

EXPORT LICENSE

NRC FORM 250

NRC LICENSE NO.: PXB6.47

Page 1 of 9

NRC DOCKET NO.: 11006027

LICENSE EXPIRES: March 31, 2032



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

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 of 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

Alpha-Omega Services, Inc.
1282 Bigwoods-Starks Road
Vinton, LA 70668

Attn: Carl Tunnell

ULTIMATE CONSIGNEE(S) IN FOREIGN COUNTRY(IES)

See following page(s)

INTERMEDIATE CONSIGNEE(S) IN FOREIGN COUNTRY(IES)

None

OTHER U.S. PARTY(IES) TO EXPORT

See following page(s)

APPLICANT'S REFERENCE: Amendment 47

ULTIMATE DESTINATIONS: Canada, Japan and Sweden

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

(NOTE: SEE PAGE 9 FOR DEFINITIONS OF CATEGORY 1 AND CATEGORY 2)

Export to Canada and Sweden, of Category 1 quantities of Co-60 (not to exceed 244.2 TBq per shipment) contained in sealed sources to authorized recipients for recycling and/or end of life-cycle management.

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 its application, must submit pertinent documentation required by 10 CFR 110.32(g) at least 24 hours prior to shipment. See Page 9 for Mandatory Advanced Notifications.

The license amendment PXB6.46 is superseded upon the issuance of NRC license PXB6.47, amending its authority. The amendment modifies PXB6.46 by updating the list of "Other U.S. Parties to Export" to revise parties #6, #17, #26, #37 and #80 and remove party #34. This amendment also adds Karmanos Cancer Center as a new entry to the "Other U.S. Parties 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 the other provisions of said Acts, now or hereafter in effect and to all valid rules and regulations of the U.S. Nuclear Regulatory Commission.

THIS LICENSE IS INVALID UNLESS SIGNED BELOW
BY AUTHORIZED NRC REPRESENTATIVE

NAME AND TITLE:

SABRINA ATACK Digitally signed by SABRINA ATACK
Date: 2024.12.16 15:35:06 -05'00'

Sabrina D. Atack, Deputy Director
Office of International Programs

DATE OF ISSUANCE:

December 16, 2024

EXPORT LICENSE

**CONDITIONS, NOTES, AND DESCRIPTIONS OF 10CFR PART 110, APPENDIX P,
BYPRODUCT AND SOURCE MATERIALS TO BE EXPORTED (cont'd)**

- [1] Licensee is prohibited from shipping Category 1 quantities until government-to-government consent has been requested, received and processed.
- [2] The licensee submits a consent request to the NRC with pertinent details for a specific shipment or series of shipments on the NRC Form 7, which notifies the NRC to request and obtain consent for the specified transaction(s) from the importing country's regulatory authority;
- [3] Shipment may only proceed after the NRC has informed the licensee in writing that the consent request has been granted, authorizing the transfer of materials to the ultimate consignee(s) specified on the NRC Form 7 consent request.

ULTIMATE CONSIGNEE(S) IN FOREIGN COUNTRY(IES) Continued:

- 1. **(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
- 2. **(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
- 3. **(For export of 10 CFR Part 110 Appendix P Category 1 quantities of Co-60)**

Studsvik Nuclear AB
Atomvagen 1
611 82 Nykoping
Sweden

OTHER U.S. PARTY(IES) TO EXPORT Continued:

- 1. Adventist Health Systems/Sunbelt Inc.
AdventHealth Cancer Institute Orlando
2501 North Orange Avenue
Orlando, FL 32804
- 2. Alexian Brothers Medical Center
800 West Biesterfield Road
Elk Grove Village, IL 60007
- 3. Allegheny Health Network
AHN Cancer Institute - Allegheny General
314 East North Avenue
Pittsburgh, PA 15212
- 4. Allegheny Health Network
AGH Receiving
1300 Sandusky Street
Pittsburgh, PA 15212
- 5. Alpha-Omega Services, Inc.
1282 Big Woods-Starks Road
Vinton, LA 70668
- 6. Anchorage Radiation Therapy Center, LLC
2841 Debarr Road, Suite 100
Anchorage, AK 99508
- 7. Augusta University Medical Center
1120 15th Street
Augusta, GA 30912
- 8. Aurora Health Care Metro, Inc.
dba Aurora St. Luke's Medical Center
Room 115 Gamma Knife Department
2900 West Oklahoma Avenue
Milwaukee, WI 53215

OTHER U.S. PARTY(IES) TO EXPORT Continued:

