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Standing Committee on Natural Resources

**Council of Canadians Submission
on Canadian Nuclear Safety Commission's decision
to approve shipment of 16 steam generators by Bruce Power**

**Prepared by Emma Lui, National Water Campaigner
March 10, 2011**



On November 30, 2011, the Standing Committee on Natural Resources passed a motion to:

“...hold at least one meeting to examine: the decision of the Canadian Nuclear Safety Commission (CNSC) concerning the proposed shipment of 1600 tonnes of radioactive steam generators by Bruce Power, the broader policy framework governing import and export of radioactive waste from Canadian territory, transport of radioactive waste through the Great Lakes and the St. Lawrence River, and "recycling" of radioactive metal for free release into the marketplace; that the Committee invite to testify, among others: Canadian Nuclear Safety Commission President Michael Binder, representatives of Bruce Power, Mayor Gaëtan Ruest of Amqui Quebec, David Ullrich of the Great Lakes and St. Lawrence Cities Initiative, Grand Council Chief Patrick Madahbe, Union of Ontario Indians, and Gordon Edwards of the Canadian Coalition for Nuclear Responsibility; and that the Committee report its findings to the House of Commons.”

The Council of Canadians would like to thank the Standing Committee on Natural Resources for holding this meeting and providing the opportunity to comment on the Canadian Nuclear Safety Commission’s decision to approve the shipment of 16 steam generators by Bruce Power.

The Council is Canada’s largest member-based advocacy organization with tens of thousands of members and over 70 community-based chapters across the country. We are a social justice organization and address issues of public concern including water, energy, health and trade.

We have 8 Council chapters around the Great Lakes and have been working to protect water nationally and internationally for the last 25 years. Maude Barlow, the National Chairperson of the Council of Canadians, also served as Senior Advisor on Water to the 63rd President of the United Nations General Assembly (2008-2009).

Overview

The Great Lakes holds nearly 20% of the world's freshwater. They provide drinking water to 40 million people in surrounding areas. We are concerned that the shipment of Bruce Power's 16 steam generators puts this precious resource at risk and sets a dangerous precedent that could encourage the shipment of radioactive waste through the Great Lakes on a regular basis.

On February 4, 2011, the Canadian Nuclear Safety Commission (CNSC) issued a licence to Bruce Power to transport 16 radioactive steam generators across the Great Lakes to Sweden under special arrangement. The steam generators will be shipped and decontaminated in Sweden and 90% of the metal will be free released into consumer markets while 10% of the most radioactive parts will be returned to Canada. We are concerned with this shipment for several reasons summarized below including:

1. The shipment's failure to meet established national and international regulations.
2. The shipment sets a dangerous precedent for the Great Lakes.
3. The need for an environmental assessment.
4. An accident puts drinking water and public health at risk.
5. The risks of recycling radioactive material into scrap metal.
6. The lack of meaningful public consultation.
7. The need to uphold the "precautionary principle" recognized in international law.

We ask the Standing Committee on Natural Resources to consider our concerns and include our recommendations in their report to the House of Commons.

National and International Regulations

Bruce Power made an application to the CNSC in April 2010 for two reasons. First, based on the size of the steam generators, Bruce Power is unable to meet the packaging requirements set out in section 5 of the CNSC's *Packaging and Transport of Nuclear Substances Regulations* (PTNSR). Secondly, the total radioactive level exceeds the limits for inaccessible surfaces in the PTNSR and internationally recognized limit set out in the International Atomic Energy Agency's *Regulations for the Safe Transport of Radioactive Material* (IAEA's RSTRM) (1996). We are extremely concerned that the CNSC has disregarded (international) regulations to accommodate this shipment. This is a precedent that can seriously threaten the Great Lakes as the world's largest freshwater source.

