

Brief to the

**Bureau d'audiences publiques sur l'environnement (BAPE)**  
on the  
**Uranium Industry in Quebec**

by

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Thank you for the opportunity to address the issue of uranium exploration and mining in Quebec.

Before beginning, I just want to say that I respect and acknowledge the thoughtful views of others who have presented briefs on the topic of uranium to the BAPE. Uranium is very complex topic and there are many valid concerns about the safety and environmental impact of exploration, production, end use, safe storage, and transportation of radioactive minerals throughout this cycle. We all agree on that, and in fact, I think we all agree the same goes for the exploration and mining of any minerals, be it gold, copper, or coal to name a few. Where we perhaps differ is whether we believe that it is possible to control these risks for uranium, and whether the benefits of the mining are justified.

My view is that uranium exploration and mining is being done safely in Saskatchewan and in many other places in the world, and that the same can be done here in Quebec. In this brief, I will first present some information on the economic importance of exploration and mining of uranium. Secondly, I will provide some documents that demonstrate the how the industry is being regulated safely. I will also provide some documents that detail best practices and regulations that will continue to ensure that exploration is well managed, some of which could be adopted should Quebec decide to allow exploration to continue.

I am a geologist and have spent my 35-year career in geoscience research, as a government regulator, and as an exploration geologist across Canada and overseas. Since leaving the British Columbia government in 2008, I have worked as Vice-President of Exploration, director, or consultant for public exploration companies across Canada, primarily working on uranium projects in Saskatchewan and Quebec.

My employer, Anthem Resources Inc., holds mineral properties in the Otish Mountains of northern Quebec, and specifically in the Cree Territory of Eeyou Istchee. We have been conducting uranium exploration here since about 2007, and spent several million dollars in the area. As we do wherever we work, we

have tried hard to spend money locally and have hired many contractors, services and people from the surrounding communities, including Cree people from Mistissini. We have been very pleased with the results of our work, with the services we have received, and with the reception of the local people.

As a scientist and former regulator and someone who has worked overseas and in the USA, I believe that our industries are generally very well regulated, and that we are always striving to improve. I feel very safe working in this industry, and I am proud of our record of worker and public health, and environmental protection in this country.

But please don't take my word for it. **I would like to strongly recommend that this BAPE commission, and government members who will be responsible for deciding the future of uranium mining in Quebec, travel to northern Saskatchewan and visit the operating uranium mines and the nearby communities.** There you will see that the industry is operating in a safe manner, providing useful training, meaningful jobs, and decent wages to local people, and providing important tax revenue to local and provincial governments. In addition, the climate and topography of northern Saskatchewan is similar to northern Quebec and so those operations represent an excellent example of what could be happening in Quebec.

Meet with the people from the local communities and listen to how they feel about uranium exploration and mining. Talk to the environmental regulators directly, as well as Aboriginal people and other users of the land. Ask them about the safety record. Ask them whether traditional knowledge and activities are being considered. Ask them whether the work is meaningful and if they are earning a decent wage. I believe you will be impressed by what you hear.

### **Economic Impact of Uranium Exploration and Mining**

The economic impact of an industry like Saskatchewan's uranium sector is very significant. Although Quebec's exploration and development activity is at a much earlier stage, one or two mines can have a very significant economic benefit. Jean-Marc Lulin of the AEMQ previously provided a brief on the economic impact of uranium exploration here in Quebec.

The following statistics provide some idea of potential benefits if the Quebec uranium industry is allowed to grow and some mines are built. According to the Saskatchewan Mining Association (SMA), the uranium sector had a very substantial contribution to the provincial economy in 2012. Given that almost all of the uranium employment is in the rural north of that province, these are significant benefits in an area with little other economic activity:

- In 2012 the uranium industry paid \$377 million on salaries, wages and benefits for direct employees.
- \$82 million of this was paid to residents of Saskatchewan's north.

- The industry's contractors paid out an additional \$255 million to their employees.
- Income tax remitted on behalf of mining industry direct employees was \$91.2 million.
- Canada Pension Plan contributions were an additional \$12.7 million
- Canada Employment Insurance payments were another \$5.1 million.
- The value of goods and services purchased by the industry was \$1.24 billion.
- Over 77 % (\$955 million) of this amount went to businesses based in Saskatchewan and 44% (\$553 million) went to businesses based in northern Saskatchewan.
- Capital expenditures were approximately \$564.6 million, while exploration expenditures were \$37.9 million. Reclamation expenditures were \$12.3 million. Total capital, exploration and reclamation expenditures, excluding salaries were \$615 million.
- Taxes and royalties of \$166.9 million were paid to the province of Saskatchewan and \$5.7 million to local governments. Total taxes and royalties paid amount to more than \$172 million.
- Approximately \$6.1 million was spent on licensing fees and \$2.6 million was paid in surface lease fees.
- \$4.4 million was donated to community and charitable organizations and another \$311,500 was given as scholarships and other forms of support to contribute to the education of Saskatchewan's youth.

