



# Report of the Uranium Mining Workshop

**BAKER LAKE, NU**

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## LETTER FROM THE CHAIRPERSON

On behalf of the Nunavut Planning Commission I am pleased to present our Report of the Uranium Mining Workshop held in Baker Lake, NU from June 5-7, 2007. The purpose of the workshop was to fulfill Term 3.5 of the Keewatin Regional Land Use Plan, which states:

*"Uranium development shall not take place until the NPC, NIRB, the NWB, and the NWMB have reviewed all of the issues relevant to uranium exploration and mining. Any review of uranium exploration and mining shall pay particular attention to questions concerning health and environmental protection."*

The workshop was hosted by the Nunavut Planning Commission. Approximately 100 people participated representing: the Nunavut Impact Review Board, the Nunavut Water Board, and the Nunavut Wildlife Management Board; Government; Inuit organizations; Industry; Regulators; Aboriginal people and businesses from northern Saskatchewan; academia; non-government organizations; Kivalliq Hamlets, Hunters and Trappers Organizations, and Community Lands and Resources Committees; and residents of Baker Lake. Each of these groups contributed to the success of the workshop by sharing their perspectives, experiences, and engaging in a thoughtful exchange of information through presentations and group discussions.

Following the workshop, the Commission passed a motion declaring Term 3.5 of the Keewatin Regional Land Use Plan to be fulfilled. The motion is included in this report.

No decisions were made at the workshop. This report serves as a record of discussions and information presented. It provides a necessary source of information to inform future decision-making on individual projects as uranium exploration and mining development proceeds in the Kivalliq region.

We would like to thank everyone who came and participated in this workshop. Your active and enthusiastic participation made this event a true success.

Respectfully,

Ron Roach, Chairperson





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## **NPC Motion regarding TERM 3.5 of the KRLUP**

### **Nunavut Planning Commission**

#### **Arviat**

#### **Minutes Meeting #64**

**June 27, 2007**

#### **MOTION**

#### **THAT:**

#### **Implementation of Term 3.5 Keewatin Regional Land Use Plan**

#### **Whereas Term 3.5 of the Keewatin Regional Land Use Plan reads that:**

Uranium development shall not take place until the NPC, NIRB, the NWB and the NWMB have reviewed all of the issues relevant to uranium exploration and mining. Any review of uranium exploration and mining shall pay particular attention to questions concerning health and environmental protection.

**And Whereas;** the NPC, NIRB, the NWB and the NWMB held a public meeting in Baker Lake June 5 – 7, 2007 to review a broad range of topics presented by professionals and interested parties on uranium exploration and mining which paid particular attention to health and environmental protection questions;

#### **Therefore be it resolved that:**

The Nunavut Planning Commission believes it has thereby complied with its obligations pursuant to Term 3.5 Keewatin Regional Land Use Plan.

**Moved by: Peter Kritaqliluk**

**Seconded by: Frank Ipakohak**

**Carried: Unanimously**



## Executive Summary

The revised Keewatin Regional Land Use Plan ("Plan") prepared by the Nunavut Planning Commission (NPC) and approved in 2000, guides and directs land use in the Kivalliq region of Nunavut. Section 6.3 of the Plan identifies that residents of the region are supportive of non-renewable resource development providing that it does not result in adverse environmental effects and provides economic benefit to local residents. The mining of uranium, however, received additional attention in the Plan, as it raises "environmental, health, moral and political questions that are quite distinct from other types of mining."<sup>1</sup> The NPC believes that full discussion of the issues surrounding uranium mining should occur before any further applications for development should be considered. Accordingly, Term 3.5 of the Plan states:

***"Uranium development shall not take place until the NPC, NIRB, the NWB and the NWMB have reviewed all of the issues relevant to uranium exploration and mining. Any review of uranium exploration and mining shall pay particular attention to questions concerning health and environmental protection."***

Between June 5<sup>th</sup> and 7<sup>th</sup>, 2007, approximately 100 participants representing the federal and territorial governments; Kivalliq community governments, HTOs and CLARCs; IPGs; NGOs; industry and the public attended a workshop on Uranium Mining in the Kivalliq hosted by the NPC in Baker Lake. The intent of the workshop was to provide community representatives and the IPGs with an opportunity to review the social, cultural, economic and environmental issues and opportunities associated with uranium mining in the Kivalliq region, as required under Term 3.5 in the Keewatin Land Use Plan.

Thirty presentations were delivered during the first two days of the workshop covering a range of topics and perspectives related to uranium exploration, mining, use and disposal. Presentations addressed the following topic areas:

- Uranium Supply and Demand.
- Uranium Exploration and Development Processes.
- Health, safety and environmental issues and mitigation measures for uranium exploration and development.
- Long term management of nuclear fuel waste.
- Experiences from uranium mining in Northern Saskatchewan (environmental assessment, Aboriginal involvement, business opportunities, training, community involvement in environmental monitoring).
- Cumulative Effects of exploration and development.

During the evening of the second day, twenty community representatives attending the workshop and members of the public from Baker Lake made presentations about issues and their concerns related to uranium development. On the third day workshop participants were divided into breakout groups to allow for discussion about health and safety and environmental issues of concern. The workshop concluded with a final plenary session and closing remarks from the NPC and other IPGs.

Many issues and concerns were raised during the three day workshop. Some of the common themes or issues from the workshop included:

- Information Needs: There is a need for clear, consistent and independent information to enable local people to understand the issues and make decisions with confidence.

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<sup>1</sup> Nunavut Planning Commission.2000. Keewatin Regional Land Use Plan. NPC, Cambridge Bay, NU.

- Environmental Protection: There is a strong commitment to ensure the protection of the environment and the maintenance of the ability to continue the traditional harvest of renewable resources.
- Baseline studies: There is a need for comprehensive baseline studies; local people should be involved in the design and implementation of the studies. Traditional knowledge should be included.
- Cumulative Effects: There is a lot of exploration activity in the region, which combined with other influences may be resulting in cumulative effects to the environment. Comprehensive cumulative effects studies are desired.
- Monitoring: Long term monitoring is necessary. The responsibility for long term monitoring needs to be determined.
- Distribution of Benefits and Risks: Risks are mainly directed to local communities, whereas benefits of development can affect the region.
- Worker and Family Support: Support needs to be in place for both workers and families of workers.
- Experience from Saskatchewan: The variety of perspectives from a region where uranium development has occurred was useful to help people understand potential impacts and benefits.

Upon completion of the workshop and publishing of the report, the Commission believes that Term 3.5 of the Keewatin Land Use Plan has been satisfied.

This report presents a summary of presentations and dialogue at the workshop. The content of each of the presentations is the sole responsibility of the presenter and does not represent the views of the IPGs. The IPGs encourage readers to investigate all sources of information to enable them to make an informed decision about uranium exploration and mining.



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# 1 Introduction

## 1.1 Introduction

The Nunavut Planning Commission (NPC), an Institution of Public Government (IPG) established under Article 10 of the Nunavut Land Claims Agreement (NLCA) is responsible for the preparation of land use plans in Nunavut. The purpose of a land use plan is to protect and promote the existing and future well-being of the residents and communities of Nunavut, taking into account the interests of all Canadians, and to protect the environmental integrity of Nunavut (Section 11.3.2, NLCA). The revised Keewatin Land Use Plan ("Plan") prepared by the NPC and approved in 2000, guides and directs land use in the Kivalliq region of Nunavut. The Plan proposes a series of actions to be taken by governments, communities and land users to address land and resource issues identified by participants during the planning process.

Section 6.3 of the Plan identifies that residents of the region are supportive of non-renewable resource development providing that it does not result in adverse environmental effects and provides economic benefit to local residents. The mining of uranium, however, received additional attention in the Plan, as it raises "environmental, health, moral and political questions that are quite distinct from other types of mining."<sup>2</sup> In the mid-1980's a federal panel initiated the environmental assessment of an application to build and operate a uranium mine near Baker Lake. While considerable discussion of the application ensued, the applicant withdrew the proposal and a full discussion and resolution of the issues of uranium mining in the region was never completed. The NPC believes there should be proper discussion of the issues surrounding uranium mining before any further applications for development should be considered. Accordingly, Term 3.5 of the Plan states:

**"Uranium development shall not take place until the NPC, NIRB, the NWB and the NWMB have reviewed all of the issues relevant to uranium exploration and mining. Any review of uranium exploration and mining shall pay particular attention to questions concerning health and environmental protection."**

In order to fulfill this Term the NPC invited community organizations, IPGs, government, industry and Non-Governmental Organizations (NGOs) to a workshop in Baker Lake from June 5-7, 2007 to review and discuss the social, cultural, health, economic and environmental issues associated with uranium exploration and mining in the Kivalliq region. The workshop was initiated to provide a forum for information exchange and discussion: it was not intended to be a decision making forum or to develop recommendations for future action. Additionally, discussion was not intended to focus on any one project, but rather examine issues related to uranium exploration and development in general. It was recognized that existing regulatory processes would provide opportunity for discussion of specific applications for exploration and development in the future. With the completion of the workshop, the Commission considers Term 3.5 to be satisfied.

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<sup>2</sup> Nunavut Planning Commission.2000. Keewatin Regional Land Use Plan. NPC, Cambridge Bay, NU.

## 1.2 Workshop Participants

Participants from other IPGs, community organizations in the Kivalliq, regional, territorial, and national Inuit organizations, Governments, industry, and NGOs were invited to participate in the workshop. The following organizations were represented at the workshop:

- Nunavut Planning Commission
- Nunavut Impact Review Board
- Nunavut Water Board
- Nunavut Wildlife Management Board
- Kivalliq Inuit Association
- Inuit Tapiriit Kanatami
- Pauktuutit Inuit Women of Canada
- Hunters and Trappers Organizations (HTOs) and Community Land and Resource Committees (CLARCs) from Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Rankin Inlet, Repulse Bay and Whale Cove
- Hamlets of Arviat and Baker Lake
- Baker Lake Concerned Citizens Committee
- Government of Nunavut, Departments of Community and Government Services, Economic Development and Transportation, Environment, Finance, Health and Social Services
- Indian and Northern Affairs Canada
- Geological Survey of Canada
- Canadian Nuclear Safety Commission
- Joint Federal Provincial Panel on Uranium Mining in Northern Saskatchewan
- Pembina Institute
- Canadian Coalition for Nuclear Responsibility
- World Wildlife Fund
- Saskatchewan Inter-Church Uranium Committee Educational Cooperative
- Northern Saskatchewan Environmental Quality Committees
- Aboriginal Business Representatives from Northern Saskatchewan
- AREVA Resources Canada Inc.
- Titan Uranium Exploration Ltd

A representative from Nunavut Tunngavik Incorporated was scheduled to participate, but was unable to attend due to weather. Additionally, members of the public from Baker Lake were invited to attend the workshop.

A complete list of registered participants is included in Appendix A.

### 1.3 Agenda

The workshop was structured to provide as much information as possible to participants and to allow for discussion related to uranium exploration and development in the region. Days 1 and 2 of the workshop included presentations about:

- Uranium Supply and Demand
- Uranium Exploration and Development Processes
- Health, safety and environmental issues and mitigation measures for uranium exploration and development
- Long term management of nuclear fuel waste
- Experiences from uranium mining in Northern Saskatchewan (environmental assessment, Aboriginal involvement, business opportunities, training, community involvement in environmental monitoring)
- Cumulative Effects of exploration and development
- The role of the Baker Lake Community Liaison Committee
- Environmental Assessment and Regulatory Processes for Uranium Mining in Canada and Nunavut

Speakers were encouraged to allow time within their presentation slots for questions and answers from other participants. This allowed for an immediate exchange of information and perspectives on some presentations. A detailed agenda listing all presentations and speakers is included in Appendix B.

On the evening of the second day, workshop participants from the Kivalliq communities and residents of Baker Lake were invited to present their concerns, comment on the information they had heard, or ask questions about uranium exploration and development to the forum. A total of twenty presentations were made. Further information about the presentations are included in Chapter 3 of this report.

Breakout sessions were held on the third day of the workshop to provide an opportunity for all participants to provide their perspective, raise concerns, ask questions of presenters, seek clarification of information they had heard, and generally contribute to discussion of issues related to health, safety and environmental effects of uranium exploration and development. Workshop participants were divided into two groups and provided with resource people to guide and record discussions and to provide additional technical information as needed. In the morning Group 1 discussed environment concerns while Group 2 focussed on health and safety issues. The groups switched topics for the afternoon session. After each of the sessions, a plenary was held to share the results of the discussion with all participants.

Prior to the start of the afternoon session on day 3, David Similak, MLA Baker Lake, Minister of Economic Development and Transportation, and Minister of Finance for the Government of the Nunavut addressed participants, informing them of the Government's commitment to develop a policy on uranium mining and expressing his support for the open debate of the issues surrounding uranium exploration and development in the region.

After the final plenary of the afternoon session the Chairs of the NPC and several of the other IPGs provided closing remarks. A closing prayer was delivered immediately prior to adjournment.

### 1.4 Report Organization

This report presents a summary of proceedings at the Uranium Workshop. Following this introductory section, a summary of the formal presentations, public presentations and discussion in the breakout

groups is presented. The report concludes with some general observations about the workshop proceedings. Supporting information is included in the Appendices.

## 2 Presentations

### 2.1 Purpose

The purpose of the workshop was to provide a forum for the open exchange of information and discussion of issues related to the exploration and mining of uranium in the Kivalliq region. The purpose of the presentations was to provide participants with as much information on topics related to uranium exploration and development as possible. Recognizing the often controversial nature of uranium development, use and disposal, the NPC sought to invite speakers who represent a variety of perspectives to stimulate balanced and informed discussions, both at the workshop, and in future regulatory processes as project proposals move forward. Initially, potential speakers for the workshop were identified by the Government of Nunavut and Indian and Northern Affairs Canada. A call for speakers was sent to the parties identified and those parties who were available to participate confirmed their attendance with the NPC. The NPC identified additional speakers as required to address specific topics on the agenda. Industry speakers were coordinated by AREVA Resources Canada, in cooperation with the NPC, to ensure coverage of all requested topics and to avoid duplication. Aboriginal persons from Saskatchewan were also invited to share their experience with uranium mining in northern Saskatchewan.

The presenters were selected to provide a variety of perspectives on the issues associated with the exploration and mining of uranium. The content of each of the presentations is the sole responsibility of the presenter and does not represent the views of the IPGs. The IPGs do not endorse the content of any of the presentations delivered at the workshop. The IPGs encourage readers to investigate all sources of information to enable them to make an informed decision about uranium exploration and mining.

Presentation summaries are provided in the order they were delivered at the Workshop. The key points from each presentation are described. Readers are encouraged to view the presentation slides contained in Appendix D and refer to the workshop transcripts to see the full extent of each presentation.

### 2.2 Day 1: Presentations

#### ***OVERVIEW OF URANIUM EXPLORATION ACTIVITY IN NUNAVUT***

*Karen Costello, Indian and Northern Affairs Canada, Iqaluit, NU*

- Uranium is a common naturally occurring metallic element found in rocks, soil, and water.
- There are hundreds of uranium occurrences known in Nunavut and two known uranium deposits: Mountain Lake, south of Kugluktuk and Kiggavik, near Baker Lake.
- Out of the almost \$200 million spent on mineral exploration in Nunavut during 2006, approximately \$14.8 million was spent exploring for uranium with an estimated \$5.3 million of that total spent in the Kivalliq.
- A total of \$23 million is expected to be spent on 20 uranium exploration projects in the Kivalliq during 2007. Five of these projects involve drilling. There are 18 companies currently exploring for uranium in Nunavut.
- Exploration typically involves a number of activities: airborne geophysical surveys, ground surveys, mapping, prospecting, sampling, and drilling.

## **URANIUM INDUSTRY OVERVIEW**

### *Gerry Acott, AREVA Resources Canada*

- Representing AREVA and Cameco Corporation, the two companies operating mines in northern Saskatchewan
- AREVA has been mining uranium in Saskatchewan for over 30 years, during that time industry has learned a lot.
- Several processes have occurred in Saskatchewan to improve the Industry:
  - Bayda Board of Inquiry in 1979 investigated the future of uranium mining in the province and issued a number of recommendations which resulted in improvements in the industry.
  - In 1991, the federal provincial panel on uranium mining reviewed the proposed Cigar Lake and McArthur River mine proposals. A number of recommendations arose from that panel which has been implemented by industry.

### *Brian Reilly, Titan Uranium Exploration*

- Uranium is mostly used to provide energy; a small pellet (held in fingers) is equivalent to about 700 litres of oil or 800 kg of coal.
- Uranium also used for nuclear medicine research and industrial applications. Canadian uranium is not used for the manufacture of nuclear weapons.
- Heat from the nuclear pellets are used to heat water and produce steam which turns the turbine and generates electricity.
- Electrical power is generated in 435 nuclear plants in 30 countries.
- Nuclear power generates approximately 16% of the world's electricity, similar in Canada.
- Canada is the world leader in the production of uranium, all from Northern Saskatchewan.
- USA and Russia have dismantled 12,000 nuclear warheads and converted the nuclear material in the warheads to fuel that can be used to generate electricity.
- Four main issues with nuclear power: Capital and operational costs, new generation plants are competitive; Safety, new generation plants are being built to high standards and are safe; Proliferation, the use of nuclear energy for purposes other than generation of electricity, is a concern, however groups such as the United Nations and Atomic Energy Association are addressing these issues; Management of nuclear waste, long term storage of radioactive waste can be dealt with properly.
- By the end of 2099, the need for electricity will increase by 4 times, nuclear power can help meet this demand.
- There is increasing demand for uranium resulting in increased prices for uranium and increased exploration. Additionally, properties with lower concentrations, such as Kiggavik, are now more attractive as prices have increased.
- Nuclear power does not generate greenhouse gases.
- Exploration costs a lot of money, developing a mine may cost between \$750 million and \$1 billion.
- Uranium mining methods are highly mechanized using remote controlled equipment.
- Ore from the mine is ground in the mill to a fine sand size and mixed with water.



- Uranium is dissolved from the rock using chemicals, including sulphuric acid.
- The uranium is separated to produce Yellowcake and the tailings are sent to a tailings management area.
- Workers are monitored for uranium exposure.
- Companies subscribe to sustainable development, balancing economic, environmental and social interests.

### ***KIVALLIQ COMMUNITY MEETINGS ON URANIUM DEVELOPMENT***

*Joe Kaludjuak, Kivalliq Inuit Association*

- NTI and KIA have previously developed policies on mining and water use.
- KIA is working with NTI on a uranium policy.
- Representatives from the regions have visited uranium mines in northern Saskatchewan between 1999 and 2006. Hunters and trappers from Nunavut have spoken with First Nations people from Saskatchewan about their experiences with the uranium mines.
- KIA and NTI have also provided education on uranium to beneficiaries in 2006.
- KIA has met with the HTOs, Hamlet Councils and residents in each of the 7 Kivalliq communities to talk about uranium development.
- Concerns rose during these meetings included: impacts on caribou, protection of water and fish resources, how will tailings be managed, how will spills be dealt with, what safeguards will be in place for transportation of uranium from the mine site to the south. Economic benefits from development were also raised as a concern.
- Most communities have responded as to whether they are in favour of uranium development but we have not heard from all communities.

### ***IPG PROCESSES AND CONSIDERATIONS***

#### ***Land Use Plan Conformity Review Process***

*Brian Aglukark, Director of Regional Planning, Nunavut Planning Commission*

- When a proponent files an application for land or water use to an authorizing agency such as INAC or KIA, the agency forwards the application to the Nunavut Planning Commission (NPC).
- NPC reviews the application to see if it conforms with approved land use plans. Currently there are only approved plans for the Kivalliq and North Baffin Regions of Nunavut.
- In completing the review we determine the location and activities of the proposed development.
- If the application conforms to the Plan then the authorizing agency is informed and the application can be processed.
- If the application does not conform to the Plan, the Commission is advised and they may either confirm non-conformity or issue a variance to allow the proposed activity to conform to the Plan.
- While NPC is not bound by any legislated timeline to complete this conformity review, applications are typically processed within 10 working days. Delays may result from incomplete applications and/or delays in receiving additional information from the proponent.

