

November 22, 2010

Additional comments on Bruce Power's proposal to ship 16 steam generators from Ontario to Sweden -- via the Great Lakes, connecting rivers, and the Atlantic Ocean -- for so-called "recycling"

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These additional comments have been submitted to

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Dear CNSC,

Please accept the following comments on the CNSC staff's CMD: 10-H19.D, dated October 18, 2010. Note that page numbers refer to the PDF labeled "CMD10-H19.DFINAL-Supplemental\_Information\_to\_Commission\_Members[1].pdf".

At page 10 of 249 (p.10/249) [that is section 2.0 Environmental Impact, page 4, paragraph 1], CNSC staff speaks of an "abundant safety margin." But CNSC staff admitted at the late September, 2010 public hearing that the welds sealing shut the radioactive steam generators are qualified to a depth of 800 feet, which is the depth of Lake Ontario. That means there is zero safety margin, not an "abundant safety margin." Would the welds hold on the bottom of Lake Ontario? Or would they fail, allowing Lake Ontario water in, and soluble and hazardous radioactive isotopes (such as Cesium-137 and various Plutonium isotopes) out via simple diffusion?

In addition, depths in the Atlantic Ocean are much deeper. If the ship were to sink in the Atlantic, wouldn't the welds fail under the intense pressures on the ocean bottom? Wouldn't the steam generators actually implode, releasing all of their radioactive contents? What radiological, ecological, economic, etc. impact would this have, if it occurred near or on a vital fishing ground?

Also, the concluding paragraph of section 2.0 offers a weak and incorrect argument attempting to justify CNSC's and Bruce Power's reversal of decision from the environmental assessment associated with Bruce Power's refurbishment and the current radioactive steam generator shipment and so-called "recycling" proposal. In the previous environmental assessment, the radioactive steam generators were described as radioactive waste unsuitable for so-called "recycling." The concluding decision of the EA was to store the radioactive steam generators on site at Bruce until a burial site was available. While Beyond Nuclear certainly does not support the permanent burial of radioactive steam generators – or any other radioactive wastes for that matter – at Bruce on the Lake Huron shore – interim storage at Bruce until safer and more environmentally protective management policies for the radioactive steam generators is much preferable to the current Great Lakes shipment and so-called "recycling" proposal. The EA's decision should be honored and upheld. A deal is a deal. To reverse the EA's decision would be to violate the public's past good faith involvement in CNSC EA proceedings, henceforth creating deep mistrust

On p.13/249 ("page 7," paragraph 3), CNSC staff write:

"The estimated conveyance limit for the shipment of the 16 steam generators is 622 A2 which is 6.22 times (and not 50 times) the SCO limit of 100 A2. This clarifies the issue of the shipment being 6 times and not 50 times exceeding the conveyance limit."

I must point out that exceeding the SCO limit by 6.22 times is also unacceptable. In addition, CNSC staff's decision to allow a ten-fold increase in "allowable" radioactivity on board the single ship, by choosing to apply A2 values rather than A1 values, is also unacceptable. CNSC is doing Bruce Power a favor by relaxing regulations, which puts at increased risk public health and safety and the environment.

On p.14/249 ("page 8," paragraph 3), CNSC staff even goes so far as to allow yet another order of magnitude of radioactivity content on board the single ship, stating:

“For clarity, as this vessel is an INF 2 vessel, the safety margin of 10 will render the SCO limit to be 100 A2 x 10 or 1000 A2. The estimated conveyance of all 16 steam generators is 622 A2 which is well below the 1000 A2 based on the INF classification of the seaworthy vessel.”

It seems that CNSC staff is eager to do such favors for Bruce Power at every turn, by granting exemptions that increase risks to public health and safety and the environment. This is unacceptable.

At p.16/249, under section 3.0, first paragraph of “page 10,” CNSC staff writes:

“Although direct sampling of more tubes would give a more accurate and precise determination, the values presented should be accurate within +/- 30%.”

Plus or minus 30% is a huge range. It indicates that CNSC staff, as well as Bruce Power, do not have an accurate or precise grasp of the actual radioactivity content of these radioactive steam generators. Combined with the exclusion of Pu-241 from consideration in the environmental analysis until very shortly before the public hearings in late September 2010, public confidence in CNSC staff’s ability to do a careful, comprehensive, accurate and precise determination of the actual radiological risks associated with this proposal is severely shaken.

In the very next paragraph, CNSC staff writes:

“Under this reasoning, long lived isotopes of uranium which have unlimited A2 values are not listed.”

All of the radioactive isotopes contained in the radioactive steam generators should be included in the environmental analysis. Both their radioactive hazards and their toxic heavy metal hazards should be assessed.

