


NRC FORM 7 (02-2016) 10 CFR 110		 U. S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0027		EXPIRES: 11/30/2018	
<p align="center">APPLICATION FOR NRC EXPORT OR IMPORT LICENSE, AMENDMENT, RENEWAL, OR CONSENT REQUEST(S) (See Instructions on Pages 4 and 5)</p>							
PART A. FOR NRC USE ONLY			<input checked="" type="checkbox"/> PUBLIC OR <input type="checkbox"/> NON-PUBLIC			DATE RECEIVED 04/15/20 JMS	
LICENSE NUMBER XW024			DOCKET NUMBER 11006354			ADAMS ACCESSION NUMBER	
<p align="center">PART B. TO BE COMPLETED FOR ALL LICENSES, AMENDMENTS, RENEWALS, OR CONSENT REQUESTS (If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)</p>							
1. NAME AND ADDRESS OF APPLICANT/LICENSEE EnergySolutions Services Inc (ESSI) 1560 Bear Creek Road Oak Ridge, TN 37830			1a. NAME OF APPLICANT'S CONTACT Duane R. Quayle		1b. APPLICANT'S REFERENCE NUMBER -NA-		
			1c. PHONE NUMBER (865) 220-1478		1d. FAX NUMBER (865) 220-1668		
			1e. E-MAIL ADDRESS drquayle@energysolutions.com				
2. TYPE OF ACTION REQUESTED (Check One)							
<input checked="" type="checkbox"/> EXPORT (Parts B, C, E)		<input type="checkbox"/> IMPORT (Parts B, D, E)		<input type="checkbox"/> AMENDMENT/RENEWAL Current License Number:		<input type="checkbox"/> CONSENT REQUEST (Parts B, C) Current License Number:	
3. CONTRACT NUMBER(S) -NA-		4. FIRST SHIPMENT DATE 5/1/2019		5. LAST SHIPMENT DATE 12/31/2024		6. PROPOSED EXPIRATION DATE 12/31/2024	
<p align="center">PART C. TO BE COMPLETED FOR EXPORT LICENSES, AMENDMENTS, OR RENEWALS (If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)</p>							
7. NAME(S) / ADDRESS(ES) OF SUPPLIERS AND/OR OTHER PARTIES TO THE EXPORT EnergySolutions Services Inc (ESSI) Memphis Facility 1790 Dock Street Memphis, TN 38113			8. NAME(S) / ADDRESS(ES) OF INTERMEDIATE FOREIGN CONSIGNEE(S) ----none----		9. NAME(S) / ADDRESS(ES) OF ULTIMATE FOREIGN CONSIGNEE(S) Ontario Power Generation Darlington Refurbishment 1 Holt Road South Bowmanville, Ontario, Canada L1C 3Z8		
7a. FUNCTION(S) PERFORMED/SERVICE(S) PROVIDED N/A			8a. INTERMEDIATE USE(S) -----none-----		9a. ULTIMATE END USE(S) See Additional Information Page		
10. DESCRIPTION OF RADIOACTIVE MATERIALS, SEALED SOURCES, NUCLEAR FACILITIES, EQUIPMENT, OR COMPONENTS; FOR NUCLEAR EQUIPMENT INCLUDE TOTAL DOLLAR VALUE OF EQUIPMENT FOR EXPORT 24 Primary heat Transport Pump assemblies consisting of 2 rotating assemblies, 1 cover assembly, 2 hydrostatic bearing assemblies and miscellaneous pump parts, each.				10a. MAX TOTAL VOLUME / ELEMENT WGT (KG), OR TOTAL ACTIVITY (TBq) See Supplemental Sheet		10b. MAX ENRICHMENT OR WGT % -----NA-----	10c. MAX ISOTOPE WGT (KG) -----NA-----
11. FOREIGN OBLIGATIONS (BY COUNTRY AND BY PERCENTAGE OF MAXIMUM TOTAL VOLUME) Canada - 100%							