### ***Environmental Assessment Process in Nunavut***

*Stephanie Briscoe, Executive Director, Nunavut Impact Review Board*

- The Nunavut Impact Review Board (NIRB), created by Article 12 of the NLCA, is the body responsible for environmental assessment in Nunavut with its primary purpose being to protect and promote the existing and future well being of Nunavummiut and the environment.
- NIRB makes project-specific decisions about whether or not proposed activities and projects within Nunavut should occur.
- Environmental assessment is the process used to predict possible impacts of a project on the environment. Some of the elements that NIRB considers include the land, the people, water and marine areas, fish and marine animals, air, wildlife, archaeology, and traditional land use.
- Public involvement is an important part of NIRB processes.
- There are two environmental assessment processes conducted by NIRB: screening and review.
- Project applications are forwarded to NIRB by NPC for areas where there is a land use plan or by the authorizing agencies in other areas.
- NIRB circulates the project application for review and after considering the comments received, makes a screening decision to, either: approve the project with specific terms and conditions; refer the project for further review; reject the project; or return the application for clarification.
- Most commonly, projects are approved after screening with terms and conditions.
- When a project is referred to review, there are five major activities undertaken by NIRB:
  - Scoping – consultation is held to identify how the project might interact with the environment and what concerns the project raises with people and regulators.
  - Guidelines – Based on the outcome of scoping, NIRB produces guidelines for the preparation of an Environmental Impact Statement (EIS) by the project applicant.
  - EIS – The project proponent prepares an EIS which evaluates the potential impact of the project on the environment and people.
  - Technical Review and Public Hearing – All interested parties review the EIS and provide comments to NIRB, both before and during a Public Hearing.
  - Decision – NIRB reviews the information presented and recommends whether the project should proceed or not. The Minister of INAC approves or rejects NIRB's recommendation. If the project is approved, NIRB issues a Project Certificate with terms and conditions, directing how the project should be carried out. Authorizing agencies and the proponent must follow the terms and conditions.
- NIRB monitors the implementation to ensure the terms and conditions in the Project Certificate are being followed.

### ***Water Licencing Process in Nunavut***

*Dionne Filiatrault, Acting Executive Director, Nunavut Water Board*

- Nunavut Water Board is an Institution of Public Government created under Article 13 of the NLCA. The Board is responsible for the use, regulation, and management of fresh water in the Nunavut Settlement Area.

- The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* were passed in 2002 and affects water management. The NWT Water Regulations are applied in Nunavut until Nunavut regulations are developed.
- Licences include conditions related to water use, waste disposal, construction, spill contingency planning, monitoring and abandonment and restoration.
- Once a water licence application is deemed complete and where applicable, an NPC conformity assessment is received, the application is distributed to the public and the parties for comment.
- Smaller projects that do not require a hearing are exempt from screening by NIRB under Schedule 12(1) of the NLCA. The Board reviews comments received, typically determines a public hearing is not required and issues a licence with terms and conditions.
- For larger projects, NIRB conducts a screening level environmental assessment. For projects approved by NIRB, the Board will participate in the development of the terms and conditions of a project certificate. At that point, the Board usually issues guidelines for the submission of a revised licence application. If a Type A application, then a Public Hearing is held, the requirement for a public hearing is usually waved for most smaller applications, such as mineral exploration. After a Public Hearing, the Board submits its recommendation to the Minister of INAC, usually within 30 days, who has 45 days to make a decision.
- Water licences are inspected and enforced by INAC.
- Many of the principles applied by the Board are similar to the principles in the Keewatin Land Use Plan.
- Under Article 20 of the NLCA, the Board has a role in ensuring that compensation issues with respect to fresh water have been addressed before they are entitled to issue a licence or any decision to the Minister.
- If NPC determines an application does not conform to the Keewatin Land Use Plan we cannot issue a licence.
- The Water Board requires industry to undertake closure and restoration. The Board has requirements under the Act to ensure there's adequate security and that remediation is done.
- One of the major issues that the Board currently faces, especially within this region, deals with the back hauling of waste from exploration sites to municipalities and how that waste impacts the local and municipal infrastructure.
- The Water Board is guided by present standards for uranium exploration and mining that are used in Saskatchewan.

## **LICENCING OF NEW URANIUM MINES IN CANADA**

*Fred Ashley, Canadian Nuclear Safety Commission (CNSC)*

- The CNSC's mandate and mission is to regulate the use of nuclear energy and materials to protect health, safety, security, and the environment, and to respect Canada's international commitments on the peaceful use of nuclear energy. CNSC is the federal and principal regulator of uranium mining in Canada. We work alongside federal, territorial, and provincial regulators in controlling all stages of uranium development and its end uses like nuclear power.
- The CNSC is governed under the newly enacted *Nuclear Safety and Control Act*, In addition to the act there are 11 Regulations that set out specific regulatory requirements. The Act and Regulations give the CNSC the authority to issue licences, set the conditions of those licences for the purpose of protecting the environment, health and safety, and national security, and for enforcing compliance with those requirements.

- The nuclear regulatory philosophy in Canada comprises two important principles: licensees are responsible for the protection of health, safety, security, and the environment, and respecting Canada's international commitments; second, the CNSC is responsible for regulating licensees, and assessing whether the licensees are compliant with the act, regulations and international obligations.
- The nuclear industry in Canada is considerably larger and more diverse than in other countries. There are 22 reactors with four different operators in Canada. There are five active mines, two mills, and two main operators. There are seven nuclear waste management facilities run by three operators. The industry is expected to expand significantly in most of these areas over the next 10 years, with potential new uranium mines clearly in the lead of this process.
- If a company wants to mine or mill uranium, it has to apply for a licence. In conjunction with the application, the company has to complete an environmental impact assessment, which is an extensive process administered by CNSC in conjunction with the Canadian Environmental Assessment Agency and other regulatory stakeholders.
- A separate licence is required for each stage in the development of uranium mining, including, construction, operation, decommissioning, and abandonment.
- Once the licence has been issued the CNSC ensures that the licensee complies with the licence by conducting on-site inspections and by regularly reviewing the company's operating records and compliance reports.
- CNSC does not regulate exploration activity; provincial or territorial governments are responsible for exploration. However, when a company wants to further evaluate or develop the uranium resource they will need a licence from the CNSC.
- A significant quantity of information from exploration and assessment of potential mining or handling, milling, and waste management methods may be required to determine whether the mineral resource can be economically and safely extracted and processed. This assessment could require an understanding of many different factors, ground water, environmental impacts.
- Once a licence is issued by the Commission, CNSC staff administers the licence, and verifies that the licensees comply with the regulatory requirements, the approved programs, and all licence conditions. The CNSC licensing process has recently been published in a document named the ***Licensing Process for New Uranium Mines and Mills in Canada***; the document can be downloaded from [nuclearsafety.gc.ca](http://nuclearsafety.gc.ca).
- CNSC considers it important to have a consistent regulatory approach for the uranium mining industry. CNSC is the principal regulator, the federal departments of Environment, Fisheries and Oceans, Indian and Northern Affairs, or Transport Canada may also be involved. With regard to local, provincial, or territorial jurisdiction, it is usually the groups responsible for environment protection, resource management, or worker safety that are involved. In Saskatchewan, there is a formal agreement which provides for collaboration between CNSC and Saskatchewan Environment and Labour in the regulation of uranium mines and mills in the province.
- The Canadian Government does not permit the use of Canadian uranium in any nuclear weapons. The Government allows the export of uranium only to those countries that have signed the nuclear non-proliferation treaty and bilateral agreements prohibiting the use of Canadian uranium in nuclear weapons and that have accepted safeguards provisions defined by the International Atomic Energy Agency. The export of Canadian uranium is regulated and monitored by the CNSC and the Department of Foreign Affairs and International Trade to ensure that uranium only goes to countries for peaceful uses. The International Atomic Energy Agency, or IAEA, is responsible for ensuring that countries do not use uranium for the development of nuclear weapons.
- The IAEA was appointed by the United Nations in 1957 and tracks all inward and outwards transfers, flow of materials in any nuclear facility, includes sampling, analysis of nuclear material,

on site inspections, review and verification of operating records. In Canada, the CNSC enforces the IAEA safeguards requirements through licenced conditions and verifies compliance with these requirements through regular joint inspections with IAEA.

## **GOVERNMENT REGULATORY PROCESSES AND CONSIDERATIONS**

### *Bernie MacIassac, Indian and Northern Affairs Canada (INAC), Iqaluit, NU*

- INAC's broad mandate includes affairs related to land, resources, the economy and Inuit and northern governance that have not been assigned to other departments, boards, or agencies.
- INAC doesn't have any specific policies that relate to uranium at this time. However, we expect exploration and development to be carried out using the principles of best practice, sustainable development, and consultation.
- For projects proposed on Crown lands, INAC may be the first point of contact to obtain permission to conduct a land use activity for exploration or information gathering.
- Crown land is administered by INAC on behalf of the federal government. Our legislative mandate includes surface and sub-surface lands. The *Territorial Lands Act* and applicable regulations authorizes INAC to provide permits and leases on Crown land.
- INAC has confidence in and participates in the regulatory process outlined in the NLCA and this includes, among others, land use planning (Article 11), environmental assessment (Article 12) and water management (Article 13).
- The INAC Minister approves the recommendations of the Nunavut Impact Review Board and Type A Water Licences issued by the Nunavut Water Board. INAC also enforces the terms and conditions of water licences and land dispositions on crown lands.
- INAC works with and has close working relationships with the Nunavut Planning Commission, the Nunavut Impact Review Board, the Nunavut Water Board, the Government of Nunavut, NTI, other federal partners including Environment Canada, Canadian Environmental Assessment Agency, Fisheries and Oceans, Natural Resources Canada, Health Canada, Transport Canada, and in the case of uranium, the Canadian Nuclear Safety Commission. We have relationships with communities, industry, and other stakeholders, including the people of Nunavut.
- The Government of Canada has a policy to devolve these responsibilities to the territories, which has already happened in the Yukon and the process is starting in the Northwest Territories and here in Nunavut.

### *Laura Kowmuk, ED&T, Government of Nunavut, Rankin Inlet*

- The people of this region opposed an application for a uranium mine in the 1980s and exploration for uranium stopped. Now, with the price of uranium increasing exploration for uranium in the region has increased. Technology and safeguards with the respect to the safe and peaceful use of uranium have also improved since the 1980s.
- In making decisions about uranium mining in Nunavut, the Government of Nunavut must balance economic benefits with environmental and social effects. The GN considers six basic principles when making decisions about uranium mining in Nunavut:
  1. The Government of Nunavut regards mining, including uranium mining, as an important source of jobs for Nunavummiut and for revenues to meet the needs of our growing population.
  2. The GN recognizes that uranium development places special responsibilities on government because of the nature of uranium and its by-products, the history of

- its use for both peaceful and non-peaceful purposes, and its potential risks to human health and the environment.
3. Uranium development must have the support of Nunavummiut, especially in communities close to development.
  4. The GN will support uranium development in Nunavut provided that the following conditions are satisfied:
    - Health and safety standards are assured for workers.
    - Environmental standards are assured.
    - Nunavummiut must be the major beneficiaries of uranium development.
  5. The GN believes that nuclear power will be an important part of meeting global energy needs while limiting greenhouse gas emissions.
  6. The GN believes that Canadian Law and international agreements provide assurance that uranium mined in Nunavut will be used for peaceful purposes.
- These principles will serve as a framework for the development of a uranium mining management plan for the Government of Nunavut. Over the next year, as the uranium management plan is developed, Nunavummiut will be consulted.
  - The GN is working to make sure that Nunavummiut are fully prepared to participate in the new era of mining in Nunavut. And we will work to ensure that the mining will meet the highest standards for health, safety and the environment.

### **EXPERIENCES WITH THE REGULATION OF URANIUM MINING IN NORTHERN SASKATCHEWAN**

#### *Dr. Graham Simpson, Inter-Church Uranium Committee Educational Co-operative (ICUCEC)*

- The Interchurch Uranium Committee (ICUC) started 27 years ago in opposition to plans to build a uranium refinery in Saskatoon to process uranium mined in northern Saskatchewan. Since that time, the Committee has opposed uranium mining in Saskatchewan due to environmental concerns and concerns about uranium being used to make bombs.
- The ICUC, with others, successfully prevented Atomic Energy Canada Limited (AECL) from bringing a Slowpoke nuclear reactor and a research facility to Saskatchewan. The ICUC also spearheaded the declaration of the City of Saskatoon as a Nuclear Weapons Free Zone. The ICUC has participated in many environmental assessment processes for uranium development in the province.
- In 2002, the ICUC challenged the CNSC in court for failing to initiate an environmental assessment for changes at several mines in the province. The ICUC won the case, but the decision was reversed on appeal. A further appeal by ICUC to the Supreme Court was rejected.
- In recent years, the ICUC has been making a case to the Canadian Nuclear Safety Commission, the federal Department of Health, and the federal Department of Environment, and provincial counterparts to recognize the long-term effects of radon gas and its product, alpha radiation, as the primary cause of lung cancer in uranium miners.
- An epidemiological study of 15,000 miners who had worked at the Elliot Lake and Bancroft mines in Ontario showed they had 81 % more deaths from lung cancer than the general population. Of 30 Dene who worked at Port Radium, 14 died from lung cancer. American studies show that 30 percent of uranium miners are likely to die from lung cancer. Regardless of the new regulations accidents happen so the risk to uranium miners is high. International health scientists are now in agreement that even the lowest doses of radiation can cause cancer.

- There is laxity in the regulations governing radiation protection for uranium exploration where geologists and drill workers handle radioactive rock samples.
- By 2002, Canada had accumulated 200 million tonnes of uranium mine waste. Mostly in Ontario because of the low-grade ore there compared to the new high-grade ore in the mines of Saskatchewan. The Saskatchewan mines have about 22 million tonnes from 38 years of mining. These mines contain ores with much higher proportions of radioactivity than other places in the world.
- One of the characteristics of the whole nuclear chain: uranium mining, refineries, nuclear reactors, and atomic bombs, (totally opposite to the natural cycles of nature) is the fact that everything ends up as waste. High level nuclear waste from reactors, waste from mines and refineries, and waste when bombs or DU weapons are used are all accumulating in huge volumes.
- Nuclear reactors in an age of climate warming caused by burning fossil fuel cannot substitute for fossil fuel and create clean air. Reactors liberate radiation and produce the most dangerous toxic waste known to mankind. No country has found a way to safely dispose their wastes or their reactors when they are closed down.
- In Saskatchewan, the government has spent at least \$1 billion in subsidies to the uranium industry and recaptured in royalties of about 10 percent of that. Last year the combined contribution of all the uranium mining companies was only about 6.5 percent of the gross domestic product of Saskatchewan.
- The lesson to be learned by the people of Nunavut: Expect lots of problems whether you say no or yes to uranium mining, as there are many forces in front of you.

## **HEALTH AND SAFETY ISSUES**

### *Dr. Gordon Edwards, Canadian Council for Nuclear Responsibility*

- The Canadian Coalition for Nuclear Responsibility (CCNR) is dedicated to trying to make information available to people so that they can make better decisions.
- Uranium is the heaviest naturally occurring element in Earth. It was discovered about 200 years ago and it did not have any practical use until 1938 when it was discovered that it is the only naturally occurring substance from which you can derive enormous amounts of energy by splitting the atoms (fission).
- The first use of the fission energy was to create the atomic bombs that we've heard about. When the atoms are split the energy is released which creates radioactive fallout.
- Radioactive materials damage individual cells in such a way that they grow incorrectly. Exposure to radioactive materials can cause cancer and other types of illnesses.
- Nuclear fuel is millions of times more radioactive after it has been used than before it is used in a power plant.
- Uranium fuel bundles removed from reactors are stored underwater for at least seven years after being removed from the reactor, otherwise it would spontaneously overheat and potentially be released to the environment. After underwater storage, the fuel bundles can be put into dry storage containers, which are air cooled, eventually it is hoped that they can be stored underground into geological repositories.
- Plutonium is produced inside the fuel bundles while electricity is being generated. Plutonium is considered to be a possible future fuel. The nuclear renaissance actually refers to generating more plutonium through more reactors so the need for uranium as fuel would be reduced.

- There are different types of radiation: alpha radiation is non- penetrating and can be stopped by a barrier like paper, but can be devastating to living cells once inside the body; beta radiation requires a stronger barrier to stop it from penetrating the body; gamma radiation is like X-Rays and needs a stronger barrier to prevent penetration.
- Uranium mining workers that have been studied for at least 20 years after exposure, have shown a significant increase in lung cancer. Studies published by the Atomic Energy Control Board years ago showed that the standards of radiation exposure would be expected to cause a quadrupling of lung cancer.
- Eight-five percent of the radioactivity from the ore is left behind. Originally it was in the form of a hard rock and therefore very little of it was getting into the environment. Now it has been pulverized into a very fine sand or soup and it is much more available to the environment.
- Uranium tailings must be managed for at least 80,000 years or until radioactive levels are reduced to safe levels. Tailings may get into the environment as a result of windblown dry tailings, seepage into water-bodies or emission of radioactive gases.
- Studies conducted by the United Nations' Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) have shown that the caribou in the Northwest Territories have elevated levels of Polonium 210 in their meat. These are not elevated levels which are very, very high, but they're noticeably higher than in other animals living further south.
- Nuclear power can not possibly solve the greenhouse gas problem. It may make a contribution, but a relatively small one because it only provides a small amount of total electricity and the electricity generation is only part of the overall energy used.

### **POTENTIAL HEALTH AND ENVIRONMENTAL EFFECTS FROM URANIUM MINING**

*Patricia Thomas, Toxicology Centre, University of Saskatchewan*

- Ms Thomas worked in Baker Lake in the 1990s, studying the transfer of uranium products through the lichen-caribou-wolf food chain.
- When uranium breaks down in the ground, it releases radon gas. Radon forms lead-210 in the air which falls with rain onto lichens and changes into polonium -210. Caribou eat the polonium-210 and transfer it to people and wolves. Polonium-210 naturally increases people's radiation dose.
- Health effects: Breathing uranium dust can hurt your lungs; drinking LARGE amounts of uranium in water can hurt your kidneys; breathing radon gas can give a radiation dose to your lungs; Lichens collect lead-210 and polonium-210. Both give a radiation dose to your whole body from eating caribou Drinking water with radium-226 can give a radiation dose to your bones.
- Summary of Potential Health and Environmental Effects from Uranium Mining:
  - People eating caribou already get a naturally high radiation dose from polonium-210.
  - More mining and milling dust may get into lichens that caribou eat and increase this dose.
  - Radium-226 may get into water supplies from tailings.
  - Mine operations may disrupt caribou migration and calving grounds.

### **RADIATION SAFETY, HEALTH AND SAFETY ISSUES RELATED TO URANIUM MINING AND RADIATION EXPOSURE**

*Doug Chambers, SENES Consultants Limited*

- The lost time rate for uranium mining is approximately 6 times lower than the average for all occupations in Canada.



- Radiation is everywhere and variable from place to place. All soils are radioactive, for every million atoms, you'll have two or three atoms of uranium and two or three atoms of thorium. Other sources include radiation from outside the earth and it comes through our atmosphere. When you fly, you're exposed to more cosmic radiation because you're closer to the sun.
- Three major kinds of radiation associated with uranium mining. Gamma radiation, which is a wave-like electromagnetic wave that will penetrate paper and wood, but will be absorbed by concrete or steel sheeting. Beta radiation, a beta particle is like an electron and may not be absorbed by a sheet of paper, but certainly by a piece of wood. The beta particles that we get from uranium mining are totally shielded by a pair of glasses. Alpha particles that are the concern with radon and Radium 226 and poloniums are only a hazard if they're taken into your body and deposited internally in some organ. But externally they're totally shielded by your skin or by a piece of paper.
- A typical dose of radiation for the public is one to three milliSieverts per year or one to three radiation units per year. According to reports like United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) 2000, the range can be larger. For example, if you live in central Florida, which has a lot of naturally radioactive phosphate rock, radon levels are much higher than they are in other parts of Florida where the rock is less radioactive.
- According to the UNSCEAR report coming out next year, medical radiation for diagnostics now exceeds natural background radiation as a major source of exposure for people in developed countries.
- Common radiation doses: Air travel is 0.1 units for two trips between Toronto and Frankfurt. Medical radiation is about 0.6 units on average annually. And since not everybody has X-rays or CAT scans that means the individual dose for some people can be very much higher. The dose from the consumption of caribou is about 1.7 units from natural background sources. The average dose in uranium mining in 2006 was 0.5 radiation units.
- Radiation protection standards are based on international guidance. UNSCEAR provides the scientific review. The International Commission on Radiological Protection provides generic reference radiation protection guidelines that most countries in the world, including Canada, follow. There's a strong expectation to do everything that's reasonable to make sure that the people that work in the industry actually receive less of a radiation dose - the ALARA principle (As Low as Reasonably Achievable). Uranium mining companies in Canada and the United States and elsewhere follow that principle.
- Safety measures used to reduce radiation exposure include reducing the time exposed to radiation sources, maintaining distance from sources and shielding workers from radiation sources. The use of ventilation and remote controlled equipment in uranium mines helps to reduce radiation exposure for workers.
- Radiation exposure during exploration: As you are in the open air you are not exposed to radon in a confined space. For example radiation dose from a 10% uranium core sample at 1 metre distance is approximately 0.001 radiation units, compared with a dose of 0.005 units for a flight between Toronto and Frankfurt.
- Radiation levels are monitored in the work space and workers are also monitored to ensure they do not get too much exposure.
- The annual allowed exposure limit is 50 radiation units and the 5-year average limit is 20 radiation units for workers. The average dose for workers at northern Saskatchewan mines was below 5 units with maximum dose levels below 15 units. Doses for a nearby resident, local trapper, lodge operator or food service worker at the mine were 10% or less of the allowable public dose.
- Health Canada maintains the National Dose Registry, where the individual doses of everyone who works at a licenced facility are kept.

