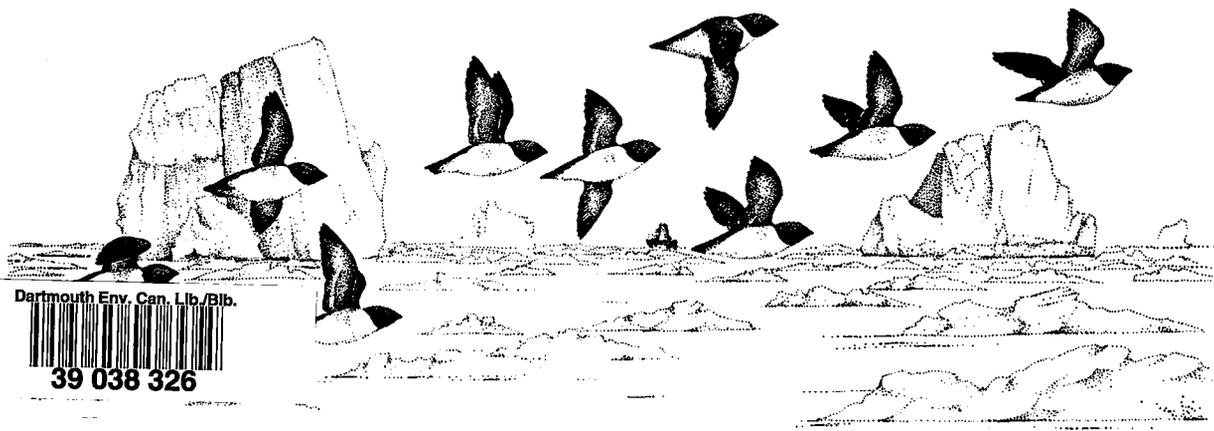


Environment Canada Response
to the
Recommendations of the Hibernia
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**ENVIRONMENT CANADA RESPONSE TO THE
RECOMMENDATIONS OF THE HIBERNIA
ASSESSMENT PANEL :**

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July 15, 1986

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1.0 INTRODUCTION

This report presents the supporting analysis used in formulating Environment Canada's position in response to the Panel Report. It focuses on the recommendations contained in the Panel Report of relevance to Environment Canada and outlines the implementation requirements for those items falling within the Department's mandated responsibilities.

During the review process over 100 briefs were submitted to the Panel from groups with diverse interests in the project or with expertise to offer. Environment Canada's intervention was comprised of three parts: a scientific and technical review submitted in July, 1985; a position statement presented on October 16, 1985; and technical presentations on specific topics presented during the public hearings of October 22 to 24, 1985.

The report of the Hibernia Environmental Assessment Panel was released on January 14, 1986. The report contains 50 recommendations aimed at ensuring that proposed development by Mobil Oil (Canada) Ltd. of the Hibernia oil field on the Grand Banks would proceed in a safe, economic and environmentally responsible manner.

Environment Canada believes that the Hibernia project can proceed in an environmentally responsible manner providing that the following conditions are incorporated into the design, construction, operation and abandonment of the project:

- . An advisory mechanism that supports the Canada-Newfoundland Offshore Petroleum Board be established to ensure that decisions on hydrocarbon developments are made in a manner that recognizes the other values of the Grand Banks which support major fishing industries, abundant marine life and major seabird populations.
- . The potential risks of the environment (e.g. wind, waves, icebergs, sea-ice) on offshore facilities be evaluated to ensure safe operations on the Grand Banks.
- . The potential risks of the development on the environment (e.g. seabirds, fish, shorelines) be evaluated and minimized.
- . Contingency plans be developed and remedial actions implemented to ensure that adverse impacts on the environment are minimized.
- . A monitoring program be developed, implemented and evaluated in order to take corrective actions, where necessary. This effort should be developed cooperatively between government and industry.

2.0 OVERALL ASSESSMENT OF THE HIBERNIA PANEL REPORT IN RELATION TO ENVIRONMENT CANADA'S MAJOR CONCERNS

Environment Canada agrees with the Panel Report which generally reflects this Department's major concerns and recommendations, except for three significant points:

- . The potential risks to seabirds and coastal ecosystems resulting from a major spill;
- . The characteristics of Hibernia crude oil in cold sea water and the difficulty this presents in predicting its movement;
- . The value of using more quantitative methods of environmental impact prediction.

As the Hibernia Project proceeds, issues will require resolution through advisory and information exchange mechanisms with the Canada-Newfoundland Offshore Petroleum Board, other government agencies and the public. The following is an analysis of the major issues raised by Environment Canada at the public hearings and the Panel's response to these issues.

A. Management Framework for the Grand Banks

Environment Canada believes that individual project impacts should not be considered in isolation from other activities underway or planned in an area subject to increasing development pressures. Environment Canada further believes that combined impacts resulting from multiple uses must be understood so that informed decisions on major developments such as Hibernia can be made within a context that recognizes all uses and relevant values. This approach will facilitate overall resource management and optimization of any proposed environmental protection measures. To deliver this approach Environment Canada supports the establishment of a government and oil industry advisory mechanism.

The Panel accepted the concept of area-wide assessment and recommended that government should address strategic issues for area-wide planning with support from the Environmental Studies Revolving Fund (ESRF). The Panel also called for the continuation of a dialogue amongst the Canada-Newfoundland Offshore Petroleum Board, government agencies, the proponent and the public. In addition, the Panel recommended that the terms of reference for

future panels include consideration of cumulative impacts to areas subject to multiple developments. (Recommendations 44, 47, 48, 50).

