VOLUME 1

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A REPORT TO THE MINISTER OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT REGARDING ISSUES ARISING FROM THE ENVIRONMENTAL IMPACT REVIEW BOARD REVIEWS OF THE ISSERK AND KULLUK DRILLING PROGRAM APPLICATIONS



PREPARED BY THE BEAUFORT SEA STEERING COMMITTEE April 1991

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PREPARED BY THE

BEAUFORT SEA STEERING COMMITTEE

April 1991

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April 1991

The Honourable Tom Siddon Minister Department of Indian Affairs and Northern Development Ottawa, Ontario K1A 0H4

Dear Mr. Siddon:

We, as members of the Beaufort Sea Steering Committee, are pleased to present to you our review of the issues relating to government preparedness for an oil spill resulting from an oil well blowout in the Beaufort Sea that arose during the Environmental Impact Review Board's reviews of the Isserk and *Kulluk* drilling program applications.

The report represents the results of a six month cooperative effort between the Inuvialuit, the petroleum industry and government to assess the government's ability to respond to and manage a major oil spill in the Beaufort Sea and, where problems have been identified, to recommend remedial actions.

The Steering Committee believes this exercise, involving more than one hundred people from all three parties has been a positive experience for all involved. While it is not possible for us to say that a spill will not occur, we have made progress in our ability to work towards preventing such an accident and coping quickly with an accident if it occurs. The will is there to resolve the problems we have identified. Your endorsement of the actions we now propose will result in a much strengthened partnership between all parties as the development of the petroleum resources of the Beaufort Sea proceeds.

The committee members wish to thank all those who gave willingly of their time in the communities of the Beaufort Sea, in the petroleum industry and in government to make this report possible.

Yours sincerely,

Robert Hornal Chairman

Roger Gr Inuvialuit Regional Corporation

Ed Bennett Canadian Petroleum Association

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Government of Northwest Territories

Brian Love Government of Yukon Territory

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EXECUTIVE SUMMARY

In September 1990 the Beaufort Sea Steering Committee was formed by the Minister of Indian Affairs and Northern Development to assess the concerns of the Environmental Impact Review Board (EIRB) concerning government preparedness for an oil spill resulting from an oil well blowout in the Beaufort Sea. The Steering Committee was made up of representatives from the Inuvialuit, the petroleum industry, the territorial governments and the federal government, all the parties who have a direct interest in the management of exploration activity in the Beaufort Sea.

The Steering Committee reviewed the work of seven Task Groups set up to examine government contingency plans for an oil blowout, same season relief well contingency plans, contingency plan testing and review, Inuvialuit involvement in contingency planning and cleanup operations, the costing of countermeasures and the development of a worst case scenario, compensation and financial liability, the nature and cost of remedial and mitigative measures possible in the Beaufort Sea, scientific processes relating to research to be undertaken in the event of a spill, assessment methodology and databases.

With respect to government contingency plans, the Steering Committee has concluded that the principle that the agency responsible for authorizing a development should have full responsibility for spill prevention and cleanup is acceptable and indeed desirable. It also recognizes that the liability and responsibility of the operator in the case of an oil well blowout is clearly defined in the *Oil and Gas Production and Conservation Act* and the operator has the initial responsibility to take all necessary steps to control the incident. The Steering Committee concludes that the Arctic Seas Strategy is an acceptable framework for contingency plans relating to an oil blowout but it believes that the strategy must a) be clarified with respect to the role of the resource agencies in relation to the lead agency, b) strengthen its links with the Beaufort Sea communities and c) become better known by all parties, including the public.

With respect to same season relief well contingency planning, the Steering Committee supports the objective of same season relief well drilling capability and believes that the objective should be maintained. The Steering Committee proposes that a standardized technique for determining the end of season date for risk drilling be used.

With respect to industry contingency plan review and testing, the Steering Committee has concluded that the process of reviewing industry contingency plans is adequate but the process requires a clear audit trail so that departments and agencies participating in a review can determine which of their suggestions and/or requirements have been incorporated. The Steering Committee concludes that there is a requirement for a more rigorous, better defined testing procedure for these plans. With respect to Inuvialuit involvement in contingency planning and cleanup, the Steering Committee concludes that there are now several-ways of involving Inuvialuit in contingency planning which should be employed. The Steering Committee recommends that Inuvialuit be involved in the consideration of Beaufort Sea transboundary issues concerning wildlife and wildlife habitat.

With respect to the costing of countermeasures and the development of a worst case scenario, the Steering Committee concludes that a worst case scenario is best developed by the operator to fit the location and time of drilling. However, the Steering Committee is satisfied that a methodology acceptable to the Inuvialuit, the petroleum industry and government has been developed to determine the cost of any worst case scenario.

With respect to financial responsibility, the Steering Committee concludes that it is essential that the dispute between Government and the Inuvialuit on the proper interpretation of Section 13 of the Inuvialuit Final Agreement (IFA) be resolved so that the Inuvialuit can properly assess their level of risk from offshore development. The Steering Committee recommends that the government seek a letter of credit from an operator to cover harvest loss and insurance from an operator to cover the costs of remedial and mitigative measures.

With respect to remedial and mitigative measures, the Steering Committee concludes that the emphasis of the industry and the regulator when preparing contingency plans must be on prevention, adequate countermeasures and habitat protection because: the state of knowledge concerning restoration options is limited; there are few proven options which can be considered effective and practical; and the effectiveness of mitigative and remedial measures decreases with time. The Steering Committee recommends that all parties begin the task of determining which restoration methods used by industry and government are acceptable.

With respect to research in the event of oil blowout, the Steering Committee recommends that industry take the lead in planning for such research now and that the responsibility for the research be delegated to a member of the spill response team.

With respect to assessment methodology, the Steering Committee concludes that the environmental impact assessment methodology being developed by ESL Environmental Sciences Ltd. and the Department of Fisheries and Oceans (DFO) may prove useful to all proponents and review agencies and should be examined by EIRB staff and industry.

With respect to scientific databases, the Steering Committee concludes that the present information database is extensive and comprehensive and that the adequacy of the database should be examined by the Beaufort Region Environmental Assessment and Monitoring Program.

The Steering Committee's work has resulted in the preparation of a standardized same season relief well formula, a method of assessing the cost implications of "worst case" scenarios, an agreement among parties as to the nature of the financial instruments to be used to protect the Inuvialuit and government, a draft generic wildlife compensation agreement, a better understanding of the restorative methods appropriate to use in the Beaufort Sea and a series of recommendations designed to improve the government's response to a blowout.

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The Beaufort Sea Steering Committee believes that the Department of Indian Affairs and Northern Development (DIAND) should organize a workshop with the EIRB and the Environmental Impact Screening Committee (EISC), industry and other government representatives to review the conclusions and recommendations of this report.

In summary, a thorough review of government preparedness for an oil blowout in the Beaufort Sea has produced among the members of the Steering Committee a sense that there exists within government and industry the will to work hard to prevent an oil blowout and the ability to respond quickly to a blowout if it were to occur.

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SUMMARY OF RECOMMENDATIONS

GOVERNMENT MANAGEMENT

The Steering Committee recommends that the Minister of Indian Affairs and Northern Development order an immediate review of the Arctic Seas Strategy (1986) in order to clarify the role of resource agencies with the lead agency, to strengthen its links with the Beaufort Communities and to increase the public's awareness of the plan.

To accomplish this the Steering Committee recommends that:

- a) DIAND assign a full-time senior level official the responsibility to manage the evaluation of and subsequent changes to the Arctic Seas Strategy. This official should be located in the North and have sufficient authority and resources to ensure full and proper evaluation of the government's contingency plans. This individual should also be charged with coordinating communications with the Beaufort Sea communities, territorial governments and Inuvialuit organizations to increase the level of understanding and communication about government oil spill contingency plans, countermeasures and cleanups. DIAND should publish a summary of how the government will respond to a blowout;
- b) the Minister publish an annual report on the level of preparedness of the government departments and agencies fulfilling their responsibilities under the Arctic Seas Strategy;
- c) the role of the Canadian Coast Guard (CCG) in responding to non-ship source marine spills in the Beaufort Sea be clarified and formally documented in a manner that can be clearly understood within government and by residents of the Beaufort region. This role should include any government-sponsored cleanup and containment actions in the event of an oil blowout;
- d) the role of the oil and gas drilling regulator in responding to drill-sourced spills in the Beaufort Sea be formally documented in a manner that can be clearly understood within government, industry and by residents of the Beaufort Region. This role must also be clearly reflected in each of the government and industry contingency plans which must make clear when the regulator's On Scene Commander would take command from the operator's On Scene Commander, and what are then their respective responsibilities;
- e) the regulator, in reviewing applications for a Drilling Program Approval, ensure that there is full and mutual understanding by industry and the regulator of each other's roles and responsibilities.

OPERATING SEASONS

The Steering Committee recommends that the Minister of DIAND reaffirm the government's commitment to same season relief well capability and reaffirm that the regulator will be responsible for ensuring compliance with this policy:

The Steering Committee recommends that the regulator:

- a) assess each drilling application to ensure that a viable relief well drilling system is available and suitable for the proposed well;
- b) use the formula developed by Task Group 6 to determine the cut-off date for risk drilling for systems using floating drilling units or ice islands as their specified relief well drilling system;
 - In these cases the regulator should:
 - i) in consultation with the Ice Branch of the Atmospheric Environment Service (AES) and with the Canadian Coast Guard (CCG) determine a relief well drilling system's end of season date (D_E) on a site specific basis; however, (D_E) shall not be later than January 31st for the Kulluk, when the Kulluk is the specified relief well drilling system for another floating drilling unit, and not later than December 31st for a drillship;
 - ii) set the Contingency Time Factor at 15%;
 - iii) not allow risk drilling from a drillship beyond October 15th in any year;
 - iv) formally review the calculation of the formula in conjunction with the AES and the CCG ten days before the original cut-off date to determine if there is reason to modify the cut-off date for risk drilling;
 - v) allow operators to drill beyond the original cut-off date only if the revised calculation shows that a relief well can be drilled in the same season.

The Steering Committee recommends that the regulator accept the advice of the Canadian Coast Guard in matters relating to the ability of floating drilling units to remain on station safely in ice, and that the regulator accept the advice of the Atmospheric Environment Service in determining what ice conditions are expected for a given location at a given date.

The Steering Committee recommends that the regulator:

- i) develop, with the CCG and industry, a set of operating specifications for each relief well drilling system. These specifications will be based on a given level of ice breaking support;
- ii) with the assistance of the CCG, confirm that this equipment, or suitable alternatives, is available at the start of each operating season or can be made available prior to its anticipated need thus ensuring the validity of the operating specification.

OIL SPILL CONTINGENCY PLAN APPROVAL AND TESTING

The Steering Committee recommends that:

- a) the regulator provide all agencies in the contingency plan review with a summary of suggested changes and an analysis of why they have or have not been accepted.
- b) industry provide any future Environmental Impact Review Panel with its most recent edition of its oil spill contingency plans in advance of any public review;
- c) a joint industry-government task group be convened to develop a contingency plan testing methodology; this methodology should identify the various elements to be tested, the methods to be used, and the department/agency most appropriate to undertake the test; and
- d) the regulator conduct both surprise exercises to test the response of the people involved in the contingency plan and carefully designed exercises in realistic operating conditions to test the operational status and the capability of the equipment to be used;
- e) the regulator ensure that relationships among the agencies involved in plan approval and testing be formalized in order to ensure that they are fully involved in the development of testing procedures, and participate in test exercises.

INUVIALUIT INVOLVEMENT

The Steering Committee recommends that:

- a) DIAND's review of the Arctic Seas Strategy (see 3.1.3) should include a determination of opportunities for Inuvialuit participation in oil spill response activities.
- b) the regulator coordinate a joint government-industry-Inuvialuit mock exercise concurrent with drilling activities to address an oil spill scenario. Such an exercise would highlight both opportunities for Inuvialuit involvement and trouble spots which need resolution.
- c) the Inuvialuit be involved in the consideration of Beaufort Sea transboundary issues concerning wildlife and wildlife habitat and non-renewable resource development activities as they relate to wildlife and wildlife habitat. The more practical and utilitarian Inuvialuit involvement would likely be at various informal gatherings of both industry and government, but their views should be sought and expressed by Canadian delegations at formal meetings where the above matters are being discussed.

DEVELOPMENT AND COSTING OF OIL SPILL SCENARIOS

The Steering Committee recommends that the methodology developed by Task Group 1 and Task Group 2 be employed in calculating the cost of a worst case scenario for future EIRB hearings.

With respect to cleanup plans the Steering Committee recommends that :

- a) the regulator seek the help of the Inuvialuit, the industry, CCG, DOE and DFO to develop guidelines and standards for beach cleanup for the use of assessment teams whose task would be to determine when an oiled beach is adequately cleaned;
- b) industry review with the regulator and the Inuvialuit current and future oil spill contingency plans to ensure that operations are designed so as not to place excessive stress on the existing infrastructure of the Beaufort Sea communities.
- c) DOE with industry, the Inuvialuit and DIAND undertake a review of potential disposal sites with the aim of having approved sites available in the event of an incident.

COMPENSATION AND FINANCIAL RESPONSIBILITY

The Steering Committee recommends that:

- a) DIAND give the resolution of the interpretation of Section 13 of the IFA the very highest priority.
- b) DIAND secure up to \$15 million in the form of a letter of credit for harvest loss unless there is an agreement between the operator and the Inuvialuit regarding the amount of compensation for this purpose.
- c) DIAND accept an insurance policy to cover potential costs for remedial and mitigative measures.
- d) industry and the Inuvialuit complete their work towards the design of an acceptable generic wildlife agreement.

With respect to compensation processes the Steering Committee recommends that:

- a) the Inuvialuit Harvest Study (IHS) should be formally referenced in the Generic Compensation Agreement as the primary data source to be used in the quantification of claims;
- b) industry should initiate discussions with the Local Working Group of the IHS to identify an iterative mechanism whereby industry could become more involved on an ongoing basis in the Harvest Study;

- c) the IGC should conduct and industry should approve on a regular basis a pre-impact valuation for polar bear and beluga whale for the purpose of determining direct cash
 compensation;
- d) the regulator and industry should examine the possibility of holding a mock -- compensation program exercise with the communities to identify the types of issues that could surface; (This simulation could be included as part of a spill response exercise) and
- e) that individual harvesters should be able to select the type of compensation most suitable to their own needs subject to its availability, notwithstanding the reference to "cash compensation as a last resort" in the Inuvialuit Final Agreement.

WILDLIFE AND WILDLIFE HABITAT RESTORATION

The Steering Committee recommends that:

- a) the regulator in conjunction with industry, the Inuvialuit and other government departments, using the approach outlined by Task Groups 1 and 2, develop, in consultation with the Beaufort Sea communities, standards to be used by the industry and government to judge the acceptability of restoration techniques;
- b) all parties apply these standards to cleanup activities; and
- c) DOE seek the support of government and industry to review the Environmental Atlas for Beaufort Sea Oil Spill Response every five years and update it as appropriate.

SCIENTIFIC RESPONSE TO A BEAUFORT SEA OIL SPILL

The Steering Committee recommends that:

- a) the petroleum industry, through their Frontier Oil Spill Committee, lead the planning for a scientific response capable of conducting practical research in the event of an oil spill. This planning should involve government and the Inuvialuit and should include the establishment of research priorities, the identification of potential researchers, the identification of logistical and support requirements and, in the event of government involvement, the identification of funds;
- b) a new member of the spill response team, the On Scene Science Coordinator (OSSC) selected from industry and reporting to the On Scene Commander, be the focal point for implementing the scientific research. The final on scene selection of projects for implementation will be the responsibility of the On Scene Science Coordinator in consultation with a representative(s) from the federal government and the Inuvialuit.