9. Avera McKennan - Avera Radiation Oncology
Avera Cancer Institute
Prairie Center
1000 East 23rd St. Suite 100 Room #2
Sioux Falls, SD 57105
10. Baptist Hospital of Miami, Inc.
Department of Radiation Oncology
8900 North Kendall Drive
Miami, FL 33176
11. Billings Clinic
2800 Tenth Avenue North
Billings, MT 59101
12. Bryan Medical Center
2300 South 16th Street
Lincoln, NE 68502
13. Center for Advanced Medicine
Long Island Jewish Medical Center
450 Lakeville Road
Lake Success, NY 11042
14. Central DuPage Hospital Association Northwestern
Medicine Cancer Center Central DuPage Hospital
4405 Weaver Parkway
Warrenville, IL 60555
15. Chesapeake Regional Riverside &
University of Virginia Radiosurgery Center
500 J Clyde Morris Boulevard
Newport News, VA 23601
16. Chippenham and Johnston-Willis Hospitals, Inc.
dba CJW Medical Center
Johnston-Willis Campus
1401 Johnston-Willis Drive
Richmond, VA 23235
17. Cooper Health System @ Camden
Cooper Health System Outpatient Diagnostic Imaging
Room 189, 3 Cooper Plaza
Camden, NJ 08103
18. Corewell Health William Beaumont University Hospital
William Beaumont Hospital - Imaging Center
3601 W. Thirteen Mile Road
Royal Oak, MI 48073
19. Covenant Health System
Covenant Gamma Southwest
3603 21st Street
Lubbock, TX 79410
20. Dignity Health
dba St. Joseph's Hospital and Medical Center
350 West Thomas Road
Phoenix, AZ 85013
21. Doctors Hospital, Inc.
dba Doctors Hospital
5000 University Drive
Coral Gables, FL 33146
22. Emory Saint Joseph's Hospital
5665 Peachtree Dunwoody Road, NE
Atlanta, GA 30342
23. Fort Sanders Regional Gamma Knife Center
1915 White Avenue
Knoxville, TN 37916
24. Gamma Knife Center of the Pacific
2226 Liliha Street, Level B2
Honolulu (Island of Oahu), HI 96817
25. Gamma Knife Radiotherapeutics, LLC
dba San Diego Gamma Knife Center
9834 Genesee Avenue, Suite 110
La Jolla, CA 92037
26. GE-Hitachi Nuclear Energy Americas, LLC
Vallecitos Nuclear Center
6705 Vallecitos Road
Pleasanton, CA 94586
27. GKMD, Inc.
101 West 8th Avenue
Spokane, WA 99204
28. Hackensack University Medical Center
John Theurer Cancer Center
92 2nd St.
Hackensack, NJ 07601

OTHER U.S. PARTY(IES) TO EXPORT Continued:

29. Harborview Medical Center
325 9th Avenue
Gamma Knife Suite
Seattle, WA 98133
30. Hoag Memorial Hospital Presbyterian
One Hoag Drive
Newport Beach, CA 92658
31. IHC Health Services, Inc.
dba Intermountain Medical Center
Jon and Karen Huntsman Cancer Center
(Building #3), Gamma Knife Room
5121 South Cottonwood Street
Murray, UT 84107
32. Indiana University - IUPUI
IU Medical Center Campus
IU Health Methodist
1701 N. Senate Boulevard
Indianapolis, IN 46202
33. Jewish Hospital, LLC.
4777 East Galbraith Road
Cincinnati, OH 45236
34. John F. Kennedy Medical Center
65 James Street
Edison TWP, NJ 08817
35. Karmanos Cancer Center
31995 Northwestern Hwy
Farming Hills, MI 48334
36. Kettering Health Network
Kettering Health Main Campus
3535 Southern Boulevard
Kettering, OH 45429
37. Larkin Community Hospital, Inc.
6129 Southwest 70th Street
South Miami, FL 33143
38. Legacy Good Samaritan
Radiation Oncology
1130 NW 22nd Avenue, Suite LL50
Portland, OR 97210
39. Lehigh Valley Health Network
1240 South Cedar Crest Boulevard
Allentown, PA 18103
40. Lewis Hall Singletary Oncology Center
at John D. Archbold Memorial Center
919 South Broad Street
Thomasville, GA 31792
41. Los Robles Regional Medical Center
2200 Lynn Road
Thousand Oaks, CA 91360
42. Lovelace Medical Center
601 Dr. Martin Luther King, Jr. NE
Albuquerque, NM 87102
43. Marshfield Medical Center
611 St. Joseph Avenue
Marshfield, WI 54449
44. Mayo Clinic
SMC Mary Brigh Building
Mayo Clinic Rochester Campus
1216 2nd St. SW
Rochester, MN 55902
45. Mayo Clinic Jacksonville
4500 San Pablo Road
Jacksonville, FL 32224
46. Medical College of Wisconsin
Froedtert Memorial Lutheran Hospital
9200 West Wisconsin Avenue
Milwaukee, WI 53226
47. Medical University Hospital Authority
dba Medical University of South Carolina
171 Ashley Avenue (MUSC)
Charleston, SC 29425
48. Memorial Hermann Health System
dba Memorial Hermann Texas Medical Center
6411 Fannin Street
Houston, TX 77030

