**This case was written by Desiree Essex for the purpose of entering the 2000 Aboriginal Management Case Writing Competition.**

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**TITLE: Uranium Mining: A Never-Ending Story?**

*"... if we do not use the land properly, we do not have a future."*
G. Ross, Mayor of Pinehouse, October 7,1996

*"I find myself totally amazed at the narrow view that suggests that we should ravage our northlands, contaminate its waters, only to produce even more deadly waste which we still haven't figured out how to handle."*
K. Weingeist, May 29, 1996

Developments do not occur in isolation. The environment and people are impacted by them. This is a reality and we cannot think to hide from that reality and the reality of our future if we fail to understand the impact of developments.

Native peoples throughout the north of Canada face important decisions relating to their daily existence, as one of the greatest resource frontiers in the world faces development and extraction of its resources. Over the last five years I have watched as mining activity in the north has taken place at a rapid and unprecedented pace. Gold, diamonds, copper, lead, zinc, silver, nickel and uranium have attracted the mining industry and its companies from Canada and all over the world to the fragile land that has sustained the peoples of the north. In the Yukon, in the NWTI, in Nunuvit', in Labrador and in the northern areas of British Columbia,, Alberta, Saskatchewan, Manitoba, Ontario 6 and Quebec, native communities have struggled and are still struggling to implement approaches to environmental assessment and resource development that will force multinational companies and governments to be just and fair in their dealings. David meets Goliath scenarios have become all too common. Unfortunately, bake sales and bingos are not always enough to fund the baffle against the well heeled multinational corporations. On the up side, certain communities feel that they have had fair dealings with the corporations in their communities.

In early 1994 1 wrote the following independent case study on uranium mining in Northern Saskatchewan. Since then, although much has changed, little has changed. Mining in northern Saskatchewan has increased. Advances and innovations in mining technology have allowed for historically untouchable, higher grade ore deposits to be mined using freezing and jet-boring processes in which there is supposedly little to no human contact during the extraction of the uranium. Some things have not changed, however. Northern Saskatchewan still contains some of the richest and highest grade uranium deposits found anywhere in the world. Uranium concentrate or yellowcake is still produced in the north and shipped worldwide. Environmental and socioeconomic impacts of the mining are still a concern to the indigenous peoples and Cogema and Cameco are still the major owners of the mines. And finally, uranium still remains a radioactive and potentially dangerous element. The Effects of Uranium Mining on Northern Saskatchewan and its People: It's the Pits!

*"We did not give up either the right to govern our lives, or the right to make our living from the resources that dene nene (our land) can provide. This means that, regardless of issues about jurisdiction, we insist on being directly included in all aspects of determining how the resources are used."*
*Black Lake and Fond du Lac First Nations May 19th, 19937*

In this paper, I will argue that uranium mining in northern Saskatchewan has undermined and could continue to undermine both the traditional and present environmentally sustainable economic options of Northern Native peoples. The effect of the extraction of minerals in northern Saskatchewan, especially the mining of uranium, has been drastic both in scale and impact. The waste and by-products of uranium mining have violated the water and land of northern Saskatchewan and thus, disrupted the harmony of the biological ecosystem. The Native peoples of this area, the Dene [Chipewyan], Cree, and Metis, have known for a long time that "the loss of plant and animal species can greatly limit the options of future generations" and that "sustainable development requires the conservation of plant and animal species."8 Traditional and sustainable economies have been significantly affected by this unbalancing. Uranium mining is causing the disintegration of the 'key' to survival for the Aboriginal peoples of northern Saskatchewan.

The area within Canada contains a diversity of raw materials. To some it is perceived as a storehouse to plunder. Historically the short-term 'positive' economic and monetary advantages of fulfilling the 'immediate needs' of the major industrialized countries have outweighed the negative long-term impacts on the intertwining ecosystem of the 'plundered' environment and the people who depend on it. This kind of attitude has been exemplified by the actions of the Canadian and Saskatchewan Governments and the uranium industry in northern Saskatchewan. By 1984, Canada had become the largest producer of uranium in the western world and the lion's share of uranium ore was mined in northern Saskatchewan. That trend continues today, because Canada has less restrictive laws and regulations than Australia and most other countries and the ore found in Saskatchewan's Athabasca Basin is high grade, but low cost. The peoples most affected by the uranium mining endeavor and most knowledgeable about and dependent on the area, the aboriginal peoples, were and still are for the most part, excluded from the decision making and economic development process. In fact, both the Federal and Provincial Governments in their haste and greed seem to forget that most Saskatchewan First Nation Peoples assert "that anything that was 'silent' at the time of negotiating treaty is still [theirs]. In other words, anything that wasn't explicitly surrendered is still [theirs]. One of those areas that was silent at the time of negotiating treaty was mineral resources.

