INITIAL ASSESSMENT OF THE PROPOSED ACCESS/ INFRASTRUCTURE FOR THE GRANDE BALEINE COMPLEX

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DEPARTMENT OF FISHERIES AND OCEANS

JULY 1991

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1. INTRODUCTION

1.1 Scope of the initial assessment

This initial assessment deals solely with the proposed access/infrastructure for the Grande Baleine complex. It should be noted that this assessment of access/infrastructure in no way implies that the federal government endorses the hydroelectric development project at Grande Baleine because the complex will be addressed separately, and it should not be assumed that future conclusions will be dependent on those presented in this report.

This assessment of the proposed access/infrastructure is a summary which is based on an in-depth review of the anticipated biophysical impacts of the project on the local environment in accordance with Section 12 of the Environmental Assessment and Review (EARP) Guidelines Order. The in-depth review was conducted in collaboration with the consulting firm Hatch and Associates and resulted in the report entitled "Access/ Infrastructure for Grande Baleine. Analysis of Hydro-Quebec Studies and Concerns of Affected Communities" (Hatch and Associates).

The Department of Fisheries and Oceans (DFO) is also aware of the potential socio-economic effects of the project and associated public concern pursuant to Section 13 of the EARP Guidelines Order. These issues are addressed in the "Analysis of Socio-Economic Issues and Public Concerns About the Proposed Access/Infrastructure For the Grande Baleine Complex." (attached). In preparing this analysis, DFO and the consulting firm Beak Consultants Limited, met with residents of areas which could be affected in an effort to clearly identify and understand their concerns. A report which provides a full description of the meetings that took place in northern Quebec communities in January-February 1990 has been prepared and is entitled "A Summary of Issues and Concerns Held by Communities Affected by the Access/Infrastructure Component of Hydro-Quebec's proposed Great Whale project" (Beak Consultants).

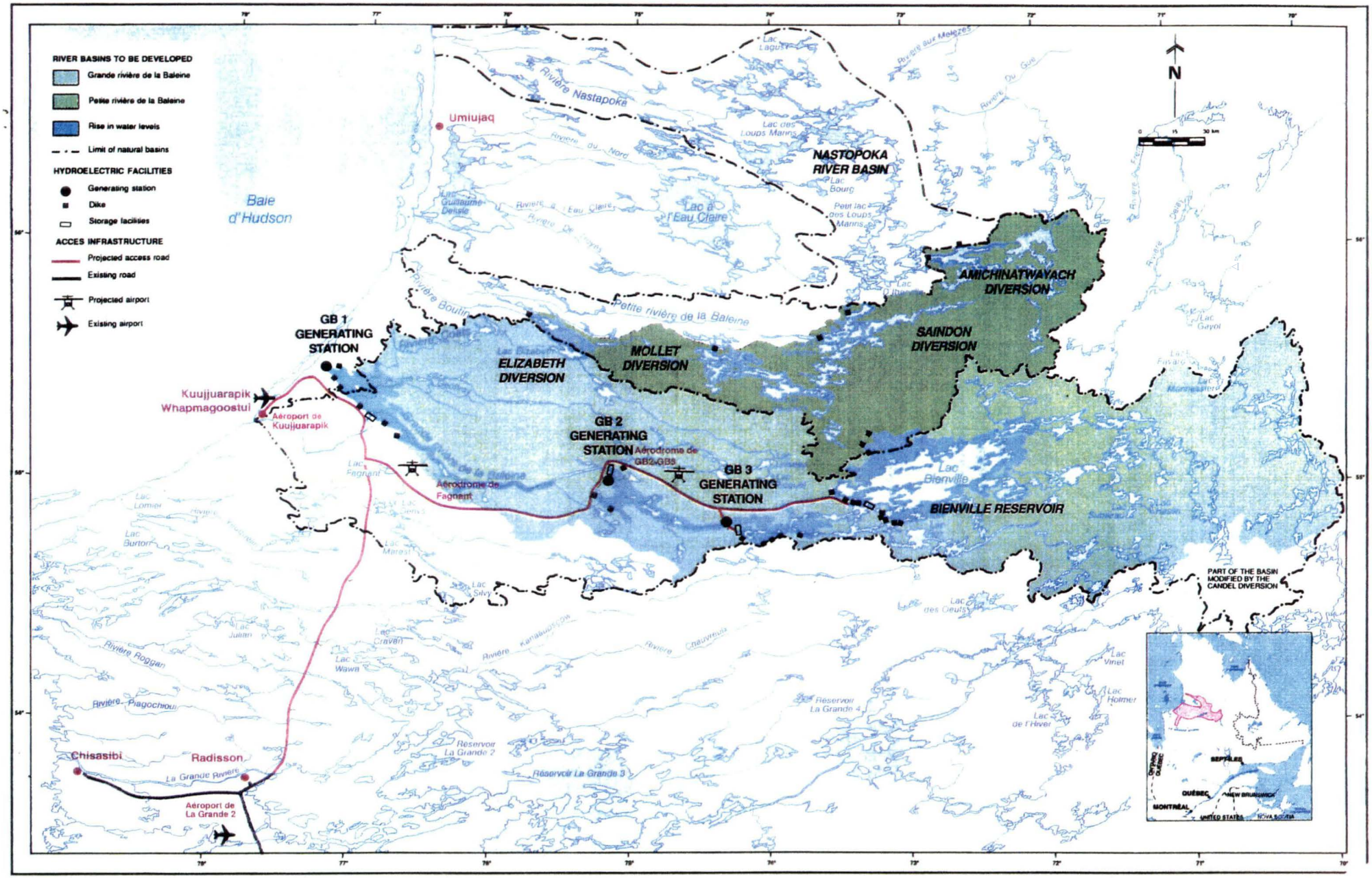
2. ENVIRONMENTAL ISSUES

2.1 Introduction

2.1.1 The Grande Baleine project

The Grande Baleine hydroelectric project proposed by Hydro-Québec was initiated in the 1970s. In 1982, Hydro-Québec released a final report on the preliminary studies (*Rapport final sur les tudes d'avant-projet*) in an effort to obtain government approval. Because projections of the demand for electricity

FIGURE 1-1
Location of Hydro Quebec's Great Whale (Grande Baleine) Complex



Source: Hydro Quebec, December 1990

indicated a decrease in consumption, construction of the Grande Baleine project was postponed. The final report was updated by Hydro-Québec in 1990 and 1991.

