

EXPORT LICENSE

NRC FORM 250P
(12/10)

United States of America
Nuclear Regulatory Commission
Washington, DC 20555

NRC LICENSE NO.: **PXB3.08**

Page 1 of 5

NRC DOCKET NO.: **11006070**

LICENSE EXPIRES: December 31, 2020

Pursuant to the Atomic Energy Act of 1954, as amended, and the regulations issued by the Nuclear Regulatory Commission (NRC) pursuant thereto, and in reliance on statements and representations heretofore made by the applicant/licensee, this license is hereby issued authorizing the licensee to export the byproduct materials listed below, subject to the terms and conditions herein. This license is only valid if the licensee or 'Other Party(ies) to Export' maintain the requisite NRC or Agreement State domestic license(s).

LICENSEE

Nordion (Canada), Inc.
Attn: Luc Desgagne
447 March Road
Ottawa, Ontario K2K 1X8
Canada

APPLICANT'S REFERENCE: PXB3.07-R Amend March 2016

ULTIMATE FOREIGN CONSIGNEE(S)

Nordion (Canada), Inc.
447 March Road
Ottawa, Ontario K2K 1X8
Canada

INTERMEDIATE CONSIGNEE(S) IN FOREIGN COUNTRY(IES)

NONE

OTHER PARTY(IES) TO EXPORT

Listed on Page(s) 3 thru 5

(Suppliers)

COUNTRY(IES) OF ULTIMATE DESTINATION: Canada

**CONDITIONS, NOTES, AND DESCRIPTIONS OF 10 CFR PART 110, APPENDIX P,
BYPRODUCT AND SOURCE MATERIALS TO BE EXPORTED**

(NOTE: SEE PAGE 2 FOR DEFINITIONS OF CATEGORY 1 AND CATEGORY 2)

Export, to Nordion (Canada) Inc., of Category 1 quantities of Co-60, contained in sealed sources used in irradiators by the gamma processing industry for disposition in Canada, is authorized. **See conditions on Page 3.**

Licensee is responsible for compliance with all applicable export and other domestic regulatory requirements, including all terms and conditions of domestic material possession licenses. Licensee is exempt from the requirement in 10 CFR 110.53(a) to maintain an office within the United States.

Licensee, if not already submitted with your application, must submit information required by 10 CFR §110.32(d) and pertinent documentation required by 10 CFR §110.32(g) at least **24 hours prior to shipment**. See Page 2 for Mandatory Pre-shipment Notifications.

License expiration date is based on established limits. This license replaces PXB3.07-R and amends its authority by revising the list of suppliers.

Neither this license nor any right under this license shall be assigned or otherwise transferred in violation of the provisions of the Atomic Energy Act of 1954, as amended.

This license is subject to the right of recapture or control by Section 108 of the Atomic Energy Act of 1954, as amended, and to all of the other provisions of said Acts, now or hereafter in effect and to all valid rules and regulations of the NRC.

THIS LICENSE IS INVALID UNLESS SIGNED BELOW
BY AUTHORIZED NRC REPRESENTATIVE

NAME AND TITLE:

David L. Skeen
David L. Skeen, Deputy Director
Office of International Programs

DATE OF ISSUANCE: **May 23, 2016**

EXPORT LICENSE

MANDATORY ADVANCED NOTIFICATIONS PER 10 CFR PART 110.50(c)

The following Advanced Notifications must be made to both the NRC and, in case of exports, the government of the importing country in advance of each shipment:

Advanced Notifications to the NRC are to be emailed to hoo.hoc@nrc.gov (preferred method) or faxed to the NRC at 301-816-5151. In the subject line of the email or on the fax cover page include: "10 CFR 110.50(c) Notification." For technical assistance, use the same e-mail address or call 301-816-5100.

Advanced Notifications to the government of the importing country must be emailed or faxed to the appropriate foreign government authorities. To locate the point-of-contact for international Advanced Notifications see: <http://www-ns.iaea.org/downloads/rw/imp-export/import-export-contact-points.pdf>. In the subject line of the email or on the fax cover page include: "NOTIFICATION TO THE IMPORTING STATE PRIOR TO SHIPMENT OF CATEGORY 1 OR 2 RADIOACTIVE SOURCES." For technical assistance or for countries not listed, contact the Office of International Programs' export/import staff at 301-415-2344.