Environment Canada fully endorses these recommendations.

B. Effects of the Environment on Offshore Facilities:

Environment Canada emphasized that the most effective means of protecting the environment is by preventing pollution. The need to design safe structures and associated facilities was stressed by the Department. Meteorological and oceanographic factors have significant effect on the design, construction, operation and safety of such developments. To this end, Environment Canada requested that the proponent provide further details of the risk studies undertaken for the Hibernia Project. Of particular concern to Environment Canada are such parameters as wave height, icebergs, sea ice and wind speed, and the details of how future data would be obtained using real time weather and ice forecasting systems.

The Panel recommended that the structure should be built to ensure human safety and structural integrity and that effective ice management and dedicated weather forecasting systems be integral components of the project. The Panel also requested that the Canada-Newfoundland Offshore Petroleum Board consider means by which agencies with related mandates could have access to relevant technical data and design criteria. (Recommendations 24, 25, 27 and 49).

Environment Canada fully concurs with the Panel's recommended approach.

C. Effects of the Development on the Environment:

It is Environment Canada's view that environmental impacts can and should be forecast quantitatively in order to permit a better understanding of the risks to the environment and potential trade-offs associated with offshore oil development. Environment Canada considers all seabirds and coastal ecosystems along the east and south coast of Newfoundland to be at significant risk. This risk is enhanced by the characteristics of the Hibernia crude and existing limitations of offshore countermeasures to contain and clean up spilled oil. Environment Canada therefore requested that the proponent re-evaluate the potential for impacting seabirds at the population level from both chronic discharges and major spills. The Department also requested the proponent to address the probable impacts on coastal zones should oil be released as the result of a tanker accident.

While **the Panel** concluded that a significant oil spill is probable during the life of the Hibernia Project and that mortality of seabirds would be significant, specific recommendations were not made on the need for additional research

to accelerate an understanding of factors influencing the concentration, distribution and population dynamics of seabirds on the Grand Banks. The Panel did recommend that emphasis should be placed on prevention of spills and that routing of tankers should take into account the environmental sensitivity of the area traversed. (Recommendations 29, 30).

Environment Canada fully endorses these recommendations. However, the department also maintains that quantification of risk is a useful means of identifying resource conflicts resulting from offshore oil development and should be incorporated in assessing all aspects of the development. Furthermore it is Environment Canada's view that the need for additional information on seabirds and oil spill prevention methods, should have been recommended by the Hibernia Assessment Panel.

D. Contingency Planning and Remedial Actions:

In recognition of the sensitivity of the Grand Banks ecosystem, Environment Canada emphasized the use of best practicable technology (BPT) so that production waste discharges would be reduced or eliminated. To accomplish this, the Department asked the proponent to consider mitigation measures such as injecting produced water and other waste into the structure. In addition, the Department requested the Panel to endorse the continuation of existing industry government programs such as the ESRF to conduct research on other mitigative measures applicable to offshore oil development.

The Panel agreed that mitigative measures such as reinjection of produced water and treatment and discharge of storage water below the summer thermocline should be implemented during the production stage. The Panel further stated that the articulated loading platforms should be designed to prevent spills in the event of some failure in the system and that protection of subsea components against iceberg impact should be considered by the proponent. (Recommendations 22, 23, 31).

Environment Canada endorses these recommendations and considers these steps to be significant toward making the project environmentally acceptable.

E. Monitoring:

Environment Canada stressed the need to develop and implement an environmental effects monitoring program in order to verify impact predictions, detect changes, evaluate the adequacy of regulated discharge requirements in order that corrective

measures can be defined and taken. To accomplish this, the Department asked that an environmental effects monitoring program be established and implemented before project start-up. Environment Canada also requested that the proponent, in consultation with various government agencies and the public, provide details of an effects monitoring program including impact hypothesis to address sublethal effects as well as chronic and cumulative impacts. The monitoring of valued ecosystem components in the event of a major oil spill was also seen as part of this program.

The Panel responded, without providing specific details, with a call for a monitoring program to be designed in consultation with responsible government agencies and the public. **(Recommendation 40)**.

Environment Canada fully endorses this recommendation and considers it important for the responsible agencies to establish an appropriate monitoring strategy.

3.0 ACTIONS PLANNED BY ENVIRONMENT CANADA IN RESPONSE TO THE HIBERNIA PANEL REPORT

In accordance with Environment Canada's policy on the federal Environmental Assessment and Review Process, the Department will take specific actions towards the implementation of the recommendations of the Hibernia Assessment Panel that fall within the Department's mandate. (Environment Canada's mandate is described in Appendix II). Some new initiatives will be required to address issues such as area-wide assessment and the use of more quantitative methods of environmental risk assessment. Similarly, outstanding concerns with respect to the risk of offshore oil to seabirds and the potential for oiling of coastal areas will require joint efforts by government, industry and the public to facilitate their resolution.

As the project proceeds, the Department will undertake the following specific actions through advisory and information exchange mechanisms with the Board, other government agencies and the public in order to resolve environmental issues and resource use conflicts. The implementation of specific actions is contingent upon the availability of resources and the interests of others in participating in cooperative arrangements with this Department.

A. Management Framework for the Grand Banks

- . Environment Canada will support the concept of area-wide assessment in areas subject to multiple development pressures and is pursuing implementation options with the Canada Newfoundland Offshore Petroleum Board, DFO, COGLA, FEARO, other levels of government and the public.