Since the rate of growth in the demand for electricity has been increasing since 1987, Hydro-Québec is now reviving the Grande Baleine project and is seeking approvals for two projects: the complex (dams, powerhouses and related works) and the transportation infrastructure (roads and airports).

The Grande Baleine complex, located some 150 kilometres north of the La Grande complex, comprises three powerhouses on the Grande Baleine River (GB1, GB2 and GB3), a main reservoir on Bienville Lake and diversion of the Petite Baleine and Nastapoka rivers with more than 150 dykes. The complex will be capable of generating 3,158 megawatts (MW), and the average annual output will be 16.2 terawatt hours (TWh).

The proposed access/infrastructure includes temporary and permanent roads and airports, and borrow pits and temporary camps required for construction. The road infrastructure comprises the road from the La Grande airport to the GB1 airport, the road from lac Fagnant to Bienville and the road from GB1 to Kuujjuarapik-Whapmagoostui. The almost 600 kilometres of road will entail construction of 21 bridges and installation of more than 1,000 culverts. In addition, a total of 18 construction camps with a capacity of 100 to 200 workers each will have to be built. The airport infrastructure comprises three airports, two of them permanent: the renovated and enlarged Kuujjuarapik airport, the GB2-GB3 airport and the temporary airport at lac Fagnant.

Hydro-Québec claims that in order to meet future energy needs, construction of the access/infrastructure for the Grande Baleine complex must be started in 1991. The 240-kilometre first phase linking the LG2 powerhouse and the future GB1 powerhouse will enable Hydro-Québec to begin construction of the complex in May 1993 and to have the first three units of the GB1 station in operation by the fall of 1998.

2.1.2 The territory

The population of the territory covered by the Grande Baleine project is concentrated in the village of Kuujjuarapik-Whapmagoostui, a regional service centre and airport relay. Three groups make up the population: the Cree of Whapmagoostui, the Inuit of Kuujjuarapik and a group of non-natives. Traditional subsistence activities play a pivotal role in the cultural, social and economic lives of the local residents. The Inuit are most active along the coast and in Hudson Bay, whereas the Cree concentrate their activities inland, especially south of the Grande Baleine River.

The territory, which straddles the 55th parallel, is characterized by a sub-Arctic continental climate with a maritime influence on the shores of Hudson Bay. Summer lasts only through July and August. Most of the vegetation is black spruce, and the density decreases as latitude increases. Plant growth along the rivers includes willow, alder, sedge and a variety of grasses. The main aquatic animal species are brook trout, lake trout, lake whitefish, mullet, seals and beluga whales, while the birds and land animals include Canada goose, ptarmigan, otter, fox, beaver and caribou.

The territory covered by the Grande Baleine project is part of the lands subject to the James Bay and Northern Quebec Agreement (JBNQA) signed in 1975 by the federal government, the provincial government, the Cree of James Bay, the Inuit, the Société d'énergie de la Baie James, the Société de développement de la Baie James and Hydro-Québec. The JBNQA is made up of 31 chapters dealing with such matters as *Lands* (Chapter 5), *The Environment and Future Development South and North of the 55th Parallel* (chapters 22 and 23) and *Hunting, Fishing and Trapping* (Chapter 24).

2.2 Fish and Fish habitat

Potential Effects

Construction and the presence of the access/infrastructure for the Grande Baleine complex have the potential to affect fish habitats and fish populations (eg. brook trout, gray trout, pickerel, northern pike, herring and whitefish). These potential effects are primarily attributable to changes in the stream bed, disturbance of the substrate and the resulting sedimentation, changes in hydraulic characteristics or a decline in the physical and chemical quality of the water. Obstructions or impediments to the movement of fish may also occur. These potential effects are especially likely to occur downstream or, to a lesser degree, upstream of bridges or culverts spanning the waterway. Other aspects of the project, such as changes in drainage patterns, movement of machinery and disposal of waste water associated with work camps, borrow pits and storage areas, also have the potential to affect fish habitat. In addition there may be other impacts, such as disturbance of marine mammals by blasting near the shore of Hudson Bay for the renovation of the Kuujjuarapik airport.

With regard to the water crossings, the installation of culverts in a spawning ground could result in the direct loss of an essential fish habitat, one that may be both extremely sensitive and valuable. In addition to the direct loss of habitat resulting from the presence of structures on the bed of the waterway, other parts of the spawning ground may be threatened by

the proximity of the culverts. Erosion and fine-particle sedimentation that can destroy the spawning grounds can result from construction, maintenance or poor design (unstable natural or man-made banks, bed erosion, etc). Runoff from roadside ditches can also result in erosion and sedimentation.

Construction work carried out during spawning season or while eggs are incubating can also be harmful to fish resources. Disrupting spawning activity or egg development can have an impact on recruitment in the affected population.

The construction of bridges and other means of spanning waterways that would prevent normal fish movement would be a direct impediment to the full use of the available habitats. Such structures can obstruct migration routes leading to spawning grounds or feeding areas.

Blasting on land near the marine environment could have an impact on resources, particularly marine mammals, in Hudson Bay.

Mitigation

Despite the potential for impacts, there are known measures which can be taken to mitigate the impacts on spawning grounds. These are:

- locating bridges or other crossings downstream of spawning grounds;
- ensuring that spawning grounds remain accessible to spawning fish;
- using culvert designs that minimize encroachment on waterways, such as an arch without an apron, which allows much of the natural bed of the waterway to be preserved;
- using construction methods that minimize fine-particle disturbance;
- consolidating man-made and, if applicable, natural banks and the stream bed;
- creating buffer zones between drainage ditches and waterways; and,
- implementing construction schedules which avoid disruption during spawning season and while eggs are incubating.

