

**UNITED STATES OF AMERICA**  
**NUCLEAR REGULATORY COMMISSION**

In the Matter of:	)	Case No. NRC–2017– 0156
	)	Docket #11005323
Diversified Scientific Services, Inc.	)	License No. XW008/05
DSSI	)	
	)	
	)	August 10, 2017
	)	

**REQUEST FOR HEARING AND LEAVE TO INTERVENE IN**  
**DSSI EXPORT SPECIFIC LICENSE AMENDMENT/RENEWAL**

**Petitioners**

Petitioner **Nuclear Information and Resource Service** (“NIRS”) is a nonprofit § 501(c)(3) organization situated at 6930 Carroll Avenue, Suite 340, Takoma Park, MD 20912. Founded in 1978, NIRS is a national information and networking center for individuals and organizations concerned about nuclear power, radioactive waste, radiation and sustainable energy issues which has some 30,000 supporters, some of whom live along transport routes, the border crossings and in the vicinity of the waste processor(s). NIRS opposes the burning, unregulated landfilling, so-called “beneficial” reuse, contamination of “recycling” streams and other uses, processes, purposes and destinations of radioactive wastes and materials as well as unnecessary transportation and dispersal of radioactive wastes and materials, especially internationally.

Petitioner **Tennessee Environmental Council** (the Council), a 501(c)(3) nonprofit organization and serves as a statewide focal point for the environmental efforts of numerous organizations and individuals working for a Sustainable Tennessee, on Watershed Support, Tennessee Tree Project, Radioactive Waste Education and other projects. Located at One Vantage Way, Suite E-250, Nashville, TN 37228, phone 615-248-6500, the Council’s Mission is educating and advocating for the conservation and improvement of Tennessee’s environment, communities, and public

health since 1970. Their vision is a Tennessee that embraces natural resources as the backbone of our communities, economy and quality of life for all present and future generations. The Council has members who live, work, travel and play along transport routes to and from and in the close vicinity of DSSI.

Petitioner **Don't Waste Michigan** (DWM) founded in 1987 by concerned citizens and organizations is a statewide organization dedicated to preventing nuclear contamination in Michigan and its ecosystems. With 40 active researchers and educators statewide, DWM educates and empowers the public about nuclear waste, nuclear power, nuclear weapons. DWM frequently joins in coalition with environmental groups and conducts conferences. Members live near the entry and exit point for nuclear waste and materials import and export to and from Canada and the US Perma-Fix DSSI facility in Tennessee and along the transport routes.

Diane D'Arrigo, who is staff and member of Nuclear Information and Resource Service, a member of Tennessee Environmental Council and a member of Don't Waste Michigan is duly authorized by these organizations to represent them in this proceeding under 10 CFR 2.34(b).

## **Issues**

### **Issue 1: Incomplete application**

**10 CFR 110.32(f)(1)** requires a description of the material in grams or kilograms and terabequerels or TBq and its chemical and physical form. Neither the export application nor the Federal Register announcing it provide the description of the material in grams or kilograms and terabequerels or TBq and its chemical and physical form. The export application XW008/05 dated March 29, 2017 does not contain this information for the waste to be sent back to Canada.

In fact the Federal Register notice summary of the application [*Federal Register / Vol. 82, No. 131 / Tuesday, July 11, 2017 / Notices page 32016*] is internally inconsistent and does not accurately reflect the XW008/05 application information. The Federal Register notice states that the Material Type is "Class A, B, or C radioactive waste." It (and the XW008/05 application at Block 10 1.) states that the End Use is "Amend to: ...(3) *remove reference to Waste*

***Classification as defined in Title 10 of the Code of Federal Regulations (CFR) 61.55, and reference to Table A2 values of 49 CFR 173.435 from the waste description; (4) remove previous references to Import License IW012/05; and (5) allow for the export of Class A, B, and/or C radioactive waste.***”