OTHER U.S. PARTY(IES) TO EXPORT Continued:

49. Mercy Health - St. Vincent Medical Center, LLC
Perrysburg Cancer Center
12623 Eckel Junction Road
Perrysburg, OH 43552
50. Mercy Health Center
4300 West Memorial Road
Oklahoma City, OK 73120
51. Merit Health Central
Central Mississippi Medical Center
Radiation Oncology Department
1850 Chadwick Drive
Jackson, MS 39204
52. Methodist Childrens Hospital
dba Joe Arrington Cancer Center
4101 22nd Place
Lubbock, TX 79410
53. Methodist Healthcare System
of San Antonio LTD Methodist Hospital
7700 Floyd Curl Drive
San Antonio, TX 78229
54. Methodist Hospital of Gary, Inc.
Methodist Hospital - Southlake Campus
8701 Broadway
Merrillville, IN 46410
55. Mid-Michigan Gamma Knife Facility
4000 Wellness Drive
Room H-1405
Midland, MI 48670
56. Neurologic & Orthopedic Institute of Chicago
4501 N. Winchester
Chicago, IL 60640
57. New York Presbyterian Hospital
Columbia University Medical Center
Gamma Knife Suite
Columbia-Presbyterian Medical Center
630 West 168th Street
New York, NY 10032
58. North Carolina Baptist Hospital
Outpatient Comprehensive Cancer Center
Medical Center Boulevard
Winston-Salem, NC 27157
59. Northern Westchester Hospital Center
400 East Main Street
Mount Kisco, NY 10549
60. Northside Hospital Forsyth
1200 Northside Forsyth Drive
Cumming, GA 30041
61. Northwestern Memorial HealthCare
Galter Pavilion
201 E. Huron Street
Chicago, IL 60611
62. NYU Langone Hospitals
Tisch Hospital
550 First Ave.
New York, NY 10016
63. Ochsner Clinic Foundation
Ochsner Medical Center
Department of Radiation Oncology
1514 Jefferson Highway
New Orleans, LA 70121
64. OSF Healthcare System
St. Francis Medical Center
530 NE Glen Oak Avenue
Peoria, IL 61637
65. OU Medicine, Inc.
OU Medical Center
Presbyterian Tower
700 N.E. 13th Street
Oklahoma City, OK 73104
66. Our Lady of the Lake Hospital Inc.
dba Thomas J. Moran Imaging Center
4950 Essen Lane
Baton Rouge, LA 70809
67. PeaceHealth Sacred Heart Medical Center
Gamma Knife Department
3333 RiverBend Drive
Springfield, OR 97477
68. Penn State Milton S. Hershey Medical Center
500 University Drive
Hershey, PA 17033

OTHER U.S. PARTY(IES) TO EXPORT Continued:

69. Piedmont Hospital Atlanta
1968 Peachtree Road N.W.
Atlanta, GA 30309
70. Pitt County Memorial Hospital
2100 Statonsburg Road
Greenville, NC 27835
71. Prisma Health Richland Hospital
7 Medical Park
Columbia, SC 29203
72. Providence Health & Services - Oregon
Gamma Knife Center of Oregon
Providence Portland Medical Center
North Pavilion, 4805 NE Glisan Street
Portland, OR 97213
73. 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 00935
74. Puget Sound Radiosurgery, LLC.
Gamma Knife Suite, Room 103
St. Joseph's Medical Pavilion
1802 South Yakima Ave.
Tacoma, WA 98405
75. Research Medical Center
Midwest Gamma Knife Center
2316 E. Meyer Blvd.
Kansas City, MO 64132
76. Rhode Island Hospital
593 Eddy Street
Providence, RI 02903
77. Robert Wood Johnson University Hospital
Gamma Knife Suite
10 Plum Street
New Brunswick City, NJ 08901
78. Roswell Park Cancer Institute Corp.
Elm & Carlton Street
Buffalo, NY 14263
79. Sacred Heart Health System, Inc.
dba Sacred Heart Hospital of Pensacola
5151 North 9th Avenue
Pensacola, FL 32504
80. San Antonio Community Hospital
999 San Bernardino Road
Upland, CA 91786
81. St. Lukes The Woodlands Hospital
17200 St. Luke's Way
The Woodlands, TX 77384
82. South Nassau Communities Hospital
One Healthy Way
Oceanside, NY 11572
83. Sutter Gamma Knife Center
2801 K St., Suite 110
Sacramento, CA 95816
84. SUNY Upstate Medical University
750 East Adams Street
Syracuse, NY 13210
85. Temple University
Temple Hospital
3401 N. Broad Street
Philadelphia, PA 19140
86. Swedish Medical Center
799 East Hampden Ave. Suite 110
Englewood, CO 80113
87. Tenet Hospitals Limited
dba The Hospitals of Providence Sierra Campus
Gamma Knife Suite
1625 Medical Center Drive
El Paso, TX 79902
88. Tenet Good Samaritan, Inc.
1309 North Flagler Drive
West Palm Beach, FL 33401
89. The Charlotte-Mecklenburg Hospital Authority
dba Atrium Health Advanced Radiation Therapy
1310 East Morehead Street
Charlotte, NC 28203