- UNSCEAR is the lead agency of the United Nations on health effects, established in 1955. All agencies in the UN system take the advice of UNSCEAR with regard to health defects. The most recent report, which will be published this year has the same risk estimates as UNSCEAR 2000. It's generally accepted that the risk increases with increasing radiation dose. There's no statistically significant effect below about 100 milliSieverts. In a modern mine, the maximum exposed worker is only exposed to perhaps two milliSieverts a year. So a worker could work for 50 years and still be under the hundred milliSieverts. At very high doses, in the order of 4,000 radiation units, you do see some lung cancer effects in two populations: Japanese atomic bomb survivors and in women who've been irradiated for breast cancer.
- To this point in time there is no evidence that radiation results in hereditary effects in people.
- There is a study of current exposures in the workplace for 24,000 miners who would've been exposed from 1975 to 2030. The modern exposures of radon are low and it is estimated that out of this group about 140 miners would get lung cancer from natural causes. It was also predicted that at modern exposure levels there might be one extra lung cancer. However, over 50 percent of modern miners still smoke and over 90 percent of the risk of lung cancer in miners is in smoking miners.
- The original Eldorado study published in 1980 looked at workers who worked for Eldorado at either the Port Radium, Beaver Lodge or Port Hope facilities. The updated study completed in 2006 included 17,660 men and women who had worked for Eldorado. Information was collected on the work histories and radiation exposures, both radon and gamma radiation. There was 50 years of mortality data in the updated study and almost 30 years of cancer incidence study. The major conclusion was that workers were as healthy as the general Canadian male population.
- Risk factors for lung cancer. The overwhelming cause of lung cancer is tobacco smoke, which also causes cardiovascular disease and other issues. The number two cause is exposure to radon in the work place and at home.

## **POLICIES AND PROCEDURES FOR ACTIVITIES ON INUIT OWNED LANDS**

*Luis Manzo, Manager of Lands, Kivalliq Inuit Association*

- The Nunavut Land Claims Agreement provided the Inuit of Kivalliq with 3,132 square miles of surface land and 1,004 square miles of sub-surface rights. The lands department of the Kivalliq Inuit Association (KIA) administers the Inuit Owned Land (IOL) in the Kivalliq region.
- KIA issues licences for the use of IOL. Any operational or commercial activity requires a licence, including land use, mining and quarrying. An exception is for the collection of carving a stone which belongs to Inuit.
- Residential and recreational leases are also granted to construct permanent structures for the purposes of recreational or fishing uses.
- KIA also undertakes land use inspections to make sure that all terms and conditions are being met.
- How to apply for access? The application has to be submitted to KIA. KIA reviews the exact location of this licence and makes sure it is for IOL. The application is submitted to the affected community(s) for review. KIA and the communities review the application for environmental and land use concerns. Recommendations are made on whether or not to issue a licence and under what terms and conditions.
- KIA also requires that the conformity review by the Nunavut Planning Commission, screening by Nunavut Impact Review Board, and if applicable, water licence by Nunavut Water Board be completed prior to issuing its licence.

## 2.3 Day 2: Presentations

### **ISSUES AND MITIGATION MEASURES CONSIDERED IN THE ENVIRONMENTAL ASSESSMENT OF URANIUM MINES IN NORTHERN SASKATCHEWAN**

*Dr Donald Lee, Chair, Federal/Provincial Environmental Assessment Panel*

- Around 1990 the Governments of Canada and Saskatchewan appointed a panel to review all the new uranium developments that were proposed to occur in northern Saskatchewan. The review took seven years and involved a review of nine different ore bodies, two mills, two tailings management facilities, and the related transportation connections.
- In addition to project specific reports, the Panel submitted a report which summarized the twelve main things learned during the review.
- Education helps people to assess the relative risks and benefits of any project. Education also prepares people to accept employment in the project when and if it comes.
- Employment and business opportunities. The Panel recommended that the good intentions of industry be converted into legal obligations such as requiring 50 percent or 80 percent, or whatever number is reasonable, of the jobs should go to local people.
- Community vitality. Companies should be active in monitoring the community vitality which addresses what happens to the community and the people in it.
- Research: There should be a scientific research institute related to uranium mining, particularly in Saskatchewan where there is so much uranium.
- Mills: Instead of having a mill at every mine site there should be centralized milling. That leaves a smaller environmental footprint than having several mills.
- Tailings: The ore is ground up really fine and chemicals are added to float out the uranium. The rest of it is left behind as tailings, perhaps 99% of the ore remains as tailings, depending on the concentration of uranium in the ore. The tailings contain everything else, including the chemicals that were used to float out the uranium. They're very toxic and will be radioactive for a long, long time. The Panel recommended that the tailings be put in a mined out pit.
- Waste rock: If the waste rock has sulfide minerals in it, the sulfides can oxidize and produce sulfuric acid. With precipitation, dilute sulfuric acid would drain from the waste rock piles and impact the vegetation and the fish and anything else that it came in contact with. The waste rock needs to be separated from oxygen to prevent acid generation. One method is to cover the rock up with other rocks and till, but over time that could erode and be exposed. Another method is to place the rock in a deep lake well under water so not much oxygen would get to them. The Panel believed the best way is to return them to a pit where they came from.
- Water Quality: If the mined out pit leaks, water may travel outside the pits and eventually into aquifers. In northern Saskatchewan, they have dug monitoring wells all around the mined out pits. Periodically the water is pumped from the wells and analyzed to determine if seepage is occurring out through the pit in any direction. If seepage did occur, the wells could be pumped dry to collect any seepage water and prevent it from entering the environment.
- Monitoring: Perpetual monitoring of decommissioned tailing management facilities and potential acid-generating waste rock depositories will be necessary. A self-sustaining fund should be designated for the cost of monitoring and any mitigation required.
- Cumulative effects: Each mine could operate perfectly according to regulations, however, the combined effect of all the mines might overload the environment. So people need to think not only about an individual project, but about the potential impacts of all projects in the area.

- Local participation: In 1995, the Panel realized that there wasn't sufficient participation by the local people in monitoring the environment around the uranium mines. The Panel recommended the establishment of Environmental Quality Committees composed of local people who become knowledgeable about uranium mining and visit the mines and make recommendations. These Committees have been established.
- Transportation: A road causes quite a bit of environmental damage and change and you not only have to be concerned about the road, but also about the kind of vehicles and materials that are traveling on that road. The worst case scenario needs to be considered and provisions made for that possibility.
- Health and safety: It is essential that legislation and regulations provide adequate protection for both contract and non-contract workers; that mine sites be inspected frequently; and due care be exercised to ensure that safe work practices are being followed.

## **NUCLEAR POWER IN CANADA – AN EXAMINATION OF RISKS, IMPACTS AND SUSTAINABILITY**

*Alison Jamison, Pembina Institute*

- The Pembina Institute produced the report "A Life Cycle Assessment of Nuclear Power in Canada" ([www.pembina.org](http://www.pembina.org)) which examines the entire life cycle: uranium mining and milling; fuel refining, conversion, and fabrication of the fuel pellets; power plant construction, operation and decommissioning; as well as waste fuel management. This presentation focuses on the uranium mining and milling impacts and waste generation.
- Each year 85,000 waste nuclear fuel bundles are generated in Canada. As of 2003, there were 1.7 million fuel bundles in storage. There is no long-term management strategy in place for managing this waste. In 2005, the Nuclear Waste Management Organization released the adaptive phase management strategy. It refers to eventual deep geological storage which may cost \$24 billion and take about 300 years to implement.
- Approximately 18 million tonnes of waste rock are generated at uranium mines each year. The waste rock contains radionuclides, heavy metals and may be acid generating. Approximately 575,000 tonnes of uranium tailings are generated each year in Canada. It is estimated that approximately 213 million tonnes of tailings are currently stored in Canada. Waste rock and tailings need to be managed over the long term.
- Ground water monitoring at Cluff Lake, a mine being decommissioned in northern Saskatchewan, revealed highly elevated levels of heavy metals and radionuclides. Arsenic concentrations were 66 times higher than background levels and nickel levels were 1,250 times higher. A review of numerous water quality studies have revealed that while modern regulations require mines to stay within water quality guidelines a number of studies show total loadings over the mine life may have significant cumulative impacts.
- Uranium series radionuclides were measured at three sites near the Key Lake mine in a study in 2000. As a result of wind blown fugitive tailings dust, significantly higher concentrations of uranium and other uranium series radionuclides were found in soils, twigs, vegetation, birds, and small animals near the mine.
- Uranium mining and milling are very significant emitters of acid and smog producing gasses. The Rabbit Lake acid plant released 43,000 tonnes of sulfur dioxide in 2004; making it one of the largest point source emitters in Canada.
- Some studies examining the caribou-lichen-human pathway have shown that bio-accumulation from caribou eating the lichen and then humans eating the caribou have lead to elevated cancer risks in humans. Fish down stream of the Key Lake mine in waters receiving discharges from the

mine were found to have heavy metal concentrations (e.g., nickel, cobalt, cadmium) up to 43 times higher than normal levels.

- Climate change: Nuclear energy is not free of greenhouse gas emissions. The impact of climate change on permafrost and other conditions need to be considered when evaluating tailings management and other mine structures.
- Sustainability challenges with nuclear energy:
  - Capital cost and construction time lines and risk
  - Reliability
  - Fuel supply and cost
  - Security
  - Weapons proliferation
  - Long term waste management (transfer of risk to future generations)
  - Not greenhouse gas emission free

### **LONG TERM MANAGEMENT OF NUCLEAR FUEL WASTE IN CANADA**

*Soha Kneen, Inuit Tapiriit Kanatami (ITK)*

- Inuit have been opposed to the long-term management of nuclear waste in the Canadian Arctic. A 1997 resolution by NTL expressed opposition to the storage of nuclear material in Greenland (B97/08-24). In 1977, the Inuit Circumpolar Conference (ICC) passed a resolution in support of peaceful and safe uses of the Arctic circumpolar zone (77-11).
- Throughout 2004 and 2005, ITK, with the help of the National Task Force members of the Inuit land claims organizations, engaged in the organization and execution of the national Inuit specific dialogues on the long-term management of nuclear fuel waste in Canada. These dialogues occurred in Iqaluit, Inuvik, Kuujuaq and Makkovik.
- For the most part nuclear fuel waste is currently stored on site at nuclear generating facilities in either in wet or dry storage.
- The Nuclear Waste Management Organization (NWMO) stated that as of 2002, there were approximately 1.7 million used nuclear fuel bundles (approximately 40,000 metric tonnes) produced in Canada.
- The radioactivity of this substance is measured in half lives or the amount of time for the material to lose half of its radioactivity. Waste by-products such as uranium have half lives as long as 710,000 years.
- The 2002 federal *Nuclear Waste Act* directs the NWMO to examine three methods of long-term management of nuclear waste: deep geological disposal on the Canadian Shield, storage at nuclear reactor sites, and then the centralized storage which can be either above or below ground. Deep geological disposal on the Canadian Shield can come in two forms: one that's sealed off and one that's accessible.
- Inuit consensus was reached on 11 points that have been outlined in the final report. Two key points of the recommendations are: the complete opposition to the storage, disposal, or transport of nuclear waste in Inuit-owned lands, Inuit co-managed lands and lands governed by Inuit land claims agreements; and, that currently existing nuclear fuel waste should remain on site at existing nuclear reactors.
- ITK resolution B05-06-09 opposes the storage, disposal and transport of nuclear waste on Inuit-owned lands, in areas adjacent to Inuit-owned lands, Inuit co-managed lands, lands governed by land claims agreements, as well as a recommendation to restrict the transport of such materials across international boundaries, and that the current waste should be stored at existing sites until a way is found to safely dispose of these wastes.

## **POTENTIAL CUMULATIVE IMPACTS OF URANIUM EXPLORATION AND DEVELOPMENT ON THE BEVERLY CARIBOU HERD**

### *Beverly and Qaminirjuaq Caribou Management Board*

- The Beverly and Qaminirjuaq Caribou Management Board is a co-management board that's been working for 25 years to ensure the long-term conservation of the Beverly and Qaminirjuaq herd.
- The Beverly and Qaminirjuaq Caribou herds are a valuable and irreplaceable resource to more than 20 communities in the Northwest Territories, Nunavut, Manitoba, and Saskatchewan. The board has estimated that the economical value of the Beverly and Qaminirjuaq herds harvested each year is at least \$17 million.
- Based on current knowledge the Thelon watershed is most valuable to caribou in providing the following key habitats: spring migration route between the winter range and calving areas, traditional calving area, post-calving area, and undisturbed water crossings. The Board does not agree with permitting exploration activities on calving and post-calving areas.
- The Board is concerned about the amount of mineral exploration under way and proposed across the range of the caribou herds. Barren Ground Caribou are wide ranging, which expose them to a variety of land use activities on their range. All impacts collectively impact the health of caribou and their ability to cope with the stress and disturbance caused both by nature and humans. Although the stress and disturbance from each land use activity may seem to be minor, the combined effect of many impacts can be serious.
- All five herds that use range in the NWT to the west of the Thelon have declined over the past decade. Population size and trends for Ahiak and Beverly herds are not known as the last population surveys were conducted in 1996 and 1994 respectively. It's likely that these herds have also decreased in size.
- Much remains unknown about caribou, which prevents accurate prediction of cumulative effects. The Board does not have the most basic information required to determine if the herds are healthy, growing, and likely to continue to do so. We do not know the impact of exploration on individual caribou, population level impacts of disturbance to individuals, effective loss of winter habitat, the impacts of climate change, how demand for Beverly and Ahiak Caribou will increase because of the growing size of communities and greater access to winter range for hunters from the South, and the reduced availability of Bathurst Caribou, and how all these influences will interact.
- Due to considerable uncertainty that exists, both about the caribou herds and how to assess the cumulative effects of development on caribou, a precautionary approach must be applied. This approach requires that new permits for additional exploration work in the Thelon watershed in both Nunavut and the NWT should not be issued until substantial work has been undertaken by territorial governments and other agencies to make informed decisions, including:
  - Identification of data needs.
  - Research on the Beverly and Qaminirjuaq Caribou should be conducted on population size and trends; habitat requirements and movement patterns; energetic and reproductive requirements; how natural and human disturbance affects caribou at an individual, herd, and system level.
  - Modeling is needed to identify what is sustainable development in relation to ensuring the caribou continue over the long term.
  - Cumulative effects impact analysis for proposed developments on Barren Ground Caribou should be conducted on the entire range of the caribou herds rather than on individual project study areas only. Need to identify thresholds for further impacts that will

not threaten the long-term sustainability of the herd and to develop a better understanding of significance of effects.

- Comprehensive regional plans should be developed that identify overall goals for the area, human activities that are compatible with the goals, the likely effects of human activities, the likelihood that activities will result in serious, long-term negative effects or irreversible harm in the scope, intensity, and consequences of human activity that are judged to be acceptable.
- A range-wide system of conservation planning should be established to safeguard the Beverly and Qamanirjuaq Caribou herds over the long term across seasonal ranges by the Nunavut Planning Commission, INAC, territorial governments, and provincial governments.

### **INUIT/DENE/WORLD WILDLIFE FUND COOPERATIVE EFFORTS TO BALANCE PROTECTION AND DEVELOPMENT AROUND THE THELON WILDLIFE SANCTUARY**

*Monte Hummel, President, World Wildlife Fund*

- In WWF's perspective protected areas or conservation areas are protected for hunting and for traditional use by the Inuit. WWF supports conservation initiatives which are championed and lead by the people who live in the North. WWF is not against mining of any kind and has worked cooperatively with leading mining companies right across Canada and around the world for over 25 years.
- In 1995, Dene and Inuit elders, hunters, trappers, and community leaders from Lutselk'e in the Northwest Territories and Baker Lake in Nunavut met in the Thelon Game Sanctuary and signed a declaration of principles for managing the sanctuary. Inuit were counting on Dene to protect the headwaters of the Thelon River in the NWT and Dene were counting on Inuit to protect the calving area of the Beverly herd in Nunavut. A Thelon Game Sanctuary management plan was developed by both communities, especially with input from the Ahikik Planning Committee here in Baker Lake.
- Since 1990, a number of things have happened on both sides of the border:
  - Nunavut and INAC have approved the Thelon Wildlife Sanctuary Management Plan for the Nunavut side.
  - There has been extensive industrial activity in the Slave Geological Province exploring for diamonds, resulting in two, soon to be three operating mines in the NWT.
  - The Mackenzie Gas Project has been resurrected resulting in oil and gas leases and mineral exploration in the Mackenzie Valley.
  - There has been increased interest in uranium in the Thelon Basin, exactly overtop of the special management areas proposed by Dene and Inuit as part of the Thelon Game Sanctuary Management Plan.
  - The Dene's response to all of this activity has been to try to reserve large areas that they want to protect in advance of development.
  - In 2004, the Beverly and Qamanirjuaq Caribou Management Board published a position paper strongly recommending that the Beverly and Qamanirjuaq calving and post-calving areas be given permanent legal protection with no industrial activity; and that the caribou protection measures are not adequate to conserve caribou.
  - The Baker Lake HTO wrote to INAC and the Government of Nunavut requesting a moratorium on any new mineral dispositions in the Beverly calving and post-calving areas.

- WWF funded through the Baker Lake HTO a three-year place names study with the Gary Lake and Back River people.
- In January of 2007, a caribou summit held in Inuvik was attended by over 150 participants, including caribou management boards, grand chiefs, ministers, elders, hunters, industry, caribou biologists, and Nunavut representatives. One of the strongest recommendations of the summit was to provide protection to caribou calving areas, many of which are in Nunavut.
- What is at stake are land use planning issues, especially the proper sequencing of conservation and development. Isn't this going to create problems for industry if people want to protect areas where they already have been issued permits, leases, claims, as is happening in the NWT? And where do the IPG's, such as the Nunavut Wildlife Management Board, stand on issues as important as allowing mineral activity in calving areas of the Barren Ground Caribou?

### **ENVIRONMENTAL ISSUES RELATED TO URANIUM MINES AND COMMUNITY AND STAKEHOLDER INVOLVEMENT IN PROTECTION PROGRAMS**

*Gerry Acott, Director of Licensing, AREVA Resources Canada*

- When mining first started in northern Saskatchewan in the early 1950's there wasn't much environmental regulation. Today there are some legacy sites that are still being cleaned up.
- Two major environmental assessments of uranium mining occurred in Saskatchewan: the Bayda Commission in the late 1970's and the joint federal/provincial environmental assessment panel headed by Dr. Don Lee in the 1990's.
- The Bayda Commission concluded and recommended:
  - There needs to be a comprehensive baseline assessment of the environment so that impacts of mining could be measured.
  - Environmental monitoring should be a regulatory requirement and now, monitoring requirements are included in licences and permits.
  - Tougher environmental standards should be developed through research.
  - Decommissioning should be part of the initial mine planning.
  - Financial security should be provided to ensure reclamation could occur.
  - Research should be undertaken to better understand potential impacts on the environment and environmental protection needs.
- The Panel chaired by Dr. Lee reviewed the new generation of uranium mining proposed in Saskatchewan, mines which had very high grades of uranium and needed to be handled in a cautious manner. Some of the key environmental recommendations of the Panel and industry's response are summarized below:
  - Further scientific research: At McLean Lake industry has undertaken research into immobilizing arsenic in tailings so that they can not enter the environment, control of drainage from waste rock, and research into the effects of discharges on the environment and refining of acceptable levels of certain elements in effluent discharge.
  - Centralized milling: Ore from various mines is milled at a few centralized mills, allowing for only a few highly controlled tailings facilities rather than many tailings facilities spread over a wide area.
  - Tailings Management: advances in tailings management for long term protection of the environment.