B. Effects of the Environment on Offshore Facilities

- . Environment Canada will make available to the Board existing statistics concerning weather and ice climatology as well as all of its regularly issued weather and ice forecasts. Environment Canada will review and advise the Board on the suitability of any proposed ice management plan.
- . Environment Canada will review and supply comments to the Board on the suitability of any proposed weather forecasting system.

C. Effects of the Development on the Environment

- . Environment Canada will provide advice on the distribution, abundance and movement of seabird populations that could be affected by the project, and work with the Board and the proponent in designing seabird monitoring programs and outlining solutions to maintain seabird populations.

- . Environment Canada will assist and advise on further research and development needs related to oil spill prevention, clean-up procedures and countermeasures technologies.
- . Environment Canada, to the extent resources permit, will continue work with other government agencies, the Board, private industry and university research groups in order to improve oil spill trajectory models used to predict the movement of oil in open water.
- . Environment Canada will provide the Board with expertise in the areas of oil spill behavior, particularly with respect to oil movement in ice.

D. Contingency Planning and Remedial Actions

- . Environment Canada will assist the Board and the oil industry in developing contingency plans and in responding to emergencies through the Regional Environmental Emergencies Team.
- . Environment Canada will continue to identify and recommend the use of best practicable technology to control discharges and transfer of products within the development.
- . Environment Canada will participate with industry, the Board and others to evaluate options, safety standards and construction techniques.
- . Environment Canada will participate with the Board, the proponent and others in drafting effluent discharge standards.

E. Monitoring

- . Environment Canada will audit the proponent's compliance monitoring procedures and develop monitoring strategies to evaluate the adequacy of discharge limits and take corrective
- . Environment Canada will work with government, the Board and industry to develop and implement, as a cooperative effort, an acceptable effects monitoring program for the Grand Banks that will be used for taking corrective action where required.

APPENDIX I

APPENDIX I:

Environment Canada's Position Recommendations as Presented to the Hibernia Environmental Assessment Panel on October 16, 1985

Environment Canada's position statement was presented at the opening of the Panel's formal hearings in St. John's on October 16, 1985. Although the position statement notes that the project could proceed in an environmentally acceptable manner, it specifies a number of areas which must be addressed prior to project start-up. The recommendations contained in Environment Canada's position statement are:

1. The Panel advocate the establishment of a government and industry advisory mechanism: (i) to ensure that the full range of environmental matters are considered and resolved for the project and its associated developments from development plan approval and construction through to and including abandonment, and (ii) to develop a strategic plan to identify and resolve long-term environmental risks and resource conflicts throughout the Grand Banks.
2. The proponent provide the result of their risk studies focusing on such parameters as wave height, icebergs, sea ice and wind speed so that environmental risks of the proposed production facilities through construction, operation and abandonment can be evaluated prior to development plan approval.
3. The proponent provide details on the operation of a real time weather and ice forecasting system for the Hibernia area, prior to production of oil.
4. The proponent re-evaluate the potential for impacting seabirds at the population level from both chronic discharges and catastrophic spills prior to development plan approval and identify measures to offset adverse impacts to seabird populations.
5. The proponent evaluate the potential impact on shorelines of oil released as a result of a tanker accident and develop appropriate contingency plans prior to development plan approval.
6. The proponent, prior to production drilling, investigate and take appropriate action: (i) on the potential movement characteristics of Hibernia crude emulsions in the event of a major spill and include this information in its spill trajectory models, and (ii) for the behaviour and significance of oil in pack ice.

7. The proponent consider various mitigation measures such as injecting wastes into the structure, particularly produced water and displacement water, and the use of oil/oil displacement in storage cells on the production platform.
8. The Panel endorse the continuation of existing industry-government programs to conduct further research on the subject of containment, cleanup and other mitigative measures.
9. The proponent, in consultation with various government agencies, provide details of an effects monitoring program including impact hypothesis to address sublethal effects as well as short and long term chronic and cumulative impacts prior to approval of project startup.
10. The proponent, in consultation with various government agencies, develop an action plan for monitoring valued ecosystem components in the event of a major oil spill prior to approval of project startup.

APPENDIX II

APPENDIX II:

Environment Canada Role and Mandate

The primary purpose of Environment Canada is to foster harmony between society and the environment for the benefit of present and future generations of Canadians. In some respects, the responsibilities of Environment Canada are similar to those of other federal line departments with "sector-specific" mandates and programs. The department is responsible for fulfilling certain federal obligations concerning inland water resources, wildlife, parks, meteorology, sea ice, pollution control and certain other subjects. These responsibilities arise from the national mandates provided by the DOE Act and some thirteen other Acts administered by the Minister of the Environment that have specific natural resource management objectives.

Environment Canada is also responsible for performing certain other functions that bear on the policies and operations of all federal departments and agencies. This entails undertaking research, providing scientific and public information and advice, advocating environmental concerns, and exercising influence on the numerous policies and programs of all federal departments and agencies. To ensure that these efforts are effective, the Act provides the Minister with certain "horizontal" powers and roles enabling him to exercise the necessary influence on and coordination amongst the government's departments and agencies.

Both the "sector-specific" and "horizontal" roles of Environment Canada are focused on four principal objectives. These are:

1. To conserve and enhance Canada's renewable resources for sustained economic and social benefit;
2. To protect the environment from the adverse impact of human activities;
3. To facilitate the adaptation of human activities to the environment;
4. To safeguard and foster public understanding and enjoyment of Canada's natural and historic heritage.