NRC FORM 7
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U. S. NUCLEAR REGULATORY COMMISSION

**APPLICATION FOR NRC EXPORT OR IMPORT
LICENSE, AMENDMENT, RENEWAL, OR CONSENT REQUEST(S) (Continued)**

LICENSE NUMBER XW024	DOCKET NUMBER 11006354	ADAMS ACCESSION NUMBER	<input checked="" type="checkbox"/> PUBLIC OR <input type="checkbox"/> NON-PUBLIC
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PART D. TO BE COMPLETED FOR IMPORT LICENSES, AMENDMENTS, OR RENEWALS
(If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)


12. NAME(S) / ADDRESS(ES) OF FOREIGN SUPPLIERS AND/OR OTHER PARTIES TO IMPORT	13. NAME(S) / ADDRESS(ES) OF INTERMEDIATE CONSIGNEE(S)	14. NAME(S) / ADDRESS(ES) OF ULTIMATE U. S. CONSIGNEE(S)	
12a. NRC EXPORT LICENSE NUMBER(S) <i>(if applicable)</i>	13a. LICENSE NUMBER(S) / EXPIRATION DATE(S)	14a. LICENSE NUMBER(S) / EXPIRATION DATE(S)	
	13b. INTERMEDIATE USE(S)	14b. ULTIMATE END USE(S)	
15. DESCRIPTION OF RADIOACTIVE MATERIALS, SEALED SOURCES, NUCLEAR FACILITIES	15a. MAX TOTAL VOLUME / ELEMENT WGT (KG), OR TOTAL ACTIVITY (TBq)	15b. MAX ENRICHMENT OR WGT %	15c. MAX ISOTOPE WGT (KG)

16. FOREIGN OBLIGATIONS (BY COUNTRY AND BY PERCENTAGE OF MAXIMUM TOTAL VOLUME)

PART E. TO BE COMPLETED FOR ALL LICENSES, AMENDMENTS, RENEWALS OR CONSENT REQUEST(S)

17. ADDITIONAL INFORMATION PROVIDED ON PAGES 3, 4, AND/OR ON SEPARATE SHEETS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	17a. COPIES OF RECIPIENTS' AUTHORIZATIONS PROVIDED? <input type="checkbox"/> YES <input type="checkbox"/> NO
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18. CERTIFICATION: I, the applicant's authorized official, hereby certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, and that all information provided is correct to the best of my knowledge.

18a. PRINT NAME AND TITLE OF AUTHORIZED OFFICIAL Duane R. Quayle, OWM Radiation Safety Officer	18b. SIGNATURE – AUTHORIZED OFFICIAL  Duane R. Quayle OWM Radiation Safety Director/BCO RSO Apr 4 2019 10:41 AM	18c. DATE AM
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**APPLICATION FOR NRC EXPORT OR IMPORT
LICENSE, AMENDMENT, RENEWAL, OR CONSENT REQUEST(S) (Continued)**

LICENSE NUMBER XW024	DOCKET NUMBER 11006354	ADAMS ACCESSION NUMBER	<input checked="" type="checkbox"/> PUBLIC OR <input type="checkbox"/> NON-PUBLIC
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ADDITIONAL INFORMATION (Reference applicable block numbers from page 1 and/or page 2 for each entry)

Block 7a. Function(s) Performed/Service(s) Provided

Primary Heat Transfer (PHT) pump components including impellers, pump shafts, pump seals, and miscellaneous components are exported from Ontario Power Generation in Canada to the Memphis facility for the purposes of inspection, repair, sub-assembly, and balancing by Flowserve. Upon completion the components are exported by the Memphis Facility back to Ontario Power Generation.

Block 9a. Ultimate End Use(s)

The components are returned to Ontario Power Generation where they are re-installed in the CANDU reactor system or stored for later use.

