WHO TAKES THE RISKS? WHO GETS THE BENEFITS?

ᓇᐅᑦ ! (NAUC) Contributions to draft EIS Guidelines: Kiggavik FEARO Review

"Anti-nuclear organizations maintain that there are no guarantees which provide absolute safety,
and that we are building a problem for future generations of unmanageable proportions...
it boils down to how much risk we are prepared to accept in order to have economic benefit."
Study of the Uranium Industry, Prince Albert District Chiefs, April 1985

0.0 General Comments

- ᓇᐅᑦ !, the Northern Anti-Uranium Coalition
- the Terms of Reference
- public circulation of draft EIS Guidelines for comment
- scope of the draft Guidelines
- we have a right to know...
- use of the term 'perceived'

ᓇᐅᑦ !, the Northern Anti-Uranium Coalition

- ᓇᐅᑦ ! is composed of representatives from:
  - Keewatin Regional Council (Peter Kritaqliluk, Speaker)
  - Keewatin Inuit Association (Louis Pilakapsi, President)
  - Keewatin Wildlife Federation (Tagak Curley, President)
  - Keewatin Regional Health Board (Levinia Brown, Vice-Chairperson)
  - Tungavik Federation of Nunavut (Donat Milortuk, President)
  - Baker Lake Concerned Citizens Committee (Joan Scottie, representative)
- each of these representatives have been appointed by motions by their boards
- Tagak Curley was elected to serve as the spokesperson for the coalition
- the work of the coalition is coordinated by the Keewatin Regional Council office
- the coalition has stated that it is not opposed to the mining industry in general, only to uranium mining

the Terms of Reference

- report of the Kitts-Michelin Environmental Assessment Board, 10 April 1980
  - "The Board's Terms of Reference did not include hearing public comment on native land claims or on nuclear energy or warfare. [The proponent], however, realising that these subjects underpinned a part of the public reaction to its project, referred to them in both its Environmental Impact Statement and in its submissions given during and after the hearings. Many of the intervenors during the hearings and in final submissions since the hearings made it clear that their reactions to the Kitts-Michelin Project were influenced by the fact that native land claims have not been settled and that uranium is the source of nuclear fuel and nuclear bombs. We have decided therefore to record herein public comments on these two issues."
- letter from the Minister of the Environment, 25 April 1989
  - "The terms of reference are normally confined to the consequences of a project on the natural environment and on people. Broader questions, such as those you raise, are clearly political and are, therefore, better dealt with through other channels. Some of the panel's recommendations will, no doubt, have implications for those concerns. Participants have, in the past, raised issues that have gone beyond a review's terms of reference and panels have, at their discretion, included summaries of such matters in their final reports. They are not, however, expected to make final recommendations concerning them."
- issues which have been excluded from consideration by the Kiggavik FEARO panel:
  - land claims policy
  - energy policies of Canada and the GNWT, and the role of uranium mining with these policies
  - issues relating to the end uses of uranium
- comprehensiveness of this review:
  - NAUC urges Urangesellschaft Canada Ltd. to thoroughly discuss the subjects of land claims, the energy policies of the Government of Canada, and issues relating to the end uses of uranium in their EIS
  - NAUC urges the panel to allow free discussion of these issues in verbal and written submissions and during the hearings on the EIS, and to record public comments on these issues in their report

public circulation of draft EIS Guidelines for comment

- NAUC applauds the panel for their public circulation of draft EIS Guidelines for comment . If the panel makes a conscientious effort to incorporate the verbal and written comments it has received in Baker Lake, Rankin Inlet and Yellowknife into the final EIS Guidelines, as we have every confidence they will, this will go a long way towards mitigating the distrust of the Kiggavik FEARO review process which was generated by the lack of public consultation during development of the Terms of Reference (which we appreciate was no fault of the panel).

scope of the draft Guidelines

- the draft Guidelines are reasonably broad in scope *if* the somewhat vague wording of many of the questions is interpreted as a request for comprehensiveness and not as an opportunity to avoid providing detailed description and analysis of contentious or difficult to research subjects.
- the panel should consider drafting a list of priority issues requiring particular attention. The following should definitely be on such a priority list:
  - environmental impacts on a regional basis
  - impacts which would bioaccumulate over the hazardous lifetime of the waste [as defined in 7:0 Specific Information Requirements]
  - the implications of constructing, operating and abandoning the first open-pit uranium mine in continuous permafrost
  - and the potential impact of 'global warming' on continuous permafrost, its implications for tailings storage, and the post-abandonment monitoring regime.

we have a right to know...

- a fundamental premise of our coalition is the belief that the people who are being put at risk by the proposed project have a right to know precisely what they may be getting themselves into if the the proposed open-pit uranium mine is allowed to proceed.
- In order to understand precisely what they may be getting themselves into, people need to know the facts- all the facts. Facts about what has happened elsewhere. Facts about what rigorous scientific investigation predicts is going to happen here. Facts about the end uses of uranium.
- In this document we request the results of many detailed studies which we believe the panel should insist on and the proponent should be willing to pay for. At the Rankin Inlet 'scoping workshop,' one of the panel members inquired whether, since we had collected considerable written information and had requested extensive health baseline data, we had collected any of this data ourselves. The answer is "no."
- The onus is not on the people of the Keewatin to prove that this proposed project is dangerous. We are not proposing to build a project which puts other peoples' health at risk. Urangesellschaft Canada Ltd. is. The onus is on the proponent to prove that it is safe, and we have a right to insist that they actually *prove* it, not merely speculate about it.
- There are literally thousands of fundamental scientific questions about our sensitive ecosystem that have never even been asked yet, let alone answered. No corporation has a right to build the world's first open-pit uranium mine in continuous permafrost, with all that entails, without first answering many of those questions.
- While we appreciate that the cumulative bulk of these contributions may put some people off, we believe that each and every one of these questions is worth asking, and deserving of an intelligent answer. We ask the FEARO panel to take this document, and each question in it, seriously.
- The members of NAUC are waiting to see how many of our questions will appear in the final Guidelines, and how thoroughly they are answered in the Environmental Impact Statement.

use of the term 'perceived'

- throughout our contributions, extensive use is made of the term "perceived." It is our contention that the residents of the region have the right to define what constitutes damage to human health, to wildlife, and to the environment in general. If the people of the region perceive there to have been negative impact, then there has been negative impact. [see the reference to the provisions of the Wildlife Compensation Agreement-in-Principle initialed 19 June 1988 by the Government of Canada and the Tungavik Federation of Nunavut under section 2.4: Regulatory Framework.]

1.0 Introduction, Organization and Content of Responses

- full opportunities for public involvement
- interpretation of data and scientific and technical analysis
- glossaries

full opportunities for public involvement

- the FEARO panel should clarify what it means by "full opportunities for public involvement." Presently the 'scoping workshops' are proceeding with little public education about the issues, the project, the review process (and, in Rankin Inlet, notice of the 'scoping workshop' itself) having taken place.

interpretation of data and scientific and technical analysis

- what possible reason is there for assigning responsibility for " interpretation of data and scientific and technical analysis" to Urangesellschaft Canada Ltd. and Beak Consultants Ltd. while input from government departments (and others) "for the most part will not involve the analysis or interpretation of data"? Does this mean, for example, that the GNWT will provide the proponent with socio-economic statistics but no socio-economic analysis?
- we believe that value judgments made by Urangesellschaft Canada Ltd. and Beak Consultants Ltd. while defining the manner in which critical issues are presented in the EIS will, to a considerable extent, define how they will be discussed during the public hearings.
- implementation of a 'science court' model would be a less biased framework for the i nterpretation of data and scientific and technical analysis . In this model there is no special status for the proponent in the collection or interpretation of data; data collection is carried out by an independent group which is aware of the data requirements of the proponent (and other interested parties) but is not tied to the panel or the proponent, and interpretation of data takes place in a public and adversarial format.
- there should be clear distinctions made in the EIS amongst:
  - the collection of baseline data
  - description of the proposed project infrastructure
  - the predicted impacts of the proposed project
  - the predicted impacts from a wide variety of accident scenarios (up to and including worst-case scenarios) in the severest conceivable weather conditions
  - the assumptions used in the development of these scenarios
  - the proposed mitigative measures for each of these scenarios
  - compliance and effects monitoring regimes.
- it should be clearly explained what data (if any) which were requested by the Guidelines or desired by the proponent but could not be obtained. What are the implications of any resulting knowledge gaps on the prediction of impacts or any other component of the EIS?

glossaries

- in addition to providing a non-technical summary of the full EIS, a glossary should be included as part of the EIS listing all terms used in the EIS which are not part of everyday conversational Inuktitut. This glossary should provide the technical term in Inuktitut, an explanation in non-technical Inuktitut, an equivalent term in English, an explanation in non-technical English, and a rigorous definition in English. Interest groups in the region should have input into this work.

2.0 Background Information

2.1 *Project Description*
2.2 Project Justification
2.3 Background on Proponent
2.4 Regulatory Framework

2.1 *Project Description*

- breakdown of the disposition of the material mined
- total area of land required by the proposed project
- alternative approaches, designs and strategies
- advanced approaches to radioactive waste storage
- disposition of the yellowcake

breakdown of the disposition of the material mined

- provide a breakdown of the disposition of the material mined, as follows:
  - how many tonnes waste rock
  - how many tonnes uranium mill tailings
  - how many tonnes U3O8

total area of land required by the proposed project

- what will be the total area of land withdrawn from future use by people and wildlife? Include both the amount of land which will actually be dug up, covered by roads and tailings storage areas, etc., as well as the amount of land which it will be recommended that people or wildlife avoid due to the anticipated and worst-case maximum levels of radiological and non-radiological contaminants. What studies have been completed (or are planned) on the degree to which this area could increase as a result of a variety of accident scenarios?

alternative approaches, designs and strategies

- Urangesellschaft Canada Ltd. should provide a description of all alternative approaches, designs and strategies which have been or are being considered to all aspects of the proposed project in addition to those outlined in the EIS.
- in particular, a detailed description should be provided of each design of tailings storage methods they have examined, and a complete rationale should be provided for abandoning each plan in favour of the next.