Mr. Michael Binder, President of the CNSC, failed to mention this second point in his presentation to the Standing Committee on Natural Resources on March 8, 2011. He and other CNSC staff have affirmed that if the steam generators fit into a package, there would be no need for public hearings on the issue. However, packaging is not the only reason Bruce Power needed to apply for a licence with the CNSC. The CNSC staff report (CNSC Document 10-H19, page 7) noted that "Bruce Power has applied for a

licence to transport under special arrangement for the transport of the steam generators because the size of the steam generators makes it impractical to package them, *the interior cannot be accessed which does not allow direct confirmation of the estimated internal surface contamination levels, and the total activity in the shipment is estimated to exceed the limits of the regulations for Surface Contaminated Objects material transported onboard a single ship.*" (italics added)

There is debate between the CNSC and interveners at the CNSC hearing about how many times the radioactive levels exceed IAEA guidelines. The CNSC argues that the radioactivity of the shipment exceeds IAEA guidelines by 6 times. This is true for limits of ocean-going shipments. However, the Great Lakes and St. Lawrence Cities Initiatives (GLSLCI) has noted that radioactivity of a single ship exceeds IAEA guidelines for inland-water shipments (lakes and rivers) by 50 times (or "60 times with revised and increased estimates of radioactivity"). The GLSLCI has noted that it is not clear whether the 10 A2 limit in IAEA guidelines applies to inland waterway or inland watercraft. The CNSC should have clarified this before rendering an approval for this shipment. We are very concerned that CNSC have failed to discuss with the Standing Committee whether the radioactive levels exceed IAEA limits by 6, 50 or 60 times. We believe it is critical for the CNSC to explore this second point at a meeting with the Standing Committee on Natural Resources and request that this point be examined.

The Precedent-setting Nature of the Shipment

This shipment sets a dangerous precedent for shipping radioactive waste that exceeds international standards across the Great Lakes. On March 8, 2011, Mr. Binder admitted that there has never been a shipment of this size through the Great Lakes. Bruce Power has 64 steam generators it plans to ship to Sweden to decontaminate. Therefore, this is the first of at least four shipments. Considering there are over 30 nuclear facilities in the Great Lakes Basin, it is possible this shipment will set a precedent for many future shipments. This precedent may also influence decisions on highly radioactive waste currently stored on site at the Bruce, Pickering and Darlington nuclear power plants. The government is considering a disposal site in Saskatchewan. This would mean the waste would be transported through the most densely populated areas of Southern Ontario and across thousands of kilometres of Northern Ontario's highways or shipped by water to Lake Superior.

Naturvernforbund (Friends of the Earth Norway) has noted that this shipment may set a precedent for increasing radioactive metal from Russia to Ecomet S near St. Petersburg. Ecomet S, a similar company to Studsvik, is in the closed nuclear city of Sosnovy Bor, close to St. Petersburg. Plans are now made for a radioactive depository in Sosnovy Bor so that Ecomet S can handle radioactive metal from Russia. The Canadian decision has been used as an argument to increase the radioactive metal to Ecomet S. Once the precedent of shipping radioactive waste exceeding legal limits is established, the CNSC may be powerless to limit future shipments under Canada's trade obligations. Canada and Europe are currently negotiating the Comprehensive Economic and Trade Agreement (CETA). If CETA is signed, it may make it difficult for Canada to decontaminate steam generators locally in the future. Canada does not possess the technology to decontaminate the material now. However, if we did acquire the technology in the

future and wanted to decontaminate the generators in Canada, depending on the terms of CETA, Canada may be forced to provide the same trade opportunities to foreign companies as they provide to Canadian or local companies. If there is an investor-state dispute mechanism included in CETA, foreign companies may be able to sue Canada if the CNSC denies approval for future shipments of this nature.

Although the CNSC has dismissed concerns about this shipment setting a precedent, the decision can clearly set a precedent nationally and internationally.

Environmental Assessment

In 2006, an environmental assessment was conducted on the Proposed Bruce A refurbishment which approved leaving the steam generators on site. However, refurbishment plans have been altered with the decision to ship the steam generators through the Great Lakes and St. Lawrence Seaway to Sweden. We believe Bruce Power's plan to ship 16 steam generators to Sweden is a project that requires an environmental assessment under the Canadian Environmental Assessment Act (CEAA).