ASSESSMENT METHODOLOGY

The Steering Committee recommends that:

- a) industry and EIRB staff examine the new ESL Impact Assessment methodology to determine its suitability for EIRB and government reviews;
- b) EIRB staff, before the next EIRB review, establish an impact assessment methodology following review of the above and discussions with the proponent and its consultants. Application of the methodology to a specific project will then provide the opportunity for the Inuvialuit Regional Corporation (IRC), the Inuvialuit Game Council (IGC), the Wildlife Management Advisory Committees (WMACs), the Fisheries Joint Management Committee (FJMC), the EIRB and government agencies to evaluate its effectiveness. The assessment methodology could then be fine-tuned to the extent necessary during the course of subsequent project reviews.
- c) the impact assessment methodology be aimed specifically at negative impacts on actual and future wildlife harvest loss, at the potential effectiveness of mitigative and remedial measures, at the potential liability of the operator for restoring wildlife and its habitat and at determining liability for compensation to Inuvialuit hunters, trappers and fishermen; and
- d) the impact assessment methodology, in order to be realistic, assume that there will be some success in mitigation (e.g. relief well drilling, marine countermeasures, etc.). The potential success of this mitigation should be predicted by the proponent and independently assessed by the appropriate Government Authority.

INFORMATION DATABASE

The Steering Committee recommends that:

- a) the proponent and government exercise diligence in bringing all relevant information before the Board in future EIRB hearings, because the EIRB will base its decisions and recommendations on the information and evidence before it;
- b) the work of Task Group 4, as detailed in Volume 5, be further refined in a process which uses impact hypotheses, linkages and a more rigorous determination of the adequacy of existing information and of research and monitoring requirements. This should be undertaken by the Beaufort Region Environmental Assessment and Monitoring (BREAM) Program, which is being initiated by DIAND, DOE and DFO as a planning component of the Northern Oil and Gas Action Program (NOGAP).

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RÉSUMÉ DESTINÉ À LA HAUTE DIRECTION

En septembre 1990, le ministre des Affaires indiennes et du Nord canadien a créé un comité directeur pour qu'il examine les préoccupations du Bureau d'examen des répercussions environnementales (BERE) quant à l'état de préparation du gouvernement pour intervenir en cas de déversement causé par l'éruption d'un puits de pétrole dans la mer de Beaufort. Le Comité se compose de représentants des Inuvialuit, de l'industrie pétrolière ainsi que des gouvernements territoriaux et fédéral, lesquels sont tous directement intéressés par la gestion des activités d'exploitation dans la mer de Beaufort.

Le Comité a examiné les résultats de sept groupes de travail mis sur pied pour analyser les plans d'urgence du gouvernement en cas d'éruption de pétrole, les plans d'urgence en cas de forage de puits d'intervention dans une même saison, les méthodes d'analyse et d'essai des plans, la participation des Inuvialuit à la planification des mesures d'urgence et aux opérations de nettoyage, le coût des mesures d'insertion et l'élaboration d'un scénario de la pire éventualité, l'indemnisation et la responsabilité financière, la nature et le coût des mesures correctives et d'atténuation utilisables dans la mer de Beaufort, les processus scientifiques sous-jacents aux recherches qu'il faut entreprendre en cas de déversement, les méthodes d'évaluation environnementale et les bases de données.

En ce qui concerne les plans d'urgence du gouvernement, le Comité en a conclu que le principe selon lequel il incombe entièrement à l'organisme chargé d'autoriser un projet d'exploitation de prévenir et de nettoyer les rejets est tout à fait acceptable, voire souhaitable. Il reconnaît aussi que la *Loi sur la production et la rationalisation de l'exploitation du pétrole et du gaz stipule* clairement la responsabilité de l'exploitant advenant une éruption de puits de pétrole et qu'il revient d'abord à l'exploitant de prendre les mesures nécessaires pour maîtriser la situation. Le Comité estime que la Stratégie concernant les mers de l'Arctique guide assez bien les plans d'urgence en cas d'éruption de puits de pétrole, sous réserve de certaines améliorations. En effet, il faudrait préciser la stratégie quant au rôle des organismes ressources par rapport à celui de l'organisme principal, l'adapter davantage aux collectivités de la région de la mer de Beaufort et mieux la faire connaître aux différentes parties et au grand public.

En ce qui touche les plans d'urgence concernant le forage des puits d'intervention dans une même saison, le Comité préconise le fait de pouvoir forer ces puits durant la même saison et estime qu'on devrait continuer à abonder dans ce sens. Le Comité propose qu'on adopte une méthode normalisée pour déterminer la date à laquelle il devient dangereux de forer durant la saison.

Quant à l'examen et à l'essai des plans d'urgence de l'industrie, le Comité constate que le processus actuel d'examen est correct, mais qu'il faut absolument une piste de vérification pour que les ministères et les organismes qui participent puissent savoir lesquelles de leurs suggestions ou de leurs exigences ont été mises en pratique. Le Comité estime toutefois qu'il faudrait établir une procédure d'essai plus précise et plus rigoureuse. Sur le plan de la participation des Inuvialuit à la planification des mesures d'urgence et aux opérations de nettoyage, le Comité constate qu'il existe désormais plusieurs façons de solliciter-leur-concours en ce qui concerne les mesures d'urgence à employer. Il recommande que les Inuvialuit aient leur mot à dire sur les questions transfrontalières dans la mer de Beaufort en ce qui concerne la faune et son habitat.

Quant aux coûts des mesures d'insertion et de l'élaboration d'un scénario de la pire éventualité, le Comité estime que l'exploitant est le mieux placé pour tenir compte de l'endroit et du moment du forage en vue d'élaborer un tel scénario. Toutefois, le Comité est heureux de constater qu'on a établi un mode de calcul du coût d'un scénario de la pire éventualité qui convient aux Inuvialuit, à l'industrie pétrolière et au gouvernement.

Quant à la responsabilité financière, le Comité estime que le gouvernement et les Inuvialuit doivent s'entendre sur l'interprétation de la section 13 de la *Convention définitive des Inuvialuit* (CDI) pour que les Inuvialuit puissent réellement évaluer les risques que les activités d'exploitation au large des côtes présentent pour eux. Le Comité recommande que le gouvernement réclame une lettre de crédit à un exploitant pour la perte de possibilités d'exploitation subie par les Inuvialuit et une assurance à un même exploitant en vue de payer le coût des mesures correctives et d'atténuation.

En ce qui concerne les mesures correctives et d'atténuation, le Comité estime qu'au moment de dresser des plans d'urgence, l'industrie et le chargé de la réglementation devraient mettre l'accent sur la prévention, les mesures d'insertion appropriées et la protection de l'habitat faunique pour les raisons suivantes : nos connaissances des options en matière de restauration sont limitées, bien peu de ces options ont été éprouvées au point de pouvoir être considérées efficaces et pratiques, et les mesures correctives et d'atténuation perdent leur efficacité avec le temps. Le Comité recommande que les parties commencent à déterminer quelles méthodes de restauration utilisées par l'industrie et le gouvernement sont acceptables.

Quant aux recherches à entreprendre dans l'éventualité d'une éruption d'un puits de pétrole, le Comité recommande que l'industrie se charge de la planification dès maintenant et que la réalisation des recherches soit déléguée à un membre de l'équipe d'intervention en cas de déversement.

En ce qui concerne les incidences sur l'environnement, le Comité déclare que les méthodes d'évaluation environnementale que la firme <u>ESL Environmental Sciences Ltd.</u> et le ministère des Pêches et des Océans (MPO) sont en train d'établir pourraient être utiles aux prometeurs et aux organismes d'examen, et que le BERE et l'industrie devraient les examiner.

Pour ce qui est des bases de données scientifiques, le Comité affirme que la base actuelle est exhaustive et que le Programme d'évaluation et de surveillance environnementales dans la région de la mer de Beaufort devrait en examiner la pertinence. À la lumière des travaux du Comité, on a établi une formule normalisée pour le forage des puits d'intervention dans une même saison, on a élaboré une méthode d'évaluation des coûts qu'engendreraient les pires scénarios, on a rédigé une entente entre les parties concernant la nature des instruments financiers à utiliser pour protéger les Inuvialuit et le gouvernement, on a ébauché une entente générale sur les indemnités relatives à la faune, on a dressé un liste de recommandations visant à permettre au gouvernement de mieux réagir en cas d'une éruption d'un puits de pétrole et on connaît mieux les méthodes de restauration utilisables dans la mer de Beaufort.

Le Comité estime que le ministère des Affaires indiennes et du Nord canadien devrait organiser un atelier de concert avec le BERE, le Comité d'étude des répercussions environnementales, l'industrie et d'autres représentants gouvernementaux pour examiner les conclusions et les recommandations du présent rapport.

Bref, en examinant de près dans quelle mesure le gouvernement était capable de parer à l'éventualité d'une éruption de pétrole dans la mer de Beaufort, le Comité a constaté que l'appareil fédéral et l'industrie avaient la volonté de travailler sérieusement à prévenir un tel fléau et qu'ils pouvaient maîtriser rapidement une éruption.

RÉSUMÉ DES RECOMMANDATIONS

RÔLE DE GESTION DU GOUVERNEMENT

Le Comité directeur recommande que le ministre des Affaires indiennes et du Nord canadien (ci-après appelé le Ministre) réclame immédiatement l'examen de la Stratégie concernant les mers de l'Arctique (1986) en vue de préciser le rôle des organismes ressources avec l'organisme principal, de l'adapter davantage aux collectivités de la région de la mer de Beaufort et de sensibiliser encore plus le grand public à la Stratégie.

À cette fin, le Comité recommande que :

- a) le ministère des Affaires indiennes et du Nord canadien (MAINC) affecte à plein temps un cadre supérieur à la coordination de l'examen de la Stratégie et de la mise en oeuvre des modifications ultérieures. La personne désignée devrait travailler dans le Nord et disposer des pouvoirs et des ressources nécessaires pour réaliser une évaluation complète et pertinente des plans d'urgence du gouvernement. Elle devrait aussi assurer la coordination des communications avec les collectivités de la région de la mer de Beaufort, les gouvernements territoriaux et les organismes inuvialuit pour mieux faire comprendre et connaître les plans d'urgence, les mesures d'insertion et les opérations de nettoyage auxquels le gouvernement fédéral ferait appel dans l'éventualité d'un déversement de pétrole. Le MAINC devrait en outre publier un aperçu des mesures qu'Ottawa pendrait pour maîtriser une éruption d'un puits de pétrole.
- b) le Ministre publie un rapport annuel sur l'état de préparation des ministères et des organismes gouvernementaux ayant un mandat dans le cadre de la Stratégie concernant les mers de l'Arctique.
- c) l'on précise le rôle de la Garde côtière canadienne (GCC) en ce qui concerne les mesures d'intervention dans le cas de déversements dans la mer de Beaufort qui ne sont pas causés par un navire, et que ce rôle soit formulé de manière à être compris sans équivoque au sein du gouvernement et par les résidents de la région. Le rôle de la GCC devrait toucher les mesures de nettoyage et de confinement des déversements subventionnées par le gouvernement fédéral en cas d'éruption d'un puits de pétrole.
- d) l'on formule officiellement le rôle du chargé de la réglementation en ce qui concerne les mesures d'intervention dans le cas de rejets causés par une activité de forage dans la mer de Beaufort de manière à être compris sans équivoque au sein du gouvernement, de l'industrie et par les résidents de la région de la mer de Beaufort. Ce rôle doit être reflété clairement dans chaque plan d'urgence du gouvernement et de l'industrie. Ces plans d'urgence devraient également stipuler quand le commandant sur place désigné par le chargé de la réglementation devrait prendre la relève du commandant nommé par l'exploitant et les responsabilités respectives de ces commandants.

e) le chargé de la réglementation s'assure, lorsqu'il examine les demandes d'approbation d'un projet de forage, que lui et l'industrie comprennent entièrement les rôles et les responsabilités qui leur reviennent respectivement et qu'ils en conviennent.

SAISONS D'EXPLOITATION

Le Comité recommande au Ministre de réitérer que le gouvernement s'engage à respecter la politique touchant la capacité de forer les puits d'intervention durant la même saison et que le chargé de la réglementation devra veiller au respect de cette politique.

Le Comité recommande que le chargé de la réglementation :

- a) examine chaque demande de forage pour s'assurer qu'il existe un dispositif durable qui convient pour forer un puits d'intervention dans le cas du projet proposé;
- b) se serve de la formule établie par le Groupe de travail no 6 pour déterminer la date à partir de laquelle il devient dangereux de forer des puits d'intervention dans le cas des dispositifs installés sur des supports flottants ou sur des îles de glace.

Dans ces cas, le chargé de la réglementation devrait :

- i) de concert avec le Centre des glaces du Service de l'environnement atmosphérique (SEA) et la GCC, fixer une date limite de forage des puits d'intervention en fonction de l'emplacement des dispositifs de forage. Toutefois, cette date ne devrait pas dépasser le 31 janvier dans le cas du gisement Kulluk si ce dernier sert de dispositif à un autre support flottant. Elle ne devrait pas non plus dépasser le 31 décembre dans le cas d'un navire de forage;
- ii) prévoir 15 % du temps normalement requis comme marge de manoeuvre;
- iii) interdire aux navires de forage de forer des puits après le 15 octobre lorsque les conditions présentent des dangers;
- iv) dix jours avant la date limite de forage retenue, examiner systématiquement le mode de détermination de cette date avec le SEA et la GCC pour vérifier s'il y a lieu de la changer;
- v) permettre aux exploitants de forer au-delà de la date limite fixée initialement seulement si, après examen du mode de détermination de cette date, tout indique qu'il est possible de procéder au forage du puits dans la même saison.

Le Comité recommande que le chargé de la réglementation accepte l'avis de la GCC en ce qui concerne la capacité des supports flottants à demeurer fixes dans les glaces et qu'il accepte l'avis du SEA pour ce qui est de déterminer l'état dans lequel les glaces devraient être à un endroit donné et à une date donnée.

Le Comité recommande que le chargé de la réglementation :

- i) établisse, de concert avec la GCC et l'industrie, une série de conditions de fonctionnement pour chaque dispositif de forage de puits d'intervention. Ces conditions seraient fonction d'un niveau donné de déglaçage.
- ii) confirme, avec l'appui de la GCC, que ces dispositifs, ou tout équipement de rechange acceptable, sont prêts à l'ouverture de la saison, même si on a en besoin que plus tard, de manière à respecter les conditions de fonctionnement;

APPROBATION ET ESSAI DES PLANS D'URGENCE EN CAS DE DÉVERSEMENT DE PÉTROLE

Le Comité recommande que :

- a) le chargé de la réglementation fournisse aux organismes participant à l'examen du plan d'urgence un résumé des modifications proposées et une analyse motivant le refus ou l'acceptation de ces changements.
- b) l'industrie fournisse à toute éventuelle commission d'évaluation environnementale la dernière version de ses plans d'urgence avant la tenue d'un examen public.
- c) un groupe de travail formé de représentants de l'industrie et du gouvernement établisse une méthode d'essai des plans d'urgence. Cette méthode devrait préciser les divers éléments visés par l'essai, la marche à suivre ainsi que le ministère ou l'organisme le plus compétent pour réaliser l'essai.
- d) le chargé de la réglementation fasse des exercices par surprise pour vérifier la réaction des responsables de la mise en oeuvre des plans d'urgence et qu'il fasse, dans des conditions normales d'exploitation, des exercices judicieusement préparés pour vérifier l'état de fonctionnement et la capacité de l'équipement prévu en cas d'intervention.
- e) le chargé de la réglementation veille à ce que les rapports de travail entre les organismes chargés de l'approbation et de l'essai des plans soient officiels afin que ces intervenants participent pleinement à l'élaboration des procédures d'essai et à la tenue des exercices.

PARTICIPATION DES INUVIALUIT

Le Comité recommande que :

- a) dans le cadre de l'examen de la Stratégie concernant les mers arctiques (voir le point 3.1.3), le MAINC détermine comment les Inuvialuit pourraient participer aux activités d'intervention en cas de déversement de pétrole.
- b) le chargé de la réglementation organise un exercice faisant intervenir le gouvernement, l'industrie et les Inuvialuit lors d'une simulation de déversement durant des activités de forage. On pourrait ainsi déterminer comment faire intervenir les Inuvialuit et relever du même coup les points à corriger.
- c) les Inuvialuit aient leur mot à dire en ce qui concerne la faune et son habitat dans les questions transfrontalières touchant la mer de Beaufort et dans les projets de mise en valeur des ressources non renouvelables. La façon la plus pratique et la plus utile d'obtenir l'avis des Inuvialuit serait probablement de les inviter à diverses rencontres non officielles entre l'industrie et le gouvernement. Néanmoins, des délégations canadiennes devraient se charger de recueillir leurs vues et de les faire valoir aux réunions officielles qui traiteraient des points susmentionnés.