Contradiction: Class A, B and/or C are definitions from Title 10 of the Code of Federal Regulations (CFR) 61.55. 10CFR 61.55 Tables 1 and 2 define Classes A, B, C and Greater than C. If the Federal Register reference to 10 CFR 61.55 is being removed as stated in the same chart in box under the title ‘End Use,’ and in Block 10 item 1.of the application, then the waste cannot be described in that way—as Class A, B, C. It is a contradiction which can be ferreted out in a public hearing. Further in the same ‘End Use’ box in the Federal Register, item 5 lists “(5) allow for the export of Class A, B, and/or C radioactive waste. Again, if all reference to 10 CFR 61.55 is being removed, it is impossible or inconsistent to refer to Classes A, B and C. In any case the application does not provide a description as required for what waste is actually being exported under XW008/05.

Both the application XW008/05 in Block 10 item 2. and the Federal Register under End Use item (4) ***“remove previous references to Import License IW012/05.”*** The ONLY place that provides a description of the material/waste that would be exported back to Canada is in the now-canceled Import License.

In the UniTech export license XW023 case Docket No. 11006249, the previously submitted import application, was returned to UniTech without action, because NRC deemed it was unneeded and the import could be done under a General License. Subsequently the NRC entered that application into the legal docket for the specific export license because the export application did not completely define the waste to be exported as required under 10 CFR 110.32 (f) (1) and the import description helped. The same problem exists for this export license amendment/renewal request and likely for most of the specific export licenses now that NRC is implementing the General Licensing of Imports.

The now-cancelled specific import license application, IW012/05 dated March 31, 2017, which is no longer valid because it has been converted by NRC staff to a General Import license, gives

a list of waste forms (oils, solvents, scintillation fluids, grease, paint chips and sludge etc.) but does not specify how much radioactivity in each form. The export application XW008/05 **removes descriptions** and does not replace them with the required information for an export application under 10 CFR 110.32 (f)(1). Rather than give an accurate description of what DSSI would export back to Canada, XW008-05, removes any clues to what the material/waste would be that is to be returned to Canada.

The indication in the XW008/05 application is that there is no change from what was allowed under the previous license XW008/04. That listed 2 drums with tritium (for which the kg and ci estimates are provided) and mixed fission products for which the kg amount is listed but which are described as “non-conforming Class A Radioactive Mixed Waste...authorized by NRC license IW012 and subsequent amendments to import from Canada.” Calling it Class A relies on the definition in 10 CFR 61.55 and which has been removed in XW008/05. Referring to the import license IW012 is referring to a document which has been withdrawn from the XW008/05 renewal and amendment process. Thus there is no meaningful definition satisfying the requirements upon which NRC can make its decision and no clear description for the public.

Further, XW008-05 page 3 indicates Block 10 states that *“Waste streams generated by the foreign consignees may have **higher activity levels and may require treatment other than thermal processing to render the waste acceptable for return to Canada for storage and or disposal.**”* So the waste stream could be more concentrated and more complicated than before. It may change its transport category and may not be in compliance with transport regulations. The radioactivity could be highly concentrated perhaps in incinerator ash or bag house ash, for example, and may be more accessible now to the environment (air, water or soil) and inhalation or ingestions if there is an accident with breach of containment. Block 10 3. states that *“Reference to not exceeding Table A2 values of 49 CFR 173.435 is being removed, however all shipments will be packaged and transported as required by DOT regulations.”* That means the waste could exceed Table A2 values and require shielding, better packaging, possibly different placarding, require greater skill, equipment and notification of emergency responders, could have higher surface contamination levels and shine and give higher doses. Transport concerns are major reason for this petition.

## **Issue 2: Questionable Authority for Canadian consignees to Receive waste Imported to Canada/Exported from the U.S.**

Radioactive wastes previously specifically licensed to be imported to the US and DSSI and exported back to Canada under license XW008 originated at what are now called the Canadian Nuclear Laboratories at Chalk River, Ontario and Whiteshell in Manitoba. Previous versions of the import and XW008 export licenses list Atomic Energy of Canada Limited at Chalk River and Whiteshell Laboratories; Cameco Corporation Fuel Manufacturing and Port Hope Conversion Facility in Port Hope; Ontario and Cameco Corporation Blind River Refinery in Blind River, Ontario. Canadian nuclear power waste also was allowed to go to DSSI under another specific license from Ontario Hydro Technologies Pickering Nuclear Division and was licensed to return to Ontario Hydro Bruce Nuclear Power Development.