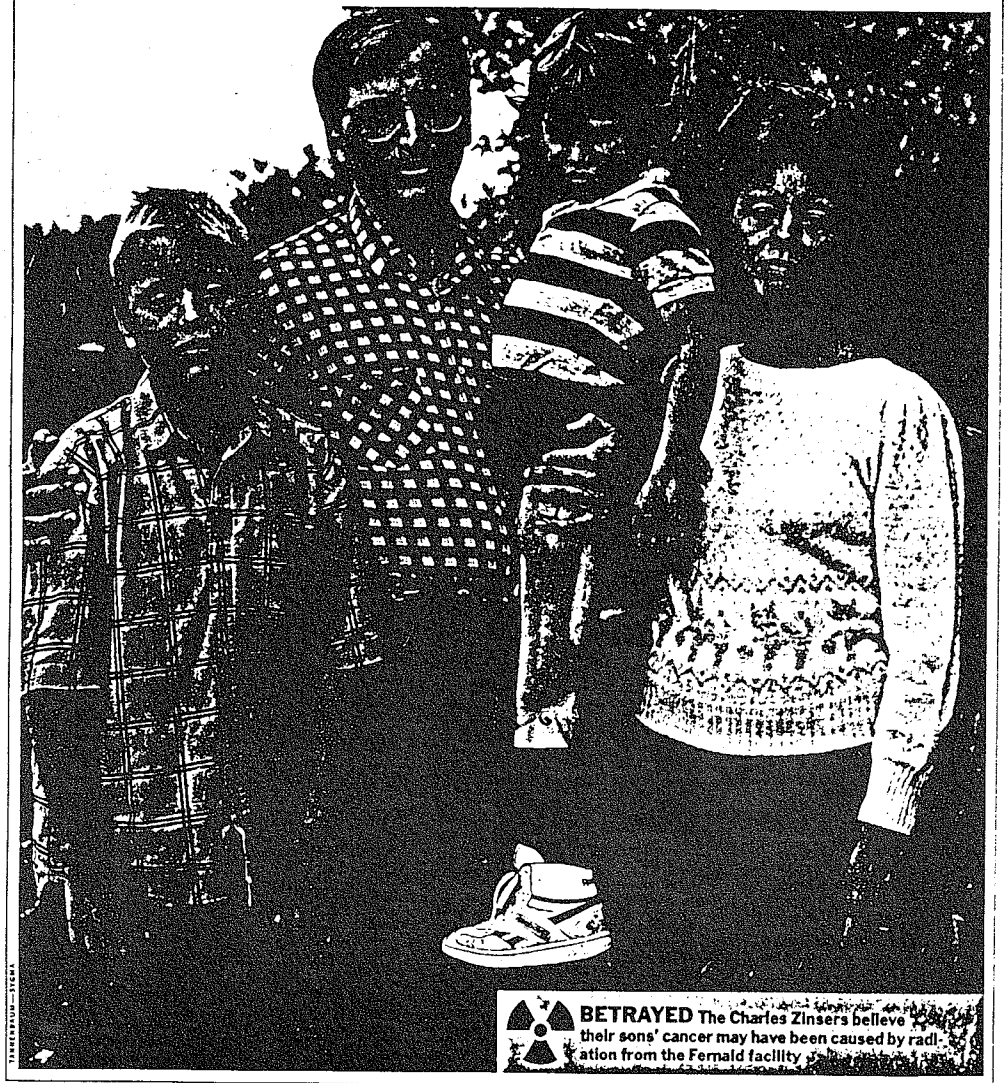
advanced approaches to radioactive waste storage

- the *Kiggavik Project Description Summary* states that Kiggavik "will use the latest technology to ensure that no people or animals will be exposed to any danger from radiation. And when all the ore is mined, the land will be restored to its original state, at virtually the same radiation levels that existed before the mine was built."
- does leaving millions of tonnes of radioactive waste on the permafrost close to a large open-pit (above a second ore body which Urangesellschaft Canada Ltd. hopes will be economically viable at a later date) constitute the "original state" of the land?
- what studies have been completed (or are planned) on any advances in technology which may have been developed in the 1980s which would have convinced the *Kitts-Michelin Environmental Assessment Board* or the *British Columbia Royal Commission of Inquiry - Health and Environmental Protection - Uranium Mining* that the safe and ultimate disposal of the waste radioactive material is feasible? Where has such technology been applied? How well has it worked?
- what studies have been completed (or are planned) on the feasibility of removing the radium and thorium in the mill? This would produce:
  - a large volume of mine tailings quite similar to those from other mining operations, and
  - a relatively small volume of long-lived low-level wastes which could be treated as high-level wastes (i.e. shipped to Ontario or West Germany for storage).
- what studies have been completed (or are planned) on the feasibility of leaving the radium and thorium in the uranium product?
- what studies have been completed (or are planned) on the degree to which these options would raise/lower the cost of managing the waste from this project? Provide an analysis detailing the costs over the hazardous lifetime of the waste [as defined in 7:0 Specific Information Requirements].
- what studies have been completed (or are planned) on the degree to which these options would raise/lower the cost of nuclear power generated from the uranium from this project?

COVER STORY

"They Lied to Us"

Unsafe, aging U.S. weapons plants are stirring fear and disillusion



BETRAYED The Charles Zinsers believe their sons' cancer may have been caused by radiation from the Fernald facility

disposition of the yellowcake

- have contracts been signed for the yellowcake? With whom? Where does Urangesellschaft Canada Ltd. believe it may be able to sell any U3O8 not already contracted for?
- what processing of the yellowcake might take place, and where?
- where would the waste material from this processing be stored?
- what control does the government of Canada have over the yellowcake and its derivatives from the moment it leaves the mine site, in each country of use, until its ultimate storage (in all its forms) as waste?
- has Urangesellschaft GmbH ever been involved in uranium transactions with the government of South Africa?

2.2 Project Justification

- Kiggavik could "really open up the area"
- global demand for uranium
- cost of production and profit projections
- economic benefits to government

Kiggavik could "really open up the area"

- at workshops in Baker Lake and Rankin Inlet, Mick Stuart of Urangesellschaft Canada Ltd. has flatly denied that government approval of the proposed Kiggavik project would facilitate the development of other uranium explorations in the area. However, *The Northern Miner* of 6 March 1989 stated that "production at Kiggavik is a possibility, but probably not for another four to five years. Such a development could really open up the area... there is no indication at the moment that either land claims or the caribou herds will have any significant effect on mineral exploration or development (if development becomes warranted) in the area." And, Urangesellschaft Canada Ltd. is continuing exploration this summer at their Deep Rose Lake property **inside the caribou calving range**. The proponent should provide an analysis of the uranium potential of the 'Thelon basin,' and offer development scenarios based on 'go' and 'no go' decisions for the proposed Kiggavik project. Has Urangesellschaft Canada Ltd. considered any possible future development in the region, and are these developments in any way dependent of the proposed Kiggavik project?
- what will be the total area of land withdrawn from future use by people and wildlife for each of these development scenarios? Include both the amount of land which will actually be dug up, covered by roads and tailings storage areas, etc., as well as the amount of land which it will be recommended that people or wildlife avoid due to the anticipated and worst-case maximum levels of radiological and non-radiological contaminants. What studies have been completed (or are planned) on the degree to which this area could increase as a result of a variety of accident scenarios?

economic benefits to government

- what is the expected income (through taxes and royalties) to each level of government? Provide a breakdown for each type of income for each year of production.

global demand for uranium

- what is the current global supply and demand equation for uranium?
- what are the predicted future global supply and demand equations for uranium?
- how accurate have previous predictions of future global supply and demand equations for uranium proven to be?
- the analyses should include:
  - the uses to which the uranium has been/is/will be put;
  - country data for Canada, the U.S., Britain, West Germany, South Korea, and any other country which is a likely purchaser of uranium from Urangesellschaft Canada Ltd.
  - a clear explanation of the assumptions and methodology used

cost of production and profit projections

- what is the estimated cost of producing U3O8 from the proposed Kiggavik project?
- uranium prices have collapsed from $50 US in 1981 to $10.75 US today "due to a glut of supply and inadequate demand" [*The Northern Miner Magazine* , November 1988]. In real terms, the world price for uranium has never been lower. As a result, Cameco recently announced that their Rabbit Lake mine will shut down for six months beginning July 1. Given these facts, how much will prices have to rise in order to make uranium from the proposed Kiggavik project profitable? Include all assumptions made in the analysis.
- what will be the total cost of exploration? Of preparing the EIS and participating in the review process? Of construction of the entire proposed project? Of operation of the entire proposed project?
- how much money does Urangesellschaft Canada Ltd. expect to gain through sale of the U3O8?
- how much money does Urangesellschaft Canada Ltd. expect to distribute to:
  - temporary mine/mill infrastructure; permanent mine/mill buildings, roads, airport
  - training programs for local people; safety training for workers
  - unskilled worker salaries; skilled worker salaries; management salaries
  - isolation/stabilization of waste; abandonment and restoration
  - environmental compliance and effects monitoring [over the hazardous lifetime of the waste as defined in 7:0 Specific Information Requirements]
  - accident insurance [over the hazardous lifetime of the waste as defined in 7:0 Specific Information Requirements]
  - compensation for ecological and/or health damage [over the hazardous lifetime of the waste as defined in 7:0 Specific Information Requirements]
  - profit for Urangesellschaft Canada Ltd.

2.3 Background on Proponent

- Urangesellschaft Canada Ltd.
  - where in Canada or elsewhere have Urangesellschaft Canada Ltd. and/or CEGB Exploration [Canada] Ltd., alone or in partnership with others, explored for uranium?
  - were production proposals developed for these properties?
  - what government policy reviews, environmental impact assessment hearings, or other procedures referring directly or indirectly to these explorations / production proposals have been held in the countries/ provinces where these explorations took place?
  - what were the outcomes of these procedures/hearings?
  - provide copies of each of these documents on request for public review in the Keewatin.
  - where in Canada or elsewhere are Urangesellschaft Canada Ltd. and/or CEGB Exploration [Canada] Ltd., alone or in partnership with others, currently exploring for uranium?
  - what experience does Urangesellschaft Canada Ltd. have in mitigating the environmental and health impacts of uranium mining?
  - does the company have the financial resources to post a bond (as discussed elsewhere in these contributions) to ensure complete clean-up of any chronic or catastrophic environmental and/or socio-economic impacts over the hazardous lifetime of the waste [as defined in 7:0 Specific Information Requirements]?
- Beak Consultants Ltd.
  - provide a complete list of all documents prepared by Beak Consultants Ltd. since the company was formed, and provide copies of each of these documents on request for public review in the Keewatin.
  - this is particularly important in light of Beak's social impact studies for the proposed Brinex Kitts-Michelin uranium mine being called "woefully inadequate" by the environmental assessment board and Beak's EIS for the proposed Warman uranium refinery being called "particularly disappointing" by the FEARO review panel. Several members of Beak's project management teams in these triumphs are on Beak's project management team for the proposed Kiggavik project.
- others
  - provide a complete list of all sub-contractors and consultants involved in this project since its inception.
  - provide a complete curriculum vitae for each person involved in the preparation of the EIS, including academic qualifications and a complete list of publications (if any).

2.4 Regulatory Framework

- processes and/or bodies arising from land claims
- standards, regulations and requirements
- legal and financial responsibility of governments
- federal government ability to competently and objectively regulate uranium mining
- GNWT ability to effectively contribute to regulation
- legally binding obligations
- public input into compliance and effects monitoring and enforcement
- cost of government compliance and effects monitoring and regulation
- bond against environmental damage or disaster
- criteria for the awarding of compensation
- insurance
- public hearings on potential future uranium mines
- explain the implications of this project to:

processes and/or bodies arising from land claims

- what processes and/or bodies are likely to be established as a result of the final settlement of the Tungavik Federation of Nunavut land claim?
- what authority will these processes and/or bodies have in authorizing aspects of or enforcing compliance and effects monitoring aspects of the proposed project?

standards, regulations and requirements

- with regard to the construction, operating and monitoring standards, regulations and requirements listed in section 2.4:
  - provide the date of introduction of each standard, regulation and requirement .
  - provide the date of each revision to each of these standards, regulations and requirements, and the rationale for the change provided by the appropriate government department .
  - explain the degree to which local people will have input into proposed changes in these standards, regulations and requirements after the terms of the mining/milling operation are agreed upon.
  - compare these standards, regulations and requirements to those in other provinces and countries where uranium is mined/milled. Provide the date of each revision to each of these standards, regulations and requirements, and the rationale for the changes provided by the appropriate government department.

legal and financial responsibility of governments

- what financial arrangements have been established or envisaged by the federal, territorial and municipal governments to provide sufficient resources for responsibility in the event of environmental disaster, including chronic or catastrophic failures of storage resulting in damage to human health, renewable resources, and property?
- for how long into the future will these arrangements be in place?
- what proportion of the anticipated and worst-case maximum damage cost would be covered?
- what do these arrangements cost Canadian taxpayers?

federal government ability to competently and objectively regulate uranium mining

- what studies have been completed (or are planned) of the federal government's ability to competently and objectively regulate uranium mining?
- how has the federal government responded to these studies?
- does it acknowledge any conflict or appearance of conflict between its simultaneous roles as promoter of nuclear power, regulator of the nuclear industry, and guardian of the environment and public health?