In 1930, the Federal government empowered the Provincial government to "occupy and utilize the land for mining purposes through competent legislation." Uranium mining in areas used by aboriginal peoples does not run counter to any "treaty or ... prohibitions contained in section 88 of the Indian Act. Therefore, the development of resources has been allowed to proceed without regard for the cumulative effect it will have on Native communities and their traditional economy. The procurement of uranium ore and the

money that is made from it remains vital to the goals of the Provincial government and thus mining is justified as being in the public's best interest. In this regard, the uranium mining development in Canada echoes that in the United States because reasons of state or corporate growth are [being] used to support risky systems, and once that reasoning is in place, officials can only endlessly insist that there are no risks. It has been stated that "Canada's uranium producers are well positioned to compete with the world's foremost uranium suppliers of and that the low-cost uranium deposits of Saskatchewan" and the new ore bodies there presently undergoing environmental review should form the basis of continued production well into the next century. There could be a catch, however. It has been commented that many in the uranium industry sense that delays in the review process could impede the development of production capacity from certain of these projects [referring to the six new uranium projects in northern Saskatchewan under environmental review in 1992 to the late 1990's or beyond. Emphasis, both by the industry and the governments involved, seems to be on mining as much uranium as possible as quickly as possible and maintaining Canada's position as the world's leading supplier no matter by what means. This is vividly illustrated by the fact that there are "policies ... in place to encourage investment in the industry and to maintain Canada's role as a reliable and very competitive supplier to its trading partners.

In northern Saskatchewan, both the Provincial and Federal governments are directly involved in the uranium mining business. The Saskatchewan government and Federal government own the major share of the Rabbit Lake-Collins Bay mine and also have part interest in the Key Lake operation. The Provincial government is involved to some percentage in almost every new exploration venture or mining project proposed, and has even been providing funds to the mining companies for assessment and impact reports. An important question needs to be asked regarding this involvement. How can governments, so heavily involved in and committed to providing incentives for uranium mining, be expected to encourage significant environmental and health regulations that could potentially affect this 'big' economic development and undercut promising profits? The fact that these governments have walked hand in hand with the uranium mining industry was boldly illustrated on June 17th, 1992, when former Saskatchewan Premier [I 971-1982] Allan Blakeney, accepted a directorship with Cameco Corporation. Cameco is owned in majority by the Government of the Province of Saskatchewan and the Government of Canada and controls the Rabbit Lake-Collins Bay operations. Cameco "supplies IO per cent of the uranium for nuclear reactors in the Western world".,, This corporation is also involved in joint ventures in uranium mining with Cogema, a French Company. Cogema is I 00 per cent owned by the Commissariat a l'Energie Atomique, or in other words, it is solely controlled by the French Government. Cameco is also involved with Uranerz Exploration and Mining Limited, which is I 00 per cent German owned. The bulk of uranium exploration and mining in northern Saskatchewan is directed and controlled by European controlled companies, with France having the largest interest and this involvement has been encouraged and sustained by both the Provincial and Federal governments.

In a report dated October 1993, a Joint Federal/Provincial panel on Uranium mining development in Northern Saskatchewan recommended that the Dominique-Janine

Extension at Cluff Lake be allowed to proceed. The panel concluded that the project will provide substantial benefits in the form of employment, business opportunities and royalties, while causing only a small incremental increase to existing environmental and health risks. It is important to note the word existing. As of yet, the full scale of the existing environmental risks involved with uranium mining are not fully known, because of the lack of environmental information and studies conducted in this area.