ÉLABORATION ET COÛT DES SCÉNARIOS

Pour les prochaines audiences devant le BERE, le Comité recommande que l'on calcule le coût d'un scénario de la pire éventualité selon le mode établi par les groupes de travail nos 1 et 2.

En ce qui concerne les plans de nettoyage, le Comité recommande que :

- a) le chargé de la règlementation se mette de concert avec les Inuvialut, lindustrie, la GCC, le ministère de l'Environnement (MDE) et le ministère des Pêches et des Océans (MPO) afin d'élaborer les procèdures et les normes que les équipes d'évaluation environnementale utiliseront pour déterminer si l'état de restauration des plages est acceptable.
- b) l'industrie, de concert avec le chargé de la réglementation et les Inuvialuit, examine les plans d'urgence actuels et futurs pour s'assurer que les opérations prévues n'imposent pas une contrainte excessive sur l'infrastructure des collectivités de la région de la mer de Beaufort.
- c) le MDE, de concert avec l'industrie, les Inuvialuit et le MAINC, examine des lieux possibles d'élimination en vue de disposer de lieux approuvés en cas d'accident.

INDEMNISATION ET RESPONSABILITÉ FINANCIÈRE

Le Comité recommande que :

- a) le MAINC s'attaque en toute priorité à régler le problème d'interprétation de la section 13 de la CDI.
- b) le MAINC garantisse jusqu'à concurrence de 15 millions de dollars, sous forme d'une lettre de crédit, pour la perte de possibilités d'exploitation subie par les Inuvialuit à moins qu'une entente stipulant le montant de l'indemnité soit intervenue entre l'exploitant et les Inuvialuit.
- c) le MAINC souscrive à une police d'assurance pour couvrir les coûts éventuels des mesures correctives et d'atténuation.
- d) l'industrie et les Inuvialuit achèvent leurs travaux en vue de rédiger une entente générale acceptable sur les indemnités relatives à la faune.

En ce qui a trait aux processus d'indemnisation, le Comité recommande que :

- a) dans l'entente générale sur les indemnités relatives à la faune, l'entente sur l'exploitation de la faune par les Inuvialuit (EEFI) figure comme principale source d'information à utiliser pour déterminer le montant des indemnités.
- b) l'industrie entame des pourparlers avec le groupe de travail local de l'EEFI en vue de déterminer un mécanisme itératif qui permettrait à l'industrie de participer davantage et de façon suivie à l'étude.
- c) le Conseil de gestion du gibier (CGG) fasse régulièrement une évaluation préincidence sur l'ours blanc et le beluga en vue de déterminer l'indemnité financière et que l'industrie approuve ces évaluations.
- d) le chargé de la réglementation et l'industrie envisagent d'offrir un programme d'indemnisation aux collectivités à titre de simulation pour relever les problèmes qui pourraient surgir; (cette simulation pourrait faire partie d'un exercice d'intervention en cas de déversement).
- e) les exploitants puissent choisir parmi les types d'indemnité offerts celui qui répond le mieux à leurs besoins, nonobstant le renvoi à «une indemnité financière en dernier recours» fait dans la CDI.

RESTAURATION DE LA FAUNE ET DE SON HABITAT

Le Comité recommande que :

- a) le chargé de la réglementation, de concert avec l'industrie, les Inuvialuit et les ministères gouvernementaux, ainsi qu'en consultation avec les collectivités de la région de la mer de Beaufort, élabore, à la lumière de l'approche formulée par les groupes de travail nos. 1 et 2, les normes que l'industrie et le gouvernement utiliseront pour déterminer si les techniques de restauration sont acceptables.
- b) toutes les parties appliquent ces normes aux opérations de nettoyage.
- c) le MDE sollicite l'appui du gouvernement et de l'industrie afin d'examiner le Environmental Atlas for Beaufort Sea Oil Spill Response au cinq ans et de le mettre à jour au besoin.

INTERVENTION SCIENTIFIQUE EN CAS DE DÉVERSEMENT DE PÉTROLE DANS LA MER DE BEAUFORT

Le Comité recommande que :

- a) l'industrie pétrolière, par le truchement de son comité des déversements de pétrole en régions frontalières, prenne les rênes et planifie un mode d'intervention où des scientifiques seraient en mesure de réaliser des recherches pratiques dans l'éventualité d'un déversement. À cette fin, l'industrie devrait solliciter le concours du gouvernement et des Inuvialuit. Elle devrait établir les priorités en matière de recherches, relever des chercheurs possibles, identifier les besoins logistiques et les besoins en matière de soutien et, si le gouvernement participe, déterminer les fonds.
- b) le coordonnateur scientifique sur place, nouveau membre de l'équipe d'intervention en cas de déversement qui est choisi par l'industrie et relève du commandant sur place, soit le point de coordination pour la mise en oeuvre des recherches scientifiques. Il incombera au coordonnateur scientifique, en consultation avec un ou plusieurs représentants du gouvernement fédéral et des Inuvialuit, de faire la sélection finale sur place des projets aux fins de mise en oeuvre.

MÉTHODE D'ÉVALUATION

Le Comité recommande que :

- a) l'industrie et le BERE examinent la nouvelle méthode d'évaluation environnementale de la firme <u>ESL Environmental Sciences Ltd.</u> pour vérifier si elle s'applique aux examens réalisés par le BERE et le gouvernement.
- b) le BERE, avant son prochain examen, établisse une méthode d'évaluation environnementale à la lumière de l'examen de la nouvelle méthode susmentionnée et des discussions avec le promoteur et ses experts-conseils. L'application de la méthode à un projet particulier permettra alors à la Société régionale inuvialuit, au CGG, aux comités consultatifs de la gestion de la faune, au Comité mixte de gestion de la pêche, au BERE et aux organismes gouvernementaux d'en évaluer l'efficacité. On pourrait par la suite, dans la mesure nécessaire, mettre la méthode au point au cours des examens ultérieurs.
- c) la méthode d'évaluation environnementale soit axée sur les incidences négatives du projet sur les possibilités actuelles et futures d'exploitation de la faune, sur l'efficacité possible des mesures correctives et d'atténuation, sur la responsabilité possible de l'exploitant de restaurer la faune et son habitat ainsi que sur la partie à qui il revient d'indemniser les chasseurs, les trappeurs et les pêcheurs inuvialuit.
- d) pour être réaliste, la méthode d'évaluation environnementale suppose un certain succès des mesures d'atténuation (p. ex. : forage des puits d'intervention, mesures d'insertion en mer, etc.). Le promoteur devrait prévoir le succès possible de ces mesures et l'instance gouvernementale compétente devrait de son côté en faire une évaluation.

BASE DE DONNÉES

Le Comité recommande que :

- a) le promoteur et le gouvernement fassent preuve de circonspection lorsqu'ils présenteront les renseignements pertinents lors des prochaines audiences devant le BERE, car le Bureau fondera ses décisions et ses recommandations sur lcs informations et les preuves dont il disposera.
- b) les résultats du Groupe de travail no 4, ainsi qu'ils sont exposés dans le volume 5, soient repris dans un contexte qui tient compte d'hypothèses d'incidences, de liens et d'un mécanisme plus rigoureux servant à évaluer la pertinence des renseignements existant ainsi que la pertinence des besoins en matière de recherche et de surveillance. Cette tâche devrait être assumée par le Programme d'évaluation et de surveillance environnementales dans la région de la mer de Beaufort, que le MAINC, le MDE et le MPO ont lancé à titre d'élément de planification du Programme d'initiatives pétrolières et gazières dans le Nord.

1.0 INTRODUCTION

Oil and gas exploration activities have taken place in the Canadian Beaufort Sea since the late 1960's resulting in many oil and gas discoveries (Figure 1). Northerners and particularly those northerners living on or near the Beaufort Sea have had concerns relating to the possible consequences of a major oil spill or oil blowout in the Beaufort Sea since the beginning of exploration. In response to these concerns the federal government and the petroleum industry instituted measures to prevent spills and to ensure, if one occurred, that it would be quickly contained. These measures, including the policy of same season relief well drilling capability and the creation of the Beaufort Sea Oil Spill Cooperative, allayed in part the fears of Beaufort Sea residents. Their fears were further lessened as they became familiar with offshore drilling operations and with the safety procedures of the companies.

In the early 1980's a comprehensive social and environmental assessment of oil and gas development activities was undertaken by the Beaufort Environmental Assessment and Review Panel (BEARP). The recommendations of this panel led to improvements in government management and to the introduction by government of the Northern Oil and Gas Action Plan (NOGAP), a series of studies and actions designed to prepare the Beaufort Sea region for oil and gas development.

In 1984 the Inuvialuit of the Western Arctic reached a land claim agreement with the federal government which among other things gave them an advisory role relating to wildlife compensation in the offshore areas. A screening and review process was set up under this agreement which included both a screening mechanism, the Environmental Impact Screening Committee (EISC), and an assessment mechanism, the Environmental Impact Review Board (EIRB) both of which have advisory responsibilities to government.

The grounding of the *Exxon Valdez* on Bligh Reef in Alaska in March of 1989 and the resulting cleanup effort refocused the concerns of the residents of the Beaufort Sea (as indeed, it did of people around the world) on the problems associated with a major oil spill. In response to these concerns, the Screening Committee referred the next two offshore drilling proposals received by it to the EIRB. The EIRB conducted a public review of the Esso Chevron et. al. Isserk I-15 Drilling Program in the fall of 1989 and a public review of the Gulf Canada Resources Limited *Kulluk* Drilling Program in the spring of 1990.

In its report on the Isserk Review the Board recommended that the Minister of Indian Affairs and Northern Development "convene meetings of Inuvialuit, industry and government representatives within 90 days to deal with all aspects of compensation and financial responsibility under the Inuvialuit Final Agreement". A workshop designed to meet this request was convened in Inuvik on March 21 and 22, 1990 and a number of recommendations for further action relating to issues resulting from an oil blowout were made (See Appendix A).

FIGURE 1

MACKENZIE DELTA - BEAUFORT SEA DISCOVERIES

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SOURCE: Canadian Off and Gas Londs Administration In the Board's report on the *Kulluk* Review it made nine recommendations to government relating to the issue of government's preparedness for an oil spill or oil blowout in the Beaufort Sea (see Appendix B).

The Minister established the Beaufort Sea Steering Committee in September 1990 to review the status of government preparedness for an oil blowout in the Beaufort Sea. The Steering Committee was asked to assess the concerns brought forward by the Environmental Impact Review Board after the *Kulluk* Review, to integrate into this assessment the work being done to follow up on the March 1990 workshop and to ensure the results of the process are fully communicated to interested Beaufort Sea communities. The Steering Committee is made up of Members from the Inuvialuit, the petroleum industry, the territorial governments and the federal government, all parties who have a direct interest in the management of activity in the Beaufort Sea and is chaired by an independent chairman. The Steering Committee's terms of reference are described in Appendix C and its membership and organization is shown in Figure 2. The Steering Committee's Coordinator was seconded from industry to work for government for this project.

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FIGURE 2

ORGANIZATION OF BEAUFORT SEA STEERING COMMITTEE AND TASK GROUPS



2.0 METHODOLOGY

The Beaufort Sea Steering Committee met for the first time on September 12, 1990. It examined the recommendations of the EIRB in its *Kulluk* report and the recommendations arising from the March 1990 Inuvik Isserk workshop and concluded that its work could be best accomplished by setting up Task Groups to examine each area of concern identified in these recommendations.

Task Group 1 was charged with examining ways of developing and estimating the cost of marine countermeasures and shoreline protection and cleanup for a "worst case scenario".

Task Group 2 was asked to examine remedial and mitigative measures and to cost wildlife compensation and restoration measures relating to wildlife and wildlife habitat.

Task Group 3 undertook to examine the nature and type of financial instruments that should be required for Beaufort Sea operators to provide security for wildlife compensation and the costs of taking remedial and mitigative measures should an operator default under Section 13 of the Inuvialuit Final Agreement. This task group was also charged with developing a generic wildlife compensation agreement.

Task Group 4 took on the task of examining assessment methodologies, scientific response to an oil spill and the availability and adequacy of scientific databases necessary to determine the effect of a spill on the Beaufort Sea and its wildlife.

Task Group 5 was charged with examining how well government was organized to respond to an oil blowout and whether or not the Canadian Coast Guard should assume lead responsibility for all oil spill countermeasures, cleanup and protection plans and activities. It was also asked to examine the role of the Inuvialuit at meetings between United States and Canadian officials to discuss Beaufort Sea developments.

Task Group 6 undertook to examine the issue of same season relief well drilling capability and the methodology used to determine the last date for "risk" drilling.

Task Group 7 was charged with examining testing procedures for contingency planing and with determining how Inuvialuit could become involved in the planning for an oil blowout and the cleanup of such a blowout.

All Task Groups included representatives from the Inuvialuit, the petroleum industry and government (Figure 2). Names of the Task Group members are given in Appendix D. In some cases Task Groups resulted from the expansion of committees and working groups set up to deal with the recommendations of the 1990 Isserk workshop dealing with wildlife compensation and the Inuvialuit Final Agreement.

The Task Groups worked throughout the autumn of 1990 and then met with the Steering Committee in December to report progress and to receive additional direction from the Steering Committee.

During January 1991 the Chairman and the Coordinator met with community representatives in Inuvik, Aklavik, Tuktoyaktuk, Paulatuk and Holman to discuss a draft interim report prepared by the chairman. Weather prevented them from visiting Sachs Harbour. The community representatives expressed concerns relating to compensation issues, job prospects, involvement in contingency planning and involvement in cleanup operations. The Chairman forwarded the interim report to the Minister.

In February 1991 the Steering Committee met again to review the final reports of the seven Task Groups. These reports are published as separate, companion volumes to this report.

What follows is the Beaufort Steering Committee's conclusions and recommendations for action as a result of its review of the Task Group reports. The Areas of Concern section, Part 3 of this report, deals first with the more general policy issues of government organization, same season relief well capability and contingency planning; then with methods of involving the Inuvialuit in contingency planning and oil blowout cleanup; then with the costing of an oil blowout including compensation and restoration measures and financial instruments necessary to secure funding for these matters; and finally with matters relating to scientific research, assessment methodologies and information databases.

The Steering Committee has generally accepted the recommendations of the Task Groups. In some cases for greater clarity in this summary report it has modified the recommendations as presented in the task group reports. The task group reports form part of this report and should be read with this summary.

Definitions of the terms used in this report are summarized in Appendix E, Acronyms are summarized in Appendix F, a list of Federal legislation applicable to the Beaufort Sea is given in Appendix G and for easy reference, sections 11 and 13 of the Inuvialuit Final Agreement are included as Appendix H.

3.1 GOVERNMENT MANAGEMENT



Credits: Esso Resources Canada Limited
3.0 AREAS OF CONCERN

3.1 GOVERNMENT MANAGEMENT

3.1.1 Discussion

In this report the term government management is used with respect to government's prevention of, preparations for, and response to an oil spill from a blowout in the Beaufort Sea. This preparation and response is based on the government policy that, in the oil and gas industry, the operator has the legal responsibility under the *Oil and Gas Production and Conservation Act* to take all measures possible to prevent a spill and, when one occurs, to mitigate and remedy the damage.

The Steering Committee believes that government management includes the responsibility:

- a) to minimize the possibility of an oil spill through regulation and inspection;
- b) to ensure through regulation that in the event of an oil spill immediate action will be taken by the operator to stop the spill, to clean up what has been spilled, to compensate those that may have suffered material losses as a result of the spill and to take practical actions to restore the environment;
- c) to prepare through contingency planning to take over the role of the operator if required to stop the spill, to clean up what has been spilled, to compensate those that may have suffered material losses as a result of the spill and to take practical actions to restore the environment;
- d) to ensure that the operator has the financial capacity to protect the government from the costs of its intervention.

The efforts of government are presently concentrated, correctly, the Steering Committee believes, on the prevention of a spill and the review of the operator's proposed response to a spill.

Government has prepared an overall framework for contingency plans entitled Government Strategies for Marine Pollution Incidents in the Arctic Sea Region, or the Arctic Seas Strategy for short (see Figure 3 and Volume 6). In this strategy the government agency responsible for issuing the permit or license under which the operator is operating when the spill occurs has ultimate responsibility for spill response. In the case of an oil well blowout this would be the Canada Oil and Gas Lands Administration (COGLA) or its successor. COGLA has prepared an emergency response plan to fulfill this responsibility.