The scope of the 2006 environmental assessment has also been altered. The scope of the project for the Refurbishment for Life Extensions and Continued Operations of the Bruce A Nuclear Generating Station is set out in Section 7.0 of Appendix 1 of the 2006 Screening Report. It states that the scope of the Bruce A project includes "transportation of refurbishment and other radioactive wastes on the Bruce Power site to their destination at the Western Waste Management Facility (WWMF) operated by Ontario Power Generation."

In Bruce Power's 2005 Presentation to the Joint Council of the Saugeen Ojibway Nations, Bruce Power stated that:

Bruce Power is committed to reducing, reusing and recycling wastes produced at the Bruce Power site to the extent possible. For example scrap metals which are proven not to be radioactive are recycled.

However much of the waste, and particularly low and intermediate level waste containing radioactivity cannot be recycled for safety and environmental reasons. This waste is transferred to OPG's Western Waste Management Facility where it is processed to reduce its volume prior to be placed in storage.

In the 2006 Screening Report, Table 11.3 states that, "The EA for the project considers the production of the wastes and transfer of the wastes to the WWMF until 2043. OPG is currently undertaking a separate EA to expand the WWMF for interim storage of low and intermediate level wastes."

The CNSC noted that the "application to package the transport the steam generators is a separate proposal from the 2006 refurbishment" in its Record of Proceedings. However, based on the above

documents, it is clear that Bruce Power has altered their plans which were included in the environmental assessment. The destination of the radioactive waste is no longer the Western Waste Management Facility. Although 10% of the waste will return to Bruce Power, 90% of the waste will be recycled in Sweden. The destination for 90% of the waste will now be various parts of the world since the recycled scrap metal will be free released into the consumer market.

Since the destination has been altered, an environmental assessment of the shipment and recycling of the steam generators is required. Since transportation of radioactive wastes to their destination was part of the scope of the 2006 Environmental Assessment, the transportation and recycling of the steam generators should also within the scope of the environmental assessment. Section 4(c) of the CEEA states that the purpose of the Act is "to ensure that projects that are to be carried out in Canada or on federal lands do not cause significant adverse environmental effects outside the jurisdictions in which the projects are carried out."

At the 2009 International Conference on Control and Management of Inadvertent Radioactive Material in Scrap Metal, experts stated that "The presence of inadvertent radioactive materials...can pose potentially severe health, environmental, and financial consequences for the industry and the public alike." For these reasons, the 2006 Environmental Assessment needs to be reviewed in order to determine what environmental effects recycling the radioactive steam generators will have on outside jurisdictions. Although the CNSC has noted that the permit only

In the CNSC's Record of Proceedings, the Commission argues that an EA is not needed because "storage and possession of nuclear substances, as well as other proposals involving the packing and transport of nuclear substances" is not a project.

Under the CEEA, a project is defined as:

- (a) in relation to a physical work, any proposed construction, operation, modification, decommissioning, abandonment or other undertaking in relation to that physical work, or
- (b) any proposed physical activity not relating to a physical work that is prescribed or is within a class of physical activities that is prescribed pursuant to regulations made under paragraph 59(b);

The CNSC has defined 'project' very narrowly. Based on the definition in (a), a project is defined very broadly, particularly the part that states that a project any modification or "other undertaking in relation to that physical work." Based on this encompassing definition, the shipment of the radioactive steam generators could be defined as a modification or "other undertaking...of that physical work" (i.e. the Refurbishment for Life Extensions and Continued operations of the Bruce A Nuclear Generating Station).

For these reasons, the Council of Canadians request that a new environmental assessment be conducted.

Accident Scenarios, Drinking Water and Radiation Levels of the Great Lakes

In Bruce Power's application (CNSC Document 10-H19), Appendix E outlines the emergency response plans of 10 scenarios including fire, serious accidents, release of Irradiated Nuclear Fuel material, system/equipment failure, collision and structural failure, grounding/stranding, weather damage (including flooding) and sabotage/terrorism.

However, the scenarios do not include a response plan for the ship sinking. The CNSC staff also provided some accident scenarios. CNSC staff noted that an accident would only result in a partial release of 0.132% of the total activity. Bruce Power and CNSC staff argue that the total possible release is negligible. However the Great Lakes and St. Lawrence Cities Initiative has noted that an accident with only one generator in Owen Sound Harbour has the potential to exceed Health Canada's Drinking Water Action Levels by 6 times (if release rate is 100 per cent). The Mohawks of Kahnawake have also expressed concerns that the shipment could threaten their drinking water. If an accident were to occur, low level radiation can still significantly impact the environment and human health.