These objectives are pursued through the following activities:

Environmental monitoring and scientific research: Environment Canada is one of the largest science and technology departments of the federal government. The pursuit of scientific and technical knowledge and the acquisition and analysis of environmental information concerning the state and processes of the environment and its elements constitute a very significant proportion of the Department's activities and programs. Technology transfer is an integral part of this activity.

Regulations, guidelines and codes of good practice: These are developed under authority derived from such federal legislation as the Fisheries Act, the Clean Air Act, the Ocean Dumping Control Act, and the Environmental Contaminants Act, in order to minimize adverse impacts of pollutants and toxic substances on human health and the environment. In addition, the federal environmental emergency response program, established by Cabinet Directive in 1973, gives the Department the responsibility to ensure that appropriate mechanisms are in place to deal with emergencies. The Department thus provides advice on environmental sensitivities and priorities, and on cleanup and protection techniques and equipment to industry, other government departments and provincial agencies.

Resource management and conservation: This is undertaken directly in areas within federal responsibility such as migratory bird management, the management of national parks, the preservation of cultural heritage, and the management of federal lands. It may also be undertaken jointly with the provinces if jurisdiction is concurrent, as in boundary water river basin programs.

Information, advice and technical services: This service is provided to a wide variety of users. Information and advice influences the environmental protection and resource management decisions of the federal government, other jurisdictions, and the private sector.

APPENDIX III

APPENDIX III:

**Analysis of the Individual Recommendations of the Hibernia
Assessment Panel of Relevance to Environment Canada**

The following pages provide a more detailed analysis of those recommendations contained in the Hibernia Panel Report which are of relevance to Environment Canada's mandate, as mentioned in Appendix II.

Sections A-E review those Panel recommendations which relate to the major concerns raised by Environment Canada during the Panel Hearings. Section F addresses additional Panel recommendations which will have operational and consultative implications for Environment Canada.

APPENDIX III: A. Management Framework for the Grand Banks

Panel Recommendation:

No. 44 Governments should consider establishing terms of reference of future panels which would permit a more comprehensive review of further offshore developments, including aspects falling within the jurisdictions of the government.

Issue:

Since the Hibernia project may represent the first of many oil development projects off the coast of Newfoundland and Labrador, there will be a need for a more comprehensive review of future offshore development projects taking into account potential cumulative effects.

Environment Canada Position:

Environment Canada agrees with this recommendation and recognizes the need to rationalize the time required to complete comprehensive project reviews. The Department supports the concept of area-wide assessment as a means of achieving a more comprehensive review of future offshore developments. The Atlantic Accord provides the enabling authority for the Board to implement this recommendation.

Action Planned by Environment Canada:

Environment Canada will continue discussions with all parties involved in offshore oil development on the Grand Banks to implement an area-wide assessment. The Department is prepared to assist the Canada-Newfoundland Offshore Petroleum Board in establishing a comprehensive review mechanism to assess future offshore developments.

Panel Recommendation:

No. 47 Research under the Environmental Studies Revolving Fund should be carried out to assist government in examining strategic issues for area-wide planning of offshore development.

Issue:

Individual project reviews do not permit conclusions to be made on the possible cumulative impacts of multiple developments. Environment Canada will be expected to participate in the management of research and monitoring to address area-wide concerns.

Environment Canada Position:

Environment Canada agrees with this recommendation. It is the Department's position that an area-wide assessment should be undertaken for the Grand Banks area. Funding for data gathering and planning should reflect the participation and contributions of resource users and governments.

Action Planned by Environment Canada:

Environment Canada will collaborate with the Canada-Newfoundland Offshore Petroleum Board and others to initiate an area-wide assessment for the Grand Banks. The Department is also prepared to initiate discussions with the Canada Oil and Gas Lands Administration to determine potential funding support from the Environmental Studies Revolving Fund.

Panel Recommendation:

No. 48 The Offshore Petroleum Board should establish suitable mechanisms to ensure a continuing exchange of views between itself, government agencies, the proponent and the public during the life of the project.

Issue:

Exchange of information should take place amongst government, industry and the public on major projects, from conception to termination, to ensure that the correct decisions are made. Environment Canada has considerable expertise related to the offshore and will be expected to provide direction and advice on environmental matters. This is only possible if the Department has access to information concerning future projects.

Environment Canada Position:

Environment Canada agrees with this recommendation. Under the terms of the Atlantic Accord, the Canada-Newfoundland Offshore Petroleum Board has responsibilities to ensure that consultation occurs with government agencies and the public on environmental protection and safety issues. A memorandum of understanding between Environment Canada and the Canada-Newfoundland Offshore Petroleum Board would be an appropriate mechanism for reaching an agreement on information exchange.

Action Planned by Environment Canada:

Environment Canada will discuss information exchange with the Canada-Newfoundland Offshore Petroleum Board, including the services and support that the Department can offer to facilitate sound management of Newfoundland and Labrador offshore oil development. The Department is prepared to negotiate a memorandum of understanding with the Canada-Newfoundland Offshore Petroleum Board to address this and other issues.

Panel Recommendation:

- No. 50 Government should develop an overall strategy for implementation of these recommendations with appropriate funding levels and sources, such as the Offshore Development Fund.

Issue:

To ensure that offshore oil development proceeds in a safe, economic and environmentally acceptable manner, an overall government strategy is required to implement the recommendations of the Hibernia Assessment Panel.

Environment Canada Position:

Environment Canada agrees with this recommendation. An overall strategy for implementing the recommendations of the Hibernia Assessment Panel should clearly define how environmental concerns associated with the project will be addressed.