Block 10. Description of Radioactive Materials, Sealed Sources, Nuclear Facilities, Equipment, or Components; for Nuclear Equipment Include Total Dollar Value of Equipment for Export

Component surfaces are contaminated with the following Appendix L byproduct materials:

Am-241 2.49E-4 TBq
C-14 6.33E-3 TBq
Ce-144 1.09E-3 TBq
Cm-242 4.22E-6 TBq
Cm-244 4.74E-4 TBq
Cs-137 3.81E-4 TBq
Co-60 4.07E-3 TBq
Fe-55 4.70E-2 TBq
H-3 1.95E-2 TBq
Mn-54 1.45E-3 TBq
Nb-94 8.17E-4 TBq
Nb-95 2.62E-3 TBq
Ni-63 2.62E-3 TBq
Pu-238 1.68E-5 TBq
Pu-239 1.57E-5 TBq
Pu-241 6.92E-3 TBq
Ru-103 2.47E-5 TBq
Sb-124 2.54E-3 TBq
Sb-125 2.71E-3 TBq
Sn-113 4.96E-4 TBq
Sr-90 1.20E-3 TBq
Zn-65 6.73E-4 TBq
Zr-95 1.18E-3 TBq

Special Nuclear Materials all >1g by weight.

The estimated dollar value for each pump is approximately \$1,000,000CAN (\$750,000USD). Total estimated value for all 24 pumps in \$24,000,000CAD (\$18,000,000USD).

Block 10a. Maximum Total Volume/Elemental Weight (KG), or Total Activity (TBq)

Maximum total Appendix L & P activities over the license life are the same as above for block 10.



April 4, 2019

Mr. Stephen Baker
Licensing Officer
Export Controls and Nonproliferation Branch
Office of International Programs
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

**SUBJECT: XW020 RENEWAL APPLICATION – CANADIAN EXPORT PERMIT FOR
RADIOACTIVE MATERIAL AND PUMPS**

Dear Mr. Baker:

EnergySolutions Services Inc. (ESSI), a subsidiary of EnergySolutions Ltd, requests a renewal of specific export permit XW020. ESSI is providing this letter, the NRC Form 7, and the attached renewal application via email. This export permit is for the return of our customers Primary Heat Transport pumps (PHT) from the EnergySolutions Memphis Facility for our lessee FlowServe, back to the custody of Darlington Refurbishment.

The changes requested are listed below:

1. Export Permit XW020 which expired in 2013 had the final consignee listed as:

Ontario Power Generation
Pickering NGS B
1675 Montgomery Park Road
Pickering, Ontario
Canada, L1V 2R5

We would like to change this to the below address as referenced on the NRC Form 7 (attached):

Ontario Power Generation
Darlington Refurbishment
1 Holt Road South
Bowmanville, ON
Canada, L1C 3Z8

2. Extend the expiration date for XW020 to December 31, 2024.
3. Change the description of materials or facilities to read:

Class A radioactive waste consisting of approximately 80,000 pounds (1,152 cubic feet) of contaminated dry active materials generated at the Memphis Processing Facility (MPF) in Tennessee during refurbishment of radioactively contaminated pump impellers and associated equipment from Ontario Power Generation's Darlington Station in Canada. EnergySolutions performs refurbishment services under contract to FlowServe Corporation. The used equipment was imported from Canada to MPF under the NRC general import license provisions of 10CFR110.27 and the refurbished equipment was returned under the general export license provisions of 10CFR110.26.

4. Activity changes are listed in Attachment 1.



If you have any questions or need additional information, please do not hesitate to email or call me at drquayle@energysolutions.com or (865) 220-1478.

Respectfully,

A handwritten signature in black ink, appearing to read "Duane R. Quayle".

Duane R. Quayle
OWM Radiation Safety Director/BCO RSO
Apr 4 2019 10:42 AM

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Duane R. Quayle, M.S., NRRPT
Operational Waste Management (OWM) Radiation Safety Director
Bear Creek Operations (BCO) Radiation Safety Officer
EnergySolutions Services, Inc.

