

EXPORT LICENSE

NRC FORM 250P
(12/10)



United States of America
Nuclear Regulatory Commission
Washington, D.C. 20555

NRC LICENSE NO.: PXB6.20

Page 1 of 8

NRC DOCKET NO.: 11006027

LICENSE EXPIRES: February 28, 2026

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).

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|---|---|
| <p align="center">LICENSEE</p> <p>Alpha-Omega Services, Inc. Attn: Troy Hedger 9156 Rose Street Bellflower, CA 90706</p> <p>APPLICANT'S REFERENCE: AMD 20</p> | <p align="center">ULTIMATE FOREIGN CONSIGNEE(S)</p> <p align="center">Listed on Page 3</p> <p align="center">(Receipt of Sealed Sources)</p> |
| <p align="center">INTERMEDIATE CONSIGNEE(S) IN FOREIGN COUNTRY(IES)</p> <p align="center">NONE</p> | <p align="center">OTHER PARTY(IES) TO EXPORT</p> <p align="center">Listed on Pages 3 through 8</p> <p align="center">(Suppliers)</p> |

COUNTRY(IES) OF ULTIMATE DESTINATION: Canada, Japan

**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 Canada, of Category 1 quantities of Co-60 (not to exceed 244.2 TBq per shipment), contained in sealed sources for use in medical teletherapy devices, is authorized. **For Category 1 exports, see conditions on Page 3.**

Export to Japan, of Category 2 quantities of Ir-192, contained in sealed sources for use in medical brachytherapy devices, is authorized.

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, 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 Advanced Notifications.

This license replaces PXB6.19 amending its authority by: 1) extending the expiration date from November 30, 2025 to February 28, 2026; 2) revising the list of "Other Party(ies) to Export."

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:


Geoffrey B. Miller, Deputy Director
Office of International Programs

DATE OF ISSUANCE:

March 2, 2016

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 100.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 Prior Shipment 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 110.50 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.

ULTIMATE FOREIGN CONSIGNEE(S)

For export of 10 CFR Part 110 Appendix P, Category 1 quantities of Co-60

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

For export of 10 CFR Part 110 Appendix P, Category 2 quantities of Ir-192

Japan Radioisotope Association (JRIA)
28-45 Honkomagome 2-Chome
Bunkyo-Ku
Tokyo 113-8941
Japan

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

Alpha-Omega Services, Inc. is prohibited from shipping 10 CFR Part 110 Appendix P Category 1 quantities of Co-60 to Nordion (Canada) Inc. until:

- [1] Alpha-Omega Services, Inc. has requested in writing from the U.S. Nuclear Regulatory Commission (NRC) to obtain specific consent from Canada's regulatory authority, on a case-by-case basis;
- [2] NRC has received and considered government-to-government consent pursuant to 10 CFR §110.42(e)(3); and,
- [3] NRC has informed Alpha-Omega Services, Inc. in writing, that it is authorized to ship the materials to Nordion (Canada) Inc.

OTHER PARTY(IES) TO EXPORT (SUPPLIERS)

1. Adventist Health Systems/Sunbelt Inc.
Florida Hospital Plaza
2501 N. Orange Avenue
Orlando, FL 32803
2. Alexian Brothers Medical Center
800 West Biesterfield Road
Elk Grove Village, IL 60007
3. Alpha-Omega Services, Inc.
1282 Big Woods-Starks Road
Vinton, LA 70668
4. Aurora Health Care Metro, Inc.
d/b/a Aurora St. Luke's Medical Center
Room 115, Gamma Knife Department
2900 West Oklahoma Avenue
Milwaukee, WI 53215
5. Baylor All Saints Medical Center Fort Worth
1400 Eighth Avenue
Fort Worth, TX 76104
6. BRFH Shreveport, LLC
DBA University Health Shreveport
1541 Kings Highway
Shreveport, LA 71130
7. Central Mississippi Medical Center
Radiation Oncology Department
1850 Chadwick Drive
Jackson, MS 39204
8. Chippenham and Johnston-Willis
Hospitals, Inc.
d/b/a CJW Medical Center
Johnston-Willis Campus
Chippenham Campus
7101 Jahnke Road
Richmond, VA 23225