The International Institute of Concern for Public Health (IICPH) noted the presence of radionuclides such as tritium and carbon-14 in the Great Lakes. The IICPH also warns that low doses of radiation in Great Lakes water systems pose a serious health hazard. The Great Lakes Information Network has noted that "long term low level exposure to ionizing radiation has been associated with the development of leukemia and other cancers." They also highlighted that "radiation weakens the immune system, and that exposure even at low levels may lower one's resistance to infectious diseases, as there is a depression in the white blood cell count at high levels of radiation exposure."

Based on Bruce Power's estimates of the isotopes and the mass of the isotopes, the steam generators are approximately 90% plutonium. In particular, the steam generators are nearly two-thirds (approximately 64%) plutonium-239. According to the US Environmental Protection Agency, plutonium-239 has a half-life of 24, 100 years. They have noted that plutonium "internal exposure to plutonium is an extremely serious health hazard. It generally stays in the body for decades, exposing organs and tissues to radiation, and increasing the risk of cancer. Plutonium is also a toxic metal, and may cause damage to the kidneys."

Although compensation is part of the recovery actions, it is unclear how Bruce Power will be held responsible for any cumulative and long-term effects of low level radiation resulting from an accident.

Risks of Recycling Radioactive Material into Scrap Metal

The steam generators will be decontaminated in Sweden and the metal will be free released onto consumer markets to be made into household and other items. It is not common practice for scrap metal from decommissioned facilities to be free released for unrestricted use. Normally, scrap metal

from decommissioned facilities is released under limited conditions. The UN Economic Commission for Europe and the Steel Manufacturer's Association have condemned this practice.

At the 2009 International Conference on Control and Management of Inadvertent Radioactive Material in Scrap Metal, experts stated that "The presence of inadvertent radioactive materials...can pose potentially severe health, environmental, and financial consequences for the industry and the public alike." Although a country's guidelines on importing scrap may meet international standards, enforcement and monitoring is inadequate. The health risks of (long-term) exposure to radioactive scrap metal are well documented. Further, with Studsvik's plant in Nyköping, the recycling of this radioactive waste will further pollute the waters of the Baltic Sea, which is already known as one of the most radioactive seas in the world.

In Canada, we need to have a broader, national dialogue on whether we want to contribute to the radioactive scrap metal market. Although the scrap metal will remain in Sweden, it may return to Canadian markets as manufactured goods. Do we, as a nation, want to contribute to the circulation of scrap metal from radioactive sources given the health risks of long-term exposure? Even if it does not return to Canadian markets, what legal and moral obligations do Canadians have in contributing to scrap metal that causes illnesses or health risks in other countries? These are critical questions the Canadian government and the public need to examine before approving a shipment that will result in the free release of inadvertent radioactive scrap metal.

Lack of Meaningful Public Consultation

The Council of Canadians is also concerned about the lack of meaningful public consultation on this issue. Bruce Power has stated that they consulted with the Saugeen Ojibway Nation (SON), Historic Saugeen Métis and Métis Nation of Ontario. The SON is opposed to the importation of nuclear waste into their traditional territory. Aside from the SON, Historic Saugeen Métis and Métis Nation of Ontario, Bruce Power has not reported any other consultations with First Nation communities in the area even though water in these territories could be polluted if an accident were to occur.

The Mohawks of Akwesasne Grand Chief Mike Kanentakeron Mitchell has decried the lack of consultation stating, "We were never consulted even though the shipment is planned to pass through our territorial waters." When a reporter at the media briefing asked about public consultation with the Mohawks of Akwesasne, CNSC's Executive Vice President and Chief Regulatory Officer Ramzi Jamal quickly noted that the CNSC had conducted consultations with the City of Montreal and the Mohawks of Akwesasne. Although the Mohawks of Akwesasne had requested a consultation with the CNSC, the CNSC's presentation does not replace Bruce Power's obligation to consult with communities. There is a need for CNSC and Bruce Power to consult with communities but these are not one and the same. However, the CNSC appears to be acting on behalf of Bruce Power in consulting with communities. The CNSC presentation to the City of Montreal and the Mohawks of Akwesasne assures audiences of the safety of radioactive shipments on the Great Lakes and fails to examine possible risks or public concerns.