There is uncertainty that such import (and export) licenses are in place and effective for at least one of the listed consignees. A hearing could help confirm any claims that the Canadian facilities can legally import the waste back from DSSI.

NorthWatch, a Canadian organization, asked the Canadian Nuclear Safety Commission (CNSC) if Cameco at Blind River has licenses to import and export waste and was unable to document that they have the necessary import license to import the DSSI waste. NRC needs to confirm whether they do or not and not only for Blind River but for all of the Canadian listed consignees that could receive DSSI exports back to Canada.

The Canadian Nuclear Safety Commission is now considering an application from Ontario Power, to amend the Darlington and Pickering Nuclear Power licenses to allow them to import and export nuclear substances and to allow waste transfers between Western Waste Management Facility at Bruce on Lake Huron and Pickering on Lake Ontario. The Canadian Environmental Law Association (CELA) submitted formal comments on August 3, 2017 with the CNSC claiming that the temporary permits for import and export to and from the Ontario Power reactors at Darlington and Pickering are not valid for those purposes and called on the CNSC to halt all imports and exports involving those sites until the legality can be ascertained and

including public process and transparency. Although Darlington and Pickering (and Western Waste Management Facility) facilities that CELA researched are not listed as consignees for the DSSI export license XW008/05, the same problems could be present with the DSSI consignees.

The U.S. NRC and State Department should be aware of the potentially flawed status of ostensibly legal import and export licenses at Canadian nuclear facilities. If CELA's findings are correct, it is entirely possible that other licenses are flawed and perhaps invalid for the same or similar reasons. US NRC and State Department should make sure that there are no problems with the relevant licenses. At minimum, NRC must seek confirmation from CNSC that other import/export licenses involving the DSSI imports and exports do not have similar defects. NRC should confirm that the import/export licenses are valid and were been issued by conducting public proceedings including the opportunity for public adjudicatory hearings in Canada and confirming that they contain all the information necessary for a viable license. The NorthWatch and CELA comments to CNSC are included with this petition.

### **Issue 3: Transport**

Plaintiffs at border crossings, along transport routes and in local community where processing takes place have concerns about the transport of radioactive and mixed waste and its real and perceived threats to health, economics, environment, property value, natural resources, air and water quality, community resources, first responders, hospital and emergency facilities and public image. Radioactive and chemical synergistic effects are still not fully understood but they are real and concerns about the exponentially greater risks to health and long term effects are not accounted for in any of the regulatory or licensing processes up to this point. Plaintiffs don't want themselves or their communities to be saddled with liability for routine or accidental releases, contamination and exposures. They are concerned about radioactive and chemical impacts on their health from drinking, using or recreating in contaminated water, direct exposure, mixed waste exposure, air emissions – inhalation, uptake in plants, combination with other chemicals and stressors. No shipping campaign is perfect. At one point in 2008 all PermaFix

facilities were banned from sending waste to Nevada because of surface contamination on the shipping containers.<sup>1</sup> The more shipments, the higher the number of accidents and incidents.

Attached to this submission are excerpts from a Department of Energy report<sup>2</sup> which compares various options for disposing of radioactive waste and appears to conclude that moving waste increases the overall risk.

“Off-site transportation carries a much higher risk to human health than does on-site transportation, due to the public roads/railroads travelled and the long distances involved .... The estimated risk increase varies depending on the receptor and whether the risk is radiological or vehicular, but can range from two times higher to as much as four orders of magnitude higher...”

We contend that such an analysis if carried out by the numerous Canadian consignees sending their waste to DSSI and then back to Canada could well conclude that it is safer overall to avoid unnecessary transport.