Ironically, this panel, while on one hand stating that environmental and health risk increases would be minimal, also bluntly acknowledged and highlighted the lack of controls and regulations for monitoring waste and pollutants and the need to establish improved monitoring programs. This undertaking itself could be difficult and is misleading because in certain areas, such as water quality and sediment quality and quantity, there exist no adequate objectives or guidelines. In the area of water quality for example, "Uranium and molybdenum are of general concern at northern Saskatchewan uranium operations, but neither the CWQG (Canadian Water Quality Guidelines] nor the SSWQO [Saskatchewan Surface Water Quality Objectives] provide specific guidelines/objectives for protecting aquatic ecosystems from these two elements. Is At this point in time, the amount and quality of sediment flowing into the drainage systems in northern Saskatchewan is not regulated and water quality is not monitored. Therefore, it can be said that uranium mining in northern Saskatchewan exhibits the worst aspects of Eurocentric colonialism and capitalism rolled into one. An area and its people are being sacrificed and exploited purely for economic gain.

The results of such exploitation are indeed visible. The region containing the mines in the far northern reaches of the province, for example, is highly contaminated. Although the mines at Uranium City, including the Beaverlodge mines, the oldest in the province, are now closed, during their operation, the untreated waste and sediments from the mines and milling plants flowed directly into Lake Athabasca and from there into the Mackenzie River System. Clearly, the environmental impact of a uranium mining operation cannot be localized or individualized. Regional environmental assessments of mining in this area and the whole of northern Saskatchewan can not be limited by borders or to assessing the impact of only one mine. Uranium mining in northern Saskatchewan also impacts and affects the peoples and land of the Northwest Territories and northern Manitoba because of the orientation of the water drainage systems.

The heaviest concentration of mines and extraction of uranium ore occurs in the Wollaston Lake-Rabbit Lake area. The main site, usually referred to as the Rabbit Lake Mine, opened in 1975, with the Rabbit Lake pit closing in 1984, leaving an excavation 550 meters wide and 150 meters deep'. This was a tailings disposal pit for the Collins Bay B - Zone mine and is intended to continue to be used as such for the proposed A, D, and Eagle Point mines. The B- Zone mine open pit, now closed, was in actuality a part of Wollaston Lake before 1984, but the site was cordoned off with a thin steel dike and then drained. In this exhausted mine pit there now exists drastically high levels of nickel and arsenic. In the Rabbit Lake-Collins Bay B-Zone open pit, the level of nickel is fifty times greater than the existing Provincial objectives [ no standards exist], and indicators have shown that arsenic and nickel concentrations will exceed objectives for 135 and 350

years, respectively! If the dike holding back the waters of Collins Bay is allowed to be taken down, as the company is proposing because of the high cost of maintenance, and the pit flooded, then the A study done waters of Wollaston Lake will be further contaminated by Environment Canada indicated that flooding these pits would produce pit waters that "would be detrimental to aquatic life for from several decades to several centuries. It is interesting to note that the Rabbit Lake-Collins Bay mining site was the only one out of six that were undergoing Environmental Review, to undergo just a Federal Assessment. The provincial government in this case felt little concern about the newly proposed extensions and project and on June 7, 1993, "advised the panel that the project conformed with the terms and conditions in the existing ministerial approval. Yet, in November of 1993, when the Federal Environmental Assessment Review Office released the report of the Environmental Assessment Panel on the Rabbit Lake uranium mining A-zone, D-zone and Eagle Point proposal, it voiced a number of concerns. The document stated:

It is clear to the panel that greater public involvement in the regulatory regime governing the Rabbit Lake operation is imperative [and that] creation of an Environmental Management Committee with members from the public, including Athabasca Basin communities, and government is an essential means to achieve this goal.
This panel also claimed that an "overall review of current monitoring activities at the Rabbit Lake site indicates that there is a need for a more effective program that focuses on ecological systems'. Uranium mining differs from most other mining ventures in that it is made more complex and risky because of radiological and waste factors. Most studies relating to uranium mining and its subsequent environmental effects have been conducted in the arid and semi-arid regions of the United States. Although mostly low-grade ore was unearthed there, these areas have been highly affected since the 1950's by uranium mining. No matter where uranium mining is undertaken, there exist common problems relating to the public and environment. The public can be exposed to radiological hazards of uranium mining and milling in a number of ways: -Lowering of water tables in underground or open pit mines [by means of ringwells or sumps to facilitate extraction] can result in exposure of radioactive elements to the environments. -Leaching of radium-226 and other radionuclides by flowing sump water or rainwater on exposed ore surfaces may later be distributed into the biosphere.