GNWT ability to effectively contribute to regulation

- in 1981, Tom Butters, then GNWT Government House Leader, stated in the Legislative Assembly that "if Urangesellschaft decided today to put their Keewatin properties into production, it would take six or more years to get a mine in operation. Given this time frame, there is time for this government to develop legislation and regulations to ensure that the territorial population and environment will be protected... I will carry out a review of existing federal and provincial legislation and regulations to determine what additional legislation and regulations are required to ensure human safety and environmental protection in the Northwest Territories with regard to the exploration for, and the mining and milling of, uranium... I shall arrange that a paper be placed before the Legislative Assembly in 1982 which would recommend legislative and regulatory courses of action which can be taken to ensure health and environmental safety and ensure that the Territories will receive maximum benefits from such development." Outline in detail the steps taken by the GNWT to meet these commitments.
- at the DIAND workshop on uranium mining in Baker Lake in March 1989, representatives of the AECB placed great emphasis on the teamwork between AECB and Saskatchewan Environment regulators. Analyze the degree to which the GNWT is ready, willing and/or able to effectively contribute to the regulation of a uranium mining operation.
- will the coordination of the GNWT's participation in Kiggavik FEARO review by the Energy, Mines and Resources Secretariat, which is also a promoter of mining, have any effect on the overall tone of the GNWT's input into the process? Is there a provincial precedent for the coordination of an entire government's participation in an environmental review process by an 'industry promoter' department?

legally binding obligations

- how will Urangesellschaft Canada Ltd.'s general statements of intent be translated into quantitatively and qualitatively meaningful contractual provisions? Provide examples.
- will the conditions of the agreements, leases, permits, etc. under which the mine/mill would operate be framed in language which would **legally obligate** Urangesellschaft Canada Ltd. to meet all obligations established in the EIS?

public input into compliance and effects monitoring and enforcement

- what measures exist in the existing regulatory framework to ensure the public has input into the assessment of Urangesellschaft Canada Ltd.'s performance in adhering to standards, regulations and requirements , or determining non-compliance, and enforcing compliance by the company?
- what measures could be added to the regulatory framework to ensure the above?

cost of government compliance and effects monitoring and regulation

- provide a detailed estimate of the cost to each level of government of regulating the construction and operation of the mine, compliance and effects monitoring of the wastes over their hazardous lifetime [as defined in 7:0 Specific Information Requirements], compliance and effects monitoring of other environmental parameters, monitoring social impacts, and enforcing compliance with the appropriate standards, regulations, requirements, leases, licences and agreements.
- this estimate should be broken down on a yearly basis from 1974 through the hazardous lifetime of the waste [as defined in 7:0 Specific Information Requirements].

bond against environmental damage or disaster

- what size bond is Urangesellschaft Canada Ltd. willing to take out against the possibility of environmental damage or disaster, including chronic or catastrophic failures of storage resulting in damage to human health, and to the caribou, fish, and other wildlife? **For how long into the future?** What proportion of the anticipated and worst-case maximum damage costs would be covered?
- what studies have been completed (or are planned) on the experience (if any) with similar bonds in other jurisdictions?
- the proponent, the federal government and the territorial government should explain which government department or agency (or non-government organization, such as the United Nations) would best be able to administer such a bond.

criteria for the awarding of compensation

- who would outline criteria for the awarding of compensation? Would the criteria reflect the provisions of the Wildlife Compensation Agreement-in-Principle initialed 19 June 1988 by the Government of Canada and the Tungavik Federation of Nunavut? Clauses 1, 2, 6 and 16 of this AIP state that:
  - 1) Any developer is liable absolutely, without proof of fault or negligence, for loss or damage suffered by a claimant as a result of its development activity within the inuit settlement area in respect of: a) loss or damage to property or equipment used in wildlife harvesting or to wildlife harvested in possession; b) present and future loss of income from wildlife harvesting; c) present and future loss of wildlife harvested for personal use by claimants.
  - 2) A developer is not liable where that developer establishes that the loss or damage was wholly the result of an act of war, hostilities, civil war, insurrection, or natural phenomenon of an exceptional, inevitable and irresistible character.
  - 6) The Tribunal in hearing a claim shall give due weight to Inuit knowledge of wildlife and the environment and shall take into account the social, cultural and economic importance of wildlife to Inuit.
  - 16) Nothing in these or any other provisions relating to wildlife compensation prevents Inuit and a developer from entering into a wildlife compensation agreement that would replace all others.
- would Urangesellschaft Canada Ltd. agree to enter into a wildlife compensation agreement which:
  - explicitly states that radiological and non-radiological contamination from any aspect of the project, pre- and post-abandonment, will NOT be regarded as a natural phenomenon of an exceptional, inevitable and irresistible character; and
  - explicitly states that the developer will be liable for any loss or damage wholly or partially the result of contamination from the normal operation of the uranium mine/mill, accidents at the mine/mill, and transportation of radioactive material from the site?

insurance

- what insurance would residents of the region be able to purchase covering any perceived negative health effects resulting from the normal operation of the uranium mine/mill, accidents at the mine/mill, and transportation of radioactive material from the site? How much would this life insurance cost the average family?
- what insurance would hunters be able to purchase covering any perceived negative health effects on animals harvested by Keewatin Inuit as a result of the normal operation of the uranium mine/mill, accidents at the mine/mill, and transportation of radioactive material from the site? How much would this insurance cost the average hunter? Could a regional organization obtain coverage for all hunters in the region? What would this cost?
- what insurance would owners of homes, businesses, etc. in the region be able to purchase insurance against property damage resulting from the normal operation of a uranium mine/mill, accidents at the mine/mill, and transportation of radioactive material from the site. What would this cost the home and/or business owners?

public hearings on potential future uranium mines

- in Northern Saskatchewan, full public hearings dealing with the broad aspects relating to uranium mining (including end uses, ethical implications, etc.) were only held for the first mine, Cluff Lake. Even this first review excluded the crucial question of aboriginal rights. The Terms of Reference for the second mine (at Key Lake) were phrased in terms of how, not if, uranium mining should proceed. Further uranium mines (Rabbit Lake and Cigar Lake) were approved after environmental impact assessments which did not even include public hearings- in effect, the public was deemed to have approved not one uranium mine but all uranium mining in the region. If the proposed Kiggavik proposal is approved it must be made explicitly clear that the government approval is for one project only, and that no further uranium development may proceed without another review at least as comprehensive as this one. A thorough analysis of the impacts of this project must take place before any other uranium mining projects are even reviewed.

explain the implications of this project to:

- the Inuit Circumpolar Conference's Arctic Conservation Strategy
- the draft GNWT Sustainable Development Policy
- the land use planning process in the Keewatin

3.0 Ecosystem Impacts

- 3.1 Biological Impacts
- 3.2 Physical Environment Impacts
- 3.3 Surface and Groundwater Impacts
- 3.4 Atmospheric Impacts

3.1 Biological Impacts

- 3.1.1 Plant Life
- 3.1.2 Wildlife

3.1.1 Plant Life

- provide complete baseline information on the existing levels of radiological and non-radiological contamination (especially uranium, thorium, radium, polonium-210, lead-210, cesium-137 and heavy metals) of all plants and berries existing in the Keewatin region, especially those consumed by humans, mammals, and birds.
- what studies have been completed (or are planned) on the range of anticipated and worst-case maximum increases in levels of radiological and non-radiological contaminants (especially uranium, thorium, radium, polonium-210, lead-210, cesium-137 and heavy metals)?
- what studies have been completed (or are planned) to determine whether the most significant bioaccumulation will occur at the lowest trophic levels, and what implications this has for those of us at the other end of the food chain?

effects of contamination

- what studies have been completed (or are planned) on the addition of uranium, thorium, radium, polonium-210, lead-210, cesium-137, radon gas, sulfur dioxide, sulfuric acid, heavy metals, etc. to already polluted food chains?
- the Beverly and Kaminuriak caribou herds are already stressed with body burdens of uranium, thorium, radium, polonium-210, lead-210, cesium-137, heavy metals etc. What studies have been completed (or are planned) on the cumulative effect (eg. increased susceptibility to diseases, reproductive irregularities, etc.) of these additions?
- increases in levels of radiological and non-radiological contaminants:

increases in levels of radiological and non-radiological contaminants:

- what are the earliest measurements of uranium, thorium, radium, polonium-210, lead-210, cesium-137, heavy metals etc. in arctic biota?
- what studies have been completed (or are planned) on the anticipated and worst-case maximum increases in levels of radiological and non-radiological contaminants (especially uranium, thorium, radium, polonium-210, lead-210, cesium-137, heavy metals etc.) for all wildife species in the Keewatin?
- what studies have been completed (or are planned) on physiological problems occurring in wildlife receiving higher-than-historical-background levels of radiological and non-radiological contaminants over many generations?
- what multigenerational studies have been completed (or are planned) on correlations between these anticipated and worst-case maximum increases and reproductive irregularities in fish, birds, and mammals?
- what studies have been completed (or are planned) on increases in spontaneous abortion, still births and birth defects at each level of anticipated and worst-case maximum contamination?
- what studies have been completed (or are planned) on the impacts of these anticipated and worst-case maximum increases on the juvenile of the species?
- what studies have been completed (or are planned) on the impacts of these anticipated and worst-case maximum increases on 'country food' stored in caches on the land?

3.1.2 Wildlife

- incorporation of Inuit knowledge
- baseline data
- effects of contamination

incorporation of Inuit knowledge

- what provision will be made to develop a mutually acceptable document with local people noting:
  - overall health of animals
  - customary breeding rates and patterns
  - abundance and accessibility of game

baseline data

- the baseline data presented in the *Project Description* is derived from environmental monitoring after exploration:
  - is there information on pre-exploration environmental parameters?
  - have Urangesellschaft Canada Ltd. findings been independently confirmed?
- for all wildife species in the Keewatin, what are the ambient levels of:
  - uranium, thorium, radium, polonium-210, lead-210, cesium-137 and heavy metals
  - DDT and PCBs
  - lindane, chlordane, dieldrine, etc.
- will Urangesellschaft Canada Ltd. provide split samples (including blood, urine, and others as required) for independent verification of all of these ambient levels, and provide funding for this independent verification?