If there is a leak, fire or other accident where containment is breached, who is responsible for liability and what are the limits to that liability? If NRC approves the export it is approving transport with accompanying risks and liabilities. These are facts that should be made available to communities on transport routes. Highly concentrated waste as this application would allow, could do greater damage. Furthermore, alpha and weak beta emitters which could be present, are notoriously difficult to detect with Geiger counters and most radiation scanners, especially an issue for first responders in communities that may not be fully equipped and trained to respond to nuclear and mixed waste accidents and incidents. Yet, alpha emitters, such as plutonium, can do tremendous damage to cells in the body, if they are inhaled or ingested.

Carbon 14 and tritium, two radionuclides that will be included in these shipments, are especially problematic for carbon-based human beings, who also consist of perhaps 60- 70 percent water. Many radionuclides concentrate in the food chain (just like DDT)—sometimes thousands of times – which can have serious health effects on those organisms high on the food chain, such as birds

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<sup>1</sup> “Goodbye, equity; hello, hazardous waste?” Munger, Frank, Atomic City Underground.com, Nov. 2009

<sup>2</sup> DOE/OR/01-2535&D3 Remedial Investigation/Feasibility Study for Comprehensive Environmental Response, Compensation, and Liability Act, Oak Ridge Reservation Waste Disposal Oak Ridge, Tennessee. Page ES-6,7, March 2015.

and human beings. For example, freshwater fish at the Savannah River Site were found to have a bioconcentration factor of 3,000 for freshwater fish.<sup>3</sup>

#### **Issue 4: Impact in Community where Processing is Carried Out**

Plaintiffs in Kingston and Oak Ridge Tennessee have concerns and questions about the safety, benefits and risks of the shipments and underlying purpose for them and the additional risks taking and processing foreign Canadian waste/materials pose to them and their families and communities.

The Tennessee Department of Environment and Conservation licenses DSSI and numerous other processors without consideration of how many other facilities are in the area. Although they inspect the facilities occasionally, they do not measure the releases or verify emission levels. Members of the public in the community have no guarantees that they won't be exposed to radioactive and hazardous emissions. A local concern has been expressed that "these commercial waste-treatment facilities get their licenses and permits individually, without anybody really studying the cumulative impacts of their emissions."

DSSI applications indicate that they *destroy* the material/waste that they import but heat does not destroy radionuclides. The radionuclides may change chemical or physical form but they remain radioactive isotopes. They concentrate in the ash and filters or collect in the incinerator or boiler. Inevitably some are released into the air since even the best filters are not 100% efficient. The radioactivity could end up in liquid and sludge. The presence of hazardous substances could also have impacts, but the radioactivity remains. If hazardous air emissions escape filters, they could also be radioactive.

The imported Canadian radioactive and hazardous mixed "material" may not be called "waste" anymore for the purposes of the General Import license, but it must be determined at some point

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<sup>3</sup> <https://www.nrc.gov/docs/ML1307/ML13078A215.pdf> Approved for Release for Unlimited (Release to Public) 6/23/2005 OSR 3-4A-W (Rev. 1-89) Westinghouse Savannah River Company Inter-Office Memorandum "Cesium-137 Bioconcentration Factor for Freshwater Fish in the SRS Environment" "...*This memo serves to document the justification for the continuing use of a Savannah River Site (SRS) site-specific bioconcentration factor of 3,000 for cesium-137 in freshwater fish....*"

by some responsible party whether it truly “beneficial” to ship it hundreds of miles internationally to be burned and then shipped back to Canada. This application is only for export but it will enable dangerous material to be brought in, burned releasing some to the environment and members of the public, then shipped again hundreds of miles roundtrip, at best reducing the volume Canadians must store, but spreading radioactivity along the way.

Synergistic effects of the radioactive and hazardous waste from Canada and with other wastes at the site from other facilities could multiply the health risks and impacts to people living, working and recreating in the vicinity of DSSI. They are potentially exposed to multiple sources of radioactive and hazardous materials and wastes. In addition to the Canadian material/waste from many facilities that is now coming into the U.S. under General Import Licenses, DSSI processes radioactive and mixed wastes from the whole Department of Energy Nuclear Complex, the Department of Defense, the US nuclear power industry and fuel chain and other nuclear generators and customers. It processes radioactive mercury and PCBs. There are other nuclear waste processors and facilities in the nearby vicinity of DSSI and the larger Oak Ridge Kingston area. No overall evaluation and analysis has been done of the multiple, additive, cumulative and synergistic effects of all of these on the community and the environment.