FIGURE 3

GOVERNMENT OIL SPILLS CONTINGENCY PLANS

ARCTIC SEAS STRATEGY (1986)

DIAND, CCG, COGLA, EMR, DOE EPC, GNWT, DND, DFO



COGLA, the regulator, is the government's source of in-house expertise relating to well control operations, a very important part of any oil blowout response. The government's expertise for oil spill countermeasures is found within COGLA, the offshore petroleum boards, DOE, DFO, and the Canadian Coast Guard. Because the Canadian Coast Guard maintains an inventory of oil spill cleanup equipment and dedicated equipment operators, the regulator has entered into a Memorandum of Understanding with the Canadian Coast Guard so that, in the event of an oil blowout, the Canadian Coast Guard will act as a resource agency to the regulator and will provide its expertise and equipment to respond to the oil spill. Under the Arctic Sea Strategy all other agencies of government (both federal and territorial) are also available as resource agencies to the regulator in the event of an oil blowout.

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The concept of the drilling regulator being the responsible agency for oil spills from a drilling accident is similar to that recommended in the final report of the royal Commission on the Ocean Ranger Marine Disaster which recommended "Canada maintain the approach of a single regulatory agency in concept and in practice" and "that powers and where necessary, personnel, be transferred by Memorandum of Understanding to the single regulatory agency from other line departments".

For ship sourced oil spills, the Canadian Coast Guard, because of its expertise, has the ultimate responsibility for the approval of oil spill contingency plans and for oil spill countermeasures and cleanup activity conducted by government. The EIRB suggested that, in the case of an oil blowout, the Coast Guard, not the regulator, have cleanup responsibilities for that blowout.

The Steering Committee charged Task Group 5 with reviewing the government contingency plans for an oil well blowout and the role of the Canadian Coast Guard in these plans with the goal of strengthening government's ability to respond to an oil blowout in the Beaufort Sea. The report of the Task Group is found in Volume 6.

3.1.2 Conclusions

The Steering Committee has concluded, after reviewing the work of Task Group 5, the EIRB *Kulluk* report, and other relevant documents, that the principle that the agency responsible for authorizing a development should have full responsibility for spill prevention and cleanup is acceptable and indeed desirable. It recognizes also that, contrary to some shipping-related pollution incidents, the liability and responsibility of the operator in the case of an oil well blowout is clearly defined in law and the operator has the responsibility to take all necessary steps to control the incident.

The Steering Committee concludes that the Arctic Seas Strategy is an acceptable framework for contingency plans relating to an oil blowout but it believes that the strategy must a) be clarified with respect to the role of the resource agencies. in relation to the lead agency, b) strengthen its links with the Beaufort Sea communities and c) become better known by all parties, including the public.

3.1.3 Actions

The Steering Committee recommends that the Minister of Indian Affairs and Northern Development order an immediate review of the Arctic Seas Strategy (1986) in order to clarify the role of resource agencies with the lead agency, to strengthen its links with the Beaufort Communities and to increase the public's awareness of the plan.

To accomplish this the Steering Committee recommends that:

- a) DIAND assign a full-time senior level official the responsibility to manage the evaluation of and subsequent changes to the Arctic Seas Strategy. This official should be located in the North and have sufficient authority and resources to ensure full and proper evaluation of the government's contingency plans. This individual should also be charged with coordinating communications with the Beaufort Sea communities, territorial governments and Inuvialuit organizations to increase the level of understanding and communication about government oil spill contingency plans, countermeasures and cleanups. DIAND should publish a summary of how the government will respond to a blowout;
- b) the Minister publish an annual report on the level of preparedness of the government departments and agencies fulfilling their responsibilities under the Arctic Seas Strategy;
- c) the role of the Canadian Coast Guard (CCG) in responding to non-ship source marine spills in the Beaufort Sea be clarified and formally documented in a manner that can be clearly understood within government and by residents of the Beaufort region. This role should include any government-sponsored cleanup and containment actions in the event of an oil blowout;
- d) the role of the oil and gas drilling regulator in responding to drill-sourced spills in the Beaufort Sea be formally documented in a manner that can be clearly understood within government, industry and by residents of the Beaufort Region. This role must also be clearly reflected in each of the government and industry contingency plans which must make clear when the regulator's On Scene Commander would take command from the operator's On Scene Commander, and what are then their respective responsibilities;

e) the regulator, in reviewing applications for a Drilling Program Approval, ensure that there is full and mutual understanding by industry and the regulator of each other's roles and responsibilities.

3.2 OPERATING SEASONS

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Credits: Gulf Canada Resources Limited Beaudril (1987) Limited Partnership

3.2 OPERATING SEASONS

3.2.1 Discussion

Since floating offshore drilling operations commenced in the Beaufort Sea in 1976 it has been the policy of the Government of Canada that an operator not drill into a potentially hydrocarbon-bearing zone, (the risk threshold) without the ability to drill a relief well in the same season in the event of a blowout. This policy is meant to significantly reduce the damage to the environment that would result if an oil blowout continued to release oil through the winter season unchecked. The policy has the effect of curtailing a drilling season for an operator drilling only one well as he must shut down his operation before weather and ice conditions normally would dictate.

The present procedure is as follows. On September 25, for wells drilled in open water, the status of operations is reviewed and any further operations conducted below risk threshold depth need a separate and distinct approval. This approval depends on weather, the availability of a relief well platform, depth of the hole being drilled and other factors. The date, September 25, was chosen as it would allow a period of at least 60 days to mobilize a relief platform, to drill a relief well and to kill the blowout prior to the formation of 30 cm thick ice.

As new drilling systems were introduced to the Beaufort Sea and better ice breaking capability was developed the concept of same season relief well capability was maintained but drilling below the risk threshold depth was occasionally allowed beyond September 25 based on the availability of alternate relief well platforms and capable ice breaking equipment.

Three times over the past 15 years an operator has lost control of its well during drilling operations in the Beaufort Sea. None of these incidents resulted in an oil blowout or in a serious pollution incident and the operators moved swiftly to control their wells and to contain and remove any contaminants in the Beaufort Sea. These incidents underscore the need for vigilance and the need for a workable same season relief well contingency plan.

The industry believes that as a result of the wide variety of systems that have been developed for drilling in the Beaufort Sea (see Table I) and, as a result of the improved level of ice breaker and logistical support, a more precise methodology to determine end-of-season dates than the September 25 review is possible.

TABLE I

BEAUFORT SEA DRILLING SYSTEMS

DRILLING SYSTEM	OPERATING ENVIRONMENT	OPERATING SEASON	
Kulluk	Floating to 200 m	Break Up to Mid Winter	
Drillship		Break Up to Early Winter	
Artificial Island	Bottom Founded,	Freeze-Up to Spring	
Caisson Retained Island	Seasonal to Year Round,	Year Round	
Molikpaq		Year Round	
SSDC		Year Round	
Molikpaq	Bottom Founded, Year Round,	Year Round	
SSDC	Transition Zone	Year Round	
Ice Island	Bottom Founded, Landfast Ice	Freeze-Up to Spring	

The EIRB in its review of the *Kulluk* Drilling Program asked government to review its procedure for determining the cut-off date for "risk drilling" to take into account the new technologies and the operating experience of operators. It proposed that an "end of season" date be determined for each drilling system and that the cut-off date for risk drilling be determined on the basis of the number of days required to drill a relief well being subtracted from the end-ofseason date.

A comprehensive seven-part report has been prepared by Task Group 6 (Volume 7). In it, an equipment specific methodology was developed for determining the end of season dates for each drilling system that was likely to be chosen to act in a relief well drilling capacity. Operating limit criteria, for emergency operations such as relief well drilling, were specified for each drilling system. For floating mobile offshore drilling units (MODUs), i.e. drillships and *Kulluk*, and for ice islands these operating limits include ice and weather conditions. Bottom founded MODUs, i.e. Molikpaq and SSDC, can conduct relief well drilling operations year round once deployed, but face seasonal deployment and/or installation constraints.

To determine end of season dates for floating MODUs, because ice conditions are variable, both in a geographic sense and on a year to year basis, the operating limit criteria and the equipment specific methodology were applied to site specific examples. To account for geographic variations in ice conditions, specific sites were chosen that represent potential drill sites over the next few years. To account for year by year variations in ice conditions, ice data for these specific sites for the last ten years was analyzed. Based on the operating limits, the corresponding operating efficiency for each floating drilling system was determined as a function of the time of year for each of the last ten years and then averaged. The date when the average operating efficiency dropped substantially, was considered the end of season date.

The Steering Committee believes that a precise end of season date for drillships must be determined on a site specific basis because of the wide variations in ice conditions that exist in the Beaufort Sea. It believes that the regulator should review the operator's relief well contingency plan, seek the advice of the Canadian Coast Guard with respect to ship safety in ice and the Atmospheric Environment Service with respect to possible ice conditions at the specific site and, having received their advice, determine the end of season date for that location.

Ice islands present a unique form of Arctic drilling platform and offer winter relief well capability to all drilling units operating in the landfast ice zone. The restrictions on the use of an ice island relate to its construction scenario and abandonment date. Construction requires cold temperatures and stable ice cover which generally restricts ice island drilling to the landfast ice area. The construction scenario for a particular ice island depends on water depth, time of year, ice movements, and the drilling rig mobilization schedule. As these are all site specific considerations, the suitability for using an ice island must be considered on a site by site basis. The end of season date for an ice island was conservatively chosen to be the average ice breakup date in the landfast ice area.

Bottom founded MODUs are capable of operating year round, so they actually have no end of season date for use as relief well systems. However, their deployment and/or installation are subject to seasonal constraints and are generally limited to open water and early freeze-up conditions.

Task Group 6 developed a formula which can be used to determine the cut-off date for "risk drilling" for drilling systems which use floating MODUs or ice islands as their specified relief well system. The formula is based on the site specific end of season dates derived for these relief well systems. Bottomfounded MODUs proposed as relief well systems and other unique circumstances affecting a particular operation must be examined on an individual basis.

The formula derived by the Task Group is:

 $D_{c} = D_{E} - M - \frac{(0.8t + k)}{e} (1 + c)$

Where;

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Do	; =	Cut-off date for risk drilling		
D _E		End of operating season date for emergency operations such as relief well drilling, in a year with average environmental conditions with support measures taken to extend the season.		
М	=	Number of days required to mobilize and deploy the relief well drilling system which includes, where appropriate, time to moor up, and time to drill a glory hole.		
t	-	Number of trouble-free drilling days required to drill the original well from spud to total depth (TD). This would be based on the estimated drilling times when the well was approved, but would be based on actual times as the well proceeds. The factor of 0.8 is based on the conclusion that the spud to TD time for a relief well should be approximately 80% of the spud to TD time of the original well.		
k	=	Number of days required to kill and abandon both wells.		
e	=	Anticipated operational efficiency factor for the relief well drilling system; determined by taking into account weather and ice factors.		
с	=	Contingency Time Factor, to ensure that there is sufficient time to drill a relief well, even during unfavourable years, and to account for other unscheduled events.		
The formula determines the cut-off date for risk drilling for the primary system by subtracting each of the following terms from the site specific end of season date for the relief well system:				
a) the number of days required to mobilize the relief well drilling system to the drill site and set it up;				
b)	the number of days required to drill a relief well, taking into account the operational efficiency of the drilling system, which is a function of ice and weather conditions, and			
c)) the number of days required to kill the blowout after drilling is complete.			

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As a further safety measure, a contingency factor (c) is added to the drilling time.

3.2.2 Condusions

The Steering Committee supports the objective of same season relief well drilling capability and believes that the objective should be maintained.

The Steering Committee concludes that the formula devised by Task Group 6 for setting the cut-off date for risk drilling is conservative and rational.

3.2.3 Actions

The Steering Committee recommends that the Minister of DIAND reaffirm the government's commitment to same season relief well capability and reaffirm that the regulator is responsible for ensuring compliance with this policy:

The Steering Committee recommends that the regulator:

- a) assess each drilling application to ensure that a viable relief well drilling system is available and suitable for the proposed well;
- b) use the formula developed by Task Group 6 to determine the cut-off date for risk drilling for systems using floating drilling units or ice islands as their specified relief well drilling system;

In these cases the regulator should:

- i) in consultation with the Ice Branch of the Atmospheric Environment Service (AES) and with the Canadian Coast Guard (CCG) determine a relief well drilling system's end of season date (D_E) on a site specific basis; however, (D_E) shall not be later than January 31st for the Kulluk, when the Kulluk is the specified relief well drilling system for another floating drilling unit, and not later than December 31st for a drillship;
- ii) set the Contingency Time Factor at 15%;
- iii) not allow risk drilling from a drillship beyond October 15th in any year;
- iv) formally review the calculation of the formula in conjunction with the AES and the CCG ten days before the original cut-off date to determine if there is reason to modify the cut-off date for risk drilling;
- v) allow operators to drill beyond the original cut-off date only if the revised calculation shows that a relief well can be drilled in the same season.

The Steering Committee recommends that the regulator accept the advice of the Canadian Coast Guard in matters relating to the ability of floating drilling units to remain on station safely in ice, and that the regulator accept the advice of the Atmospheric Environment Service in determining what ice conditions are expected for a given location at a given date.

The Steering Committee recommends that the regulator:

- i) develop, with the CCG and industry, a set of operating specifications for each relief well drilling system. These specifications will be based on a given level of ice breaking support;
- ii) with the assistance of the CCG, confirm that this equipment, or suitable alternatives, is available at the start of each operating season or can be made available prior to its anticipated need thus ensuring the validity of the operating specification.

3.3 OIL SPILL CONTINGENCY PLAN APPROVAL AND TESTING



Credits: Petro-Canada from Esso Resources Canada Limited

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3.3.1 Discussion

During the Public Review of the *Kulluk* Drilling Program there was discussion about the adequacy of industry's contingency plans, the timing and method of plan approval by government and the testing procedures. Task Group 7 undertook a review of testing procedures for the Steering Committee.

Industry contingency plans for an oil spill and other emergencies are prepared by an operator for each drilling program and approved by the regulator before a Drilling Program Approval is granted. The draft contingency plans are circulated by the regulator to all agencies of government that have an interest in them and have the technical ability to review them. The comments of these departments are reviewed by the regulator and if they are accepted by the regulator, are incorporated in the approved contingency plan. If a department disputes the decision of the regulator, the department may seek a resolution of the dispute through normal government channels.

Government contingency plans are not site specific and are prepared to handle any emergency outside the capability or responsibility of an operator. These plans are summarized in Section 3.1. Once they are developed there is a need to review and update these plans on a regular basis.

Approved contingency plans of industry or government need to be tested at regular intervals to ensure they can function effectively when required. In the past, plans have been tested through communication exercises and sometimes through equipment tests. There is no explicit methodology for adequately testing all elements of a plan.

Testing of oil spill cleanup equipment is best done using oil. In other parts of the world (i.e. the North Sea) there are areas designated for testing oil spill equipment. No such areas exist now in the Beaufort Sea but results of equipment testing from these other areas are available to industry and government.

3.3.2 Condusions

The Steering Committee has concluded that the process of reviewing industry contingency plans is adequate but the process requires a clear audit trail so that departments and agencies participating in a review can determine which of their suggestions and/or requirements have been incorporated. The Steering Committee concludes that there is a requirement for a more rigorous, better defined testing procedure for these plans.

3.3.3 Actions

The Steering Committee recommends that:

- a) the regulator provide all agencies in the contingency plan review with a summary of suggested changes and an analysis of why they have or have not been accepted.
- b) industry provide any future Environmental Impact Review Panel with its most recent edition of its oil spill contingency plans in advance of any public review;
- c) a joint industry-government task group be convened to develop a contingency plan testing methodology; this methodology should identify the various elements to be tested, the methods to be used, and the department/agency most appropriate to undertake the test; and
- d) the regulator conduct both surprise exercises to test the response of the people involved in the contingency plan and carefully designed exercises in realistic operating conditions to test the operational status and the capability of the equipment to be used;
- e) the regulator ensure that relationships among the agencies involved in plan approval and testing be formalized in order to ensure that they are fully involved in the development of testing procedures, and encourage them to participate in test exercises.

3.4 INUVIALUIT INVOLVEMENT

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Credits: Esso Resources Canada Limited

3.4.1 Discussion

The Inuvialuit are the traditional users of the Beaufort Sea. Through the IFA they have acquired the right to assess jointly with government environmental impacts of development activities on wildlife. They have supplied workers for the petroleum industry both on land and on the sea. They wish to be involved in contingency planning for and, if necessary, cleaning up an oil spill.

