

PUBLIC REVIEW
of
KUÑÑEK RESOURCE DEVELOPMENT CORPORATION'S
**"REVITALIZATION OF THE
WESTERN ARCTIC REINDEER HERD"**
PROPOSAL

FINAL REPORT OF THE
ENVIRONMENTAL IMPACT REVIEW BOARD
27 November 2000

Printed in Inuvik, Northwest Territories, Canada

**LIST OF ACRONYMS
USED IN THIS DOCUMENT**

Acronym	Meaning
CEAA	Canadian Environmental Assessment Act
CEAMF	N.W.T. Cumulative Effects Assessment and Management Framework
CIMP	Cumulative Impacts Monitoring Program
CRL	Canadian Reindeer Limited
CWS	Canadian Wildlife Service
DIAND	Department of Indian Affairs and Northern Development
EIA-RP	Environmental Impact Assessment - Resource Person
EIRB	Environmental Impact Review Board
EIS	Environmental Impact Statement
EISC	Environmental Impact Screening Committee
GRRB	Gwich'in Renewable Resource Board
HTC	Hunters and Trappers Committee
IFA	Inuvialuit Final Agreement
ISR	Inuvialuit Settlement Region
IGC	Inuvialuit Game Council
KRDC	Kuññek Resource Development Corporation
RWED	Department of Resources, Wildlife and Economic Development (Government of the Northwest Territories)
WMAC (NWT)	Wildlife Management Advisory Council (Northwest Territories)
VHRR NDVI	Very High Resolution Radiometer - Normalized Difference Vegetation Index

TABLE OF CONTENTS

PANEL'S FINDINGS	1
Recommendations	1
Terms and Conditions	1
1.0 THE PUBLIC REVIEW	7
1.1 Establishment of the Environmental Impact Review Board	7
1.2 Mandate of the EIRB	7
1.3 Procedures of the EIRB	7
1.4 Appointment of the Review Panel	8
1.5 Decision Making Powers of the EIRB	8
1.6 Initiating the Public Review	8
1.7 The Review Process	9
2.0 PROJECT DESCRIPTION	11
2.1 Overall Plan	11
2.2 Project Rationale	13
3.0 NATURE OF APPLICATION TO THE EIRB	14
3.1 Views of the Proponent and Registered Participants	14
3.2 Views of the Panel	15
4.0 JURISDICTION OF THE EIRB	17
4.1 Decision-Making Powers of the EIRB	17
4.2 The EIRB's Interpretation of its Mandate	18
4.3 Assessment of Risk	19
5.0 INTERFERENCE WITH HARVESTING	20
5.1 Views of the Proponent, Registered Participants, Public and Technical Advisor	20
5.2 Views of the Panel	27
6.0 POSSIBLE INCREASE IN PROBLEM WILDLIFE KILLS	29
6.1 Views of the Proponent, Registered Participants, Public and Technical Advisor	29
6.2 Views of the Panel	34
7.0 DEGRADATION OF THE RANGE	35
7.1 Views of the Proponent, Registered Participants, Public, Technical Advisor and Special Investigation	35
7.2 Views of the Panel	39
8.0 HERD CONTROL	41
8.1 Views of the Proponent, Registered Participants and Special Investigations	41
8.2 Views of the Panel	44
9.0 DAMAGE TO THE KENDALL ISLAND MIGRATORY BIRD SANCTUARY	46
9.1 Views of the Proponent, Registered Participants and Special Investigation	46
9.2 Views of the Panel	48

10.0	INTERACTIONS BETWEEN CARIBOU AND REINDEER - DISEASE AND GENETIC MIXING	51
10.1	Views of the Proponent, Registered Participants, Public and Technical Advisor	51
10.2	Views of the Panel	53
11.0	CUMULATIVE EFFECTS	54
11.1	Views of the Proponent and Registered Participants	54
11.2	Views of the Panel	56
12.0	CULLING AND SLAUGHTER WASTE	57
12.1	Views of the Proponent and Registered Participants	57
12.2	Views of the Panel	58
13.0	ABANDONMENT AND RECLAMATION	59
13.1	Views of the Proponent and Registered Participants	59
13.2	Views of the Panel	59
14.0	OTHER ISSUES	60
14.1	Heritage Sites on Richards Island	60
14.2	NWT Reindeer Regulations	60
14.3	KRDC's Use of Existing Facilities at Kidluit Bay and Atkinson Point	60
14.4	Fuel Spillage	60
14.5	Water-Related Environmental Impacts	61
14.6	Aircraft Use	61
14.7	Ice Roads	61
15.0	WORST CASE SCENARIO	62
15.1	Views of the Proponent and Registered Participants	62
15.2	Views of the Panel	64
16.0	ALTERNATIVE MEANS	66
16.1	Views of the Proponent, Registered Participants and Public	66
16.2	Views of the Panel	67
17.0	CONCLUDING REMARKS	68
18.0	REFERENCES	69

FIGURES

Figure 1.	Approximate locations of KRDC's proposed summering and wintering ranges.	12
Figure 2.	Location of the Panel recommended, no-reindeer buffer zone along the eastern boundary of the Kendall Island Migratory Bird Sanctuary and around the Mallik Bay area.	50

APPENDICES

APPENDIX A

PUBLIC NOTICE OF REFERRAL DATED AT INUVIK, NORTHWEST TERRITORIES
22 NOVEMBER 1999

APPENDIX B

LIST OF REGISTERED PARTICIPANTS

APPENDIX C

NOTICE OF PUBLIC WORKSHOPS IN INUVIK AND AKLAVIK

APPENDIX D

NOTICE OF PUBLIC WORKSHOPS IN INUVIK AND AKLAVIK(RESCHEDULED)

APPENDIX E

NOTICE OF PUBLIC WORKSHOP IN TUKTOYAKTUK

APPENDIX F

HEARING ORDER

APPENDIX G

ORDER OF EVENTS FOR PUBLIC HEARING

APPENDIX H

ATTENDEES AT THE PUBLIC HEARING

APPENDIX I

LIST OF EXHIBITS FROM THE PUBLIC HEARING

APPENDIX J

LIST OF PRESENTATIONS FROM THE PUBLIC HEARING

PUBLIC REVIEW
of
KUÑÑEK RESOURCE DEVELOPMENT CORPORATION'S
“REVITALIZATION OF THE WESTERN ARCTIC REINDEER HERD” PROPOSAL

PANEL'S FINDINGS

Subsequent to a referral from the Environmental Impact Screening Committee on 18 November 1999, the Environmental Impact Review Board initiated a public review of Kuññek Resource Development Corporation's proposed development known as “Revitalization of the Western Arctic Reindeer Herd”. A summary of the recommendations made by a Panel of Environmental Impact Review Board members, including terms and conditions are set out below. The Environmental Impact Review Board and Panel's mandate, a summary of the development under consideration, and the Panel's reasons for reaching its decision are presented in the main body of the report.

Recommendations

In regard to its responsibilities as set out in the *Inuvialuit Final Agreement*, the Environmental Impact Review Board's by-laws and *Operating Procedures*, the Panel recommends to the Minister of Indian Affairs and Northern Development and the Inuvialuit Land Administration that the project proceeds with the following terms and conditions, most of which will form part of the proponent's Reindeer Grazing License (Department of Indian Affairs and Northern Development) and Reindeer Grazing Permit (Inuvialuit Land Administration).

Terms and Conditions

[Note: Sub-headings correspond to the sections of this document from which the terms and conditions were extracted]

Nature of Application to the EIRB (subsection 3.2)

1. The Panel recommends that the Minister of Indian Affairs and Northern Development and the Inuvialuit Land Administration should require Kuññek Resource Development Corporation's operations to be restricted to the areas shown in Figure 1 of this document and any expansion beyond these areas should be subject to the appropriate regulatory processes.

DIAND's NWT Reindeer Regulations (subsection 14.2)

2. The Panel is of the opinion that a Reindeer Grazing License is required from the Minister of Indian Affairs and Northern Development for the development, and the Panel recommends it as the most appropriate legal instrument for incorporating most of the recommended terms and conditions and believes in many cases it is the only instrument to do so.

Interference with Harvesting (subsection 5.2)

3. In order to monitor the degree and extent of any impact on harvesting, the Panel recommends that the Reindeer Grazing License issued by the Minister of Indian Affairs and Northern Development and the Reindeer Grazing Permit issued by the Inuvialuit Land Administration for this development should be for five years only and that Kuññek Resource Development Corporation must reapply for renewal of these approvals before the end of the five year period.
4. The Panel recommends that the Department of Indian Affairs and Northern Development, upon issuance of approvals, should form an advisory group with representatives from the Department of Indian Affairs and Northern Development, Kuññek Resource Development Corporation, the Department of Resources, Wildlife and Economic Development, the Wildlife Management Advisory Council (Northwest Territories) and the Tuktoyaktuk and Inuvik Hunters and Trappers Committees to monitor impacts on harvesting and degradation of the range (see section 7.0) and to identify emerging issues and suggest solutions.
5. The Panel recommends that the Inuvialuit Land Administration and the Minister of Indian Affairs and Northern Development provide the option in the Reindeer Grazing Permit and Reindeer Grazing License respectively which would allow Kuññek Resource Development Corporation on one-year notice to move the reindeer herd back to its present range on the Tuktoyaktuk Peninsula should the advisory group determine that the development is having significant negative impacts on harvesting.
6. The Panel recommends that Kuññek Resource Development Corporation should be required to have, as a condition of its Reindeer Grazing License (Department of Indian Affairs and Northern Development) and Reindeer Grazing Permit (Inuvialuit Land Administration) a Management Plan to deal with interference with harvesting.
7. The Panel notes that the work plan in the *Co-Management Plan for the Cape Bathurst, Bluenose-West and Bluenose-East Caribou Herds* has various action items related to studies on caribou/reindeer interactions for the years 2000/2001 to 2003/2004, and the Panel feels that a better understanding of these interactions would minimize potential impacts in the future. The Panel recommends the Department of Resources, Wildlife and Economic Development undertake these studies so that the results regarding caribou/reindeer interactions can be used, if and when Kuññek Resource Development Corporation renews its Reindeer Grazing License (Department of Indian Affairs and Northern Development) and Reindeer Grazing Permit (Inuvialuit Land Administration).
8. The Panel recommends that Kuññek Resource Development Corporation should not attempt to recruit the existing caribou or reindeer on northern Richards Island into the reindeer herd. Further, the Panel recommends that Kuññek Resource Development Corporation's operations not interfere with the harvesting of these animals.

9. The Panel recommends that Kuññek Resource Development Corporation should enter into an agreement with the Inuvik and Tuktoyaktuk Hunters and Trappers Committees and the Inuvialuit Game Council regarding what harvesting activities, if any, Kuññek Resource Development Corporation employees would be permitted to undertake while on duty.
10. The Panel recommends that on the matter of advising hunters of the locations of bears, wolves or any other wildlife, Kuññek Resource Development Corporation should consult with the Inuvik and Tuktoyaktuk Hunters and Trappers Committees, the Inuvialuit Game Council and the Department of Resources, Wildlife and Economic Development to reach an agreement regarding how this could be implemented.
11. The Panel recommends that Kuññek Resource Development Corporation should consult with the Tuktoyaktuk and Inuvik Hunters and Trappers Committees prior to moving the reindeer regarding an appropriate time and route for relocating the herd from its current location.

Possible Increase in Problem Wildlife Kills (subsection 6.2)

12. The Panel recommends that Kuññek Resource Development Corporation should finalize a Wildlife Compensation Agreement with the Inuvialuit Game Council prior to approval of this project by the Minister of Indian Affairs and Northern Development and the Inuvialuit Land Administration.
13. Based on prices of \$8500 (\$5500US) for grizzly bear, \$500 for wolf and \$450 for wolverine, the Panel recommends that Kuññek Resource Development Corporation should maintain a letter of credit in favour of the Inuvialuit Game Council in the amount of \$11 000 to cover potential wildlife loses of one grizzly bear, two wolves and three wolverines.
14. To ensure that Kuññek Resource Development Corporation's policy for dealing with problem wildlife is clear to all parties, the Panel recommends that as a condition of the Reindeer Grazing License (Department of Indian Affairs and Northern Development) and Reindeer Grazing Permit (Inuvialuit Land Administration), Kuññek Resource Development Corporation should be required to consult with the advisory group formed under subsection 5.2 of this document, and then submit for approval, a contingency plan for dealing with problem wildlife conflicts.

Degradation of the Range (subsection 7.2)

15. The Panel recommends that Kuññek Resource Development Corporation undertakes a range study involving the following three components: 1) carrying capacity estimate; 2) exclusion plot monitoring; and 3) quantitative index ranking of habitat use (as outlined in the table on page 107 of the Environmental Impact Statement).

16. The Panel recommends that if the proponent wishes to expand its operations beyond the areas indicated in the Environmental Impact Statement, the area for the range study should be the entire Mackenzie Delta Reindeer Grazing Reserve that is within the Inuvialuit Settlement Region, and it should monitor the recovery of the current range of the reindeer on the Tuktoyaktuk Peninsula.
17. The Panel recommends that the advisory group formed in subsection 5.2 of this document should also oversee the range study design.
18. The Panel recommends that the Inuvialuit Land Administration and the Minister of Department of Indian Affairs and Northern Development provide the option in the Reindeer Grazing Permit and Reindeer Grazing License respectively which would allow Kuññek Resource Development Corporation on one-year notice to move the reindeer herd back to its present range on the Tuktoyaktuk Peninsula should the advisory group determine that the range is being significantly degraded by Kuññek Resource Development Corporation's reindeer.
19. The Panel recommends that the range study results should be used during renewals of the Reindeer Grazing License (Department of Indian Affairs and Northern Development) and Reindeer Grazing Permit (Inuvialuit Land Administration) to determine if there are significant impacts on the caribou herd or on the range.
20. In order to further reduce the likelihood of range degradation, the Panel recommends that Kuññek Resource Development Corporation should maintain the size of the herd below 10 000 wintering and 12 000 summering head.
21. The Panel recommends that the first component of the range study, the carrying capacity estimate, should be done as soon as possible.
22. The Panel recommends that the advisory group oversees the carrying capacity estimate, but that the estimate is done by an independent organization.
23. The Panel recommends the following be undertaken as part of the carrying capacity estimate: 1) an estimate using methodology similar to Sims' (1983) carrying capacity estimate; and 2) a review of the status of the proposed summer range using Very High Resolution Radiometer - Normalized Difference Vegetation Index (VHRR NDVI) satellite imagery.
24. The Panel recommends that the carrying capacity estimate should be funded equally by the Department of Indian Affairs and Northern Development, the Department of Resources, Wildlife and Economic Development and Kuññek Resource Development Corporation.

25. The Panel recommends that Kuññek Resource Development Corporation should undertake the second and third components of the range study involving exclusion plot monitoring and quantitative index ranking of habitat use with input and guidance from the advisory group regarding the design of the programs, e.g. the placement of exclusion plots. Further, the Panel recommends that Kuññek Resource Development Corporation reports the results of these programs annually to the advisory group, including the productivity and size of the reindeer herd.

Damage to the Kendall Island Migratory Bird Sanctuary (subsection 9.2)

26. The Panel recommends that the Minister of Indian Affairs and Northern Development should require Kuññek Resource Development Corporation to maintain a 5-km no-reindeer buffer zone along the eastern boundary of the Kendall Island Migratory Bird Sanctuary and a buffer zone around the Mallik Bay area, as illustrated in Figure 2 of this document, during the period of use by migratory birds.
27. The Panel recommends that the Minister of Indian Affairs and Northern Development should require Kuññek Resource Development Corporation to develop a contingency plan, acceptable to the Canadian Wildlife Service, that outlines the manner in which reindeer would be removed should they enter the Kendall Island Migratory Bird Sanctuary or the buffer zone.

Interactions between Caribou and Reindeer - Disease and Genetic Mixing (subsection 10.2)

28. The Panel recommends that the Minister of Indian Affairs and Northern Development should require Kuññek Resource Development Corporation to monitor the health of the herd for brucellosis on an annual basis.

Cumulative Effects (subsection 11.2)

29. The Panel is aware of several initiatives in the N.W.T related to cumulative effects, namely, the Cumulative Impacts Monitoring Program (CIMP) and the N.W.T. Cumulative Effects Assessment and Management Framework (CEAMF). The Panel recommends that the federal government, through the Department of Indian Affairs and Northern Development, funds these important initiatives, and that the N.W.T. CEAMF Steering Committee and the CIMP Working Group develop and implement appropriate monitoring and management programs and thresholds, so that the cumulative effects of this project can be better assessed in the future.

Abandonment and Reclamation (subsection 13.2)

30. The Panel recommends that the Minister of Indian Affairs and Northern Development should require Kuññek Resource Development Corporation to post a letter of credit, a guarantee or an indemnity bond in the amount of \$30 000 to cover land restoration costs that may arise as a result of the development.

Other Issues (section 14.0)

31. The Panel recommends that the standard conditions on permits and leases governing the protection of heritage sites should be included to the Reindeer Grazing License (Department of Indian Affairs and Northern Development) and the Reindeer Grazing Permit (Inuvialuit Land Administration).

1.0 THE PUBLIC REVIEW

1.1 Establishment of the Environmental Impact Review Board

The *Inuvialuit Final Agreement* (IFA), dated June 5, 1984, settled the land claim of the Inuvialuit in the Western Arctic Region of Canada. This Agreement was "approved, given effect and declared valid" by subsection 3(1) of the *Western Arctic (Inuvialuit) Claims Settlement Act*, being Chapter 24, 32-33, Elizabeth II of the Statutes of Canada.

The Act further provided in subsection 3(2) that the beneficiaries under the IFA "shall have the rights, privileges and benefits set out in the Agreement", and in section 4 that the provisions of the Act and of the IFA will prevail over any other law applying to the Territory in the event of inconsistency or conflict.

Being a land claims settlement within the meaning of section 35 of the *Constitution Act, 1982*, the IFA is thereby affirmed as an existing aboriginal right. In consequence of these statutory provisions, the terms of the IFA are given a preferred status over all other federal and territorial laws within the defined Inuvialuit Settlement Region (ISR) in the Western Arctic.

This IFA is the basis of the Environmental Impact Review Board (EIRB) mandate to the review of Kuñnek Resource Development Corporation's (KRDC) "Revitalization of the Western Arctic Reindeer Herd" proposal (the Development).

1.2 Mandate of the EIRB

Under the IFA the Development is a "development" within the meaning of section 2 and, as such, was subject to screening by the Environmental Impact Screening Committee (EISC), pursuant to the provisions of sections 11 and 13 of the IFA. IFA Subsection 11(16) authorizes the EISC to refer the development to the EIRB for a public review and environmental impact assessment if the EISC determines that the development could have significant negative environmental impact, or negative impact on present or future wildlife harvesting.

On 16 November 1999 the EISC Panel, constituted to screen KRDC's Development decided that *"the development could have significant negative environmental impact and is subject to assessment and review under the IFA"*. Dr. Tom Beck, Chairman of the EISC, informed Robert Hornal, Chairman of the EIRB, of the EISC Panel's decision in a letter dated 18 November 1999, which was accompanied by enclosures, including the original referral of KRDC's Development from the Inuvialuit Land Administration.

1.3 Procedures of the EIRB

The EIRB has enacted By-Law No. 1 and published its *Operating Procedures* dated 30 October 1997 pursuant to the powers given to it by subsection 11(23) of the IFA to establish and adopt by-laws and rules for its internal management and procedures. Together with the IFA, these documents contain the rules and guidelines that constitute the procedures of the EIRB.

The *Operating Procedures* permit the EIRB, at its discretion, to determine whether the proposed development may be treated as a "Small Scale Development" or as a development requiring a "Standard Public Review". At a meeting held 19 November 1999, the EIRB decided that the

KRDC's Development should undergo a "Standard Public Review" because the development was not of limited spatial extent, nor likely to have short term impacts.

The *Operating Procedures* call for the Chairman to designate a Panel to conduct a public review once the proponent has submitted an Environmental Impact Statement (EIS) suitable for review. A Panel normally consists of the Chairman, two Inuvialuit Game Council (IGC) appointees and two appointees of Canada.

1.4 Appointment of the Review Panel

On 15 June 2000, the EIRB accepted an EIS as suitable for the purposes of the public review pending the completion of an errata addendum, and the Chairman appointed the following Members to the Review Panel:

Robert Hornal	Chairman
Jack Akhiatak	
Peter Bannon	
Tom Butters	
Herbert Felix	

Once designated, the Panel conducts the Public Review and represents the EIRB for the purposes of the Review.

1.5 Decision Making Powers of the EIRB

Under subsection 11(24) of the IFA, the EIRB is required, once the Public Review has been conducted, to render expeditiously a decision as to whether on the basis of the evidence and information before it, a development may proceed. If the EIRB decides that a development may proceed, it must make recommendations as to terms and conditions that should apply to the development, including mitigative and remedial measures.

The Decision containing the recommendations of the EIRB must be transmitted to the government authority competent to authorize the development [IFA subsection 11(27)]. If provisions for compensation for loss or damage to wildlife, or wildlife harvesting activities are deemed necessary, the EIRB must also provide "worst case scenario" estimates of potential liability [IFA subsection 13(11) (b)]. If the competent government authority is unwilling or unable to accept the recommendations of the EIRB, or wishes to modify any of them, reasons must be provided in writing within 30 days of the decision [IFA subsection 11(29)]. The Decision of the competent government authority must be sent to all interested parties and be made public.

No licence or approval shall be issued by the competent government authority permitting any proposed development to proceed unless the provisions of the Environmental Impact Screening and Review Process under the IFA have been complied with [IFA subsection 11(31)].