- Waste Rock: active management of waste rock to prevent acid rock drainage and metals leaching.
- Water Management: treatment of water to meet water quality requirements before being released to the environment.
- Monitoring: Industry does a lot of monitoring according to regulatory requirements. Saskatchewan Environment and the Canadian Nuclear Safety Commission also conduct monitoring to confirm our results. Monitoring is also conducted by downstream communities and the Environmental Quality Committees.
- Reclamation and Perpetual monitoring: There will be an environmental assessment of the reclamation at Cluff Lake before the company is released from further responsibility. Under the Saskatchewan Reclaimed Industrial Sites Act the company has to provide funding to the government for long term monitoring, maintenance, repair and a long term security for a maximum failure event.

### **INVOLVING COMMUNITIES AND STAKEHOLDERS TO ENSURE CARIBOU PROTECTION**

*Barry McCallum, Manager of Nunavut Affairs, AREVA Resources*

- The Kiggavik site is 80 kilometers west of Baker Lake, half way between the Thelon Game Sanctuary and Baker Lake, about 70 kilometers from the Beverly Caribou calving grounds and about 200 kilometers from the Qamanirjuaq calving grounds. After 30 years of drilling activities, there's very little impact to the environment. It's a small footprint. Exploration took place from '74 to '97 and is going to resume this year.
- AREVA has talked to many groups, including Hamlet Councils, hunters and trappers, the Beverly and Qamanirjuaq Caribou Management Board and participated in uranium information sessions all over the Kivalliq. The message is clear: mining will only be permitted here if it brings substantial economic benefits; if people are consulted throughout the process and involved in the decision-making process; and if the environment – particularly the caribou – is adequately protected.
- AREVA is undertaking a variety of caribou monitoring activities. Our intention here is to protect the caribou while we learn more about how caribou behave around exploration sites and how effective our mitigation measures are. AREVA has signed an agreement with the Beverly-Qamanirjuaq Caribou Management Board to provide \$125,000 funding for population survey work and population studies. We're cooperating with the KIA monitoring program. Caribou is a topic of our committee liaison community discussions and will be the topic of a traditional knowledge discussion that we'll have here in town.
- This work will allow AREVA to continue to improve our caribou protection measures because we know there won't be mining unless we learn enough about caribou to put adequate measures in place to protect them.

### **WORKING TOWARDS A COMMON GOAL- COMMUNITY INVOLVEMENT**

*William Noah, Community Liaison Officer, AREVA Resources*

- Born in the Back River area but moved to Baker Lake in 1957/1958 during the famine.
- Used to oppose mining but after I visited the mines in northern Saskatchewan I changed my mind.
- AREVA opened an office in Baker Lake in 2006, the Community Liaison Committee started in 2006 and meets once per month.
- A number of people from the Kivalliq have toured some of the mines in northern Saskatchewan.

- We also took people back to their traditional lands in the Beverly, Aberdeen and Schulz Lake areas.
- We also met with people of the Kivalliq, particularly Baker Lake and Chesterfield Inlet because to talk about uranium development.

## **SOCIAL/CULTURAL ISSUES AND MITIGATION MEASURES FROM NORTHERN SASKATCHEWAN**

### *Betty Hutchinson, Government of Saskatchewan*

- Northern Saskatchewan covers approximately 326,000 square kilometers with a population of about 38,000 people. Each uranium mine is required to identify communities that could be impacted by their mine. Communities nominate a representative to sit on the Environmental Quality Committee (EQC) and they are appointed by the Government of Saskatchewan.
- The EQCs act as a bridge between northern communities, the uranium industry and the regulators. Mervin and Norman, as representatives of their community on the Committee, bring community concerns forward for response by industry and the regulators and also take information back to their home communities.
- The EQCs meet 3 or 4 times each year. The purpose of the meetings is to provide balanced information to the community representatives on current activity within the uranium industry. Both regulators and industry are very cooperative in providing information to help the community representatives understand the information.
- The EQCs also visit each mine site once a year to see what is occurring and be advised of new health and safety and environmental information. This also allows EQC members the opportunity to visit community members at the work site and see if there are any concerns.
- Other activities the EQCs get involved with include: tag – along with regulatory inspectors, special briefings prior to licencing processes or on specific issues, participation in CSNC hearings. EQC members are also active providing information about the uranium mines back to their communities.
- Challenges to the operation of the EQCs include member turnover and the need to educate new members, turnover in regulatory and mine staff which requires time to build a trusting relationship and the need to continue to learn about the new technologies being used in the industry.
- The Saskatchewan government provides funding to the EQCs for travel and accommodation. Sometimes other funding is available through government or industry to cover the cost of mine trips or other activities.

### *Norman Wolverine, English River First Nation*

- Originally there was very little information and understanding of uranium mining. We had fear. Now there is a lot of communication with industry and there are benefits available from the industry. We are still concerned about above ground tailings. We have asked the company to put the tailings back in the pits and they have agreed, so we have a lot of trust.

### *Mervin McDonald, Stony Rapids*

- Represents the community of Stony Rapids and have worked at the Cameco Rabbit Lake Mine for 25 years.

*Betty Hutchinson, Continuation of Presentation*

- A recommendation of Dr. Lee's environmental assessment panel was to study how the uranium mines affect community vitality. The Community Vitality Monitoring Partnership Program was started. Research projects undertaken under the program included out-migration studies which looked at the effect of employment on residents of the northern communities and whether they stayed in the community or chose to move out to a southern locale once they were employed. Another research project examined the costs of a healthy food basket across northern Saskatchewan. There have been workshops in communities focussing on things like family, health, justice, recreation, education, leadership, and most recently about developing leadership skills in youth from northern Saskatchewan. A project proposed for the coming fall is to identify some of the challenges to postsecondary education for residents in remote communities.

**FUNCTION AND COMPOSITION OF BAKER LAKE COMMUNITY LIAISON COMMITTEE, KEY ISSUES TO DATE, FUTURE CHALLENGES**

*Philip Putumiraqtuq Co- chair of the Baker Lake Community Liaison Committee*

- The Committee was established in 2006 with appointees representing the HTO, elders, youth, education, health, justice committee, business committee, Aberdeen Lake people and KIA. There is an open invitation to all organizations to join the committee.
- The function of the Committee is to establish dialogue and understanding between AREVA Resources and the community of Baker Lake.
- The Committee has been learning about uranium mining. We discussed the Kiggavik project, using traditional knowledge, protecting the environment and archaeological sites. Some of the Committee Members have visited the uranium mines in northern Saskatchewan. Members have also attended mining symposiums in Toronto and Iqaluit.
- We keep community members in Baker Lake informed about uranium developments and are planning to host community workshops in regard to uranium mining.

**COMMUNITY PREPARATION, ISSUES AND CHALLENGES: EMPLOYMENT AND BUSINESS OPPORTUNITIES**

*Morris Onyskevitch, AREVA Canada Resources*

- The goals of the "Northern Strategy" include maximizing northern employment and contracting opportunities and the development of education and training opportunities.
- Today most entry level positions in the mining industry are filled with northerners. However, there are opportunities for technicians, journeypersons, and professionals. Companies have adopted innovative policies to ensure that northerners are able to take advantage of employment opportunities while continuing to live in their communities and maintain traditional activities. Mine workers commute to the site by aircraft from their home communities and work on a week-in and week-out rotation.
- To help build capacity in northern Saskatchewan industry helps develop local businesses to support our operations and increase northern Saskatchewan's participation in the industry. Last year AREVA and Cameco purchased \$250 million in goods and services from northern businesses ranging from trucking, expediting, catering, to earthworks.
- There is a multi-party training agreement involving government, communities, industry, and educational institutions to develop and operate programs to provide training and jobs for northern

people who want to enter the mining industry. Cameco and AREVA have contributed \$21.8 million to this initiative since it was established in 1992.

- For the 2006-2007 year about 40 courses were offered through the multi-party training plan in approximately 15 locations throughout northern Saskatchewan. Courses ranged from developmental studies to exploration technology, underground mining, electrical and industrial mechanics trades training. In the fall of 2006 two new mining industry courses started: mine engineering technologist and chemical technologist.
- Many of industry's efforts are focused on youth. We travel to schools regularly to show students what the industry has to offer. Opportunities are provided for youth aged 18 and over to work at the mines as summer students, thereby gaining experience and finances to further their education. Industry funds and organizes youth workshops that deal with topics ranging from leadership to health, justice, and educational issues. In 2006, AREVA and Cameco provided \$2.6 million to community projects and charitable organizations in northern communities.
- Relationships with northern people are built on effective consultation. AREVA and Cameco have Northern Affairs offices based in La Ronge, Fond-du-lac, and Wollaston, with eight employees dedicated to building our relationship with northern communities. In addition to frequent communications through the northern office, community representatives travel to 12 key communities annually for community meetings to update people on industry developments and provide an opportunity for people to raise issues and concerns in person.

## **LAC LA RONGE INDIAN BAND POLICY ON TRADITIONAL LANDS**

*Mr. Harry Cook*

- Born and raised on a trap line in northern Saskatchewan near a small community called Stanley Mission. Became a welder and lived with my family in Regina before returning to my home community.
- The Lac La Ronge Indian Band is part of the Woodland Cree and is located in northern Saskatchewan. It's a multi-community band with 8,500 members. The Band manages critical services such as education, including post-secondary education, economic development, housing, community health, child and family services, and infrastructure. The Band owns one of the most successful Indian-owned companies in Canada. Kitsaki Management Ltd., a collection of 15 different enterprises with annual revenues of \$64 million. Forty percent of these revenues are derived from our business relations with the mining industry in Saskatchewan.
- Kitsaki was born out of the relationship with the mining industry, in particular Cameco Corporation. Cogema and also AREVA today are very valued mining companies in our province. Through Kitsaki, we've created hundreds of jobs for our band members and motivated hundreds more to pursue educational opportunities that lead to these opportunities.
- Northern Shores Trucking was the first major business success. It started out as a small trucking company. Through the encouragement of Cameco, we joined forces with one of Canada's largest trucking companies, Trimac, and we created Northern Resource Trucking. Cameco agreed to sign a six-year exclusive contract for all its hauling. In return, NRT agreed to restructure and extend opportunities to nine other aboriginal communities.
- Athabasca Catering is the second largest mine services enterprise. It provides food and janitorial services to all of the major mines in northern Saskatchewan, Cameco, and also Cogema. It is 100 percent aboriginal owned with Kitsaki as the managing partner and four other aboriginal partners.
- In my opinion, Cameco, Cogema and AREVA are examples of companies that pursue development in a culturally, socially and environmentally responsible manner and delivers on its commitments.

- Despite this positive success, Aboriginal people still face enormous challenges. Demographically the Aboriginal people are younger and growing faster than the whole population, unfortunately less well educated, and at times less employed. Despite the opportunities created by the mining industry, the unemployment rate for Aboriginals is still three times higher than our provincial rate, reaching as high as 60 to 70 %. The rate of illiteracy for Aboriginal people is at least double the provincial rate and, even with much improved access to primary and secondary education in the North today, about 75% of our children leave school before completing Grade 12.

## **BAKER LAKE'S RECENT EXPERIENCE WITH MINERAL EXPLORATION AND DEVELOPMENT**

*Moses Kayuryuk, Economic Development Officer, Hamlet of Baker Lake*

- Recent mining exploration activity has impacted the community of Baker Lake as follows:
  - Training and employment is now available for income support and employment insurance recipients. Training has also been provided for local fire fighters, Rangers and people of the region. Three sessions of heavy equipment operator training have taken place.
  - Indirect benefits have been generated for businesses including hotels, suppliers and expeditors. The activity also provides business opportunities for either start-up or expansion.
  - Community self-esteem has improved. Council and local people are pleased with the transition from income support and employment insurance to full time employment. People are earning up to five times more than the assistance previously received. Family members who have someone employed at the site say they have a better quality of life.
  - There have been no increases in violence or crime, at least not from the mine employees since the activity level has increased. Client numbers for drug and alcohol counseling have remained steady with no increases.

## **NORTHERN SASKATCHEWAN ABORIGINAL BUSINESS PERSPECTIVES**

*Rene Rediron, Snake Lake Construction*

- I'm from a community called Pine House Lakes in northern Saskatchewan. I'm 54 years old. I was born in a community where it was only trapping and fishing. We quit school at an early age to go trapping and fishing. As I grew into my teens all I did was commercial fish.
- We welcomed the road when it came to the community in 1978, not knowing that somebody had plans for it. The first time the industry came into my community, I had very little interest. So when finally I approached them, I didn't have anything to offer really because I'm just a fisherman. All I had to offer was good hard working people that work along side of me. They gave me an opportunity and I was scared. I was really scared. But I've always, you know, in the back of my mind said we'll work hard and we'll prove to these guys that we're hard workers as Aboriginal people. I was very surprised to see how open this industry was. They didn't hold our hand, you have to be competitive, do your job on time. That's all they ask. And we gave them that.
- I hired a hard working kind of a people. With their hard work today, I'm proud to say that I have probably 30 or 40 people that pass through my company and now have long-term jobs with the mining industry itself, high-paying jobs. And I'm proud to say I trained these people with my own money. Not with any government help or anybody. I trained them with my own money because the mining industry paid me a fair dollar and they understand, like a lot of these people, we trained with our own language and our own equipment.

- And there's so many more opportunities that are going to come about in the industry and I have in my company about 50 to 100 people that work for me. Ninety-five percent of the time these are Aboriginal people.
- The uranium mines have been around for 30 years in northern Saskatchewan. We still drink water from the lake when we go out camping. So I'm telling you people the decision is yours. The choice is yours to make. My children, I got five kids, four of them are grown up. I've tried to teach them the traditional ways. Unfortunately, they're not interested. I don't know how long we can keep our children from not wanting to pursue better lives. All I know is that we got technology here now that shows the young people in particular what's out there in the south, the opportunities that they can get their hands on. So the decision has to be made by us people how we want to see our children in the future live. And if we work honestly and be good negotiators, we can go a long ways and still maintain our lifestyle. It's proven to us people in northern Saskatchewan. It's changed our lifestyle to the better.

### **POST SECONDARY TRAINING FOR NORTHERN RESIDENTS FOR URANIUM MINING JOBS**

*Peter Mayotte, Director, Central and Athabasca Region, Northlands College*

- There is a rapidly growing population, a young population in northern Saskatchewan, which presents some challenges but also offers some huge opportunities. Another similarity between Nunavut and northern Saskatchewan is the strong belief of individuals, communities, and community leaders that a healthy, safe workplace for individuals and a healthy environment for communities and the region are of the utmost importance.
- There's about 2,700 people employed in the mining industry in northern Saskatchewan. About 1,300 of the workers are northerners. The mining industry is projected to remain stable. There are surface lease agreements between the government and mining companies that established the rules under which the mining company can occupy that land. Within these agreements are human resource development agreements which speak to maximizing employment opportunities for northerners and particularly those that are in the immediate impact area as defined under the surface lease agreement. And also to promote, present and enable opportunities for northern businesses.
- The establishment of the human resource development agreements and ultimately the multi-party training plan was a recognition that there was a collective effort necessary to address the challenges and opportunities presented by mining development in northern Saskatchewan. The multi-party training plan has a pretty broad spectrum of representatives, including the provincial government, First Nations communities, Métis communities, the Apprenticeship and Trade Commission and the Northern Mines Monitoring Secretariat, Northlands College is the primary training institute involved in the multi-party training plan.
- The training plan has a goal of 67% participation of northern residents in the mining industry. Currently, the program is trying to move people into the university areas and more in-depth technical programs. Industry jobs tend to be increasingly "high tech" and we want to establish northern people into those positions. In the past we had a pretty consistent record of offering 12 to 15 month technical programs. Now we're running 2 - 2.5 year technical programs. A number of northern Saskatchewan contractors have benefited from the training offered under the plan.
- We have spent a lot of effort on academic upgrading. The opportunities and the time it takes to realize the opportunities expands in direct proportion to the level of K to 12 education that a person has achieved and the content of that K to 12. Students need to have completed a full array of math and science courses, not general math and alternative subjects.
- Approximately \$13.7 million has been committed for training by all the partners over the current five-year training plan. That amount has been exceeded in both of the previous five-year

programs. Industry provides approximately 54% of the funding. Industry partners include Cameco, AREVA and Claude Resources. The remaining funding is provided by provincial agencies such as Advanced Education and federal agencies, including First Nations and Métis funding partners.

- Approximately 50 % of northern employees currently working directly for mining companies have completed training under this program. In 1991, the northern share of wages and contracts from the industry was only 11%.
- Keys to success include: frank, honest and focused discussion and commitment to resolve the issues in a timely manner.





### 3 Public Meeting Presentations

The public meeting was held in the Community Hall between 7 and 9 pm on Wednesday June 5, 2007. Speakers registered with NPC prior to the start of the meeting. Each speaker was given approximately 5 minutes to make a presentation and/or ask questions to the NPC or resource persons in the audience. Twenty speakers/organizations participated in the public meeting. Key messages from each presentation have been summarized from the transcripts. We regret any omission or errors in interpretation.

#### *Joan Scottie, Baker Lake Concerned Citizens Committee*

- The Baker Lake Concerned Citizens Committee, or BLCCC, was founded by me, Joan Scottie, in the late '80's during the Kiggavik open-pit uranium mining proposal. It was formed and expanded to other Kivalliq communities under the name of Northern Anti-Uranium Coalition.
- The main concerns are the safety and security of the tailings and the possible impact on our food chain. In their proposal, Kiggavik outlined that they would leave 50 million tonnes of radioactive waste on the land after 10 years of mining. We were very concerned that this will threaten the health of the people, environment, wildlife and our water system.
- We were very concerned that approval of the Kiggavik open pit uranium mine would open the doors forever to unlimited uranium mining in our hunting ground. If one open pit uranium mine is approved it will be politically impossible to prohibit others. We will completely lose control of our future. The other concern was the moral issues relating to nuclear power and nuclear weapons.
- In early November 2006, we held an hour and a half radio phone-in show, to find out what the people in the community want. Many elders and hunters and some younger generation wanted the BLCCC reactivated so ordinary people, the elders, hunters, and other concerned people of Baker Lake can voice their concern. They wanted BLCCC to be a liaison between people and the decision makers to voice their concerns.
- Eight members were elected in late January of this year to BLCCC. Since then we have met several times. We still get many calls from frustrated hunters negatively impacted by low-flying aircraft. I have written several letters on behalf of the community in regard to complaints received. We wanted to hear what the Akaitcho Dene, our neighbors, were so concerned about. We have the same interest in protecting the Thelon watershed. We might be divided by a territory boundary, but the river, the Thelon, has no boundary.

#### *Joan Scottie, Baker Lake Hunter's and Trapper's Organization*

- The Board of Directors of Baker Lake Hunters and Trappers Organization (HTO) are elected by Inuit beneficiaries and are mandated to represent the best interests of the community in areas of wildlife management.
- It is critical for the HTO to work with community organizations, government departments, Inuit organizations and other partners to achieve and maintain results in the following areas: protection, conservation and sustainability of wildlife; commercial activities; promotion of traditional lifestyles, monitoring and passive development.
- The HTO is independently responsible for achieving and maintaining results in the following areas: review of land use permit applications, community hunter's rules, policy development, implementation, negotiation of agreements and industry policies with the community.
- Baker Lake hunters are mainly and traditionally caribou hunters. According to the BQCMB submission that local harvest is worth \$17 million yearly. Our hunters are part of that local harvest. We have no other big wild game other than muskox, which has been protected by law.

The hunters we represent hunt mainly from two caribou herds, Beverly Lake Caribou herd and Qamanirjuaq Caribou herd. Our hunters are still maintaining their traditional lifestyle.

- Hunters' lifestyle is based on traditional seasons. Many of the important seasons for hunters coincide with the same time the mining industry is most active.
- The HTO receives a lot of complaints from hunters. We have been advised by GN regional wildlife officer that there are no laws about how high aircraft are supposed to fly or how low they can't fly.