Mitigating measures aimed at allowing fish to move upstream or downstream freely consist primarily of designing, sizing and locating crossings so as to ensure that the speed of the current and the discharge remains within acceptable limits.

The following measures can be applied to mitigate blasting impacts:

- avoid blasting when there are marine mammals near the blasting area;
- conduct reconnaissance flights and ensure that marine mammals are not in the area;
- use a micro-delay blasting method, which entails firing a series of small charges several milliseconds apart so that the shock waves cancel each other out.

Conclusion

In summary, it is concluded that although the project has the potential to affect fish and fish habitats, the impacts can be mitigated with known technology.

2.3 Terrestrial flora and fauna

Potential Effects

The territory covered by the Grande Baleine project is characterized by low densities of wildlife and sparse vegetation. These elements of the environment may, however, be affected to some extent by construction of the access/infrastructure for the Grande Baleine complex.

Apart from the impact of clearing trees for the roadways, the potential impacts of the project on flora include alteration or destruction of plant communities that are relatively scarce in the region (such as the groves of balsam poplar along streams where vegetation is particularly abundant) or those that provide good habitat for particular species of wildlife (such as willows and yellow birch, which are important sources of food for ptarmigan in winter), and disturbance of some communities that are on the outer limit of their range. The potential impacts of the project on land animals include the destruction and disturbance of habitats and temporary (construction phase) or permanent (operating phase) disruption of migration routes, wintering, feeding and staging areas (plants and animals that are considered rare, threatened or endangered are discussed in section 2.5.)

Mitigation

A number of measures can be taken to reduce impacts on terrestrial flora and fauna. These include:

- designing the transportation infrastructure so as to avoid disturbing habitats or major areas associated with particular animal species or plant communities that are scarce in the region or on the outer limit of their range;

- avoiding construction in areas used by particular species of animal during critical periods of their life cycle (staging, feeding and wintering areas, etc);

- minimizing the clearing of trees;

- designing facilities so as to minimize changes in natural drainage patterns;

- preserving a strip of vegetation near lakes and waterways;

- preventing erosion by ensuring proper natural and modified grades;

- replanting, with suitable species, sites that are disturbed.

Conclusion

In summary, as discussed above, although the project has the potential to affect terrestrial flora and fauna, those impacts can be mitigated with known technology.

2.4 Birds

Potential Effects

In summer, Canada geese, mergansers, buntings, some shorebirds and other species normally come to the area to breed. In winter, ptarmigan feed on the shrubs, which are also important for many other species of birds. The potential impacts on birds are linked mainly to migration, nesting, reproduction and feeding. The effects are therefore similar to those indicated for land animals, that is, destruction and disturbance of habitats and temporary (construction phase) or permanent (operating phase) disruption of migration routes and nesting, feeding and staging areas. (Birds that are considered rare, threatened or endangered are discussed in section 2.5.)

Mitigation

The mitigation measures applicable to terrestrial flora and fauna and fish habitats can also be used to mitigate impacts on birds. However, consideration will have to be given specifically to the following measures:

- designing access/infrastructures so as to avoid disturbing habitats or major areas associated with a particular species;
- avoiding areas used by particular species of birds during critical periods (staging, feeding and nesting areas, etc);
- avoiding the disruption of river habitats and aquatic vegetation;
- designing facilities so as to minimize changes in natural drainage patterns;
- replanting, with species that are suitable for birds, sites that are disturbed.

Conclusion

Although the project has the potential to affect birds, these impacts can be mitigated with known technology.

2.5 Rare, threatened or endangered species and exceptional sites

Potential effects

Relatively few of the species currently recognized by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as rare, threatened or endangered are found in the territory covered by the project. Those that are found in the Grande Baleine area include the wolverine, the peregrine falcon, the bald eagle and the great grey owl.

Plants considered rare in Quebec that are found in the Grande Baleine area include a number of varieties of *Carex sp* (grass-like herbaceous plants, almost 200 species in Quebec), species of *Puccinellia sp* (widespreading graminaceous plants, normally maritime), *Sagina sp* (widespreading herbaceous plants) and *Antannaria sp* (wooly herbaceous plants). The potential impacts of the project on these plants and animals are similar to those discussed in the section on terrestrial flora and fauna: alteration or disturbance of plant communities which are at risk in the area; destruction and disturbance of wildlife habitats; temporary (construction phase) or permanent (operating phase) disruption of nesting, wintering, feeding and staging areas.

Mitigation

Given the similarity in the effects, the mitigating measures applicable to terrestrial flora and fauna and fish habitats can also be used to mitigate the potential impacts of the project on rare, threatened or endangered species. However, specific consideration will have to be given to the following measures:

- identify rare, threatened or endangered species that are likely to be found in the area in which the roads, airports or workcamps are to be located;
- specifically identifying, before construction begins, any sites or areas that are important for the species identified (an important environment associated with a particular plant community or a habitat specific to an animal);
- avoiding disturbing major habitats or areas associated with a particular species;
- avoiding construction in areas used by particular species of animal during critical periods.

Construction of the access/infrastructure could disrupt or destroy exceptional sites. A number of measures can be taken to reduce the impacts, including:

- identifying exceptional sites by conducting field visits and consulting with native people;
- designing the transportation infrastructure so as to avoid disturbing the identified sites and areas.

Conclusion

The potential impacts of the project on rare, threatened or endangered species and exceptional sites can be mitigated with known technology.

2.6 Archaeology

Potential Effects

Construction and operation of the transportation infrastructure may alter or destroy archaeological or sacred sites. Building the infrastructures may destroy important sites, and the increase in travel in the area by workers and visitors may increase the risk of the more accessible sites being altered. The existing inventory reveals at least 200 archaeological sites classified on a time scale ranging from contemporary to prehistoric. An assessment of the socio-cultural importance of each potentially affected site would be required, to determine appropriate mitigative measures.