This desire was captured in recommendations of the EIRB in their review of the Isserk I-15 drilling program. The Board recommended that

- "Existing contingency plans relative to a major oil spill at Isserk I-15 should be adjusted to ensure Inuvialuit participation in the determination of protection and cleanup priorities, countermeasure implementation and program monitoring. This should be completed and reviewed by the competent regulatory body prior to the penetration of the environmental risk zone" and that
- "Inuvialuit be involved in contingency planning from the earliest stages of the project design. This will improve the workability of proposed measures and give industry, Inuvialuit and government agencies a better appreciation of the problems involved".

Task Group 7 was asked by the Steering Committee to examine this issue. The Task Group reported that Inuvialuit now have the opportunity to be involved in plan review through the joint management regime of the IFA. In the case of a spill, the Inuvialuit have membership on the Arctic Regional Environmental Emergency Team (AREET) which will advise government. The Inuvialuit have participated in industry and government sponsored oil spill workshops.

Task Group 7 prepared a matrix, reproduced here as Table II, which shows the ways the Inuvialuit may be linked to contingency planning and to planning after a spill.

Industry has worked to involve the Inuvialuit in spill response by training them in the technologies of spill response and hiring them to work for the Beaufort Sea Oil Spill Cooperative. The Inuvialuit become involved in the preparation of industry contingency plans through community meetings, through screening procedures and through the development of compensation agreements.

TABLE II

POSSIBLE POINTS OF INTERACTION BETWEEN INUVIALUIT AND CONTINGENCY PLANNERS

	PRE- PLANNING	POLICY ESTABLISHMENT	POST SPILL ADVICE
DFO Central and Arctic Region Environmental Emergency Response Plan	FJMC*	-	FJMC
INAC-NAP Arctic Waters Emergency Response Plan	ILA		AREET
COGLA Emergency Response Plan	EISC/EIRB Workshops	EISC/EIRB Workshops	AREET
CCG Arctic Marine Emergency Plan	-	-	AREET
Canada-United States Joint Marine Pollution Contingency Plan	Joint Meetings	Joint Meetings	
Operational Plan for the Arctic Regional Environmental Emergency Team (AREET)	AREET	AREET	AREET
Company Contingency Plans	Community meetings	Community meetings	AREET
	EISC/EIRB	EISC/EIRB	ILA
	Compensation Agreement	Compensation Agreement	
	DIZ Society	DIZ Society	

* Acronyms are defined in Appendix F.

On the international level, the Inuvialuit of Canada and Inupiat of Alaska's North Slope have significant legal, economic, and cultural interests in wildlife harvesting. This is manifested in the international wildlife management plan for the shared polar bear resource of the Beaufort Sea. Both groups are also actively involved in developing a similar international agreement for the shared use of beluga whales. At the *Kulluk* hearings, the Inuvialuit were concerned that the apparent lack of coordination between industry and government with respect to a major spill response in the Beaufort Sea, the lack of a reciprocal compensation regime, and the potential for significant transboundary oil pollution, could jeopardize the harmonious relationship between themselves and the Inupiat.

3.4.2 Conclusions

The Steering Committee concludes that there are now several ways of involving Inuvialuit in contingency planning which should be employed but there exist no formal methods of ensuring Inuvialuit involvement in oil spill cleanup except through jobs with the Beaufort Sea Oil Spill Cooperative and no procedures for involving Inuvialuit in discussions concerning activities in the United States Beaufort Sea.

3.4.3 Actions

The Steering Committee recommends that:

- a) DIAND's review of the Arctic Seas Strategy (see 3.1.3) should include a determination of opportunities for Inuvialuit participation in oil spill response activities.
- b) the regulator coordinate a joint government-industry-Inuvialuit mock exercise concurrent with drilling activities to address an oil spill scenario. Such an exercise would highlight both opportunities for Inuvialuit involvement and trouble spots which need resolution.
- c) the Inuvialuit be involved in the consideration of Beaufort Sea transboundary issues concerning wildlife and wildlife habitat and nonrenewable resource development activities as they relate to wildlife and wildlife habitat. The more practical and utilitarian Inuvialuit involvement would likely be at various informal gatherings of both industry and government, but their views should be sought and expressed by Canadian delegations at formal meetings where the above matters are being discussed.

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3.5 DEVELOPMENT AND COSTING OF OIL SPILL SCENARIOS



Credits: Petro-Canada

3.5.1 Discussion

The Inuvialuit Final Agreement, in Section 13(11), requires the Environmental Impact Review Board to "recommend to the government authority empowered to approve the proposed development: ...(b) an estimate of the potential liability of the operator, determined on a worst case scenario..." (emphasis added).

The difficulties in defining a "worst case scenario" were discussed during the *Kulluk* Public Review. Gulf's estimate of 40,000 barrels of oil per day flowing for a period of up to 66 days was thought to be up to 80% too high in the opinion of the EIRB. The Board subsequently asked the Minister of DIAND, working with the petroleum industry and the Inuvialuit, to develop a methodology for estimating a worst case scenario(s) for the Beaufort Sea. In the Inuvik Workshop which reviewed wildlife compensation the participants also agreed to attempt to estimate the cost of cleanup of such a scenario. Task Group 1 was assigned this task. They were assisted by a parallel Task Group assembled by the Canadian Petroleum Association.

Both Task Groups determined that a "worst case scenario" was very much a site specific event. It would depend on the location, the type of drilling unit used, the type of oil expected to be encountered, the season of drilling, the time of the blowout, the weather and sea states that could be encountered and the cleanup strategy. They determined that a "worst case scenario" should be developed by the operator to reflect the conditions expected at the site and time of drilling.

The Canadian Petroleum Association Task Group (Volume 2, Operating Seasons, a Report prepared on behalf of the Canadian Petroleum Association) examined the known geology of the region and concluded that a well blowout would likely involve an oil spill of significantly less than 125,000 barrels (20,000 m³).

Task Group 1 was able to develop an acceptable cost estimate procedure accommodating all these variables in sufficient detail to enable a company to adapt the appropriate components to their particular "worst case" scenario when preparing a submission for regulatory review. The Task Group reached a consensus on an appropriate countermeasures strategy, the level of effort required by cleanup teams, and the attendant costs. Task Group 1 identified five major components of any blowout scenario for which costs could be developed. These are:

- ➤ well control,
- ▶ marine countermeasures,
- > shoreline protection and cleanup,
- ► remedial measures and
- wildlife harvest loss compensation.

It proceeded to estimate the cost of the first three of these components.

Well control costs were estimated to be three times the original well cost on the basis of experiences elsewhere in the world. This approach accommodated the different platforms available in the Beaufort Sea and allowed for surface kill expenditures and not one but two relief well operations, a situation the operators consider improbable.

Marine countermeasures and shoreline protection and cleanup were coasted by element (i.e. by number of ships involved, by amount of boom used, by mile of beach to be cleaned, by number of days cleanup barge is on site etc.).

The Task Group report then illustrated how these costs could be applied to a blowout scenario using four examples:

- a) A summer subsea blowout presumed to occur on July 20 at 70°06' N, 134° W, releasing 10,000 BOPD (1,590 m³/day) of Itiyok crude and 5.7 x 105 m³/day of natural gas at the seabed in 30 m of water. The blowout lasts for 45 days until killed by a relief well.
- b) A fall subsea blowout similar to (a) but presumed to occur on September 25. The blowout lasts for 65 days until killed by a relief well on November 28.
- c) A summer surface blowout occurs on August 1 at an artificial island drilling site located at 69°39' N, 136° W, about 20 km west of Pelly Island. The surrounding water is about 7 m deep. The blowout is spraying 5,000 BOPD (795 m³/day) of Adgo crude and 3.4 x 104 m³/day of natural gas into the air. The blowout lasts for 30 days until killed by a relief well.
- d) A winter surface blowout similar to (c) but presumed to occur on January 1. The blowout lasts for 100 days until killed by a relief well on April 10.

The cost estimates for these four examples can be summarized in tabular form (Table III and Volume 2).

TABLE III

EXAMPLES OF POTENTIAL MAXIMUM COSTS OF WELL CONTROL AND CLEANUP OF FOUR HYPOTHETICAL BEAUFORT SEA BLOWOUTS (\$ Million)

EXAMPLE	WELL CONTROL	COUNTER- MEASURES AND CLEANUP	TOTAL
Summer subsea blowout	210	659	869
Fall subsea blowout	210	319	529
Summer surface blowout	180	384	564
Winter surface blowout	180	12	192

The values in Table III have been calculated without regard to the following considerations:

- a) Beaufort Sea geology is such that a blowout may kill itself naturally in a fraction of the time that has been allotted in the examples for relief well drilling and
- b) Allowance has not been made for the natural cleaning processes in the water and on the shoreline.
- c) Average weather and sea states have been used, not worst case conditions.

To the costs of well control and cleanup (Table III) must be added the costs of restoration and compensation for harvest loss.

Task Group 2 (Volume 3) estimated the costs of restoring wildlife and wildlife habitat to be in the tens of millions of dollars, depending on the scenario and on the extent of logistical support available through the cleanup effort. They estimated compensation costs for wildlife harvest loss under a "worst case" scenario as approximately 12 million dollars. Most of this compensation would be for lost opportunities over a ten year period to hunt polar bears (\$8.7 million) and lost opportunities to hunt beluga over a three year period (\$1.5 million).

Task Group 2 developed a list of factors which would influence decisions on when and where to clean and/or to undertake restoration activities (See Volume 3). They suggested that these factors be considered in further analysis and in the development of cleanup and restoration protocols. Task Group 2 also concluded that ultimately the most important judgements as to "how clean is clean" should be those of the stakeholders; the coastal residents who rely on the affected resources and those parties who share the liability for compensation for loss of those resources.

The Steering Committee understands that the regulator, industry, the Inuvialuit, DOE, DFO, and the CCG are exploring mechanisms for providing advice on possible cleanup techniques and priorities and the adequacy of the cleanup.

3.5.2 Conclusions

The Steering Committee agrees that a worst case scenario is best developed by the operator to fit the location and time of drilling.

The Steering Committee is satisfied that a methodology acceptable to the Inuvialuit, the petroleum industry and government has been developed to determine the cost of any worst case scenario.

The Steering Committee cautions that the acceptability of the cleanup efforts will be determined, in the final analysis, through a beach by beach inspection by assessment teams consisting of representatives of the regulatory authority, the Inuvialuit Game Council and its Hunters and Trappers committees, the Inuvialuit Land Administration and the operator.

3.5.3 Actions

The Steering Committee recommends that the methodology developed by Task Group 1 and Task Group 2 be employed in calculating the cost of a worst case scenario for future EIRB hearings.

With respect to cleanup plans the Steering Committee recommends that:

a) the regulator seek the help of the Inuvialuit, the industry, CCG, DOE and DFO to develop guidelines and standards for beach cleanup for the use of assessment teams whose task would be to determine when an oiled beach is adequately cleaned; b) industry review with the regulator and the Inuvialuit current and future oil spill contingency plans to ensure that operations are designed so as not to place excessive stress on the existing infrastructure of the Beaufort Sea. communities;

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c) DOE with industry, the Inuvialuit and DIAND undertake a review of potential disposal sites with the aim of having approved sites available in the event of an incident.

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3.6 COMPENSATION AND FINANCIAL RESPONSIBILITY



Credits: Joint Secretariat Dr. Norman Snow

3.6.1 Discussion

Three issues critical to the Inuvialuit have emerged since the signing of the Inuvialuit Final Agreement. These are:

- a) speedy compensation for wildlife loss,
- b) the operator's ability to pay for such loss and
- c) the operator's ability to pay for any necessary remedial or mitigative measures.

For industry, the selection of the most appropriate financial instrument to satisfy these issues is critical. The EIRB in its Isserk and *Kulluk* reviews sought to bring government's attention to these issues.

The Steering Committee asked Task Group 3 to review these matters and recommend possible solutions.

Task Group 3 found that it was unable to resolve these matters completely because of a fundamental difference in interpretation of Section 13 of the IFA between Canada and the Inuvialuit. The difference relates to whether or not Canada has the legal authority to limit an operator's liability under the IFA and hence to limit its own obligations.

The Task Group reviewed the types of financial instruments available to demonstrate financial responsibility and concluded that for actual wildlife losses instruments such as letters of credit or third party guarantees were appropriate whereas funds for remedial and mitigative measures could be secured by some form of insurance. The terms of such instruments are important to all parties. These could not be developed without first determining a correct interpretation of Section 13 of the IFA.

While the matters of remedial and mitigative measures were not completely resolved, the Task Group was able to develop a generic wildlife compensation agreement based on wildlife compensation agreements with Gulf Canada Resources Inc. and Esso Resources Canada Ltd. This document is being reviewed by industry and the Inuvialuit.

The maximum amount necessary to compensate the Inuvialuit harvesters for loss of fur, fish, whale, waterfowl and seal harvesting as a result of a blowout has been estimated to be \$12 million (Task Group 2, Volume 3). This figure is based on the closure of the polar bear hunting season for ten years and the beluga hunting season for three years to allow the species to recover.

Task Group 2, while considering compensation as a mitigative measure, developed a series of recommendations dealing with the task of delivering adequate compensation quickly. These have been reviewed and accepted by the Steering Committee and are listed in the actions below (3.6.3).

The Chairman during his visits to the Beaufort Sea communities heard concerns that no estimate was being made of the possible losses of Gwich'in harvesters or of non-native commercial enterprises. These concerns are real but are beyond the terms of reference of this Committee.

The Chairman also heard a proposal in Inuvik that the industry consider a joint liability insurance policy for all operators in the Beaufort Sea. This suggestion appears impractical at this time when only one or two firms are active in the area.

3.6.2 Conclusions

The Steering Committee concludes that it is essential that the dispute between Government and the Inuvialuit on the proper interpretation of Section 13 of the IFA be resolved so that the Inuvialuit can properly assess their level of risk from offshore development. The Steering Committee understands that Canada and the Inuvialuit have agreed to meet concerning this issue.

3.6.3 Actions

The Steering Committee recommends that:

- a) DIAND give the resolution of the interpretation of Section 13 of the IFA the very highest priority.
- b) DIAND secure up to \$15 million in the form of a letter of credit for harvest loss unless there is an agreement between the operator and the Inuvialuit regarding the amount of compensation for this purpose.
- c) DIAND accept an insurance policy to cover potential costs for remedial and mitigative measures.
- d) industry and the Inuvialuit complete their work towards the design of an acceptable generic wildlife agreement.

With respect to compensation processes the Steering Committee recommends that:

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- a) the Inuvialuit Harvest Study (IHS) should be formally referenced in the Generic Compensation Agreement as the primary data source to be used in the quantification of claims;
- b) industry should initiate discussions with the Local Working Group of the IHS to identify an iterative mechanism whereby industry could become more involved on an ongoing basis in the Harvest Study;
- c) the IGC should conduct and industry should approve on a regular basis a pre-impact valuation for polar bear and beluga whale for the purpose of determining direct cash compensation;
- d) the regulator and industry should examine the possibility of holding a mock compensation program exercise with the communities to identify the types of issues that could surface; (This simulation could be included as part of a spill response exercise) and
- e) that individual harvesters should be able to select the type of compensation most suitable to their own needs subject to its availability, notwithstanding the reference to "cash compensation as a last resort" in the Inuvialuit Final Agreement.

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3.7 WILDLIFE AND WILDLIFE HABITAT RESTORATION



Credits: Joint Secretariat Dr. Norman Snow

3.7.1 Discussion

The Inuvialuit Final Agreement addresses the need for wildlife and wildlife habitat restoration in the context of wildlife compensation measures in Section 13 which states that:

- "1) The objectives of this section are:
 - a) to prevent damage to wildlife and its habitat and to avoid disruption of Inuvialuit harvesting activities by reason of development; and
 - b) if damage occurs, to restore wildlife and its habitat as far as is practicable to its original state and to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities."

The implications of this section relate in part to the responsibility of the Environmental Impact Review Board under Section 13(11) to recommend to the authorizing government authority terms and conditions relating to the mitigative and remedial measures that it considers necessary to minimize any negative impact on wildlife harvesting.

The Steering Committee sought the advice of Task Group 2 as to the nature and type of mitigative and remedial measures that were "practicable" (IFA sections 13(1)(b) and 13(6)), "reasonable" (IFA section 13(12)), and "reasonably practicable" (IFA section 13(18)).