#### *Martha Jorah*

- I was born and grew up at Beverly Lake in the Aberdeen Lakes area.
- The non-Inuit will be making a lot of money and will not look after the Inuit. The land I grew up in is going to be contaminated and wrecked. Money cannot keep you alive. I'd like to get the numbers for Greenpeace.
- The young people who are well educated should work hard and not take alcohol and drugs.
- Concerned that the uranium could be used for warheads, not just nuclear power.

#### *Peter Tapatai*

- I am a long-time resident of Baker Lake and local business owner.
- I had a vision that a lot of employment would come to the community when various government departments came into Baker Lake, but very few community Inuk are employed in government. The transition is not going well. The Nunavut government asks for money from the federal government and gets very little. Tourism plays a very small role in bringing jobs to the community.
- The Nunavut government needs to have a much stronger economic foundation. Being dependent on handouts from the federal government weakens the voice of Inuit. The land claims are settled and some of our land is prime property where developers would like to extract commodities.
- It is very difficult to get government contracts. In the 10 years that I've been operating I have never once successfully been awarded work from our Nunavut government. I work hard to staff local Inuks in my business and this year we had 20. My business has survived because of strong support from the private sector, such as Meadowbank Mining Corporation, the Northern Store and Calm Air. I support resource development. It is the only opportunity to be less dependent on handouts. They are the ones looking for people to work.
- We don't need any more conservation areas. We are supposed to make earnings out of our land. Let's open the land. I support resource development.

#### *Peter Alareak*

- Some people want to have mining development and some refuse. I don't know which way to go. Yesterday, they talked about using uranium for nuclear power. They seem to be saying there is nothing there that would be dangerous to the environment.
- Before, we did fine with only caribou and caribou clothing. Now we use power to watch movies. We could use nuclear power. We don't want to sleep and live in igloos. Houses are very comfortable. Igloos are good, they are part of our traditional life but they didn't have power in the past like we do today, including nuclear power.
- We want to get royalties and move forward and have development. We want warm water in the morning. It is hard to go backwards. I wonder where we can find other types of energy. Are they

able to find other energy? We only started looking. What about in 40 or 50 years? We only started formal education maybe 40 or 50 years ago.

*Johnny Mamgark*

- I'm the Mayor of Arviat, a member of the HTO committee and a school counselor at the school.
- Some people support the proposed mine and some are against it. I was a lot happier to hear from the people from northern Saskatchewan. Other people seemed to be thinking this is rather dangerous.
- Our children today are not like us. I grew up on the land, but my children aren't like that anymore. They can't even build igloos today. All they want to do is look at TVs and computers. We have to be concerned about our youth because they've got to be happy too. We should not be keeping our youth standing still. We've got to think about our future. Those that have graduated should not be working picking up garbage along the edge of the road. They should get better jobs.
- I don't think there is anything that is really that dangerous. There are wildlife officers, water boards, and all kinds of other boards that could deal with the concerns that we have concerning our wildlife and our environment. This is going to be a billion dollar business. We've got to think clearly about our children and our grandchildren and their future.

*Leo Mimialik*

- I am a member of the CLARC and our HTO in Chesterfield Inlet. We protect our marine environment. The Baker Lake River flows down to our area in Chesterfield Inlet. Also close to Baffin Island, on the Baffin Straight, all the oceans have to be protected up to Baker Lake, Baker Lake River. I would like DFO to look into our concerns.
- My big concern is to protect our sea mammals. We feed often from the sea mammals in our waters. I have to support and protect my people and my land. I think it's going to have a negative impact once the uranium is open in our area. It's going to damage our waters. We're always going to feed off the land as long as we live. It's part of our culture and we value it. We live totally different from non-Inuit, from people from down south. We're going to pass this on to our children, to our grandchildren. Although they may look like they're living in today's world, we have to protect our land today and it's not just for today it's for our future. I understand that we have to come out with new jobs. But if it's dangerous, if it's going to damage our waters, our lakes, that's questionable. We have a big decision to make.
- Close to the Kigotaluatjiak (sp) waters in our area, I would like Nunavut Impact Review Board to be careful of this when they review projects like this one.

*Mathew Inukshuk*

- I am the chairperson of the HTO in Rankin Inlet. I'm also in search/rescue.
- What was being talked about in the last day and a half was very helpful. Uranium pellets are very compact and can produce good things.
- Everything is changing in this world. Our future generation is going to have different values. After we're gone, they're going to be living. They'll have to deal with uranium mines. It's going to damage our future generations.
- We are mostly concerned about the Baker Lake River going to the sea. There has not been anything said about the area from Rankin Inlet past Chesterfield to Coral Harbour. It's going to impact all those waters, our sea mammals. Our water is pure and pristine today, but that's going to be damaged.

- It's good to see big dollars nowadays, but still, we have to make a decision for our future. Our children have to be able to provide for themselves and sustain the land. If they respect this they'll be able to work with the new technologies such as computers. I have this little gizmo here. That's going to come from a uranium mine. It sounds good, but I know that it's going to have a negative impact. If not, that's good. I'll be happy.
- The dust pollution coming from uranium mines, it's totally different from southern Canada. Our air is different up here. In the mainland, it can be very cold in the winter time and in summer it can be extremely hot. It fluctuates very easily. If there are contaminated lands and cumulative effects, how are we going to be able to maintain our wildlife? Our caribou habitat? Our people? We'll be missing that. We'll be long gone. Sometimes you cannot see when it hurts you.

#### *Hugh Nateela*

- Someone mentioned they've been mining in northern Saskatchewan for 30 years, so I was hoping to see a baseline study from 35 years or 30 years ago, and if there have been any changes in that baseline from some of the combined uranium mining activities. The ecosystem, the water, the caribou, and I think in particular with the proposed site in our area, there is high traffic of caribou and wildlife movements. I don't know if there are any baseline data available now for that proposed area.
- It's a tough choice we have to make here. We all want jobs, training, and opportunities up here. We all know we are lacking those things. It's important for the younger generation to be involved in the process. We need to start educating them today and to be able to provide them a baseline study to look at. After all, it is going to be their world, whatever we decide here in our generation.
- I'm glad we're having these comments with the pros and cons. If there is something that we should be aware of then let's see and hear them. One of the presenters said, you can't taste it, you can't see whatever it is that he was concerned with. Does that affect the baseline study? We are going to need more information.

#### *Silas Angonaq*

- I grew up in Baker Lake. I have worked with the mine before. It has affected our wildlife. It has caused a lot of changes to our natural environment.
- The wildlife, especially the caribou around here, don't run away from people anymore. They have become used to vehicles. We should have somebody monitoring the wildlife in the surrounding areas, especially Grizzly Bears. If a Grizzly Bear is very hungry they can come close right into town.
- We are the ones living in this environment. A lot of the Inuit today don't rely on caribou as part of their food group because of concerns that they have been affected by mining.

#### *Paula Kigjugalik Hughson*

- I'm doing my masters degree in Natural Resources Management at the University of Manitoba. My master's thesis is called "Understanding the Tundra Landscape Surrounding Aberdeen Lake, Nunavut, Through the Eyes of an Inuit Elder, John Killulark."
- The inspiration for my thesis was my mom, Betty Natsialuk Hughson, and John Killulak. They were born at Aberdeen Lake and moved to Baker Lake in the late 1950s. John is the eldest surviving brother of my family.
- My research goals were to record and document John Killulak's knowledge of the Aberdeen Lake area so that it would be accessible to members of the community and future generations. This knowledge that he has is no longer around.

- Part of my work includes place names documentation. In Inuktitut lots of these names describe areas where caribou crossed, where people camped, what types of animals they harvested. Another part of my work was documenting songs and legends about the area. I'm currently in Baker Lake to do some data verification and map work.
- I hope people who are giving the information here are very honest because this land is very special to a lot of people in this community.

*John Killulark*

- We have not changed our diet. We feed off the land. We live seasonally as long as I can remember up till now.
- The caribou herd is different now than they used to be. In spring time they used to go down south when the snow was just melting. In summer time their pelts would change. They would shed their fur. Everything has changed. It's not like it used to be due to climate change.
- We still have to support our young people today. It's not possible to go back to the way we used to live. But I'm still very knowledgeable as long as my food is not changed. I would like to pass this on to our next generation.
- In one of the lakes that is close by, the caribou look really different. The skin didn't look right. It wasn't normal. I was shooting at it, and it didn't even notice.

*Simon Tookamee*

- I was born close to Gjoa Haven in Nunavut and I moved to Baker Lake area. I'm an artist and I draw pictures.
- If the place should become contaminated, I would like this to be collected so it doesn't spread. We understand that you cannot see what contaminates our environment with your eyes.
- Today the caribou are different. There used to be many caribou in the Baker Lake area, and now caribou have changed their behaviour. Some of the herds are not even scared. The caribou used to be shy of us. Some caribou were acting strangely and I don't know what caused that.
- If there is to be a uranium mine I would like this to be cleaned thoroughly before you abandon it. I don't want our game, our caribou habitat to be damaged.
- There is some exploration going on. I do not go to those sites. I won't be able to tell with my eyes whether it's going to damage our land or not.

*Timothy Evviuk*

- I was born near Baker Lake. When I was 12 years old I hunted where the uranium mine is proposed. I live in a white man style. It's good to have when there are jobs available.
- Around 1974 I started working with mining exploration. I was a camp supervisor. I would do drilling. Last year when I went to work where the uranium mine is, the land seemed to be expanding somehow. What they found seemed to be getting bigger and bigger. I'd be happy if the mine was opened.
- I saw dead caribou last year. We could have health problems. There are people who keep watch over the environment and the wildlife.
- Those who are well educated and have graduated don't work very long, maybe because of their lack of understanding. I'm working the longest and I have not even graduated high school.

*Johnny Qaqimat*

- I'm from Baker Lake. I own a small taxi company here in Baker Lake. I support the Kiggavik mine because it will create more jobs for the local people of Baker Lake, both uneducated and those that are finishing their high school. It will get more people out of social assistance. It will give more contracts to local businesses.
- In Baker Lake it was very hard to get a job. You had no choice but to go on social assistance to feed your family. Today people are working on the road to the Meadowbank gold project. They are happier because they can afford to buy ATVs, Hondas, snowmobiles and vehicles, and support their family. The Baker Lake economy is growing. The Ferguson Lake and Aberdeen Lake projects are creating summer jobs for our people.
- Uranium mining is a lot safer today than in the past. Today technology has really improved, as you can see from the northern Saskatchewan mines. Uranium is being used for things like energy. Using uranium would slow down global warming.
- I had a brother who was guiding sport hunting in 1985 and he drowned. Me and my family never got any compensation from my brother's death. Today those working at the mining camps get life insurance.
- We are living off the government. We don't have factories to grow or build anything in the north. It's very expensive to bring stuff up from the south. If they want the uranium just let them have it so we can pay for the stuff we want from the south. The mining companies pay good money to their workers.
- After the mine closes they will have to put away the waste in a safe manner.
- The Baker Lake population is growing. Students are finishing their high school. They are going to need more jobs to support their family. Those mines are going to make more jobs for them. This is why I support the uranium mine.

*Willie Nakoolok*

- We've heard both sides, pros and cons. It is confusing for communities.
- It would have been nice to hear from the elders. The people of Baker Lake seem to be in support of opening uranium and it seems that they're supporting it from what they themselves have seen. We've got to try and keep our youth happy in whatever way possible. But we should keep our elders in mind.
- When I was young, I was a hunter. If the lands that we've used were destroyed and disrupted obviously I would be hurt
- We've heard a lot of information today and I'm very thankful for that. If they are in support of the proposed project I would be in support of the project myself.

*Agalikta*

- Some people are against and some are for uranium mining. Sometimes we hear there is not any danger to have that uranium mine, and some people say that it is dangerous.
- I was born in Higiavik (sp) next to where the uranium mine is. We hear that we want to approve the uranium mine because most of the people are thinking of getting young people more jobs and because there won't be many hunters like there used to be. I tell my sons or my grandsons to concentrate on getting employment.
- I would like to see the uranium mine opening. The First Nation people that came here are telling us that uranium is not as dangerous as predicted.

*Winnie Omingayuk*

- I'm not sure if I support mining or not. I feel that I would be a good employee for a mining company. I've collected a lot of rocks.
- Nobody wants to go out hunting because all they're thinking about is rocks. I was becoming afraid because of the type of rocks that I may have had.
- We were trying to keep the mining companies at bay and now it's over. It seems the mine may be in the process of opening.
- The only thing that I really want is that the old barrels that are empty are shipped back south. The other thing we would like to see in the communities is having doctors in the local communities.
- Because of the lack of my understanding I have fear in my heart. If you were talking about Inuit traditions I'm also part of the Inuit traditional knowledge committee.

*Elizabeth Pongrat*

- I was born along the Back River. I grew up on the land and we traveled by dog teams. When I was growing up I didn't know there were white people or mining companies.
- I'm in support of mining companies even though I'm not working and I'm not educated. I want to live with the knowledge that I grew up with, go and catch ptarmigan, caribou and fish.

*Silas Illungiyok*

- I grew up in the area of Ennadai Lake. I lived out on the land. I'm a hunter. I'll work for a month or two to get gas so I can travel. My wife is working but we don't make enough money. We're always worried about how we're going to feed our children.
- When our children grow up they're going to have to try and live the way I do, go out hunting and working. But they don't know what to do anymore. You can't make enough money, especially when you're not a good hunter.
- Whoever wants to work should be able to. Those who are on social assistance, they start picking up things that they don't own, but if they found gainful employment, if they worked like the white man, maybe they'd be a lot happier. I don't think we should keep them at bay and keep them idle. If we start opening jobs for them, we can watch our children be happy.
- Social assistance is not large enough. Maybe if our children were working, I'd be able to get assistance from my own children. So I support whatever is coming up.

*Dodie Kayuk*

- When I was growing up my parents went to meetings opposing uranium mining.
- During the workshop I heard you were going to educate the people, but what about my age group, my generation that dropped out of school? Will you educate us and give us jobs or is this just for high school graduates? I saw that northerners will have jobs, then I saw that it was less than half; it was mostly for people from down south.
- What about impacts to our wildlife, our pride, our traditional culture?
- They are saying it will create jobs, but what will happen when there's a leakage? Who will help us? How do we know it will be properly stored? Who will educate the local people? Why not spend money on the local Inuit? We are the ones that will be affected. People from down south and government do not drink our water, eat our animals and the fish, they don't breathe the air we're breathing. One slide show said the uranium will be near our drinking water. Who will give us our drinking water? We never have a say with government. Our children's children will be

hunting two-headed caribou. Where are you going to dump all the waste? How are you going to assure the people that we are going to be safe? The slide shows show all the good things about uranium mining, but where are the pictures showing the deformed babies, the sickness, the cancer, the possible dangers? I know it is jobs for the people, but in the long run, 50, 60, 70 years down the road, it is going to affect us.

*Stephanie Briscoe, Executive Director, Nunavut Impact Review Board (NIRB)*

- NIRB is responsible for environmental assessment in Nunavut. Our role in this workshop was to make a presentation outlining our roles and responsibilities.
- NIRB will assess uranium mines the same way they do every other project that comes before them. We will work with the proponent, all levels of government, interest groups, and most importantly, you the public to identify impacts, both good and bad, to the land and water, the wildlife, and the economy.
- It's up to the proponent to commit to mitigation measures and prove to all of us that the project is both economically and environmentally viable. You will have further opportunities to speak up and comment on future development. I encourage you to participate in any hearings or public meetings that come to your community and tell the board how you feel about the project in front of you.

*Joe Tigullaraq, Chairman, Nunavut Wildlife Management Board*

- I used to live in Baker Lake. I'm the Chair of the Nunavut Wildlife Management Board. I was invited to attend this workshop and to listen as one of the panels here. The Board manages wildlife. We observe. We represent Inuit. We work closely with the Nunavut government.
- The Board is not really involved in the policies and the regulations that affect mining, but is involved with those which affect wildlife. We speak on wildlife legislation. We don't really work with the mining companies. We have not heard much on this because this is not the type of work that the Nunavut Wildlife Board deals with. I have a better understanding now. We've got to try and get information. The presentations gave us good information on the effects of uranium mining.
- The people of Baker Lake who spoke on uranium mining - I noticed that there were four people who were opposed, nine people who were in support and six who could go either way.
- We have got to keep our wildlife in mind. If there is no more wildlife our life as Inuit would be seriously affected. The work that they do should not affect any wildlife on our lands in a negative way. They've got to seriously think about caribou calving and migration areas especially.

*Dionne Filiatrault, Nunavut Water Board*

- Would like to recognize our Acting Chairman, Thomas Kabloona, who is a resident of Baker Lake. The community has raised several questions this evening that relate directly to the Nunavut Water Board's mandate with respect to water quality. Issues raised included waste disposal, impacts from waste disposal and reclamation. The Nunavut Water Board has heard what the community representatives had to say and will consider those in any future decisions that this board may be required to make.
- The Nunavut Water Board is an institution of public government created under Article 13 of the Nunavut Land Claims Agreement. It is key that we hear from the public and we welcome your comments at any time. The Board is responsible for ensuring that the fresh waters of Nunavut are protected for today and future generations. We do this by issuing water licences.
- It is the Board's understanding that no decisions are being made at this meeting with respect to full-scale uranium development. The Nunavut Water Board has issued water licences for uranium



exploration in this region and those licences include terms and conditions to protect fresh water and ensure that companies are going to clean up. We tell them how much water they can use, where they can use it, and we consult with the public before any of those licences are issued.

### 3.1 Day 3: Minister Simailak's Presentation

This presentation was delivered prior to the afternoon breakout session on Day 3 of the workshop.

*David Simailak, MLA Baker Lake, Minister of Finance, Minister of Economic Development and Transportation, Government of Nunavut*

- I'm here as a concerned resident of Baker Lake, as the MLA for this riding, and as Minister responsible for Economic Development in Nunavut.
- A key objective of our government is to build a strong and sustainable economy and support a robust mineral exploration and mining industry. We must ensure that a balanced and sustainable approach to development is maintained, that Nunavummiut are the main beneficiaries, and that our natural environment is uncompromised.
- The Mineral Exploration and Mining Strategy identifies the role of the Government of Nunavut in providing clear policy direction on uranium development. To guide consultations on policy development, we are establishing a uranium development management plan, consisting of six principles.
  1. Mining can play an important role in Nunavut in creating new jobs and generating new revenues. Uranium exploration and mining can extend development to more communities in the territory.
  2. Uranium development entails special government responsibilities because of its radiological properties and potential risks to human health and the environment. Managing these responsibilities means ensuring that the appropriate health and safety standards are adhered to, that mining and tailings management methods are appropriate to Arctic permafrost conditions, and coordinating monitoring efforts with all the agencies involved in the regulation of uranium mining and transportation.
  3. Any uranium development must have the support of Nunavummiut, particularly in communities near proposed mines. The Government of Nunavut will ensure that all potential stakeholders are provided with unbiased information to support them in making their own decisions.
  4. The Government of Nunavut would support uranium mining project proposals under the following conditions:
    - That national health and safety standards are, at a minimum, met for mine workers in Nunavut, if not exceeded.
    - That rigorous environmental standards are assured to protect the land and its wildlife, and also to keep the waters safe.
    - That Nunavummiut must directly and significantly benefit from development.If a project fails to deliver these assurances it will not proceed.
  5. We believe that Canada's legal requirements and treaty obligations regarding nuclear trade and non-proliferation guarantee that any uranium produced in Nunavut will be used strictly for peaceful purposes.
  6. Many nations are adopting nuclear power generation as the best way to reduce carbon emissions and meet their growing energy needs and Nunavut has the raw resource they will require.
- You'll remember that there was a plebiscite held in Baker Lake quite a number of years ago now. As a resident of Baker Lake I voted no to uranium development at the time. As a resident, I still have not made up my mind. We need factual, correct information to make up our minds as the

people of this region. This is such a key conference to bring everybody together to start providing that information to the people that in the end will have to make the decision.





## 4 Workshop Discussion (Day 3)

### 4.1 Introduction

The third day of the workshop featured breakout groups to allow all workshop participants the opportunity to raise issues of concern, ask questions of the presenters, clarify information they had heard, identify gaps in information related to potential health and environmental effects of uranium exploration and mining, and generally contribute to discussions. Workshop participants were divided into two relatively equal sized groups and provided with a facilitator, recorder and translators. In addition resource people were made available to each group to provide technical expertise as required. During the morning, Group 1 focused on environmental issues, while Group 2 discussed health and safety issues. During the afternoon, Group 1 discussed health and safety while Group 2 focussed on environmental issues.