Action Planned by Environment Canada:

Environment Canada will identify and transmit to the Canada-Newfoundland Offshore Petroleum Board an outline of the services and expertise the Department will provide to support offshore oil and gas development. The Department is prepared to initiate discussions with the Canada-Newfoundland Offshore Petroleum Board and the Province to establish a mechanism by which the Panel's recommendations can be implemented.

**Appendix III: B. Effects of the Environment on Offshore
Facilities**

Panel Recommendation:

- No. 24 An effective ice management system should be an integral component of the project. Research and development to improve the ability to detect and manage ice under adverse weather conditions should be undertaken.

Issue:

The detection and management of ice under adverse weather conditions must be understood and clearly defined to ensure the safety of offshore operations. Environment Canada attaches a high level of importance to the issue of ice management in terms of offshore safety and oil spill prevention.

Environment Canada Position:

Environment Canada agrees with this recommendation which supports the Department's position as stated before the Hibernia Assessment Panel. An effective ice management system should include both ice data management and ice forecasting.

Action Planned by Environment Canada:

Environment Canada is prepared to offer assistance in the evaluation of any existing or proposed ice management system. The Department is also prepared to consult with industry and the Canada-Newfoundland Offshore Petroleum Board to identify services and research that may be required to undertake further developmental work. Environment Canada will continue to make its data bases and expertise available in support of industry and other government agencies.

Panel Recommendation:

No. 25 The structure should be built to ensure human safety and structural integrity from wave forces. In particular, the topsides and supporting structures should be conservatively designed to allow for the possibility of episodic waves.

Issue:

The offshore wave climate may be underestimated in the design of the gravity-based structure which can affect safety in the offshore.

Environment Canada Position:

The issue of wave and wave forces was not specifically addressed in Environment Canada's intervention before the Hibernia Assessment Panel. However, the Department concurs that the structure should be built to withstand extreme wave forces to ensure human safety and structural integrity. The Panel's recommendation would have been more comprehensive had it included consideration of wind forces as well as wave forces.

Action Planned by Environment Canada:

Environment Canada is prepared to review the meteorological and oceanographic assumptions related to the design of the Hibernia Development Project. The Department will continue to make its data bases and expertise available.

Panel Recommendation:

No. 27 A dedicated weather forecasting system should be incorporated as an integral part of the project.

Issue:

Complete and timely information on weather conditions will be of utmost importance to the safe and effective operation of the project.

Environment Canada Position:

Environment Canada fully endorses this recommendation. A weather forecasting system was specifically requested by Environment Canada as a condition of project approval.

Action Planned by Environment Canada:

Environment Canada will offer the Canada-Newfoundland Offshore Petroleum Board and the proponent assistance in the design of the proposed weather forecasting systems.

Panel Recommendation:

No. 49 The Offshore Petroleum Board should consider means by which agencies having related mandates are permitted to examine relevant technical data and design criteria.

Issue:

Although the Canada-Newfoundland Offshore Petroleum Board has regulatory authority for review and approval of the Hibernia Development Project, Environment Canada will be expected to provide advice on the environmental aspects of the project.

Environment Canada Position:

Environment Canada agrees with this recommendation. The Department requires direct access to relevant technical data and design criteria to ensure that appropriate advice is provided to the Canada-Newfoundland Offshore Petroleum Board on environmental protection matters.

Action Planned by Environment Canada:

Environment Canada will identify and transmit to the Canada-Newfoundland Offshore Petroleum Board an outline of the services and expertise that the Department is capable of providing in support of offshore oil and gas development.

Appendix III C. Effects of the Development on the Environment

Panel Recommendation:

No. 29 A mechanism should be established to ensure the safe routing of tankers in shipping oil from the Hibernia site. This must take into account the safety of the tanker and the environmental sensitivity of the area traversed, and should be done through consultation with resource managers and shipping authorities.

Issue:

Tanker transport of Hibernia oil will create increased traffic in environmentally sensitive areas which could increase the risk of an oil spill with resulting environmental impacts and resource use conflicts.

Environment Canada Position:

Environment Canada fully supports this recommendation. The Department has argued that shuttle tanker routing should have been addressed in the Hibernia Environmental Impact Statement. Determining the environmental sensitivities of shuttle tanker routes will be a multi-disciplinary undertaking, requiring the full cooperation of the proponent, the Canada-Newfoundland Offshore Petroleum Board, government agencies and the public.

Action Planned by Environment Canada:

Environment Canada will ensure that contingency plans take into account potential volumes of oil that may be lost and sensitive areas that could be affected. Environment Canada will also contribute to environmental sensitivity mapping of the south west coast of Newfoundland and provide information on ice and icebergs. Environment Canada is also prepared to explore arrangements to address this issue through the Environmental Advisory Committee on Newfoundland and Labrador Marine Transportation.

Panel Recommendation:

No. 30 In view of the limited capability for offshore cleanup, special emphasis should be placed on prevention of offshore spills. Contingency plans should take into account both inshore and offshore impacts. In addition, research to develop effective countermeasures should be accelerated by industry and government.

Issue:

Prevention may be the only effective countermeasure to oil spills on the Grand Banks given that existing clean-up technologies are not feasible at present under most sea states. While responsibility for research on oil spill prevention lies predominately with the oil industry, Environment Canada does have a major role for directing research and will be expected to provide additional support.