1.6 Initiating the Public Review

In accordance with subsection 12.4 of the *Operating Procedures*, the Secretary to the EIRB published a Public Notice of Referral dated 22 November 1999 in regional newspapers

(Appendix A). The notice announced the referral of KRDC's Development to the EIRB and encouraged individuals and/or organizations to become Registered Participants. A list of Registered Participants is provided in Appendix B. The Secretary distributed all documents submitted by KRDC and all written comments from Registered Participants to all other parties and Registered Participants.

The EIRB retained Dr. Robert White as the Technical Advisor and Debra Fendrick of Austring, Fendrick, Fairman & Parkkari as Legal Counsel. Dr. Robert White has expertise in both caribou and reindeer biology, and was the Director at the Arctic Institute of Biology and a Professor of Zoophysiology and Nutrition at the Department of Biology and Wildlife at the University of Alaska Fairbanks.

In addition, the Joint Secretariat, which provided administrative services to the Panel, hired Eric Chernoff as the Environmental Impact Assessment - Resource Person (EIA-RP), and Lisa Beattie as the Procedures Clerk. These individuals, along with Linda Graf, EIRB Secretary, made up the Panel's Secretariat for the public review.

1.7 The Review Process

In accordance with the *Operating Procedures*, KRDC submitted an EIS outline to the EIRB on 15 December 1999. The Panel's Secretariat circulated the EIS outline to Registered Participants for comment. Environment Canada submitted comments, and those, together with the comments of the EIRB were circulated. The Secretariat informed KRDC that it could submit a draft EIS incorporating the suggested changes at its convenience.

KRDC submitted a draft EIS on 28 February 2000. Registered Participants were asked to provide comments on the document by 31 March 2000. In accordance with subsection 15.4.1 of the *Operating Procedures*, the EIRB extended the period for comments on the draft EIS until 10 April 2000 following a request for a variation of procedures from Ranjit Soniassy of the Department of Indian Affairs and Northern Development (DIAND).

The Secretariat published Public Notices in regional newspapers, and on local radio and television stations announcing that the EIRB would host Public Workshops in Aklavik, Inuvik and Tuktoyaktuk in the Northwest Territories (Appendices C-E). The EIRB held the Public Workshops to provide the public with the opportunity to comment on the Development. It believed that the general public might not be able to travel from Aklavik or Tuktoyaktuk to attend the Public Hearing, or might be at their whaling or fishing camps at the time of the Public Hearing.

The Public Workshops were held at Ingamo Hall in Inuvik on 3 May 2000, in the David "Buck" Storr Office Complex in Aklavik on 11 May 2000 and at the Tuktoyaktuk Hamlet Chambers on 14 June 2000. The Secretariat produced and distributed reports for each of the Public Workshops.

The EIRB also conducted a *Special Investigation*, in accordance with subsection 15.4.6 of the *Operating Procedures*, to seek information about reindeer herding techniques. Several former reindeer herders were interviewed from 10-15 May 2000 concerning their experiences herding in the Mackenzie Delta Region. Subsequently, the Secretariat produced and distributed a report titled *Interviews of Former Reindeer Herders*.

At a meeting held 15 June 2000, the EIRB considered and accepted the revised EIS submitted by KRDC as suitable for the purposes of the public review pending the completion of an errata addendum. In addition, a Panel was chosen by the EIRB Chairman to conduct the review.

Subsequent to circulating a proposed Hearing Order and Order of Events and not receiving any comments, the EIRB published a Hearing Order (Appendix F) 6 July 2000 that established a schedule for exchanging written evidence and questions of clarification in the time leading up to the hearing. Written evidence or questions of clarification that were submitted to the EIRB were circulated.

The Public Hearing was held in Inuvik from 5-7 September 2000. The actual order of events for the hearing, and lists of attendees, exhibits and presentations are appended (Appendices G - J, respectively).

Documents associated with the review are on the public record and may be examined during business hours at the office of the Joint Secretariat 107 Mackenzie Road, Inuvik, Northwest Territories.

2.0 PROJECT DESCRIPTION

2.1 Overall Plan

The plan that is outlined below summarizes KRDC's proposed reindeer operation. KRDC does not presently own the reindeer, but manages it on behalf of Canadian Reindeer Limited (CRL). KRDC intends to purchase the herd from CRL.

KRDC's proposed Development can be divided into three main components:

- i) relocating an existing reindeer herd from the Tuktoyaktuk Peninsula to a summer range on Richards Island and winter range in an area generally between Inuvik and Tuktoyaktuk (Figure 1) (areas historically used for reindeer herding);
- ii) increasing the size of the herd from approximately 6500 to a maximum of 10 000 wintering and 12 000 summering reindeer; and,
- iii) harvesting antlers.

KRDC proposes to move the herd, during a two to four week period in November 2000, from its current location near Indian Lake on the Tuktoyaktuk Peninsula to an area close to Jimmy Lake. KRDC would follow a route along the west shores of Husky Lakes, and given sufficient ice-thickness, would move the herd across the ice.

In May 2000, KRDC indicated that the size of the reindeer herd, before calving, was approximately 5000 reindeer. At that time, the company envisioned the herd growing to 12 000 by the summer of 2002. At the public hearing, KRDC indicated the size of the herd following the present year's calving was approximately 6200 head, and the maximum projected herd size by 2005 would be approximately 9500. KRDC proposes to cull the herd by up to 1000 animals annually so it does not exceed 10 000 wintering and 12 000 summering head, using the meat for personal and corporate consumption only.

Herding operations in the winter would be based out of a trailer at Jimmy Lake. Reindeer calving would occur either on Richards Island or on the mainland, depending on circumstances such as weather and calving dates. In spring the herd would be moved towards Swimming Point to cross the ice onto Richards Island.

The herd would be rounded up for antler harvesting and treatment of disease in mid-June at Swimming Point. KRDC would co-use an existing camp at Swimming Point, but would build a corral and handling facility.

Following round-up, the herd would be moved to the northern end of Richards Island. During this period, KRDC's herders would use a tent frame at Denis High Hill and an abandoned wood-frame building at Kidluit Bay for accommodations. The herd would be brought back to Swimming Point and taken across to the mainland in September.

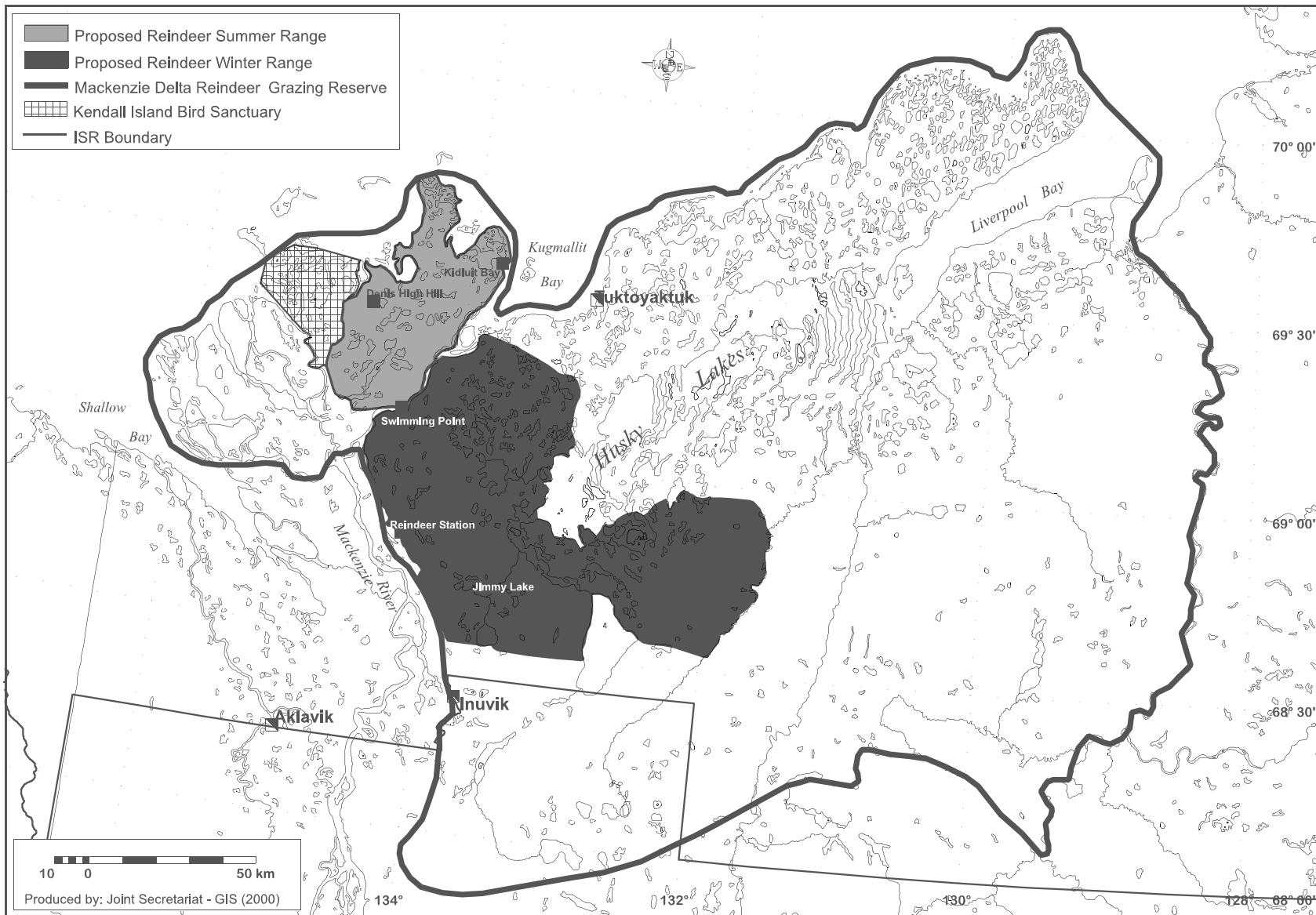


Figure 1. Approximate locations of KRDC's proposed summering and wintering ranges.

Herding would be done primarily by snowmachine in winter and on foot in the summer. Boats may be used to position the herders on Richards Island during the summer, and herding dogs may be used throughout the year. The amount of time spent with the herd would vary depending on the circumstance. The herd would be intensely monitored and moved throughout the winter range in an attempt to avoid Cape Bathurst and Bluenose-West caribou. During fawning, when predation is most likely, there would be close to 24-hour surveillance.

KRDC would avoid any large group of caribou. KRDC would place ear tags, bells, reflective collars and possibly radio collars on the reindeer to enable the public to distinguish between reindeer and caribou, and to assist herders in keeping the reindeer separate from the caribou.

All predators would be deterred from the herd and herder camps. Predators, including grizzly bears, would be killed to protect human life and property.

To monitor the condition of the range, KRDC proposed to place exclusion plots on the proposed ranges. In addition, information on trampling effects, fecal abundance, damage to lichens, vascular plant status and browsing signs would be recorded by herders to develop an index for determining over-grazed areas. This information would be incorporated into a geographical information system range monitoring program, once it became operational.

KRDC would hold annual meetings with pertinent regulatory agencies and community organizations. KRDC would provide management plans and annual reports on range conditions to the Hunters and Trappers Committees (HTCs), the IGC and other interested individuals or organizations.

2.2 Project Rationale

KRDC believed that the reindeer herd is not an economically viable business for the current owners because the herd size is too small, it is located too far from its operational base in Tuktoyaktuk, and there is dispute over land-use with the land-management authorities established under the IFA.

KRDC believed the herd size could be increased if the herd were moved from the Tuktoyaktuk Peninsula to better foraging areas. KRDC also believed that increased surveillance would decrease predation on the herd and reduce the number of reindeer that join the Bluenose-West and Cape Bathurst caribou herds.

KRDC believed that its proposed activities would provide economic benefit and employment opportunities for the Inuvialuit. According to the EIS, the Development would provide three person-years of employment in the first year of operation, increasing thereafter by 1/4 person-years annually. KRDC indicated that additional employment for up to 20 people may be provided for approximately one week in June during roundup activities. KRDC also stated that its Development would benefit the Inuvialuit through access to the company's shelters within the range, a safety support network system and an elders meat supply program.

KRDC believed the proposed Development is an environmentally sustainable industry and that the long term economic viability of its project depends on environmentally sound management of the range.

3.0 NATURE OF APPLICATION TO THE EIRB

This is the fourth development referred to the EIRB that has proceeded through the public review process since it was established in 1985. Over the course of this public review, there arose discussion, which is presented below, as to what was the scope of the proposed Development.

3.1 Views of the Proponent and Registered Participants

3.1.1 Views of the Proponent

KRDC indicated that there are two different phases to the enterprise. KRDC indicated that Phase I is the only phase that it was prepared to place before the EIRB at this time. It involves relocating and increasing the size of an existing reindeer herd, and harvesting antlers. The company indicated that Phase I will establish an economically viable business and provide a stable framework for the expanded and diversified operations of Phase II. KRDC suggested that Phase II would likely involve meat production, as well as tourism operations, and it would be presented for regulatory approval at a later date.

At the public hearing, KRDC suggested that Phase I, the project currently being reviewed, could be a stand-alone project. With a modest increase in herd size and the present and projected antler prices, the company believed that Phase I would be economically viable without revenue from meat sales or tourism enterprises. To support this, KRDC presented a budget that suggested it could achieve viability and remain viable based on antler sales as the sole source of revenue. KRDC stated that Phase II may or may not happen, and Phase I could operate indefinitely, independent of Phase II.

3.1.2 Views of the Registered Participants

Several participants in the review asserted that the EIRB should have considered Phase II of the proposed project during the review, rather than just Phase I.

The Wildlife Management Advisory Council (Northwest Territories) [WMAC(NWT)] is of the opinion that such project splitting is contrary to contemporary environmental review procedure. It believed that Phase II (meat production, tourism activities) would potentially have a far greater impact on wildlife resources. WMAC(NWT) also suggested that if the project is ultimately non-viable without Phase II, then there is some question about the utility of reviewing Phase I only.

The Gwich'in Renewable Resource Board (GRRB) also suggested that the consideration of only Phase I, rather than Phases I and II, is contrary to the spirit of environmental assessment. The GRRB believed that Phase II is not a stand-alone project, and it has its own suite of potential impacts that may be measured based on Phase I.

Environment Canada stated that in restricting the review to solely Phase I of the project, the EIRB is disregarding elements found in Phase II of the project that are predicated on the success of Phase I. Environment Canada also stated that since matters, such as the slaughter of 2000 animals, relate to the overall long-term viability and environmental sustainability of the project, the agency is of the opinion that these matters would best be considered at the early stages of such a Development.

The Department of Resources, Wildlife and Economic Development (RWED) noted that it is not clear what the scope of Phase II would be or if Phase II is integral to the long term success of the project. RWED believed that environmental assessment processes need to be as comprehensive as possible and consider as many aspects of a proposed development as possible. It suggested that in order to have a complete understanding of the potential impacts of the Development the full scope of the project needs to be considered.

DIAND believed that Phase I and II are clearly linked since Phase II can only happen if Phase I proceeds. DIAND was of the opinion that the likelihood of significant adverse environmental effects from Phase II may be low, but that considerations, such as water use, may come into play and need to be addressed.

DIAND stated that it had made an assumption that meat production during Phase II of the project would provide the long term revenue that would allow the project to remain economically viable. In response to comments made by KRDC at the hearing, DIAND requested and received evidence from the proponent that Phase I could be a stand-alone project (Appendix I, Exhibit 4).

3.2 Views of the Panel

The Panel notes that Phase I is the proposed Development that was referred to the EIRB by the EISC, and the Panel believes Phase I is the only application that it should consider. The Panel also notes that the project was referred because of concerns relating to certain issues, e.g. interference with caribou harvesting, and the Panel believes that it has adequately considered all of the issues identified by the EISC. Further, the Panel notes that the referral is for a project with a defined description, and the Panel believes that there is currently not enough data available to evaluate anything beyond what was referred to it by the EISC.

In addition to the comments outlined above in subsection 3.2 suggesting that the Panel should assess both Phase I and II, DIAND made a similar suggestion at the hearing. The Panel acknowledged DIAND's suggestion and asked DIAND if it objected to the hearing proceeding on the basis of a review of Phase I only. DIAND did not object to the EIRB continuing with its review of Phase I only. The Panel provided the opportunity to other participants at the hearing regarding objections to the hearing proceeding with a review of Phase I only but did not receive any other objections. Accordingly, the Panel proceeded with the hearing and review on Phase I only of the Development.

The Panel notes that according to the information presented by KRDC at the hearing, the revenue generated through antler harvesting makes Phase I an economically viable venture that is not dependent on Phase II. Under subsection 14.3.3 of the EIRB's *Operating Procedures*, the Panel is authorized to take into consideration changes in the proposal discussed during the public review. The Panel therefore did not consider any aspects of Phase II as part of this environmental review and the Panel is confident that Phase II will be carefully scrutinized by the appropriate responsible authorities, should it proceed.

The Panel notes that KRDC suggested at the hearing that following relocation from its current location, the company would not necessarily restrict its operations to the wintering and summering areas shown in Figure 1 of this document. **As previous documentation did not include this possibility, the Panel recommends that the Minister of DIAND and the ILA should require KRDC's operations to be restricted to the areas shown in Figure 1 of this**

document and any expansion beyond these areas should be subject to the appropriate regulatory processes.

4.0 JURISDICTION OF THE EIRB

4.1 Decision-Making Powers of the EIRB

In reaching its decision on any proposal properly brought before it, the matters which the EIRB must decide are set out in the IFA. IFA subsection 13(11) says:

"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."

Liability for damage is defined in IFA subsection 13 (15) which in part reads:

"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..."

Where "actual wildlife harvest loss" means:

"provable loss or diminution of wildlife harvesting, or damage to property used in harvesting wildlife, or both" , and

"future harvest loss" means:

"provable damage to habitat or disruption of harvestable wildlife having a foreseeable negative impact on future wildlife harvesting" [IFA subsection 13(8)].

At the conclusion of any public review, the alternative decisions which are open to the EIRB are prescribed by IFA subsection 11(24), which reads:

"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."

To clarify the EIRB's decision-making powers - the EIRB *recommends* whether or not the development should proceed. However, the final decision always rests with the appropriate governmental authority. In certain cases, more than one such authority may be involved.

If the competent government authority is unwilling or unable to accept the recommendations of the EIRB, or wishes to modify any of them, reasons must be made public in writing within 30 days of the Decision [IFA subsection 11(29)]. Nevertheless the IFA provides that no licence or approval shall be issued by a government authority that would permit any proposed development to proceed unless the provisions of the Environmental Impact Screening and Review Process under the IFA have been complied with [IFA subsection 11(31)].

4.2 The EIRB's Interpretation of its Mandate

Subsection 4.1 of this document describes the decision-making powers of the EIRB. They require that the EIRB approve or reject the development and, if approval is given, prescribe terms and conditions on which it may proceed.

In particular, IFA subsection 13(11)(a) requires the EIRB to specify terms and conditions that it considers necessary to minimize any negative impacts on wildlife harvesting and IFA subsection 13(11)(b) requires it to provide an estimate of the potential liability of the developer.

These requirements are intended to fulfil the objectives set forth in IFA subsection 13(1), namely:

- (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 it 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 EIRB notes the order in which these objectives are stated. Clearly the intention is that priority be given to preventing damage and avoiding disruption of harvesting. Paragraph (b) is intended to apply to provide compensation only if mitigative and remedial measures fail to prevent damage and disruption.

The EIRB interprets its mandate to mean that its first responsibility is to assess whether the potential adverse impacts of a development on wildlife and its habitat are within acceptable limits of risk. If the EIRB concludes that such risks are not acceptable, it must reject the application. If it considers that the risks are acceptable, the EIRB must specify terms and conditions that, so far as practicable, will mitigate and remedy the damage and disruption. Finally, as a last resort, compensation may be payable for cleanup and restoration costs and for loss of wildlife harvesting by reason of the legal liability provisions of IFA subsection 13(15) of the IFA. In this event, the EIRB is required to estimate the potential liability of the developer.

4.3 Assessment of Risk

When assessing impacts of KRDC's Development, the Panel evaluated the severity of each of the issues based on the evidence presented over the course of the Public Review. Given the mitigative and remedial measures that it would recommend for the Development, the Panel judged whether the negative impacts of any of the issues, individually or collectively, were within acceptable levels of risk.

In deciding whether the risks associated with a development are acceptable, the EIRB must apply some standard or test, the results of which the EIRB can use to approve or reject the development. With respect to the estimate of potential liability, the IFA says that the test by which liability should be measured should be a "worst case scenario" [IFA subsection 13(11)(b)]. However, as to the more fundamental question of approval or rejection of the development proposal, the IFA is silent as to what test should be applied.

In the Kulluk review, the EIRB considered a *probable scenario* as a legitimate test by which to judge whether negative impacts can be minimized to acceptable levels by mitigative and remedial measures. The result is a less stringent test than the worst case scenario and this approach is adopted by the Panel for the purpose of this review.

The less stringent standard says that development risks are acceptable where the more probable scenario establishes that negative impacts can be minimized. Just to be sure, should the worst case scenario occur, there would be in place a guarantee of financial responsibility to ensure that everything possible would be done to mitigate losses to, and to restore wildlife and wildlife habitat.

5.0 INTERFERENCE WITH HARVESTING

5.1 Views of the Proponent, Registered Participants, Public and Technical Advisor

KRDC believed that its operations would not interfere significantly with caribou and caribou harvesting. Several members of the public and organizations, including IGC, WMAC(NWT), RWED and GRRB believed that the proposed operations could affect wildlife and/or wildlife harvesting. The primary concern raised was that KRDC's proposed operations would interfere with caribou and caribou harvesting.