OTHER PARTY(IES) TO EXPORT (SUPPLIERS) (Continued)

9. Chippenham and Johnston-Willis Hospitals, Inc.
d/b/a CJW Medical Center
Johnston-Wills Campus
1401 Johnston-Willis Drive
Richmond, VA 23235
10. Columbia-Presbyterian Medical Center
Gamma Knife Suite
Basement Level, Room GK2
Children's Hospital of New York Presbyterian Hospital
630 West 168th Street
New York, NY 10032
11. Cooper Health System
Robert Wood Johnson Medical School
at Camden
3 Cooper Plaza
Camden, NJ 08103
12. Covenant Health System
Covenant Gamma Southwest
3603 21st Street
Lubbock, TX 79410
13. Covenant Health System
DBA Joe Arrington Cancer Research
& Treatment Center
4101 22nd Place
Lubbock, TX 79410
14. GE-Hitachi Nuclear Energy Americas, LLC
Vallecitos Nuclear Center
6705 Vallecitos Road
Pleasanton, CA 94586
15. Deaconess Medical Center Gamma Knife
Gamma Knife Suite, Basement Floor
Room 117
910 West Fifth Avenue
Spokane, WA 99204
16. Doctors Hospital, Inc.
d/b/a Doctors Hospital
5000 University Drive
Coral Gables, FL 33146
17. Fort Sanders Regional Gamma Knife
Center
1915 White Avenue
Knoxville, TN 37916
18. Gamma Knife Center of the Pacific
2226 Liliha Street, Level B2
Honolulu, HI 96817
19. Good Samaritan Hospital
1225 Wilshire Boulevard
Los Angeles, CA 90017
20. Harborview Medical Center
325 9th Avenue
Gamma Knife Suite
Seattle, WA 98133
21. HCA Health Services of Oklahoma, Inc.
d/b/a OU Medical Center
Presbyterian Hospital
700 N.E. 13th Street
Oklahoma City, OK 73104
22. Hoag Memorial Hospital Presbyterian
One Hoag Drive
Newport Beach, CA 92658
23. Holy Spirit Cancer Center
Gamma Knife Center
880 Century Drive
Mechanicsburg, PA 17055
24. Indiana University Medical Center
535 Barnhill Drive
Indianapolis, IN 46202
25. Intermountain Medical Center
Jon and Karen Huntsman Cancer Center
Gamma Knife Room
5121 South Cottonwood Street
Murray, UT 84157
26. John F. Kennedy Medical Center
65 James Street
Edison, NJ 08818

OTHER PARTY(IES) TO EXPORT (SUPPLIERS) (Continued)

