completed its work at the same time as the BAPE commission, following the BAPE's rules from the *Rules of*

Procedure relating the Conduct of Public Hearings [Q-2, r. 19]. The two panels' mandates began on May 8, 2006 with a duration of four months. As allowed for under the Agreement, it was decided to produce a joint report.

In September 2004, the Quebec Minister of the Environment (now the Minister of Sustainable Development, Environment and Parks), Transport Canada and Fisheries and Oceans Canada received a project description from TransCanada PipeLines Limited and Petro-Canada. After determining that the environmental impact report was acceptable, the Minister of Sustainable Development, Environment and Parks gave the BAPE the mandate to make the report public and to hold an information and public consultation period from February 22 to April 8, 2006. During this period, approximately thirty requests for a public hearing were sent to the Minister.

The first part of the public hearings was held in Rivière-du-Loup from May 8 to 11, 2006. Sixty-six briefs were presented during the second part of the public hearings, held in Cacouna from June 12 to 15, 2006. An additional twenty-five briefs were tabled but not presented, and two oral presentations were made.

Description of the Project

The proposed Cacouna Energy LNG terminal project is located in the Municipality of Cacouna, approximately 15 km north of downtown Rivière-du-Loup (Figure 1). The project involves importing liquefied natural gas (LNG) to supply natural gas to the North American market. It includes marine facilities for berthing ships that transport LNG at atmospheric pressure (LNG tankers), transfer facilities and land-based LNG storage and regasification facilities.

The marine facilities would consist of a wharf on piles, equipped with ice-deflecting barriers, for docking and unloading the LNG tankers. The wharf would be linked to land by a jetty, also on piles, approximately 400 m long (Figure 2).

Even though the wharf could accommodate a tanker with a capacity of 216 000 m³, those anticipated will be in the range of 145 000 to 165 000 m³. The LNG would come from liquefaction facilities located in Russia or the Middle East. An LNG tanker would arrive at the Cacouna terminal every four to eight days. After crossing the Atlantic, it would enter the Gulf of St. Lawrence, reach the estuary, and then follow the seaway to Les Escoumins. The LNG tanker would then head to the terminal, going around île Rouge either to the south or to the north (Figure 1). Tugboats would be used for arrival and berthing and for departure manoeuvres. The unloading of the LNG would take approximately fourteen hours.

The land facilities would include two double-walled LNG storage tanks, 79 m in diameter and 50 m high, with an approximate capacity of 160 000 m³ each. The internal wall of the tanks would be composed of a nickel alloy resistant to the low temperatures of the LNG (-160 °C), and the external wall would be made of concrete. The floors and ceilings of the storage tanks would be made of reinforced concrete to ensure complete confinement. The facilities would also include equipment to reconvert the LNG into natural gas, a unit to produce nitrogen to be injected into the natural gas as needed so that it can be used as a fuel, piping for the transport of the LNG and natural gas, emergency disconnection devices, surveillance and control systems, an emergency diesel generator, etc. Finally, there will also be service and support buildings, access roads, and parking areas. The pipeline to connect the LNG terminal to the North American network is not part of the project, however, and its route, which is still to be defined, will be evaluated in the context of a separate environmental assessment.

The LNG terminal would produce some 500 million cubic feet of natural gas per day (cfgpd) (14.2 million cubic meters). Construction costs are estimated by the proponent to be \$686 million (2004 dollars) and the total annual operating costs to be \$25.2 million. The proponent expects to begin construction in January 2007 and commission the terminal in 2010.

The BAPE commission and the joint review panel, hereafter referred to collectively as "the Panel", was to have submitted a joint report to the federal Minister of the Environment and the Minister of Sustainable Development, Environment and Parks by September 8, 2006. However, on August 25, 2006, the proponent submitted modifications to the proposed marine and land facilities (Figure 2) as well as to certain construction methods. Although those modifications did not change the scope of the project and are part of the engineering process related to the proposed LNG terminal project, they were likely to affect certain conclusions of the Panel on matters such as ambient underwater and on-land noise, air quality, water quality of the St. Lawrence Estuary, marine wildlife and avifauna, landscape, and technological risks. A request to extend the Panel's mandate of inquiry and public hearing was therefore submitted to the Minister of Sustainable Development, Environment and Parks to allow the Panel to satisfy the requirements of the *Canadian Environmental Assessment Act* and the *Environment Quality Act*, as prescribed under the Agreement. On September 20, 2006, the Cabinet, on the advice of the Minister of Sustainable Development, Environment and Parks, extended the mandate of the BAPE until November 10, 2006¹.

The Panel sent new questions to the proponent and the experts in order to be able to complete its review, and invited individuals and groups to submit their observations

1. Decree 854-2006, *Gazette officielle du Québec*, part 2, October 11, 2006, p. 4896.

and comments on the modifications proposed by the proponent. About 20 comments were received by the Panel.

