October 28, 2010

Open letter to the leaders of Nunavut

On the health implications of opening the territory to uranium mining

To: Members of the Legislative Assembly of Nunavut
President and Board, Nunavut Tunngavik Inc.
President and Board, Qikiqtani Inuit Association
President and Board, Kivalliq Inuit Association
President and Board, Kitikmeot Inuit Association
Chairperson and Board, Nunavut Impact Review Board
Mayors and Health Committee Chairpersons

It has come to our attention that uranium mining interests are proposing to construct an open-pit uranium mine, mill and attendant infrastructure just 85 kilometres upwind and upwater from the community of Baker Lake, Nunavut, and that approval of the Kiggavik project would open the door to the construction of more uranium mines in the region. Members of Nunavummiut Makitagunarningit have asked us to comment on this.

We are both family doctors living in Ontario, and are members of Canadian Association of Physicians for the Environment (CAPE) and Physicians for Global Survival (PGS). We are very concerned about the health impacts of uranium mining on local populations. This concern stems from our research, which was spurred by the prospect of a uranium mine being located near Sharbot Lake in Eastern Ontario -- very close to the communities in which we live.

We have put our findings into a paper entitled “Human Health Implications of Uranium Mining and the Nuclear Industry”, a copy of which is being provided with this letter. It can also be found on the website of Physicians for Global Survival (www.pgs.ca, under Sustainable World/Nuclear Industry). Material from this paper has been presented in Toronto, Halifax, and Switzerland, and has been used as an educational document by many citizen groups and health advocates.

Uranium mining is an essential first step in nuclear power generation and in the production of nuclear weapons. Each stage of these processes creates its own burden of contamination. They are intimately linked, in that the byproducts of power generation can be used to create weapons. It is well known that India used power-generating technology from Canada to produce material for its first nuclear bomb.

All operating nuclear power reactors release radioactive contaminants into their surroundings on a regular basis, and there is as yet no safe way to store the very highly radioactive spent fuel they produce. Accidents occur both small and catastrophic that release toxic radioactive substances into the environment essentially forever. The destructive power of nuclear bombs is obvious. These are the processes in which you are participating if you allow uranium mining in your community.

Uranium mining itself causes significant environmental damage and is potentially the most contaminating stage of nuclear power generation. In mining uranium, thousands of tons of radioactive rock are brought to the surface of the earth and crushed. This process creates a large amount of radioactive dust and large quantities of waste rock or tailings, which contain 85% of their original radioactivity. These, along with the chemicals used in the extraction process, often strong acids or alkalis, are deposited in large tailings ponds or containments nearby.

The toxic radioactive dust can be carried far away from the site by wind. Radioactive radon gas (a potent lung carcinogen, and the second most common cause of lung cancer after smoking) escapes continuously from the exposed rock and the tailings. Toxic radioactive isotopes are produced continuously for thousands of years by the tailings through the process of radioactive decay, something which does not happen in the tailings of mines for non-radioactive substances such as iron or copper.

Mining interests will attempt to tell you that their “best practices” will prevent the outflow of these contaminants into the local air, soil and water. It has been our finding, in researching this issue and in speaking with persons living near the former uranium mining sites in Elliot Lake and Bancroft, Ontario that this is not the case.

What is the harm in all this material?

Harm occurs in a number of ways. Firstly, because uranium is a radioactive substance, uranium atoms actually change into a series of other substances one after the other as they fling off bits of themselves in the form of radiation. This process is called radio-active decay. Many of these substances are toxic in their own right, as is uranium. Uranium is toxic to the kidney, and accumulates in bone, including the bones of children. Radium, one of the progeny of uranium’s radioactive decay, is toxic to bone. Radon causes lung cancer, and lead affects the nervous system. Because there are so many substances involved, and they are continually shifting from one to the next, they are very difficult to contain. Some have half-lives in the billions of years, meaning they are around forever.

The main danger common to all of them, however is their radioactivity -- the bits of radiation thrown off as the atoms decay from one substance into another. All of this radiation is capable of damaging tissue -- plant, animal or human. There is no safe dose – in other words, even small doses cause harm.

Radioactive particles which have entered the body through inhalation or ingestion, are particularly harmful. Some of this damage the body can repair, but often the repairs are imperfect. Over time, cancers can arise. Cancer is a well- known sequella of exposure to radiation. It can often take decades, sometimes 40 or 50 years to manifest itself, and there is no way of knowing that it is developing until it does. It is very difficult sometimes to trace it back to its origins; this is one reason that poorly designed “studies” so often fail to show any harm from a given exposure. It is important to remember that “no proof of harm” is not the same as “proof of no harm”.

If the damage done by radiation involves the reproductive tissues, the eggs and sperm, it can be passed on to the next generation (that is if the mutation it causes is compatible with life, which most mutations are not). In fact much of this damage will manifest as infertility, reduced fertility, early miscarriage and early infant death. In the human population some of these things may be detected. In the case of animals, birds, fish and other living things, you may never know why they are not thriving, or quietly disappearing. Their loss will certainly never be recorded in any catalogue of “harm” caused by uranium mining. Damaged offspring which survive can carry their damage forward into succeeding generations. It is not reversible, and it is cumulative as succeeding generations are exposed again to the same contaminants remaining in the environment.

Radiation can damage any system or process in the body, by interfering with the process itself or the genetic instructions which control it. Visible malformations are the tip of the iceberg. Young children and the unborn are extremely sensitive to such disruption during the critical times when their bodies and vital organs develop. Recent research from Germany has shown a clear increase in childhood leukemia in children living near German nuclear reactors. No research of such quality and scope has been done in Canada.

Mining interests and their supporters in government cannot argue that the effects we have described do not occur. They are well known and well described in the scientific world. The best they can argue is that they do not matter, however you will have to decide that for yourselves.

As family doctors, we have grave concerns about the Kiggavik uranium mine proposal near Baker Lake. Such a mine would produce radioactive tailings that would contaminate this pristine area essentially forever and threaten all living organisms including humans. Many physicians groups across the country support a moratorium on uranium mining in their jurisdictions. These include the British Columbia Medical Association, the Nova Scotia Medical Association, the Ontario College of Family Physicians Environmental Health Committee, the physicians of Sept-Iles, Québec, the Canadian

Association of Physicians for the Environment, and Physicians for Global Survival. The International Physicians for the Prevention of Nuclear War (IPPNW), which won the Nobel Peace prize in 1985, is strongly opposed to uranium mining, particularly on indigenous land.

As physicians, we would like to make politicians and policy-makers in Nunavut aware of the deleterious health effects of uranium mining on all living things, and to urge them to veto plans for this proposal. We fervently hope that you will use this opportunity to say “no” to uranium mining in your territory.

Sincerely,

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