Environment Canada Position:

The Department agrees with the recommendation and the need to accelerate research on oil spill prevention clean-up and countermeasures technologies. Environment Canada fully supports efforts to identify and implement preventative measures in order to minimize operational discharges and spills.

Action Planned by Environment Canada:

Environment Canada will continue to provide direction and support for research and development into oil spill prevention, clean-up and countermeasures technologies. The Department will also continue to provide advice on contingency planning and environmental effects monitoring.

Appendix III D. Contingency Planning and Remedial Actions

Panel Recommendation:

No. 22 The ALPs should be designed to ensure that oil spills are avoided in the event of failure of system components or the structure itself.

Issue:

Articulated loading platforms (ALPs) could be seriously damaged by extreme ice conditions or vessel collisions, resulting in a major spill of crude oil. Operation during extreme weather and ice conditions is a particular concern. The ALPs could also be a source of chronic oil discharge and this must be considered in the design of effects monitoring programs.

Environment Canada Position:

Environment Canada is in full agreement with the recommendation. This recommendation is inherent to the Department's concern for the prevention of oil spills which might result from the Hibernia Development Project. The ALPs are a high risk component both in terms of major oil spills and in terms of chronic discharges. The proponent should therefore be required to provide justification for decisions made in determining their ultimate design.

Action Planned by Environment Canada:

Environment Canada will review the design specifications for the ALPs in terms of potential oil spills if the ALPs fail or are involved in an accident with ice or with another vessel. Environment Canada will also assist the proponent and the Canada-Newfoundland Offshore Petroleum Board in identifying preventative measures and ensuring that effects monitoring programs take into account this potential source of oil discharges.

Panel Recommendation:

No. 23 Complete protection of subsea components, by measures such as burial, should be considered for protection against iceberg impact.

Issue:

Unprotected subsea components such as pipelines, production manifolds and wellheads may be damaged by icebergs or fishing gear which would result in the release of oil.

Environment Canada Position:

This recommendation generally reflects the concern for potential damage to subsea components as stated in Environment Canada's scientific and technical review of the proponent's Environmental Impact Statement. The Panel's recommendation would have been more complete, however, had it advocated the installation of safety components in flow lines and gathering lines. The value of trenching and/or burial of flow lines and other subsea components has also not yet been fully determined. In fact, the potential for breakage or corrosion of subsea components due to damage during the trenching process may be greater than the probability of damage due to iceberg furrowing. This issue requires further investigation.

Action Planned by Environment Canada:

Environment Canada is prepared to participate with industry, the Canada-Newfoundland Offshore Petroleum Board and other government departments in an evaluation of burial options, safety components and construction techniques. Related to this, the Department will assist in drafting criteria for defining critical situations and shut-down procedures in the event of a major upset.

Panel Recommendation:

No. 31 Mitigative measures such as reinjection of produced water, treatment and discharge of storage water below the summer thermocline, and the use of low toxicity drilling muds should be implemented during the project.

Issue:

Protection of the marine environment from the effects of toxic discharges is a priority concern of Environment Canada.

Environment Canada Position:

This recommendation reflects the views expressed in Environment Canada's presentation to the Hibernia Assessment Panel. Environment Canada has recommended that the proponent evaluate the feasibility of injecting waste discharges into the formation or discharging them below the thermocline.

Action Planned by Environment Canada:

Environment Canada will review the proponent's report on the feasibility of reinjection of produced water, evaluate the proponent's intended approach to mitigation for other discharges and participate in the drafting of effluent discharge guidelines. Environment Canada will also audit the proponent's compliance monitoring procedures and will work closely with the Canada-Newfoundland Offshore Petroleum Board and other agencies in developing an effects monitoring program to test the adequacy of established discharge limits.

Appendix III E. Monitoring

Panel Recommendation:

No. 40 A monitoring plan should be developed taking into account the viewpoints of the responsible government agencies and allowing for publication of results. The government agencies should consult with interested public groups concerning the monitoring program.

Issue:

There is a requirement to implement an environmental effects monitoring program to evaluate the impact of the project on the biological resources and ecological processes of the Grand Banks. Environment Canada will be expected to work with others in order to secure agreements on the key elements of a cost-effective and long-term environmental monitoring strategy.

Environment Canada Position:

Environment Canada supports this recommendation. The Panel's recommendation is however general and does not specify responsibilities for individual program components.

Action Planned by Environment Canada:

Environment Canada will collaborate with the Canada-Newfoundland Offshore Petroleum Board, the Department of Fisheries and Oceans, and the proponent to define requirements for effects monitoring on the Grand Banks. Environment Canada will continue to provide baseline information and assist in the identification of valued ecosystem components for monitoring the effects of a major oil spill as well as chronic discharges. The Department will also assess the requirements for additional research on the long-term effects on seabird colonies in eastern Newfoundland.

**Appendix III F. Other Recommendations with Operational and
Consultative Implications for Environment
Canada**

Panel Recommendation:

No. 8. A plan establishing targets for Canada and Newfoundland industrial benefits should be agreed upon by governments and the proponent prior to project commencement and should be closely monitored throughout its life. Critical elements which should be included are the timing and size of contracts, technology transfer, application to sub-contractors and the need for on-going consultation to ensure awareness of project opportunities.

Issue:

Hibernia development spin-off projects will have potential environmental implications which were not adequately addressed in the proponent's Environmental Impact Statement. Federal government involvement through direct funding of projects or provision of infrastructure will require Environment Canada review to assess potential environmental concerns.

Environment Canada Position:

Environment Canada endorses this recommendation. The Department supports the need to address the effects of spin-off developments on the environment.