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| 27. | Karmanos Cancer Center Gershenson Radiation Oncology Center Room 379 4100 John R Street Detroit, MI 48201 | 37. | Methodist Healthcare System of San Antonio LTD Methodist Hospital 7700 Floyd Curl Drive San Antonio, TX 78229 |
| 28. | Kettering Medical Center 3535 Southern Boulevard Kettering, OH 45429 | 38. | MidMichigan Gamma Knife Facility 4000 Wellness Drive, Room 160 Midland, MI 48670 |
| 29. | Lehigh Valley Health Network 1240 South Cedar Crest Blvd. Allentown, PA 18103 | 39. | Nebraska Methodist Hospital 8303 Dodge Street Omaha, NE 68114 |
| 30. | Lewis Hall Singletary Oncology Center at John D. Archbold Memorial Hospital 919 S. Broad Street Thomasville, GA 31792 | 40. | Neurologic & Orthopedic Institute of Chicago 4501 N. Winchester Chicago, IL 60640 |
| 31. | Los Robles Regional Medical Center 2200 Lynn Road Thousand Oaks, CA 91360 | 41. | New York University Hospitals Center Arnold and Marie Schwartz Health Care Center Gamma Knife Suite 560 First Avenue New York, NY 10016 |
| 32. | Marshall Clinic St. Joseph's Hospital 611 St. Joseph Avenue Marshfield, WI 54449 | 42. | Wake Forest Baptist Health Radiation Oncology Department Comprehensive Cancer Center Medical Center Boulevard Winston-Salem, NC 27157 |
| 33. | Mayo Clinic Hospital-Rochester St. Mary's Campus 1216 2 nd St SW Rochester MN 55905 | 43. | Northern Westchester Hospital Center 400 East Main Street Mount Kisco, NY 10549 |
| 34. | Medical College of Wisconsin Froedtert Memorial Lutheran Hospital 9200 West Wisconsin Avenue Milwaukee, WI 53226 | 44. | Northwest Hospital Gamma Knife Center Building 310 Ground Floor, Suite G-5 1560 North 115 th Street Seattle, WA 98133 |
| 35. | Medical University of South Carolina Medical University Hospital 169 Ashley Avenue Department of Radiation Oncology Room 165C (Treatment Room 1) Charleston, SC 29425 | 45. | Northwestern Memorial Hospital Feinberg Pavilion 251 E. Huron Street Chicago, IL 60611 |
| 36. | Memorial Hermann Healthcare System dba Hermann Hospital 6411 Fannin Avenue Houston, TX 77030 | 46. | Palmetto Health Richland 7 Medical Park Columbia, SC 29203 |

OTHER PARTY(IES) TO EXPORT (SUPPLIERS) (Continued)

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| 47. | Penn State Milton S. Hershey Medical Center 500 University Drive Hershey, PA 17033 | 58. | Saint Francis Medical Center 530 NE Glen Oak Avenue Peoria, IL 61637 |
| 48. | Piedmont Hospital Radiation Oncology Services 1968 Peachtree Road N.W. Atlanta, GA 30309 | 59. | San Antonio Community Hospital 999 San Bernardino Road Upland, CA 91786 |
| 49. | Pitt County Memorial Hospital d/b/a Vidant Medical Center 2100 Stantonsburg Road Greenville, NC 27835 | 60. | South Nassau Communities Hospital One Healthy Way Oceanside, NY 11572 |
| 50. | Providence Portland Medical Center North Pavilion 4805 NE Glisan Street Portland, OR 97213 | 61. | St. Joseph's Hospital 5665 Peachtree Dunwoody Road Atlanta, GA 30342 |
| 51. | Puerto Rico Medical Services Administration Puerto Rico Medical Center Centro Medico de Rio Piedras First Floor, Central Building Carr 22 Barrio Monacillos San Juan, PR 00921 | 62. | St. Joseph's Hospital and Medical Center 350 West Thomas Road Phoenix, AZ 85013 |
| 52. | Robert Wood Johnson University Center Gamma Knife Suite 10 Plum Street New Brunswick City, NJ 08901 | 63. | Sunrise Diagnostic Center 3006 South Maryland Parkway Las Vegas, NV 89109 |
| 53. | Research Medical Center Midwest Gamma Knife Center 2316 E. Meyer Blvd. Kansas City, MO 64132 | 64. | SUNY Upstate Medical University 750 East Adams Street Syracuse, NY 13210 |
| 54. | Rhode Island Hospital 593 Eddy Street Providence, RI 02903 | 65. | Sutter Gamma Knife Center 2800 L Street Sacramento, CA 95816 |
| 55. | Rocky Mountain Gamma Knife Center, LLC 1635 Aurora Court Aurora, CO 80045. | 66. | Sutter Medical Center Sacramento Sutter Gamma Knife Center 2801 K Street, Suite 110 Sacramento, CA 95816 |
| 56. | Roswell Park Cancer Institute Elm & Carlton Street Buffalo, NY 14263 | 67. | Temple University Hospital 3401 N. Broad Street Philadelphia, PA 19140 |
| 57. | Sacred Heart Medical Center 1255 Hilyard Street Eugene, OR 97401 | 68. | Tenet Good Samaritan, Inc. 1309 North Flagler Drive West Palm Beach, FL 33401 |
| | | 69. | Tenet Hospitals Limited dba Sierra Medical Center 1625 Medical Center Drive El Paso, TX 79902 |
| | | 70. | Texas Health Presbyterian Hospital Dallas 8200 Walnut Hill Lane Dallas, TX 75231 |