3.2 Physical Environment Impacts

- increased radioactive bioavailability
  - how much of the radioactivity now buried deep in the permafrost will be left above ground at the mine site in a more bioavailable form after the mining and milling? What is the anticipated particle size distribution? What is the total anticipated mass for each particle size category?
- radon gas
  - table 3.17 in the *Project Description* notes rather high levels of ambient radon gas. Outdoor levels in North America range from 0.02 pCi/litre to 1 pCi/litre, with the latter occurring near uranium outcroppings. Why is radon measuring as high as 2.09 and 2.16 pCi/litre in the study area? Were measurements made near test drills? What levels will be considered "normal background" for clean up? What increased emission rate is expected when the rock is pulverized. What is the emanation rate?
- impacts of components of the proposed project
  - describe the anticipated and worst-case maximum impacts of the limestone quarry located inside the caribou calving range- operation, transportation to/from, etc. Explain the provisions made for decommissioning.
  - describe the anticipated and worst-case maximum impacts of acid rain from the sulfuric acid plant on the terrestrial and aquatic northern environment.
  - describe the anticipated and worst-case maximum impacts of dust dispersion from all components and aspects of the proposed project.
  - explain the history of ammonium nitrate fuel oil blasting in similar ecosystems. For what possible effects has monitoring taken place, and over what period of time?
  - explain the provisions which will be made for decommissioning of the sulphuric acid plant and the lime plant. Have such plants been decommissioned in a similar ecosystem? What problems have been encountered decommissioning such plants elsewhere?
- noise
  - what studies have been completed (or are planned) the anticipated and worst-case maximum noise levels from all aspects of the proposed project?
  - how do these compare with measured noise levels at other northern mining operations?
  - what studies have been completed (or are planned) impacts do renewable resource harvesters living near these operations feel the noise has had on wildlife?

3.3 Surface and Groundwater Impacts

- what studies have been completed (or are planned) on the effect springtime "flash flooding" will have on seasonal and spatial distribution of contaminants?
- what studies have been completed (or are planned) on the effects of "flash flooding" on the levels of uptake by mammals, fish, and flora?
- what studies have been completed (or are planned) on the multigenerational impacts of increased levels of uptake of radiological and non-radiological contaminants on the reproductive processes of wildlife, springtime being such a crucial period in their reproductive cycles?

3.4 Atmospheric Impacts

- explain the chemical and physical nature of all the releases from the 30 metre stack at the acid plant. Describe plume, direction, anticipated touch-down area, zone of influence and environmental impacts.
- what air quality standards apply to the proposed site and to the region?
- what studies have been completed (or are planned) on the impacts of the proposed project on air quality?
- what studies have been completed (or are planned) on the impacts of heavy fog on the transmission of radiological and non-radiological contaminants?

4.0 Socio-Economic Impacts

- THIS IS CLEARLY THE WEAKEST SECTION OF THE DRAFT GUIDELINES. THE QUESTIONS ARE EXTREMELY VAGUE AND ALL BUT ASSUME THE PROPOSED PROJECT WILL BE APPROVED. NAUC BELIEVES THIS SECTION SHOULD BE ENTIRELY REWRITTEN AFTER EXTENSIVE INPUT FROM EXPERTS IN THE FIELD WHO WERE CLEARLY NOT CONSULTED THE FIRST TIME AROUND.
- this is particularly important given Beak Consultants Ltd.'s track record. The Warman FEARO review panel concluded that "it was obvious that the proponent did not consider the local [Mennonite] community as distinctive. From this perspective, whatever adverse social impacts that might occur would be no different from those that might be experienced in any Saskatchewan community. Furthermore, the proponent apparently considered the anticipated negative social impacts to be easily outweighed by the expected positive social benefits." The assumptions underlying the questions in this section of the draft Guidelines are an open invitation to repeat this kind of unacceptably shallow and biased social impact study.
- Should the panel choose not to do so...

"an adequate social impact study comprises more than a listing of benefits and a superficial overview of social costs."
-Warman FEARO panel comment on the Beak-prepared EIS

- what are the past and present institutions, customs, social and economic behaviours of the Keewatin communities?
- project these into the future to obtain an impression of what the communities might look like in the absence of the introduction of the proposed project
- identify and describe the specific mechanisms of social impacts associated with the proposed project in the context of these baseline analyses
- provide an assessment and evaluation of the proposed project's impacts on the communities
- juxtapose this with the projected trends in the absence of the proposed project
- describe and assess any measures which could be taken to mitigate the adverse impacts identified
- analyze whether the impacts of the proposed project would enhance community self-determination through control of local institutions or intensify the deterioration of community viability

the Keewatin reality

- the *Keewatin Human Resource Development Strategy* prepared for the Keewatin Regional training Advisory Committee (composed of the Keewatin Chamber of Commerce; the Keewatin Divisonal Board of Education; the Keewatin Inuit Association; Travel Keewatin; Employment and Immigration Canada; the GNWT departments of Advanced Education, Economic Development and Tourism, and Public Works; and the N.W.T. Housing Corporation) documented that "the Keewatin region of the Northwest Territories is currently facing a human resource crisis of severe proportions. Keewatin communities manifest high unemployment rates, high rates of illiteracy, low educational attainment levels, low rates of labour force participation, low income levels and heavy dependence upon assistance." Some of the factors are combined on the graph on the following page.
- given the scale of this crisis, what impact would the benefits of this proposed project really have?
- could these benefits be matched by the development of mining operation(s) which do not generate radioactive waste? What is the likelihood of this occurring within the operating lifetime of the proposed open-pit uranium mine?
- how would the impact of these benefits compare to the impact of a full implementation by government of the comprehensive strategy developed by the Regional Training Advisory Committee?

Distribution of Social Assistance cases for Economic Reasons, by age grouping and years of education, Keewatin, 1988

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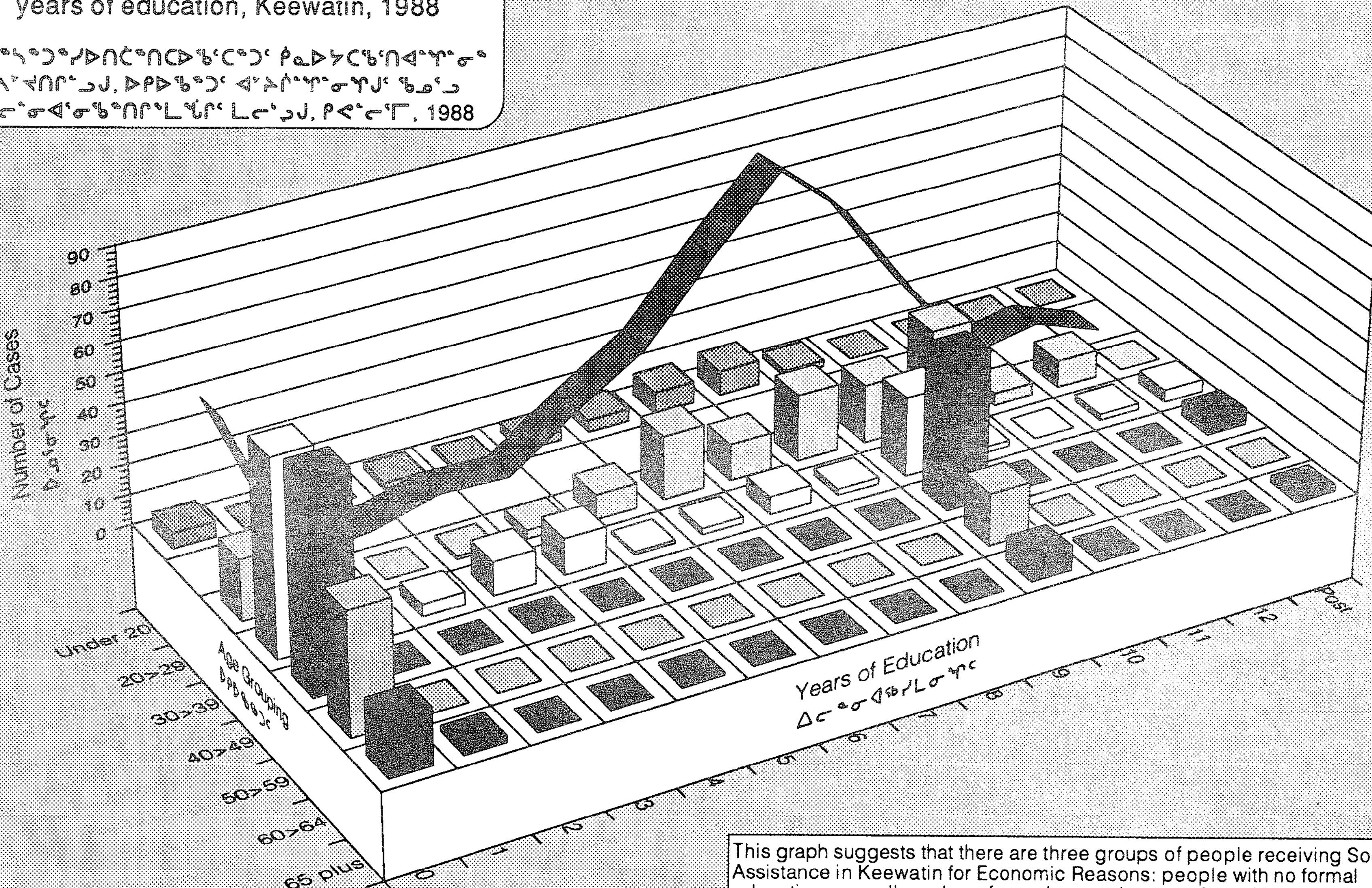
ᐱᕐᔪᑎᒋᓪᓗᒍ, ᐅᑭᐅᖃᖕᑐᑦ ᐊᕐᕌᒍᖏᓐᓂᖏᑦ ᖃᓄᖅᓗ
ᐃᓕᓐᓂᐊᕐᓂᒃᑯᓐᑎᓯᒪᔪᑦ ᒪᓕᒡᓗᒍ, ᑭᕙᓪᓕᕐᒥ, 1988



This graph suggests that there are three groups of people receiving Social Assistance in Keewatin for Economic Reasons: people with no formal education, a small number of people over the age of 30 with 9 years of education (at Chesterfield Inlet or Churchill), and a large number of people in their 20s with between 6 and 10 years of education.
ᑖᓐᓇ ᑎᑎᕋᐅᔭᓯᒪᔪᖅ ᓇᓗᓇᐃᕐᓯᔪᖅ ᐱᖓᓱᐃᓕᖓᔪᑦ ᐊᕐᕌᒍᖏᑦᑐᐃᑦ ᐃᓄᐃᑦ ᑭᕙᓪᓕᕐᒥᐅᑦ
ᐊᔪᙱᑦᑐᓐᓯᐅᑎᑖᕐᑕᓂᒃᓄᑦ ᑮᓇᐅᔭᖃᕐᑎᐊᙱᓐᓂᖕ ᐱᕐᔪᑎᒋᓪᓗᒍ: ᐃᓄᐃᑦ ᐃᓕᓐᓂᐊᕐᓂᒃᑯᙱᑦᑐᑦ.
ᐅᓄᖏᑦᑐᐃᑦ ᐃᓄᐃᑦ 30 ᐅᖓᑖᓄᑦ ᐅᑭᐅᖏᑦ ᐊᕐᕌᒍᓄᑦ 9-ᓄᑦ ᐃᓕᓐᓂᐊᕐᓯᒪᓕᕐᑐᑦ (ᐃᒡᓗᓕᒑᕐᔪᖕᒥᐅᑦ
ᒌᔪᐊᕐᒥᐅᓗ). ᐊᒻᒪᓗ ᐅᓄᕐᑐᐊᓗᐃᑦ 20-ᑭᓴᓂ ᐅᑭᐅᖏᑦ ᐊᕐᕌᒍᓂᑦ 6-ᓂᑦ 10-ᓄᑦ ᐃᓕᓐᓂᐊᕐᓯᒪᔪᑦ.

household income

- what studies have been completed (or are planned) on the range and distribution of household income in the Keewatin communities?
- what studies have been completed (or are planned) on the level of economic benefits which could be expected by households at different levels of household income?

consumption of 'country food'