A series of broad questions were developed to help guide discussions, based on the questions and issues raised during Days 1 and 2, including the evening session on Day 2. Participants were requested to provide feedback on these questions and/or raise other topics for discussion. The questions used to guide discussion are listed below.

#### Health and Safety

- What contingency plans should be in place to manage potential impacts to public health resulting from accidents and malfunctions?
- What baseline studies are required to develop a state of knowledge on health? What is currently happening? What is needed? What was done in northern Saskatchewan?
- What are the impacts of future exploration and development activities on community infrastructure (physical, services, health, social)?

#### Environment

- What contingency plans should be in place to manage potential impacts to the environment resulting from accidents and malfunctions?
- What baseline studies are required to develop a state of knowledge on environment? What is currently happening? What is needed? What was done in northern Saskatchewan?
- How will tailings and waste be managed over the very long term to protect land, water, air, fish and wildlife?
- How do you balance the competing interests between communities, some of which will benefit and some of which may be negatively impacted?
- Cumulative Effects: There are multiple exploration projects underway in the Baker Lake area. What do you envision as the factors that could contribute to cumulative effects in the region?

### 4.2 Summary of Discussion

While discussion in the breakout groups addressed the questions above, participants were free to express their views on any topic related to uranium exploration and mining. Therefore, discussion in the breakout groups covered a wide range of topics in addition to the questions above. As a result the summary of discussion presented below is organized by theme, rather than according to the questions posed to the groups.

### **Health and Safety**

- Public and worker safety is a concern.
- Blizzards are a concern for worker safety, people can get lost.
- Would like to see what type of worker and public health information is available from Saskatchewan where uranium mining has occurred for a long time. What have been the health impacts?
- Concerns about the potential for cancer resulting from exposure to uranium.
- There should be a baseline health study of local residents prior to any uranium mines being developed.
- Mining companies follow human impact risk assessment standards currently in place.
- Need to recognize that impacts to health may be different for different stages of the industry (construction, operation, closure, monitoring, etc).
- No fault insurance is being offered to former uranium miners in the U.S. for different types of cancers. Former miners do not have to prove cancer was a result of working at the mine. There are examples of no fault insurance from WCB in Canada.

### **Social Impacts**

- Employment can contribute to family health and allow people to become more independent.
- There will be a need for worker and family services and counselling. Families, not just workers, need to be assisted to understand the pressures a rotational job puts on families. Counselling, training and ongoing support to workers and families should be provided. Government and the companies should work together on the necessary support system.
- Counselling should be available in Inuktitut.
- Industry has no desire to take over government responsibilities, but can partner with government on some programs.
- There are advantages to a 1 week rotation rather than the 2 week work rotation.
- Community vitality should be assessed during baseline studies so the potential impacts on the community resulting from the project can be assessed.
- Non profit social agencies and societies should be involved in consultations about development projects.
- Inuit values are no longer being passed down to future generations. This is a cause of social problems.

### **Community Infrastructure and Resources**

- Community infrastructure (health services, education, water and waste, etc) are already stressed. Mine development could cause more people to move into the communities and further stress infrastructure.
- Worker pick-up points in all regional communities would help to allow people to remain in their own communities. This is done in northern Saskatchewan.
- Government royalties from mining resources should assist with development and maintenance of community infrastructure.
- Currently we have only 1 fire truck, need an ambulance. Sewage disposal and water quality are issues.

- The community most affected by the development should receive revenues so they can allocate it to local organizations for community development.
- The infrastructure capacity of Baker Lake is going to be stretched and the 3 levels of government need to be made aware of this and the adverse effects of this development.
- Employment opportunities from mining and exploration companies are attracting workers from communities, sometimes making it hard for community governments to find workers.
- A need to develop capacity within community organizations was identified.
- All mine sites have Emergency Response Teams trained in a variety of skills (fire and mine rescue, spill response, etc); these skills can also be applied in the communities.
- Government should make sure communities are ready for development, that employee shortages are addressed, some communities need more workers.

### **Environment**

- Long range transportation of contaminants has already impacted the Arctic.
- Have there been changes to fish and caribou since development occurred in northern Saskatchewan? Response was that water and wildlife in mining areas and undisturbed areas have been studied by the companies and communities and that there is little difference in condition between the areas.
- Need to recognize that environmental conditions in Nunavut are different from northern Saskatchewan; therefore mitigation measures used there may not be applicable in Nunavut.
- Dust from the mine could be blown around and accumulate in vegetation. Industry noted that studies from Saskatchewan demonstrated dust contamination has been limited.
- Impacts from mining (dust, water, tailings, etc.) can negatively affect fish and wildlife and the communities' food sources.
- Could contaminants from the mine site travel through water out into the ocean and affect sea mammals?
- Will earthquakes and permafrost affect the stability of tailings structures?
- Impacts of climate change need to be considered – this could affect methods of tailings storage.
- Inuit should know more about the risks of uranium mining, how the mine affects our way of life, also need to know more about uranium minerals. Need to know how uranium mining affects caribou and the land.
- Caribou migration patterns and behaviours are changing. Caribou, wolves and rabbits are no longer afraid of people. Will mining and tailings further affect wildlife? Effects on wildlife are being seen in areas where there is no mining activity.
- People are concerned about low flying aircraft disturbing wildlife. AREVA noted helicopters are to fly above 600m above ground during longer trips and above 300m for short trips. They have the ability to monitor aircraft altitude.
- Mining companies currently follow caribou protection measures, log wildlife observations, have height restrictions for helicopters, have wildlife observers, shut down drill sites when caribou are near and support the work of the Beverly and Qaminirjuaq Caribou Management Board.
- Will compensation be provided for accidents and damage to the environment and/or human health? AREVA responded that there are examples in Saskatchewan where they have provided compensation.
- Contingency plans will be required by the Nunavut Water Board to address any accidents.

- Tailings need to be confined from the environment, prevented from entering the water and being blown around by the wind.
- High level nuclear waste (from reactors) has to be stored somewhere; some have suggested that it be stored where the uranium was mined. So if you open yourselves up to development, you may also be asked to store the waste from the reactor.
- Two mitigation measures for tailings: take the ore and mine it somewhere else where they already have tailings ponds; or, extract the long-lived radioactive elements from tailings to create more stable tailings.
- Elders are concerned about the impacts of mining on the Thelon River.

#### **Baseline Data, Research, Impact Assessment and Monitoring**

- Baseline studies can vary from basic to complex. Issues need to be communicated with simple and clear information. The scope of studies needs to be broad enough to depict a true and comprehensive “story” (impacts at the mine, impacts to the community, impacts at a regional scale). Studies need to be multi-layered and address social, economic, environmental, health, and wildlife issues.
- Proper baseline studies need to cover the range of a species and be conducted over a long period of time to fully understand conditions and make accurate predictions.
- What is known about the current background radiation levels at Baker Lake?
- Traditional knowledge needs to be incorporated into the design of baseline studies and traditional knowledge needs to be collected.
- Local people should be involved in designing and carrying out baseline studies.
- There should be baseline studies of special places and conservation areas in the Kivalliq.
- It’s important to monitor incremental changes in the fundamental chemistry of land and water. By the time you see dying fish and caribou it’s too late. You need to detect it earlier in the land and water before it affects wildlife.
- Comprehensive impact assessment and monitoring is required, addressing social, health, economic and environmental concerns at all stages of the mining cycle.
- Cumulative impacts are more than just impacts on air, water and wildlife; they are also impacts on behaviour and other receptors which may accumulate with effects from outside the mine to cause greater effects. We currently have a difficult time assessing the impact of a single effect and really can’t accurately assess the cumulative impact of a number of effects.
- The communities closer to the development are more affected, but because there are both environmental and social/economic connections between communities, a regional approach to environmental and socio-economic assessment should be adopted.
- How long is long term monitoring and who is responsible for long term monitoring?
- In Saskatchewan, companies are responsible for this monitoring for a period of time, then government takes over responsibility. Companies provide financial resources to cover monitoring and any required repairs over the long term. A deposit of funds is provided to cover any repairs; the interest on this deposit pays for the annual monitoring programs.
- All monitoring requirements are controlled through a licence issued by the CSNC. Typically CSNC will inspect once every two months after a licence is issued. Inspections in Saskatchewan are coordinated with other inspection agencies.
- GN is going to be developing a research and monitoring strategy which will identify research priorities and methodologies that it will follow and encourage other government agencies and proponents to adopt so that all of the studies undertaken address identified needs and support



each other in terms of consistent methodologies and formats. The GN hopes to develop this strategy soon in the Kivalliq and will be meeting with community representatives to determine priorities.

**Information Needs**

- Information needs to be communicated to community residents regularly, clearly and honestly.
- With many different perspectives on uranium mining and use being presented, people are having difficulty deciding who to believe and some expressed fear at not knowing what to believe.
- More information and the provision of independent experts to help the Hamlet and residents understand the information was requested.
- Existing studies of conditions from areas where uranium mining has occurred should be made available.
- Uranium and mining issues will be around for a long time, we need to educate the young people in the schools about it.
- Need for independent information people can trust.
- There are 16 uranium exploration companies active in the Kivalliq region. Information in permit applications only provides lat and long coordinates for project locations, this makes it difficult to compare the location of all sites, and this information should be presented on maps which people are more familiar with.

**Other:**

- There was interest in having the CNSC come to Baker Lake to explain more about how they regulate uranium mines.
- KIA is concerned with how mining affects the Nunavut Land Claims Agreement.
- Spiritual Sites should be respected, companies should stay away from them and respect elder's concerns.
- Would like to see land managers open offices in Baker Lake to enforce land use regulations.



## 5 Conclusions and Discussion

Approximately 100 participants representing the federal and territorial governments; Kivalliq community governments, HTOs and CLARCs; IPGs; NGOs; industry; and the public attended the workshop on Uranium Mining in the Kivalliq hosted by the NPC in Baker Lake during June 5-7, 2007. The intent of the workshop was to provide community representatives and the IPGs with an opportunity to review the social, cultural, economic and environmental issues and opportunities associated with uranium mining in the Kivalliq region, as required under Term 3.5 of the Keewatin Regional Land Use Plan.

Thirty presentations were delivered during the first two days of the workshop covering a range of topics and perspectives related to uranium exploration, mining, use and disposal. During the evening of the second day, twenty community representatives attending the workshop and members of the public from Baker Lake made presentations about issues and their concerns related to uranium development. On the third day workshop participants were divided into breakout groups to allow for discussion about health and safety and environmental issues of concern. The workshop concluded with a final plenary session and closing remarks from the NPC and other IPGs. The NPC considers that the workshop has met the spirit and intent of Term 3.5 of the Keewatin Regional Land Use Plan.

### 5.1 Issues

As noted earlier in this report, the intent of the workshop was to provide a forum for discussion of issues related to uranium exploration and development in the Kivalliq region. The workshop was not intended to develop recommendations or make decisions about future applications for uranium development in the region. Applications for specific developments will be reviewed through existing regulatory processes. Nonetheless, several common themes or issues emerged during the workshop which may be of interest to communities and IPGs as they prepare for anticipated future development applications.

**Information Needs:** Central to discussions about the costs and benefits of potential uranium development was the need for the provision of clear, understandable and independent information upon which people could make reasoned decisions. Several people at the workshop commented that they are confused about the potential risks posed by uranium development, likely as a result of the large variation of perspectives presented at the workshop and in other forums. Understanding the concept of radiation and the potential resultant risks is challenging for most. This can be further complicated when translated into a second language. It was clear during the workshop that many participants had a high degree of uncertainty about the potential risks associated with uranium exploration and mining. Until a better understanding and more confidence in that understanding is achieved, it will be very difficult for many people to make decisions with confidence.

**Environmental Protection:** Participants spoke about the importance of the environment to their health and culture. Fish and wildlife from the land, rivers, lakes and oceans have and continue to provide food and other products, and harvesting provides opportunities to carry on Inuit culture. The BQCMB stated that caribou provides a food replacement value of approximately \$17 million annually to residents of the region in which the caribou herds live. People spoke about their desire to ensure the environment was protected, that they would be able to continue to harvest fish and wildlife and that they wanted their children to have that same opportunity. Protection of the environment over the long term was a concern given the understanding that mine tailings would remain radioactive for a very long time. Several participants expressed their concern about potential impacts to the environment downstream from Baker Lake, at Chesterfield Inlet and Hudson Bay, resulting either from activities at the mine site or from marine transportation to and from the Site.

**Baseline Studies:** The importance of comprehensive baseline studies in predicting and evaluating the environmental effects of development was widely acknowledged. Several participants stated that local people should be involved in both designing and implementing baseline studies. It was also acknowledged that traditional knowledge should be incorporated in baseline studies. Baseline studies need to be thorough enough to allow true conditions over longer periods to be well understood. Baseline health assessments of the local population would also enable changes to health conditions to be evaluated.

**Cumulative Effects:** It was recognized that there is a lot of mineral exploration occurring in the Kivalliq region currently, some of which may lead to applications for development. In addition to the exploration, it was acknowledged that other factors (forest fires in the south, climate change, increasing harvest levels) may be contributing to cumulative effects on the environment, including migratory species such as caribou. Questions were asked about what methodology should be employed to assess cumulative effects and who should be responsible for the assessment. Typically industry undertakes cumulative effects assessment for its project area and nearby recent or proposed activities; however, with wide ranging species such as caribou, it was noted that a broader scale study would be necessary.

**Monitoring:** There was considerable discussion on the need for monitoring and who would be responsible for it. The CSNC stated that the licence they issue for operating a uranium mine will identify monitoring requirements. The company and the regulators will be required to carry out monitoring. There will be a need for long- term monitoring of tailings for a period long after the mine has closed. Concern was expressed about who would undertake this long term monitoring. Industry representatives indicated that in Saskatchewan, industry undertakes monitoring for a certain period after mine decommissioning and when conditions appear to be working as planned, the responsibility for long term monitoring is transferred to the provincial government. The company provides the provincial government with financial resources to undertake the monitoring and regular maintenance. Financial security is held to provide funds for any emergency that may occur over the long term.

**Distribution of Benefits and Risks:** There was discussion that most of the risks of the project (e.g., environmental, community infrastructure) would fall on the local community, while benefits could be distributed more widely. Participants were informed that in northern Saskatchewan, directly impacted communities are identified and receive priority for project benefits (e.g., employment); however, benefits are also provided to other communities in the region. The provision of worker pickup points in regional communities allows employment to be provided beyond the local community and also reduces the potential for in- migration and the associated stresses to physical and social infrastructure and services. While there was no resolution, several participants stated that those most affected by the development should have a larger voice in decisions compared to those living further away. However, residents of Chesterfield Inlet, downstream from Baker Lake, expressed considerable concern about the potential effects on their local environment from development near Baker Lake.

**Worker and Family support:** Many participants stated that employment is positive for individual, family and community health. There was also acknowledgement that employment can cause stresses to individuals and families. The rotational work schedule can cause problems for the people left at home and the worker. The influx of additional money may also contribute to negative behaviour. The need for personnel and family counselling to prepare for and address issues related to rotational work and increased incomes was identified.

Experience from northern Saskatchewan: Presentations by and discussion with industry, government, NGOs and residents from the uranium mining areas of northern Saskatchewan was particularly beneficial to workshop participants. It allowed people to consider the experiences of another area where uranium development has occurred for more than 30 years. The participation of Aboriginal people from northern Saskatchewan was of particular interest to participants. Given the complex issues and conflicting opinions surrounding uranium development, provision of a variety of perspectives from a region with a history of uranium mining was particularly useful. Further interaction would assist residents of the Kivalliq to become more familiar with the issues and better prepare them for analysis of potential future projects.



## Appendix A      Workshop Participants





**Uranium Workshop Baker Lake, June 5-7, 2007, List of Attendees**

No.	First Name	Last Name	Title	Organization
1	Adrian	Boyd	Director, Policy	Nunavut Planning Commission
2	Alison	Jamison	Speaker	Pembina Institute
3	Angie	Akammuk	Interpreter	
4	Angus	Laidlaw	Non-Proliferation and Export Controls Division	Canadian Nuclear Safety Commission
5	Annie	Ollie		NPC
6	Arlando	Arenas		Pacific Ridge Exploration Ltd.
7	Barry	McCallum	Speaker	Areva Resources Canada Inc.
8	Becky	Kudloo	Board Member	Pauktuutit Inuit Women of Canada
9	Bernard	Desjarlais		
10	Bernie	Maclsaac	Speaker	Indian and Northern Affairs Canada
11	Betty	Hutchinson	Speaker	Northern Saskatchewan Environmental Quality Committee
12	Bob	Pollock	Speaker	Areva Resources Canada Inc.
13	Brian	Aglukark	Director, Regional Planning	Nunavut Planning Commission
14	Brian	Reilly	Speaker	Titan Uranium Exploration
15	Charlie	Jefferson	Research Scientist	Geological Survey of Canada
16	Colin	Hamilton		Pacific Ridge Exploration Ltd.
17	Darrell	Lister		KIA
18	David	Boyle	Regional Community Planner	Community & Government Services, GN
19	David	Newman	Commissioner	Nunavut Planning Commission
20	David	Tuktudjuk	Chairperson	CLARC-Repulse Bay KIA
21	David	Simailak	MLA	Government of Nunavut
22	Dawn	Brigham		Kivalliq Inuit Association
23	Dionne	Filiatrault	A/Executive Director	Nunavut Water Board
24	Donald	Lee	Speaker	Joint Federal-Provincial Panel on Uranium Mining in Northern Saskatchewan

**Uranium Workshop Baker Lake, June 5-7, 2007, List of Attendees (cont'd)**

No.	First Name	Last Name	Title	Organization
25	Dorothy	Ningeocheak		CLARC - Coral Harbour
26	Doug	Chambers		Senes Consultants Limited
27	Dr. Gordon	Edwards	Speaker	Canadian Coalition for Nuclear Responsibility
28	Felix	Kappi-Gawor		CBC
29	Francois	Berniolles	Geologist	Dept. of EDT, GN
30	Frank	Ipakohak	Commissioner	Nunavut Planning Commission
31	Fred	Ashley	Speaker	Canadian Nuclear Safety Commission
32	George	Norman		Pacific Ridge Exploration Ltd.
33	Gerry	Acott		Areva Resources Canada Inc.
34	Graham	Simpson	Speaker	Inter-Church Uranium Committee Educational Cooperative
35	Grant	Feasby		Senes Consultants Limited
36	Harry	Cook	Former Chief	La Ronge Indian Band - Cameco Corporation
37	Heidi	Wiebe	Policy Specialist	Nunavut Planning Commission
38	Hugh	Ikoe		BLCCC
39	Jen	Hayward		INAC
40	Joan	Scottie		HTO Baker Lake
41	Joe	Aupaluktuq		CLARC-Baker Lake Kivalliq Inuit Association
42	Joe	Kaludjak		CLARC-Rankin Inlet Kivalliq Inuit Association
43	Joe	Tigullaraq	Chairperson, Chief Executive Officer	Nunavut Wildlife Management Board
44	Joe	Scottie	BLCCC Member	Baker Lake Concerned Citizen's Committee
45	Joel	Rose		GN, Dept of Environment
46	John	Nukik		Baker Lake Elder
47	John	Kuksuk	Councillor	Hamlet of Arviat
48	Johnny	Mamgark	Mayor	Hamlet of Arviat
49	Josh	Gladstone	Avatiliriniq Coordinator	Dept. EIA, GN
50	Karen	Costello		INAC