In terms of employment, the following statistics are reported the Saskatchewan uranium sector for 2012:

- Total employment by the uranium industry, including contractors, is approximately 5,000 people. The uranium industry directly employs approximately 2,700 people in Saskatchewan and industry contractors employ an additional 2,300 people.
- Employment at mine sites, including contractors, is approximately 3,500.
- Approximately 50% of mine site employees, including contractors, are residents of Saskatchewan's north.
- Approximately 46% of mine site employees, including contractors, are of Aboriginal ancestry.
- Head office employment accounts for approximately 983 direct employees.
- The uranium industry is responsible for approximately 15,000 jobs in the province (approximately 5,000 direct jobs and an additional 10,000\* spin-off jobs). *Spin-off jobs calculation based on information from Saskatchewan Energy and Resources*

## **Regulation of Uranium Mining and Exploration**

We want to ensure that the BAPE commission has the best information available on the regulation of the industry. What follows is a short summary and links to some important documents that describe the health and safety performance of the industry, and some regulations and best practices that ensure safe operations.

***1. Report on the Performance of Uranium Fuel Cycle and Processing Facilities***, published by the Canadian Nuclear Safety Commission.

2012 report: [http://www.nuclearsafety.gc.ca/pubs\\_catalogue/uploads/CNSC-Report-Performance-Canadian-Uranium-Fuel-Cycle-Processing-Facilities-2012-eng.pdf](http://www.nuclearsafety.gc.ca/pubs_catalogue/uploads/CNSC-Report-Performance-Canadian-Uranium-Fuel-Cycle-Processing-Facilities-2012-eng.pdf)

2011 Report: [http://www.nuclearsafety.gc.ca/pubs\\_catalogue/uploads/CNSC-Report-Performance-Canadian-Uranium-Fuel-Cycle-Processing-Facilities-2011-eng.pdf](http://www.nuclearsafety.gc.ca/pubs_catalogue/uploads/CNSC-Report-Performance-Canadian-Uranium-Fuel-Cycle-Processing-Facilities-2011-eng.pdf)

The CNSC publishes an annual report on the performance of Canada's uranium fuel cycle and processing facilities, including uranium mines and mills. These reports of the independent regulator demonstrate that Canada's stringent regulation of the industry is paying off, resulting in very safe mines, mills and other nuclear facilities.

The conclusions from the latest report (2012) are as follows:

*Based on inspections and reviews conducted during the year, CNSC staff have concluded that Canada's fuel cycle and processing facilities operated safely during 2012. This conclusion is based on the following:*

- *Radiation protection measures were effective and results remained as low as reasonably achievable (ALARA).*
- *No worker received a radiation dose that exceeded the regulatory limit.*
- *The frequency and severity of injuries/accidents involving workers were minimal.*
- *All conventional health and safety programs were effective in protecting workers.*
- *No member of the public received a radiation dose that exceeded the regulatory limit.*
- *All environmental protection programs were effective and ALARA. Licensees complied with their licence conditions concerning Canada's international obligations.*

***2. Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)*** Prepared by the Canadian NORM Working

Group of the Federal Provincial Territorial Radiation Protection Committee,  
Published by authority of the Minister of Health (revised 2011).

[http://www.hc-sc.gc.ca/ewh-semt/alt\\_formats/pdf/pubs/contaminants/norm-mrn/norm-mrn-eng.pdf](http://www.hc-sc.gc.ca/ewh-semt/alt_formats/pdf/pubs/contaminants/norm-mrn/norm-mrn-eng.pdf)

The CNSC has legislative control of nuclear fuel cycle materials and man-made radionuclides. However, naturally occurring radioactive material (NORM) is exempt from CNSC jurisdiction except for the import, export and transport of the material. Therefore, jurisdiction over use and radiation exposure to NORM rests with each Canadian province and territory. The topic of NORM is very important for uranium exploration, because NORM includes such things as rock, soil and drill core samples, which need to be handled by workers and shipped to other facilities (for example assay labs). The NORM guidelines are very helpful in protecting the safety of workers and the public in and around exploration sites, and include such topics as:

- Understanding radiation
- Development of NORM management plans
- NORM material management
- Transportation management

**3. The e3 Plus Guidelines for Radiation Protection during Exploration for Uranium**, published by the Prospectors and Developers Association of Canada (PDAC).

<http://www.pdac.ca/programs/e3-plus/toolkits/environmental-stewardship/guidelines-for-uranium-exploration>

As mentioned above, uranium exploration is primarily regulated by the provinces and territories, rather than by the CNSC. Given that Quebec has not yet formally adopted a comprehensive set of best practices and regulations for uranium exploration, the BAPE and government should carefully review other jurisdictions and take the best of the best into its legal and regulatory framework. These **e3 Plus Guidelines** pull all of this information together, using the best regulations and practices from around the world. They are up-to-date, but are also considered a living document to be updated as knowledge improves. They can form an excellent basis for formulation of a comprehensive set of guidelines and regulations for uranium exploration in Quebec.

In closing, I want to thank the BAPE commission for the opportunity to present this brief. I hope that you will find this information helpful. Please feel free to contact me if you have any questions.