Mitigation

The measures normally used to mitigate the impacts of a project on archaeological sites include:

- conducting site visits prior to construction in order to identify archaeological and sacred sites in the areas potentially affected by the project;
- avoiding the sites identified in the project;
- excavating to recover material of archaeological value if sites cannot be avoided;
- having an archaeologist supervise the construction work;
- providing workers and visitors with complete information and proper warnings about altering any sites.

Conclusion

Although the project has the potential to affect sites of archaeological value, it is concluded that those impacts can be mitigated with known technology.

2.7 Navigability potential

The installation of culverts or low bridges may obstruct traditional water transportation routes or other potentially navigable waterways.

In Canada, the *Navigable Waters Protection Act (NWPA)* states that no work shall be built or placed in any navigable waters unless the work, site and plans have been approved beforehand by the Minister of Transport. In 1990, Transport Canada (Canadian Coast Guard) began a navigability survey of the streams and rivers that will likely be affected by the roads and airports. The survey will be completed during the summer of 1991. The information gathered during that assessment will allow Transport Canada to advise the proponent about NWPA approvals in the area affected by the transportation infrastructure. The navigability potential of a waterway may be protected by applying measures related to the modification of the technical characteristics of the work. For example, building a bridge over a navigable waterway instead of installing a series of culverts may mitigate the impact on navigability.

Conclusion

In summary, although the project has the potential to obstruct navigable waters, it is concluded that those impacts can be mitigated with known technology principally involving the re-design of water crossings.

2.8 Risk of accidents

Construction and operation of the access/infrastructure would lead to an increase in the risk of accidents. An increase in the transportation, handling and storage of such materials as petroleum products, pesticides and ice-melting agents for the roads and airports would mean a higher risk of spills. Similarly, the activities associated with construction and operation of the infrastructure may increase the risk of forest fire.

Given the higher potential for accidents, a detailed emergency plan geared to the territory and the project should be developed before the work begins. The plan should include, for each element in the infrastructure, all the information needed to show that emergency situations can be effectively managed to eliminate impacts on the environment. The plan should include such items as identification of the people involved and their responsibilities; lists of available emergency equipment, including its location; communication systems; and, training.

Conclusion

In view of the control available under the federal *Transportation of Dangerous Goods Regulations* and provincial laws and regulations governing accidental spills, and with preparation of an emergency response plan before any work begins, it is concluded that the potential environmental impacts associated with the risk of accidents can be mitigated with known technology.

2.9 General Conclusions and Recommendations on environmental issues

The proposed construction of the access roads, airports and associated workcamps represents an undertaking for which the potential environmental impacts are well documented. This type of engineering work is done today using proven methods and techniques that have been developed and implemented by various responsible organizations to mitigate environmental impacts.

In addition to the normal rules governing this type of construction, a number of provincial and federal laws and regulations that apply in the area of the Grande Baleine project can serve to prevent the use of methods that prove to be inadequate. Included in this category are the JBNQA, the *Fisheries Act*, the *Navigable Waters Protection Act* and the federal *Transportation of Dangerous Goods Regulations*.

In summary, based on the environmental assessment and the issues discussed above, it is concluded that biophysical impacts associated with the proposed access/infrastructure for the Grande Baleine complex planned by Hydro-Québec can be mitigated with known technology.

To specifically confirm the presence of significant habitats and sites before the work begins and to ensure the application and effectiveness of the mitigating measures on which this conclusion is based, an Environmental Protection Plan that includes emergency response measures should be developed. As specified in Appendix 1, Guidelines for Preparing an Environmental Protection Plan, the plan must describe the mitigating measures in detail and specify how they are to be applied.

APPENDIX 1

GUIDELINES FOR PREPARING AN ENVIRONMENTAL PROTECTION PLAN

FOREWORD

Under the EARP Guidelines Order the environmental acceptability of development projects is linked to the application of well-known mitigating measures presented in many readily available technical reports. However, in planning and assessing such projects, it is often impossible to give a detailed definition of the terms and conditions for applying these measures in the field, primarily because of the lack of specific data on the actual features of the work sites or the practical conditions of construction. These characteristics can be associated with large-scale projects such as the access/infrastructure for the Grande Baleine project.

In situations where the work is routine in nature, as is the case for the construction of roads, the mitigating measures are well known and have already proven to be effective. In these cases, it is possible to decide whether or not the project is environmentally acceptable overall without knowing all of the construction details. The mitigating measures and the means of applying them must, however, be set out in specific terms before the actual work begins. Therefore, the proponent should provide detailed information on the mitigating measures to be applied in carrying out the project and present it in a document referred to as the Environmental Protection Plan (EPP).

1.0 INTRODUCTION

An environmental protection plan will ensure that the adverse effects of the access/infrastructure project will be mitigated through all phases: planning, construction, operation, maintenance and shutdown. In preparing the plan, every effort should be made to analyze the foreseeable effects, identify and apply the appropriate mitigating measures, and ensure follow-up. The plan would be used in preparing invitations to tender, to provide clear and specific instructions for on-site personnel, to conduct monitoring and follow-up programs, to ensure that the mitigating measures are effective and properly applied, and to demonstrate the proponent's commitment to protecting the environment.

The following sections provide information on the content of and the process for preparing the EPP. All of the elements indicated must be incorporated in this guide but the guide is not limited to those elements. The protection plan must include all pertinent elements that will ensure that the established objectives are met.

2.0 OBJECTIVES OF THE ENVIRONMENTAL PROTECTION PLAN

The purpose of the EPP is to ensure that the following objectives are met:

- the impacts of the project during construction and throughout its lifetime are mitigated to the extent that any residual impacts are insignificant;
- short-, medium- and long-term environmental follow-ups are conducted;
- measures to identify, characterize and mitigate impacts during construction are taken and adjustments for impacts likely to occur in the medium- or long-term are made;
- emergency measures are taken.