The CNSC presentation advocates for Bruce Power's plan, even though the CNSC has stated that the presentation was not about the Bruce Power shipment but rather about nuclear shipments in general.

Although the CNSC held a public hearing in September 2010, many First Nations and communities still do not feel there has been adequate consultation. First Nation group that oppose the shipment include Chiefs of Ontario, the Mohawks of Akwesasne, Kahnawake and Tyendinaga, Saugeen Ojibway Nation, Indigenous Environmental Network, Union of Ontario Indians and the US Saint Regis Mohawk Tribal Council. The mayors of Montreal and Sarnia have also strongly opposed this shipment. Organizations in Europe have expressed opposition including the Swedish Environmental Movement's Nuclear Waste Secretariat, Nuclear Free Local Authorities (UK and Ireland), KIMO, Green World (Russia), the Campaign for Nuclear Disarmament (UK) and Sortie du nucléaire (France). Many European organizations are monitoring developments related to the shipment. The Scottish government has expressed concerns about the shipment's passage through Scottish waters.

The CNSC's decision also calls into question what it means to consult with a community or with the public. Nearly 80 groups and individuals made written submissions to the CNSC with the majority of them opposing the shipments. Half of the groups spoke at the CNSC's public hearing. Thirty-two of the interveners made supplementary submissions in November raising further concerns and questions that were not addressed at the hearing. Despite this opposition, the CNSC has approved the plan. This disregard for public concern raises the question of how much input communities have in the consultation process.

The Precautionary Principle

The CNSC failed to apply the "precautionary principle" to its decision on Bruce Power's request for a licence under special arrangement. Principle 15 of the 1992 Rio Declaration on Environmental and Development gives a general description of this principle: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." The "precautionary principle" is recognized by over 20 international treaties and agreements including the *Convention for the Protection of the Marine Environment of the North-East Atlantic* and the *Convention on the Protection of the Marine Environment of the Baltic Sea Area*.

The "precautionary principle" outlines several considerations for decisions affecting the environment and human health. International legal expert Jon M. Van Dyke states that this principle "accords respect to ecosystems and living creatures for their own sake, without requiring that they prove themselves to be useful or to have marketplace value. It rejects the idea that risks and costs can be transferred from one region to another, or from this generation to future ones." We believe that recycling these radioactive stream generators does not simply transfer financial risks to Studsvik. This shipment also creates significant health, environmental and financial risks for communities along the Canadian and American transport routes and communities along the North Sea and the Baltic Sea. As highlighted by

the “precautionary principle,” this shipment also creates significant risks to the health and natural environment of future generations.

Conclusion

The Great Lakes holds nearly 20% of the world’s freshwater. They provide drinking water to 40 million people in surrounding areas. The Great Lakes is a global commons, public trust and protected bioregion. We need to protect our precious water sources. Statistics Canada released a report last year that said our renewable water sources have decreased by 8.5% in the last 35 years. The Great Lakes as a common water source needs constant and careful management.

The Canadian Nuclear Safety Commission’s mandate is to protect the health, safety and security of Canadians as well as the environment. We believe that the shipment poses short-term and long-term risks that outweigh the benefits and do not serve the public interest.

We have outlined several critical concerns about the shipment in our submission. We request that the Standing Committee on Natural Resources include in their report to the House of Commons recommendations for:

- A full public consultation on the shipment including First Nations and municipalities.
- A comprehensive environmental assessment into the shipment plans.
- A ban on radioactive shipments through the Great Lakes and St. Lawrence Seaway to uphold the “precautionary principle” recognized in international law.

We thank the Standing Committee on Natural Resources for considering our concerns regarding the Canadian Nuclear Safety Commission’s decision to approve shipment of 16 steam generators by Bruce Power.