Attachment 1 – Addendum to XW020
Enclosure – NRC Form 7 (Import/Export)

cc: Joe Heckman
Andy Veronee
Ralph Pena
Bruce Stephenson
/file



ATTACHMENT 1

PART 110 EXPORT PERMIT APPLICATION - ADDENDUM

1) Name and Address of Applicant (10 CFR 110.32(a))

EnergySolutions Services, Inc.
Bear Creek Operations
1560 Bear Creek Road
Oak Ridge, TN 37831-2530
Contact: Duane R. Quayle
Phone Number (865) 220-1478
E-mail drquayle@energysolutions.com

2) Name and Address of Supplier of the Material (10 CFR 110.32(b))

EnergySolutions Services, Inc.
Memphis Facility
1790 Dock Street
Memphis, TN 38106
Contact: Ralph H. Pena
Phone Number (901) 774-1337
E-mail rhpena@energysolutions.com

3) County of Origin (10 CFR 110.32(c))

Canada

4) Name and Address of Ultimate Consignee (10 CFR 110.32(d))

Under this export permit, materials inspected and measured under this specific license application will be returned to Canada as follows:

Darlington Refurbishment
1 Holt Road South
Bowmanville, Ontario, Canada L1C 3Z8
Tel.: (905) 623-6670 ext. 703-9730

5) Dates of Proposed First and Last Shipment (10 CFR 110.32(e))

These shipments are expected to be sent between May of 2019 and December of 2024. Exports are dependent on customer determined shipment dates, import permits and regulatory requirements.

6) Description of the Material (10 CFR 110.32(f) (1) and (5))

The material subject to this application are PHT pump assemblies consisting of casings, impellers, shafts and various other parts and pieces.

The radionuclides in the PHT pump to be exported over the duration of the proposed permit will not exceed the following limits which mirror the incoming manifested nuclides received at AREVA/Frametome with the original shipment.

Table 1 – Canadian Export Activity Limits

Radionuclides	Activity Limits ¹	
	Ci	TBq
H-3 (Tritium)	5.27E-03	1.95E-4
C-14	1.71E-01	6.33E-3
Am-241	6.73E-03	2.49E-4
Ce-144	2.95E-02	1.09E-3
Cm-242	1.14E-04	4.22E-6
Cm-244	1.28E-02	4.74E-4
Co-60	1.10E-01	4.07E-3
Cs-137	1.03E-02	3.81E-4
Fe-55	1.27E+00	4.70E-2
Mn-54	3.92E-02	1.45E-3
Nb-94	2.21E-02	8.17E-4
Nb-95	7.08E-02	2.62E-3
Ni-63	7.08E-02	2.62E-3
Pu-238	4.54E-04	1.68E-5
Pu-239	4.24E-04	1.57E-5
Pu-241	1.87E-01	6.92E-3
Ru-103	6.68E-04	2.47E-5
Sb-124	6.86E-02	2.54E-3
Sb-125	7.32E-02	2.71E-3
Sn-113	1.34E-02	4.96E-4
Sr-90	3.24E-02	1.20E-3
Zn-65	1.82E-02	6.73E-4
Zr-95	3.19E-02	1.18E-3
Special Nuclear Material (SNM)	<1 gram	N/A

¹The chemical and physical form of the above isotopes may be in any form suitable for transport under US DOT regulations. This is the limitation in ESSIs Tennessee Licenses.

It is expected that the export will involve up to 24 shipments over the life of the permit.

7) Route of Shipments (10 CFR 110.32(f)(5))

The expected route of exports is by truck primarily interstate highways from the Memphis Facility to the Darlington Refurbishment facility.

8) Ultimate Disposition of the Material (10 CFR 110.32(f)(5))



The material exported under the proposed permit will be returned to Canada, the country of origin. ESSI will not import PHT pump components until Canada has issued an import permit to allow waste associated with the particular import to be returned back to Canada. Any components returned to Canada will be subject to the regulatory controls of Canada.

9) Justification of License (10 CFR 110.32(f)(7))

This permit is required for the return of PHT pump parts for consideration of reuse or determination by the customer for disposal after inspection and measurements performed by the Memphis Facility site lessee Flowserve.