5.1.1 Number of Caribou and Number of Caribou Harvested in KRDC's Proposed Ranges

5.1.1.1 Views of the Proponent

KRDC stated that the Bluenose [Cape Bathurst] caribou migrate into the company's proposed winter range in late September, and migrate northeast back to their calving grounds on Cape Bathurst in late May. KRDC believed that there are not many of the Bluenose-West or Cape Bathurst caribou that will range as far west as KRDC's proposed operations. KRDC stated that contrary to the RWED's beliefs, harvesters have indicated that there have not been 16 000 caribou in KRDC's proposed wintering area.

KRDC also stated that according to ten years of data from the Inuvialuit Harvest Study, there is adequate space for both reindeer and caribou to exist within the proposed ranges, especially from April to September-October when the caribou have left the area. KRDC believed there are an insignificant number of caribou that use parts of the proposed range throughout the year.

KRDC believed the greatest likelihood that caribou and reindeer mixing would occur would be during spring and fall. In the fall, KRDC stated, the caribou would be moving towards Husky Lakes from the east, while the reindeer would be in the area between Parsons Lake and the Mackenzie River. KRDC claimed the caribou and reindeer would be no closer than 60 km at that time. In Spring, KRDC stated that the reindeer will be herded towards Richards Island and the caribou will be mainly southeast of Husky Lakes. KRDC indicated that at this time the herders would be positioned between the reindeer and caribou to ensure that reindeer do not move east.

5.1.1.2 Views of the Registered Participants and Public

At the Public Hearing, RWED presented information on the movements of satellite-collared caribou from the Bluenose-West and Cape Bathurst herds. RWED felt the information it presented showed that KRDC's proposed wintering range is an important wintering area for the Cape Bathurst herd and a limited number of Bluenose-West caribou. KRDC believed that RWED's satellite-collar maps are misleading since they represent multiple years of data, and a single years data may show that there is adequate area for both caribou and reindeer. RWED responded that in addition to the satellite-collar data, harvesting information and radio-collar information also suggest that the major wintering area for the Cape Bathurst herd is in the same location as KRDC's proposed winter range.

KRDC questioned the validity of RWED's satellite-collar data on another occasion, noting that it wrongfully suggests that caribou do not use the Tuktoyaktuk Peninsula. KRDC believed

RWED's distributions do not show that caribou use the peninsula because none of the caribou were collared in that area and they are therefore not returning to the area.

The IGC suggested that in addition to scientific knowledge, traditional knowledge also indicates that KRDC's proposed operations overlaps the very western portion of the Bluenose caribou herds' ranges. At the Public Workshops several individuals indicated that caribou winter in the same areas as KRDC's proposed wintering areas. For example, a resident of Aklavik suggested the area in the treeline around 500-Lakes is an important wintering area for caribou. KRDC responded that although it is difficult to predict exactly where the reindeer will be located at any given time, the company does not anticipate using the 500-Lakes area. KRDC explained that area was included in its proposed wintering area in case it was needed during movement of the herd from one location to another.

Comments were made at the Public Workshops suggesting that in addition to the main caribou herds in KRDC's proposed wintering areas, there are small groups of caribou that use various portions of KRDC's proposed summering areas. A resident of Aklavik mentioned that there were caribou that moved between Richards Island and Toker or Warren Point. A resident of Inuvik expressed concern that the proposed reindeer operations may affect the small group of caribou that he and other Inuvialuit harvest on the northern portion of Richards Island.

At the hearing, RWED reported that the combined size of the Cape Bathurst, Bluenose-West and Bluenose-East herds was approximately 122 000 animals, based on a 1992 photo census survey. However, RWED noted, that the methods used for making this estimate were flawed, and may have resulted in an underestimate of the size of the Bluenose-East Herd. RWED also reported that the size of the Cape Bathurst and Bluenose-West herds in 1992 was between 88 000 and 104 000, and there was approximately 16 000 caribou in the Cape Bathurst herd. RWED noted that the population estimates for each herd were difficult to make since it was not known that there were three separate herds at the time that the survey was performed. RWED indicated that a new photo census survey is being done and new estimates for population sizes will be completed by the fall of 2000. RWED added that when the new census is completed it may be possible to make conclusions about trends in population sizes. RWED noted that the general feeling in the communities is that the combined size of the three sub-herds has been increasing.

RWED suggested that the satellite tracking program for the Cape Bathurst and Bluenose-West caribou will continue until the collars that were deployed in 1999 expire, which will probably be in three to four years. RWED also indicated that the primary purpose of keeping the collars out is to get an idea of the annual variation in movements, migration patterns and seasonal ranges. RWED indicated that there are also currently approximately 20 Cape Bathurst and 40 Bluenose-West caribou with radio-collars, and some of the oil and gas companies have expressed interest in monitoring the movements of these animals.

Noting that KRDC suggested it would avoid any large groups of caribou in its proposed wintering range, RWED reported that there are no large groups of caribou in the area at that time of year. RWED explained that once the Cape Bathurst caribou move into their wintering areas, they spread out into small groups over the entire range. The IGC, WMAC (NWT) and a resident of Aklavik confirmed RWED's comments. The IGC stated that the caribou form small groups on their wintering range varying in size from approximately 5-200. The resident of Aklavik indicated that the caribou in the Noell Lake, Jimmy Lake, Parsons Lake areas winter in groups of approximately 20. And, WMAC (NWT) explained that once the caribou herds numbering 300-

400 head reach KRDC's proposed wintering areas they scatter and stay in the proposed wintering area all winter. RWED added that based on the analysis of satellite-collar information, the caribou are relatively stationary once they move into their winter range, moving less than 10 km per day.

Several groups and individuals at the Public Workshops have indicated that KRDC's proposed areas are frequently used for caribou harvesting. The IGC believed that the Inuvialuit Harvest Study data that was circulated as evidence for this review gives an idea about the extent that KRDC's proposed ranges are used by the Inuvialuit for wildlife harvesting. WMAC (NWT) believed that the Inuvialuit Harvest Study is an underestimate of the number of animals being harvested in the KRDC's proposed ranges, since there are a lot of people that do not report their harvesting activities.

At the hearing, the GRRB explained that some Gwich'in beneficiaries and some non-aboriginal residents from Inuvik also hunt caribou in the KRDC's proposed wintering area. The GRRB wished to include these non-Inuvialuit harvesting interests in the discussions. The IGC responded that the Gwich'in harvesting was not part of the agenda for the hearing. The IGC explained that the Inuvialuit have the exclusive right to harvest all animals within the ISR, except caribou and migratory birds, and any other harvesting that occurs within the ISR must follow the process established under the IFA. The IGC also explained that an *Overlap Agreement* has been signed with the Gwich'in that allows those who traditionally trapped within the other group's land-claim area to continue to do so, if approved jointly. The Panel indicated that it was interested in hearing from any parties that feel the proposed Development may have an impact on their harvesting.

The GRRB presented data from the Gwich'in Harvest Study on the locations and frequency of caribou harvesting by Gwich'in beneficiaries. Regarding harvesting by non-aboriginal residents, RWED reported that from 1987-1993, this group harvested an average of 132 Cape Bathurst and Bluenose-West caribou per year. RWED estimated the number of animals presently being harvested by this group has increased to approximately 150-200 caribou annually.

5.1.2 Effect of the Development on Caribou and Caribou Harvesting

5.1.2.1 Views of the Proponent

KRDC believed it would be able to maintain a good working distance from the caribou herd and sub-herds, and hunters. In the EIS, the company stated that it would avoid caribou and caribou harvesting by maintaining a distance of at least 20-25 km from caribou herds and their regularly used areas, depending on the time of year. Upon being questioned by RWED and WMAC(NWT), KRDC decided that 10-15 km would be a more realistic distance, especially during the winter time. KRDC also added that this buffer zone refers primarily to the company's concern for keeping as much distance as possible between the reindeer herd and large groups of migrating caribou in the fall.

KRDC suggested that it would not be able to avoid every caribou, only major groups. More specifically, KRDC indicated that if there were one or two caribou it would not likely move the herd, but if there were several hundred or more caribou the herd would be moved. KRDC also stated that it would keep informed about caribou locations through discussions with hunters, observations of herders and satellite collar locations.

KRDC indicated that it will cooperate with the various user-groups, including the HTC's, IGC, RWED and DIAND to help prevent any adverse effects to caribou or caribou harvesting. KRDC would communicate with hunters in the field by bush-radio or mobile telephone on a daily basis. KRDC would ensure that the herd was not taken into areas where hunters and trappers had camps, trapping areas or hunting trails, and herders would be given maps showing the locations of camps. KRDC would place postings near the herd that indicate the herd's location and its direction of movement. KRDC indicated at the hearing that copies of these postings would be sent to the HTC's, RWED and DIAND weekly or daily, if required. In the EIS, KRDC indicated that the postings would be sent bi-weekly.

KRDC believed that there is not a large community of harvesters. David Nasogaluak, Chief Herder for KRDC and CRL, indicated that most of the harvesters know the location of the herd. He also explained that in his 20 years of herding, the herders have cooperated with hunters and trappers, and there have been no hard feelings between them. Nonetheless, KRDC indicated that it would take each complaint seriously regarding interference with caribou harvesting.

KRDC expressed concern that it had been suggested the company demonstrate that separation will be maintained between the reindeer and caribou herds prior to approval being granted for the Development. KRDC wondered how it could gain experience and insight without actually moving and controlling the herd.

KRDC stated it would ask hunters to avoid harvesting caribou that were intermixed with or within approximately 1 km of the reindeer herd. KRDC also indicated that hunters may have to detour around the herd by approximately 0.5-2 km, but the company did not consider this as significant interference with harvesting. KRDC expressed concern over potential hunting of reindeer, inadvertently or otherwise, and noted that a company enforcement policy would be in place.

David Nasogaluak stated that he has found he can change the migration patterns of caribou. He also mentioned that it was easy to predict the direction of the caribou migration because the first five to ten animals tend to lead, while the others follow in a row.

KRDC explained that former herders have indicated that migrating caribou smell the tracks and trail of reindeer and they move towards the reindeer. As a result, KRDC believed the presence of reindeer will attract the caribou to the area between Inuvik and Tuktoyaktuk.

KRDC indicated that it would require more guidance from the HTCs regarding what harvesting activities, if any, would its employees be permitted to undertake. KRDC's understanding of the situation was that the HTCs did not want herders to hunt bears while on duty, but the herders would be able to continue harvesting smaller species for subsistence. KRDC indicated that it would be willing to comply and attempt to enforce the restrictions that the HTCs recommend. KRDC noted that it and CRL have not received any complaints about herders enjoying their right as Inuvialuit to harvest wildlife.

KRDC stated that it would be willing to advise hunters of the locations of bears, wolves and other predators. KRDC is aware there is concern that this might not be acceptable since it would be revealing information about the locations of animals. KRDC indicated that RWED already provides information from the satellite-collaring program about the location of wildlife.

Nonetheless, the company indicated it would take direction concerning this matter from RWED, the HTC's and the IGC.

It was suggested by a resident of Inuvik that there is a small herd of caribou who are year round residents of the northern portion of Richards Island. KRDC thought that this group of animals may be reindeer, not caribou, but indicated that it would not recruit any of the animals in question into the reindeer herd, and it would not interfere with the harvesting of these animals. However, KRDC also indicated at the hearing that if the animals in question were reindeer, they might try to join KRDC's herd on their own volition.

5.1.2.2 Views of the Registered Participants and Public

The IGC expressed concern that if an area is used beyond its capacity, caribou will not return to that area. The IGC stated that historical knowledge and practices have demonstrated that caribou and reindeer do not function well when they are both present in an area. William Day, Frank Pokiak, and other members of the public explained that the caribou herd did not frequent the area between Inuvik and Tuktoyaktuk for a long time. According to Frank Pokiak, William Day and elders that these two men have talked to, the concern is that moving the reindeer to the same area would cause the caribou to leave again and people would have to travel further to hunt caribou. A resident of Tuktoyaktuk suggested that KRDC should compensate hunters if they have to travel further to get caribou as a result of the reindeer herd being present. WMAC(NWT) believed that KRDC's proposed activities could prevent further expansion of the Cape Bathurst Caribou Herd.

RWED suggested that any activities causing the distribution of the Cape Bathurst or Bluenose-West caribou herds to change is going to directly impact harvesting activities of both people from Inuvik and Tuktoyaktuk.

The IGC requested clarification on how KRDC's proposed operations would impact the caribou's traditional migratory patterns in the Jimmy Lakes area between Inuvik and Tuktoyaktuk in January-March. The IGC explained that harvesters from Inuvik and Tuktoyaktuk do most of their harvesting in that area at that time. KRDC responded that it would watch the caribou movements and avoid the general caribou migration routes for that particular year.

Dr. White noted that the work plan in the draft *Co-Management Plan for the Cape Bathurst, Bluenose-West and Bluenose-East Caribou Herds* has various action items related to studies on caribou/reindeer interactions for the years 2000/2001 to 2003/2004. RWED explained that the plan is still in draft form and that the action items regarding caribou/reindeer interactions are included because of concerns that were raised in the communities. RWED also explained that the various co-management boards prioritize the actions every year and whether or not the action items related to caribou/reindeer interactions are undertaken will depend on which projects the boards decide to fund and how much money is available.

KRDC was questioned on several occasions about its ability to avoid interactions between reindeer and caribou.

RWED suspected it would be extremely difficult to maintain a distance of 25 km between the reindeer herd and the caribou on the winter range, especially since it is hard to see that far on snowmobiles. RWED noted that even if KRDC planned on using aerial surveillance, flying

times would be very limited due to restricted visibility in winter. RWED presented maps at the hearing that it believed illustrated the 25-km buffer zone between the caribou and reindeer is unrealistic.

RWED stated that while KRDC may be confident in its ability to control the reindeer herd, movements of the caribou herd may make keeping separation between the herds difficult. RWED recommended that the proponent be able to show that separation can be maintained between the herds.

RWED pointed out that local hunters have not found many caribou in the location where the reindeer herd has been held on the Tuktoyaktuk Peninsula, and that, rather than the herding practices have prevented inter-mixing of reindeer and caribou in the past.

WMAC (NWT) indicated that in the past the herders routinely lost 200-300 reindeer to the caribou herds, and wondered if the same problem might occur with KRDC. KRDC responded that the company is much more likely to maintain separation between the caribou and reindeer because of its tagging and collaring. DIAND suggested that statistics be kept on the loss of reindeer to caribou.

During the public review process, there have been various statements made in support of the Development. One resident from Tuktoyaktuk and one from Aklavik indicated that it was important that the reindeer industry remain viable in case the caribou leave the area again. One resident of Aklavik stated that “we need to find a place for the reindeer - they fed many people in this area for many years”.

DIAND suggested that the possibility of developing or extending current caribou protection measures to the reindeer herd be addressed.

KRDC indicated at the hearing that the reindeer were originally brought to the area to provide food for the Inuvialuit, upon the wishes of the Inuvialuit. The IGC and WMAC (NWT) responded that the Inuvialuit originally thought the reindeer were brought to the area to provide them with meat, but then they had to start to buy the meat and they could not afford it.

Regarding the harvesting activities that KRDC’s employees would be permitted to undertake, WMAC (NWT) indicated that this has been a concern for some time, but it has not known how to address the issue. WMAC (NWT) believed that it should reach an agreement with KRDC so the herders who are herding will not be able to harvest. KRDC said that would be satisfactory. WMAC(NWT) requested clarification regarding exactly when KRDC’s herders would be able to harvest, e.g. would it be after a certain time of day? KRDC responded that it will let the HTC’s decide the restrictions for when and what species can be harvested by Inuvialuit herders.

WMAC (NWT) expressed concern that all the caribou are concentrated, until January, on the route that KRDC intends to use for relocating the reindeer in November. KRDC responded that to ensure there would be no negative impacts on caribou or caribou harvesting, it would seek the input of the HTC’s and will commit to working with the Tuktoyaktuk HTC regarding an appropriate time and route for relocating the herd.

5.1.2.3 Views of the Technical Advisor

Dr. White stated that it was important to focus on the times of year when the distribution of the caribou and reindeer could overlap. To help achieve this, he noted, that it might be beneficial to examine RWED's satellite-collar information separately for each month.

In regard to whether the animals found on the northern portion of Richards Island are caribou or reindeer, Dr. White explained that there is evidence from Prudhoe Bay, Alaska that non-migratory barren-ground caribou do exist. He suggested that this indicates that the non-migratory animals found on the northern portion of Richards Island could be caribou.

Dr. White suggested that an estimate should be made for the number of days that caribou use the winter range. Dr. White also noted that in order for the range to support both caribou and reindeer, it would be important for both to practice rotational grazing.

5.1.3 KRDC's Protocol for Separation of Mixed Herds of Caribou and Reindeer

5.1.3.1 Views of the Proponent

At the hearing, David Nasogaluak of KRDC and CRL, explained that caribou are much wilder than reindeer so it is easy to separate them and keep them separated. KRDC noted that caribou which become intermixed with reindeer will normally leave the herd within an hour. KRDC stated that minor incursions of caribou (up to 100 animals) into the reindeer herd will be herded out. In the event of a greater number of caribou mixing with the reindeer herd, KRDC noted that the herd would be first herded and if that tactic was unsuccessful, the company would contact the nearest HTC to seek assistance and concurrence with the procedure to be used.

KRDC stated that it may have to kill one or two caribou if the caribou cannot be removed from the reindeer herd, but it would not kill dozens of caribou. KRDC also mentioned that the company is considering tagging caribou that have become intermixed with the reindeer, and it explained that tagging the caribou would help monitor whether the caribou are repeatedly becoming intermixed with the reindeer herd.

In the event that a small number of reindeer intermix with a small group of caribou, KRDC stated that the reindeer would be herded out. If a small number of reindeer joined a large herd of caribou, KRDC stated that the herders would leave the mixed herd alone.

KRDC noted that reindeer will be located by the presence of belled and collared reindeer, by large tags, and by daily herder surveillance - all of these factors should make it easy to distinguish reindeer from caribou.

5.1.4 Other Harvesting and Traditional Uses

5.1.4.1 Views of the Proponent

KRDC indicated it is aware of the waterfowl harvesting that occurs in the region, in particular geese harvesting in the spring on or near Richards Island. The company suggested that it would avoid harvesting areas, and as a result it did not foresee any disruption to waterfowl harvesting. In addition, KRDC indicated that it would avoid whaling areas entirely and that it would not

affect any fish harvesting activities. KRDC indicated that Otto Binder, one of the former reindeer herders, reported that fur-bearing animals normally scavenge on reindeer carcasses, so the company believes that reindeer should indirectly benefit trappers.

5.1.4.2 Views of the Registered Participants and Public

The IGC indicated that in addition to caribou, wolf, grizzly bears and geese harvesting, other activities also occur within KRDC's proposed ranges, including berry picking, recreational enjoyment and camping. KRDC responded that it hopes the information that has been provided in the EIS will demonstrate that it can avoid conflicts with the traditional harvesting activities mentioned above.

WMAC(NWT) stated that whether it is to a small degree or greater degree, it is important to recognize that the presence of herders and the reindeer in a new location would create some adjustment in behaviour of the natural wildlife.

A resident of Aklavik said that ducks and geese will have laid their eggs by the time KRDC's roundup has occurred, and if helicopters are used the reindeer may move quickly and trample the eggs.

5.2 Views of the Panel

The Panel remains concerned that KRDC's proposed Development could interfere with harvesting. **In order to monitor the degree and extent of any impact on harvesting, the Panel recommends that the Reindeer Grazing License issued by the Minister of DIAND and the Reindeer Grazing Permit issued by the ILA for this Development should be for five years only and that KRDC must reapply for renewal of these approvals before the end of the five year period. In addition, the Panel recommends that DIAND, upon issuance of approvals, should form an advisory group with representatives from DIAND, KRDC, RWED, WMAC(NWT) and the Tuktoyaktuk and Inuvik HTCs to monitor impacts on harvesting and degradation of the range (see section 7.0) and to identify emerging issues and suggest solutions.** As DIAND is the governmental authority competent to authorize the Development, the Panel believes that DIAND should be the responsible body to set up the advisory group. **Further, the Panel recommends that the ILA and the Minister of DIAND provide the option in the Reindeer Grazing Permit and Reindeer Grazing License respectively which would allow KRDC on one-year notice to move the reindeer herd back to its present range on the Tuktoyaktuk Peninsula should the advisory group determine that the Development is having significant negative impacts on harvesting.**

The Panel recommends that KRDC should be required to have, as a condition of its Reindeer Grazing License (DIAND) and Reindeer Grazing Permit (ILA), a Management Plan to deal with interference with harvesting.

The Panel notes that the work plan in the *Co-Management Plan for the Cape Bathurst, Bluenose-West and Bluenose-East Caribou Herds* has various action items related to studies on caribou/reindeer interactions for the years 2000/2001 to 2003/2004 and the Panel feels that a better understanding of these interactions would minimize potential impacts in the future. **The Panel recommends RWED undertake these studies so that the results regarding**

caribou/reindeer interactions can be used, if and when KRDC renews its Reindeer Grazing License (DIAND) and Reindeer Grazing Permit (ILA).

The Panel concludes that there is not currently enough evidence to determine whether the animals in question on northern Richards Island are caribou or reindeer. **As such, the Panel recommends that KRDC should not attempt to recruit the existing reindeer or caribou on northern Richards Island into the reindeer herd. Further, the Panel recommends that KRDC's operations not interfere with the harvesting of these animals.**

The Panel recommends that KRDC should enter into an agreement with the Inuvik and Tuktoyaktuk HTC's and the IGC regarding what harvesting activities, if any, KRDC employees would be permitted to undertake while on duty.

The Panel recommends that on the matter of advising hunters of the locations of bears, wolves or any other wildlife, KRDC should consult with the Inuvik and Tuktoyaktuk HTC's, the IGC and RWED to reach an agreement regarding how this could be implemented.