**Uranium Workshop Baker Lake, June 5-7, 2007, List of Attendees (cont'd)**

No.	First Name	Last Name	Title	Organization
51	Karen	Norman		
52	Kelvin	Ng	President	NG North Inc.
53	Laura	Kowmuk	Speaker	Dept. of EDT, GN
54	Leo	Mimialik	CLARC Member	CLARC-Chesterfield Inlet
55	Louie	Oklaga		CLARC - Whale Cove
56	Lucassie	Arragutainaq	Chairperson	Nunavut Impact Review Board
57	Lucy	Iyago-Tuupik	Elder	Closing Prayer
58	Luis	Manzo		Kivalliq Inuit Association
59	Marija	Dumancic		CBC
60	Mark	Kalluak	Deputy Mayor	Hamlet of Arviat
61	Mary	Hunt	Translator	
62	Matthew	Innuqshuk	Director	HTO Kangiqliniq
63	Matthew	Kunangnak	BLCCC Member	Hamlet of Baker Lake
64	Meaghan	Bennett	Policy Analyst	Dept. of EIA, GN
65	Mervin	McDonald	Speaker	Northern Saskatchewan Environmental Quality Committee
66	Michel	Akkuardjuk	Chairperson	HTO Arviq
67	Mitch	Campbell	Biologist	Dept. of Environment, GN
68	Monte	Hummel	Speaker	World Wildlife Fund Canada
69	Morris	Onyskevitch	Speaker	AREVA Resources Canada Inc.
70	Nick	Lawson	Facilitator	
71	Norman	Wolverine	Speaker	Northern Saskatchewan Environmental Quality Committee
72	Paul	Quassa	Commissioner	Nunavut Planning Commission
73	Paula	Hughson		Grad Student/Public
74	Pauloosie	Kilabuk	Commissioner	Nunavut Planning Commission
75	Percy	Tutauak	Translator	
76	Peter	Alareak		CLARC-Arviat Kivalliq Inuit Association

**Uranium Workshop Baker Lake, June 5-7, 2007, List of Attendees (cont'd)**

No.	First Name	Last Name	Title	Organization
77	Peter	Kritaqlilik	Vice- Chairperson	Nunavut Planning Commission
78	Peter	Kusugak	Field Operations Manager	Indian and Northern Affairs Canada
79	Peter	Mayotte	Speaker	Northlands College, SK
80	Peter	Workman	Environmental Health Consultant	Dept. of H&SS, GN
81	Phillip	Putumiraqtuq	Speaker	Kiggavik Community Liaison Committee
82	Pierre	Tautu	Chairperson	HTO - Chesterfield Inlet
83	Rene	Rediron		Snake Lake Construction
84	Richard	MacKenzie	Director	Dept. of Education, GN
85	Robert	Seeteenak	Commissioner	Nunavut Planning Commission
86	Ron	Roach	Chairperson	Nunavut Planning Commission
87	Ronnie	Suluk	Community Mining Advisor	Dept. EDT, GN
88	Russell	Toolooktook	Community Liaison Officer	Kivalliq Inuit Association
89	Sam	Itkilik	Inuit Impacts & Benefits Agreement Coordinator	Kivalliq Inuit Association
90	Sharon	Ehaloak	Executive Director	Nunavut Planning Commission
91	Shawn	Maley	Assistant Deputy Minister	Dept. of Community and Government Services, GN
92	Silas	Illungiyok	Elder	HTO Arviat
93	Simon	Mikkungwak		Hamlet of Baker Lake
94	Simona	Scottie		
95	Soha	Kneen	Speaker	Inuit Tapiriit Kanatami
96	Stephanie	Briscoe	ED	Nunavut Impact Review Board
97	Stephen	Hartman	Speaker	Kivalliq Inuit Association
98	Thomas	Kaloona	Chairperson	Nunavut Water Board
99	Tommy	Igviksaq		Whale Cove HTO
100	Tongola	Sandy		Kivalliq Inuit Association
101	Trevor	Bourque		PIDO

**Uranium Workshop      Baker Lake, June 5-7, 2007, List of Attendees (cont'd)**

<b>No.</b>	<b>First Name</b>	<b>Last Name</b>	<b>Title</b>	<b>Organization</b>
102	Vicki	Mark		INAC
103	William	Noah		Areva Resources Canada Inc.
104	Willie	Nakoolak	President	HTO Aiviit



**Uranium Workshop Baker Lake Community Participants and Speakers,  
Wednesday Evening, June 6th**

<b>Name</b>	<b>Organization</b>	<b>Role</b>
Joan Scottie	Baker Lake HTO / BLCCC	Speaker
Martha Jorah	Baker Lake Resident	Speaker
Peter Tapatai	Baker Lake Resident	Speaker
Peter Alareak	CLARC, Rankin Inlet	Speaker
Johnny Mamgark	Hamlet of Arviat	Speaker
Leo Mimialik	CLARC, Chesterfield Inlet	Speaker
Matthew Innuksuk	Rankin Inlet HTO	Speaker
Hugh Nateela	Baker Lake Resident	Speaker
Silas Angoyuaq	Baker Lake Resident	Speaker
Paula Hughson & John Killulark	Grad Student and Baker Lake Resident	Speaker
Simon Tookoomee	Baker Lake Resident	Speaker
Timothy Evviuk	Baker Lake Resident	Speaker
Johnny Qaqimat	Baker Lake Resident	Speaker
Willie Nakoolak	Coral Harbour HTO	Speaker
Agalikta (translation from syllabics)	Baker Lake Resident	Speaker
Winnie Owingayak	Baker Lake Resident	Speaker
Elizabeth Paungrat	Baker Lake Resident	Speaker
Silas Illungiyak	Arviat HTO	Speaker
Dody Qiyuk	Baker Lake Resident	Speaker
Carmen Qaqimat	Baker Lake Resident	
Joe Aupaluktuq	Baker Lake CLARC	
Joedee Joedee	Baker Lake Resident	
Abner Kanayok	Baker Lake Resident	
Betty Hughson	Baker Lake Resident	
John Tagoonak	Baker Lake Resident	
Simon Mikkungwak	Baker Lake Resident	
Lucy Evo	Baker Lake Resident	
Nancy Kaniryuak	Baker Lake Resident	
Eric Anautalik	Baker Lake Resident	
Hugh Iko	Baker Lake Concerned Citizens Committee (BLCCC)	
Hattie Kalurak	Baker Lake Resident	
Charlie Kalurak	Baker Lake Resident	
Thomas Kabloona	Baker Lake Resident	
Barb Mueller	Baker Lake Resident	
Joe Mautaritnaaq	BLCCC	

**Uranium Workshop Baker Lake Community Participants and Speakers,  
 Wednesday Evening, June 6th (cont'd)**

<b>Name</b>	<b>Organization</b>	<b>Role</b>
Sam Itklik	Baker Lake Resident	
Lena Tapatai	Baker Lake Resident	
Samson Oklaga	Baker Lake Resident	
Effie Toolooktuk	Baker Lake Resident	
Scott Qiyuk	Baker Lake Resident	
Barnabas Arnasungak	Baker Lake Resident	
Paul Kayuryuk	Baker Lake Resident	
Johnny Owingayak	Baker Lake Resident	
Connie Owingayak	Baker Lake Resident	
Jennifer Evviuk	Baker Lake Resident	
Michael Kirkwa	Baker Lake Resident	
Charlene Mannik	Baker Lake Resident	
Joan Iqqaat	Baker Lake Resident	
Jocelyn Kinek	Baker Lake Resident	
Barney Aavuak	Baker Lake Resident	
Dennis Iqqaat	Baker Lake Resident	
Sally Aaruaq	Baker Lake Resident	
Dorothy Iqqaat	Baker Lake Resident	
Nancy Aptanik	Baker Lake Resident	
Cam Lockwood	RCMP	
Hannah Killulark	Baker Lake Resident	
Donovan Nagyougalik	Youth	
Derek Nateela	Youth	
Samson Quinangnaq	Youth	
Vivian Joedee	Baker Lake Resident	
Susan Walsh	Baker Lake Resident	
Melita Kudloo	Baker Lake Resident	



## Appendix B      Workshop Agenda



## Workshop Agenda

<b>Tuesday, June 5th</b>		
<b>Introduction</b>		
8:30 - 8:45AM	- Opening Prayer	
	- Welcome from Nunavut Planning Commission (NPC)	NPC
	- Welcome from Hamlet of Baker Lake	David Aksawnee, Mayor of Baker Lake
	- Introductions	Nick Lawson, Facilitator
8:45 - 9:00 AM	- Review Term 3.5 of Keewatin Regional Land Use Plan	Adrian Boyd, NPC
	- Purpose of meeting	Nick Lawson, Facilitator
	- Review meeting procedures and agenda	Nick Lawson, Facilitator
<b>Current Policies and Activities</b>		
9:00 - 9:15 AM	- Overview of Uranium exploration activity in Nunavut	Karen Costello, Indian and Northern Affairs Canada (INAC)
<b>Industry Overview</b>		
9:15 - 10:00 AM	- Uranium use, supply, and demand; overview of exploration, development and decommissioning activities	Gerry Acott, AREVA Resources Canada Inc.
		Brian Reilly, Titan Uranium Inc
<b>Current Policies and Activities</b>		
10:00 - 10:15 AM	- Kivalliq community meetings on uranium development and overview of current exploration activity on Inuit Owned Lands	Joe Kaludjak, Kivalliq Inuit Association (KIA)
10:15 - 10:30 AM	Break	
<b>Regulatory Processes</b>		
10:30 - 10:40 AM	- IPG processes and considerations	Brian Aglukark, NPC
10:40 - 10:50 AM		Stephanie Briscoe, Nunavut Impact Review Board (NIRB)
10:50 - 11:00 AM		Dionne Filiatrault, Nunavut Water Board (NWB)
11:00 - 11:45 PM	- Licensing of new uranium mines in Canada	Fred Ashley, Canadian Nuclear Safety Commission (CNSC)

**Workshop Agenda (cont'd)**

11:45 - 1:30 PM	<b>Lunch</b>	
1:30 - 1:45 PM	- Government regulatory processes and considerations	Bernie MacIsaac, INAC
1:45 - 2:00 PM		Laura Kowmuk, Government of Nunavut
2:00- 2:30 PM	- Experiences with regulation of uranium mining	Graham Simpson, Inter-Church Uranium Committee Educational Cooperative (ICUCEC)
<b>Health and Safety Issues and Mitigation Measures</b>		
2:30 - 3:30 PM	- Health and safety issues	Dr. Gordon Edwards, Canadian Coalition for Nuclear Responsibility (CCNR)
3:30 - 3:45 PM	Break	
3:45 - 4:05 PM	- Health and safety issues (Q&A)	Dr. Gordon Edwards, Canadian Coalition for Nuclear Responsibility (CCNR)
4:05 - 4:15 PM	- Health and safety issues	Pat Thomas, Toxicology Centre, University of Saskatchewan (submission presented by Facilitator)
4:15 - 5:00 PM	- Introduction to radiation safety; health and safety issues related to uranium mining and milling; health issues related to radiation exposure	Doug Chambers, SENES Consultants Limited
5:00 - 5:15 PM	- Land Administration on Inuit-Owned Lands	Luis Manzo, Kivalliq Inuit Association
5:15 PM	- Closing Prayer	

## Workshop Agenda (cont'd)

<b>Wednesday, June 6th</b>		
8:30 - 8:45 AM	- Opening Prayer	
	- Announcements, housekeeping items, review of agenda, review meeting procedures	Nick Lawson, Facilitator
<b>Environmental Issues and Mitigation Measures</b>		
8:45 - 9:15 AM	- Issues and mitigation measures considered in environmental assessment of uranium mines in northern Saskatchewan	Professor Donald Lee, Chairperson, Joint Federal-Provincial Panel on Uranium Mining in Northern Saskatchewan
9:15 - 9:45 AM	- Nuclear power in Canada: an examination of risks, impacts and sustainability	Alison Jamison, Pembina Institute
9:45 - 10:15 AM	- Long-term management of nuclear fuel waste in Canada	Soha Kneen, Inuit Tapiriit Kanatami
10:15 - 10:30 AM	Break	
10:30 - 11:00 AM	- Potential cumulative impacts of uranium exploration and development on the Beverly caribou herd	Beverly and Qamanirjuaq Caribou Management Board (submission presented by Facilitator)
11:00 - 11:15 AM	- Inuit/Dene/WWF Co-operative Efforts to Balance Protection and Development around the Thelon Wildlife Sanctuary	Monte Hummel, World Wildlife Fund
11:15 - 12:15 PM	- Environmental issues related to uranium mine development and mitigation measures	Gerry Acott, AREVA Resources Canada Inc.
	- Involving communities and stakeholders to ensure caribou protection	Barry McCallum, AREVA Resources Inc.
	- Working towards a common goal	William Noah, AREVA Resources Inc.
<b>12:15 - 1:30 PM</b>	<b>Lunch</b>	
<b>Social / Cultural Issues and Mitigation Measures</b>		
1:30 - 2:30 PM	- Social / cultural issues and mitigation measures from northern Saskatchewan	Betty Hutchinson, Northern Saskatchewan Environmental Quality Committee
2:30 - 2:45 PM	- Function and composite of Baker Lake Community Liaison Committee, key issues to date, future challenges	Philip Putumiraqtuq, Co-Chair of Baker Lake Community Liaison Committee
2:45 - 3:00 PM	Break	

### Workshop Agenda (cont'd)

<b>Community Preparation, Issues and Challenges</b>		
3:00 - 3:30 PM	- Northern strategy: employment and business opportunities and challenges	Morris Onyskevitch, AREVA Resources Inc.
	- Saskatchewan experience - Lac La Ronge Indian Band and Cameco aboriginal business success story	Harry Cook, former Chief of Lac La Ronge Indian Band; currently on the Board of Directors of Cameco
3:30 - 3:45 PM	- Baker Lake's recent experience with mineral exploration and development	Moses Kayuryuk, Baker Lake Economic Development Officer
3:45 - 4:00 PM	- Northern Saskatchewan business perspective	Rene Rediron, Snake Lake Construction
4:00 - 4:30 PM	- Post-secondary training for northern residents for uranium mining jobs	Peter Mayotte, Northlands College, SK
4:30 - 5:00 PM	- Overview of evening discussions	Nick Lawson, Facilitator
5:00 - 7:00 PM	Dinner	
7:00 - 9:00 PM	- Community discussion of presentations (open forum for HTOs, CLARCs, Hamlets, and general public)	ALL
9:00 PM	- Closing Prayer	

**Workshop Agenda (cont'd)**

<b><u>Thursday, June 7th - Break Out Group Discussions</u></b>		
9:00 - 9:15 AM	- Opening Prayer	
	- Announcements, Housekeeping Items, Review of Agenda, Review Meeting Procedures	Nick Lawson, Facilitator
	- Organize participants into break-out groups	Nick Lawson, Facilitator
9:30 - 11:30 AM	- Session 1 break out discussions on health and the environment	ALL
11:30 - 12:00 PM	- Report discussions to participants	Group Facilitators
12:00 - 1:30 PM	Lunch	
1:30 - 3:30 PM	- Session 2 break out discussions on health and the environment	ALL
3:30 - 4:30 PM	- Report discussions to participants	Group Facilitators
4:30 - 5:00 PM	- Closing Remarks and Next Steps	NPC / Facilitator
5:00 PM	- Closing Prayer	





## Appendix C      Speaker Biographies



## **SPEAKERS BIOGRAPHIES**

### ***FACILITATOR***

#### ***Nick Lawson, Facilitator***

Nick Lawson, B.Sc., is the Operations Manager for Nunami Jacques Whitford Limited, based in Yellowknife since 1985. Mr. Lawson completed his honors B.Sc. in Environmental Science and Geography at Trent University in Peterborough, Ontario in 1984 and has completed additional training in a variety of environmental disciplines.

Nick's professional career has spanned 22 years in northern Canada and included positions with local and territorial Aboriginal organizations, the federal and territorial governments and, for the last twelve years, the consulting industry. Mr. Lawson's early work included the position of Land Use Planning Coordinator for the Dene/Metis Negotiations Secretariat, where he coordinated Dene and Metis involvement in land use planning in the Mackenzie Valley, leading to appointment as Manager of the public Denendeh Land Use Planning Commission, created under the Northern Land Use Planning Program, a predecessor to the current claims based planning processes. Nick also worked with the Departments of Renewable Resources and Transportation, Government of the Northwest Territories from 1990 to 1995 before becoming a private consultant. Throughout his career Nick has worked on a wide range of assignments throughout Nunavut and the Northwest Territories, including contaminated site assessment and remediation, environmental planning and assessment, policy development and public consultation. Nick has considerable experience facilitating public consultations and workshops including: facilitation of community and regional land use planning workshops throughout the Mackenzie Valley; facilitation of workshops and meetings to develop draft reclamation guidelines on Inuit Owned Lands; and organization and facilitation of committee meetings and public consultation sessions related to a variety of resource development projects in the NWT and Nunavut.

### ***NUNAVUT PLANNING COMMISSION***

#### ***Adrian Boyd, Director, Policy***

Adrian has been involved in a broad spectrum of municipal and regional land use planning activities since May 1987. He has worked for all levels of government, in addition to Nunavut Tunngavik Incorporated. Adrian has specialized in community based multi-stakeholder land use planning and resource management projects in both the Northwest Territories and Nunavut since February 1991. He has been with the Nunavut Planning Commission since November 2002. Adrian also played a lead role in the establishment of the Dehcho Land Use Planning Committee and served as the Government of Canada representative from May 2001 – April 2007. Adrian has a: Diploma, Land Use Planning Technology, Centre for Geographic Sciences; Bachelor, Environmental Studies Degree, University of Waterloo; Certificate, General Social Work Practice, Renison College; Certificate, Community - Based Resource Management, Coady International Institute.

#### ***Ron Roach, Chairperson***

Ron has held a range of government positions on both the territorial and municipal level, including Region Superintendent for the Government of Nunavut, Manager of Trade and Investment for the Government of the Northwest Territories and Senior Administrative Officer for the Hamlet of Rankin Inlet. He has also served on a number of boards and commissions, including the Nunavut Planning Commission

(Commissioner), the Qulliq Energy Corporation Board (Vice-Chairperson) and the Rankin Inlet District Education Authority. His hobbies are hockey, fishing and hunting. Ron has also been a leader and involved in the Rankin Inlet Minor Hockey Association for approximately twenty years.

The Nunavut Planning Commission has an important mandate under the *Nunavut Land Claims Agreement* to prepare and implement land use plans that will guide and direct resource use and development. Land use plans apply to both land and water, and they consider the social and cultural, as well as environmental concerns of Nunavummiut. As such, land use plans in Nunavut deal with the potential use of billions of dollars of natural resources, the protection of a priceless environment, and respect for an ages-old Inuit culture and way of life.

## **AREVA RESOURCES CANADA**

### ***Gerald B. Acott, Director, Licensing***

Mr. Gerald B. Acott is currently employed by AREVA Resources Canada Inc. as Director, Licensing. He was formerly the Director, Environmental Programs from 1998 through 2004 at which time he was asked to take on the role of overseeing the decommissioning of the Cluff Lake uranium mine through October of 2006. He is currently the chair of the Saskatchewan Mining Association Environment Committee. Mr. Acott has been employed within the mining industry throughout his career, involved in environmental protection, licensing and permitting, reclamation and decommissioning of mining sites.

AREVA Resources Canada Inc., with its head office in Saskatoon is one the world's leading uranium exploration, mining and milling companies. A subsidiary of the AREVA group, a world-wide expert in the energy field with a strong presence in over 40 countries, AREVA Resources Canada is operator of the McClean Lake mines and mill, the Midwest mine project, the decommissioned Cluff Lake mine and several exploration properties across Canada.

### ***Barry McCallum, Manager, Nunavut Affairs***

MR. BARRY A. MCCALLUM is currently employed by AREVA Resources Canada Inc. as Manager, Nunavut Affairs and is responsible for community and government relations in Nunavut. In 2004 and 2005, he worked on AREVA's Cluff Lake Decommissioning in the roles of Site Manager and Superintendent, Environment Health and Safety. Mr. McCallum has more than 30 years experience mostly in the nuclear industry in the areas of chemical and radiochemical production, waste management, environmental remediation, reclamation and decommissioning, licensing and permitting, community relations and government relations. Mr. McCallum holds a Bachelor of Science degree from the University of Waterloo.

### ***William Noah, Community Liaison Officer, Baker Lake***

Mr. William Noah has been employed by AREVA Resources Canada Inc as Community Liaison Officer in the Baker Lake office since June 2006 and is responsible for communicating with the people of Baker Lake on a daily basis. Mr. Noah is a former Mayor of Baker Lake, initially elected from 1978 to 1983, when Baker Lake became a municipality and has been elected mayor several times since. Mr. Noah was elected Member of Parliament for the Northwest Territories Legislature from 1979 to 1983. Other positions have included Director of Inuit Broadcasting Corporation and IBC Manager for the Keewatin Region from 1984 to 1986. Mr. Noah became an artist in 1971 and has held numerous art exhibitions throughout Canada and the United States. He was Computer Graphic designer for the Jessie Oonark Centre from 1990 to 1992. William Noah has been an Inukshuk Builder. He has organized several trips of Back River people to their ancestral homeland.