Table 1: Appendix P to Part 110 Category 1 and Category 2 Radioactive Material Threshold Limits

Radioactive Material	Category 1		Category 2	
	Terabequerels (TBq)	Curies (Ci) ¹	Terabequerels (TBq)	Curies(Ci) ¹
Americium-241 (Am-241)	60	1,600	0.6	16
Americium-241/Beryllium (Am-241/Be)	60	1,600	0.6	16
Californium-252 (Cf-252)	20	540	0.2	5.4
Curium-244 (Cm-244)	50	1,400	0.5	14
Cobalt-60 (Co-60)	30	810	0.3	8.1
Cesium-137 (Cs-137)	100	2,700	1.0	27
Gadolinium-153 (Gd-153)	1,000	27,000	10.0	270
Iridium-192 (Ir-192)	80	2,200	0.8	22
Plutonium-238 ² (Pu-238)	60	1,600	0.6	16
Plutonium-239/Beryllium ² (Pu-239/Be)	60	1,600	0.6	16
Promethium-147 (Pm-147)	40,000	1,100,000	400	11,000
Radium-226 ³ (Ra-226)	40	1,100	0.4	11
Selenium-75 (Se-75)	200	5,400	2.0	54
Strontium-90 (Y-90)	1,000	27,000	10.0	270
Thulium-170 (Tm-170)	20,000	540,000	200	5,400
Ytterbium-169 (Yb-169)	300	8,100	3.0	81

Calculation of Shipments Containing Multiple Sources or Radionuclides:

The "sum of fractions" methodology for evaluating combinations of radionuclides being transported is to be used when import or export shipments contain multiple sources or multiple radionuclides. The threshold limit values used in a sum of the fractions calculation must be the metric values (i.e., TBq).

I. If multiple sources and/or multiple radionuclides are present in an import or export shipment, the sum of the fractions of the activity of each radionuclide must be determined to verify the shipment is less than the Category 1 or 2 limits of Table 1, as appropriate. If the calculated sum of the fractions ratio, using the following equation, is greater than or equal to 1.0, then the import or export shipment exceeds the threshold limits of Table 1 and the applicable security provisions of this part apply.

II. Use the equation below to calculate the sum of the fractions ratio by inserting the actual activity of the applicable radionuclides or of the individual sources (of the same radionuclides) in the numerator of the equation and the corresponding threshold activity limit from the Table 1 in the denominator of the equation. Ensure the numerator and denominator values are in the same units and all calculations must be performed using the TBq (i.e., metric) values of Table 1.

R1 = activity for radionuclides or source number 1

R2 = activity for radionuclides or source number 2

RN = activity for radionuclides or source number n

AR1 = activity limit for radionuclides or source number 1

AR2 = activity limit for radionuclides or source number 2

ARN = activity limit for radionuclides or source number n

$$\sum_{1}^n \left[\frac{R_1}{AR_1} + \frac{R_2}{AR_2} + \frac{R_n}{AR_n} \right] \geq 1$$

¹ The values to be used to determine whether a license is required are given in TBq. Curie (Ci) values are provided for practical usefulness only and are rounded after conversion.

² The limits for exports of Pu-238 and Pu-239/Be can be found in § 110.21.

³ Discrete sources of Radium-226.

**CONDITIONS, NOTES, AND DESCRIPTIONS OF 10 CFR PART 110, APPENDIX P,
BYPRODUCT MATERIALS TO BE EXPORTED**

Licensee is prohibited from shipping 10 CFR §110 Appendix P Category 1 quantities of Cobalt-60 to Canada for which government-to-government consent has not yet been requested and received until:

[1] Licensee has requested the U.S. Nuclear Regulatory Commission (NRC) in writing to obtain specific consent from the importing country's regulatory authority;

[2] NRC has received and considered government-to-government consent pursuant to 10 CFR §110.42(e)(3); and,

[3] NRC has informed the licensee in writing, that it is authorized to ship the materials to the ultimate consignee specified.

OTHER PARTIES TO EXPORT
(Suppliers)