Permitting exports clearly increases the transportation on the community roads, bridges, highways. The commercial licensee provide some jobs but largely brings in waste from nuclear facilities across the country and internationally to be processed, releasing radioactivity into the air, water, environment and deregulating to be sent deliberately to destinations not regulated for radioactive waste or materials.

**A hearing would be in the public interest and help NRC decide.**

A hearing could reveal what exactly the waste from processing is in terms of both volume and radioactivity: physical and chemical form, amount and type of radionuclides/radioactivity and hazardous constituents. It would lay out for NRC and the concerned members of the public the amount, condition and make-up of the waste that is sent back to Canada though their neighborhoods and communities. Especially since the export application expressly removes the previously required designations of Class of waste (for example, A, B, C or greater than C under

10 CFR 61.55) NRC will find out how concentrated the waste ash or other refuse is and have the opportunity to reconfirm whether it is being transported appropriately. For the NRC and for those that live in the community of the DSSI facility, a hearing would provide a greater understanding of where the radioactivity that came in goes. Since the Tennessee Department of Environment and Conservation Radiological Health Division does not actually monitor releases but confirms the procedures that DSSI reports it is carrying out, it would be instructive via a hearing to account for the large differential in the amount of radioactivity brought in (soon under a General Import license) and the amount that is reported to leave under the Specific Export license. DSSI claims that all the material is destroyed, but it common knowledge that radioactivity cannot be destroyed by burning.

A hearing would help NRC confirm that the procedures are in place to keep track and guarantee that the batches of waste generated from the DSSI processing are in fact all from the Canadian materials originally brought in. A hearing would also help understand how DSSI prevents mixing of Canadian and US materials during processing to help enforce the prohibition on foreign waste going to U.S. 10 CFR 61 radioactive waste disposal facilities.

In 1999, DSSI had a Tennessee State license to “Decontaminate for Free Release,” but did not have that permission in 2006. It is reported to have such authorization again in 2017. A hearing would clarify for NRC and the public whether DSSI is sending radioactive waste or a deregulated portion of it to any of the Tennessee landfills or to other destinations that are not regulated for radioactive materials or wastes.

Ash and nonconforming wastes or wastes that could not be treated in the DSSI Industrial Mixed Waste Boiler or other DSSI or Perma-Fix’s facilities needs to go back to the Canadian consignees. It is not clear they can all legally import it back. There is some question as to whether they can export it to the U.S. in the first case. We believe it is incumbent on the NRC, State Department and other US federal agencies, possibly Department of Transportation to ascertain that such licenses in fact exist and are for the purposes intended. It is another question which we believe is germane to the export license whether there has been adequate public notice, opportunity for participation, attention to environmental justice issues and proper consultation

and interaction with First Nations/Aboriginal Nations/ affected Tribes throughout North America.

This hearing request and petition are being filed within 30 days of the Federal Register notice.

**WHEREFORE**, Petitioners Nuclear Information and Resource Service, Tennessee Environmental Council and Don't Waste Michigan request that they be granted leave to intervene in these proceedings and that an adjudicatory hearing be held.

Respectfully,

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**CERTIFICATE OF SERVICE**

I hereby certify that copies of the foregoing "PETITION FOR LEAVE TO INTERVENE AGAINST SPECIFIC EXPORT LICENSE RENEWAL TO DSSI AND REQUEST FOR ADJUDICATORY HEARING" were served by me upon the parties to this proceeding via my deposit of the document in the NRC's Electronic Information Exchange system this 10th day of August, 2017. I further certify that on this date, I served a paper copy via regular U.S. Mail, postage prepaid, upon Executive Secretary, U.S. Department of State, Washington, DC 20520 and via email to Patricia Lacina, Deputy Executive Secretary, Department of State.

/s/ Diane D'Arrigo  
Diane D'Arrigo, NIRS