- Radon gas emissions may come from open pits or underground venting.
- Dust may be created by ore transport and the mining operations generally, particularly in open pit operations.
- Radon emissions and dissolved toxins from mine and mill waste can enter the biosphere and subsequently enter food chains.

It is clear that damage and contamination to the land and the aquatic environment has resulted from mining operations and will continue unless adequate and effective monitoring standards and systems are implemented.
There is, and can be, no "safe" uranium mining, processing or waste disposal, either now or in the foreseeable future. Such facts can be denied, they can be argued upon debater's points or technical "expertise", but they cannot be made to go away in the real world where people and environments become contaminated, sicken and die.

The Cluff Lake Board of Inquiry in 1977 stated that hazards related to uranium mining and milling only affected an area within one to two kms. of the site area. This was a blatant over-simplification of facts. Studies conducted recently have observed that uranium mining discharges have directly affected water quality within a radius of 200 kms. of the mining areas. 17 It should be noted that there is less indication of uranium exceeding this radius only because "sorption of uranium on sediments and uptake of uranium by plants probably

As it stands, sediment is not removed the uranium from solution. It's monitored for contamination in northern Saskatchewan. In 1986, Cameco also suspended monitoring of the uranium levels in water lilies when the levels exceeded the pre-mining standard by 800 times. Uranium mining and milling operations have resulted in releases of radionuclides [radon, radon decay products, yellowcake and mineral dusts] into the air and water systems through the dewatering and tailing process, blasting, ore transportation, tailings piles, seepage, runoff and tailing pond spills. Uranium mining and milling produces two things, a marketable yellowish sandy material called yellowcake [Uranium oxide] and wastes. It should be noted that, "although 90- 95% of uranium in ore is extracted in the milling process, most of the uranium decay products, which composed about 85% of the total radioactivity in the ore, remain with the tailings. "30 The major problem is "the nondegradable and accumulative nature of this type of contamination", for it is known that there is no guaranteed decrease of radionuclide activities with increased distance from mines. When the radionuclides are released from the area of the mining activity, they then can be accumulated and distributed throughout the area and food chain in a variety of ways. In the water systems, they are carried great distances and are absorbed by aquatic organisms such as blue-green algae which are high bioaccumulators. Through aerial dispersion, radionuclides can be carried "at least a thousand miles by wind and are accumulated in such plants as Black Spruce, blueberry, Labrador tea and various mosses and lichens, just to name a few. Scientific studies in this area are limited and as of yet there is not a complete understanding of radionuclides and their impact, nevertheless it is known that the "rate of uptake is highly dependent on the species, food chain, ecosystem, and isotope. In any case, bioaccumulation mobilizes radionuclides within ecosystems, making them more easily available to consumers, including human beings. To clarify this concept, one only needs to note mosses and lichens which are major radionuclide biological carriers, because direct absorption from the air and foliar sorption are the principal means of accumulation. Both mosses and lichens retain radionuclides and pass significant amounts on to game animals and thus humans. A study conducted in Canada by R.L.France, J. Svoboda and H.W. Taylor, in 1990, cited that concentrations of radionuclides in caribou consumers can be over I 00 times higher than those for people residing out of uranium mining effected regions. The main staples of the diet of the peoples of northern Saskatchewan are caribou and fish. It has also been reported that each of the water supplies in northern Saskatchewan "will have its own unique concentrations of uranium-series radionuclides. Water quality monitoring in 1989 and 1992 of both Effluent Creek and Horseshoe Lake, a body of water in Hidden Bay that through sediment discharge has "become contaminated with metals and radionuclides and could require prolonged rehabilitation at decommissioning has indicated that,"As[arsenic], NH4, and possibly Se[seleniuml exceeded the CWQG for

protecting aquatic life... and U[uraniuml exceed[ed] the Guidelines for Canadian Drinking Water Quality.