The Task Group developed definitions for restoration, remediation, mitigation, vulnerability, sensitivity, recovery potential, practicability and effectiveness (see Appendix E). They also developed a procedure for estimating the practicability and costs of restorative options. The procedure involves a species-by-species evaluation of the need for, and the effectiveness of, restorative measures. The species vulnerability and sensitivity to oil is determined and the effectiveness of possible restorative options is evaluated. The result is a table of potentially successful restorative measures along with the incremental costs of these activities (see Volume 3).

One of the best tools now available to On Scene Commanders to help them prevent wildlife loss is the 1987 Environmental Atlas for Beaufort Sea Oil Spill Response. This atlas contains the best available environmental information up to 1986. Since that time much has been learned of the Beaufort Sea environment and the Atlas could be updated to reflect the new information, in particular the work of Task Group 2 concerning appropriate response techniques.

3.7.2 Conclusions

The Steering Committee concludes that the emphasis of the industry and the regulator when preparing contingency plans must be on prevention, adequate countermeasures and habitat protection because: the state of knowledge concerning restoration options is limited; there are few proven options which can be considered effective and practical; and the effectiveness of mitigative and remedial measures decreases with time.

3.7.3 Actions

The Steering Committee recommends that:

- a) the regulator in conjunction with industry, the Inuvialuit and other government departments, using the approach outlined by Task Groups 1 and 2, develop, in consultation with the Beaufort Sea communities, standards to be used by the industry and government to judge the acceptability of restoration techniques;
- b) all parties apply these standards to cleanup activities; and
- c) DOE seek the support of government and industry to review the Environmental Atlas for Beaufort Sea Oil Spill Response every five years and update it as appropriate.

3.8 SCIENTIFIC RESPONSE TO A BEAUFORT SEA OIL SPILL



Credits: Joint Secretariat Dr. Norman Snow
3.8.1 Discussion

In the March 1990 workshop held between the Inuvialuit, the petroleum industry and government to address wildlife compensation, the participants identified the need for a scientific response team capable of conducting practical research in direct and immediate response to a Beaufort Sea oil spill and the results of this research be public. The Steering Committee asked Task Group 4 to examine this requirement.

Task Group 4 (Volume 5) acknowledged that at the time of a spill the priorities would be first human safety, then spill response and then scientific research. The Task Group examined the capability of government and industry to respond promptly to a spill and found that only industry would be able to immediately launch a preplanned research response. Governments, while willing to respond would be restricted by budgets, staff and prior commitments. Industry through their spill response plans could respond immediately with a series of actions designed in collaboration with government which would give timely and accurate information about oil spill characteristics.

In order to be successful the research response must be planned to the maximum extent possible. Opportunities must be created to integrate research efforts as part of the overall contingency plan. In essence, the research response must become part of the overall spill response effort. Some of the most useful activities will need to take place concurrently and side-by-side with spill response activities.

3.8.2 Conclusions

The Steering Committee concludes that:

- a) a major oil spill in the Beaufort Sea would provide an opportunity to gain important, practical scientific information that would help to support contingency planning and spill response operations in the future;
- b) access to logistics, support facilities and financing could be a major barrier to mobilizing an effective and credible research response should a spill of significant duration and size occur;
- c) the preparation of a research response plan must involve the Inuvialuit, industry, and government regulators and scientists;

- d) monitoring of events during a spill, and the effective and reliable communication of this information to the people potentially affected most by the spill-(i.e. the Inuvialuit), while important, should not be confused with conducting practical research in response to the spill;
- e) the conduct of focused research, selected jointly by industry, government and the Inuvialuit, is potentially threatened by interference from other research activities through competition for logistical support, facilities, etc. The scientific response plan should include means for ensuring that priority research and monitoring projects receive preferential treatment.
- f) In order to be effective a research or scientific response plan must be a commitment; pre-planned to the extent that is possible; integrated within contingency plans; and assigned to a responsible manager within the spill response team.

3.8.3 Actions

The Steering Committee recommends that:

- a) the petroleum industry, through their Frontier Oil Spill Committee, lead the planning for a scientific response capable of conducting practical research in the event of an oil spill. This planning should involve government and the Inuvialuit and should include the establishment of research priorities, the identification of potential researchers, the identification of logistical and support requirements and, in the event of government involvement, the identification of funds;
- b) a new member of the spill response team, the On Scene Science Coordinator (OSSC) selected from industry and reporting to the On Scene Commander, be the focal point for implementing the scientific research. The final on scene selection of projects for implementation will be the responsibility of the On Scene Science Coordinator in consultation with a representative(s) from the federal government and the Inuvialuit.

3.9 ASSESSMENT METHODOLOGY



Credits: Department of Environment

3.9.1 Discussion

The EIRB in its Review of the *Kulluk* Drilling Program identified the need to define an assessment methodology that could be used to determine impacts associated with a major oil spill incident in the Beaufort Sea. Task Group 4 undertook this task for the Steering Committee and has reported its conclusions in Volume 5.

The Steering Committee and the Task Group are aware that in addition to the EIRB several federal agencies have environmental assessment responsibilities. It was the desire of the Steering Committee that one assessment methodology suitable for all parties could be developed and used for review of developments in the Beaufort Sea.

3.9.2 Conclusions

The Steering Committee concludes that:

- a) the environmental impact assessment methodology being developed by ESL Environmental Sciences Ltd. and DFO may prove useful to all proponents and review agencies. This assessment methodology has three important attributes. First, it provides a systematic and semi-quantitative framework for determining potential environmental effects; second, assessors maintain an audit trail of assumptions, calculations, rationale statements and references and; third, it provides a consistent approach for evaluating impacts on wildlife populations, their habitats, and their harvest.
- b) the scope of impact assessments by the EIRB for offshore development is prescribed and limited by Sections 11 (Environmental Impact and Review Process) and 13 (Wildlife Compensation) of the Inuvialuit Final Agreement. The focus is on harvesting. The scope is much more specific than is that of either the federal Environmental Assessment Review Process (EARP) or regulatory decision-making processes under other federal statutes.

3.9.3 Actions

The Steering Committee recommends that:

a) industry and EIRB staff examine the new ESL Impact Assessment methodology to determine its suitability for EIRB and government reviews;

- b) EIRB staff, before the next EIRB review, establish an impact assessment methodology-following_review of the above and discussions with the proponent and its consultants. Application of the methodology to a specificproject will then provide the opportunity for the Inuvialuit Regional Corporation (IRC), the Inuvialuit Game Council (IGC), the Wildlife Management Advisory Committees (WMACs), the Fisheries Joint Management Committee (FJMC), the EIRB and government agencies to evaluate its effectiveness. The assessment methodology could then be finetuned to the extent necessary during the course of subsequent project reviews.
- c) the impact assessment methodology be aimed specifically at negative impacts on actual and future wildlife harvest loss, at the potential effectiveness of mitigative and remedial measures, at the potential liability of the operator for restoring wildlife and its habitat and at determining liability for compensation to Inuvialuit hunters, trappers and fishermen; and
- d) the impact assessment methodology, in order to be realistic, assume that there will be some success in mitigation (e.g. relief well drilling, marine countermeasures, etc.). The potential success of this mitigation should be predicted by the proponent and independently assessed by the appropriate Government Authority.

3.10 INFORMATION DATABASE



Credits: Petro-Canada

3.10.1 Discussion

The EIRB, during its review of the *Kulluk* Drilling Program sought the establishment of an independent task force "to examine the research, management and funding requirements necessary to ensure that the information database is in place to facilitate environmental impact assessment and countermeasures and contingency planning relating to an offshore oil spill in the Beaufort Sea".

Research efforts relating to all aspects of the Beaufort Sea have been ongoing since exploration commenced in the area in the 1960's. Projects funded jointly by industry and government or funded separately by one party or another have advanced greatly the state of knowledge for this region. There is still, however, more to learn.

Task Group 4 reviewed the need for a database designed to answer the questions raised, identified the categories of information needs and attempted to determine whether the present databases available to industry and government were adequate (Volume 5).

3.10.2 Conclusions

The Steering Committee concludes that

- a) the Beaufort Sea area has been under intense study by physical and biological scientists for nearly twenty years. Many hundreds of millions of dollars have been spent by industry and government conducting baseline and other studies on virtually every aspect of the environment. The present information database is extensive and comprehensive;
- b) the relevant information database should be available for the entire review process as stipulated in the Inuvialuit Final Agreement (Section 11.(24)). This database is necessary for the purposes of environmental assessment of oil spills and for contingency planning;
- c) there will always be a surplus of scientific questions during environmental reviews relative to the ability of scientific information databases to provide conclusive answers.

3.10.3 Actions

The Steering Committee recommends that:

- a) the proponent and government exercise diligence in bringing all relevant information before the Board in future EIRB hearings, because the EIRB will base its decisions and recommendations on the information and evidence before it;
- b) the work of Task Group 4, as detailed in Volume 5, be further refined in a process which uses impact hypotheses, linkages and a more rigorous determination of the adequacy of existing information and of research and monitoring requirements. This should be undertaken by the Beaufort Region Environmental Assessment and Monitoring (BREAM) Program, which is being initiated by DIAND, DOE and DFO as a planning component of the Northern Oil and Gas Action Program (NOGAP).

A thorough review of government preparedness for an oil blowout in the Beaufort Sea has produced among the members of the Steering Committee a sense that there exists within government and industry the will to work hard to prevent an oil blowout and the ability to respond quickly to a blowout if it were to occur.

The review has resulted in the preparation of a standardized same season relief well formula, a method of assessing the cost implications of "worst case" scenarios, an agreement among parties as to the nature of the financial instruments to be used to protect the Inuvialuit and government, a draft generic wildlife compensation agreement, a better understanding of the restorative methods appropriate to use in the Beaufort Sea and a series of recommendations designed to improve the government's response to a blowout.

The review has highlighted a major problem, namely the differences in interpretation of Section 13 of the Inuvialuit Final Agreement between the Government of Canada and the Inuvialuit. A quick resolution of this difference is important if the Inuvialuit are to feel confident measuring the risks of Beaufort Sea hydrocarbon development.

The Beaufort Sea Steering Committee believes that DIAND should organize a workshop with Inuvialuit organizations, the EIRB and the EISC, industry and other government representatives to review the conclusions and recommendations of this report.

5.0 ACKNOWLEDGMENTS

The Steering Committee wishes to express its appreciation to the many individuals and groups that have contributed to the work of the Steering Committee.

Among the individuals the Committee wishes to acknowledge are the task group leaders and members who worked nonstop to produce reports for our review. A special thanks also to our secretariat and coordinator James Maxim who was seconded from Petro-Canada to DIAND to perform these important duties for us.

Representatives of six Canadian Petroleum Association member companies, Amoco Canada Petroleum Company Ltd., Chevron Canada Resources, Esso Resources Canada Limited, Gulf Canada Resources Limited, Petro-Canada and Shell Canada Limited participated fully in the work of the Steering Committee and Task Groups. They gave unstintingly of their time and knowledge. The Steering Committee and the Task Groups appreciate their cooperation. While every effort has been made by the rapporteurs to accurately capture the advice received, no CPA member company or individual member should be held liable for any of the conclusions or recommendations reached in the publications of the Steering Committee or its Task Groups.

The Steering Committee was fortunate to have the advice of the Department of the Environment and the Department of Fisheries and Oceans. The work of Bill Brakel, Laura Johnston, Burton Ayles and Rod Paterson is acknowledged with thanks.

The executive and staff of the Inuvialuit Game Council, the Inuvialuit Regional Corporation and the Environmental Impact Review Board were of great help to the Steering Committee as were the officers of the Federal and Territorial governments with whom we dealt.

The chairman and the coordinator wish to express a special thank you to the people of the Beaufort Sea communities with whom we met to discuss the issues in this report on a face-to-face basis.

The Steering Committee wishes to express its regret at the death of Bill Brakel of the Department of the Environment who so ably lead the work of Task Group 4 and advised the Steering Committee during its deliberations.

APPENDIX A

RECOMMENDATIONS OF THE WORKSHOP ON WILDLIFE COMPENSATION AND THE INUVIALUIT FINAL AGREEMENT March 21 and 22, 1990

RECOMMENDATIONS OF THE WORKSHOP ON WILDLIFE COMPENSATION AND THE INUVIALUIT FINAL AGREEMENT March 21 and 22, 1990

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Recommendation 1

To proceed towards a generic wildlife compensation agreement, generally applicable to all oil and gas operators in the Inuvialuit Settlement Area.

Recommendation 2

Review the existing oil spill contingency plans in light of any new information and with the intent of maximizing Inuvialuit input. Focus on relationships between industry, community and Inuvialuit spill response plans

Recommendation 3

Create a generally acceptable procedure for developing, and estimating the potential cost of, a "worst case" scenario.

Recommendation 4

Re-examine the issue of financial capability including the type and level of financial instruments presently available under all relevant legislation including the Arctic Waters Pollution Prevention Act (AWPPA), Oil and Gas Production and Conservation Act (OGPCA) and Inuvialuit Final Agreement.

Recommendation 5

Encourage the creation or the reactivation of a scientific response team capable of conducting useful research in direct and immediate response to a Beaufort Sea oil spill.

Recommendation 6

Examine the issue of mitigative and remedial measures as specified in the Inuvialuit Final Agreement.

APPENDIX B

RECOMMENDATIONS OF THE ENVIRONMENTAL IMPACT REVIEW BOARD RESULTING FROM THEIR REVIEW OF THE GULF CANADA RESOURCES LIMITED KULLUK DRILLING PROGRAM June 1990

RECOMMENDATIONS OF THE ENVIRONMENTAL IMPACT REVIEW BOARD RESULTING FROM THEIR REVIEW OF THE GULF CANADA RESOURCES LIMITED *KULLUK* DRILLING PROGRAM, June 1990

Recommendation 1

The governmental responsibility for oil spill countermeasure and cleanup activities, either in support of a developer operator or pursuant to intervention obligations must be concentrated in one governmental agency, preferably the Canadian Coast Guard, regardless of the source of the oil spill.

Recommendation 2

The governmental authority responsible for oil spill cleanup must become the approval agency for all oil spill contingency plans which should include oil spill countermeasure plans, oil spill cleanup plans and oil spill related wildlife protection plans. The prior approval of all such plans must be made a condition of the granting of any Drilling Program Approval (DPA).

Recommendation 3

A surprise exercise to test the effectiveness of contingency plans, and to demonstrate countermeasure and cleanup capabilities, must be conducted annually in the Beaufort Sea. The exercise must be conducted in realistic operating conditions.

Recommendation 4

The work currently being done by the Department of Indian Affairs and Northern Development on all aspects of compensation and liability, as recommended by the Board affecting asserk I-15 Public Review, must be continued and accelerated. A final report to address these issues should be produced and tabled by December 31, 1990.

Recommendation 5

Proper guidelines must be prepared for assessing instruments of financial responsibility.

Recommendation 6

An independent task force must be established to examine the research, management andfunding requirements necessary to ensure that the information database is in place to facilitate environmental impact assessment and countermeasures and contingency planning, relating to an offshore oil spill in the Beaufort Sea.

Recommendation 7

The Department of Fisheries and Oceans and the Department of Environment must undertake, as a matter of the highest priority, a study to define the assessment methodology that should be used in determining the impacts that might be associated with a major oil spill incident in the Beaufort Sea. The Canadian Petroleum Association, the Inuvialuit, and the Governments of the Northwest Territories and Yukon, should be involved in developing the terms of reference for this study and in its implementation to the extent appropriate.

Recommendation 8

More appropriate criteria must be developed to establish dates to define the safe operating season for each drill system employed in the offshore Beaufort Sea, and within that season, the cut-off date for risk drilling. The date for the operating season should be fixed for each drill system, based upon the individual characteristics of that system as they affect the ability of the system to operate safely in the conditions likely to be encountered. Within each operating season a cut-off date for risk drilling should be determined based upon the length of time required to drill a relief well before the season ends. No extensions should be granted with respect to the operating season or the cut-off date for risk drilling.

Recommendation 9

Because of their significant legal, economical and cultural interests in wildlife harvesting, the Inupiat and the Inuvialuit should be formally involved in annual meetings between the Government of Canada and the Government of the United States held to discuss current and future activities in the Beaufort Sea.