- what studies have been completed (or are planned) on the range and distribution of seasonal household consumption of 'country food' in each of the Keewatin communities?
- what studies have been completed (or are planned) on the correlation (if any) between household income and household consumption of 'country food?'
- what studies have been completed (or are planned) on the extent to which households with differing consumption levels of 'country food' would be put at economic risk by a range of anticipated and worst-case maximum increases in levels of radiological and non-radiological contaminants in 'country food'?
- what financial arrangements have been established or envisaged by Urangesellschaft Canada Ltd., the federal, territorial and municipal governments to provide sufficient resources for the compensation of Keewatin residents for any perceived loss of quantity or quality of 'country food,' both pre- and post-abandonment?
- who will decide what are the appropriate parameters to monitor? How will these parameters be monitored? Who will monitor them? Who will pay for the compliance and effects monitoring? For how long?

customary laws relating to wildlife

- what studies have been completed (or are planned) on customary laws existing within 'Caribou Eskimo' culture with regard to the use of and stewardship over caribou (and the environment generally)?
- do Inuit feel that this project be in conflict with these customary laws?

fear

- this proposed project has already generated a great deal of opposition within the region, and especially within the community of Baker Lake. Many people believe that it is already too late to stop the proposal, and are already showing the symptoms of a deep sense of powerlessness. This point of view has been reinforced by the enthusiasm shown for the proposal at public meetings by a variety of government 'regulators,' as well as by their publicly chummy relationship with the chief proponent. People have a range of fears: regarding health effects, regarding environmental damage (especially to caribou), regarding accidents, regarding their obligations to future generations, etc. What studies have been completed (or are planned) of the stress which the proposal has already placed on the community and on individuals? What studies have been completed (or are planned) on the kinds of stress which will be placed on the community and on individuals if the project proceeds against their wishes? What studies have been completed (or are planned) on the impacts could this have? Can these impacts be quantified? Mitigated?

religious beliefs

- what are the religious beliefs held by the people of the region?
- do the people of the region feel that this proposed project would be in conflict with any of their religious beliefs?

grave sites

- is Urangesellschaft Canada Ltd. aware of all grave sites on or near the project site which are known to the Inuit of the region?
- will permission be obtained from the descendants of Inuit buried on or near the site for their exhumation and reburial?
- how would Urangesellschaft Canada Ltd. respond to a family which did not wish to see its ancestor exhumed and reburied?
- are there legal statutes which would forbid the exhumation and reburial of a body without consent of the descendants?

local/native/northern employees

- What criteria will be used to define 'target groups' of employees:
  - 'native employees' (a position based on aboriginal rights)?
  - 'local residents' or 'northern employees' (positions based on geographical definitions)?
- provide clear definitions for the terms which will be used.
- will Urangesellschaft Canada Ltd.'s "general hiring policy" include:
  - employment targets?
  - simple employment quotas (of the kind widely utilized in the United States in many equal opportunity programs)?
  - undertakings that a majority of all kinds of jobs, distributed throughout all different job categories and classifications within the work force, be filled by local/native/northern employees, with a comprehensive set of support measures?
- how will the desired alternatives be embodied in contracts such as lease agreements, which could extend over a considerable period of time, with many unpredictable and constantly changing circumstances?
- will the same requirements apply to the construction phase as to the operations stage? Can the construction work, to be carried out in relatively short period of time with requirements for certified tradesmen, be completed without diluting unnecessarily the provisions applying to the operations stages?
- if the proposed project receives government approval, is the proponent willing to delay the start of the project to allow a significant amount of training to take place to better position potential employees from the region for the construction phase?

tourism

- what studies have been completed (or are planned) on the potential of the Keewatin tourism industry?
- what studies have been completed (or are planned) on the degree to which tourists are attracted to the region because of an image of an unpolluted arctic environment?
- what studies have been completed (or are planned) on the degree to which tourists drawn to the region because of an image of Inuit as a people living in harmony with nature?
- what studies have been completed (or are planned) on the potential impact on the growth of the tourism sector in the region of a change in public perception of the Keewatin as an unpolluted arctic environment and of Inuit as a people living in harmony with nature?
- what studies have been completed (or are planned) on the degree to which these impacts could increase should the Canadian public become increasingly environmentally conscious?
- what studies have been completed (or are planned) on the effect of the role of the tourism industry to the development the arts and crafts sector?

5.0 Human Health Impacts

- 5.1 Worker Health and Safety
- 5.2 Public Health and Safety

5.1 Worker Health and Safety

- equipment and clothing
  - describe the planned distribution and use of respirators, protective clothing, etc. Has this equipment been used in the north?
  - describe provisions being made for workers' clothes, storage of laundry waste water, contaminated vehicles and equipment, containers, etc.
- education, monitoring and consultation
  - describe the educational program which will inform workers of the risks involved in working at the site, and of how to use each piece of protective equipment.
  - will the workers be monitored for lead and other uranium decay products?
  - describe the consultative processes which will take place between health professionals, the workers and their families regarding screening and monitoring of body radiation levels and general perceived health.
- legal liability
  - what financial arrangements have been established or envisaged by Urangesellschaft Canada Ltd., the federal, territorial and municipal governments to provide sufficient resources for the compensation of former workers for any perceived damage to health, both pre- and post-abandonment?
  - who will decide what are the appropriate parameters to monitor? How will these parameters be monitored? Who will monitor them? Who will pay for the compliance and effects monitoring? For how long?

5.2 Public Health and Safety

- positive and negative health effects
- proven health effects
- smoking
- consumption of 'country food'
- cumulative health effects
- health baseline studies
- standard measurements for health parameters
- scavenging
- liability and compliance and effects monitoring

positive and negative health effects

- NAUC has been urged to investigate "both the positive and negative health effects of uranium mining." To date we have been able to find negative health effects of uranium mining and positive health effects of reduced unemployment, but no positive health effects of uranium mining *per se*. Are there any?

proven health effects

- what studies have been completed (or are planned) on the relative risk of lung and other cancers with uranium mining?
- what studies have been completed (or are planned) on the relative risk of birth defects and stillbirths with uranium mining?

smoking

- what studies have been completed (or are planned) on the rates of tobacco consumption in the Keewatin?
- what studies have been completed (or are planned) on the links between smoking, increased exposure to radiological and non-radiological contamination, and rates of cancer?
- what studies have been completed (or are planned) on the implications this might have for workers who smoke?

consumption of 'country food'

- what studies have been completed (or are planned) on the exposure to radiological and non-radiological contaminants of persons consuming caribou meat and other 'country food'? Give variations above and below the average, and rates for adults, children and infants, based on a range of consumption patterns.
- what studies have been completed (or are planned) on the extent to which households with differing consumptions levels of 'country food' would be putting their health at risk by a consuming caribou and other 'country food' with a range of anticipated and worst-case maximum increases in levels of radiological and non-radiological contaminants?
- what studies have been completed (or are planned) on the health implications of switching from 'country food' to store-bought food should such a change ever be required? Who would pay for dietary supplements?

cumulative health effects

- what studies have been completed (or are planned) on the cumulative effect of exposure to radiological and non-radiological contaminants of, for example, a slight woman of child bearing age who smokes, works in the mine or mill, and consumes fish and caribou as a major portion of her diet?

health baseline studies

- what studies have been completed (or are planned) on the data which must be contained in a health baseline study if it is required to serve, if need be, as the legal basis for compensation litigation?
- what studies have been completed (or are planned) on the development of health baseline studies in relatively small population groups with very limited existing health records?
- what difficulties would the Keewatin's relatively small population and very limited existing health records present in developing a health baseline study capable of serving, if need be, as the legal basis for compensation litigation?
- will Urangesellschaft Canada Ltd. provide split samples (including blood, urine, and others as required) for independent verification of all of the existing heath baseline study parameters, and provide funding for this independent verification?
- for all communities in the Keewatin, present the following information:
  - population size
  - fertility rates
  - live birth weights and rates
  - fetal and infant mortality rates
  - breastfeeding rates
  - expected life spans
  - cancer rates
  - major infectious disease rates
  - autoimmune disease rates
  - congenital disease or malformation rates
  - normal blood and urine parameters
  - nutrition patterns (especially regarding 'country food')
  - work/school days lost per year due to illness
  - existing levels of uranium decay products and heavy metals
  - psycho-social parameters
  - any other data which would be required to complete a health baseline study capable of serving, if need be, as the legal basis for compensation litigation

standard measurements for health parameters

- what average body sizes/weights are used in determining 'acceptable levels' of exposure and contamination? How does the range of body sizes/weights in the Keewatin compare to the national/international standards? What studies have been completed (or are planned) on the effects this might have on health-related calculations?
- what studies have been completed (or are planned) on differences in anticipated and worst-case maximum inhalation of radiological or non-radiological contaminants between 'nose breathing' and 'mouth breathing' (which is much more common in cold climates)? What studies have been completed (or are planned) on the effects this might have on health-related calculations?

scavenging

- what steps will be taken to prevent scavenging- i.e. the transfer of possibly contaminated building materials, equipment, etc. from storage or dumps to communities and camps?
- will mammals and birds which tend to frequent garbage dumps be able to come into contact with contaminated material?

liability and compliance and effects monitoring

- what financial arrangements have been established or envisaged by Urangesellschaft Canada Ltd., the federal, territorial and municipal governments to provide sufficient resources for the compensation of Keewatin residents for any perceived damage to health, both pre- and post-abandonment?
- who will decide what are the appropriate parameters to monitor? How will these parameters be monitored? Who will monitor them? Who will pay for the compliance and effects monitoring? For how long?
- what provisions will be taken to train and provide local people with independent ability to monitor mine and mill effluent, airborne gases and contaminants, health effects, and food contamination?

6.0 Risk 'Management'

- Directors of Radiation Protection
- fire contingency plans
- thorium hydroxide storage
- detailed analysis of accident scenarios
- replacement of 'country food'
- rescue of wildlife

Directors of Radiation Protection

- what experience and academic qualifications will be required of the director of radiation protection at the mine/mill?
- will there be provisions for a director of radiation protection for the residents of the Keewatin region? What will be his/her qualifications and responsibilities be? How long beyond mine and mill closing will they be retained? What auxiliary assistance will be available in an emergency (pre- and post-abandonment)?

fire contingency plans

- describe all fire contingency plans relative to kerosene, uranium, thorium, and ammonium nitrate

thorium hydroxide storage

- describe in detail the storage proposed for thorium hydroxide, including containers, emission rate, temporary and final isolation procedures, and responsibility to insure non-breach of containment

detailed analysis of accident scenarios

- the proponent should present a detailed safety analysis for every conceivable accident scenario, in every conceivable weather condition, i ncluding estimated levels of radioactivity etc. which would be released, required mitigative measures, equipment required, etc.
- all responses to sections 6 and 8 should reflect both pre- and post-abandonment accident scenarios
- all responses to sections 6 and 8 should be based on worst-case scenarios in the severest conceivable weather conditions (examples: extended power failure, confinement at the mine site during severe storms, spills at sea during a severe storm, spills on the land in or upwind from the community during a severe storm)

replacement of 'country food'

- explain who will be responsible for any perceived decrease in quantity or quality of 'country food', and who will be responsible for providing alternative 'country food. '

rescue of wildlife

- in the event of chronic or catastrophic failures of storage, *who will be responsible for saving the wildlife?*

7.0 Specific Information Requirements

- for how long will the wastes remain hazardous to the environment, and to the health of humans and wildlife? Explain in detail.

