NRC FORM 7 (02-2016) 10 CFR 110

U. S. NUCLEAR REGULATORY COMMISSION

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

*(See Instructions on Pages 4 and 5)*



| PART A. FOR NRC USE ONLY | ☑ PUBLIC OR ☐ NON-PUBLIC | DATE RECEIVED |
|---|---|---|
| | | June 10, 2019, szf |
| LICENSE NUMBER | DOCKET NUMBER | ADAMS ACCESSION NUMBER |
| XSNM3799 | 11006329 | |

## 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.)

| 1. NAME AND ADDRESS OF APPLICANT/LICENSEE | 1a. NAME OF APPLICANT'S CONTACT | 1b. APPLICANT'S REFERENCE NUMBER |
|---|---|---|
| Exelon Generation Company LLC<br>4300 Winfield Road<br>Warrenville, IL 60555 | James Nevling | |
| | 1c. PHONE NUMBER: (630) 657-2154 | 1d. FAX NUMBER: (630) 657-4331 |
| | 1e. E-MAIL ADDRESS: james.nevling@exeloncorp.com | |

2. TYPE OF ACTION REQUESTED *(Check One)*

☑ EXPORT (Parts B, C, E) ☐ IMPORT (Parts B, D, E) ☐ AMENDMENT/RENEWAL Current License Number: ☐ CONSENT REQUEST (Parts B, C) Current License Number:

| 3. CONTRACT NUMBER(S) | 4. FIRST SHIPMENT DATE | 5. LAST SHIPMENT DATE | 6. PROPOSED EXPIRATION DATE |
|---|---|---|---|
| | 10/01/2019 | 10/31/2019 | 12/31/2020 |

## 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.)

| 7. NAME(S) / ADDRESS(ES) OF SUPPLIERS AND/OR OTHER PARTIES TO THE EXPORT | 8. NAME(S) / ADDRESS(ES) OF INTERMEDIATE FOREIGN CONSIGNEE(S) | 9. NAME(S) / ADDRESS(ES) OF ULTIMATE FOREIGN CONSIGNEE(S) |
|---|---|---|
| Exelon Generation Company LLC<br>LaSalle County Nuclear Power Station<br>2601 N 21st Rd<br>Marseilles, IL 61341 | None | Canadian Nuclear Laboratories<br>286 Plant Road<br>Chalk River, ON, K0J 1J0<br>Canada |
| 7a. FUNCTION(S) PERFORMED/SERVICE(S) PROVIDED | 8a. INTERMEDIATE USE(S) | 9a. ULTIMATE END USE(S) |
| Irradiation of Lead Test Rods | | Hot Cell Exam and Disposal |

| 10. DESCRIPTION OF RADIOACTIVE MATERIALS, SEALED SOURCES, NUCLEAR FACILITIES, EQUIPMENT, OR COMPONENTS; FOR NUCLEAR EQUIPMENT INCLUDE TOTAL DOLLAR VALUE OF EQUIPMENT FOR EXPORT | 10a. MAX TOTAL VOLUME / ELEMENT WGT (KG), OR TOTAL ACTIVITY (TBq) | 10b. MAX ENRICHMENT OR WGT % | 10c. MAX ISOTOPE WGT (KG) |
|---|---|---|---|
| Irradiated Uranium (U-235 and U-238) and Plutonium contained in Uranium Oxide fuel pellets. Pellets are contained in nine zircaloy clad fuel rods. | 16.869 Kg U<br>0.152 Kg Pu | Less than 1.1% U-235 | 0.147 Kg U-235 |

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

Canada/Euratom 9.425 Kg U, 0.075 Kg U-235, 0.090 Kg Pu

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| XSNM3799 | 11006329 | | |

## 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) *(if applicable)* | 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? | ☑ YES ☐ NO | 17a. COPIES OF RECIPIENTS' AUTHORIZATIONS PROVIDED? | ☐ YES ☑ NO |
|---|---|---|---|