In this context, the EPP is needed for obtaining government approvals under the *Navigable Waters Protection Act* and the *Fisheries Act* to proceed with the project.

3.0 CONTENT OF THE ENVIRONMENTAL PROTECTION PLAN

3.1 Basic elements

To meet its objectives, the EPP must specify, before the work begins and for each component of the project or section of road:

- the potential impacts and the proposed mitigating measures, as well as an analysis demonstrating their anticipated effectiveness; the anticipated residual impacts and the follow-up programs proposed to verify the effectiveness of the measures; and, in cases where the measures prove ineffective, a commitment to make the changes needed to ensure effectiveness;
- inspection programs and programs for applying the measures during construction and operation of the access/infrastructure;
- a manual for supervisors of workers at the site and a training program for workers;
- incorporation in contracts awarded to contractors of the mitigating measures to be applied and directives to be followed.

Finally, the EPP must provide, before the work begins, a specific emergency response plan for each component of the project, during both the construction and the operating phases.

The elements included in the EPP for each component of the project must be approved before the work begins.

3.2 Features of an environmental protection plan

The EPP must include the following features:

1. Integrate all environmental concerns (proponent, governments, public) throughout the life of the project, from planning to shutdown.

2. Be presented in the form of a document that can easily be used on the construction site: clear, concise, with straightforward terminology and a practical format.

3. Include concerns relating to both the human and the biophysical environments.

4. Refer to follow-up guides and emergency response plans.

5. Be sufficiently comprehensive and flexible to be used as a guide in resolving conflicts (unanticipated situations, planned measures prove ineffective or impossible to apply, etc).

6. Insofar as possible, include a cross-reference system to help locate material in the text.

7. Use groupings and references so that the mitigating measures related to each phase of the project can be located quickly.

The following is a suggested contents for the EPP pertaining to the proposed access/infrastructure for the Grande Baleine complex. The EPP is to include, but is not limited to, all of these elements.

SUGGESTED CONTENTS FOR AN ENVIRONMENTAL PROTECTION PLAN

PART I - INTRODUCTION

1.0 Objectives

- project identification
- reference to pertinent environment codes
- statement of the objectives and content of the EPP

2.0 Development of the EPP

- identify all input used in preparing the EPP, such as the results of field work, consultation, etc.

3.0 Schedule for reviewing and updating the EPP

- a description of the frequency of EPP updates, particularly with respect to long-term follow-up

- introduce here such items as project follow-up or audit programs that are to be defined after the work begins

4.0 Project description

- identify all of the project components that constitute potential sources of impact

5.0 Legislative framework

- identify the laws, regulations and directives applicable to the project and the conditions attached to the permits received to carry out the project

PART II - ENVIRONMENTAL PROTECTION PROCEDURES

6.0 Protective measures by project phase

- describe the specific measures to be taken to deal with specific problems related to the main phases of the project

6.1 Planning
6.2 Construction
6.3 Operation and maintenance
6.4 Shutdown

7.0 Protective measures for sensitive areas

- identify specific measures for protecting sensitive areas

8.0 Maps and figures

- illustrations and maps pertaining to the protective measures

PART III - EMERGENCY RESPONSE PLANS

9.0 Emergency response plan

- plan for each site: camps, sections of road, airports, etc.

PART IV - INSPECTION AND SUPERVISION

10.0 Introduction

- state the objectives and types of inspection activity

11.0 Authority of inspectors

- state the authority that inspectors will have.

12.0 Inspection objectives

- identify and describe the areas of inspection activity: compliance with the EPP, on-site advice, requests for changes in the work, on-site environmental studies to document requests for changes, monitoring of the application of regulations, education programs, application of emergency measures, follow-up programs, etc.

13.0 Personnel

- identify the various levels of inspector and define the responsibilities of each level

14.0 Reports

- describe the procedures for producing and submitting inspection reports for each area of activity

15.0 Warnings, sanctions and releases

- identify sanctions

- identify the procedures for ensuring that contractors comply with the EPP and the actions that will be taken

3.3 General mitigating measures

Some mitigating measures are general and can be applied to many projects that include work of a similar nature. Examples are construction site safety and clearing methods. In its Code de l'environnement, Hydro-Québec lists the important general

measures that need to be elaborated on in the Environmental Protection Plan as specific measures.

The general measures must also include elements relating to the approach the proponent must take in carrying out the project. For example:

- the construction and other work will comply with the plans, specifications and procedures submitted, unless otherwise authorized;

- activities will be limited to the areas and corridors indicated;

- the proponent will make every effort to ensure that the approved measures and procedures are applied and that current laws and regulations are followed;

- in the event changes are needed, the proponent will contact the officials concerned to request approval.

3.4 Specific mitigating measures

In addition to general measures, the EPP must set out all the measures which relate directly to the specific elements of the project, such as the specific characteristics of water crossings.

First, the proponent must give a detailed description of the environment to be affected by the specific elements of the project, indicating the species and habitats that are likely to be affected. The amount of information must be sufficient to demonstrate that once the proposed measures have been applied, the work to be carried out will have only insignificant residual impacts. For example, for each waterway crossing, the proponent must identify and give the location of any fish habitats that are likely to be affected and demonstrate that the measures to be taken will provide adequate protection. This process must also be applied to habitats that are used by mammals and birds.

The specific mitigating measures related to each site must be described in a document accompanied by detailed engineering plans and a location map. These measures must be numbered and in a directory in table form. As for the detailed plans, the proponent is advised to proceed on a phase-by-phase basis, identifying at each site the measures to be implemented.

In order to simplify the presentation of these measures and avoid repetition, the document should include a description of the specific measures by type of work or activity, documented technically and with reference to practices in this area. Included, for example, would be the different types of culvert installation, with drawings and related mitigating measures.

The plan must also include the criteria used to select specific construction methods on the basis of the environmental features (choice of culvert type, etc). These criteria and the selection process should be described in sufficient detail that a new selection can be made on site if field conditions warrant.