8.0 Mitigation and Monitoring

- who will provide for compliance and effects monitoring of radiological and non-radiological contamination levels over the hazardous life of the waste [as defined in 7:0 Specific Information Requirements]?
- what provisions will be taken to train and provide local people with independent ability to carry out compliance and effects monitoring of mine and mill effluent, airborne gases and contaminants, health effects, and food contamination?
- what studies have been completed (or are planned) on similar programs elsewhere?
- what role will communities and regional organizations have in compliance and effects monitoring?
- how will unanticipated problems be mitigated?

9.0 Other Information Requirements

- previous Canadian experiences with uranium mining
- industry propaganda

previous Canadian experiences with uranium mining

- Northern Saskatchewan
- British Columbia
- other

the experience of uranium mining in Northern Saskatchewan has been held up as a model for Keewatin residents in workshops organized by the federal government, and in public statements by Urangesellschaft Canada Ltd. Since the Northern Saskatchewan experience has been introduced into the Keewatin by industry and government we have a right to insist on more information, in particular:

- what studies have been completed (or are planned) on the impact of uranium mining in Northern Saskatchewan on:
- what pre-mining baselines exist for these parameters?
- what specific promises were made by government and industry? Were these promises kept?
- how do residents of Northern Saskatchewan feel about their experience regarding the independent Northern Development Board recommended by the Cluff Lake Board of Inquiry? Justice Bayda recommended that such a board:
- what other recommendations were made by Justice Bayda to enhance the decision making authority of northern communities? Were these recommendations acted on? For how long? How do representative organizations in Northern Saskatchewan feel about these recommendations today?
- what studies have been completed (or are planned) on the experience with surface leases addressing broad social and economic questions, such as worker health and safety protection, environmental protection, and the distribution of economic benefits?
- what studies have been completed (or are planned) on the experience with monitoring committees?
- what studies have been completed (or are planned) on changes which have taken place in the regulatory regimes since uranium mining began in Northern Saskatchewan? What was the rationale for these changes?
- what studies have been completed (or are planned) on the number of northerners who have been employed by the uranium mines in Northern Saskatchewan in each year since uranium mining began there? How many of these jobs were held by native northerners?
- what were the expected revenues to the Governments of Canada and Saskatchewan, and what has been the actual income?
- what were the expected costs to the Governments of Canada and Saskatchewan, and what have been the actual costs?
- how many spills have taken place in each year since uranium mining began? What kind of spills were they? How does the record compare with the predictions made beforehand?
- what studies have been completed (or are planned) on the opinions of people and organizations in Northern Saskatchewan about their experience with uranium mining to date?

what studies have been completed (or are planned) on the impact of uranium mining in Northern Saskatchewan on:

- the environment?
- wildlife?
- human health?
- community socio-economics?
- community self-determination?

how do residents of Northern Saskatchewan feel about their experience regarding the independent Northern Development Board recommended by the Cluff Lake Board of Inquiry? Justice Bayda recommended that such a board:

- coordinate efforts of other agencies
- plan and research and formulate an overall development plan for the North
- oversee and regulate development
- ameliorate the social problems which are likely to arise from development generally
- keep Northerners informed about development in the North generally and uranium mining/milling specifically

British Columbia

- the following documents prepared for the *British Columbia Royal Commission of Inquiry - Health and Environmental Protection - Uranium Mining* have become standard reference works for many people concerned about the mining, milling and end uses of uranium. Because the BC government abruptly terminated the *Royal Commission of Inquiry*, these documents have never been critiqued by the industry. The proponent should provide rigorous critiques of the following:
  - Aspect Consultants: *Some Environmental Implications of Uranium Derived Radionuclides in Biological Systems*
  - British Columbia Federation of Labour: *Submission of United Steelworkers of America and British Columbia Federation of Labour to the Royal Commission of Inquiry - Health and Environmental Protection - Uranium Mining*
  - Ralph D. Torrie: several reports, summarized in *Uranium Mine Tailings - What the Record Shows: A Review of Evidence Presented to the British Columbia Royal Commission on Uranium Mining*, presented to the Select Committee on Ontario Hydro Affairs, Toronto, August 1980.
  - Union of British Columbia Indian Chiefs: *Draft Legislation: Uranium Exploration and Mining Act* and *Notes on the Problem of Socio Economic Impact Assessment*
  - United Church of Canada, British Columbia Conference, Uranium Working Unit: *Ethics and Uranium Mining*
  - Eric R. Young and Robert F. Woollard (Environmental Health Committee, British Columbia Medical Association): *The Health Dangers of Uranium Mining and Jurisdictional Questions*

other

- a critique should also be prepared of D.C. Thomas and K.C. McNeill, *Risk Estimates for the Health Effects of Alpha Radiation*, Ottawa: Atomic Energy Control Board, 1982.

Kiggavik mine can operate without causing damage

by Matthew Spence

IQALUIT—Mick Stuart, executive vice president of Urangesellschaft Canada, the mining company responsible for the proposed Kiggavik Uranium Mine near Baker Lake, says the company is convinced it can operate the mine without "significant effects to the environ-

The Economist
28 March-4 April 1987

"The Caribou Protection Areas—the lines on the map—are not necessary..."

RADIATION AS THE CAUSE OF LUNG CANCER AMONG URANIUM MINERS*

JOSEPH K. WAGONER, M.S.,† VICTOR E. ARCHER, M.D.,‡ FRANK E. LUNDIN, JR., M.D., DR. P.H.,§ DUNCAN A. HOLADAY, M.A.,¶ AND J. WILLIAM LLOYD, M.Sc.†

BETHESDA, MARYLAND, AND SALT LAKE

The charm of nuclear power

PROLIFERATION

WEST GERMAN NUCLEAR TRADING SCANDAL BROADENS

(306.3053) WISE-Amsterdam

Northerners not getting promised uranium jobs

Uranium boom brushes natives aside

Reactor at Frankfurt Released Radioactive Steam Last Year

The New York Times

U.S., FOR DECADES, LET URANIUM LEAK AT WEAPON PLANT

Hazards at Nuclear Plant in Ohio Were Allowed by U.S. for Decades

"The uranium is kept track of just like money. We record how much we export to a particular country. Once it is received by that country then inspectors from the International Atomic Energy Agency, an United Nations oganization, inspect the amount. Even when it is at the nuclear power plant it is regularly inspected to make sure none

BCMA opposes uranium mining because of danger to environment

Plant near Fernald, Ohio, produces uranium for weapons.

RISK TO THOUSANDS

Documents Indicate a Decision Not to Act on Major Cleanup

WHO MAKES THE RULES?

An Assessment of the Warman Refinery Inquiry

The Northern Miner January 11, 1988

THE EDITORIAL PAGE

Uranium improving the quality of life

industry propaganda

- the Environmental Impact Statement which will be issued by Urangesellschaft Canada Ltd. will not exist in an informational vacuum. The Executive Vice-President of Urangesellschaft Canada Ltd. has made numerous public comments concerning the proposed Kiggavik project; he is a member of the Board of Directors of the N.W.T. Chamber of Mines, which is distributing promotional material about uranium mining; and Urangesellschaft Canada Ltd. has circulated written material regarding the proposed Kiggavik project. Urangesellschaft Canada Ltd. and the N.W.T. Chamber of Mines should be required to justify any contentious statements they have made, for example:
- the pamphlet *Uranium Exploration and Mining in the Northwest Territories: Questions and Answers* is currently being circulated by the N.W.T. Chamber of Mines. This pamphlet is essentially a copy of the pamphlet *Uranium Exploration and Mining in British Columbia: Questions and Answers* prepared by the B.C. Chamber of Mines for distribution during the 1979 *British Columbia Royal Commission of Inquiry - Health and Environmental Protection - Uranium Mining)*
- comments by Mick Stuart of Urangesellschaft Canada Ltd.
- *Kiggavik Project Description Summary*

The New England Journal of Medicine

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URANIUM MINING AND LUNG CANCER IN NAVAJO MEN

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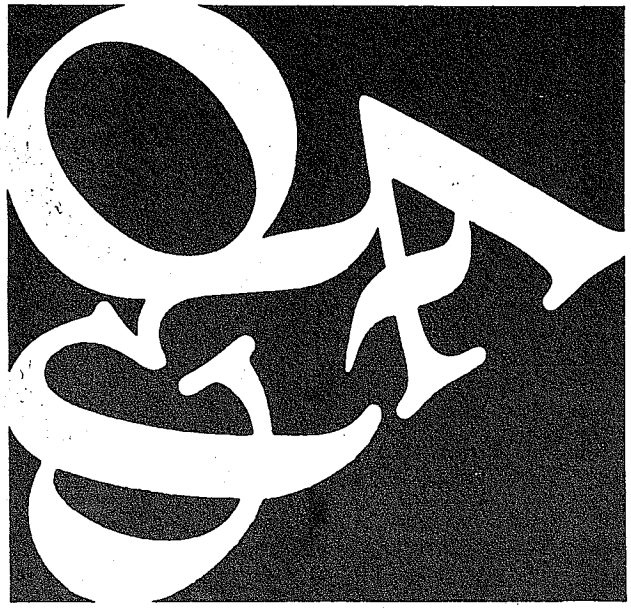

Uranium Exploration and Mining in the Northwest Territories

Questions and Answers

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Questions and Answers

This brochure has been prepared to assist residents of the NWT in better understanding "Uranium", its characteristics, its uses and the potential effects of mining and milling uranium in the NWT on people and communities. Herein you can expect to find answers to some of the questions most asked of us.

Q Is Uranium mining new in Canada?

A No! Uranium has been mined since the early 1940s. As of December 1978, nine mines were operating in Ontario and Saskatchewan. Canada is now supplying at least 20 percent of the Western world's needs. Mines in the USA supply another 50 percent.

Q Is Uranium being mined in the NWT?

A No, but extensive exploration within the last few years has indicated the potential for mineable reserves in accessible areas.

Q Has Uranium been mined in the NWT in the past?

A Yes. The Eldorado mine at Port Radium operated during the years 1933 - 1940. It was reopened in 1944 and closed again in 1960. The Rayrock Mine operated from 1957 -1959.

Q What is Uranium?

A Uranium is a silvery metal. It is widely distributed over the earth's crust as a mineral compound but it does not occur in a free state such as gold. In nature it commonly occurs in the form of two isotopes, U238 (99.3%) and U235 (0.7%). U235 is the isotope which is used as reactor fuel.

Q What is radiation?

A Radiation is the emission and propagation of energy in the form of electromagnetic waves of fast moving particles. Some waves, such as light and radio waves, are not harmful to living tissue. Other waves, such as x-rays and gamma rays and particles, can cause biological changes.

Q What is radon gas?

A Radon gas is one of the many decay products of Uranium.

Q What is the danger of radon gas which is associated with mining Uranium?

A When Uranium Ore is mined and exposed to the air, a radioactive gas, radon, is released from the surface of the ore. The radioactive products resulting from the decay of radon are harmful to the lining of the bronchial tract, particularly if ingested by a worker in concentrated amounts with dust. Dust control is therefore most important.

However, radon gas is sufficiently dispersed when exposed to the open air to prevent the formation of hazardous concentrations. Ventilation within the mill, supplemented if required by specially-designed helmet respirators, will protect workers against dust inhalation.

Radon gas is not like natural gas. It is inert (will not burn), cannot be seen, has no odor, is approximately eight times as heavy as air, and can only be detected by special instruments.

Clouds of radon gas do not exist and therefore cannot drift over the countryside.

