

Canadian Coalition
for Nuclear
Responsibility



Regroupement pour
la surveillance
du nucléaire

September 30, 2016

The Right Honourable Justin Trudeau
Prime Minister of Canada
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President Barack Obama
United States of America
White House, 1600 Pennsylvania Ave. N.W.
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Dear Prime Minister Trudeau and President Obama:

Re: Transport of Highly Radioactive Liquid Waste over Public Roads

We are writing to you in connection with Canada's commitment to eliminate highly enriched uranium (HEU) from civilian nuclear facilities such as Chalk River as part of President Obama's 2009 initiative – a goal that we fully support and applaud as part of a global non-proliferation objective. However we do **not** support current plans to transport HEU in liquid form from Chalk River to the U.S. Department of Energy's Savannah River Site in South Carolina in 100-150 truckloads along public roads and bridges. Each such shipment will carry an inherently dangerous highly radioactive liquid solution containing dozens of nuclear fission waste byproduct materials in addition to the HEU.

Duty to Act

Under the 2012 *Great Lakes Water Quality Agreement* (GLWQA) which your two governments are the Parties to you committed to “eliminate or reduce, to the maximum extent practicable, environmental threats to the Waters of the Great Lakes” [Art. 2 1 (c)] and “to anticipate and prevent environmental problems, by implementing measures that are sufficiently protective to achieve the purpose of this Agreement” [Article 2 3].

The proposed series of transports of highly radioactive liquid waste over a period of years could have a potentially devastating impact on the *Great Lakes/St. Lawrence River* ecosystem. Depending on the routes chosen, there could be a spill or spills into a waterway flowing into the Great Lakes or the St. Lawrence River, or a spill into one of the rivers connecting the Lakes (St. Mary's River, St. Clair River, Detroit River or the Niagara River), or a spill directly into the St. Lawrence River itself.

The GLWQA stipulates that notification through the Great Lakes Executive Committee (GLEC) is required where planned activities concerning “storage and transfer of nuclear

waste” could lead to a pollution incident or could have significant cumulative impact on the Great Lakes.¹ Has such notification occurred through the Great Lakes Executive Committee? More importantly, has the Great Lakes Executive Committee been accurately apprised of the contents and potential hazards of these planned shipments?

In the absence of detailed and accurate notification, the GLEC cannot respond by providing meaningful advice to your governments and providing your governments with “perspectives and insights from federal agencies, state and provincial governments, tribal governments, First Nations, Métis, municipal governments, watershed management agencies, and local public agencies on issues relating to the implementation of the GLWQA,” in accordance with the terms of its mandate, which also allows for public input.

Misleading Description

It has come to our attention that the radioactive liquid in question has been misleadingly described by the Canadian Nuclear Safety Commission (CNSC) as “Highly Enriched Uranyl Nitrate Liquid” (HEUNL). Such a description seriously misrepresents the extremely toxic and radiologically complex nature of this liquid waste. Highly enriched uranyl nitrate is a specific chemical compound² that is only one of dozens of compounds contained in the acidic liquid solution, which includes (among others) radioactive varieties of cesium, strontium, iodine, yttrium, rhodium, ruthenium, lanthanum, europium, niobium, praseodymium, zirconium, cerium, barium, xenon, and neodymium – each one having a much greater radioactivity than the highly enriched uranium itself. Indeed, the highly enriched uranyl nitrate portion represents less than one ten-thousandth of the total radioactive inventory contained in the liquid contents of the proposed shipments.³

Never before in North America has liquid waste of this nature, containing virtually the entire spectrum of fission products found in irradiated uranium, been transported over public roads. Moreover, liquid waste of a very similar nature left over from isotope production operations, also containing highly enriched uranyl nitrate liquid, has been routinely solidified on-site at Chalk River since 2003, ever since the Fissile Solution Storage Tank (FISST) was completely filled and could accommodate no more liquid.

¹ GLWQA 2012, Article 6, Notification and Response (c) “the Parties shall notify each other, through the Great Lakes Executive Committee, of planned activities that could lead to a pollution incident or that could have a significant cumulative impact on the Waters of the Great Lakes, such as: (i) the storage and transfer of nuclear waste or radioactive materials...”.

² The chemical formula of uranyl nitrate is $UO_2(NO_3)_2$ where the uranium (U) in this case is highly enriched (HEU).