The construction of almost 600 kilometres of roads and three airport runways will require large amounts of gravel (from borrow pits) or crushed rock (from bedrock). To mitigate the potential effects of operating these sites (eg. sedimentation of fish habitats), specific measures such as berms and settling ponds should be included in the plan.

3.5 Methods of application and inspection

The proponent must also describe and give practical details about the mechanisms for applying the mitigating measures to ensure that they are effectively implemented: integration with plans and specifications, on-site inspectors, etc. This information must also include a description of the operating structure set up for monitoring and inspection and a statement of the roles and responsibilities of the people involved.

These mechanisms should also include the plan for communicating with various government bodies, including activity reports to officials to give an account of the results obtained by applying the mitigating measures. Two types of report are required: construction reports describing the work completed and the measures taken (including, if applicable, the reasons for not applying the measures planned initially), and follow-up reports describing the outcome of the work over a broader time frame.

These reports should give an account of all phases of implementation and should clearly identify the sources (technical information, on-site surveys, justification, expertise, etc).

The EPP must be updated periodically so that it can be adjusted to field conditions and to take advantage of the experience gained as the work proceeds or the infrastructure is operated.

3.6 Emergency Response plans

Before the work begins, emergency response plans for the various project elements and activities must be submitted for approval.

These emergency plans must include all the elements normally found in an emergency plan related to similar types of equipment and activities. For example, the airport emergency plan must include a section on procedures for handling and storing petroleum products and the procedures to be followed in the event of an accidental spill:

- incident report;
- organization of the response;
- regulations;
- containment and recovery methods;
- restoration of site;
- outlook and preventive measures.

The emergency plans must also include elements dealing with forest fire prevention and control.

4.0 APPROVAL PROCEDURES

To ensure that all work meets the requirements of the government decision-making authorities concerned, the proponent must obtain approval at each stage of the process:

- approval of the environmental protection plan
- approval of the detailed mitigating measures and plans for each phase;
- approval of construction reports
- approval of follow-up reports.

ANALYSIS OF SOCIO-ECONOMIC ISSUES AND PUBLIC CONCERNS ABOUT THE PROPOSED ACCESS/INFRASTRUCTURE FOR THE GRANDE BALEINE COMPLEX

DEPARTMENT OF FISHERIES AND OCEANS

JULY 1991

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ANNEX

ANALYSIS OF SOCIO-ECONOMIC ISSUES AND PUBLIC CONCERNS ABOUT THE PROPOSED ACCESS/INFRASTRUCTURE FOR THE GRANDE BALEINE COMPLEX

1. Introduction

The environmental assessment of the proposed access/infrastructure for the Grande Baleine complex highlighted the complexity of the problems related to public concerns and the human environment in general. Since the Grande Baleine project was revived, these aspects have been addressed by many members of the public through different media.

This document therefore deals with the public concerns expressed through the information media, petitions or letters and in a survey of public opinion in the area affected by the project.

2. Media coverage

Media coverage of the Grande Baleine project has been growing steadily for a year. The combination of a number of factors is making the project an important issue nationally and even internationally. Environmental issues draw a great deal of media attention, and the native crisis that occurred in the summer of 1990 generated even more media interest related to native people in general. Further, opposition to the project is being voiced by environmental groups in the United States. These elements are making the Grande Baleine project a major environmental issue.

Since November 1990, hundred of articles have appeared in newspapers across the country, more than half of them in Quebec. As well, the electronic media coverage has been constant. Editorial writers have said that the battle over the Grande Baleine project will continue to attract attention because of the number of players involved.

The main topics covered by the media in the fall of 1990 were the separation of the environmental assessment for on the Grande Baleine project into two parts (complex and access/infrastructure) and the applicability of EARP. An Angus Reid/Le Soleil poll of 1,500 Canadians, including 350 Quebeckers, conducted between November 5 and 10, 1991 showed that 80 percent of people across Canada and 72 percent of people in Quebec wanted a single comprehensive impact study of both the access/infrastructure and the complex to be carried out before the work began.

In late December, media coverage of the Grande Baleine project increased in Quebec but remained steady outside the province. This is perhaps attributable to the fact that the national media were largely preoccupied with the crisis in the Persian Gulf and the conflict over the constitution. However, native opposition to the project increasingly captured the attention of the Quebec media, mainly because of the repercussions of the native crisis in the summer of 1990. Finally, a L'Actualité/CROP/TVA survey conducted in January 1991 showed that 60 percent of Quebeckers support the construction of new dams in northern Quebec.

The media covered the non-disclosure of export contracts between Hydro-Québec and the United States and requests for related information. They also reported on the warning from Cree chief Billy Diamond about the wave of violence that could be sparked by flights over goose-hunting grounds. Editorials recognized the validity of the native concerns about hydroelectric development.

Opposition to the project is very strong among environmental groups. A public debate on the Grande Baleine project and Hydro-Québec's general energy policies is being demanded by a coalition made up the following groups: Mouvement vert de la Mauricie; Association québécoise contre les pluies acides; Comité Baie James; Conseil de la conservation; Amis du St-Laurent; Grand Council of the Crees; Greenpeace; and, Au Courant. The two main concerns for environmental groups seem to be the rationale for Hydro-Québec's energy and investment policies and a full study (access/infrastructure and complex) with public hearings.

Natives seem to have similar concerns about the project. The Cree are very much opposed to the project. They justify their stand on Grande Baleine (first component of Phase II of the James Bay development) by pointing to the Nottaway-Broadback-Rupert project (second component of Phase II of the James Bay development) which they claim will have an even greater impact on their land. The main concerns expressed by the Cree are the socio-economic impacts associated with opening up the territory and communities, the exploitation of resources by non-natives and natives, and protection of their culture and traditions. The Cree represent a key element in the power struggle between native communities and the two levels of government. The Inuit organization, Makivik Corporation, is in favour of using the project for regional development and says it is prepared to negotiate. On the other hand, the municipality of Kuujjuarapik is opposed to the project. It bases its opinion on information about the La Grande project. The mayor of Kuujjuarapik, Sappa Fleming, has deplored the inter- and intra-community divisions that have occurred among natives.