On p.18/249, section 4.0, “page 12,” first full paragraph, CNSC staff writes:

“Water transport accidents can occur on inland waterways, harbours or ports, and on oceans or seas. Planning for such events would be very similar to planning for events on land.”

This conclusion is very difficult to understand. While land based accidents would involve their own dynamics – such as dispersal of escaping hazardous radioactivity on the wind – water based accidents would likely be much more complicated to deal with. For example, where will a crane strong enough to lift 100 ton radioactive steam generators be brought in from? What if the welds have failed, or the steam generators have completely imploded, due to the pressure of the under water submersion? Infiltrating water would then be able to carry off water-soluble radionuclides into the environment. Radioactive particles could also “hitch a ride” via colloidal transport. Such underwater dynamics would mean that planning for accidents on waterways, harbours, ports, oceans or seas would involve very different planning than for accidents on land.

Under section 5.0, RADIATION PROTECTION, also on p.18/249 (“page 12”), CNSC staff writes in the last paragraph:

“With respect to the recycling of the clean metal separated out of the 16 steam generators during their processing at the Studsvik facility in Sweden, any material released by Studsvik for recycling must conform to the strict clearance levels in place in the European Union. These levels ensure that any radiation doses resulting from re-use of this material for any purpose would be less than 10 microSievert per year. This is less than 1 percent of the annual public dose limit.”

But what about the potential for multiple exposures. If the nuclear power industry has its way, more and more radioactive wastes will simply be declared “below regulatory concern” or some similar deceptive euphemism, and be allowed to enter various “recycling” streams, where they will contaminate materials that could then end up in intimate personal use consumer products. Unsuspecting consumers could then be exposed to a growing number and intensity of radioactive exposures from items in their own homes and workplaces, as well as from public infrastructures. CNSC assumes that exposure to “recycled” radioactive wastes will be limited to single instances. Given the risk and growing likelihood of multiple such exposures, CNSC’s assumption is baseless and optimistic.

Under section 6.0 INTERNATIONAL PRACTICE RELATING TO SHIPMENT OF

STEAM GENERATORS, p.19/249 (“page 13”), CNSC staff write:

“Germany made a presentation related to the shipment of large components such as steam generators and reactor pressure vessels at the 16th International Symposium on the Packaging and Transport of Radioactive Material (PATRAM) Conference held in London, United Kingdom on October 3 to 8, 2010. The presentation outlined the process followed by the German regulatory authorities to authorize the transport of these large components under special arrangement. Four (4) steam generators, each weighing approximately 200 tons, categorized as Surface Contaminated Objects SCO-II, were transported by road and sea from Germany to Sweden. This presentation demonstrated the safe transport of the 4 steam generators from Germany to Studsvik by road and sea.”

It is ironic CNSC cites German radioactive waste transport as a precedent to follow. Within recent weeks, 50,000 protestors in Germany resisted a shipment of radioactive waste returning from reprocessing in France by blocking roads and railways with their own bodies, non-violently. In recent months, 100,000 anti-nuclear protestors rallied in Berlin and 150,000 protestors formed a human chain between two German nuclear power plants, all in opposition to license extensions at German reactors. As the German anti-nuclear movement and population learns of radioactive steam generator shipments to Sweden for so-called “recycling” – which could radioactively contaminate German consumer products – Studsvik and German nuclear utilities could find themselves the subjects of large-scale protests as well.

Also on “page 13,” under section 7.0 CONCLUSION, CNSC staff oddly state:

“The shipment of the 16 steam generators from the Bruce Site to Sweden under Special Arrangement would have no impact on the environment, the public and workers.”

“No” impact? How can CNSC say that? Zero impact? Just two pages earlier, under section 4.0 EMERGENCY MEASURES (p.16/249, “page 10”), under “Mitigation,” CNSC acknowledges the need for:

“• Immediate actions to be taken to prevent the potential spread of contamination

- Radiation instrumentation and surveyors available
- Access and egress control to scene
- Personal Protective Equipment for responders
- Decontamination of persons, equipment, environment
- Control of contaminated items and areas
- Cordoning of area
- Equipment”

Under “Response,” “Radiation Protection” is mentioned.

Under “Recovery,” “Decontamination,” “Restoration,” and “Compensation” are listed.

All of this indicates the risk of radioactivity releases. The risk is certainly greater than “none” or zero. CNSC staff’s expression “no impact” is entirely inappropriate. Why does CNSC staff attempt to downplay the risks to zero? It’s unacceptable.

Under APPENDIX A: ENVIRONMENTAL IMPACT, at p.25/249 (“page 1”), under the second paragraph of the “Review Summary,” CNSC staff states:

“The consequences of a partial release of the inventory (0.132%) from one steam generator were assessed for a credible, but very low probability accident: a nearshore accidental release before expected salvage operations mitigated any impacts.”