The Panel accepts WMAC (NWT)'s concern that KRDC's proposed route for the initial relocation of the herd from its location on the Tuktoyaktuk Peninsula in November is likely to interfere with caribou and caribou harvesting. **The Panel recommends that KRDC should consult with the Tuktoyaktuk and Inuvik HTC's prior to moving the reindeer regarding an appropriate time and route for relocating the herd from its current location.**

The Panel supports KRDC's suggestion to advise the HTC's of the location of its reindeer herd via means, such as the bush radio.

6.0 POSSIBLE INCREASE IN PROBLEM WILDLIFE KILLS

6.1 Views of the Proponent, Registered Participants, Public and Technical Advisor

KRDC believed that after 65 years of presence in the region reindeer are now integrated into the landscape and the natural ecological cycles of the region, providing prey and scavenge to bears, wolves, wolverines, eagles and other species. KRDC has indicated that predation on weaker and slower animals in the herd is a natural event and it is not entirely undesirable for its operations.

6.1.1 Compensation

6.1.1.1 Views of the Proponent

In the EIS, KRDC indicated that its financial forecasts include the potential for additional costs for killing quota species, based on an average of one grizzly bear per year as an upper-end margin. At the hearing, KRDC indicated that it has reserved \$10 000 annually for compensation, which would allow for an extreme case of up to two bears killed annually, based on approximately \$5000 per bear. KRDC also indicated it would be willing to provide compensation equal to the commercial value of a sports hunt.

KRDC reported that it is in the process of negotiating a Wildlife Compensation Agreement with the IGC. KRDC stated at the hearing that once it got more feedback on precisely what the HTCs would like to see in the agreement, in particular with respect to wolves and wolverines, then it could be finalized very quickly. Near the end of the hearing, KRDC mentioned that most of the elements of the agreement had been clarified, and the agreement should be near completion.

6.1.1.2 Views of the Registered Participants and Public

The IGC explained that the Inuvialuit have the exclusive right to harvest grizzly bears within the ISR. RWED, the IGC and a resident of Tuktoyaktuk explained the quota system that has been adopted in the ISR to ensure sustainable management and harvesting of grizzly bears. In particular, they noted that each community is allocated a predetermined number of tags for harvesting and any problem bears that may be destroyed as part of KRDC's proposed operations would require a tag to be attached. Further, the IGC indicated KRDC should pay for any grizzlies it kills since this would reduce the number of tags available to a community, thereby impacting and infringing on Inuvialuit harvesting rights.

DIAND suggested that KRDC should prepare a wildlife compensation plan or agreement that receives approval from the community. DIAND stated that the agreement should compensate local and aboriginal residents for losses due to caribou (and other species) being killed inadvertently by the proponent.

WMAC (NWT) indicated the amount of compensation for killing a grizzly bear should be equal to the amount paid for a big game hunt, which is approximately \$10 000. According to the IGC, the Tuktoyaktuk HTC has notified KRDC in writing that it wants to be compensated the whole value of a sports hunt tag, \$5500 US for any grizzly bear that is killed. WMAC (NWT) reported that hunters get as much as \$500 for a wolf pelt.

WMAC(NWT) noted that the IGC has a system in place where any sort of government organization that kills a problem bear has to compensate the Inuvialuit with the amount that the HTC's sell the tags for sports hunting.

6.1.2 Information on Grizzly Bears

6.1.2.1 Views of the Registered Participants

RWED presented results of studies it did on grizzly bears on Richards Island in the 1970's and 1980's. These studies included information on population numbers and distributions, the locations of known denning sites, the types of important bear habitat on Richards Island and the current quotas for each grizzly bear management zone. RWED also summarized five years of data for grizzly bear harvests in the ISR, focusing on Inuvik and Tuktoyaktuk. RWED believed the proposed operations could impact the grizzly bear population that uses Richards Island.

RWED explained there were approximately 25-30 grizzly bears on Richards Island in the 1970's, but the general feedback from the communities is that grizzly bear populations have increased since then. In the 1970's, there were no restrictions on harvests, but RWED estimated the harvest rates on the Tuktoyaktuk Peninsula were approximately 10-14% of the population. In comparison, RWED reported that it is currently managing grizzly harvests at a sustainable rate of approximately 3% of the population.

RWED was not sure whether the presence of reindeer on Richards Island would attract bears. However, RWED thought the presence of reindeer on Richards Island could increase the survival rates of bears. RWED explained that reindeer could provide a good source of protein that might enable a bear to survive through the winter or spring, thus increasing their chances of survival. RWED also reported that bears usually den from October or November until April or May.

KRDC noted that the reindeer herd is currently in an area of bear activity and it will be moved to another area of bear activity. WMAC(NWT) felt that KRDC would have more problems with bears on Richards Island than it did on the Tuktoyaktuk Peninsula since there is better bear habitat on the island. WMAC(NWT) said that it based this opinion on both traditional knowledge and the scientific knowledge collected by RWED. RWED confirmed that there is good bear habitat on Richards Island, in particular good denning and foraging habitat.

RWED's bear and wolf biologist in Inuvik explained that most grizzly bears do not frequent areas where people are present, supporting KRDC's view that the increased presence of herders should help decrease problem bear situations. However, RWED cautioned that as the herding effort increases, the bears will become more accustomed to seeing humans and their fear of humans may diminish. RWED also stated that it is natural predatory behaviour for a grizzly bear to attack a reindeer, and the agency believed that grizzly bears could be a problem for the herd when the herders were not present.

RWED suggested that historically there were a number of bears that may have been killed because they were preying on reindeer, especially during calving season. It had been explained to RWED by Abraham Carpenter, a former reindeer herder, that bears used to come in and kill 15-20 reindeer calves at a time and then move out of the area. Abraham Carpenter had told RWED of one instance where three cubs and one sow bear were killed to protect the herd.

RWED reported that studies in the northern Yukon in the 1970's indicated the importance value of caribou to the diet of grizzly bears was approximately 30% in April and May, 20% in June and July, and 0% in August and September. Over the entire summer, RWED reported, approximately 9% of the bears diet consisted of caribou.

6.1.3 KRDC's Policy for Dealing with Predators

6.1.3.1 Views of the Proponent

KRDC's indicated its first line of action for dealing with predators would be to attempt to discourage predators away from the herd. That action failing, KRDC indicated it would only kill a predator if it was actively predating on the reindeer or threatening the herd from within approximately 1 km. In addition, KRDC suggested that it would not kill any predators that were found preying on animals that were already dead, unless the predator was close to the herd and threatening to kill more reindeer. At the hearing, KRDC indicated it would only kill a bear if it involves the safety of humans, which is contradictory to what the company suggested at other times, that is, that bears may also be killed to protect reindeer. KRDC indicated it would report annually to the HTC and the IGC on all locations of its activities and predator sightings. The company would then adjust its operations in view of comments and concerns pertaining to predators received as a result of these annual reports.

KRDC, including David Nasogaluak, believed that bears would naturally avoid the herders and herd dogs, and that frequent herder presence would decrease the likelihood of bears approaching the herd. David Nasogaluak added that grizzlies do not bother the herd much, as long as the herders check the herd daily. He also indicated that grizzlies can be scared away with noise and they will not go towards people unless they are very hungry. To deter bears, KRDC committed to using 12 gauge shotguns with noise-maker shells and rubber bullets, and submitting reporting forms to RWED and the HTCs for bear sightings, deterrence attempts and defense kills.

KRDC only perceives that grizzly bears would be a real concern during May when reindeer are fawning. The company noted that during fawning the reindeer will be under virtually 24-hour surveillance by herders and herd dogs. In addition, the company stated that fawning will usually occur on the East side of the Mackenzie River, where there are fewer bears. KRDC reported that fawns can outrun predators within 24 hours of birth, including grown animals. KRDC believed that after calving, predation on the herd by bears would not be as much of a concern.

KRDC indicated it would rotate the location of calving from year to year, and this would reduce the likelihood of predators becoming accustomed to the presence of the calves in a specific area. KRDC stated that it would be willing to lose the odd reindeer calf to grizzly bears, but if a bear persisted in approaching the herd, measures would be taken to prevent the bears from killing many reindeer.

KRDC disagreed with the idea of one bear killed every two years as being a significant cumulative impact.

KRDC believed it is extremely unlikely that polar bears would frequent the summer herding area.

6.1.3.2 Views of the Registered Participants and Public

DIAND, Environment Canada, and WMAC (NWT) stated that KRDC's policy in regards to problem wildlife is vague. WMAC (NWT) and the GRRB believe that KRDC's policy is also contradictory. For example, WMAC (NWT) noted that the company stated "natural predation is deemed as beneficial for herd health and maintaining genetic quality of reindeer", but also indicated that "only when predators are in close proximity to and threatening the reindeer or actively predating on the herd will they be killed."

RWED and WMAC (NWT) believed that appropriate actions and contingency plans for dealing with bear/reindeer conflicts should be developed in advance of project commencement and in consultation with RWED, the HTC's and WMAC (NWT). In addition, RWED believed that KRDC's plans should include a level of financial liability for the proponent for both lost harvest opportunity and for the cost of bear deterrence.

DIAND suggested that the action of herders vis-a-vis each predator species needs to be clearly articulated to determine what level of human-induced mortality per species can be expected. DIAND believed additional information on the status of predators would help in understanding the significance of the likely impacts. DIAND also suggested that statistics be kept on the loss of reindeer to predators.

Environment Canada and RWED expressed concern that killing problem bears could impact the ability of the bear population to sustain harvesting or it might even affect the long-term viability of the population. RWED noted that this could quickly occur with the death of only a few adult female bears as the quotas are established using certain assumptions regarding the number of adult females in the harvest.

WMAC (NWT) believed the herder presence might not be sufficient to avoid problems, especially when bears are emerging from their dens in spring. RWED also expressed concern about emerging bears, noting that the timing of the bears emergence on Richards Island in spring could correspond to the time period when the reindeer are moved onto the island and to the timing of reindeer calving. Additional comments were heard about calving from the GRRB and an Aklavik resident. They were concerned about grizzly bears learning the location of the reindeer calving grounds and keying in on those areas for food, especially if the calving locations are in the same area every year.

RWED feels there is significant uncertainty with respect to the behaviour of bears with reindeer and the current level of predation on reindeer. RWED believed that while the proponent maintains that the bears will naturally avoid herders and herd dogs a number of bears in the area may have relied on the herd through most of their life and would therefore be difficult to deter.

Environment Canada stated that proper management of wastes, especially those associated with any slaughtering, would be required in order to minimize attraction and concentration of large predators/scavengers, thereby reducing the likelihood of problem wildlife developing.

WMAC (NWT) felt that reindeer are an introduced species to an environment that is naturally inhabited by bears, wolves, foxes and other predators, and the mere proximity of a predator to the reindeer herd, as suggested in the EIS, should not automatically result in it being killed.

A resident of Aklavik commented that it would not be good to take the life of a natural predator, e.g. a grizzly bear, to protect reindeer, a domestic animal.

RWED informed KRDC that it would not have the staff or resources available to provide bear deterrent or bear relocation services. However, RWED indicated that it does offer an extensive education process to the mining and outfitting industries regarding bear deterrence and safety, and it would be willing to offer similar services to KRDC.

6.1.3.3 Views of the Technical Advisor

Dr. White noted that older reindeer calves are more likely to effectively escape predation by grizzly bears than younger calves. RWED supported Dr. White's suggestion with information about the movement of satellite-collared caribou cows following birth. RWED reported that immediately following calving, collared cows move 2-5 km a day, and approximately 10-14 days following calving the caribou cows move 20-30 km a day. Dr. White believed that if calving occurred on Richards Island, the calves may be too young to escape predation by grizzly bears, but if calving occurred on the mainland the calves would be much more likely to effectively avoid predation.

6.1.4 Non-Quota Species

6.1.4.1 Views of the Proponent

KRDC suggested smaller predators, including ravens and foxes, could cause as much damage to the reindeer herd as larger predators.

KRDC believed wolves will not normally go close to human activity. The company noted wolves would not be a problem because of the proximity of the proposed grazing areas to human activity and because of a constant and daily presence of herders and herding dogs. KRDC stated that on average approximately one or two wolves were killed annually in the past, and KRDC believed that number would decrease for its proposed operation because herding would be more intensive. Furthermore, KRDC believed that if one or two wolves were taken annually, that would represent a very small percentage of the overall wolf population and a small percentage of the number of wolves that are currently being harvested within the proposed range.

KRDC indicated that as with grizzly bears, wolves and wolverines are mainly a concern during fawning.

KRDC reported that wolverines are not usually seen in great frequency and generally fewer than half a dozen are encountered near the herd throughout the year. In response to a concern raised by the IGC, KRDC clarified that it would not put into place any controlling mechanisms to limit wolverines' movements.

6.1.4.2 Views of the Registered Participants and Public

The IGC emphasized that Inuvialuit have the exclusive right to harvest wolves and wolverines throughout the ISR. Furthermore, the IGC believed that any mechanisms that KRDC adopts for controlling predators would have some impact on the Inuvialuit's harvesting rights and this would have to be addressed.

The IGC reported that wolves feed primarily on caribou in KRDC's proposed area and the Inuvialuit do conduct subsistence and commercial harvesting on wolves. According to RWED, wolves have a much higher reproductive potential than grizzly bears, so they can sustain much higher levels of harvesting. DIAND noted that the proponent made reference to killing one to two wolves annually, but no information was provided as to the significance of this human induced mortality. DIAND suggested that the abundance of wolves in the region should have been provided and an estimate of the significance of the annual loss given.

Peter Clarkson, RWED's former wolf and bear biologist, reported that no detailed studies have been done to estimate wolf population size. He explained that it would be very difficult to determine a wolf density since the wolves migrate large distances to follow the caribou. He stated the number of wolves on the mainland in the entire ISR was estimated to be 800-1000 based on the annual harvest, the number of tagged and collared wolves, and the number of packs that were being monitored.

According to the IGC, wolverines are primarily scavengers and only follow the caribou in hopes of feeding on carrion. Nevertheless, IGC stated that if controlling mechanisms are put in place to limit the wolverines' movements they may have an impact on the Inuvialuit's harvesting activities.

A resident of Tuktoyaktuk mentioned that there is a possibility that polar bears would be using Richards Island in the summer.

6.2 Views of the Panel

The Panel heard from RWED that grizzly bears tend to avoid people, and from David Nasogaluak that the presence of people tends to keep grizzly bears away from the reindeer herd. The Panel accepts the general consensus that bears tend to avoid people, but believes that there is a possibility that situations could arise where problem wildlife, including, grizzly bears, wolves and wolverines, have to be killed.

The Panel notes that killing these predators would have an impact on the wildlife, the environment, and harvesting rights of the Inuvialuit. **As a result, the Panel recommends that KRDC should finalize a Wildlife Compensation Agreement with the IGC prior to approval of this project by the Minister of DIAND and the ILA. Based on prices of \$8500 (\$5500US) for grizzly bear, \$500 for wolf and \$450 for wolverine, the Panel recommends that KRDC should maintain a letter of credit in favour of the IGC in the amount of \$11 000 to cover potential wildlife loses of one grizzly bear, two wolves and three wolverines.**

The Panel agrees that KRDC's policy for dealing with problem wildlife is not clear. **To ensure the policy is clear to all parties, the Panel recommends that as a condition of the Reindeer Grazing License (DIAND) and the Reindeer Grazing Permit (ILA), KRDC should be required to consult with the advisory group formed under subsection 5.2 of this document and then submit for approval, a contingency plan for dealing with problem wildlife conflicts.**

7.0 DEGRADATION OF THE RANGE

7.1 Views of the Proponent, Registered Participants, Public, Technical Advisor and Special Investigation

KRDC indicated that protection of caribou over-wintering habitat would be a priority for the company since maintenance of long-term grazing potential is necessary to ensure the success and economic viability of the reindeer herd.

7.1.1 Current Status of the Range on the Tuktoyaktuk Peninsula

7.1.1.1 Views of the Proponent

KRDC stated that to the best of its knowledge, there have been no documented long-term negative environmental impacts that have resulted from the historical (1935 to present) use of the area for reindeer grazing. However, KRDC admitted that it is possible that the area on the Tuktoyaktuk Peninsula is becoming overgrazed and trampled resulting in possible long-term damage to the habitat by virtue that the herd has remained in the same area for about 20 years. KRDC suggested that the herd is not as productive on the Tuktoyaktuk Peninsula due, in part, to the reduced availability of winter fodder. KRDC believed the range degradation on the Tuktoyaktuk Peninsula is the result of CRL's continued use of an unsuitable, confined area. KRDC suggested at the hearing that there may be over-utilization but not degradation of the range on the Tuktoyaktuk Peninsula. David Nasogaluak of KRDC and CRL, reported that there have been no problems with the summer forage since it grows back each year.

7.1.1.2 Views of the Registered Participants and Public

Several participants at the hearing and workshops commented on the condition of the range at the present location of the herd. WMAC (NWT) noted that the north end of the Tuktoyaktuk Peninsula has been heavily grazed by reindeer for the past 20 years. A resident of Tuktoyaktuk suggested reindeer have overgrazed the Diamond Lake area on the peninsula, which may explain why caribou no longer use the area. IGC suggested that the extent of habitat degradation on the peninsula be assessed. A resident of Tuktoyaktuk recommended that KRDC and the co-managers conduct a co-operative study on the recovery of the vegetation on the peninsula.

7.1.1.3 Views of the Special Investigation

In the *Special Investigation*, one herder indicated that the Tuktoyaktuk Peninsula has been overgrazed because reindeer have been feeding there too long. Another herder mentioned that Richards Island was foraged for so many summers that eventually many areas became void of vegetation. Several herders estimated that it takes 20 years for an area to regenerate after it has been overgrazed.

7.1.2 KRDC's Techniques for Mitigating and Monitoring Degradation of the Range

7.1.2.1 Views of the Proponent

KRDC proposed it would practice rotational range use within its summering and wintering ranges. At the hearing, KRDC elaborated saying it would avoid grazing in the same areas in

consecutive years. To accomplish this the company would record grazing locations using Geographic Positioning System technologies on a daily or weekly basis, and it would produce maps using these locations that would enable the company to keep track of what areas were being used. In addition, KRDC mentioned that it would not use the same calving area year after year, nor repeatedly cross water courses at the same location. KRDC noted that it would take into consideration areas used by caribou and the company committed to taking out of rotation any area that was being over-utilized. KRDC believed that the use of distinct summer and winter ranges, and the rotation of grazing areas within each range will mitigate any potential environmental impacts and maintain a high quality of range for both reindeer and caribou.

To monitor the condition of the range, KRDC indicated that it would place 12 - 1 m² exclusion plots in the winter range and four in the summer range. In addition, KRDC suggested that information on trampling effects, fecal abundance, damage to lichens, vascular plant status and browsing signs would be recorded by herders to develop an index for determining over-grazed areas. The company suggested this information would be incorporated into a geographical information system range monitoring program, once it became operational.

KRDC indicated at the hearing that the range monitoring program was at a conceptual stage. However, KRDC committed to implementing a range monitoring program by at least the spring 2002, providing a range assessment and carrying capacity estimate within two or three years, and performing reassessments of the carrying capacity every three to five years thereafter. In the event that the monitoring indicated that the range was unable to support 12 000 reindeer, or if there was an influx of caribou, KRDC stated that it would reduce the herd size accordingly.

KRDC expressed concern during the hearing that it had been suggested the company demonstrate that the range will support the reindeer herd prior to approval. KRDC believed that it would not be able to address some of the questions regarding carrying capacity until the company begins its operations. Given the small size of the present herd, KRDC stated that it did not expect there to be any noticeable impacts in its first year of operation. In addition, KRDC did not believe that it could hold the reindeer on the Tuktoyaktuk Peninsula for two more years while the company conducted a carrying capacity estimate or a range monitoring program due to the lack of suitable winter forage on the Peninsula.

At the hearing, KRDC suggested that both the company and co-managers would benefit from participating in a cooperative monitoring program, and range assessment and evaluation. KRDC said that it would be pleased to meet with the appropriate stakeholders to come up with a work plan.

7.1.2.2 Views of the Registered Participants

The IGC cautioned that the traditional use and migratory pattern of the caribou would be affected by the reindeer herd's present and future impact on the habitat.

WMAC(NWT) did not support KRDC's proposal to conduct range monitoring and evaluation at the same time as the expansion and relocation of the reindeer herd. WMAC(NWT) noted that KRDC suggested that it would remove surplus animals if the population exceeded the carrying capacity, however WMAC(NWT) believed that in order to do this, KRDC would need to know the carrying capacity in advance.

In regard to the proposed range monitoring, RWED suggested remote sensing techniques be used to monitor range condition combined with ground surveys. WMAC(NWT) raised concern over the lack of details on the type of data to be collected and the methods to be used. The GRRB thought that the range monitoring studies described in the EIS were vague regarding the vegetation characteristics to be measured, and they questioned whether the structures used as grazing enclosures would alter wind, thermal, or snow micro-conditions inside the enclosures.

DIAND suggested that follow-up monitoring may be necessary to verify the accuracy of the predictions made by KRDC, and it suggested the proponent should identify what follow-up programs will be undertaken and who will be involved in designing them.

7.1.2.3 Views of the Technical Advisor and Special Investigation

In the *Special Investigation*, several herders commented that KRDC's proposed winter and summer grazing ranges looked like good locations, and that the company's proposed herding techniques looked good.

Dr. White suggested that the enclosure/monitoring sites should be placed strategically to include areas where the reindeer would graze, areas where the caribou are most likely to be, and areas where there is little likelihood of any grazing by reindeer or caribou.

Dr. White suggested that KRDC and the wildlife management agencies should work together to execute a rotational range use plan. Dr. White noted that KRDC and the agencies will have to determine roughly the number of caribou-days there might be on the winter ranges. He also suggested that if a survey of trampling effects, damage to lichen and signs of browsing is undertaken, it should be done in spring.