OTHER U.S. PARTY(IES) TO EXPORT Continued:

90. The Cleveland Clinic Foundation
dba The Cleveland Clinic
10201 Carnegie Avenue
Cleveland, OH 44195
91. The Methodist Hospital
dba Houston Methodist
6551 Bertner Avenue
Houston, TX 77030
92. 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
93. The Regents of the University of California
San Francisco Medical Center
UCSF Medical Center
Parnassus Ave.
San Francisco, CA 94143
94. The Regents of the University of California
U.C. Davis Medical Center
2315 Stockton Blvd.
Sacramento, CA 95817
95. The Swedish Radiosurgery Center
Suite A10 James Tower
550 17th Avenue
Seattle, WA 98122
96. The University of Iowa
University of Iowa Campus
200 Hawkins Drive
Iowa City, IA 52242
97. The University of Texas
MD Anderson Cancer Center
1515 Holcombe Boulevard
Houston, TX 77030
98. The Valley Hospital Luckow Pavilion
1 Valley Health Plaza
Paramus, NJ 07652
99. Thomas Jefferson University and Hospitals
900 Walnut Street
Philadelphia, PA 19107
100. Tufts Medical Center
800 Washington Street
Boston, MA 02111
101. University Health Shreveport, LLC.
dba Ochsner LSU Health Shreveport
1541 Kings Highway
Shreveport, LA 71103
102. University Hospitals of Cleveland
11100 Euclid Avenue
Cleveland, OH 44106
103. University of Colorado Hospital Authority
1635 Aurora Court
Aurora, CO 80045
104. University of Kentucky
Markey Cancer Center, Roach Bldg.
Room CC049, 800 Rose Street
Lexington, KY 40536
105. University of Maryland Medical System
Gamma Knife Suite
South Hospital B Wing
22 South Greene Street
Baltimore, MD 21201
106. University of Miami
Sylvester Cancer Center West
1400 NW 12th Avenue
Miami, FL 33136
107. University of Minnesota Medical Center
Room 1-285
500 SE Harvard Street
Minneapolis, MN 55455
108. University of Mississippi Medical Center
350 West Woodrow Wilson Avenue
Jackson, MS 39216
109. University of Pennsylvania
Pennsylvania Hospital Campus
800 Spruce Street
Philadelphia, PA 19107
110. University of Pittsburgh
Presbyterian University Hospital
230 Lothrop Street, Room F-185
Pittsburgh, PA 15213
111. University of Pittsburgh
Presbyterian University Hospital
230 Lothrop Street, Room F-179
Pittsburgh, PA 15213

OTHER U.S. PARTY(IES) TO EXPORT Continued:

- | | |
|---|---|
| 112. University of Pittsburgh
Presbyterian University Hospital
230 Lothrop Street, Room G-102
Pittsburgh, PA 15213 | 113. University of Texas Southwestern
Medical Center at Dallas
6201 Harry Hines Blvd.
Dallas, TX 75390 |
| 114. University of Virginia Physicians Group
University of Virginia Lars Leksell Center of
Gamma Surgery, Primary Care Center
Building 1143; Room G411
1215 Lee Street
Charlottesville, VA 22908 | 115. USC University Hospital
1540 Alcazar Street
Los Angeles, CA 90033 |
| 116. Washington Hospital Center
110 Irving Street, NW
Washington, DC 20010 | 117. Washington Hospital Healthcare System
2500 Mowry Ave.
Fremont, CA 94538 |
| 118. Washington University
in St. Louis Barnes-Jewish Hospital
4921 Parkview Place
St. Louis, MO 63108 | 119. 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 |
| 120. Yale-New Haven Hospital
20 York Street
New Haven, CT 06510 | |

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:

Mandatory 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 301-287-9056.

Mandatory 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 301-287-9056.

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 AR1 = activity limit for radionuclides or source number 1
- R2 = activity for radionuclides or source number 2 AR2 = activity limit for radionuclides or source number 2
- RN = activity for radionuclides or source number n 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.