Action Planned by Environment Canada:

Existing review and advisory mechanisms with the Department of Regional Industrial Expansion (DRIE) and Transport Canada will be maintained. Environment Canada will also continue to work closely with the provincial government through such mechanisms as the Hibernia Construction Sites Environmental Management Committee.

Panel Recommendation:

No. 19 Community impact agreements should be developed for areas directly affected by the project. These should address housing, infrastructure and social services requirements. Such agreements would provide a written understanding of the division of responsibilities among senior levels of government, the proponent and local authorities. They would also establish the basis for funding, monitoring and data collection and provide for arbitration of disputes that may arise during the project.

Issue:

Where agreements pertaining to coastal zone and land use planning and the provision of service infrastructure involve federal funds, Environment Canada has a role to play in ensuring that these developments meet federal regulatory requirements.

Environment Canada Position:

While this recommendation was not directly addressed by Environment Canada during the Hibernia Assessment Panel hearings, the Department is in favour of agreements which more clearly outline jurisdictional responsibilities and better facilitate communications between governments, industry and the public.

Action Planned by Environment Canada:

Environment Canada endorses this concept and will continue to work closely with federal and provincial agencies towards the implementation of such agreements. As a member of the Hibernia Construction Sites Environmental Management Committee, Environment Canada will contribute to the development of environmental protection plans for Hibernia related onshore development sites.

Panel Recommendation:

No. 26 The results of ongoing studies on seismicity, seabed stability and possible subsidence should be incorporated into the design of the GBS and other offshore components.

Issue:

The gravity based structure and related infrastructure may be damaged or lost as a result of seabed slumping or seismic activity which could translate into a significant environmental impact. The possibility of such an occurrence will have to be factored into contingency plans.

Environment Canada Position:

The Department concurs with the Panel's recommendation. Environment Canada fully endorses any studies or evaluations which are deemed necessary to improve the design and safety of the Hibernia Development Project and reduce the probability of a major oil spill on the Grand Banks.

Action Planned by Environment Canada:

Environment Canada is prepared to assist industry, the Canada-Newfoundland Offshore Petroleum Board, the Atlantic Geosciences Centre, and other government departments to ensure that the results of such studies are reflected in contingency plans.

Panel Recommendation:

No. 28 The design of tankers should incorporate all necessary features for Hibernia conditions including double hulls and ice-strengthening.

Issue:

Tanker transport of Hibernia oil will create additional marine traffic in environmentally sensitive areas and the risk of an oil spill will be increased above that which now exists. Preparedness in the event of an oil spill will require Environment Canada review to ensure that contingency plans take into account potential volumes of oil that might be lost.

Environment Canada Position:

Environment Canada strongly endorses this recommendation which supports the use of best practicable technology to prevent both major and chronic discharges of oil to the marine environment.

Action Planned by Environment Canada:

Environment Canada will provide advice in the preparation of oil spill contingency plans which reflect the potential for both major and chronic discharges from shuttle tankers. The Department will assist the proponent, the Canada-Newfoundland Offshore Petroleum Board and other agencies in identifying sensitive areas and explore possible administrative arrangements through the Environmental Advisory Committee on Newfoundland and Labrador Marine Transportation to address this issue.

Panel Recommendation:

No. 32 DFO should develop a contingency plan for the administration of selected temporary fishery closures in the event of an oil spill. Accurate tracking of the spill together with consultation with the fishing industry will be required.

Issue:

Potential impacts of an oil spill on the Grand Banks ecosystem might include commercial fish stocks and seabird populations. Collaboration will be required amongst Environment Canada, the Department of Fisheries and Oceans, the Canadian Coast Guard, the Canada-Newfoundland Offshore Petroleum Board and the proponent to ensure that oil spill contingency plans take into account the requirement for fishery closures in order to protect markets which may suffer from fish tainting. In addition, Environment Canada will be expected to offer advice on the measures necessary to protect seabird populations.

Environment Canada Position:

Environment Canada concurs with the Panel's recommendation to develop contingency plans related to fishery closures resulting from an oil spill and to accurately track these spills. However, the Department cannot fully agree with the Panel's conclusion "that the major impact resulting from an oil spill would be the disruption of fishing rather than effects on fish stocks". It is Environment Canada's view that insufficient evidence presently exists to fully predict the short-term and long-term effects of chronic and major batch releases of oil on marine life, especially embryonic and larval fish and seabirds. Environment Canada maintains that further research should be conducted in this area.

Action Planned by Environment Canada:

Environment Canada is prepared to assist the Canada-Newfoundland Offshore Petroleum Board, the proponent and other agencies in coordinating and funding further research to assess the short-term and long-term toxic effects of oil. The Department will continue to provide advice on contingency planning.

Panel Recommendation:

No. 33 Further examination should be undertaken of the 8 km x 13 km exclusion area by the Canada-Newfoundland Offshore Petroleum Board in consultation with the fishing industry.

Issue:

Delineation of exclusion zones is required for both the protection of offshore oil facilities from ship traffic and the protection of environmentally sensitive areas, particularly seabirds. Environment Canada will be expected to participate in the identification of sensitive areas as well as in determining the mitigative requirements for cumulative toxic discharges.

Environment Canada Position:

Environment Canada believes that exclusion zones are necessary. It is the Department's view that the size of the exclusion zone should be determined by the predicted and demonstrated success in mitigating or eliminating toxic discharges. The area required to ensure acceptable receiving water quality adjacent to the Hibernia development should be identified prior to project start-up.