7.1.3 Carrying Capacity

7.1.3.1 Views of the Proponent

KRDC estimated the carrying capacity is approximately 22 500 reindeer or caribou based on traditional knowledge and reports by Sims (1983) and Scotter (1968). KRDC believed that the status of the range has not changed significantly since Sims conducted his study.

At the hearing, KRDC clarified that its carrying capacity estimate was for the entire Mackenzie Delta Reindeer Grazing Reserve, with the exception of specific areas, such as, the Kendall Island Migratory Bird Sanctuary and the section of the reserve within the Gwich'in Settlement Area. KRDC suggested that since the *NWT Reindeer Regulations* identifies the entire reserve for use, it may not restrict its operations to the proposed winter and summer ranges shown in the EIS. DIAND responded that KRDC's assumption that the entire reindeer reserve would be available for its use may not be correct.

KRDC noted that RWED indicated there is approximately 16 000 caribou using the Mackenzie Delta Reindeer Grazing Reserve during winter, but the company also noted that local hunters estimated that caribou graze in the area during half of the winter, suggesting the grazing impact of the caribou over the winter is equal to 8000 caribou. The company believed that the range can support 10 000 wintering reindeer and the equivalent of 8000 caribou given its carrying capacity estimate of approximately 22 500 animals. The company also believed that caribou numbers

could increase and/or their grazing time increase without any threat to total range carrying capacity.

7.1.3.2 Views of the Registered Participants

A number of the Registered Participants questioned KRDC's use of the Sims (1983) and the Scotter (1968) reports to estimate winter range carrying capacity in the proposed grazing area. DIAND, WMAC(NWT), and RWED expressed a need for credible, current information. DIAND emphasized that the ultimate size of the reindeer herd and economic viability of the project would be dependent on the current carrying capacity.

Additionally, WMAC(NWT) asserted that the Sims (1983) report does not indicate the proposed winter grazing area described in the EIS can support KRDC's projected number of reindeer and caribou. Rather, WMAC (NWT) suggested that the report indicates the area would support a total of 5754 caribou or reindeer.

Referring to Sims (1983) report, RWED cautioned that the measurement of available forage before the snow falls may not indicate the degree to which forage is available through winter. The department noted that carrying capacity may fluctuate based on the availability of forage, and the depth and condition of the snow.

RWED and WMAC(NWT) challenged KRDC's estimate of the timing and number of caribou using the proposed winter grazing area. RWED stated that its telemetry data indicates that caribou consistently occupy KRDC's proposed winter range. WMAC(NWT) agreed, and further noted that the telemetry data coupled with Inuvialuit harvest data show that the caribou commonly use the proposed winter range from approximately September until April.

WMAC(NWT) noted that there is no evidence to suggest that the caribou winter range can support a large and sudden influx of reindeer. WMAC(NWT) noted that KRDC asserted that there is room for both reindeer and caribou, but it did not provide any information on what the desirable level of the Cape Bathurst, Bluenose-West and Bluenose East caribou herds should be. WMAC(NWT) noted that the data used to estimate carrying capacity predates the expansion of these caribou herds, and it also noted that KRDC's proposed ranges are an area into which these herds could further expand. DIAND echoed a similar viewpoint suggesting that the Government of the N.W.T. provide advice on the optimum herd size for both species.

WMAC(NWT) and DIAND's submissions reflected KRDC's request for cooperation between the company and the appropriate federal and territorial government departments in undertaking range studies. DIAND noted that the data arising from a range study could be used, not only by KRDC, but by government agencies involved with wildlife resource management. DIAND also suggested that a detailed long-term monitoring plan be prepared with the assistance of the appropriate authorities.

7.1.3.3 Views of the Technical Advisor

Regarding KRDC's carrying capacity estimate, Dr. White stated that the Sims (1983) report was very well done, using both ground truthing and aerial photography to assist in developing and extrapolating the possible carrying capacity for the range. In addition, he suggested that it

contains a good management scheme for reindeer herding based on management authorities from Russia and Scandinavia which suggest grazing an area only once every three to five years.

Dr. White identified one problem with the Sims (1983) report, namely, the estimation of carrying capacity was determined by the daily lichen forage requirement of 5 kg for an adult reindeer. He stated that some of the reports referenced in the Sims' report used wet weight of lichen, instead of dry weight. As a result, he believed that the estimated lichen forage requirement is higher than it should be, and he suggested a value of 2-3 kg per day is a more reasonable estimate. As a result, he noted the estimated carrying capacity from Sims' report could be doubled.

Dr. White agreed with several of the Registered Participants that given the time span that has passed since Sims conducted his study and the change in the number of animals that have used the area, Sims' report does not provide a reliable estimate for the current carrying capacity. He also cautioned that estimates of carrying capacity have a very large error margin associated with them, so that the figures should only be used to rate the areas for their ability to support caribou and reindeer in general terms from low to high.

At the hearing, Dr. White recommended that Sims' survey be repeated in order to understand what is happening on the ranges. In his opinion, it is difficult to estimate lichen densities by satellite. However, he noted that there are currently effective ways of assessing the quality or greenness of the summer ranges using Very High Resolution Radiometer - Normalized Difference Vegetation Index (VHRR NDVI) satellite imagery.

7.2 Views of the Panel

The Panel accepts KRDC's statement that maintaining the herd at its present size and at its present location on the Tuktoyaktuk Peninsula is not feasible in the long term for the herd and may be detrimental to the range. Upon examination of the evidence, the Panel concludes that there is not enough information available at this time to determine the impact on the range of relocating the reindeer herd to the proposed areas. **As such, the Panel recommends that KRDC undertakes a range study involving the following three components: 1) carrying capacity estimate; 2) exclusion plot monitoring; and 3) quantitative index ranking of habitat use (as outlined in the table on page 107 of the EIS). The Panel recommends that if the proponent wishes to expand its operations beyond the areas indicated in the EIS, the area for the range study should be the entire Mackenzie Delta Reindeer Grazing Reserve that is within the ISR, and it should monitor the recovery of the current range of the reindeer on the Tuktoyaktuk Peninsula.**

The Panel recommends that the advisory group formed in subsection 5.2 of this document should also oversee the range study design. The Panel remains concerned about the potential degradation of the range. **As such, the Panel recommends that the ILA and the Minister of DIAND provide the option in the Reindeer Grazing Permit and Reindeer Grazing License respectively which would allow KRDC on one-year notice to move the reindeer herd back to its present range on the Tuktoyaktuk Peninsula should the advisory group determine that the range is being significantly degraded by KRDC's reindeer. In addition, the Panel recommends that the range study results should be used during renewals of the Reindeer Grazing License (DIAND) and the Reindeer Grazing Permit (ILA) to determine if there are significant impacts on the caribou herd or on the range. In order to further reduce the**

likelihood of range degradation, the Panel recommends that KRDC should maintain the size of the herd below 10 000 wintering and 12 000 summering head.

The Panel recommends that the first component of the range study, the carrying capacity estimate, be done as soon as possible. The Panel recommends that the advisory group oversees the carrying capacity estimate, but that the estimate is done by an independent organization. The Panel recommends the following be undertaken as part of the carrying capacity estimate: 1) an estimate using methodology similar to Sims' (1983) carrying capacity estimate; and 2) a review of the status of the proposed summer range using VHRR NDVI satellite imagery.

The Panel believes that the studies indicated in the draft *Co-Management Plan for the Cape Bathurst, Bluenose-West, and Bluenose-East Caribou Herds* related to the interaction of caribou and reindeer would be valuable to the regulators should KRDC apply to renew its Reindeer Grazing License (DIAND) and Reindeer Grazing Permit (ILA) in five years time. The Panel also notes that DIAND suggested at the hearing that a detailed long-term monitoring plan be prepared with the assistance of the appropriate authorities, and the Panel believes that DIAND would be an appropriate authority to coordinate the carrying capacity estimate since it is the governmental authority competent to authorize the Development. **Therefore, the Panel recommends that the carrying capacity estimate should be funded equally by DIAND, RWED and KRDC.**

The Panel recommends that KRDC should undertake the second and third components of the range study involving exclusion plot monitoring and quantitative index ranking of habitat use with input and guidance from the advisory group regarding the design of the programs, e.g. the placement of exclusion plots. Further, the Panel recommends that KRDC reports the results of these programs annually to the advisory group, including the productivity and size of the reindeer herd.

8.0 HERD CONTROL

8.1 Views of the Proponent, Registered Participants and Special Investigations

8.1.1 Herd Control - KRDC vs CRL

8.1.1.1 Views of the Proponent

KRDC explained that it is difficult to maintain control of the herd on the Tuktoyaktuk Peninsula in summer because it is too vast and remote, and because there is too much water. KRDC stressed that its proposed herding program will involve more surveillance and herd management than that undertaken by CRL. KRDC stated that since assuming management of the herd for CRL, the company has approximately tripled the herding effort that was previously exercised and has reduced the flight distance of the herd from approximately 1 km to several hundred meters. KRDC submitted that modern herding practices allow for much greater herd surveillance and control than was possible in the past. David Nasogaluak of KRDC and CRL commented that the system proposed by KRDC for herding is a better system than that presently used by CRL.

8.1.2 KRDC's Techniques for Controlling the Herd

8.1.2.1 Views of the Proponent

Regarding the number of herders that would be with the herd and how often they would be with the herd, KRDC indicated it would vary depending on the time of year. For the first year of operations, KRDC stated that the company would require approximately 2.5 to 3.0 person-years of manpower, but this number would increase by 1/4 person-years annually.

In winter, KRDC explained that herders would operate from a winter base camp, cross-shifting so there were always two herders on duty. The company indicated the herd would not be under continuous surveillance. The herd would be brought together on a daily basis, allowed to spread out during the day, and regrouped again the following day. The company suggested that when the herd is within one to three hours of the winter base-camp, the herders would make one or two daily tours to survey the herd, watch for predators and direct the herd's movements. When the herd is further away, KRDC suggested, the herders would set up a temporary tent camp, returning as needed to the base camp for supplies. David Nasogaluak noted that in the middle of winter, even if it blows for an extended period of time, herders are able to locate the herd by tracking them.

During the calving season, KRDC indicated the herd would be under virtually 24-hour surveillance by two to four herders. When the herd was being moved, the company suggested as many as six people would be required. KRDC added that reindeer are quite easy to control during calving because they move slowly. David Nasogaluak noted that in spring Richards Island becomes a natural control barrier because the ice is unstable at that time and the water is high, making it very unlikely that the reindeer would cross waterways.

KRDC indicated that following the June round-up the herd would be moved to the north end of Richards Island, and only one person would be required to monitor the herd, but additional manpower would be brought in as required. During summer, KRDC stated that the herders

would stay with the herd using a portable tent, when necessary, instead of the two camps at Kidluit Bay and Denis High Hill.

In August, KRDC indicated, two or three herders would slowly collect the herd and bring them down towards Swimming Point. One herder would be stationed along the western portion of the island to ensure that the herd does not move towards the Kendall Island Migratory Bird Sanctuary. Once conditions were right the herd would be herded across the Mackenzie River to the mainland, and the herd would then be worked towards the southern end of the winter range.

KRDC stated that some immediate and long-term training would be required since some necessary herding knowledge does not exist in the area. However, KRDC noted that it presently has four experienced full-time and casual herders.

8.1.2.2 Views of the Registered Participants

Environment Canada expressed concern in their comments on the draft EIS that KRDC had not provided enough details on their proposed herding techniques to determine whether it could control reindeer intensively enough to keep them out of the Kendall Island Migratory Bird Sanctuary. Environment Canada felt the EIS contained considerably more detail concerning herding style and herding techniques, but it indicated that the Panel should seek clarification on KRDC's proposed herding techniques from individuals with technical and practical herding experience. During the hearing, Environment Canada asked David Nasogaluak, Chief Herder for KRDC and CRL, several questions regarding the proponent's proposed herding techniques. In their concluding remarks at the hearing, Environment Canada indicated that it is confident that it can come to a workable arrangement with KRDC regarding the protection of important bird habitats in and around the Sanctuary.

In a letter to the EIRB, the GRRB noted that KRDC should ensure that there are an adequate number of herders at those times of the year when the reindeer herd may share the range with caribou and/or other wildlife species.

8.1.2.3 Views of the Special Investigations

According to the information reported by the former herders at the *Special Investigation*, the approximate herder to reindeer ratio varied from 1:200 (herder:reindeer) to 1:6000 in the past. In comparison, KRDC indicated that the approximate ratio for its proposed Development would be from 1:1300 (herder:reindeer) to 1:4000. The EIA-RP noted that the herd sizes reported by the herders at the *Special Investigation* varied considerably, e.g. the herders reported that the herd owned and operated by the Government of Canada varied in size from 4000 to 17 000 reindeer. The EIA-RP also noted that a report by Treude (1979) suggests that some of the herders overestimated the herd sizes.

The EIA-RP also provided the Panel with information regarding manpower requirements for herding in Scandinavia and Alaska, and compared them to the manpower suggested by KRDC. He noted that for gathering purposes (when the herd is gathered into a smaller area for activities such as slaughtering), a ratio of 1:15 (herder:reindeer) was reported, while KRDC indicated in the EIS that it would use a ratio of 1:20-60. The EIA-RP noted that for routine herding (times when the herd is not gathered into a small area) the ratio that was reported varied from 1:500 (herder:reindeer) to 1:850-1000, while KRDC's EIS indicated a ratio of 1:1300-4000. For

overall purposes (based on the number of reindeer and herders in a given area), he noted that ratios of 1:40 (herder:reindeer) to 1:70 were reported, while KRDC indicated the it would use a ratio of 1:200-600.

In the *Special Investigation*, the herders reported that reindeer strayed for various reasons. When straying occurred, herders reported it took from one to four days to retrieve the animals depending on how the herders were traveling. If, for example, the herders were on skidoo, they would usually retrieve the reindeer within one day.

8.1.3 Helicopters and Herd Dogs

8.1.3.1 Views of the Proponent

KRDC indicated that helicopters may be used occasionally for: positioning herders and their supplies during break up and freeze up; to cross the herd on and off of Richards Island; and for round-up.

The company indicated that its preference is to eliminate helicopter use entirely, if possible. KRDC explained that it expects to be able to carry out the roundup in the future with herders and herd dogs, exclusively.

David Nasogaluak mentioned that it is easy to keep caribou and reindeer separated, particularly when there is snow on the ground and herders can use a skidoo. However, when there is not any snow, he noted, herders must walk or the company must use a helicopter to keep the herds apart.

KRDC stated that a good reindeer dog is worth a dozen herders, and the company reported that it is currently training one dog for herding, and it plans to purchase one or two more in the fall of 2000. The company is currently using border collies, but it is also considering Lappish herding dogs. KRDC expects that increased handling, coupled with the use of herding dogs, will result in a herd that is tamer, and more readily controlled.

8.1.3.2 Views of the Registered Participants

When reviewing the draft EIS, Environment Canada also expressed concern that the proponent did not provide details as to when helicopters might be required, and what restrictions would apply concerning factors such as altitudes and locations. In addition, Environment Canada noted that KRDC proposed to assist herding in summer by using boats, but no details were provided as to how this would be accomplished. For example, would there be regular patrols along Harry and Swan Channels, and if so, how frequently.

8.1.4 Footprint of the Herd and Maximum Possible Size of the Herd for Maintaining Control

8.1.4.1 Views of the Proponent

During the Inuvik Public Workshop, KRDC described the size of the herd's footprint at various times of the year, noting that during a slow grazing movement a herd of 5000 animals would cover an area of approximately 3 by 1 km. During fawning, the company suggested the herd spreads out and may cover an area of approximately 3 by 1-2 km. Similarly, KRDC indicated in

the EIS that a grazing herd of 10 000 reindeer will on average spread over an area 3-5 km in diameter, and when being moved they would be compressed into a smaller, elliptical area of approximately 0.5 by 1 km.

KRDC stated that it is commonly believed that it is difficult to control a reindeer herd that is bigger than 12 000 animals and that is why the company has proposed maximum herd sizes of 10 000 wintering and 12 000 summering head. KRDC also noted that it wishes to work with resource managers to find a good optimum size.

David Nasogaluak mentioned that he previously herded up to 15 000 reindeer without herd control problems. However, he noted that the herd did not remain that size long as the company he was working with slaughtered around 3500 reindeer per year for two consecutive years.

8.1.4.2 Views of the Special Investigation

Regarding the size of the footprint of the herd, the former herders estimated in the *Special Investigation* that when brought together, a herd of 4000-6000 animals would cover an area ranging from less than one mile to four miles. One herder recalled that 4000 animals could be monitored through binoculars.

8.1.5 Controlling the Size of the Herd

8.1.5.1 Views of the Proponent

KRDC noted that the size of the reindeer herd could be doubled in four to five years, and the company cited the major factors currently limiting herd growth are straying, harassment, poaching, nutrition and predation during fawning. Dr. White agreed that under extremely good range conditions it would be possible to double the herd size by maintaining all animals within the herd and having a very small culling rate.

Upon being questioned by Dr. White, KRDC explained that if the company sought greater antler production, it would cull cows, thus reducing herd growth. If working towards maximum meat production, the company suggested one would reduce the number of cows being culled, hence increasing the productivity of the herd. In addition, the company indicated that if one wished to pursue a mix of meat and antler production, it would find a middle ground.

8.2 Views of the Panel

During the hearing, the Panel heard that Environment Canada is now comfortable with the degree of herd control described and committed to by KRDC (see also section 9.0). The Panel is persuaded that effective herd control can be maintained, but notes that KRDC must demonstrate that it has been maintained, if the company wishes to renew its Reindeer Grazing License (DIAND) and Reindeer Grazing Permit (ILA) when it returns to the regulatory authorities in five years.

The Panel has been provided with evidence that suggests that the number of herders to be employed by KRDC for the size of the herd is consistent with herding standards and practices elsewhere.

The Panel has no objections to the use of herd dogs for the Development.

The Panel heard statements from KRDC and David Nasogaluak that the herd would be kept within an area of 2-4 km with daily surveillance. The Panel did not hear any opposition to KRDC's proposed footprint. The Panel believes that intensive control of the reindeer is necessary for the proponent to maintain separation from the caribou herd and caribou harvesters.

9.0 DAMAGE TO THE KENDALL ISLAND MIGRATORY BIRD SANCTUARY

9.1 Views of the Proponent, Registered Participants and Special Investigation

9.1.1 Views of the Proponent

KRDC stated that traditional herder knowledge indicates that reindeer are not inclined to enter the Sanctuary on their own volition due to the high density of insects and limited forage in that area. In fact, the company suggested that the reindeer would have to be forced to enter the Sanctuary. The company also noted it would be necessary for the reindeer to cross over a wide water barrier to reach the Sanctuary. KRDC believed those factors, coupled with intensive surveillance during the spring and summer, would lessen the probability of reindeer damaging eggs or sensitive bird habitat in the Sanctuary.

David Nasogaluak indicated that 30 or 40 years ago herders did not use herd dogs and that may be the reason that some of the former herders indicated in the *Special Investigation* that reindeer crossed Harry Channel on their own.

KRDC summarized that avoidance of the Sanctuary could be assured with the use of a helicopter, a two-man hovercraft, herding dogs and two-man herding teams. KRDC mentioned that it would be quite easy, particularly in the beginning when the reindeer are not accustomed to herding dogs, to keep the herd away from Harry Channel. The company indicated in the EIS that it may use helicopters, if allowable, to retrieve reindeer that were approaching the Sanctuary. However, at the hearing, the company committed to not using helicopters near the Sanctuary.

Regarding the impact that reindeer may have on nesting waterfowl, KRDC mentioned that it plans to provide the reindeer with mineral blocks, and perhaps fish meal, so that the reindeer will not seek bird eggs to satisfy their demand for protein. KRDC and David Nasogaluak also noted that reindeer do not disturb nesting “speckled bellies” [White-fronted geese] at Atkinson Point when the reindeer are allowed to roam around the area following roundup.

KRDC concluded by committing to keep reindeer out of the Sanctuary and avoiding other nesting areas to the east and northeast of the Sanctuary. Although, KRDC had proposed in the EIS that there be only a 1-km buffer, during the hearing, KRDC agreed to maintain a 5 km buffer zone along the eastern boundary of the Sanctuary, as suggested by Environment Canada, to allow for a margin of error in herd control. KRDC also agreed to increase surveillance should a strong wind encourage the reindeer to move towards the Sanctuary. KRDC invited Environment Canada to send a representative to observe its herding operations on Richards Island.

9.1.2 Views of the Registered Participants

Environment Canada indicated that the Kendall Island Migratory Bird Sanctuary, located in the outer Mackenzie River Delta, provides nesting and staging habitat for Lesser snow geese and other waterfowl from May to late September. In particular, Environment Canada identified the Sanctuary, Swan and Harry channels, Fish Island and the Mallik Bay areas as being of key importance to nesting and staging migratory birds. In addition, Environment Canada noted that the Community Conservation Plans for Inuvik, Aklavik, and Tuktoyaktuk identify these as Category ‘C’ areas or areas where cultural or renewable resources are of particular significance and sensitivity during specific times of the year.

Environment Canada noted that geese arrive in the Sanctuary beginning in late May, and shorebirds arrive in approximately the middle of June. The agency also indicated that generally most bird species leave the area from late July to late August.

WMAC(NWT) noted that there has been a concern about the snow goose population in the Sanctuary. WMAC(NWT) reported that the Canadian Wildlife Service (CWS) has been encouraging people to not harvest geese from that population. Therefore, WMAC(NWT) believed that it should also be a concern if the reindeer happened to go too close to the area. CWS confirmed that the snow goose colonies in the Kendall Island and Anderson River colonies are either in decline or stable condition in terms of population size.

Citing evidence from northern Canada, Alaska and Russia, Environment Canada expressed concern about the possible effect that large numbers of reindeer straying into the Sanctuary could have on nesting birds and eggs, especially during June and early July. Environment Canada was also concerned about damage to the habitat and standing vegetation that is important for nesting cover for shorebirds.