APPENDIX C

BEAUFORT SEA STEERING COMMITTEE TERMS OF REFERENCE

- "The scope of the Committee's work is to assess the nine (9) recommendations made by the EIRB in their report on the review of the Gulf Kulluk Drilling Program (see Appendix B) and integrate the six (6) recommendations that are currently under review and were made in the Workshop on Wildlife compensation (see Appendix A), which was convened as a result of a recommendation made by the EIRB in their report on the review of the Esso Isserk Drilling Program.
- ➤ To ensure that the results of the process are fully communicated to the interested Beaufort communities.
- To establish the objectives of the task groups by defining and assigning work packages, setting priorities, and determining schedules and securing funds (budgets) if needed.
- To ensure the work of the task groups is coordinated and supported in order that they meet their objectives.

The Committee will be comprised of eight members as follows:

- ▶ 1 nominee by the Minister of DIAND, acceptable to the other members, to serve a Chairperson.
- I representative from the Department of Indian Affairs and Northern Development, to serve as Vice Chair
- > 1 representative from the Canadian Petroleum Association
- ▶ 1 representative from the Canada Oil and Gas Lands Administration
- ▶ 1 representative from the Government of Northwest Territories
- ▶ 1 representative from the Government of Yukon
- > 1 representative from the Inuvialuit Game Council
 - sentative from the Inuvialuit Regional Corporation

Duties of the Chairperson

1a. The Chairperson will be appointed by the Minister of DIAND in consultation with organizations represented on the Steering Committee. The appointee is to be acceptable to all members of the Committee. The Chairperson will report on behalf of the Committee to the Minister of DIAND.

- 1b. If the Chairperson is unavailable to attend a meeting, the Vice Chairman will serve, and in the absence of both Chairman and Vice Chairman all_attending_Committee --members-must agree to an alternate chairperson from among the committee members present.
- 2. The Chairperson will call and chair the Beaufort Sea Steering Committee at times determined by the Chairperson.
- 3. The quorum for a meeting of record will consist of five (5) committee members or their alternates.
- 4. The Chairperson will submit a final report to the Minister of Indian and Northern Affairs prior to 1 February 1991 with recommendation consistent with the timing and scope of the Committee, addressing the concerns considered in the workshop on wildlife compensation and the nine (9) recommendations of the EIRB report on the *Kulluk* drilling application.
- 5. The Chairperson may also submit a report at other times as determined necessary by the Committee or as requested by the Minister.
- 6. Where reporting is required, the Chairperson will ensure that the views of all Committee members are fairly reflected.

Duties of the Vice Chairperson

- 1. The Vice Chairperson shall serve as committee Chair in the absence of the Chairperson.
- 2. The Vice Chairperson shall be responsible for the administrative functions of the secretariat.

Duties of Secretariat

Under the direction of the Chair, the role of the Committee Secretariat will be performed by DIAND and will be to provide a link between the Steering Committee and the task groups and shall ensure the necessary coordination and liaison between the task groups, monitoring and advising on overlaps, gaps, and omissions in assignments, completion of work schedules, and supporting the chair on contacting all members to convene meetings, securing the meeting room and the preparation and distribution of the minutes, reports, and other relevant information.

Duties of Members

Members are expected to fairly represent the complete views of their agency or sector of interest, to keep abreast of all related resource management and legislative matters, and to ensure that there is good communication with the constituents they represent.

The members of the Committee should be named on the basis of their experience and interest as well as their ability to forward the mandate of the Committee. It is expected that each member of the committee will be authorized to commit resources (human and financial) to the meeting of the assigned tasks, work packages and committee mandate.

Support to the Committee

In support of the committee, individual work assignments and schedules will be provided to Task Groups. Task Groups and their leaders will be selected by the Steering Committee on the basis of experience, interest, and ability to organize and direct to task assignment. Each member will insure that his organization will fully support any Task Group and tasks which may be assigned to the representative organization.

Each Task Group leader is responsible for organizing the task work as appropriate. The Steering Committee may request periodic status reports and will be available to resolve conflicts, define scope of work, or address coordination problems or interests as necessary.

Limitations

The Committee will not have statutory authority under any federal statute. Its role will be advisory to the Minister.

Changes

The Committee may make recommendations through the Chairperson to the Minister regarding any changes to the Committee.

Expenses

Each organization is responsible for the costs of supporting its member.

Duration

The Committee shall be duly constituted until May 1, 1991 or as otherwise extended by the Minimuz.

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APPENDIX D

MEMBERSHIP OF TASK GROUPS BEAUFORT SEA STEERING COMMITTEE

MEMBERSHIP OF TASK GROUPS BEAUFORT SEA STEERING COMMITTEE

Task Group One - Worst Case Scenario

>	Shawn Gill, Chairman	COGLA
>	J. Ballantyne	YTG
>	P. Bannon	DIAND
>	J. Bicknell	ILA
>	A. Carpenter	IGC
≻	P. Devenis	CPA
>	B. Mansfield	DOE
>	D. Matthews	GNWT
≻	G. Pidcock	GULF
≻	N. Snow	IGC
>	B. Smiley	DFO
>	P. Van Meurs	IRC
>	I. Buist, Consultant	S.L. Ross Environmental
		Research Ltd.

Task Group Two - Remedial and Mitigative Measures

>	Rick Hurst, Chairman	DIAND
>	E. Birchard	CPA
>	B. Brakel (deceased)	DOE
>	S. Edwards	DIAND
>	S. Gill	COGLA
>	V. Gillman	DFO
>	M. Hoffman	YTG
≻	S. Matthews	GNWT
>	A. Robertson	DIAND
≻	N. Snow	IGC
>	C. Osler, Consultant	Intergroup Consultants Ltd.
≻	M. Lawrence, Consultant	North/South Consultants Ltd.
≻	S. Davies, Consultant	North/South Consultants Ltd.
>	W. E. Cross, Consultant	LGL Ltd.
≻	R. Davis, Consultant	LGL Ltd.
>	J. Harper, Consultant	Harper Environmental Services Ltd.

Task Group Three - Compensation and Financial Responsibility

> -	James-Rogers, Chairman	IRC
\succ	A. Carpenter	IGC
>	B. Gibson	DIAND
>	S. Gill	COGLA
≻	R. Gruben	IRC
>	M. Hoefs	YTG
≻	D. Matthews	GNWT
>	F. Mitton	CPA
>	R. Pashelka	CPA
≻	B. Patching	CPA
>	N. Snow	IGC
>	With the help of:	

R. Binder	Joint Secretariat
M. Fabijan	Joint Secretariat

Task Group Four - Research and Scientific Study

>	Bill Brakel, Chairman (Deceased)	DOE
≻	Rick Hurst, Chairman	DIAND
>	D. Hardie	DOE
≻	L. Harwood	IGC
>	M. Hoefs	YTG
>	G. McCormick	COGLA
≻	S. Matthews	GNWT
>	M. Papst	DFO
≻	B. Smiley	DFO
>	J. Ward	CPA

► With the help of:

C. Cuddy	DIAND
S. Gill	COGLA
L. Johnston	DOE
N. Snow	IGC

Task Group Five - Government Management

>	Chris Cuddy, Chairman	DIAND
>	B. Allen	DOE
>	R. Binder	IGC
\succ	S. Gill	COGLA
>	T. Hawkings	CPA
>	B. Love	YTG
>	I. Marr	CCG
>	D. Matthews	GNWT
>	J. McNee	EA
>	R. Paterson	DFO
\succ	J. A. Stikeman, Consultant	Corporation House Ltd.
>	M. Jarvis, Consultant	M. Jarvis Consultants Ltd.

Task Group Six - Operating Seasons

>	Fred Lepine, Chairman	COGLA
>	P. Bannon	DIAND
>	D. Burch	GNWT
>	B. Love	YTG
	D. Schilling	CPA
>	B. Scott	IGC
>	D. Stenning, Consultant	Arctic Offshore Exploration
	_	Consultants Ltd.
>	With the help of:	
	C Birkbeck	Amoco

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C. DIIKUCCK	Amoco
B. Danielewicz	Canmar
J. Foose	Gulf
P. MacMillan	Chevron
P. Meyer	Esso
G. Pidcock	Gulf
J. Sutherland	Shell
H. Vrielink	Amoco
J. Weaver	Esso
B. Wright	Gulf
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Task Group Seven - Contingency Plan Testing

≻	Doug Matthews, Chairman	GNWT
>	S. Edwards	DIAND

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APPENDIX E

DEFINITIONS

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DEFINITIONS

In this report the following definitions apply:

BLOWOUT refers to an uncontrolled flow to the surface of gas, oil, or water from a wellbore.

CONTINGENCY PLANS are plans prepared in advance to be used in the event of an emergency situation.

DRILLING PROGRAM APPROVAL is the approval given by the regulator for an operator to drill with specified equipment for a specified period of time in a specified area.

EFFECTIVE, in the context of restoration, means that there is an acceleration in what would otherwise be a natural rate of population recovery.

ENVIRONMENTAL ASSESSMENT (in the context of oil spills and the IFA) is the process whereby one predicts the potential direct and indirect effects of an oil spill and the impact on present and continuing harvest opportunities and/or success.

ENVIRONMENTAL RISK ZONE is the area of the well in which oil is expected to be found.

GOVERNMENT refers to the federal and territorial governments.

INDUSTRY refers to the "Petroleum Industry".

MARINE COUNTERMEASURES PLAN means a plan concerning the containment and recovery of "mobile" oil on water and the protection of shoreline areas; including ice edges, leads, etc.

MITIGATION includes all a priori efforts to prevent or lessen potential adverse environmental effects that may occur.

Spill CONTINGENCY PLAN includes an oil spill countermeasures plan, an oil spill cleanup plan and an oil spill related wildlife protection plan.

ON SCENE COMMANDER is the person charged with controlling the blowout and cleaning up the oil spill.

PRACTICABLE is a determination that a treatment or technique is feasible, achieves the intended objectives (in this case harvested population recovery) and is achievable within the logistical constraints of the Beaufort Sea Region with known technology.

RECOVERY POTENTIAL of a Regional Population is the potential for the population to recover from adverse effects of oil exposure through reproduction or recruitment from outside the regional population.

RELIEF WELL refers to a well drilled adjacent to an uncontrolled well with the specific purpose of intercepting the blowout wellbore and stopping the uncontrolled flow. The interception only has to be close enough to allow fluid communication between the wells (within a few metres).

REMEDIATION includes all a **posteriori** efforts to correct or compensate for any adverse environmental effects that have occurred, and to prevent, lessen, or compensate for any adverse environmental effects that may occur in the future as a result of the environmental damage.

RESTORATION includes post-spill measures other than oil containment, recovery and removal that would enhance recovery of harvested populations to pre-impact levels. These measures include:

- wildlife deterrent activities,
- wildlife relocation activities,
- wildlife cleaning and/or holding,
- restocking wildlife species,
- enhancement of productive capacity of wildlife habitat,
- bioremediation, and
- harvest restrictions.

RISK DRILLING is defined as drilling below the risk threshold depth. Logging, casing and cementing operations are not considered risk drilling operations. Similarly, all cased hole operations, including testing, are not considered risk drilling operations.

RISK THRESHOLD DEPTH refers to the depth below which liquid hydrocarbons (oil) are reasonable expected to be present.

SAME SEASON RELIEF WELL CAPABILITY refers to the capability to drill a relief well and control a blowout in the same season in which the original well was being drilled. Same season relief well capability requires the ability to begin mobilization of an alternate relief well drilling system as soon as a blowout occurs, and once relief well operations are started, the ability to conduct those operations on a relatively continuous basis, to a successful conclusion.

SENSITIVITY is an indication of the physiological or toxicological effect of oil on an individual.

SHORELINE CLEANUP PLAN means the removal, recovery and disposal of oil after it is no longer mobile, from shorelines and intertidal areas.

SUBSEA BLOWOUT is the uncontrolled release of hydrocarbons at the sea floor.

SURFACE BLOWOUT is the uncontrolled release of hydrocarbons at the surface of the sea.

VULNERABILITY is the probability or potential for contact of the population or its habitat with oil in the environment.

WILDLIFE HABITAT RESTORATION is the accelerated functional return of habitat to pre-spill or normal state to the extent practicable.

WILDLIFE PROTECTION PLAN includes a consideration of deterrents and relocation plus habitat protection plus cleaning and treating of oiled wildlife.

APPENDIX F

ACRONYMS

ACRONYMS

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Atmospheric Environment Service
Arctic Regional Environmental Emergency Team
Barrels of Oil Per Day
Beaufort Region Environmental Assessment & Monitoring (Program)
Canadian Coast Guard
Canada Oil and Gas Lands Administration
Canadian Petroleum Association
Department of Fisheries and Oceans
Department of Indian Affairs and Northern Development
Development Impact Zone
Department of National Defense
Department of the Environment
External Affairs
Environmental Assessment and Review Process
Environmental Impact Review Board
Environmental Impact Screening Committee
Emergency Planning Canada
Fisheries Joint Management Committee
Government of the Northwest Territories
Inuvialuit Final Agreement

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IGC	Inuvialuit Game Council
IHS	- Inuvialuit Harvest Study
ILA	Inuvialuit Land Administration
IRC	Inuvialuit Regional Corporation
m³	Cubic Metres
MODU	Mobile Offshore Drilling Unit
MOU	Memorandum of Understanding
NOGAP	Northern Oil and Gas Action Program
OSC	On-Scene Commander
OSSC	On-Scene Science Coordinator
SSDC	Single Steel Drilling Caisson
YTG	Yukon Territorial Government

APPENDIX G

FEDERAL ACTS PERTAINING TO BEAUFORT SEA DEVELOPMENT

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FEDERAL ACTS PERTAINING TO BEAUFORT SEA DEVELOPMENT

Department of Indian Affairs and Northern Development

- ► DIAND Act
- ► NWT Act
- Yukon Act
- Public Lands Grants Act
- > Arctic Waters Pollution Prevention Act
- ► Western Arctic (Inuvialuit) Claims Settlement Act
- Canada Petroleum Resources Act
- ▷ Oil & Gas Production & Conservation Act

Department of Environment

- > Canadian Environmental Protection Act
- ► Fisheries Act (Section 36 to 42)
- Migratory Birds Convention Act

Department of Fisheries and Oceans

> Fisheries Act

Transport Canada

Canadian Shipping Act

Department of Energy Mines and Resources

► National Energy Board Act

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APPENDIX H

SECTIONS 11 AND 13 OF THE INUVIALUIT FINAL AGREEMENT
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ENVIRONMENTAL IMPACT SCREENING AND REVIEW PROCESS

- 11.(1) The developments subject to environmental impact screening include:
 - (a) developments described in subsection 13(7);
 - (b) developments in the Yukon North Slope region described in section 12;
 - (c) developments in the Inuvialuit Settlement Region in respect of which the Inuvialuit request environmental impact screening; and
 - (d) subject to any agreement between the Inuvialuit and the Dene/Metis, developments in areas including the Aklavik land selections where the traditional harvest of the Dene/Metis may be adversely affected, on request by the Dene/Metis or by the Inuvialuit.
- 11.(2) Each development subject to screening shall be dealt with in accordance with the procedures, principles, criteria and provisions applicable under this Agreement. Except for screening and review for the purposes of wildlife compensation, the process described in this section applies only to onshore development. There shall be a similar process in the Yukon Territory in the area south of the watershed and north of the Porcupine and Bell Rivers, in which native and government representation shall be equal.
- 11.(3) There is hereby established the Environmental Impact Screening Committee, to be made up of seven (7) permanent members. Canada and the Inuvialuit shall each appoint three (3) permanent members. Of the three permanent members appointed by Canada, each of the Governments of the Northwest Territories and the Yukon Territory shall designate one (1). Additional members may be designated from time to time pursuant to subsection (8). As amended January 15, 1987
- 11.(4) A Chairman shall be appointed by Canada, with the consent of the Inuvialuit. Where the parties cannot agree on a Chairman, the Chief Justice of either of the Territories may appoint a Chairman at the request of one of the parties.
- 11.(5) The permanent members shall be appointed, remunerated and replaced by the respective appointing parties. The term of office of all permanent members, including the Chairman, shall be three (3) years and they are eligible to be reappointed on the expiration of the term.