***Morris Onyskevitch, Manager, Northern Affairs, La Ronge***

Mr. Morris Onyskevitch is currently employed by AREVA Resources Canada Inc. as Manager of Northern Affairs in AREVA's La Ronge office. He oversees AREVA's recruitment, selection and training of northern employees; responsible for liaison with northern businesses and entrepreneurs; and administers programs targeted for the north such as scholarships, apprenticeships, donations, and community vitality. Mr. Onyskevitch has spent 6 years as a teacher and Principal in K-12 system followed by 15 years as Principal of the West Side Community College and Regional Director of Northlands College.

***Robert W. Pollock, Vice President, Regulatory Affairs and Licensing***

Mr. Pollock is the Vice President of Regulatory Affairs and Licensing for AREVA Resources Canada Inc. of Saskatoon. Mr. Pollock is responsible for policy and oversight with respect to regulatory affairs, and for coordination of environmental assessments and licensing of the company's uranium development and production activities. Mr. Pollock is also currently chairman of the Uranium Section of the Saskatchewan Mining Association, which represents the mining industry in the Province. Mr. Pollock is a professional engineer with forty years experience in nuclear safety, radioactive waste management and environmental protection. He joined AREVA Resources in 1998 as Vice President of Environment, Health and Safety. Prior to that, he held technical and management positions with Atomic Energy of Canada Limited, and was Director of the Federal Low Level Radioactive Waste Management Office from 1984 to 1998.

***Philip Putumiraqtuq***

Philip Putumiraqtuq was elected as the co-chair of the Kiggavik Project Community Liaison Committee in March of 2007. He is responsible for chairing the meetings between the AREVA project staff and the committee community representatives. Mr. Putumiraqtuq has lived all his life in Baker Lake and has been involved in many community activities. He is presently employed as a Community Constable, is a bylaw officer part-time and is the owner of an outfitting business. He is the Chair of the District Education Authority, and it is in this capacity he sits on the Kiggavik Community Liaison Committee. He is the President of the Rainbow Dog Trotters Association and a Past Director of the Kivalliq Inuit Association and is a former Chair of the Community Lands and Resources Committee.

***OTHER SPEAKERS***

***Charles Frederick Ashley (Fred Ashley), Senior Project Officer, Uranium Mines and Mills Division, Canadian Nuclear Safety Commission***

Graduated from University of Waterloo in Mechanical Engineering in 1970. The first full time position was as a project engineer for Wabush Mines (Iron Ore) in Sept-Iles PQ and Wabush Labrador. Became involved in occupational health and environmental protection in 1972 and held progressive positions to Environmental Control Supervisor. In 1977 began involvement with uranium mining at Rio Algom in Elliot Lake Ontario. Held a number of positions in project engineer, environmental engineer, industrial hygiene and ventilation and decommissioning construction. Joined the Atomic Energy Control Board in 1991 in Saskatoon SK as project officer. Currently hold the position of Project Officer, Mill and Effluent Treatment Specialist in the Uranium Mines and Mills Division of the CNSC in Saskatoon.

The Canadian Nuclear Safety Commission regulates the nuclear industry in Canada. The regulatory system is designed to protect people and the environment from licensed sources of man-made radiation resulting from the use of nuclear energy and materials. This is accomplished through a licensing process that requires the licensee to prove that their operations are safe. At the basis of the regulatory system is the principle that no technology is fail proof, so licensees must incorporate multiple layers of protection

whenever radioactive materials are used. The CNSC also licenses the import, export and transportation of nuclear materials and other prescribed substances, equipment, technology and dual-use items. CNSC staff plays an important role in protecting health, safety, security and the environment by monitoring and inspecting licensed activities, and reporting our findings to our “clients”, the public of Canada. As part of that role, CNSC staff [evaluates](#) the performance and operation of all nuclear facilities – from uranium mines at the front end of the nuclear fuel cycle, through to the nuclear power plants. Staff also participates in international activities aimed at the non-proliferation of nuclear weapons.

### ***Beverly and Qamanirjuaq Caribou Management Board (BQCMB)***

The BQCMB was established in 1982 to co-ordinate the management of two barren-ground caribou herds, known as the Beverly and Qamanirjuaq herds, which migrate across portions of Nunavut, the Northwest Territories (NWT), Saskatchewan and Manitoba. The two herds are a key part of the economic, cultural, and spiritual life of about 20 communities on or near the ranges of these two herds; the minimum economic value of the harvest from these herds each year is at least \$17 million.

The BQCMB is a co-management board that works with governments, communities, industry and other organizations to develop recommendations on ways to protect the Beverly and Qamanirjuaq caribou herds and their ranges. Board members represent communities across the caribou ranges, four territorial and provincial governments and the federal government, with up to ten community members and five government members.

The BQCMB’s mission is “to ensure the long-term conservation of the Beverly and Qamanirjuaq caribou herds for Aboriginal communities who wish to maintain a lifestyle that includes the use of caribou, as well as for all Canadians and people of other nations”. Thus the Board works primarily in the interest of traditional caribou users and their descendents, based on a cooperative partnership between governments and communities that has been developed over 25 years. Current BQCMB priorities, which are outlined in the *Beverly and Qamanirjuaq Caribou Management Plan (2005-2012)*, include monitoring of populations, habitats, harvest levels and land use activities across the ranges; environmental assessment of development activities; community-based monitoring and education; and incorporating local and traditional knowledge into management programs.

and Certificate, Executive Development, Cornell and Queens Universities Schools of Business.

### ***Stephanie Briscoe, Executive Director, Nunavut Impact Review Board (NIRB)***

Stephanie is the Executive Director of the Nunavut Impact Review Board, a position she has held for the past 6 1/2 years. Additionally, she has worked as the Lands Manager for the Kitikmeot Inuit Association and as Senior Advisor, Environment Water and Marine Management for Nunavut Tunngavik Incorporated. Stephanie received her Bachelor of Arts Degree from Wilfrid Laurier University in 1993 and her Environmental Protection Technologist Diploma from the School of Civil Engineering at Centennial College.

The Nunavut Impact Review Board (NIRB), created under Article 12 of the Nunavut Land Claim Agreement, is responsible for the environmental assessment of project proposals in Nunavut. NIRB works closely with other land claim organizations, all levels of government, and the public to ensure the ongoing protection and integrity of the ecosystem in the Nunavut Settlement Area.

### ***Douglas B. Chambers, Ph.D., Vice President and Director of Risk and Radioactivity Studies, SENES Consultants Limited***

Dr. Chambers has been working in the areas of environmental radioactivity and risk assessment for more than 30 years. Dr. Chambers has directed or carried out evaluations of all stages of the nuclear fuel cycle,

including uranium mill tailings, uranium refining and conversion, and nuclear power reactors. Dr Chambers has been active in dose-reconstruction and epidemiological assessments of uranium miners. He currently is a member of the Canadian delegation to the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). He is also a consultant to UNSCEAR and has recently completed an assessment of the levels and effects of radon. As consultant to UNSCEAR, Dr Chambers is currently preparing an evaluation of effects of ionizing radiation on non human biota. In 1997, Dr. Chambers was the recipient of the W.B. Lewis award of the Canadian Nuclear Society for his achievements in environmental radioactivity.

***Harry Cook, Cameco Corporation***

Harry D. Cook is a member of the board of directors of Cameco Corporation, the world's largest uranium producer. Mr. Cook joined Cameco's board in 1992 while serving as chief of the Lac La Ronge Indian Band, a position he held for 18 years. As the leader of one of Saskatchewan's largest First Nations Mr. Cook oversaw the development of one of Canada's most successful aboriginal business organizations, Kitsaki Management Limited Partnership, which operates a wide range of ventures from wild rice production to logistics and catering businesses supporting the mining industry in northern Saskatchewan.

Cameco is the world's largest uranium producer and supplier of conversion services with operations in Canada, the US and Kazakhstan. Cameco's uranium products are used to generate clean electricity in nuclear power plants around the world, including Ontario where the company is a partner in North America's largest nuclear electricity generating facility. The company also explores for uranium around the world.

***Dr. Gordon Edwards, President, Canadian Coalition for Nuclear Responsibility***

Dr. Gordon Edwards is President of the Canadian Coalition for Nuclear Responsibility. He has a long history of involvement with uranium mining starting in 1977 when he participated in the Cluff Lake Board of Inquiry into Uranium Mining in Saskatchewan. In the 1980's he testified on 3 occasions about health and environmental issues of uranium to the NWT Territorial Assembly. In the 1990's he participated in public meetings at Baker Lake in relation to a proposed uranium mine that was rejected by the community. He has done educational work with the Inuit Tapiriit Kanetami and has been a consultant on nuclear power issues for many governmental and non- governmental bodies in Canada. Dr. Edwards' was awarded the 2006 Nuclear-Free Future Award. He teaches math at Vanier College in Montreal and has 3 children and 8 grandchildren.

The Canadian Coalition for Nuclear Responsibility was formed in 1976 with an educational mandate. Over the years, CCNR has provided independent information and advice to politicians, journalists, professionals, students, activists and communities throughout Canada on issues related to nuclear power, uranium mining, the health effects of atomic radiation, and the spread of nuclear weapons. CCNR has frequently been invited to testify before government bodies and has often intervened in environmental assessment hearings. The CCNR web site (ccnr.org) contains a wealth of information written in a style that is accessible to the average concerned citizen with a need to understand the basic scientific facts in order to arrive at a sound conclusion..

***Monte Hummel, President Emeritus, World Wildlife Fund-Canada***

Monte Hummel was raised in the bush in northwestern Ontario, and worked his way through school as a canoe tripping and fishing guide on the Arctic watershed. He obtained Masters degrees in Philosophy and in Forestry from the University of Toronto, and has published over 100 papers and five books-one called *Arctic Wildlife*. For 26 years he was President of WWF-Canada, and is now President Emeritus, still

working in communities in the NWT and Nunavut. In 2000, Monte became an Officer of the Order of Canada, recognizing his conservation work over 40 years.

WWF is the largest conservation non-government organization in the world, with offices in 70 countries, and we employ about 5000 people worldwide. WWF-Canada employs over 100 people, and has eight regional offices, including one in Yellowknife. For about ten years, WWF was the only conservation organization to maintain a full time office in Nunavut (Iqaluit). WWF has supported Inuit on the seal hunt and trapping. It also assisted the Baker Lake HTO in obtaining approval for the Thelon Wildlife Sanctuary Management Plan. Inuit have served on the board of directors, and in 1999 WWF made a public Statement of Commitment to Nunavut in co-operation with the founders. WWF wants to work with Inuit, industry and governments to make sure that development in Nunavut is truly sustainable and benefits Nunavummiut.

***Alison Jamison, P.Eng., Senior Project Manager, Pembina Institute***

Alison Jamison is a senior researcher and project manager with the Pembina Institute. Her work involves providing the corporate and government sectors strategic advice and support in developing their sustainability strategies, including integrating eco-efficiency concepts and tools into core business practices. Key components of her work include technical support, project management, and facilitating triple-bottom-line and systems thinking into decision-making and design of capital projects. Alison also helps to identify and characterize sustainable energy opportunities, including pre-feasibility studies to assess the viability of potential projects. Alison is a registered professional engineer and has a B.Sc. in Chemical Engineering from the University of Alberta.

The Pembina Institute creates sustainable energy solutions through innovative research, education, consulting and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research, leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy and environmental governance. More information about the Pembina Institute is available at <http://www.pembina.org> or by contacting: [info@pembina.org](mailto:info@pembina.org).

***Soha Kneen, Senior Researcher-Operations Manager, Inuit Tapiriit Kanatami***

Soha Kneen, Senior Researcher-Operations Manager, started working for the Environment department of the Inuit Tapiriit Kanatami (ITK) in August of 2002. Soha has an undergraduate degree in Political Sciences from the University of Ottawa and received a master's degree in Geography and Environmental Studies from Carleton University in 2002. Her thesis titled "Where have all the trap lines gone?": The mercury contamination of the English-Wabigoon River System and its consequences on the Ojibway of Grassy Narrows (Ontario)' addressed how the knowledge of the mercury contamination of the English-Wabigoon river system affected the health, diet and traditional practices of the Ojibway of Grassy Narrows. Prior to working with ITK, Soha worked as a teaching assistant within the department of Geography and Environmental Studies at Carleton University, conducted her field research for her master's thesis with the Grassy Narrows First Nation in northern Ontario and also worked as Program Officer at the NGO by the name of Canadian Friends of Burma. Soha's main duties at ITK have included file work on nuclear fuel waste, mining and climate change issues. Soha has recently returned back to work from maternity leave.

Inuit Tapiriit Kanatami (ITK) is a non-profit organization dedicated to the needs and aspirations of Canada's Inuit. Formed in 1971, ITK represents the more than 41,000 Inuit living in 55 communities within the Inuvialuit Settlement Region, Nunavut, Nunavik and Nunatsiavut. ITK is the national voice of the Inuit in Canada and addresses issues of vital importance to the preservation of Inuit identity, culture and way



of life. Since its establishment, ITK has broadened its aims and objectives in response to the changing social, economic, environmental and political challenges facing Inuit. It has done so in a manner that reflects the emerging relationship between Inuit and the rest of Canada and between ITK and the four Inuit regional organizations.

***Laura Kowmuk, Kivalliq Regional Director, Economic Development & Transportation, Government of Nunavut***

Laura was born and raised in Rankin Inlet, Nunavut. Laura is currently the Kivalliq Regional Director for the Department of Economic Development and Transportation with the Government of Nunavut. Laura has served as a regional representative on the Socio-Economic Impact committee. This committee has provided analysis and feedback on several mining projects that have been submitted to the Nunavut Impact Review Board (NIRB).

***Don Lee, Chairperson, Joint Federal-Provincial Panel on Uranium Mining in Northern Saskatchewan***

Don Lee was chairperson of the Joint Federal-Provincial Panel that assessed the environmental, socioeconomic, health and safety impacts of the recent uranium mining developments in Northern Saskatchewan. Dr. Lee is professor emeritus of chemistry at the University of Regina and past President of Luther College. A native of Saskatchewan, he has a Master of Arts degree from the University of Saskatchewan, a Ph.D. in Chemistry from the University of British Columbia and has completed postdoctoral studies at Harvard University. He has been a member of the faculty at the University of Regina since 1967 and has served as a visiting professor at the University of North Carolina, Stanford University and the University of Oslo. He has published over 120 scientific papers and numerous non-scientific articles. Active in community affairs for many years, Dr. Lee has been Chairman of the Saskatchewan section of the Chemical Institute of Canada, Executive Member of the Saskatchewan Association of Independent Schools, a national official of the Canadian Amateur Swimming Association, and President of the Regina Optimist Dolphin Swim Club.

The Joint Federal-Provincial Panel on Uranium Mining in Northern Saskatchewan was appointed on August 22, 1991. Its mandate was three-fold: to review the environmental, health, safety and socio-economic impacts of the proposed projects; to determine from its review whether the projects were acceptable or unacceptable; and to provide full opportunities for public consultation and review. The panel submitted six reports, the last in 1997.

***Luis Manzo M.Sc. P.Eng. P.Ag., Director of Lands, Kitikmeot Inuit Association***

Luis Manzo is the Director of Lands at KIA with responsibility for land management and environmental impact assessment for Inuit Owned Lands in the Kivalliq Region of Nunavut. Luis has acted as project manager/director on earlier GeoConnections projects and has worked closely with GeoArctic consultants. He will act as Project Director on this project.

Luis received a P. Eng. in 1987 from the College of Engineers, at the University of San Carlos of Guatemala, a Forest Fire Technologist at the Institute of Forestry and Technology, Guatemala in 1989, and an MSc in Park and Planning from the University Of Costa Rica in 1991. He received a P. Ag. from the Manitoba Institute of Agrology Eng. in 1998 (Technologist, Manitoba chapter, 1994)., During 2002 he Successfully completed the Instrumentation course Certificate by the Canadian Nuclear Safety Commission, in 2006 he presert his PhD. Document Proposal to the National University Of Colombia Under the UN (water international program) Accepted in May 2007 to carry the research work of his PhD Thesis (model to calculate water resources Loss).

***Peter Mayotte, Director, Central & Athabasca Regions, Northlands College***

Peter Mayotte, is from La Ronge, Saskatchewan where he is employed as Director for the Central and Athabasca Regions of Northlands College. This region ranges from just north of Prince Albert to the **Saskatchewan**/Northwest Territories border. In addition to his duties as Regional Director, Peter also manages the training and developmental activities of the Mineral Sector Steering Committee which is the operational component of northern Saskatchewan's Multi Party Training Plan for the mineral sector. Over the last 30 years he has held a variety of jobs in the mineral sector, the forestry industry, and the construction business. His experience is both as an employee and an employer, having spent several years in his own business before formally entering the education arena. Peter has been directly employed in the adult education business for the last 19 years.

Northlands College provides a full range of programs and services for adult learners throughout the northern half of Saskatchewan. The College is governed by a 9 member Board of Directors representative of Northern Saskatchewan. Northlands College operates from 4 regions with its Administrative centre in Air Ronge and program centres in Buffalo Narrows, La Ronge and Creighton; and programs in most of the north's 40 communities.

***Brian Reilly, President, Titan Uranium Inc.***

Mr. Brian Reilly was appointed President of Titan Uranium Inc. in April 2007. With a wealth of experience in developing and producing uranium projects in Canada and abroad, Mr. Reilly enriches Titan's already impressive technical team and is well suited to assist the Company in its next phase of exploration and growth. For the past eleven years, he has worked with AREVA Resources Canada in various capacities in Canada and France, including a two year assignment with AREVA NC, in the parent company's business development group. Mr. Reilly holds a BSc (Geol) from St. Francis Xavier University, a MSc from Brock University and a MBA from the University of Saskatchewan.

Titan Uranium Inc. is a major landholder in the world's foremost uranium producing region. Titan Uranium Inc. is distinguishing itself as one of the few companies in Canada with the properties, management and technical depth required to succeed in uranium exploration. Based in Saskatoon, Saskatchewan, this Canadian company boasts over 1.4 million acres of claims in the proven Athabasca and prospective Thelon Basins. focusing on the acquisition, exploration and development of North American uranium properties.

***Dr. Graham Simpson, Inter-church Uranium Committee Educational Cooperative***

Professor Simpson was born in New Zealand in 1931. He graduated with a Bachelor of Agricultural Science (1954) and Master of Agricultural Science (1956) from the University of New Zealand and then earned a Ph.D. at London University in England, specialising in Plant Physiology and Biochemistry. Dr. Simpson joined the Faculty of the University of Saskatchewan in 1959 and taught there for forty years in the Department of Plant Sciences. He was the first director of the plant breeding institute called the Crop Development Centre at the University, then was the Director of an International Drought Research Program associated with the International Development Research Centre (Ottawa). His work has involved travel to more than fifty countries. He has published 120 scientific papers, two books and several chapters in books. He retired as Professor Emeritus in 1999 and has been a member of the Interchurch Uranium Committee since its inception in 1980.

ICUCEC was founded in Saskatchewan in 1980 as an ecumenical voluntary group of Christians with the goal of stopping uranium mining in Saskatchewan. Christian leaders of the Catholic, Anglican, United Church, Lutheran and Mennonite denominations opposed uranium mining on ethical grounds for two principal reasons: use of uranium in nuclear weapons and the problem of radioactive wastes accumulating in the environment from uranium mines and the high-level nuclear waste from reactors. ICUCEC is the only organization in Saskatchewan that has provided a critique of the uranium mining and the nuclear industry. ICUCEC has made representations at every public hearing by Saskatchewan Commissions about uranium mining as well as the environmental and safety assessments administered by the Canadian Nuclear Safety Commission for new Saskatchewan uranium mines.

***Dr. Patricia A. Thomas, Toxicology Centre, University of Saskatchewan, Saskatoon***

Patricia Thomas has been part of the Toxicology Centre in Saskatoon for the past 14 years. Her research into uranium series radionuclides has included food chain analyses of the lichen-caribou-wolf/human food chain in Nunavut, the Northwest Territories and northern Saskatchewan. Dr. Thomas has taught a course on radiation and radionuclide toxicology for the past 14 years, which focuses on radiation ecology, dosimetry and risk assessment. She has also done research on aquatic invertebrates, moose and small mammals near uranium mines as well as radiation effects on human and animal cells lining the blood vessels.



## Appendix D      Workshop Presentations