Environment Canada agreed with KRDC that it was unlikely that large numbers of reindeer would repeatedly enter the Sanctuary, or in the case of the waterfowl nesting on distant islands, swim across the expanse of water to reach the nesting areas. However, it noted that information from former herders reported in the EIRB's *Special Investigation* contradicted KRDC's statements regarding reindeer entering the Sanctuary.

Environment Canada noted that in the EIS, KRDC appears to consider reindeer as a natural component of the ecosystem by virtue of them having been in the Mackenzie Delta for the last 65 years. However, Environment Canada recognizes them as an introduced, semi-domesticated subspecies of caribou, and for this reason, has viewed impacts on migratory birds due to caribou in a different light than impacts due to reindeer.

Environment Canada noted that reindeer ranging and behaviour patterns are variable enough that mitigative measures are required. The agency recommended that the Sanctuary should be off-limits to reindeer grazing and a 5-km no-reindeer-grazing buffer strip should be established along the east side of the Sanctuary. WMAC(NWT) supported the no reindeer grazing buffer zone of 5-km along the east side of the Sanctuary. Environment Canada stated that it would let the Panel determine how the 5-km buffer zone could be implemented in some sort of enforceable form, e.g. attached to operating conditions of approval. Environment Canada suggested that if the buffer zone condition was not enforceable, then enforcement would be on an honour system.

Prior to the hearing, Environment Canada notified KRDC that in the event that reindeer did stray into the Sanctuary, and in order to remove the reindeer, KRDC would need to apply to Environment Canada (CWS) for a permit to conduct activities in the Sanctuary. Although the first priority would be to make sure the reindeer were moved out as quickly as possible, Environment Canada indicated it would assess the potential for unacceptable disturbance caused by the likely aggressive action, e.g. helicopter herding, required to move the reindeer out quickly. Environment Canada advised KRDC that destruction or disturbance of birds and nests in the Sanctuary is a violation of the Migratory Bird Sanctuary Regulations and enforcement action could be possible if Environment Canada found that the proponent was negligent in conducting its herding activities. Further, Environment Canada noted that it sought assurance from the Panel that the present scope of assessment meets its obligations under the Canadian Environmental

Assessment Act (CEAA), since KRDC may require a permit from the CWS in the future should reindeer stray into the Sanctuary and need to be retrieved.

At the hearing, KRDC stated that the ideal way of retrieving reindeer in the event they entered the Sanctuary would be on foot. Environment Canada responded that in practical terms, if reindeer wandered into the Sanctuary, herders moving in on foot to retrieve them as quickly as possible would cause minimal additional damage relative to what the reindeer may have already caused. Therefore, Environment Canada agreed that herders on foot would be entitled to remove the animals from the Sanctuary immediately without waiting for a permit from the Minister or the CWS. If the reindeer were removed using helicopters, Environment Canada suggested that KRDC would likely require a permit. Environment Canada indicated that it would want to be advised as to the number of animals entering the Sanctuary and the method of retrieval.

In their concluding remarks at the hearing, Environment Canada stated that it is confident that it can come to a workable arrangement with KRDC regarding the protection of important bird habitats in and around the Sanctuary. In addition, Environment Canada noted that it is comforted by the fact that it feels it can work with the proponent in developing a contingency plan to deal with some of the possibilities that could arise under certain circumstances.

9.1.3 Views of the Special Investigation

In the *Special Investigation*, according to several herders, the Government of Canada chose Richards Island as the summer range since the reindeer would not cross the water on their own and were, therefore, easy to control. As Environment Canada suggested, several of the herders indicated that when the reindeer were permitted to roam around the island they appeared to make use of the entire island, including some areas within the Sanctuary. Several herders reported that the reindeer did not cross Middle Channel, which runs through the middle of the Sanctuary, particularly in spring, because the water was too high. However, one herder indicated there was good forage along the banks of Middle Channel and reindeer were often seen grazing there.

9.2 Views of the Panel

Based on information presented by Environment Canada over the course of the review and on the information contained within the Tuktoyaktuk, Inuvik and Aklavik Community Conservation Plans, the Panel concludes that the Kendall Island Migratory Bird Sanctuary and the wetlands immediately to the east of the Sanctuary, in particular, Harry and Swan Channels, Fish Island and Mallik Bay, are important habitat for waterfowl and shorebirds.

The Panel concludes that if KRDC's reindeer entered these areas they could cause significant damage to birds and/or their habitat. **As a result, the Panel recommends that the Minister of DIAND should require KRDC to maintain a 5-km no-reindeer buffer zone along the eastern boundary of the Kendall Island Migratory Bird Sanctuary and a buffer zone around the Mallik Bay area, as illustrated in Figure 2 of this document, during the period of use by migratory birds.**

The Panel accepts David Nasogaluak's comments that it is unlikely that the reindeer would cross waterways especially during spring due to high water levels and unstable ice. The Panel also notes that some the former herders interviewed in its *Special Investigation* suggested that reindeer did enter what is now the Kendall Island Migratory Bird Sanctuary in the past. **As a**

result, the Panel recommends that the Minister of DIAND should require KRDC to develop a contingency plan, acceptable to the CWS, that outlines the manner in which reindeer would be removed should they enter the Kendall Island Migratory Bird Sanctuary or the buffer zone.

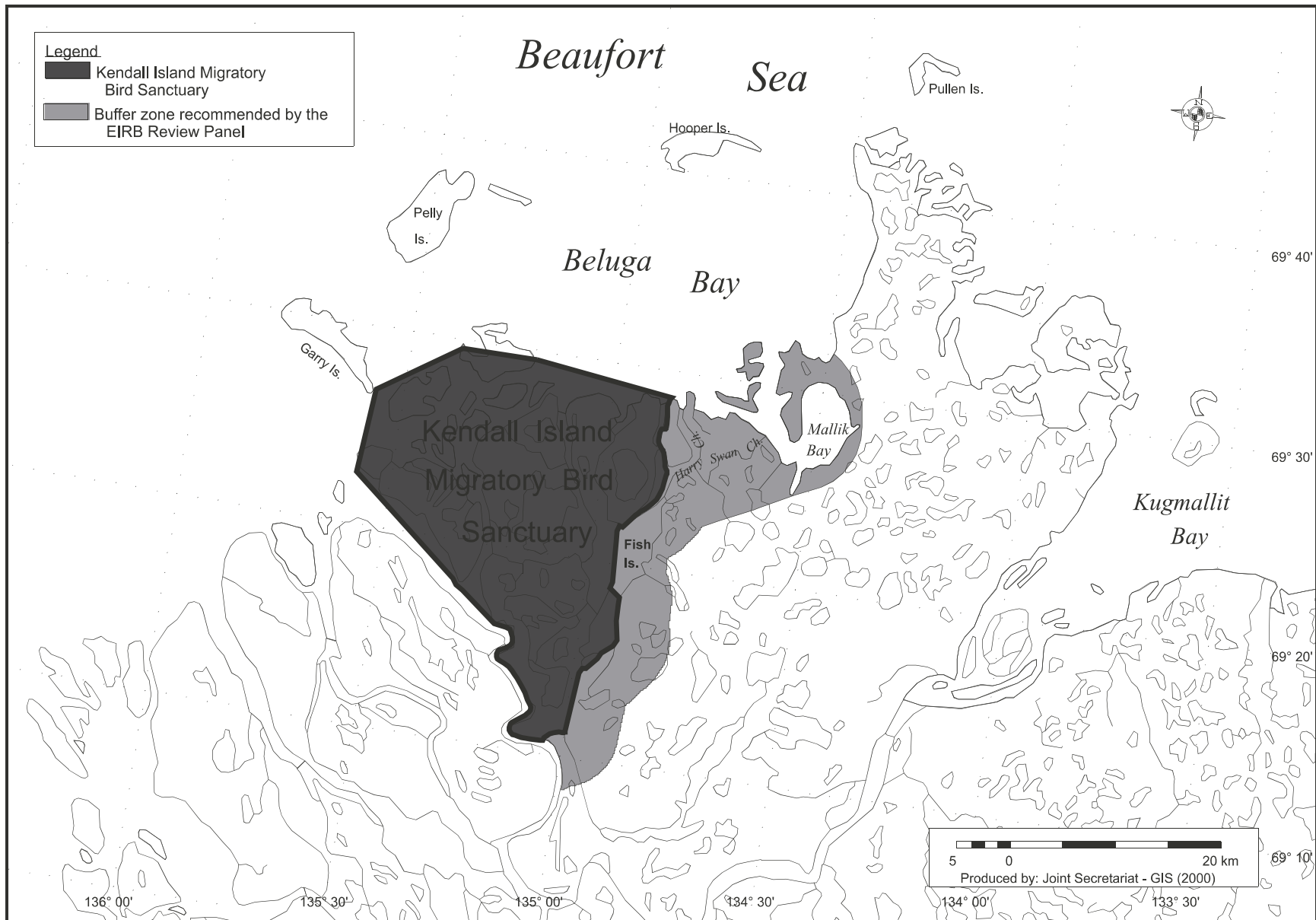


Figure 2. Location of the Panel recommended, no-reindeer buffer zone along the eastern boundary of the Kendall Island Migratory Bird Sanctuary and around the Mallik Bay area.

10.0 INTERACTIONS BETWEEN CARIBOU AND REINDEER - DISEASE AND GENETIC MIXING

10.1 Views of the Proponent, Registered Participants, Public and Technical Advisor

10.1.1 Genetic Mixing

10.1.1.1 Views of the Proponent

KRDC noted that it wishes to avoid interbreeding because integration of caribou genes into the reindeer gene pool might cause the reindeer to become more wild and harder to control.

KRDC noted that its chosen grazing areas are on the western edge of the Bluenose-West and Cape Bathurst caribou herds' range and, as such, inter-mixing with caribou would be unlikely to occur. The company noted that herders would monitor caribou movements and spend more time with the reindeer when caribou movements indicate an increased potential for inter-mixing. In addition, KRDC claimed the probability of genetic mixing between reindeer and caribou would be low because 1) reindeer rut one month earlier than caribou, 2) bull reindeer have a low probability of competing successfully with bull caribou during the rut, 3) reindeer that join caribou herds eventually die off or return to the reindeer herd, and 4) reindeer cows that have joined a caribou herd tend to calve at the same time as the caribou migration period and this often results in the death of the calves.

KRDC suggested its practice has been to kill hybrid calves. However, the company noted that it is difficult to identify hybrids until they grow up and differences in their coloration, behaviour and coordination become noticeable.

10.1.1.2 Views of the Registered Participants

At the hearing, RWED presented results from studies it did on the genetic relationship of various caribou herds and CRL's reindeer. Based on these studies, RWED reported that reindeer are very distinct and genetically separate from the caribou herds, that is, there has been no genetic mixing or inter-breeding. RWED did not attribute this to the ability of herders to keep the reindeer separate from the caribou, but rather to a high degree of breeding isolation between the populations because the reindeer breed a month earlier than caribou. RWED guessed that for interbreeding to occur a caribou bull would have to impregnate a reindeer cow that came into heat for a second time.

RWED noted that there are some caribou genotypes that appear in the reindeer genome and vice versa. RWED reported that Curtis Strobeck at the University of Alberta attributes this to reindeer and caribou being closely related sub-species and sharing some common genotypes, not to interbreeding.

10.1.1.3 Views of the Technical Advisor

Dr. White mentioned that it is difficult to explain why genetic-mixing has not occurred between the Bluenose-West and Cape Bathurst caribou herds with CRL's reindeer. He elaborated explaining that in experimental situations where reindeer and caribou were held together they interbred without difficulty. In addition, he noted the first generation of hybrid offspring were

healthy, but the second generation of offspring usually had extremely long legs which prevented successful births.

In a natural setting, Dr. White believed it is unlikely that a hybrid calf born to a caribou mother would survive. Dr. White explained that since reindeer calve a month earlier, the hybrid calf would be born at the same time that the caribou herd migrates to its calving grounds. Dr. White believed the mother would either leave the calf behind and join the migrating caribou herd, or remain with the calf in which case both the calf and its mother would be extremely vulnerable to predation.

Dr. White concluded by advising that it is not a good idea to have reindeer coming into rut around caribou bulls, because there is a chance of them becoming pregnant with what will be, in the long-term, non-viable offspring.

10.1.2 Disease

10.1.2.1 Views of the Proponent

By visual inspections during handling and from observations by its veterinarian, KRDC concluded that the reindeer appear to be in good health with respect to infectious diseases, including brucellosis and tuberculosis. Even though there are no health concerns at this time, the company suggested that ongoing research and collection of data will help improve herd health, and hence growth.

According to KRDC, one strain of brucellosis is present in both CRL's reindeer and the Bluenose caribou, but it is not the strain known as *Brucella abortus*, which often causes spontaneous abortions. KRDC indicated that the reindeer have been tested for brucellosis and the infection rate ranged from 17-30%. KRDC also noted that of the 1207 reindeer handled in the spring of 2000, only one was visually infected with brucellosis.

KRDC reported that Bluenose caribou have also been tested for brucellosis, but according to its veterinarian, not enough samples were taken to make a meaningful comparison with the infection rate in reindeer. KRDC also reported that its veterinarian found recent reports indicating that reindeer were not infected with brucellosis in the past, therefore the company concluded that caribou have infected the reindeer. KRDC suggested it was more concerned about disease being transmitted from caribou to reindeer, rather than the reindeer infecting caribou. KRDC intends to reduce the transmission of brucellosis by continuing to test for the disease and slaughtering reindeer that are visually infected with brucellosis.

KRDC indicated that it has been applying ivermectin, a general parasite treatment, to the hide and skin of calves to help them through their first year and to help them develop a better immunity to warble flies. KRDC stated that it has observed a definite reduction in animals laden with warble flies as a result of the treatments.

10.1.2.2 Views of the Registered Participants and Public

During the hearing, RWED reported that the rate of brucellosis infection in the Cape Bathurst and Bluenose-West caribou is 1.5-12.5 % based on samples taken from approximately 50

caribou. RWED noted that some herds in the Eastern Arctic have an incidence as high as 35-40%, and that the Western Arctic herds are some of the cleanest in the N.W.T.

RWED noted there have not been any significant problems thus far regarding transference of disease despite a long history of interactions between reindeer and caribou. Given these factors and the fact that brucellosis appears to be very low in caribou, RWED believed that transference of disease from reindeer to caribou is not a significant concern.

WMAC(NWT) noted that in the draft EIS there was no actual data provided on brucellosis in caribou and very little quantitative data to support the general statements on the health of the reindeer herd. WMAC(NWT) noted that it is difficult to assess the potential for problems without comparative data on brucellosis, both over time and between caribou and reindeer.

A participant at the Aklavik Public Workshop wondered whether Inuvialuit would be compensated should caribou be lost due to the transmission of disease from reindeer. KRDC responded that should many caribou become infected by reindeer, KRDC would be required to fix the problem or slaughter the herd.

The GRRB noted that KRDC appears to have a good protocol for prevention and treatment of disease, and for the prevention of disease transfer from the reindeer herd to the Bluenose caribou.

10.1.2.3 Views of the Technical Advisor

Dr. White noted that the test used for brucellosis indicates whether an animal has been exposed, but not necessarily that it has brucellosis and is showing overt symptoms of the disease. Further, he suggested that what is needed is a specific test to distinguish between *Brucella abortus* and other strains of brucellosis, but he reported that this type of test is not currently available.

10.2 Views of the Panel

Based on the evidence presented and what it has heard from the Technical Advisor, KRDC and Registered Participants, the Panel concludes that there is little concern regarding disease and genetic mixing. **The Panel recommends that the Minister of DIAND should require KRDC to monitor the health of the herd for brucellosis on an annual basis.**

11.0 CUMULATIVE EFFECTS

11.1 Views of the Proponent and Registered Participants

11.1.1 Views of the Proponent

KRDC suggested that its activities would not be in conflict with hydrocarbon exploration and development since most of the oil industry's work would occur in the proposed summer reindeer grazing area, but during the winter season. Even if summer seismic work does occur, KRDC expected that it would not be disruptive to reindeer herding, or vice versa, since seismic testing occurs within a narrow, defined area and is of relatively short duration.

KRDC also speculated that oil and gas activity will not be concentrated over all of Richards Island, so that there should be plenty of space for both itself and exploration companies to operate. One of the Tuktoyaktuk Public Workshop participants suggested otherwise, noting there will be intense oil and gas activity over the entire island, including during the summer.

KRDC stated that it plans on informing the oil and gas companies of their locations and activities. Conversely, KRDC would expect the oil and gas companies to provide an update of their activities and locations. KRDC noted that exploration camps could be easily avoided and reported that the nature of the reindeer is to not approach camps.

Regarding helicopter use by the oil and gas industry, KRDC indicated that it does not foresee any significant effects on its herding activities, providing there is no low-level flying in the immediate vicinity of the herd.

At the Public Hearing, KRDC reported that it has reached an agreement with Arctic Oil and Gas Services, and Petro-Canada to co-use a camp at Swimming Point. KRDC noted the arrangement will mean the number of structures put in place will be reduced, thus diminishing the cumulative environmental impacts on the area.

KRDC does not anticipate being at the Swimming Point facility very often. It would use the Swimming Point facility primarily for roundup in early summer and for crossing the herd back over to the mainland in the fall. KRDC reported that Petro-Canada would use the site mainly for staging.

KRDC also mentioned that Petro-Canada will construct diversion fencing around the Swimming Point facilities to prevent the reindeer from entering, and the proponent noted that this will facilitate positioning the reindeer for crossing the Mackenzie River. KRDC stated that when swimming the herd on or off of Richards Island at Swimming Point, it would be critical that there would be no river traffic for a short period, and the company would work closely with industry to arrange this.

KRDC indicated that it has entered into discussion with AEC West, a company proposing to undertake seismic exploration, regarding ways in which potential conflicts could be minimized. KRDC also noted that it is in regular communication with oil and gas exploration firms and both sides believe that there is no concern regarding conflicts between their respective developments. KRDC reported that both sides have demonstrated a willingness to coordinate activities to avoid potential conflicts and impacts.

KRDC stated at the hearing that it could not assess the cumulative impacts at present, but the company believed it could assess cumulative impacts while the Development proceeds. KRDC also stated that it expects there will be no cumulative impacts resulting from its Development.

KRDC believed it would be more appropriate to ask the oil and gas industry what cumulative impacts their activities will have on the area rather than KRDC, since there will be more activity on their part.

11.1.2 Views of the Registered Participants

WMAC(NWT) stated that it considers the cumulative impacts of human activities in the area to be one of the most critical concerns with respect to the protection of wildlife and wildlife habitat in the ISR. It found the proponent's response to the topic to be insufficient and erroneous particularly considering that the Development involves the relocation and expansion of the reindeer herd within close proximity of Inuvik, and within the wintering grounds of the Bluenose-West and Cape Bathurst caribou herds. WMAC (NWT) suggested that a strategy for predicting, monitoring and assessing cumulative impacts must be developed cooperatively amongst all stakeholders prior to the intensification of activity in the region.

DIAND considered the cumulative effects assessment approach to be inadequate, noting that KRDC has assessed the cumulative effects of human activities on reindeer. DIAND stated that the proponent should have identified any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out. DIAND suggested that elements such as magnitude of effect, geographical extent, timing, duration, frequency, significance, probability and irreversibility should have been included.

Environment Canada thought that KRDC should provide a concise analysis of the degree to which its proposed reindeer grazing expansion would interact in a cumulative sense with other likely development activities in the area, such as heightened hydrocarbon exploration. As mentioned earlier, Environment Canada sought assurance that the present scope of assessment meets Environment Canada's obligations under CEAA, e.g. cumulative effects, since the agency could be a future Regulatory Authority.

The GRRB believed that the cumulative effects of the reindeer operation, resource exploration and development, and other existing and proposed land uses on top of potential heavy seasonal range use by the Bluenose caribou, were not addressed in the draft EIS. DIAND noted that the cumulative impact of grazing by both reindeer and caribou and the possible impacts when the reindeer herd has been built up to the desired levels should be addressed.

RWED suggested that the Panel require a process for predicting, monitoring and assessing cumulative effects. DIAND suggested that KRDC discuss the significance of any effects so that the proposed mitigative measures can be assessed. DIAND stated that the residual impacts after mitigation should also be described and their significance assessed. During the hearing, DIAND suggested that follow-up monitoring could be better developed at the working group level.

Environment Canada thought that KRDC should have provided a more detailed assessment of the possible effects of climate change on specific aspects of its project. For example, what are the possible effects of climate change on caribou and what influence might reindeer have to this

given that there is broad dietary overlap between the two sub-species. DIAND also stated that as climate change may impact food availability, population growth, stress levels, incidence of disease, movement, and herding techniques of the herd, adequate consideration should be given to the issue despite the nature of the information currently available.

During the hearing, DIAND suggested that the number of bears killed over time, the impact of this bear kill on the remaining population, and the sustainability of that population should be examined as a cumulative impact.

11.2 Views of the Panel

The Panel notes that according to the CEAA, cumulative effects is *the effect on the environment which results from effects of a project when combined with those of other past, existing and imminent projects and activities*. The Panel interprets “imminent projects and activities” to include any projects or activities that are now in the regulatory approval stage. For this Development, the Panel believed cumulative effects must be considered for the following projects and activities: subsistence and sport harvesting; defense kills of bears from all sources; the Ikhil production facility and pipeline; seismic programs proposed by Petro-Canada, Gulf Resources and AEC West Ltd.; and the Swimming Point base camp.

The Panel accepts the proponents evidence that KRDC and gas seismic programs can work together, but the Panel is not convinced that together they will not have an impact on the environment. The Panel believes that gas exploration and associated flights will likely have a bigger impact on caribou than KRDC’s proposed activities.