**18. CERTIFICATION:** **I, the applicant's authorized official, hereby certify that this application is prepared in conformity with Title10, 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 | 18b. SIGNATURE -- AUTHORIZED OFFICIAL | 18c. DATE |
|---|---|---|
| David Gullott, Director - Licensing | | 5/31/19 |



Received 06/10/19, szf

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ADDITIONAL INFORMATION *(Reference applicable block numbers from page 1 and/or page 2 for each entry)*

Exelon will be shipping a limited quantity of spent nuclear fuel for detailed examination and testing at Canadian Nuclear Laboratories (CNL). This quantity of spent nuclear fuel is limited to 9 intact fuel rods selected from irradiated fuel assemblies based on their technical characteristics. These detailed examinations are being conducted in the CNL hot cell to validate scientific understanding and directly support the deployment of fuel with increased operational margins and enhanced accident response.

LaSalle has served as the host plant for lead test assemblies with advanced technical features. Fuel rods from these assemblies, and other conventional assemblies subjected to specific operating histories, are included in the shipment to Canada.

The examinations and testing performed on these rods is done with the intent of achieving the following primary objectives:

• Obtain irradiated fuel performance data, from fuel rods with "additive" fuel pellets, directly supporting the qualification and deployment of advanced fuel products with increased operating margins and accident tolerance.

• Obtain technical data furthering the scientific understanding of hydrogen impact on Zirconium-based alloys, including the effect of variations in cladding heat treatments and operating histories on hydrogen uptake and hydride orientation phenomena. This data will be used to design cores that minimize the impacts of hydrogen on cladding integrity.

• Qualification of a new poolside inspection technology capable of minimizing the uncertainties associated with certain fuel rod corrosion deposits and measuring internal cladding hydrogen non-destructively. Such technology would eliminate the need for future destructive examinations to be performed at separate hot cell facilities.

Each of the 9 rods to be examined have been selected based their technical characteristics and value to fulfilling the programmatic objectives. The examinations performed at CNL to fulfill these objectives include:

• Visual and analytical characterization of irradiated fuel rods key attributes,

• Destructive examination including fission gas release, metallography and ceramography of irradiated fuel rods to validate the effect of various attributes and influencing factors on performance margins, and

• Mechanical testing, including validation of cladding structural margins during transient and accident conditions.

No fuel will be reprocessed and Plutonium, or other fissile material, will not be separated as part of any test associated with this program.

Following completion of the inspections and tests, the remaining fuel will be permanently disposed of.



Received 06/10/19, szf

Exelon Generation®

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630 657 2000 Office

RS-19-064

10 CFR 110.31

May 31, 2019

Deputy Director
Office of International Programs
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Revision to Application for License to Export Nuclear Material

References:
1. Letter (RS-18-127) from D. M. Gullott (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "Revision to Application for License to Export Nuclear Material," dated September 26, 2018 (ML18269A295)

2. Letter (RS-18-117) from D. M. Gullott (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "Application for License to Export Nuclear Material," dated September 18, 2018 (ML18261A370)

In accordance with 10 CFR 110.31, "Application for a specific license," Exelon Generation Company, LLC submitted an application for a specific license to export irradiated fuel rods from LaSalle County Station to Canadian Nuclear Laboratories for testing purposes. Enclosed is a revised NRC Form 7, "Application for License to Export Nuclear Material and Equipment" with changes to boxes 4, 5, 6, 10a, 10b and 10c. These changes are due to a change in the date of the planned shipment, the particular rods being shipped, and changes to the foreign obligations. This NRC Form 7 supersedes in its entirety the forms provided in References 1 and 2.

Should you have any questions about this application, please contact Ms. Lisa Zurawski at (630) 657-2816.

Respectfully,

David M. Gullott
Director – Licensing
Exelon Generation Company, LLC

Enclosure: NRC Form 7, Application for License to Export Nuclear Material and Equipment