Why isn’t a higher percentage of the inventory assumed potentially to leak? 0.132% seems an arbitrarily low figure. What if there is damage to the radioactive steam generators that breaches the outer shell, bringing the intensely radioactive inner tube bundles into direct contact with the environment? What if “fixed radioactive contamination” becomes “un-fixed” due to the jolting forces of an accident?

On p.26/249, “page 2,” under Application for a Licence to Package and Transport Steam Generators under Special Arrangement, 1.0 Background, in the very first paragraph, CNSC staff writes:

“Due to the very large dilution potential of the Great Lakes and St. Lawrence River...”

In the very next paragraph, CNSC staff writes “The nearshore dilution potential of this freshwater system...”

May I point out to the CNSC staff that the Great Lakes is not an industrial sewer for radioactive discharges? It is 20% of the world’s surface fresh water, and the drinking water supply for 40 million people! As Dr. Rosalie Bertell has emphasized through a lifetime of genuine public service, calling attention to radioactivity’s human health risks, “dilution is not the solution to radioactive pollution.” Claiming that “dilution is the solution to radioactive pollution” is mere delusion.

In addition, in her service on the International Joint Commission nuclear issues task force, Dr. Bertell helped highlight the risks of bio-magnification or bio-accumulation in the food chain. Has CNSC staff considered this issue when it so optimistically assumes that “dilution is the solution to radioactive pollution”? Bio-magnification reverses dilution of radioactivity. Besides that, the U.S. National Academy of Science, in its 2005 BEIR VII report (the Biological Effects of Ionizing Radiation, 7th report) re-affirmed that any and all exposures to radiation carry a health risk, even exposure to low-level radiation, and that these risks are cumulative over a lifetime. CNSC’s apparent comfort with this shipment’s radioactivity “diluting” in the Great Lakes ignores the fact that residents of the bio-region will still be exposed to the artificial radioactivity, albeit in lower concentrations, which still carry health risks, especially when considering the population as a whole. Radioactivity thus released doesn’t simply disappear. In fact, it would add to the radioactive burden in the environment, which has grown significantly since the dawn of the “Atomic Age.”

Under Action Levels for Protection of Drinking Water on “page 3” (p.27/249), CNSC staff quotes Health Canada as saying



“If there is no shortage of nutritionally adequate alternate food or other social/economic constraints, action levels for the withdrawal and substitution of food and drinking water following a nuclear emergency should be based on this table.”

Such optimistic assumptions are divorced from real world realities. Canada and the U.S. are currently facing a severe economic recession. Michigan is actually experiencing Depression level unemployment and economic collapse. Assuming that substitute food and drinking water can be readily obtained is an unduly optimistic assumption. Residents of the worst afflicted zones of radioactive contamination downwind and downstream of the Chernobyl Dead Zone in Ukraine, Belarus, and Russia have no choice but to eat and drink what they fear and even know to be radioactively contaminated food and water – for they have no ready substitutes!

And are Health Canada and CNSC saying that the region’s agriculture, Great Lakes fisheries, and the drinking water supply for 40 million people – or at least the part of it that would be devastated by a radioactive steam generator shipping accident -- is somehow easily “substituted”? How? Is one of the most vibrant economies on the planet – that of the U.S. and Canadian Great Lakes region – thanks in large part to the waters of the Great Lakes – expendable? Such notions are completely divorced from reality. Are the short term interests of Bruce Power somehow superior to the general interests of the Great Lakes region and its residents? CNSC staff’s attitude would seem to indicate it thinks so.

At p.28/249, CNSC staff assumes a single steam generator would be involved in an accident. Why couldn’t multiple steam generators be involved in an accident? After all, all 16 would be on the same ship. In that sense, all 16 radioactive steam generators would be involved in the accident, if one occurs.

At p. 31/249, CNSC staff states that risk is “very low,” and that “this activity would not pose an unreasonable risk.” Many environmental groups, municipalities, and Native American Tribes/First Nations along the targeted shipping route disagree. “Very low” and “(not) unreasonable risks” are not equal to “no risk” or zero risk, as CNSC staff has claimed, as I pointed out above. How does CNSC staff define “reasonable risk.” Reasonable for whom?

Also, ERAD claims to have conducted a “peer review” internally. Such an internal “peer review” is not adequate. What about an independent, robust peer review?

As I've stated previously, Beyond Nuclear and NPRI are one and the same group. NPRI has offices in California, where it is still Nov. 22nd. I request you accept not only these comments above as timely, but that you accept my comments on the remaining 90% of the document I have not been able to review yet, given CNSC's arbitrarily short deadline.

Sincerely,

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Beyond Nuclear and NPRI aim to educate and activate the public about the connections between nuclear power and nuclear weapons and the need to abandon both to safeguard our future and advocate for an energy future that is sustainable, benign and democratic.