The Panel believes that the necessary tools for examining cumulative impacts presently do not exist in the N.W.T. The Panel is aware, however, of several initiatives in the N.W.T related to cumulative effects, namely, the Cumulative Impacts Monitoring Program (CIMP) and the N.W.T. Cumulative Effects Assessment and Management Framework (CEAMF). **The Panel recommends that the federal government, through DIAND, funds these important initiatives, and that the N.W.T. CEAMF Steering Committee and the CIMP Working Group develop and implement appropriate monitoring and management programs and thresholds, so that the cumulative effects of this project can be better assessed in the future.**

Given the necessary tools for examining cumulative impact do not exist, the Panel believes it has addressed the concerns raised regarding cumulative effects through the mitigative measures it has proposed for minimizing impacts on harvesting and the caribou range, and through the assurance that the Development must be reviewed again after five years.

12.0 CULLING AND SLAUGHTER WASTE

12.1 Views of the Proponent and Registered Participants

12.1.1 Views of the Proponent

KRDC presented several variations of what slaughtering would occur as part of this Development.

12.1.1.1 Information Presented at the Public Workshops

At the Public Workshops, KRDC indicated that meat production and tourism are not part of the Development, but in the future it intends to begin meat production and start a small ranch for the tourism industry. KRDC also noted that prior to any slaughtering or tourism developments, KRDC will consult with the HTCs and apply to Inuvialuit and other regulatory authorities for their approval. During the Inuvik Public Workshop, KRDC elaborated on its future plans, stating that it will probably harvest 1500-2000 reindeer annually, and the meat would probably be exported out of the Northwest Territories.

KRDC noted that the location for disposal of offal, the waste products of slaughtering, would be identified at a later date, and the location would depend on the slaughtering location and the time of the year. KRDC noted that it would ideally like to leave the offal in the location where the slaughter occurs. At the Tuktoyaktuk Public Workshop, KRDC indicated that it would like to perform slaughters in the future at Swimming Point, Lucas Point, or somewhere along the Mackenzie River.

KRDC noted that there had been concern raised in Inuvik that the local sale of reindeer meat would interfere with local caribou sales. As such, KRDC agreed not to sell meat locally.

12.1.1.2 Information Presented at the Public Hearing

KRDC presented a new scenario at the hearing, whereby, culling of the herd would be required for herd management purposes and this would result in meat production, slaughtering and the disposal of the slaughter wastes or offal. The scenario would be on more limited scale than the meat production described for Phase II in the EIS. KRDC stated that the meat from the slaughters would be used for personal and corporate consumption only, however, the company also indicated that it would be selling meat within the N.W.T. and/or giving it to the community. KRDC noted that it plans to have an elders meat program.

KRDC indicated the animals to be culled would be brought into Inuvik and, therefore, there would not be a requirement for environmental screening under the IFA. KRDC also indicated there would not be a requirement for compliance with Agriculture Canada export regulations since there would be no out-of-territory sales. Upon being questioned by the Panel, KRDC noted that the company does not presently have an arrangement with the Town of Inuvik to proceed with the in-town slaughter of reindeer. However, KRDC reported that it has had several discussions with the mayor and the Town has encouraged KRDC to consider the option. KRDC suggested that conducting the slaughter within town limits would save the costs of undergoing the environmental screening and review process established under the IFA, and other bureaucratic and administrative overhead. KRDC mentioned that it would take one or two days

to move a group of animals from the winter grazing area to Inuvik for culling, and the HTC would be contacted and notified of the movement of these animals.

If slaughtering within the Town of Inuvik was not an option, KRDC indicated it could cull animals outside of town and freight the carcasses into town for processing. If the animals were to be slaughtered and dressed outside of town, KRDC suggested that it could bring in all of the offal into town, except for the rumen which would be left on the land as fertilizer.

KRDC indicated at the hearing that the preferable time of the year for culling the herd for meat production is late August, but considering Agriculture Canada's requirements November, February or March would be best.

In the event that down-sizing were required to meet the carrying capacity requirements of the range, KRDC noted that the company could operate with a smaller herd, if need be, and would slaughter any surplus animals for meat. KRDC indicated that animals could be removed from the herd, slaughtered in two to three days, and the meat could be sold locally or within the Northwest Territories. KRDC indicated that if this were to occur there would be little overhead expense, and it would be a break even situation at the very worst.

KRDC noted in the EIS that compensation can be paid by Agriculture Canada, where it requires a herd to be depopulated for infectious and dangerous disease. KRDC believed that this would cover any potential surplus costs associated with a depopulation, if it were required by Agriculture Canada.

12.1.2 Views of the Registered Participants

When reviewing the draft EIS, Environment Canada noted that KRDC did not provide sufficient detail on the facilities associated with a proposed annual slaughter of up to 2000 animals. In addition, Environment Canada questioned how waste, particularly offal, would be handled and disposed of in a manner that minimizes the contamination of water and the attraction of predator/scavengers.

The GRRB noted that the draft EIS does not describe how waste from the proposed slaughter (in Phase II) would be dealt with. The GRRB believed that the collection of wastes from a slaughter would present a strong attractant for predators and scavengers, putting animals and humans at risk.

At the hearing, these Registered Participants did not raise any significant concerns related to impacts of the smaller scale culling activities.

12.2 Views of the Panel

The Panel accepts the evidence presented by KRDC that culling will either be done in the Town of Inuvik or the offal will be brought into town and believes the disposal of offal can be handled adequately by the regulatory authorities.

13.0 ABANDONMENT AND RECLAMATION

13.1 Views of the Proponent and Registered Participants

13.1.1 Views of the Proponent

KRDC noted that in the unlikely event that the business had to be discontinued, it would remove all assets and restore sites to their previous existing states, unless approvals were granted for sale or transfer. KRDC indicated that the total cleanup, decommissioning and asset removal/liquidation would cost them no more than \$30 000 in internal costs and it would take no longer than 7-10 days. KRDC noted that the budget did not include any revenues from disposal of assets.

13.1.2 Views of the Registered Participants

RWED suggested that the Panel consider contingencies and liabilities in the event that KRDC declared bankruptcy.

DIAND noted that KRDC indicated that no reclamation, restoration, abandonment and decommissioning plan is required without providing any reason. DIAND stated that it is very important that such a plan to prepared even at a conceptual level. DIAND noted that guidelines are available to assist KRDC in preparing a general reclamation plan.

The GRRB suggested that a contingency plan be developed to deal with the possibility of range deterioration caused by the cumulative impact of 10 000-12 000 reindeer, plus however many caribou use the range. The GRRB suggested that the plan should detail financial and logistical responsibilities for vegetation restoration as well as decommissioning.

13.2 Views of the Panel

The Panel believes that standard conditions governing the restoration of a site associated with DIAND's and ILA's permits and leases should be sufficient to ensure the cleanup and restoration of the Development. The Panel accepts KRDC's estimate for total cleanup, decommissioning and asset removal/liquidation of no more than \$30 000 in internal costs. **The Panel recommends that the Minister of DIAND should require KRDC to post a letter of credit, a guarantee or an indemnity bond in the amount of \$30 000 to cover land restoration costs that may arise as a result of the Development.** The Panel also notes that according to the evidence before it, the herd could be relocated in quick order, if so required.

14.0 OTHER ISSUES

14.1 Heritage Sites on Richards Island

A citizen from Tuktoyaktuk said that there are ancient burial grounds on Richards Island near Kidluit Bay. KRDC indicated that it is also aware of approximately a dozen graves along the east coast of North Point, near Mason Bay on Richards Island. KRDC said it would respect all burial sites. **The Panel recommends that the standard conditions on permits and leases governing the protection of heritage sites should be included in the Reindeer Grazing License (DIAND) and the Reindeer Grazing Permit (ILA).**

14.2 NWT Reindeer Regulations

Prior to the hearing, the EIRB informed DIAND that it would be expected to comment on the status and applicability of the *NWT Reindeer Regulations*. At the hearing, DIAND explained that the Regulations are still in force and applicable, although they had not been used much and there had been internal discussions to revoke them. **The Panel is of the opinion that a Reindeer Grazing License is required from the Minister of DIAND for the Development, and the Panel recommends it as the most appropriate legal instrument for incorporating most of the recommended terms and conditions and believes in many cases it is the only instrument to do so.**

14.3 KRDC's Use of Existing Facilities at Kidluit Bay and Atkinson Point

DIAND noted that KRDC mentions use of an abandoned "radio shack" at Kidluit Bay. DIAND stated that given that the building is identified as a radio shack and knowing the history of such facilities in the North, there is a high degree of possibility that the location contains hazardous material which needs to be assessed before occupation.

KRDC indicated at the hearing that the building at Kidluit Bay is a wood-frame building and that there are no PCB's.

In reviewing the draft EIS, DIAND noted that should the lease for Atkinson Point be transferred from CRL to KRDC, KRDC would be fully responsible for ensuring that the area is cleaned up even if the herd does not utilize the area. DIAND noted that PCB's were found and cleaned up on this lease and there is a discarded tower that is being utilized for a fence. In the EIS, KRDC stated it would only use Atkinson Point while under contract to CRL and with CRL rights.

14.4 Fuel Spillage

Although KRDC contends that there will be little potential for fuel spillage, DIAND recommended that an appropriate fuel spill clean-up kit be purchased for the winter and summer facilities because of the multi-year nature of the facilities. DIAND also noted that the risk of spills on the ice and the mitigating measures necessary to minimize the potential environmental impacts were not been provided. The Panel is confident that this can be adequately addressed through the terms and conditions of the appropriate approvals issued by DIAND.

14.5 Water-Related Environmental Impacts

DIAND mentioned that because of the scale of Phase I and the minor amount of water being used, there is limited potential for water-related environmental impacts. However, DIAND suggested that KRDC should have considered the environmental effects of potential impacts of boat use during herding, including fuel spills and wildlife disturbance.

14.6 Aircraft Use

KRDC indicated that helicopters would be used under various circumstances for herd control (see subsections 8.1 and 9.1). The company also indicated that fixed-wing aircraft may be used for herd surveillance and transporting supplies to the winter base camp at Jimmy Lake.

DIAND stated that the information on environmental effects of the project is either described only in general terms or is not provided, e.g. information concerning aircraft and helicopter use.

In its comments on the draft EIS, Environment Canada noted that the proponent did not indicate what restrictions concerning flight altitudes and locations would apply to the proposed Development. KRDC indicated in the EIS that a helicopter would be flying at 100-150 meters altitude during annual round-up collection, but KRDC remained silent for its other activities involving helicopter and fixed wing aircraft.

14.7 Ice Roads

At the hearing, DIAND explained that there has been several variations of the project including ice roads and modifications of existing ice roads. Near the completion of the hearing, KRDC stated that there had been a misunderstanding about ice roads, and it would merely be using the existing winter ice road to transport materials. DIAND also expressed concern about the environmental effect of using existing ice roads.

15.0 WORST CASE SCENARIO

15.1 Views of the Proponent and Registered Participants

15.1.1 Abandonment and Reclamation

15.1.1.1 Views of the Proponent

KRDC stated that in the unlikely event that the business had to be discontinued, it would remove all assets and restore sites to their previous existing states, unless approvals were granted for sale and transfer. KRDC indicated that the total cleanup, decommissioning and asset removal/liquidation would cost them no more than \$30 000 in internal costs and would take approximately 7-10 days.

15.1.1.2 Views of the Registered Participants

RWED recommended that the Panel consider contingencies and liabilities in the event that KRDC declared bankruptcy.

15.1.2 Removal of Reindeer from the Kendall Island Migratory Bird Sanctuary

15.1.2.1 Views of the Proponent

KRDC stated in the EIS that the reindeer will be kept off the Kendall Island Migratory Bird Sanctuary. KRDC indicated it would take several measures to prevent the reindeer from entering the Sanctuary, including complying with a 5-km buffer zone along the eastern boundary of the Sanctuary in which no reindeer would be allowed. KRDC believed that following discussions at the hearing, it had convinced Environment Canada and the Panel that it is an unlikely scenario that the reindeer herd will enter the Sanctuary. However, if they do, the company believed it has provided the methods for which it would retrieve the reindeer.

KRDC stated in the EIS that the reindeer will be kept off the Kendall Island Migratory Bird Sanctuary. KRDC indicated it would take several measures to prevent the reindeer from entering the Sanctuary, including establishing a 5-km buffer zone along the eastern boundary of the Sanctuary in which no reindeer would be allowed. KRDC believed that following discussions at the hearing, it had convinced Environment Canada and the Panel that it is an unlikely scenario that the reindeer herd will enter the Sanctuary. However, if they do, the company believed it has provided the methods for which it would retrieve the reindeer.

15.1.2.2 Views of the Registered Participants

In their comments on the draft EIS, Environment Canada indicated that KRDC should provide more details on the worst case scenario of a large number of reindeer eluding the herders and moving into the Sanctuary.

In their closing comments at the hearing, Environment Canada indicated that it is confident that it can come to a workable arrangement with KRDC regarding the protection of important bird habitats in and around the Sanctuary.

15.1.3 Decrease in the Bear Quotas for a Specific Management Area

15.1.3.1 Views of the Proponent

KRDC does not feel it is likely that the company will have to kill grizzly bears year after year, and believed that the compensation value deters the company from killing any bears. KRDC also referred to comments made at the hearing by David Nasogaluak, who suggested that grizzlies will not approach the herd unless they are really hungry. KRDC concluded that it would take a lot of starving grizzly bears to create the situation where the quotas would have to be reduced.

15.1.3.2 Views of the Registered Participants and Public

Environment Canada, DIAND and RWED have expressed concern that killing problem bears could impact the ability of the population to sustain harvesting or it might even affect the long-term viability of the population. RWED was concerned that if the number of grizzly bears killed exceeded the quotas, whether it is bears killed as a result of sports hunts, subsistence harvest or problem bear kills, further reductions in quotas may be required in future years to prevent over harvesting. RWED indicated that if quotas were lowered this would have an affect on the HTCs, particularly the Inuvik HTC.

15.1.4 Displacement of the Cape Bathurst And/or Bluenose-West Herds from Their Present Ranges

15.1.4.1 Views of the Registered Participants

The IGC suggested one worst case scenario would be that Inuvialuit from Inuvik would have to go much further to get a caribou.

WMAC (NWT) stated at the hearing that it could be difficult to determine if one factor caused caribou distributions to change, but certainly there is some possibility that the reindeer activity could influence the movement of the entire Bluenose herd

15.1.5 Downsizing and Depopulation

15.1.5.1 Views of the Proponent

In the event that down-sizing were required to meet the carrying capacity requirements of the range, KRDC noted that the company could operate with a smaller herd, if need be, and would slaughter any surplus animals for meat. KRDC indicated at the hearing that animals could be removed from the herd, slaughtered in two to three days, and the meat could be sold locally or within the Northwest Territories. KRDC indicated that if this were to occur there would be little overhead expense, and it would be a break even situation at the very worst.

KRDC noted that compensation can be paid where Agriculture Canada requires a herd to be depopulated for infectious and dangerous disease. KRDC believed that this would cover any potential surplus costs associated with a depopulation, if it were required by Agriculture Canada.

15.1.5.2 Views of the Registered Participants

At the hearing, WMAC(NWT) noted that as a worst case scenario KRDC suggests it would remove surplus animals if the reindeer population exceeded the carrying capacity of the range. WMAC(NWT) believed that to do this KRDC must know what the carrying capacity is before the Development proceeds.

15.2 Views of the Panel

The Panel is required to estimate the potential liability of the proponent for the impacts of the Development, based on a worst case scenario (see section 4.0). The Panel believes that KRDC and Registered Participants have proposed five possible worst case scenarios: 1) abandonment and reclamation in the event that the venture is not a viable business operation, 2) the encroachment and subsequent removal of reindeer from the Kendall Island Migratory Bird Sanctuary, 3) increased and continuing problem bear kills, 4) diversion of caribou away from their winter grazing area, and 5) down-sizing or depopulation of the reindeer herd.

As indicated in subsection 13.2 of this document, the Panel believes that standard conditions governing the restoration of a site associated with DIAND's and ILA's permits and leases should be sufficient to ensure the cleanup and restoration of the Development. The Panel accepts KRDC's estimate for total cleanup, decommissioning and asset removal/liquidation and recommends that the Minister of DIAND require KRDC to post a letter of credit, a guarantee or an indemnity bond as a condition of its land use permit to cover land restoration costs that may arise as a result of the Development.

Regarding the encroachment and subsequent removal of reindeer from the Kendall Island Migratory Bird Sanctuary, the Panel heard that Environment Canada has confidence that a workable arrangement and contingency plan could be developed with KRDC to ensure protection of sensitive habitat and birds within the Sanctuary and the surrounding areas.

Regarding increased and continuing problem bear kills, the Panel believes on the strength of David Nasogaluak's evidence that KRDC's proposed operations would not likely be the major cause of problem bears in the area.

Regarding the possible diversion of caribou from the area, the Panel believes KRDC has procedures, such as intensive herding and establishing good communication between herders and hunters, to mitigate this diversion. In addition, the Panel heard from the Technical Advisor and places weight on the evidence of the Alaskan experience which shows that in areas where caribou and reindeer co-exist, there has been more of a case of the reindeer joining the caribou, rather than the reindeer displacing caribou away from a grazing area. The Panel also notes that it would be difficult to determine the worst case scenario, and hence the financial liability, of KRDC for the displacement of the Cape Bathurst/Bluenose-West caribou herds from their present range, since the migratory patterns of the herds are unpredictable and the factors that influence their movements are not well understood.

Given the above, the Panel used issue 5, down-sizing or depopulation of the reindeer herd, as the worst case scenario. The Panel notes that if depopulation was required due to infectious or dangerous disease the associated costs would be covered by Agriculture Canada, and otherwise the costs would be covered by KRDC. The Panel accepts KRDC's statement that it would be

able to cover the costs of downsizing or depopulation through the sale of meat locally or within the Northwest Territories.

16.0 ALTERNATIVE MEANS

The Panel notes that according to CEAA every review by a Review Panel *shall include a consideration of alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means.*

16.1 Views of the Proponent, Registered Participants and Public

16.1.1 Views of the Proponent

KRDC stated in the EIS that when choosing its proposed range it considered optimal range use, as proposed by the Inuvik Research Laboratory in 1967 studies. The company also considered avoidance with caribou and caribou harvesting. In a response to a letter from the IGC, KRDC noted that it sees its proposed ranges as having the advantage of being on the edge of the Bluenose Caribou herds range. The company believed that the range presently used by CRL requires movements that bisects caribou migratory patterns, and thus has potential for greater conflict.

KRDC stated in the EIS that CRL is currently keeping the herd on the Tuktoyaktuk Peninsula, an unsuitable winter foraging area, to avoid paying grazing fees for using Inuvialuit Private Lands. KRDC suggested an alternative to its proposed Development would be to keep the reindeer on the peninsula in summer and move them south across Husky Lakes in the fall, but this would bring the reindeer directly into the main migration path of the caribou. KRDC believed that with its proposed locations, the reindeer would be almost entirely out of the movement of caribou, so it presents a solution to an existing problem.

KRDC indicated that it would not be willing to move the herd south into the Gwich'in Settlement Region as this would require further regulatory approval(s).

KRDC indicated that it would prefer using an alternate site for the winter base camp at or near Hans Bay on Husky Lakes, but it stated that the site is not available for consideration until the Husky Lakes Development Plan has been completed by the Inuvialuit Land Administration.

KRDC indicated that it considered having its main summer base and corral located at Kidluit Bay, but it determined that it is not possible since this site is not easily accessible in mid-June when herd corralling and treatment must be undertaken.

16.1.2 Views of the Registered Participants and Public

A participant of the Public Workshop in Inuvik asked if it was necessary to increase the size of the herd right away. KRDC responded that it was necessary for the project to be economically viable.

A participant of the Public Workshop in Tuktoyaktuk proposed an alternative to increasing the size of the herd to 12 000 summering immediately. The participant suggested that KRDC could increase the size of the herd to 8000 head, wait until a range assessment is completed in three to five years, and then increase the herd size to 12 000 head. KRDC responded that it will have a good understanding of the carrying capacity of the range by the time the herd reaches 10 000 summering head.

A participant of the Public Workshop in Aklavik suggested that KRDC should use tranquilizing darts instead of killing bears, or call a RWED Renewable Resource Officer. KRDC responded that RWED will not allow the company to use tranquilizing darts and that it would not be realistic for an RWED officer to be called due to the remoteness of the proposed locations.

16.2 Views of the Panel

Regarding alternative locations for the winter range, the Panel notes that one option would be to move the herd to the area on the southeast side of Husky Lakes (approximately the area shown as *Zone E* in Map#10 of KRDC's EIS, p. 60). However, the Panel concludes that conflict with the Cape Bathurst and Bluenose-West caribou would be more likely if the reindeer were moved to this area. The Panel notes leaving the herd on the Tuktoyaktuk Peninsula is another alternative for the wintering range, but concludes that the herd would not increase in size if the herd were left on the Peninsula due to the poor winter grazing conditions. The Panel notes that both of the alternatives would be more costly.

17.0 CONCLUDING REMARKS

KRDC indicated that it has been told many times by elders, former herders, children and other people on the street that it is unfortunate that the company has been unable to start the proposed Development and many of these people have indicated that they would be interested in working for the company. KRDC also indicated that if it is unsuccessful at this stage of the Development in making substantial headway, it will no longer have the option of acquiring the reindeer herd from CRL and there will be a much greater problem to deal with in the Western Arctic.

Frank Pokiak choose to make closing comments on behalf of the people he has talked to on the streets in Inuvik and Tuktoyaktuk, instead of on behalf of the IGC or WMAC (NWT), organizations that he normally represents. An elder told Frank Pokiak just prior to the hearing, that they have waited many years for the caribou to return and they do not want to see any reindeer in the area that caribou use - they do not want to see caribou go away from this area. Frank Pokiak indicated that several other individuals from Inuvik and Tuktoyaktuk have expressed similar sentiments about the proposed Development. Frank Pokiak also mentioned that in the past some people benefitted from the herd, but not very many, and the reindeer herd was originally brought to the area to provide the local people with meat, but they could not afford it.