The press and editorials have covered many themes, most frequently the separation of the environmental assessments, the applicability of EARP (need for public hearings), the power struggle between natives and the two levels of government, the rationale behind Hydro-Québec's financial and energy policies, and especially criticism of the conduct of a Crown corporation that has a monopoly and yet like a private company uses an advertising firm to spread propaganda about its projects.

It should be noted that labour groups have come out in favour of the Grande Baleine project (Quebec Federation of Labour, Quebec and Greater Montreal Chamber of Commerce, Quebec Manufacturers Association and the Conseil du Patronat). Their main concerns are the economic development and job creation associated with the project. During the spring of 1991, the debate over the project intensified on the native front and on the American environmental front as groups became more vocal and appeared more frequently in the print and electronic media.

3. Petitions to the Minister of the Environment of Canada

Nine-hundred members of the Public Service Alliance of Canada (Local 301, blue-collar workers in the city of Montreal and the Montreal Urban Community) signed a petition that was sent to Environment Minister Robert de Cotret on October 24, 1990. The petition expressed deep concern about hydroelectric development in northern Quebec. The people who signed it declared their full support for the native communities' efforts to protect their land, culture and traditions. They stated that they oppose the development of Phase II of James Bay because they believe it will have serious adverse effects, both sociologically and ecologically. They therefore demanded public hearings and full assessments by both the federal and the provincial governments.

A second petition, signed by 425 members of the Fédération des affaires sociales, was sent to Environment Minister de Cotret on December 18, 1990. The petition raised a number of points, among them the destruction of exceptional sites and the opening up of the territory and communities, which may alter native culture and traditions. A parallel was drawn with the experience of Phase I of James Bay (the La Grande project), and a call was made for justification of Quebec's energy policies. The people who signed the petition also demanded public hearings on the project and full provincial and federal environmental assessments.

4. Letters to federal departments

The federal Department of the Environment received more than 1,128 letters from the public; the Department of Fisheries and Oceans, approximately 50. Most of the letters called for public hearings on the Grande Baleine project. It is impossible to determine the exact number of letters in which the writer

specifically demanded public hearings on the access/infrastructure because the public is generally opposed to splitting the project in two. Most of those who wrote voiced strong opposition to separate environmental assessments for the access/infrastructure and the complex.

Concerns were also raised about the applicability of the Environmental Assessment and Review Process, public hearings and the general provincial review of hydroelectric development in northern Quebec. Other concerns included the opening up of the territory and local populations; a number of groups said they were concerned about the effect this would have on native culture and traditions. They wondered about the exploitation of wildlife resources by non-natives and voiced concern about fish populations because of the construction of bridges and the installation of culverts. They were also concerned that a road would considerably increase the risk of accidents and other incidents (such as spills of hazardous products) throughout the proposed access/infrastructure. Finally, a parallel was drawn between Phase I of the James Bay development (the La Grande project) and the Grande Baleine project.

5. Survey of public opinion in the territory affected by the project

During the last week of January, 1991 a team set up by DFO met with representatives (Annex 1) of four local communities: Kuujjuarapik, Whapmagoostui, Chisasibi and Matagami. A number of concerns directly related to the access/infrastructure of the Grande Baleine project came to light during the meetings.

Generally, the four communities are opposed to separation of the environmental assessments of the access/infrastructure and the complex. In addition, the vast majority of the people the team met were strongly opposed to hydroelectric development in general in northern Quebec because of their past experience and their perception of the way Hydro-Québec does business. However, the people in Matagami were more favourable to the development of Phase II of James Bay because of the socio-economic benefits they anticipate and the boost to regional development.

Natives in Kuujjuarapik and Chisasibi feel that the opening-up of the territory and communities poses something of a threat to native culture and traditions and fear over-exploitation of wildlife resources by non-natives from the south. The people in Matagami also expressed this concern. They fear that controls and regulations would have to be introduced to deal with the situation. For the Cree in Chisasibi and the Inuit, the road is a concern because of the risk of accidents and other incidents (such as spills). They believe these incidents could have a major impact on fish habitats and fish populations, which could severely affect their diet.

As for the construction camps, the native people are uneasy about the use and maintenance of the buildings and related works (dumps, access roads). They fear, among other things, that the dumps will attract some types of animals and make them unfit to eat.

In Whapmagoostui, the local people declined to comment in detail on the Grande Baleine project because they feel the political situation between them and the federal government is too sensitive.

6. Forum on the Grande Baleine project

Set up by David Cliche (formerly of the federal Environmental Assessment and Review Office), the forum is a coalition of professional groups and associations dedicated to informing the public and contributing to the debate on the Grande Baleine project.

The first public meeting was held June 11, 1991, in Montreal, with about 50 people participating. Speakers included David Cliche, Peter Jacobs (chairman of the Kativik Environmental Quality Commission), Brian Craik (representing the Grand Council of the Crees and replacing Billy Diamond, chairman of the Evaluation Committee), Gaston Moisan (chairman of the James Bay Review Committee) and four experts, one of whom was Bernard Cleary, negotiator for the Attikamek and Montagnais.

The first part of the meeting focused mainly on the federal and provincial assessment processes involved in the Grande Baleine project. After David Cliche gave a general introduction, Peter Jacob and Gaston Moisan described the mandate and operation of their respective committees created under the JBNQA, and Brian Craik stated the Cree's position on Grande Baleine. In the second part, before Bernard Cleary expressed his views on the project from a media perspective, criticizing the fact that the media do not depict reality and that journalists cover only the crises, the other speakers stated their points of view on the essential elements of a proper environmental assessment. Among the elements mentioned were the importance of public consultation, justification of the project, environmental ethics and the human environment.

Questions from the floor pertained to such matters as public consultation, environmental monitoring, cumulative effects and the results of the technical and scientific study by Fisheries and Oceans.