Q Can the dust containing radioactive particles be carried by the wind to populated areas?

A The dust from the grinding up of the rock is controlled within the walls of the mill. Dust that might contain radioactive particles from the mining operation can be controlled by keeping the area damp, and by retaining the tailing under water.

Tailing containment areas are designed to prevent the release of any particles of radioactive dust.

Q How can the public be sure proper care is taken by a mine operator to ensure there is no excessive radiation or pollution of water sources and other areas of the environment.

A Before a mine can operate in the NWT certain permits must be obtained. Before the Government will issue these permits the applicant must satisfy the Government that it can and will take the necessary safeguards to protect the environment. For Uranium mines it is expected that they would be subject to EARP hearings, review by government committees and the NWT Water Board.

Radiation levels normally occuring in nature are recorded to form a base level for monitoring radiation as work progresses. Maximum permissable levels are established by the Atomic Energy Control Board.

Q What will be the end product of the Uranium mining and milling operation?

A "Yellowcake" is the product produced. It is a yellow powder (about 86 per cent U_3O_8) that looks very much like sulphur. It has no smell. Yellowcake is only slightly radioactive.

Q Where are the markets for "Yellowcake"?

A Present Canadian requirements call for a 30-year reserve supply to be retained in Canada. A percentage of Canadian production, therefore, must be made available for use within the country. Sale to other countries may be made, but only to those countries approved by the federal government. Price and contract terms must also be approved by the federal Ministry of Energy, Mines and Resources.

Q What is the main use of Uranium?

A The greatest proporation is used for power generation.

Canada is one of the world leaders in the use of, and research into, the peaceful applications of Uranium. The CANDU reactor is a Canadian development. The four Ontario Hydro reactors ranked 1, 3, 4 and 6 worldwide in generation capacity effectiveness in 1977.

Nuclear medicine for diagnostic and treatment purposes is becoming important. One example is the production from the CANDU Chalk River reactor of an artificial radioactive metallic chemical for use in the medical field. Through the use of this radioactive chemical, doctors can detect cancer of the kidneys and other vital organs before they are detectable by any other method. Such early diagnosis increases the chances for patient survival. Canada also produces Cobalt 60 for cancer therapy.

Q What will a Uranium mining industry in the NWT mean to you — and to the Territory?

A *Taxation* — Uranium mines and the business and industrial action they are expected to create are all taxpaying entities. They will pay taxes to municipalities, territorial and federal agencies.

Employment — A Uranium mine could employ in the neighborhood of 150 people on a permanent basis, many of them from the local area. In addition, during construction of a mine and mill, there is employment for steel workers, carpenters, electricians, heavy equipment operators, laborers and various professionals.

Socio-Economic Impact — The buying power resulting from the construction and operation of a Uranium mine and mill will provide economic support to local communities which supply goods and services to the mining operation.

NWT and Canada — Mining is the major industry in the NWT. Recently, because of a decline in world metal prices, and heavy taxation, the progress of the industry has been inhibited. Uranium mining will breathe new life into the mining industry of the NWT and help strengthen the general economy. "Yellowcake" sold on the export market will generate badly-needed foreign exchange.

Q Finally, can Uranium be mined safely?

A The answer is YES! Sophisticated monitoring devices, protective measures stringently enforced, strong government regulations, the critical eye of environmental groups, and the responsible attitude of people in the industry will ensure that Uranium in the NWT will be mined safely, as is being done at present in Canada and elsewhere.

NWT Chamber of Mines

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the pamphlet *Uranium Exploration and Mining in the Northwest Territories: Questions and Answers* is currently being circulated by the N.W.T. Chamber of Mines. This pamphlet is essentially a copy of the pamphlet *Uranium Exploration and Mining in British Columbia: Questions and Answers* prepared by the B.C. Chamber of Mines for distribution during the 1979 *British Columbia Royal Commission of Inquiry - Health and Environmental Protection - Uranium Mining)* .

- question 1: Is uranium mining new in Canada?
- question 3: Has uranium been mined in the N.W.T. in the past?
- question 4: What is uranium?
- question 5: What is radiation?
- question 7: What is the danger of radon gas which is associated with mining uranium?
- question 8: Can the dust containing radioactive particles be carried by the wind to populated areas?
- question 9: How can the public be sure proper care is taken by a mine operator to ensure there is no excessive radiation or pollution of water sources and other areas of the environment?
- question 11: What will be the end product of the uranium mining and milling operation?
- question 12: What is the main use of uranium?
- question 13: What will a uranium mining industry in the N.W.T. mean to you - and to the territory?
- question 14: Finally, can uranium be mined safely?

question 1: Is uranium mining new in Canada?

- are these statistics outdated?

question 3: Has uranium been mined in the N.W.T. in the past?

- what studies have been completed (or are planned) to ensure that the tailings from these two uranium mines (and other N.W.T. uranium mines not mentioned in this pamphlet) pose no risks to human health or the environment?
- have thorough epidemiological studies been carried out on the communities located near these mines?
- what studies have been completed (or are planned) to determine whether the people living near these mines believe there have been any effects on human health or the environment?
- uranium from the Port Radium mine was used to produce the first atomic bombs which were dropped on Japan. How do the Dene who assisted in the exploration for and operation of this mine feel about this? How do their communities feel?

question 4: What is uranium?

- the answer states that U235 is the isotope which is used as reactor fuel. Does the CANDU reactor not use 'natural uranium' (containing 99.3% U238 and 0.7% U235) as reactor fuel, and do some American reactors not use very lightly enriched (~3% U235) uranium as reactor fuel?
- where is Canadian U235 enriched for use as fuel in other reactors? What happens to the U238 which is left over?

question 5: What is radiation?

- why is it not clearly stated that the fundamental differences between different types of radiation- in terms of effects on human health- is between 'ionizing' and 'non-ionizing' radiation?
- what studies have been completed (or are planned) on the health effects of non-ionizing radiation such as light and radio waves (which the answer states are "not harmful to living tissue")?
- define "biological changes"

question 7: What is the danger of radon gas which is associated with mining uranium?

- the answer states that "radon gas is sufficiently dispersed when exposed to the open air to prevent the formation of hazardous concentrations." Does this imply that there are concentrations of radon gas too low to have any effect on human health?
- do the health risks from radon gas result from exposure to "hazardous concentrations" or from cumulative exposure over a person's lifetime?
- which poses greater health risks: exposure to lower concentrations of radon gas for prolonged periods of time or exposure to higher concentrations of radon gas for short periods of time?
- the answer states that "clouds of radon gas do not exist and therefore cannot drift over the countryside." A cloud is, by definition, a visible collection of particles in the air. It has already been stated in the answer that radon gas "cannot be seen." What the Chamber of Mines is arguing, then, is that because radon gas does not form a visible cloud, the radon decay products cannot drift over the countryside, cannot be deposited in the ecosystem through one of the many pathways, and therefore pose no risk to human health. The intellectual dishonesty of this statement is self-evident and does not deserve further comment.

question 8: Can the dust containing radioactive particles be carried by the wind to populated areas?

- the answer states that dust particles from the mining process can be controlled by keeping the area damp, and that the mill and the tailings storage areas are designed to ensure that no dust particles can exit.
- a recent study (J.W. Sheard, Stella M. Swanson and Bob C. Godwin, *Natural Uranium Series Radionuclides in the Upland Vegetation of Northern Saskatchewan and Adjacent Northwest Territories* . Saskatchewan Research Council Technical Report no. 217, 1988.) found "radium-226 and Pb210 levels... [in vascular and non-vascular plants] among the highest detected in natural environments" in Northern Saskatchewan. "The non-vascular species were characterized by Pb210 [and] uranium ... The association of uranium with atmospherically distributed stable elements was unexpected since it was previously thought to be taken up by the roots of vascular plants only. The uranium in non-vascular plants is now hypothesized to be derived from wax particles shed from the surface of conifer needles and locally transported in the atmosphere." The uranium readings were highest at the sampling site close to the Cluff Lake mill. Does the Chamber of Mines have explanations for these findings which do not implicate dust emissions from mine, mill and tailings storage areas?
- the average wind speed in Baker Lake is 21.6 km/hour. There is considerable variation in the annual mean speed relative to the direction: north, northwest and north/northwest winds (which occur 45.2% of the time) have annual mean speeds between 25 and 30 km/hour. The maximum wind speed is in excess of 120 km/hour. Temperatures can reach -50° C. Of what use will the bland assurances in this pamphlet be in those conditions?
- how is it possible to keep the mining area damp when the temperatures is -40° C and the wind is blowing at 40 km/hour?

question 9: How can the public be sure proper care is taken by a mine operator to ensure there is no excessive radiation or pollution of water sources and other areas of the environment?

- the answer mentions "radiation levels normally occurring in nature" forming a "base level for monitoring radiation." Does the Chamber of Mines therefore officially support the need for pre-exploration baseline studies?
- before placing any trust in the future performance of government regulators, people need to examine the past and current performance of these bodies. what studies have been completed (or are planned) on the AECB's track record in regard to cleaning up abandoned tailings? Has the federal government provided sufficient funding to the AECB to allow it to competently fulfill its mandates?
- what studies have been completed (or are planned) on the scientific basis for the setting of the "maximum permissible levels" established by the AECB? Has comprehensive epidemiological study or experimentation with animals regarding the health effects of exposure to uranium decay products taken place? Since the answer to this question is "no," are these levels nothing more than politically "acceptable" levels of risk to human health and the environment? Have public hearings ever been held on these levels?

question 11: What will be the end product of the uranium mining and milling operation?

- have accidents occurred during the transportation of yellowcake from Canadian mines? What were the factors resulting in these accidents? Was human health or the environment put at risk by any such accident? What was the cost of the clean-up? Who paid for the clean-up?

question 12: What is the main use of uranium?

- would it not be more accurate to say that the greatest proportion of uranium ends up as waste from the enrichment process and not as fuel for reactors?
- what studies have been completed (or are planned) on the disposition of this waste uranium? What are the possible uses of this waste material? Does the Canadian government have any control over how it is used once it leaves the country? How many inspectors does the AECB have doing this kind of monitoring?
- the answer ignores the military use of uranium. The military has to obtain the uranium they use from *somewhere*! Where do the non-Warsaw Pact governments which possess nuclear weapons obtain the raw uranium they 'need'? Which mines produce uranium for military use, and which do not?
- more than half of the answer deals with nuclear medicine. What studies have been completed (or are planned) on the percentage of uranium which ends up in medical use relative to reactor fuel or stockpiled waste material?
- what is the name of the 'artificial radioactive metallic chemical' mentioned in the answer?
- can all or some of the radioisotopes used in nuclear medicine be obtained from a cyclotron as well as a nuclear reactor? Does the medical community consider one source of the radioisotopes preferable to another? Can the construction of a nuclear reactor be justified solely for the purpose of generating radioisotopes for medical use?

question 13: What will a uranium mining industry in the N.W.T. mean to you - and to the territory?

- The answer states that "uranium mining will breathe new life into the mining industry of the N.W.T." Has the mining industry survived the years since this pamphlet was first published without uranium mining having taking place?
- The answer states that uranium sales overseas "will generate badly-needed foreign exchange." Has the absence of uranium mining in the N.W.T. had any noticeable impact on Canada's overall foreign exchange situation, and can this be used as a rationale for uranium mining in the N.W.T.?

question 14: Finally, can uranium be mined safely?