William Day mentioned that as an Inuvialuit harvester, they are able to hunt just a couple of hours away from Inuvik. William Day's concern, and the concern he has also heard from elders, is that moving the reindeer to the proposed wintering area would cause the caribou to leave again and people would have to travel further to hunt caribou.

WMAC(NWT) stated that it believed that the potential environmental impacts of this project will be significant and that the project should not proceed at this time. WMAC(NWT) bases its recommendation on the lack of baseline data on range condition and carrying capacity; a lack of detail in the Range Monitoring and Evaluation process; a lack of consideration for currently available satellite telemetry data on caribou movements and distribution, and a need for formal strategies for range monitoring, buffer zone maintenance, predator control and cumulative impacts monitoring. WMAC(NWT) also emphasized that reindeer are not wildlife and it is WMAC(NWT)'s position that protecting reindeer is not within its mandate.

Environment Canada stated that it is confident that it can come to a workable arrangement with KRDC regarding the protection of important bird habitats in and around the Sanctuary. In addition, Environment Canada noted that it is comforted by the fact that it feels it can work with the proponent in developing a contingency plan to deal with some of the possibilities that could arise under certain circumstances.

DIAND viewed this project as deficient and that further review will be required. DIAND indicated that it will await the Panel's recommendation of whether the project should be subject to further review. DIAND suggested that it may be appropriate that a new EIS be prepared that includes all of the changes made to the proposal since the EIS was written.

18.0 REFERENCES

Government of Canada. 1995. *Canadian Environmental Assessment Act*. Supply and Services Canada, Ottawa. 54pgs.

Prepared by RWED for recommendation by WMAC (NWT), GRRB, the Sahtu Renewable Resource Board and the Nunavut Wildlife Management Board. *Co-management Plan for the Cape Bathurst, Bluenose-West and Bluenose-East Caribou Herds: Northwest Territories and Nunavut, 1999/2000 to 2003/2004*. 41 pgs. (Draft)

Kuññek Resource Development Corporation. 2000. *Revised Environmental Impact Statement* (with errata addendum). Submission to the Environmental Impact Review Board, Inuvialuit Renewable Resource Committee, Inuvik, Northwest Territories, Canada, 120 pgs.

Scotter, G. 1968. *Study of the range resources and management of the Canadian reindeer operation*. Canadian Wildlife Service, Edmonton, Alberta, Project No M 3-1-12. Unpubl. Rep 65 pgs.

Sims, R. 1983. *Ground truth and large scale 70mm aerial photographs in the study of reindeer winter rangeland Tuktoyaktuk Peninsula Area, N.W.T.* Univ. British Columbia, Ph.D. thesis, 178 pgs.

Treude, E. 1979. Forty years of reindeer herding in the Mackenzie Delta. *Polarforschung*, no. 2:129-148.

The undersigned, members of the Review Panel as selected by the Chairman of the Environmental Impact Review Board, respectfully submit the decision and recommendations contained herein.

Robert Hornal
Chairman

Jack Akhiatak
Member

Peter Bannon
Member

Tom Butters
Member

Herbert Felix
Member

Dated _____ of November 2000

APPENDIX A

PUBLIC NOTICE OF REFERRAL
DATED AT INUVIK, NORTHWEST TERRITORIES
22 NOVEMBER 1999

On 18 November 1999 the Environmental Impact Screening Committee referred the development proposal known as **Revitalization of the Reindeer Industry in the Beaufort Delta, originally submitted by Kuñnek Resource Development Corporation**, to the Environmental Impact Review Board for Public Review. This Public Review is being held pursuant to the Inuvialuit Final Agreement (IFA) which has been approved, given effect and declared valid by the Western Arctic (Inuvialuit) Claims Settlement Act, being Chapter 24 of the Statutes of Canada 32 -33, Elizabeth II (1984).

The purpose of this review is to assess the potential environmental effects of the proposed operation and for the Environmental Impact Review Board to 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. [IFA 11.(24)]

The Environmental Impact Review Board invites organizations, government agencies, and members of the public to participate in the review and to make submissions to the Review Board concerning these matters.

Individuals and/or organizations that intend to make submissions should register by letter with the Secretary of the Environmental Impact Review Board.

Registered Participants will be placed on a mailing list, and thereafter will receive all documents designated for distribution, including the proponent's environmental impact statement (EIS), subsequent notices, procedural rulings, and other written submissions.

Registered Participants may take part in the public review via their written submission or, in the event of a public forum, by sending a delegation. If a public forum is held, individuals and organizations that do not register an intention to participate may make oral submissions after Registered Participants have been heard.

Anyone wishing further information concerning this public review, or who would like a copy of the Environmental Impact Review Board's Operating Procedures should contact:

Secretary, Environmental Impact Review Board
P.O. Box 2120, Inuvik, Northwest Territories
X0E 0T0
Telephone: 867 777 2828
Fax: 867 777 2610

APPENDIX B

REGISTERED PARTICIPANTS LIST

Ms. Carol Arey, President, Aklavik Hunters and Trappers Committee
Mr. Robert Bell, Chair, Fisheries Joint Management Committee, Inuvik
Mr. Larry Carpenter, Chair, Wildlife Management Advisory Council (NWT)
Mr. Robert Charlie, Chair, Gwich'in Renewable Resource Board, Inuvik
Mr. Rudy Cockney, Inuvik District, Department of Indian Affairs and Northern Development
Mr. Jean-Maurice Coutu, Environmental Protection Branch, Environment Canada, Ottawa
Mr. James Day, Inuvik Hunters and Trappers Committee
Mr. Micheal Fabijan, Fabijan Consulting, Inuvik
Mr. Warren Fenton, Manager EA Coordination, Environment Canada, Edmonton
Mr. Patrick Gruben, Chair, Tuktoyaktuk Community Corporation
Ms. Maria Hansen, Inuvik Hunters and Trappers Committee
Mr. Dick Hill, Nottawa
Mr. Wayne Hohner, Operations Manager Northern Gas Group, Chevron, Calgary
Mr. Brian Johnston, Resource Person, Wildlife Management Advisory Council (NWT), Inuvik
Mr. Paul Latour, Environment Canada, Yellowknife
Mr. Steve Matthews, Resources, Wildlife and Economic Development, Yellowknife
Mr. Ron Morrison, Department of Resource, Wildlife and Economic Development, Inuvik
Mr. John Nagy, Department of Resource, Wildlife and Economic Development, Inuvik
Mr. Brian Plesuk, Community and Aboriginal Relations Coordinator, Gulf, Calgary
Mr. Frank Pokiak, Chair, Tuktoyaktuk Hunters and Trappers Committee
Mr. Duane Smith, Chair, Inuvialuit Game Council, Inuvik
Mr. Ranjit Soniassy, Department of Indian Affairs and Northern Development, Yellowknife
Dr. Tom Steele, Canadian Food Inspection Agency, Edmonton
Mr. Doug Stewart, Director, Resources, Wildlife and Economic Development, Yellowknife
Dr. Peter Usher, P.J. Usher Consulting Services, Ottawa

APPENDIX C

NOTICE OF PUBLIC WORKSHOPS

for Kuññek Resource Development Corporation's development known as
REVITALIZATION OF THE WESTERN ARCTIC REINDEER HERD

A Public review of the development activity known as REVITALIZATION OF THE WESTERN ARCTIC REINDEER HERD, proposed by KUÑÑEK RESOURCE DEVELOPMENT CORPORATION (KUÑÑEK) has been initiated by the Environmental Impact Review Board. This Public Review is being held pursuant to the Inuvialuit Final Agreement which has been approved, given effect and declared valid by the Western Arctic (Inuvialuit) Claims Settlement Act, being Chapter 24 of the Statutes of Canada 32-33, Elizabeth II (1984).

Public Workshops

Public consultation is part of the review process to assess the potential environmental effects of the proposed development. Public workshops will be held at Ingamo Hall in Inuvik on the 3 of May 2000 and at the David "Buck" Storr Office Complex (the "Big Building") in Aklavik on the 4 of May 2000. Workshops will begin at 7:00 p.m. local time and continue thereafter as may be necessary. A Public Workshop in Tuktoyaktuk will be announced at a later date.

At the public workshops, Kuññek will present a description of the proposed development as outlined in the submission to the Review Board. Local registered participants and the public are invited to identify concerns, if any, for the proposed development.

The Review Process Following the Public Workshops

Concerns identified at the public workshops will be considered by the Review Board prior to and during a public hearing. Following the public hearing the Review Board will recommend whether 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 [IFA 11.(24)]. Dates and location for the public hearing will be advertised in advance of the hearing.

Copies of the order of events for the public consultations and the Kuññek submission to the Environmental Impact Review Board, which describes the proposed development are available for examination during normal business hours at the office of the Joint Secretariat, 107 Mackenzie Road, Inuvik, Northwest Territories.

Anyone wishing further information concerning this public review, or who would like a copy of the Environmental Impact Review Board's Operating Procedures which outlines the rules, format and protocol for the Public Hearing should contact:

E.I.A. Resource Person
Environmental Impact Review Board
P.O. Box 2120, Inuvik, Northwest Territories
X0E 0T0
Telephone: (403) 979-2828
Telecopier: (403) 979-2610

APPENDIX D

PUBLIC WORKSHOP

“Revitalization of the Western Arctic REINDEER Herd”

DO YOU HAVE ANY COMMENTS?

According to the Inuvialuit Final Agreement, the Environmental Impact Review Board is presently reviewing the above-noted development. Three Public Workshops will be held to hear local concerns, if any, about the development. At the Workshops, Lloyd Binder of Kuñnek Resource Development Corporation will describe his proposed activities. Concerns identified will be considered by the Review Board at the Public Hearing which will be held at a later date.

WORKSHOP DATES

*Inuvik
Wednesday, May 3
Ingamo Hall, 7-10 p.m*

*Aklavik (RESEARCHER
ED)
Thursday, May 11
The Big Building, 7-10 p.m
(David “Buck” Serr Office Complex)*

*Tuk
To Be Announced*

Refreshments: Tea, Coffee, Juice and Snacks will be provided

NEED MORE INFORMATION?

Contact the E.I.A Resource Person, Joint Secretariat, Inuvik (777-2828) or refer to notices at your AIC offices and in recent issues of News North and the Inuvik Drum.

APPENDIX E

**PUBLIC WORKSHOP
"REVITALIZATION OF THE WESTERN ARCTIC
REINDEER HERD"**

WORKSHOP PRESENTED BY:

Wednesday, June 14th

Tuktoyaktuk Hamlet Chambers

7-10p.m

DO YOU HAVE ANY COMMENTS?

Lloyd Binder of Kuñnek Resource Development Corporation will describe his proposed development. Concerns identified will be considered by the Environmental Impact Review Board (Inuvialuit Final Agreement) at the Public Hearing to be held at a later date.

FOR MORE INFORMATION contact Linda Graf, Joint Secretariat at 867-777-2828

APPENDIX F

IN THE MATTER OF

**A SUBMISSION TO THE ENVIRONMENTAL IMPACT REVIEW BOARD
BY KUNNEK RESOURCE DEVELOPMENT CORPORATION REGARDING
THE "REVITALIZATION OF THE WESTERN ARCTIC REINDEER
HERD"**

HEARING ORDER

TO: Kunnek Resource Development Corporation, Proponent

And To: Registered Participants

And To: Government Representatives

I. TAKE NOTICE that a public hearing before the Environmental Impact Review Board (hereinafter called the "EIRB") pursuant to Section 11 of the Inuvialuit Final Land Claim Agreement dated June 19, 1984 will be held at:

September 5 - 7, 2000
Finto Motor Inn Banquet Room
Inuvik, N.W.T.

for the purposes of conducting a public review into the above-noted project.

II. AND TAKE FURTHER NOTICE that any written evidence to be relied upon by the Proponent, the Registered Participants and/or Government Representatives must be provided to the EIRB at least 30 days before the hearing and any evidence in reply is to be submitted at least 14 days before the hearing.

III. AND TAKE FURTHER NOTICE THAT any questions of clarification shall be submitted in writing to the EIRB no later than 30 days prior to the hearing and any responses to the questions are to be provided to the EIRB no later than 14 days before the hearing.

IV. AND TAKE FURTHER NOTICE THAT the results of a series of workshops and interviews of elders and reindeer herders directed by the EIRB will be provided to the Proponent and the Registered Participants and/or Government Representatives at least 30 days before the hearing, which results may be received as evidence by the EIRB at the hearing, such workshops and interviews being described as follows:

- a) Workshops:
- Inuvik Workshop, Ingamo Hall, May 3, 2000
 - Aklavik Workshop, David "Buck" Storr Office Complex, May 4, 2000

- Tuktoyaktuk Workshop, Tuktoyaktuk Hamlet Chambers, June 14, 2000
- b) Interviews conducted May 10, 11 and 15, 2000 of:
- David Roland, Inuvik, May 20, 2000;
 - Colin Harry, Aklavik, May 11, 2000;
 - Donald Pingo Sr., Tuktoyaktuk, May 15, 2000;
 - Stanley Keevik, Tuktoyaktuk, May 15, 2000;
 - Joseph Avik, Tuktoyaktuk, May 15, 2000;
 - Jimmy Komeak, Tuktoyaktuk, May 15, 2000.

V. AND TAKE FURTHER NOTICE that for the purposes of the public hearing, the following issues have been identified:

Interference with Inuvialuit Wildlife Harvesting;

Possible Increase in Problem Wildlife Kills;

Interaction between Reindeer and Caribou (Disease and Interbreeding).

Potential Damage to Nests and Habitat within the Kendall Island Migratory Bird Sanctuary;

Potential Degradation of Habitat in the Proposed Reindeer Grazing Areas.

VI. AND TAKE FURTHER NOTICE THAT following opening remarks by the EIRB Chair and a discussion of any procedural matters, the order of appearance shall be as follows and as further detailed in the attached Order of Events:

(a) Proponent's Presentation:

- description of proposed development as submitted in final EIS
- questioning of Proponent by registered participants, government representatives, EIRB staff and advisors, Review Panel members and general public

- (b) Addressing of Identified Issues:
 - (i) presentation by Proponent
 - (ii) any presentations by government representatives/registered participants
 - (iii) Proponent, Registered Participants and Government Representatives as the case may be, may then be questioned by Proponent, other Registered Participants and Government Representatives, EIRB staff and advisors, Review Panel members and general public in attendance
 - (iv) technical topics regarding the identified issues may be presented for the benefit of those in attendance; EIRB technical advisors may then be questioned by Proponent, Registered Participants, Government Representatives, the Review Panel members and general public in attendance
 - (v) members of the general public will be permitted to make statements from the floor of the hall, although the EIRB Chair reserves the right to rule on the relevance of each request if necessary.
- (c) Closing Remarks:
 - (i) Proponent
 - (ii) Registered Participants
 - (iii) Government Representatives
 - (iv) EIRB Technical Advisors
 - (v) Review Panel Members
 - (vi) Review Panel Chair

VII. AND TAKE FURTHER NOTICE that the EIRB is not bound by the technical rules of evidence and the participants before the panel are expected to give their presentations and ask and answer questions in an efficient manner and observe proper decorum in making presentations and asking questions.

VIII. AND TAKE FURTHER NOTICE that the Proponent or a Registered Participant may apply to the EIRB to have procedures in the public hearing varied, but any such request will have to be justified; and that the EIRB may choose to vary the procedures in the public hearing on its own motion.

DATED this _____ day of _____, 2000.

[original signed and dated]
Robert Hornal, Chair
Environmental Impact Review Board

APPENDIX G

PUBLIC HEARING OF KUÑNEK RESOURCE DEVELOPMENT CORPORATION'S
Revitalization of the Western Arctic Reindeer Herd
5 - 7 September 2000
Finto Motor Inn Banquet Room, Inuvik, N.W.T.
ORDER OF EVENTS - ACTUAL

DAY ONE: TUESDAY, 5 SEPTEMBER 2000

1400 - 1430 hrs	Opening remarks
1440 - 1530 hrs	KRDC Presentation and Questions of Clarification
1535 - 1550 hrs	Break
1550 - 1650 hrs	KRDC Presentation (continued)
1650 - 1705 hrs	Break
1705 - 1800 hrs	KRDC Presentation (continued)
1800 hrs	Close of Day One

DAY TWO: WEDNESDAY, 6 SEPTEMBER 2000

0900 - 0915	Opening Remarks
0915 - 0930	Recess
0930 - 0945	Discussion
0945 - 0950	Recess
0950 - 1100	Session 1: Interference with Inuvialuit Wildlife Harvesting
1100 - 1115 hrs	Break
1115 - 1200 hrs	Session 1: (continued)
1200 - 1300 hrs	Lunch Break
1300 - 1400 hrs	Session 2: Possible Increase in Problem Wildlife Kills
1400 - 1415 hrs	Break
1415 - 1515 hrs	Session 3: Interactions Between Reindeer and Caribou
1515 - 1625	Extra Session A: Federal Regulatory Process
1625 - 1650 hrs	Extra Session B: Economic Viability of the Development
1700 hrs	Close of Day Two

DAY THREE: THURSDAY, 7 SEPTEMBER 2000

0900 - 1030 hrs	Session 4: Effective Herd Control
1050 - 1105 hrs	Break
1105 - 1110 hrs	Introductory Remarks
1110 - 1210 hrs	Session 5: Potential Damage to Nests and Habitat Within the Kendall Island Migratory Bird Sanctuary
1210 - 1315 hrs	Lunch Break
1300 - 1445 hrs	Session 6: Potential Degradation of Habitat in the Proposed Reindeer Grazing Areas
1445 - 1530 hrs	Break
1530 - 1600 hrs	Session 6: Potential Degradation of Habitat in the Proposed Reindeer Grazing Areas (continued)
1600 - 1630 hrs	Session 7: Other Issues
1630 - 1645 hrs	Break
1645 - 1800 hrs	Closing Remarks
1800 hrs	Close of Public Hearing

APPENDIX H

ATTENDEES AT THE PUBLIC HEARING

Organization	Representative(s)
Kuñnek Resource Development Corporation	Lloyd Binder David Nasogaluak
Department of Indian Affairs and Northern Development	Ranjit Soniassy Scott Gallupe
Department of Resources, Wildlife and Economic Development	Marsha Branigan Ray Case Ian Butters Steve Matthews Ron Morrison John Nagy
Environment Canada	Paul Latour
Fabijan Consulting	Micheal Fabijan
Gwich'in Renewable Resource Board	Bryon Benn Peter Clarkson
Gwich'in Tribal Council	Alex Benitah
Inuvialuit Game Council	Duane Smith Katherine Thiesenhausen
Inuvialuit Development Corporation	Patrick Schmidt
Inuvialuit Land Administration Commission	Albert Elias
Joint Secretariat	Norm Snow
Wildlife Management Advisory Council (Northwest Territories)	Larry Carpenter William Day Brian Johnston Frank Pokiak
Residents of Inuvik	Richard Binder Olive Binder
Panel Advisors	Debra Fendrick Dr. Robert White

THOSE WHO APPEARED AT THE HEARING (continued)

Organization	Representative(s)
Panel Secretariat	Eric Chernoff Linda Graf
<u>Media</u>	
CBC Radio	Josée Bellemare
Inuvialuit Communications Society	

APPENDIX I

LIST OF EXHIBITS FROM THE PUBLIC HEARING

Exhibit Number	Description
1	Map produced by the Panel's Secretariat showing the locations of the Mackenzie Delta Reindeer Grazing Reserve, Kuññek Resource Development Corporation's proposed summer and winter ranges, and the Inuvialuit Settlement Region Boundary.
2	Map produced by the Department of Resources, Wildlife and Economic Development showing the movements of satellite-collared caribou from the Bluenose-East, Bluenose-West and Cape Bathurst caribou herds.
3	Maps and figures produced by the Department of Resources, Wildlife and Economic Development showing grizzly bear harvest information from July 1995 to June 2000 in the Inuvialuit Settlement Region.
4	Tables showing Kuññek Resource Development Corporation's financial projections.
5	Map produced by the Department of Resources, Wildlife and Economic Development showing Kuññek Resource Development Corporation's proposed winter range, the proposed footprint of the herd and an area 25 km in radius around the proposed footprint.
6	Map produced by the Department of Resources, Wildlife and Economic Development showing Kuññek Resource Development Corporation's proposed winter range, the locations of satellite collared caribou from the Bluenose-West and Cape Bathurst herds, and various points that are 25 km from the caribou locations.
7	Map produced by the Gwich'in Renewable Resource Board showing caribou harvesting information from the Gwich'in Harvest Study.

APPENDIX J

LIST OF PRESENTATIONS FROM THE PUBLIC HEARING

Presentations

Presentation by KRDC (Lloyd Binder) titled “Reindeer Industry Environmental Plan”

Presentation by DIAND (Ranjit Soniassy) untitled

Presentation by Environment Canada (Paul Latour) titled “Environment Canada Submission to the Environmental Impact Review Board”

Presentations by RWED-Inuvik (John Nagy) titled “Proposed Reindeer Summer Range, Concern: Grizzly Bears”, “Proposed Reindeer Winter Range, Concern: Caribou” and “Genetic Relationship of Reindeer to Caribou”.

Presentation by RWED-Yellowknife (Doug Stewart) titled “Government of the Northwest Territories’ Statement to the EIRB Hearing for the Revitalization of the Western Arctic Reindeer Herd”

Presentation by WMAC-NWT (Larry Carpenter) titled “WMAC(NWT) Statement to the EIRB Public Hearing for the “Revitalization of the Western Arctic Reindeer Herd”