The forum will follow up this first meeting, during which considerable effort was made to provide general information about the project and the assessment, with symposia on specific topics, in particular the biophysical effects and economic aspects of Grande Baleine.

7. Summary of public concerns

In general, native spokespersons (Cree and Inuit) say they are opposed to separate environmental assessments of the access/infrastructure and the complex. They are also concerned about the socio-economic effects of hydroelectric development in northern Quebec, primarily on the basis of the information they have drawn from the La Grande project. The natives fear that opening up the territory and their communities will have a major impact on their culture and traditions and will lead to over-exploitation of resources by non-natives and at the same time alter the way they themselves use the resources. However, views are split within the Inuit community. Unlike the other local groups, the representatives of Makivik Corporation support regional development and say they are prepared to negotiate. The people in Matagami have expressed support for the Grande Baleine project because it will promote socio-economic development in the region.

Under Chapter 24 of the James Bay and Northern Quebec Agreement, native people in the area have exclusive rights to certain wildlife resources: trapping throughout the territory; hunting and fishing for all species in lands in categories I and II and approximately 20 species in lands in category III. This means that non-natives can hunt and fish only for non-exclusive species in category III lands. The exclusive rights of natives have until now been protected by the inaccessibility of the territory.

In a similar situation 150 kilometres to the south, the opening-up of the territory around the La Grande complex resulted, within a few years, in an increase in the number of people coming to the James Bay area. A recent study on the number of recreational travellers and tourists travelling by road in the James Bay area showed that from June to December 1989, 8,046 vehicles (approximately 20,000 people) visited the James Bay area. The study also showed that 88 per cent of these people came to the area to fish or hunt. The arrival of workers and the construction of roads for the Grande Baleine complex could therefore lead to an increase in the number of visitors to the area, which until now has been inaccessible, and an increase in recreation and tourism activities, particularly hunting and fishing. Natives could thus see a decline in their return on hunting and fishing for species to which they do not have exclusive rights such as caribou, ptarmigan, walleye, pike and lake trout.

While no specific measures exist to mitigate these potential impacts, a number of general measures could be implemented which would reduce -- although not render insignificant -- their severity. These include:

- having the Quebec Department of Recreation, Hunting and Fishing, etc) ensure that the various regulations are enforced;

- installing check-point stations on the access road during the construction and operating phases to minimize public access;

- distributing information to the public on the regulations applicable in the area, native rights and environmental protection.

Two petitions signed by 1,325 people called for a comprehensive overall assessment (both federal and provincial) and public hearings on the Grande Baleine development. In addition, the departments of Fisheries and Oceans and the Environment received many letters from environmental groups wishing to state their position on Grande Baleine. Some groups are directly opposed to the project, but most object to separation of the environmental assessments and demand an overall assessment with public hearings. They draw a parallel between La Grande and Grande Baleine and hope that some of the mistakes will not be repeated.

Based on the information gathered from media coverage, petitions, letters to the ministers, a trip to the area (as part of the survey of public opinion) and the first meeting of the Forum on the Grande Baleine project, the concerns of environmental groups and the public can be summarized in three main statements: strong opposition to separate environmental assessments of the access/infrastructure and the complex; a desire for a public debate; and comprehensive environmental studies for northern Quebec (Hudson Bay and James Bay).

ANNEX 1

DATE, LOCATION AND PARTICIPANTS IN MEETINGS IN THE AREA AFFECTED BY THE PROJECT

Meeting in Kuujjuarapik, January 30, 1991

On January 30, 1991, a meeting was held in the office of the mayor of Kuujjuarapik. A letter had been sent to the mayor, Sappa Fleming, inviting him to take part in the survey of public opinion. Attending the meeting were Sappa Fleming, Alec Tuckatuck (member of the Inuit Task Force), Robert Fleming (president of Land Holding Corporation), Mike Nutter (Hatch & Assoc Consultants), Hélène Roberge (Beak Consultants), Lars Hurlen (Beak Consultants) and Mireille Loignon (biologist with the Department of Fisheries and Oceans).

Meeting in Whapmagoostui, January 31, 1991

On January 31, 1991, a meeting was held in the office of the Whapmagoostui Band Corporation. A letter had been sent to band chief Robbie Dick inviting him to take part in the survey of public opinion. Attending the meeting were Robbie Niquanicappo (acting chief), David Masty (member of the Local Cree Task Force), Louis Eguren (co-ordinator of the Grand Council of the Crees in Whampagoostui), Mike Nutter (Hatch & Assoc), Hélène Roberge (Beak), Lars Hurlen (Beak) and Mireille Loignon (DFO).

Meeting in Chisasibi, January 31, 1991

On January 31, 1991, a meeting was held in the office of the Chisasibi Band Council. A letter had been sent directly to Chisasibi band chief Violet Pachanos inviting her to take part in the survey of public opinion. Attending the meeting were Robbie Matthew, Sr (acting chief), Joseph Pepabano (adviser), Charlie Pepabano (secretary, executive assistant to the chief and English-Cree interpreter for the meeting), William Bearskin (local environmental officer), Bobby Neacappo, David Shem and James Lameboy (all three Cree representatives), Mike Nutter (Hatch & Assoc), Hélène Roberge (Beak), Lars Hurlen (Beak) and Mireille Loignon (DFO).

Meeting in Matagami, February 1, 1991

On February 1, 1991, meetings were held in two locations in the town of Matagami: the Matagami Hotel (for lunch) and then Matagami Town Hall. A letter had been sent to the mayor of Matagami, Robert Labelle, inviting him to take part in the survey of public opinion. Attending the meeting were Robert Labelle (mayor), Jean-Robert Gagnon (chief executive of the town of Matagami), Jean-Claude Constantineau (town councillor), François Cossette (director of the community development assistance committee), Bernard Beauchamp (town councillor and chairman of the community development assistance committee), Denis Bureau (director of Développement Matagami), Mike Nutter (Hatch & Assoc), Hélène Roberge (Beak), Lars Hurlen (Beak) and Mireille Loignon (DFO).