Review Framework

The BAPE commission reviewed the project from the perspective of sustainable development by applying the concept of environment held by the higher courts, which encompasses biophysical, social, economic and cultural aspects, for current and future generations. This concept of the environment is broad and includes the effects of human activities on the environment, life, health, safety, well-being, and comfort of the population, as well as other matters of interest to communities.

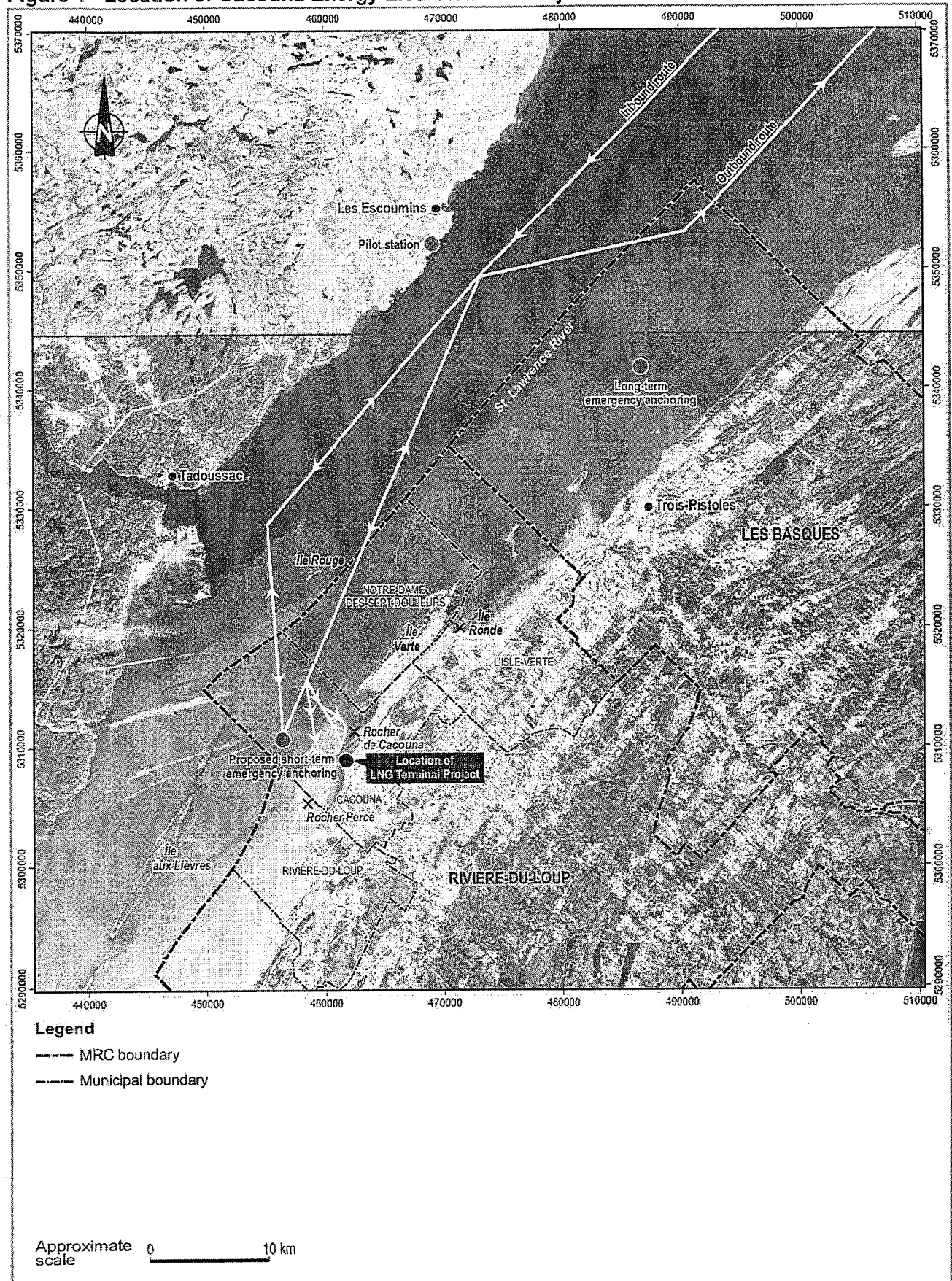
In addition, the joint review panel reviewed the project in accordance with the requirements of the *Canadian Environmental Assessment Act* and the *Environment Quality Act*, as stipulated in the Agreement. It therefore assessed the environmental effects of the project and their significance, including those caused by accidents and malfunctions, and the cumulative environmental effects that the project could cause when combined with the effects from other works, projects or activities, taking into account measures to mitigate these effects. Finally, the reason for the project, the feasible alternatives, and the need for a follow-up program were part of the review, as well as the capacity of renewable resources to meet current and future needs.