As amended January 15, 1987

11.(6) Each screening shall be carried out by a panel of five (5) of the permanent members, two (2) appointees of Canada, two (2) appointees of the Inuvialuit,
and-the Chairman, plus, if applicable, additional members designated pursuant to subsection (8). Of the two permanent members appointed by Canada, one shall be designated by the Territorial Government in whose jurisdiction the development being screened is to be located. The representation of the Government of the Yukon Territory for matters north of the watershed and of the Government of the Northwest Territories for matters in the Western Arctic Region shall increase as their respective jurisdictions increase and shall form a majority of the appointees of Canada for matters exclusively within their respective jurisdictions.

As amended January 15, 1987

11.(7) Where any of the parties fails to nominate a sufficient number of persons within a reasonable time, the Committee may discharge its responsibilities with such members as have been appointed.

As amended January 15, 1987

- 11.(8) Where an organization recognized for an adjacent comprehensive land claims settlement considers that a development being screened is capable of having a negative environmental impact to the detriment of native persons using or occupying the Inuvialuit Settlement Region and the organization represents those native persons, it shall have the right, at its expense, to designate one (1) additional member, or more than one if so agreed by way of agreement between the Inuvialuit and the duly authorized organization representing the native group in question. Canada shall have the right to designate additional members sufficient to attain representation on the panel equivalent to that of the natives.
- 11.(9) As adjacent land claims are settled, the representation on panels available to other native organizations by virtue of subsection (8) shall cease unless like representation is available to the Inuvialuit on like panels dealing with adjacent land areas used or occupied by the Inuvialuit.
- 11.(10) All members of the Screening Committee shall have one vote except the Chairman who shall vote only in the case of a deadlock.
- 11.(11) The Screening Committee may establish and adopt by-laws and rules for its internal management and procedures in order to ensure reasonable and expeditious consideration of applications.
- 11.(12) The proponents of a development required to be screened shall submit a project description to the Screening Committee during the preliminary planning stage containing the following information:

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- (a) the purpose of the project;
- (b) the nature and extent of the proposed development;
- (c) the rationale for the site selection; and
- (d) information and technical data in sufficient detail to permit an adequate preliminary assessment of the project and its environmental impact.
- 11.(13) On receipt of a project description, the Screening Committee shall expeditiously determine if the proposed development could have a significant negative environmental impact and shall indicate in writing to the governmental authority competent to authorize the development that, in its view:
 - the development will have no such significant negative impact and may proceed without environmental impact assessment and review under this Agreement;
 - (b) the development could have significant negative impact and is subject to assessment and review under this Agreement; or
 - (c) the development proposal has deficiencies of a nature that warrant a termination of its consideration and the submission of another project description.
- 11.(14) For the purposes of paragraph 13(a), the Screening Committee shall take into account any prior governmental development or environmental impact review process that, in its opinion, adequately encompassed the assessment and review function.
- 11.(15) Where a proposed development is or may be subject to a governmental development or environmental impact review process, and in the opinion of the Screening Committee that review process adequately encompasses or will encompass the assessment and review function, the Screening Committee shall refer the proposal to the body carrying out that review process.
- 11.(16) If, in the opinion of the Screening Committee, the review process referred to in subsection (15) does not or will not adequately encompass the assessment and review function, or if the review body declines to carry out such functions, the proposal shall be referred to the Review Board for a public review.

As amended January 15, 1987

- 11.(17) Decisions of the Screening Committee shall be made by majority vote of the panel appointed, shall be in writing and shall be signed by all panel members.
- The Environmental Impact Review Board is hereby established to be the 11.(18) review body for any development referred to it pursuant to this Agreement. The Review Board shall have seven (7) permanent members, three (3) appointed by Canada, three (3) appointed by the Inuvialuit and a Chairman appointed by Canada, with the consent of the Inuvialuit. Of the three (3) permanent members appointed by Canada, each of the Governments of the Northwest Territories and the Yukon shall designate one (1). The representation of the Government of the Yukon Territory for matters north of the watershed and of the Government of the Northwest Territories for matters in the Western Arctic Region shall increase as their respective jurisdictions increase and shall form a majority of appointees for matters exclusively within their respective jurisdictions. The membership of the Review Board may be increased or decreased from time to time at the discretion of Canada, but the same proportion of representation for Canada and the natives shall be maintained.

As amended January 15, 1987

11.(19) The Review Board shall deal with each development subject to environmental assessment and review in accordance with the applicable provisions of this Agreement. For greater certainty, subsections (6) to (10) apply to the constitution of the Review Board panels, with such modifications as the circumstances require.

As amended January 15, 1987

- 11.(20) The permanent members of the Review Board shall be appointed, remunerated and replaced by the respective appointing parties. The term of office of all permanent members, including the Chairman, shall be three (3) years and they are eligible to be re-appointed on the expiration of the term.
- 11.(21) Where any of the parties fails to nominate a sufficient number of persons within a reasonable time, the Review Board may discharge its responsibilities with such members as have been appointed. As amended January 15, 1987
- 11.(22) A person may be a member of both the Screening Committee and the Review Board.
- 11.(23) Canada shall provide to the Review Board the staff required to enable it to fulfill its functions. The Review Board may establish and adopt by-laws and rules for its internal management and its procedures.
- 11.(24) The Review Board shall expeditiously review all projects referred to it and on the basis of the evidence and information before it shall recommend whether

or not the development should proceed and, if it should, on what terms and conditions, including mitigative and remedial measures. The Review Board may also recommend that the development should be subject to further assessment and review and, if so, the data or information required.

- 11.(25) Decisions of the Review Board shall be made by majority vote of the panel appointed, shall be in writing and shall be signed by all panel members.
- 11.(26) A register shall be kept of all decisions of the Review Board. The data used by the Review Board shall be retained and made available to the public on request.
- 11.(27) The decisions containing the recommendations of the Review Board shall be transmitted to the governmental authority competent to authorize the development. That authority, consistent with the provisions of this section and after considering, among other factors, the recommendations of the Review Board, shall decide whether or not, on the basis of environmental impact considerations, the development should proceed and, if so, on what terms and conditions, including mitigative and remedial measures.
- 11.(28) If, pursuant to subsection (27), the competent governmental authority decides that further impact assessment and review is required, the proposed development shall be subject to further impact assessment and review based on the same or different information, requirements or specifications as the governmental authority considers appropriate.
- 11.(29) If the competent governmental authority is unwilling or unable to accept any recommendations of the Review Board or wishes to modify any such recommendations, it shall give reasons in writing within thirty (30) days, stating why it has not accepted the recommendations. As amended January 15, 1987
- 11.(30) The decision of the competent governmental authority shall be transmitted to the interested parties and made public.
- 11.(31) No license or approval shall be issued that would have the effect of permitting any proposed development to proceed unless the provisions of this section have been complied with.
- 11.(32) For greater certainty, nothing in this section restricts the power or obligation of the Government to carry out environmental impact assessment and review under the laws and policies of Canada.

WILDLIFE COMPENSATION

- -13:(1) --- The objectives of this section are: --
 - (a) to prevent damage to wildlife and its habitat and to avoid disruption of Inuvialuit harvesting activities by reason of development; and
 - (b) if damage occurs, to restore wildlife and its habitat as far as is practicable to its original state and to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities.

DEFINITIONS AND GENERAL PRINCIPLES

13.(2) In this section,

"actual wildlife harvest loss" means provable loss or diminution of wildlife harvesting or damage to property used in harvesting wildlife, or both;

"future harvest loss" means provable damage to habitat or disruption of harvestable wildlife having a foreseeable negative impact on future wildlife harvesting.

- 13.(3) Subject to this section, the Inuvialuit shall be compensated for actual wildlife harvest loss resulting from development in the Inuvialuit Settlement Region.
- 13.(4) Subject to this section, the Inuvialuit shall benefit from environmental protection measures designed to reduce future harvest loss resulting from development in the Inuvialuit Settlement Region.
- 13.(5) The provisions of this section do not apply to development activities on lands owned by the Inuvialuit under paragraph 7(1)(a) except developments proposed for lands presently the subject of outstanding leases or other existing rights.
- 13.(6) Where, in accordance with section 10, Participation Agreements are entered into that by voluntary agreement establish mitigative and remedial obligations for developers, subsection (16) does not apply.

WILDLIFE IMPACT ASSESSMENT

- 13.(7) Every proposed development of consequence to the Inuvialuit Settlement Region that is likely to cause a negative environmental impact shall be screened by the Screening Committee to determine whether the development could have a significant negative impact on present or future wildlife harvesting.
- 13.(8) If the Screening Committee determines that a proposed development could have a significant negative impact on present or future wildlife harvesting, it shall refer the proposal for an environmental impact assessment and review in the manner provided by subsections (9) and (10).
- 13.(9) Where a proposed development is subject to environmental impact review that, in the opinion of the Screening Committee, adequately encompasses or will encompass the assessment and review function and includes or will include in its evaluation adequate terms and conditions of development and limits of liability, the Screening Committee shall refer the proposal to the body carrying out the environmental impact review.
- 13.(10) If, in the opinion of the Screening Committee, the review body does not or will not adequately incorporate within its review each element of the process set out in subsection (9), or if the review body declines to do so, the proposal shall be referred to the Review Board.
- 13.(11) Where, pursuant to subsection (10), a proposal is referred to the Review Board, it shall, on the basis of the evidence and information before it, recommend to the government authority empowered to approve the proposed development:
 - (a) terms and conditions relating to the mitigative and remedial measures that it considers necessary to minimize any negative impact on wildlife harvesting; and
 - (b) an estimate of the potential liability of the developer, determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the developer to pay, and environmental factors.
- 13.(12) The Government agrees that every proposed development of consequence to the Inuvialuit Settlement Region that is within its jurisdiction and that could have a significant negative impact on wildlife habitat or on present or future wildlife harvesting will be authorized only after due scrutiny of and attention to all environmental concerns and subject to reasonable mitigative and remedial provisions being imposed.

FINANCIAL RESPONSIBILITY

- 13.(13)-- Every developer, other than a government but including a Crown corporation, shall be required to prove financial responsibility before being authorized to undertake any development in the Inuvialuit Settlement Region.
- 13.(14) The government authority empowered to permit the development and set the terms and conditions thereof may require a developer to provide for and ensure financial responsibility with respect to the obligations and undertakings provided in this section in the form of a letter of credit, guarantee or indemnity bond or any other form satisfactory to the government authority.

LIABILITY FOR DAMAGE

- 13.(15) Where it is established that actual wildlife harvest loss or future harvest loss was caused by development, the liability of the developer shall be absolute and he shall be liable without proof of fault or negligence for compensation to the Inuvialuit and for the cost of mitigative and remedial measures as follows:
 - (a) where the loss was caused by one developer, that developer shall be liable;
 - (b) where the loss was caused by more than one developer, those developers shall be jointly and severally liable; and
 - (c) where the loss was caused by development generally, but is not attributable to any specific developer, the developers whose activities were of such nature and extent that they could reasonably be implicated in the loss shall be jointly and severally liable.
- 13.(16) Subject to subsections (5) and (6), if any developer who has caused actual wildlife harvest loss or future harvest loss is unable or fails to meet his responsibilities therefor, Canada acknowledges that, where it was involved in establishing terms and conditions for the development, it has a responsibility to assume the developer's liability for mitigative and remedial measures to the extent practicable.
- 13.(17) No recourse pursuant to subsection (18) may be taken against a developer unless a claim is made under subsection (19) within three years from the time when the loss in respect of which the recourse is exercised occurred or first occurred, as the case may be, or could reasonably be expected to have become known to those affected thereby.

RECOURSES OF THE INUVIALUIT

- 13.(18) Where actual wildlife harvest loss or future harvest loss results from development, the Inuvialuit may exercise the following recourses:
 - (a) respecting actual wildlife harvest loss, Inuvialuit hunters, trappers and fishermen who depend on hunting, trapping or fishing for a material part of their gross income have the right to obtain compensation for damage to or loss of harvesting equipment and for loss or reduction of hunting, trapping or fishing income. Inuvialuit claimants may act individually or collectively or through duly authorized representatives, subject to the right of the other parties to verify the representative quality or capacity of the group or representative and the validity of the claims. The types of compensation that may be claimed include the cost of temporary or permanent relocation, replacement of equipment, reimbursement in kind subject to harvestable quotas, provision of such wildlife products as may be obtainable under existing Acts and regulations, payment in lump sum or by installments or any reasonable combination thereof. The claimant shall be entitled to indicate his preference as to type of compensation in making his claim, but the compensation award shall be subject to subsections (22) and (23);
 - respecting actual wildlife harvest loss, Inuvialuit who harvest (b) renewable resources for subsistence purposes have the right to obtain compensation for damage to or loss of harvesting equipment and for any material reduction in wildlife take or harvest. Inuvialuit claimants may act individually or collectively or through duly authorized representatives, subject to the right of the other parties to verify the representative quality or capacity of the group or representative and the validity of the claims. For greater certainty, the subsistence harvester may claim compensation measured by reference to his prior total take or harvest, notwithstanding that some part or all of it may have been directed to or used by others. The types of compensation that may be claimed include the cost of temporary or permanent relocation, replacement of equipment, reimbursement in kind subject to harvestable quotas, provision of such wildlife products as may be obtainable under existing Acts and regulations, payment in lump sum or by installments or any reasonable combination thereof. The claimant shall be entitled to indicate his preference as to type of compensation in making his claim, but the compensation award shall be subject to subsections (22) and (23); and
 - (c) respecting future harvest loss, any definable Inuvialuit group or community affected, including consumers of renewable resource products, collectively or through duly authorized representatives, subject to the right of the other parties to verify the representative

quality or capacity of the group or representative and the validity of the claims, have the right to seek recommendations of the Arbitration Board-pursuant-to-section 18 with respect to remedial measures, to the extent reasonably practicable, including cleanup, habitat restoration and reclamation. Such recourse shall be governed by subsection (24). The obligation of a developer for the taking of mitigative and remedial measures is subject to any limits established by the authority empowered to approve the proposed development.

PROCEDURE FOR CLAIMS, MEDIATION AND ARBITRATION

- 13.(19) Every claim for actual wildlife harvest loss or future harvest loss alleged to have resulted from development shall be made in writing by the appropriate Inuvialuit claimant by means of a notice given by the claimant to the developer.
- 13.(20) During the sixty (60) day period following the giving of the notice referred to in subsection (19), the claimant and the developer shall attempt to settle the claim and, for that purpose may, by mutual consent, appoint a mediator. If the claim is not settled within that period, the claimant may forward his allegations in writing to the Arbitration Board for hearing and decision in accordance with section 18.
- 13.(21) In order to succeed before the Arbitration Board, the claimant must prove, on a balance of probabilities:
 - (a) actual wildlife harvest loss or future harvest loss or both; and
 - (b) that the actual wildlife harvest loss or future harvest loss or both results from development.
- 13.(22) Where recourse is claimed pursuant to paragraph (18)(a) or (b), the onus is on the claimant to prove the loss on a balance of probabilities. The Arbitration Board shall take into account the priorities expressed by the claimant as to the nature of the compensation desired, but if it rules in favour of the claimant it must select the most reasonable type of compensation given the nature and extent of the loss.
- 13.(23) In making an award on the claim pursuant to paragraph (18)(a) or (b), the Arbitration Board shall estimate the duration of the impact of the development on wildlife harvesting and determine compensation accordingly. Saving in exceptional circumstances, the award for compensation should not be made with the intention of providing a guaranteed income in perpetuity and compensation should be on the basis of a diminishing scale for a limited time. The claimant shall, as far as reasonable in the circumstances, mitigate

his damages and should subsequent events, including the effect of any mitigative or remedial measures, materially affect the claim, any party to the original proceedings may cause the hearing to be reopened in order that the decision may be rescinded or appropriately varied.

13.(24) Where recourse is claimed pursuant to paragraph (18)(c) and a governmental authority has jurisdiction to enforce mitigative and remedial measures, the Arbitration Board, having regard to the terms and conditions established by the authority empowered to authorize the development, shall recommend to that authority appropriate remedial measures if it is satisfied that the claimant has proven, on a balance of probabilities, future harvest loss resulting from development. Where the government authority does not comply with those recommendations, it shall give the reasons therefor in writing within sixty (60) days after the making of the recommendations.

LEGAL RIGHTS AND RECOURSES

13.(25) The wildlife compensation provisions and procedures in this section are without prejudice to the legal rights and recourses of the parties, but where the provisions of subsections (19) to (23) are applied, the decision of the Arbitration Board is final and binding on the parties to the arbitration, subject only to the review provisions of this Agreement.