- re: sophisticated monitoring devices
  - what studies have been completed (or are planned) on the impact which the structure of ownership and control over the use of these devices has had on their use, especially in times of crisis?
- re: protective measures stringently enforced
  - what studies have been completed (or are planned) on the protection these these measures have actually provided the general population during major accidents?
- re: strong government regulations
  - This pamphlet was prepared several years before Canada's first *Uranium and Thorium Mining Regulations* came into effect on 11 May 1988- after more than 40 years of uranium mining in Canada. What 'strong government regulations' was the pamphlet referring to?
  - what does *The Report of the Royal Commission on the Health and Safety of Workers in Mines* ('the Hamm Commission') tell us about the record of the Canadian government in enforcing adequate safety and health regulations? What studies have been completed (or are planned) on the Canadian experience since that report was issued?
  - does Canada have tailings reclamation legislation similar to that of the U.S.?
  - why do the Canadian and U.S. governments have such opposing positions on the health risks related to radon gas accumulation in homes? Which country, if either, actually has 'strong government regulations' regarding radon gas accumulation in homes?
  - why do different governments (and non-governmental bodies) have such markedly different risk estimates for exposure to radiation?
- re: the critical eye of environmental groups
  - if we already have "sophisticated monitoring devices, protective measures stringently enforced, strong government regulations ... and the responsible attitude of people in the industry," why would we need the critical eye of environmental groups?
  - does the Chamber of Mines agree that environmental groups require equipment, training, access to data, and financial resources in order to carry out their role effectively?
- since the Chamber of Mines pamphlet describes the situation in advanced industrial democracies like Canada and the U.S., an analysis should be provided of the ability of less sophisticated and/or sensitive governments (such as South Korea, where some of the uranium from the proposed Kiggavik project may well end up) to equal our tremendous record of safety and responsibility.

comments by Mick Stuart of Urangesellschaft Canada Ltd.

- why not in *your* backyard?
  - at the DIAND workshop on uranium mining in Baker Lake in March 1989, Stuart stated that the environmental assessment review process and the regulatory regime would be no more stringent if the company proposed to build an open-pit uranium uranium mine 75 kilometers upwind and upwater from Toronto. The proponent should carry out a serious analysis of this claim. Would open-pit uranium mines even be allowed that close to a major population centre like Toronto or Frankfurt (Urangesellschaft GmbH's home city in Germany)? If so, describe the construction, operating and monitoring standards, regulations and requirements which would be imposed on an open-pit uranium 75 kilometers upwind and upwater from Toronto and Frankfurt.
- in the beginning there was a misunderstanding...
  - Stuart has repeatedly stated that the proposed project would only proceed if it had the support of the Baker Lake and the other Keewatin communities
  - after listening to two full days and evenings of opposition to the proposed project during 'scoping workshops' in Baker Lake and Rankin Inlet, throughout which not a single person spoke in support of the project, Urangesellschaft GmbH President Werner Sprost told the CBC that "I was not at all impressed by these highly emotional expressions because I had a feeling these expressions were not completely genuine."
  - at the Rankin Inlet 'scoping workshop' Sprost modified Stuart's ambiguous assurance to read "UG seeks the support and cooperation of the people of Baker Lake and the other Keewatin communities to utilize their experience and their know-how of the living in the north. (pause) That does not mean support in a political sense of the word."
  - then, in the Rankin Inlet school on the morning of 5 May 1989, Sprost expanded on his statement of the previous evening: "I think in the beginning there was a misunderstanding, in a way, that somebody thought that the community has to decide whether there is a mine or not. That is obviously wrong, without any doubt. The decision is made by the federal government... It could be, for example, that the federal government has an interest which is in the interest of all Canada do develop a mine, and that this interest of the whole of Canada is against the interest of a special community in Canada. In such a case the government has to decide what is the higher level of interest..." Stuart agreed, and added that he felt it was "highly unlikely" that the communities would not eventually support the proposed project.
  - does Urangesellschaft Canada Ltd. any longer pretend that it will respect the political wishes of the communities after the conclusion of the FEARO review?
  - what (if any) significance will the FEARO panel give the plebiscites planned for the community of Baker Lake and proposed for the other Keewatin communities?

not so mysterious with the mask off...

- given the findings in *Nuclear Energy: Unmasking the Mystery* , the tenth report of the House of Commons' Standing Committee on Energy, Mines and Resources:
  - "It is difficult to project world nuclear development beyond those reactor units already under construction... Slower growth in nuclear generating capacity over the remainder of the century reflects the downturn in the mid-1970s in reactor construction startes worldwide... Construction starts peaked in 1975, with work begun on 40 units that year. In 1986, construction was begun on only one unit. This is not an encouraging picture for those in the business of marketing power reactor systems."
  - "It is clear that reactor sales alone will not carry AECL [Atomic Energy of Canada Limited] through the coming low period without financial assistance. To minimize the need for federal funding, AECL must look to other business opportunities. One such opportunity is the Canadian Submarine Acquisition Program... given the requirements for Canadian content in the submarine program, proceeding with this acquisition would generate substantial employment in both AECL and the private sector of the nuclear industry."
- given the continuing strong public opposition to the expansion of the nuclear industry in West Germany, the decision by the government of Sweden to completely phase out nuclear power, and the decisions by the governments of Denmark and Austria to not have any nuclear reactors at all;

you shouldn't build them and you can't give them away...

- given the recommendation by the House of Commons' Standing Committee on Environment and Forestry 1988 report *The Eleventh Hour: High-Level Radioactive Waste in Canada* that "A moratorium on the construction of nuclear power plants in Canada should be imposed until the people of Canada have agreed on an acceptable solution for the disposal of high-level waste. Furthermore, the Canadian energy strategy should formulate alternatives that would encourage a reduction in energy consumption and a decrease in stress on the environment from waste created by the various energy-producing techniques;"
- given that the Canadian Nuclear Association is trying to persuade the public to view toxic wastes as a "renewable resource" instead of a serious risk to public health [see "Nuclear Waste: A Renewable Resource?" a CNA "advertorial" in *Bridges*, February-March 1989].
- given that Sherbrooke University turned down an offer of a *free* 10-megawatt Slowpoke reactor from Atomic Energy of Canada Ltd. in December 1988;

German scandal, American collapse...

- given that "A high-level cabinet working group was set up in December [1988] by West German Chancellor Helmut Kohl to investigate accusations by West German federal prosecutors in Hanau that top officials from two firms had exported a variety of nuclear components and materials from West Germany to Pakistan, Indian and South Africa... In addition to transactions that are blatantly illegal, exporters in Germany have taken advantage of loopholes in West German laws on nuclear materials (among the most lenient in Europe) to trade in what is being called a "gray market" in nuclear materials." ["West German Nuclear Trading Scandal Broadens," *WISE Newsletter* 306, 3 February 1989]
- given that the American "nuclear sector collapsed by the end of the 1970s. Utilities ordered 231 nuclear plants through 1974, but only 15 after that- none after 1978. Furthermore, they canceled orders for more than one hundred nuclear plants between 1974 and 1982... intensely competitive markets for nuclear plants and support services created incentives favouring short-term profitability at the expense of long-term sectoral planning... a fragmented and partially decentralized state apparatus... facilitated the development and expression of political conflict in ways that disrupted the policy process... [and] there were few policy tools, such as control over finance capital, powerful enough for government officials to use to counteract these other tendencies and to coordinate planning throughout the sector... These institutional factors were... at the very core of the nuclear sector's collapse [and] they helped generate much of the interest-group pressure and policy-making mismanagement that has drawn so much attention..." [John L. Campbell, *Collapse of an Industry: Nuclear Power and the Contradictions of U.S. Policy* , Cornell University Press, 1988]

the leftovers...

- given the *Wall Street Journal* article of 25 February 1986 entitled "Nuclear Mess: Uranium mill wastes piled high in West, pose cleanup issues; Debate is raging over who should pay burial costs and when they should; 'Economical bombshells' seen," and the *New York Times* article of 15 October 1988 entitled "U.S., for decades let uranium leak at weapon plant; Risk to thousands; Documents indicate a decision not to act on a major cleanup,"
- given that "Senator John Glenn forced [the US Department of Energy] to list 155 instances of contamination at its 16 weapons plants. The department estimated that removing the environmental risks at all its plants will cost between $92 billion and $120 billion over the next 20 years. Mr. Glenn thinks $200 billion is nearer the mark. President Reagan's last budget allows an increase of less than $1 billion next year for the entire department." ["The nuclear mess: A hundred billion here..." *The Economist* , 14 January 1989.]
- given that "The American government is going to spend up to $2 billion on a geological hunch. If it is a good hunch, the government will go further and spend at least $30 billion building the world's first permanent high-level radioactive waste repository, more than 1,000 feet beneath Yucca Mountain. Most Nevadans (61% in a poll) believe the government will build the repository even if the hunch is wrong, and fear that Washington is setting them up for an ecological disaster." ["Nuclear waste: A $2 billion hunch," *The Economist* , 18 February 1989.]

with all the health concerns and stockpiles

- given that the British Columbia Medical Association recently restated its argument that "current allowable levels of radon exposure during exploration, mining and milling produce twice the usual incidence of lung cancer. Tailings contain highly toxic thorium-230, which is implicated in lymphatic cancer, and radium-226, which causes bone cancer. Radioactivity in piles of tailings would not reach safe levels for 800,000 years. The BCMA stated that current regulations are inadequate for protecting the health of workers or the public, and recommended an eight-step plan of action, which included reconstituting the *Royal Commission of Inquiry into Uranium Mining* and extending the current moratorium on uranium mining indefinitely until a regulatory structure based upon the royal commission's findings has been established." ["BCMA opposes uranium mining because of danger to environment," *Canadian Medical Association Journal*, 15 April 1987]
- and given that "during the period 1970 to 1987, an estimated 145,000 to 150,000 tonnes uranium production in excess of requirements has accumulated." [*Uranium: Resources, Production and Demand* , a joint report of the OECD NEA and the IAEA, march 1988]

does the world really need Kiggavik uranium?

- the proponent should provide a thorough justification of the statement "More and more of the world's electricity is being generated with nuclear power, an economical, safe and environmentally clean source of energy" as a justification for the mining of uranium in the Northwest Territories. In particular:
  - Urangesellschaft Canada Ltd. should explain whether state subsidies of these vendors was taken into account in the analysis used to justify the statement that nuclear power is "economical"; and, given that no North American vendor has signed a contract for the sale of a nuclear reactor, in Canada, the US or abroad since 1978, Urangesellschaft Canada Ltd. should explain whether or not the industry would have collapsed long ago without massive investment of public funds.
  - Urangesellschaft Canada Ltd. should explain whether the risks and costs inherent in the ultimate storage of the waste material from uranium mining and milling, spent reactor fuel, and radioactive components of nuclear weapons were taken into account in the analysis used to justify the statement that nuclear power is "safe and environmentally clean."
  - Urangesellschaft Canada Ltd. should comment on the article "Urangesellschaft looks no further" in *WISE Newsletter 244* , 24 January 1987, which refers to an article in *The Australian* newspaper of 26 December 1986. The article states that "The Australian arm of the West German government owned Urangesellschaft has pulled out of uranium exploration entirely. The company has admitted the move was in response to shrinking world demand... but reports also tended to blame an "unfavourable political climate" for the withdrawl. Last year UG was accused by the Federal Australian government of trying to extricate itself from contracts to buy uranium from the Ranger Mine- which it partially owns- by pretending to redirect some of its uranium to the French who are blacklisted by Australia in response to the Mururoa weapons test."