Radioactive waste is not the only'waste' product of uranium mining and milling. There are also heavy metals that are released and chemicals that are used during the processing of the ore. Of heavy metals it has been stated that, "Tailings also contain concentrations which vary from site to site of heavy metals such as lead, zinc, manganese, cadmium, and arsenic whose rates of release to the environment must also be controlled. It must be remembered however, that elements such as these do not decrease in toxicity with time since there is no decay process, they simply last forever."19 As well large quantities of chemicals such as sulfuric acid, ammonia gas, hydrochloric acid, kerosene and hydrogen peroxide are used in the processing of the ore and are then released into the local environment.

One of the Aboriginal communities that is most strongly and directly affected by the activity of uranium mining in northern Saskatchewan is the community of the Hamlet of Wollaston Lake, which belongs to the Hatchet Lake Band. It is situated on the southeastern edge of Wollaston Lake, forty kms. away from the Rabbit Lake mine sites, and it is the only permanent settlement in northeastern Saskatchewan. The lake is fundamental to the community and sustains it. The lake provides the indigenous people with their drinking water and forms the basis of the local economy through the traditional pursuits of fishing, hunting and trapping. Most people eat the fish from the lake year-round. The lake is truly the heart and life blood of the community.

In terms of commercial fishing, the lake is one of the most important in northern Saskatchewan and is given a one million pound per year quota. It is the largest single waterbody wholly within the borders of Saskatchewan.
This community has a population of approximately one thousand people, with about forty percent of that number being older and not able to work. The remaining sixty percent consists of children and employable adults. The main economic activity in the community is trapping, although trapping is valued more for the lifestyle it provides than for the money. This community, until fairly recently [1 940-50s], was practising a traditional and self-sufficient lifestyle. The governments, through their ‘civilization' programs, have since created a community semi-dependent on government transfer payments.

Now, the mining activities are making any continuation of, or return to traditional economies difficult and the formation of viable sustainable economic options is almost impossible. If mining continues, the community could soon be totally dependent on transfer payments.

"There is no word in Dene for uranium. In 1977, a Dene elder who had learned of some of the dangers of uranium coined a phrase for it: 'dada-thay ,meaning 'death rock. Other elders are concerned that this meaning is all too true. Two incidents in particular have troubled them. In 1986 elders were disturbed with, and are still bothered by, a sight that they have never observed or heard of happening before. The incident was related as

follows: "We were traveling home from the mine site where a few of us were employed and going by Umperville River, a river that we duck hunt at, when we noticed a huge flock of seagulls above the river. When we went to see what had happened we discovered about 150 dead fish lying on top of the ice near a location where the effluent creek joins the river. " 41 Adding to this occurrence were the findings of trappers, who while utilizing the area near the mines, discovered dead beavers. Elders in the community are very concerned when beavers are so affected, because they feel the beaver, who has a closer relationship to humans than any other animal, can withstand more human contact. They therefore feel that the death of one is an indicator of something being very wrong in the environment. One elder in the community remembers when Treaty Number IO was signed in 1906 and the promise that "We are in no way going to harm the way you live 1144 was made.

These promises made by governments and then companies seem to have little value. Cameco has always promised that it is "committed to the employment of northern and aboriginal people from the remote communities of northern Saskatchewan"41 and to fifty percent of its workforce [the mine site in November of 1993 employed approximately 320 workers] being Northerners, yet as of March of 1994 only four people in the community were employed full-time/part-time at the Rabbit Lake Mine. Since the mine's opening, approximately twenty people in total in the community have been employed. The promises by Cameco of engaging a workforce that consists of Athabascan Basin community members is regarded as political 'window dressing' by the population of Wollaston. It would seem that the promises of jobs and economic benefits are being used as a justification for the intrusion and destruction by the mining operations. The wage paying jobs and the mining operations have not and will not improve the quality of life for the native people of northern Saskatchewan.