The Panel completed its review of the project using the information contained in the file assembled by the joint environmental assessment committee. This committee, created in accordance with Section 10 of the Agreement, has the responsibility to manage the environmental assessment and to ensure that all relevant and necessary information needed to satisfy the requirements of the *Canadian Environmental Assessment Act* and the Quebec *Environment Quality Act* is obtained and taken into consideration. The Panel also based its review on the information and documentation tabled during the public hearings and from its own research.

In its report, the Panel has provided findings, opinions, and recommendations. A finding means a fact, an opinion means the Panel's view, and a recommendation means an action proposed by the Panel.

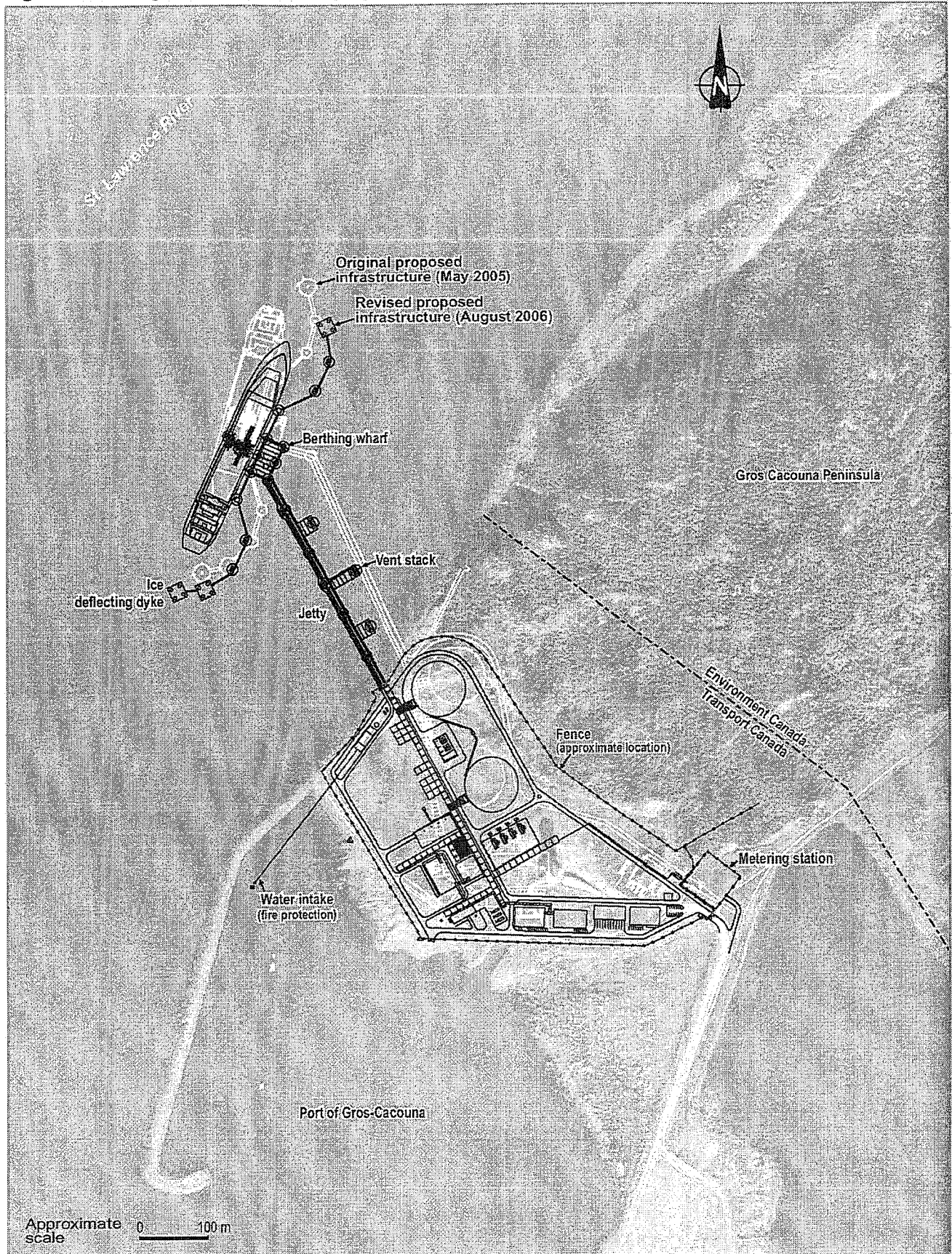
In particular, the Panel reviewed the issue of public safety, taking into account the concerns of the neighbouring population, and paid specific attention to the integration of the project into the natural and human environment. To this end, the sixteen principles of sustainable development, as explained and defined in the Quebec *Sustainable Development Act* (L.R.Q., c. D-8.1.1), which exist to orient the actions of the government, also guided the Panel.