- | | |
|--|---|
| 1. Bausch & Lomb
8507 Pelham Road
Greenville, SC 29615 | 9. Department of the Army Commander
White Sands Missile Range, NM 88002 |
| 2. Baxter Healthcare of Puerto Rico
State Road 721, Km 0.3
Aibonito, PR 00705 | 10. Ethicon Endo-Surgery, Inc.
3801 University Blvd, SE
Albuquerque, NM 87106 |
| 3. BD Diagnostics
1575 Airport Road
Sumter, SC 29153 | 11. Sterigenics US., LLC.
502 Prairie Mine Road
Mulberry, FL 33860 |
| 4. Corning Incorporated
One Becton Circle
Durham, NC 27712 | 12. GE-Hitachi Nuclear Energy Americas, LLC
Vallecitos Nuclear Center
6705 Vallecitos Road
Sunol, CA 94586 |
| 5. Becton, Dickinson, and Company
1852, 10 th Avenue
Columbus, NE 68601 | 13. Hospira Inc.
4285 North Wesleyan Blvd.
Rocky Mount, NC 27802 |
| 6. Becton, Dickinson, and Company
dba BD Medical Systems - Diabetes Care
1329 West Highway 6
Holdrege, NE 68949 | 14. Isomedix Operations, Inc.
STERIS Isomedix Services
9 Apollo Drive
Whippany, NJ 07981 |
| 7. Becton Dickinson Infusion
Therapy Systems, Inc.
150 South 1st Avenue
Broken Bow, NE 68822 | 15. Isomedix Operations, Inc.
dba Steris Applied Sterilization Technologies
23 Elizabeth Drive
Chester, NY 10918 |
| 8. Coviden LP
1222 Sherwood Road
Norfolk, NE 68701 | 16. Isomedix Operations, Inc.
dba STERIS Isomedix Services
4405 Marketing Place
Groveport, OH 43125 |

OTHER PARTIES TO EXPORT
(Suppliers)

17. Isomedix Operations, Inc.
dba Steris Applied Sterilization Technologies
1435 Isomedix Place
El Paso, TX 79936
18. Isomedix Operations, Inc.
dba STERIS Isomedix Services
9120 South 150 East
Sandy, UT 84070
19. Pall Hauppauge
225 Marcus Blvd.
Hauppauge, NY 11788
20. Sandia National Laboratories
Operated for the U.S. Department of Energy by
Sandia Corporation
Albuquerque, NM 87185
21. Sterigenics US., LLC
1148 Porter Avenue
Haw River, NC 27258
22. Sterigenics US., LLC
108 Lake Denmark Road
Rockaway, NJ 07866
23. Sterigenics US., LLC
75 Tilbury Road
Salem, NJ 08079
24. Sterigenics US., LLC
1700 College Boulevard
West Memphis, AR 72301
25. Sterigenics US., LLC
344 Bonnie Circle
Corona, CA 92880
26. Sterigenics US., LLC
5900 Obata Way
Gilroy, CA 95020
27. Sterigenics International, Inc.
2311 Lincoln Avenue
Hayward, CA 94545
28. Sterigenics US., LLC (Location 1)
711 East Cooper Court
Schaumburg, IL 60173
29. Sterigenics US., LLC (Location 2)
1003 Lakeside Dr.
Gurnee, IL 60031
30. Sterigenics US., LLC
10811 Withers Cove Park Drive
Charlotte, NC 28278
31. Sterigenics US., LLC
305 Enterprise Drive
Westerville, OH 43081
32. Sterigenics US., LLC (Location 1)
3001 Wichita Court
Fort Worth, TX 76140
33. Sterigenics US., LLC (Location 2)
3125 Wichita Court
Fort Worth, TX 76140
34. Sterigenics U.S., LLC
1401 Morgan Circle
Tustin, CA 92780
35. Isomedix Operations, Inc.
dba STERIS Isomedix Services
1000 S. Sarah Place
Ontario, CA 91761
36. Isomedix Operations, Inc.
dba STERIS Isomedix Services
1880 Industrial Drive
Libertyville, IL 60048
37. Isomedix Operations, Inc.
dba STERIS Isomedix Services
2500 Commerce Drive
Libertyville, IL 60048
38. Isomedix Operations, Inc.
dba Steris Applied Sterilization Technologies
435 Whitney Street
Northborough, MA 01532
39. Steris Isomedix Puerto Rico, Inc.
dba STERIS Applied Sterilization Technologies
State Road 690, Km 1.7
Vega Alta, PR 00692

OTHER PARTIES TO EXPORT

(Suppliers)

- | | |
|--|---|
| 40. Isomedix Operations, Inc.
dba STERIS Applied Sterilization Technologies
2072 Southport Road
Spartanburg, SC 29306 | 43. Covidien, LP
2010 East International Speedway Blvd.
DeLand, FL 32724 |
| 41. Terumo Medical Corporation
950 Elkton Boulevard
Elkton, MD 21921 | 44. Uniformed Services University of the Health Sciences
Armed Forces Radiobiology Research Institute
8901 Wisconsin Avenue
Bethesda, MD 20889 |
| 42. 3M Company
601 22nd Avenue South
Brookings, SD 57006 | 45. University of Massachusetts Lowell
One University Ave
Lowell, MA 01854 |

[illegible]