For example, the company states that it is providing on the job training that will aid in developing skills that can be used elsewhere in the company or in other job situations. Comments from the community members clearly indicate, however, that the Native employees fill only the menial jobs, with low pay, no advancement opportunities and seasonal employment. After almost two decades of operation, Cameco still 'imports' Southerners or newly'enlisted' Northerners one only has to live in the north one year now to be classified a Northerner] to fill its need for skilled and specialized workers. If Cameco's educational initiatives were really aimed at the northern population, then twenty years should have given it ample time to provide education and thus higher level jobs for aboriginal employees. If the community feels that it has benefited in any way at all from the mining endeavor, it would be in regards to the road that was constructed and daily barge service that was provided, but even with this, Wollaston still basically remains a fiy-in community. Gefting goods into the community has at times not been easy. The provincial government, with their misplaced and misguided generosity, provides a subsidy to truck in liquor to the community yet there is no such financial incentive for hauling fresh produce and the like. Community elders feel that programs and mindsets such as these work to destroy their most important resource, their children.

As well, the power line that was brought over from the mine site in the summer of 1989 to the community could be regarded as a benefit as it was initially intended to reduce power costs for residents, but community members do not feel that it has. Prior to the Sask Power line a diesel run generator provided the power supply for the community. Residents in the community were not asked if they would like the line brought in, the decision was made by the Province and Cameco. In the past Cameco's actions and its closed nature in regards to its dealings with the community of Wollaston have not done much to foster a relationship of trust. On November 6, 1989, for example, there was a mine spill of approximately 2 million litres of contaminated waste into Collins Creek. The spill was noticed by a Wollaston Lake resident who was flying over the site at approximately 3:00 p.m. Edward Benonie at that time observed trucks on the ice and people running around. When he got to a phone and contacted the company with his concerns, the response was that there had been no spill. Mr. Benonie then contacted his MP in Ottawa and by 7:00 p.m. the company phoned and outlined the approximate extent of the spill. The full nature of the spill and any resulting problems were never fully outlined because the company plead guilty to charges and was fined only five thousand dollars by the federal government and fifty-five thousand by the provincial government.

The community of Wollaston Lake is very frustrated in their dealings with Cameco. They feel their questions and concerns are not addressed and any legal proceedings regarding mining violations, etc. are not held in the community. In a presentation to the Environmental Assessment Panel, Jack Bell , a spokesperson for the community, stated that "We are also disappointed that the proponent has made very little effort to understand and appreciate the concern of this community, and to accommodate those concerns. We must remind Cameco that our concerns are unique... It may be necessary to require that Cameco deal directly with Wollaston as a condition of its operation agreement.

Unfortunately, northern Saskatchewan is perceived by most Canadians to be an unoccupied land or a virtual wilderness with very few settlements. The area is thought of as remote and the potential and existing pollution problems are so far removed from urban areas that the majority of the Saskatchewan population is neither aware of or concerned with the issues. As a result, opposition to mining by northern residents is regarded as more of a nuisance than a political problem. Because of the lack of funds available, the Wollaston Lake community has had to rely on independent volunteer consultants and environmental groups to help it face the national and international companies that vie for its land and its mineral resources. Opposition to the developments means, in essence, taking on the Provincial and Federal Governments as well as the'big league' European players. However, some government agencies, environmental interest groups and northern communities continue to scrutinize the companies and urge that proper monitoring measures be instituted along with a moratorium to uranium mining.

The people of Wollaston feel that neither the government nor the companies have an appreciation for the true value of their land. They are concerned about issues, such as "damage to the land, contamination of the aquatic environment, and changes in the distribution and abundance of fish and wildlife'. Community residents feel that animals,

particularly ungulates such as moose and caribou, are disturbed by the mine construction and vehicles, both land and air, and that due to increased activity, they will avoid these areas. They believe that disturbances in the migrations of animal populations caused by mining activity, reduces the effectiveness of hunting and traplines.