³ CNSC 2014, Technical Assessment Report: NAC-LWT Package Design for Transport of Highly Enriched Uranyl Nitrate Liquid, Table 2. Radioactivity of highly enriched uranyl nitrate per litre is 29.3 MegaBecquerels (2.93E+07 Bq), whereas total radioactivity per liter is 485,000 MegaBecquerels (4.85E+11 Bq). The ratio is 1 to 16,553. The total radioactivity is underestimated because only the principal gamma emitters and actinides are listed.

We therefore fail to understand or accept any justification for transporting this highly dangerous material in liquid form.

Failure to prepare an Environmental Impact Statement (EIS)

We also fail to understand why this unprecedented transport of highly radioactive liquid waste has not been subjected to any public environmental assessment process in Canada or in the USA, involving the preparation of an Environmental Impact Statement (EIS) so that other government departments and the public can provide input on the potential environmental impacts, as well as on alternative waste management approaches that could make the transports unnecessary. Indeed, it appears to us that proper notification through the Great Lakes Executive Committee would only be meaningful if such an EIS were carried out in both countries so that the results of those assessments could be made available to the GLEC.

Alternatives are available

As noted in a 2011 report prepared for the Canadian Minister of Natural Resources, the liquid waste in the FISST tank that is now planned to be shipped to South Carolina was originally intended to be down-blended in order to eliminate Highly Enriched Uranium (HEU) by converting it to Low Enriched Uranium (LEU). LEU is not nuclear-weapons-usable material and can therefore be solidified and stored on-site indefinitely, along with the solidified contents of some 20 other tanks of liquid nuclear waste at Chalk River.⁴

In February 2016, Indonesia was authorized by the US DOE to carry out such a down-blending of radioactive liquid containing weapons-grade highly enriched uranyl nitrate, thereby foregoing the need to transport the material to the USA. The Indonesian down-blending operation has already been completed, just a few months after permission was granted. The Indonesian weapons-grade HEU liquid was associated with the production of medical isotopes, as is the case with the Chalk River material.⁵ Solidification of the liquid waste in the FISST tank at Chalk River is likewise a viable option, as previously mentioned, and can be used in conjunction with down-blending.

⁴ NRCan 2011, **Evaluation of the Nuclear Legacy Liabilities Program (NLLP) of the Energy Sector**, Section 1.52, "The purpose of the *Liquid Waste Transfer and Storage (LWTS)* Project at the Chalk River Laboratories was to provide a new storage facility for legacy radioactive waste contained in 21 aging tanks... The specific objectives of the LWTS Project were to design, licence, construct, and cold commission the equipment, materials and facilities necessary to...down-blend the contents of the Fissile Solution Storage Tank (FISST) to a Uranium-235 enrichment level low enough to minimize criticality and safeguard constraints...."

⁵ US Federal Register, Feb 22 2016, DOE Proposed Subsequent Arrangement: "This subsequent arrangement concerns the alteration in form or content of 1.3 kg of U.S.-origin highly enriched uranium (HEU), 1.21 kg of which is in the isotope of U-235 (93 percent enrichment) and currently located at PT Industri Nuklir (PT INUKI) in Serpong, Indonesia, through down-blending to reduce its enrichment to less than 20 percent U-235. The purpose of the down-blending of the HEU is to achieve permanent threat reduction by eliminating HEU from Indonesia... The down-blend operation is scheduled to last for approximately three months."

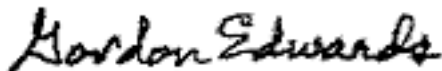
Recommendations

We ask you, Mr. Prime Minister and Mr. President, to cancel or delay these planned shipments of liquid radioactive waste from Chalk River to the Savannah River Site until (1) a public environmental impact statement has been prepared in Canada and in the United States that includes a full examination of potential environmental impacts as well as viable alternatives to the planned transport, with the opportunity for public input; and (2) proper notification of the radioactive contents and potential impacts of the proposed shipments of highly radioactive liquid waste has been provided through the Great Lakes Executive Committee and communicated to all stakeholders, including the appropriate EIS documents.

We look forward to receiving your response within 30 days as to the status of either cancelling these unprecedented shipments of highly radioactive liquid wastes, or preparing environmental impact statements in both Canada and the USA that are independent, comprehensive and public, to address the unique hazards associated with these proposed transports.

If your office has any questions or comments with respect to any of the above, please feel free to contact the undersigned regarding radiological characteristics and hazards of the proposed shipments, or contact Christine Elwell, Sierra Club Ontario at christine.elwell@sympatico.ca for considerations related to the *Great Lakes Water Quality Agreement*.

With respect,



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Letter to Prime Minister Trudeau and President Obama, September 30, 2016

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