Action Planned by Environment Canada:

Environment Canada will collaborate with the Department of Fisheries and Oceans and the Canada-Newfoundland Offshore Petroleum Board to further assess exclusion zone requirements for the Hibernia development. The Department will also assist in delineating sensitive zones from which oil activities should be excluded, including major seabird colonies.

Panel Recommendation:

No. 34 Preventative measures should be rigorously enforced by government and the proponent during the life of the project in order to minimize damage to fishing gear by debris.

Issue:

Damage to fishing gear could result from debris lost or dumped during construction and operation of the project, unless effective preventive measures are implemented. Environment Canada has already prepared a seabed map of the Grand Banks delineating topographic features and debris, and the Department will be expected to be part of any review team established to assess the acceptability of preventative measures.

Environment Canada Position:

Environment Canada strongly endorses this recommendation. The existing Grand Banks debris map should be updated prior to oil production. If any major dumping incidents occur, the applicability of the Ocean Dumping Control Act should be considered.

Action Planned by Environment Canada:

Environment Canada is prepared to participate in evaluating measures aimed at preventing the dumping of debris. The Department will also examine the feasibility of using the Ocean Dumping Control Act as a means for enforcement.

Panel Recommendation:

- No. 35 The government should establish a comprehensive policy of compensation for various types of potential economic damage to fisheries interests, prior to project commencement. This should establish simple standardized procedures for all types of economic damage including matters such as induced effects on the processing sector and loss of access to fishing grounds.

Issue:

Compensation schemes are presently limited to dealing with specific oil spill and debris damage. No compensation scheme exists to address the full range of potential economic damage including loss of access and indirect effects on the fish processing sector, as well as losses of seabird populations and coastal habitats. Environment Canada will be expected to participate in reviewing the merits of establishing a broader wildlife compensation policy.

Environment Canada Position:

Environment Canada agrees with this recommendation. However, the recommendation would have been more comprehensive had it included consideration of broader wildlife compensation concerns.

Action Planned by Environment Canada:

Environment Canada is prepared to participate in a review of federal, provincial and industry compensation policies. Although the Department has no clear environmental compensation policy at this time, the merits of establishing a broader wildlife compensation fund will be examined.

Panel Recommendation:

No. 36 The government should maintain the Vessel Traffic Services facility at Argentia throughout the construction phase of the project and the petroleum industry should consult with fisheries interests on the establishment of vessel traffic lanes in Placentia Bay and offshore.

Issue:

Vessel traffic conflicts in Placentia Bay, and associated potential oil and chemical spills, may be significantly reduced with the operation of the Vessel Traffic Services facility at Argentia. The existence of this facility will form an integral part of contingency planning for the Hibernia project.

Environment Canada Position:

Environment Canada supports this recommendation. It is the Department's view that operation of the traffic services facility at Argentia will enhance vessel safety. This in turn will assist in the prevention of oil and chemical spills into the marine environment.

Action Planned by Environment Canada:

Environment Canada is prepared to co-operate with Transport Canada and the Canada-Newfoundland Offshore Petroleum Board in evaluating the value of this facility in relation to contingency planning for the Hibernia Development Project.

Panel Recommendation:

No. 37 Examination of potential sources of aggregate for GBS construction should take into account possible environmental effects and any quarry operation should include appropriate environmental protection measures.

Issue:

Transport of aggregate by sea and associated dredging may interfere with fishing activity and Atlantic salmon migrations, and affect shellfish harvesting and development programs. As a member of the Hibernia Construction Sites Environmental Management Committee, Environment Canada will be expected to assess these concerns.

Environment Canada Position:

Environment Canada agrees with this recommendation.

Action Planned by Environment Canada:

Environment Canada will discharge its responsibilities for the assessment of Hibernia related land-based activities through the Hibernia Construction Sites Environmental Management Committee. With respect to the transport of aggregate in coastal areas, the Department will apply its regulatory authority under the Fisheries Act, as appropriate.

Panel Recommendation:

No. 38 The entire development area should be restored to a fishable condition upon abandonment of the project.

Issue:

An abandonment plan is required prior to project start-up to ensure the safe and acceptable decommissioning of this project.

Environment Canada Position:

Environment Canada supports the intent of this recommendation. Abandonment options should be discussed and clarified before oil production begins. This is consistent with the Department's policy on industrial site decommissioning.

Action Planned by Environment Canada:

Environment Canada will participate in negotiations with the proponent and the Canada-Newfoundland Offshore Petroleum Board to ensure that an acceptable decommissioning and abandonment plan is prepared prior to project start-up. Environment Canada concerns will include the disposal of waste material under the Ocean Dumping Control Act and the Fisheries Act, as appropriate.

Panel Recommendation:

No. 39 The GBS should be designed in such a way that it could be refloated and removed if necessary.

Issue:

Although there may be temporary advantages to the use of the gravity based structure for navigation, rescue or other purposes after completion of the Hibernia project, long term deterioration of the structure may require continuous maintenance or eventual removal if it is not to become a hazard.

Environment Canada Position:

Because of the risk of collisions with ships moving through the area and the potential for oil spills, the Canada-Newfoundland Offshore Petroleum Board should require the structure to be removed at project termination unless the proponent can offer valid reasons for leaving the structure on site.

Action Planned by Environment Canada:

Environment Canada is prepared to assist the Canada-Newfoundland Offshore Petroleum Board and the proponent in reviewing design and abandonment options for the gravity based structure.