The Wollaston community has been considering new economic options that would still be in harmony with traditional values and lifestyles, yet might provide a cash input into the community. It seems that the mining, however, cuts off or reduces any viable options the people have. Blueberry picking, mushroom harvesting and wild rice planting and harvesting are a few of the activities being considered by the band. A major problem must be faced even before these undertakings can be considered. All these industries rely on the land and water. What buyer is going to want produce from an area tied and connected to the uranium mining industry? Even now local production and harvesting for direct consumption could cause problems In essence then, when everything of value, such as minerals, has been extracted, then the Native people will be left with nothing on which to base a viable independent economy of their own. Understandably, the future is of immense concern to the people of the Wollaston Lake community. There are numerous questions to be answered about what Will happen when the mining is done. Can the mines be decommissioned successfully and acceptably and who will be responsible to bear the costs? Can the land that the mines occupy possibly be turned into "nice moose pasture,"49 as Cameco has stated. This notion is highly doubtful. Studies done have indicated that "high soil selenium [Se] levels have been found in association with uranium deposits. 1150 This element is absorbed by forage or vegetation grown on reclaimed mine lands. The plants for the most part have been deemed "potentially harmful to grazing livestock"-" and indeed plant species grown in any mine soil were considered highly hazardous to any type of grazing livestock. In addition, a study carried out on the radium transfer from soil and uranium mill tailings to plants has shown that radium is taken up and absorbed by the roots of edible and wild plants., Recent research and studies indicate that mining areas in the decommissioning and reclamation stages will need to be intensely monitored for three decades to obtain a sound understanding of the effects of metals and radionuclides. The 'nice moose pasture' might therefore be a possibility in a century or two.

In Canada, the federal agency that is responsible for the administration of uranium mining, processing and licensing is the Atomic Energy Control Board [AECB]. This agency, on several occasions over the past years, has sent spokespeople to the community of Wollaston Lake to stress that uranium mining is'safe. And yet, the AECB has known that during certain years the operation at Rabbit Lake-Collins Bay has exceeded pollution guidelines and regulations in many areas. Even though it was aware that violations were taking place, the AECB renewed the annual operating license. It was once commented that as long as national goals are served by risky systems, we will continue to have them and their catastrophes. It would seem that as far as uranium mining in Canada is concerned this statement is all too true.

Canada's blatant 'head-in-the-sand and everything is great' attitude regarding the whole issue of uranium mining is apparent in the 1994 'Report of Canada To The United Nations Commission On Sustainable Development which states:

As a country that mines and uses radioactive substances, Canada has long had mechanisms to control radioactive wastes. It has also pursued initiatives to respond to technical issues and public concerns. In the area of uranium mine and mill tailings, past and present research conducted by the industry and the federal government provides a sound basis for evaluating the potential environmental impacts. The Atomic Energy Control Board (AEC13), the federal government body that manages nuclear issues, has established regulatory criteria for the decommissioning of these wastes. Large volumes are involved and the AECB is making sure that uranium companies fulfil their obligations with regard to the clean-up of these wastes. Unfortunately, these statements are far from true. Canadian and Provincial guidelines in the areas of surface water-quality, heavy metals, ground water seepage and waste sediment discharge just do not accurately reflect the impact of uranium mining, milling and tailings operations. "For many heavy metals and radioisotopes the quantity allowed by the AECB license is above that suitable for human drinking water and for aquatic life. According to the Rabbit Lake Environmental Assessment Report of November 1993, the AECB has no power whatsoever to "ensure that the costs of decommissioning of current and future licensed uranium mining facilities would be borne by the licensee and not by the public. Clearly, the Government of Canada does not have mechanisms in place to control radioactive waste and other uranium related problems.

The mining of high grade uranium ore continues in northern Saskatchewan although the environmental problems and impact relating to this activity are, as yet, not fully known or realized. The considerable scale of the mining endeavors have produced, and continue to produce, a huge amount of waste which is affecting the biological ecosystem on which the Native people depend. The mining of uranium is indeed undermining the traditional and present environmentally sustainable economic options of northern Saskatchewan's Aboriginal peoples. Unless the mining of uranium is halted, the residents of Wollaston Lake and all Native Peoples of the north, especially the youth, will be witness to the complete disintegration of their' kev to survival, the land.

**Appendix A**

The lakes of the north do not exist in isolation; they are part of a connected river system. Milling produces water contaminated with radio nuclides and toxic heavy metals. The CWQG [Canadian Water Quality Guidelines] has developed guidelines that now include objectives relating to these concerns. As of November 1997, however, the SSWQO (Saskatchewan Surface Water Quality Objectives] was still using guidelines that flare not always appropriate for the Athabasca region." It was recommended by a joint federal-provincial panel that new objectives for a uranium water quality guideline be included.