Figure 1 Location of Cacouna Energy LNG Terminal Project



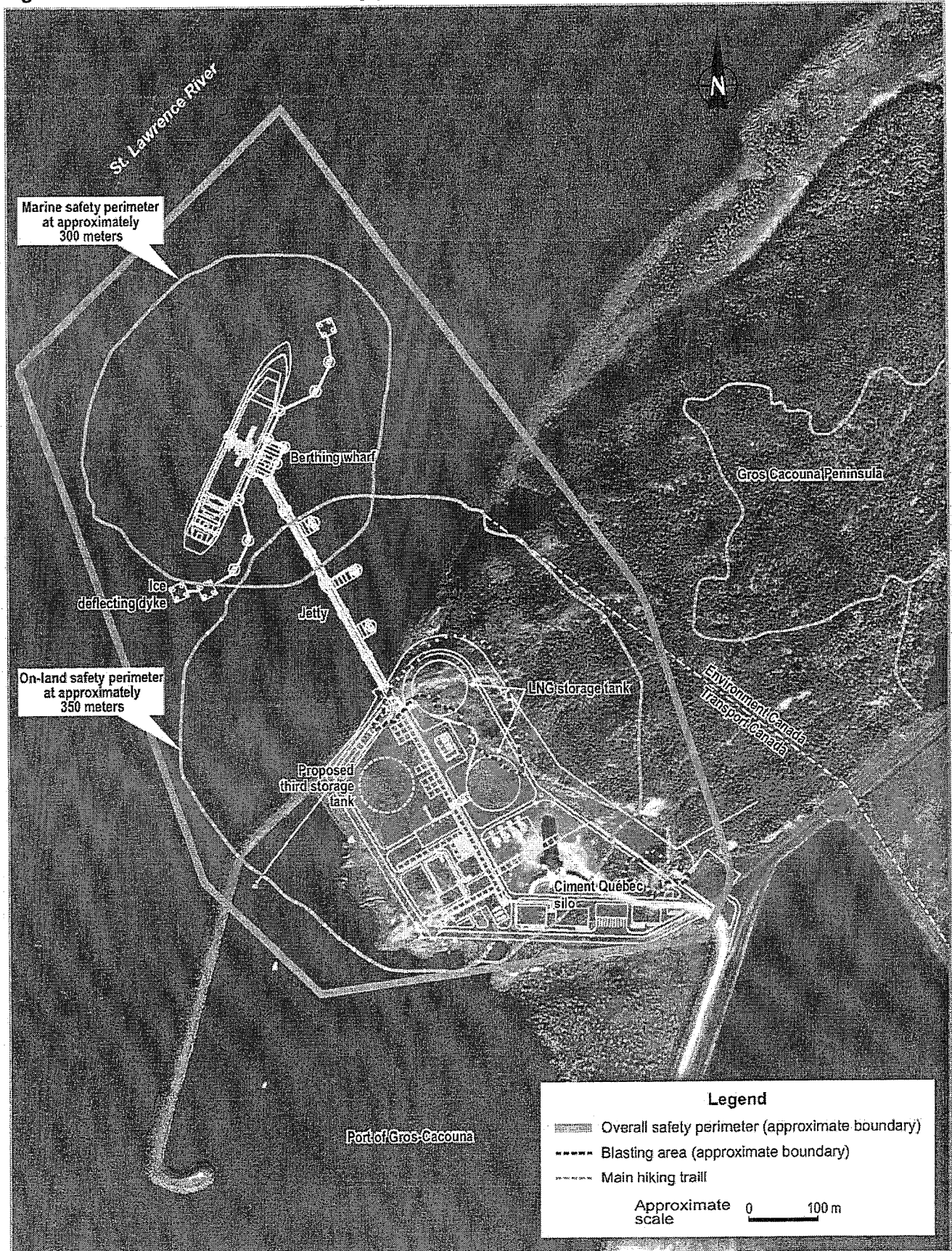
Sources : a dapted from PR3.1, Figure 5.9-1; PR8.7, Figure 2.3-2 ; regional map of the ministère des Affaires municipales et des Régions [on-line (July 24, 2006) : www.mamr.gouv.qc.ca/publications/cartotheque/region_01.pdf].

Figure 2 Changes to project design (August 2006)



Sources : adapted from PR8.7, Figure Q-029-1 ; DA46.2, Figure 6 ; DB8 ; DQ1.1, Appendix 1.

Figure 3 Planned facilities and safety perimeter



Sources : adapted from PR8.7, Figures Q-023-2 and Q-029-1 ; DA46.2, Figure 6 ; DB8 ; DQ1.1, Appendix 1.