OTHER PARTY(IES) TO EXPORT (SUPPLIERS) (Continued)

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| 71. | The Cleveland Clinic Foundation 9500 Euclid Avenue Cleveland, OH 44195 | 82. | University of Kentucky Markey Cancer Center Roach Bldg., Room CC049 800 Rose Street Lexington, KY 40536 |
| 72. | The Ohio State University Radiation Medicine Department Arthur G. James Cancer Hospital and Richard J. Solove Research Institute 300 West 10th Avenue. Columbus, OH 43210 | 83. | University of Minnesota University Campus of Fairview University Medical Center, Room 1-285 420 Delaware Street Minneapolis, MN 55455 |
| 73. | The Regents of the University of California San Francisco Medical Center 505 Parnassus Ave, Room L56 San Francisco, CA 94143 | 84. | University of Pittsburgh Presbyterian University Hospital 230 Lothrop Street, Room G-102 Pittsburgh, PA 15213 |
| 74. | The Regents of the University of California UC Davis Medical Center 4501 X Street, G126 Sacramento, CA 95817 | 85. | University of Pittsburgh Presbyterian University Hospital 230 Lothrop Street, Room F-179 Pittsburgh, PA 15213 |
| 75. | The University of Texas MD Anderson Cancer Center 1515 Holcombe Boulevard Houston, TX 77030 | 86. | University of Pittsburgh Presbyterian University Hospital 230 Lothrop Street, Room F-185 Pittsburgh, PA 15213 |
| 76. | The Valley Hospital Luckow Pavilion 1 Valley Health Plaza Paramus, NJ 07652 | 87. | University of Virginia Health Services Foundation Lars Leksell Center for Gamma Surgery Building 1143; Room G411 1215 Lee Street Charlottesville, VA 22908 |
| 77. | The Swedish Radiosurgery Center Suite A10 James Tower 550 17 th Avenue Seattle, WA 98122 | 88. | USC University Hospital 1540 Alcazar Street Los Angeles, CA 90033 |
| 78. | Tufts – New England Medical Center 800 Washington Street Boston, MA 02111 | 89. | Washington Hospital Center 110 Irving Street, NW Washington, DC 20010 |
| 79. | UAB Highlands Hospital 1201 11 th Avenue South Birmingham, AL 35205 | 90. | Washington University in St. Louis 4921 Parkview Place St. Louis, MO 63108 |
| 80. | University Hospitals of Cleveland 11100 Euclid Avenue Cleveland, OH 44106 | 91. | West Virginia University Hospital, Inc. Ruby Memorial Hospital, Mary Babb Randolph Cancer Center, and Health Sciences Center South Building Medical Center Drive Morgantown, WV 26506 |
| 81. | University of Arkansas for Medical Science 4301 West Markham Street Little Rock, AR 72205 | | |

OTHER PARTY(IES) TO EXPORT (SUPPLIERS) (Continued)

92. William Beaumont Hospital
Department of Radiation Oncology
3601 W. Thirteen Mile Road
Royal Oak, MI 48073

93. Yale-New Haven Hospital
20 York Street
New Haven, CT 06519

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