On November 13, 1997 a Government of Saskatchewan news release indicated that the proposed Cigar Lake Uranium Project, and the Midwest Uranium Project had both been

recommended for approval by a Federal-Provincial environmental panel made up of then Environment and Resource Management Minister Lorne Scott, federal Environment Minister Christine Stewart, federal Minister of Natural Resources Ralph Goodale and the President of the Atomic Energy Control Board, Dr. Agnes Bishop. Both of these mines ushered in a new era of mining of uranium in Northern Saskatchewan, one that uses innovative technology to mine the historically untouchable, higher grade ore. However, whether you mine through open pit, underground, or innovative methods, ore is still extracted; the challenges of mine water seepage, effective waste rock, tailings and effluent management, storage, transportation, milling and decommissioning all still have to be addressed. Especially problematic are the increasing arsenic and nickel levels and the quality of air, water, vegetation and wildlife.

Although the Cigar Lake mine was recommended there were strong reservations regarding the facility where the mine tailings would be stored, managed and disposed, especially with regard to the possible contamination of Fox Lake. The CLMC stated its concern and "lack of confidence in the managerial and scientific competence of the operator, Cogema." They also felt that the "obvious dismissive attitude of this company for the regulators and their concerns suggests that it would not be appropriate for Cogema, as currently managed, to be given responsibility for constructing and managing this very dangerous radioactive waste disposal facility.

## Endnotes

1. G. Ross, Mayor of Pinehouse. Transcript of Ciciar Lake and McArthur River Public Hearinns, Pinehouse, Saskatchewan, October 7, 1996, p. 129.
2. K. Weingeist. Transcript of Midwest Public Hearincis, Saskatoon, Saskatchewan, May 29, 1996, p. 85.
3. Approximately 300 km northeast of Yellowknife, Northwest Territories, near Lac de Gras, BHP and the Blackwater Group are involved in mining five diamond-bearing deposits. Approximately IO communities in the area will be affected by this development. They are; Wha Ti [Lac La Martre), Rae Lakes, Rae-Edzo, Snare Lake, Lutselk's [Snowdrift], Kugluktuk [Coppermine), Ndilo [Rainbow Valley], Dettah, Yellowknife, and Umingmaktok [Bay Chimo].
4. The mineral rich lands of north Bathurst Island N.W.T. are the calving grounds for Peary caribou. Cominco wants to explore the area for more deposits as the ore body at the Polaris mine on Little Cornwallis Island is running out. There are differing opinions about this proposal. Residents of Resolute Bay, Grise Fiord and Arctic Bay acknowledge that the Polaris mine is an important part of the economy however, they have concerns about calving grounds.
5. For the Cheslatta Carrier Nation of north-central British Columbia struggling with huge powerful companies has been and continues to be a part of their daily lives. It's like an ongoing saga of David and Goliath, except in their case there are several Goliaths. The companies who covet the Chesiatta land and its resources are strongly allied with both the provincial and federal governments and this makes a combined and gigantic force that is almost impossible to defeat. The fact is, that a battle against these forces is being driven by a small group of people as the Cheslafta are few in number - approximately 80) and funded by binges and bake sales. In 1952 the Cheslafta were relocated and their land flooded to make way for the development of the Kemano Hydroelectric Dam which would provide the power needed to run Alcan's aluminum smelter located in K@tamat.

   A traditional and self sufficient way of life ended for the Chasiatta with the flooding of the land and the destruction of the water system made up of a series of lakes and rivers. Traplines disappeared and the fishing for trout, char, kokanee and whitefish was altered. Hunting and trading with other communities for the Salmon was also affected.

Kemano III is a continuation of the Alcan saga to expand into Chesiatta lands. An agreement was signed between Alcan and the B.C. Government in the summer of 1997 with negotiations taking place behind closed doors. There was no Federal Government involvement at this time. Also, not surprisingly, there was no First Nations involvement.

The Huckleberry mine, a deposit of copper, gold, silver and molybdenum, is yet another development on Chesiatta lands that has been strongly supported by both provincial and federal governments, in which the people most directly affected have had little or no say. Princeton Mining Company entered an alliance with a consortium of Japanese companies, including Mitsubishi Materials Corp., Marubeni Corp, Dowa Mining Co. Ltd. and Furukawa Co. to develop the site that is located about 80 km southwest of Houston and approximately 50 km west of Grassy Plains in the watershed of the Nechako and Tahtas Lake systems.

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