

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 70, and 71, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee 1. The Queen's Medical Center 2. 1301 Punchbowl Street Honolulu, Hawaii 96813	In accordance with letter dated April 19, 2016 3. License number 53-29377-03 is amended in its entirety to read as follows: 4. Expiration date June 30, 2020 5. Docket No. 030-38244 Reference No.
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6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Fluorine-18	A. Any	A. 20 curies
B. Any byproduct material authorized under 10 CFR 35.65	B. Sealed Source	B. 10 millicuries
C. Any byproduct material with atomic numbers 1 through 83	C. Incidentally Activated Products	C. 50 microcuries per nuclide; 100 microcuries total
D. Hydrogen-3	D. Incidentally Activated Products	D. 50 microcuries
E. Carbon-14	E. Incidentally Activated Products	E. 50 microcuries
F. Chlorine-36	F. Incidentally Activated Products	F. 50 microcuries
G. Argon-39	G. Incidentally Activated Products	G. 150 microcuries
H. Potassium-40	H. Incidentally Activated Products	H. 100 microcuries
I. Calcium-41	I. Incidentally Activated Products	I. 50 microcuries
J. Calcium-45	J. Incidentally Activated Products	J. 3.3 millicuries
K. Manganese-54	K. Incidentally Activated Products	K. 15 millicuries
L. Iron-55	L. Incidentally Activated Products	L. 23.9 millicuries
M. Cobalt-57	M. Incidentally Activated Products	M. 50 microcuries
N. Cobalt-60	N. Incidentally Activated Products	N. 400 microcuries

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6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
O. Iron-59	O. Incidentally Activated Products	O. 100 microcuries
P. Nickel-63	P. Incidentally Activated Products	P. 1050 microcuries
Q. Zinc-65	Q. Incidentally Activated Products	Q. 1.5 millicuries
R. Cadmium -109	R. Incidentally Activated Products	R. 1.5 millicuries
S. Europium-152	S. Incidentally Activated Products	S. 600 microcuries
T. Europium-154	T. Incidentally Activated Products	T. 100 microcuries
U. Tungsten-181	U. Incidentally Activated Products	U. 1.5 millicuries
V. Lead-205	V. Incidentally Activated Products	V. 100 microcuries

9. Authorized Use:

- A. For production, possession, or handling of radiochemicals and sealed sources for transfer to persons authorized to receive the licensed material pursuant to the terms and conditions of a specific license issued by the U.S. Nuclear Regulatory Commission or any Agreement State.
- B. Calibration and checking of the licensee's instruments.
- C. through V. For possession and storage only of byproduct materials incidental to radionuclide production.

CONDITIONS

- 10. Licensed material shall be stored and/or used only at the licensee's facilities located at 1301 Punchbowl Street, Honolulu, Hawaii (Island of Oahu).
- 11. The Radiation Safety Officer for this license is Dale J. Schippers, M.S.
- 12. Licensed material shall be used by, or under the supervision of, Marc Coel, M.D., Sandi Kwee, M.D., John Lim, Ph.D., and Douglas Prager, M.D.

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13. This license does not authorize commercial distribution of licensed material pursuant to 10 CFR 32.72 or 10 CFR 32.74 or equivalent regulations of an Agreement State; to persons generally licensed pursuant to CFR Part 31 or equivalent regulations of an Agreement State; or to persons exempted from licensing pursuant to 10 CFR Part 30 or equivalent regulations of an Agreement State.
14. Licensed material shall not be used in or on human beings.
15. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or by an Agreement State.
- B. In the absence of a certificate from a transferor indicating that a leak test has been made within the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or by an Agreement State, prior to the transfer, a sealed source and/or detector cell received from another person shall not be put into use until tested and the test results received.
- C. Sealed sources and detector cells need not be tested if they are in storage and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source and/or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.
- D. The leak test shall be capable of detecting the presence of 0.005 microcurie (185 becquerels) of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie (185 becquerels) or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(c)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region IV, 1600 East Lamar Boulevard, Arlington, Texas 76011-4511, ATTN: Director, Division of Nuclear Materials Safety. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.
- E. Tests for leakage and/or contamination, including leak test sample collection and analysis, shall be performed by the licensee or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
- F. Records of leak test results shall be kept in units of microcuries and shall be maintained for 3 years.
16. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee, except as specifically authorized.

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17. The licensee shall conduct a physical inventory every 6 months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 3 years from the date of each inventory and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.
18. Except for maintaining labeling as required by 10 CFR Part 20 or 71, the licensee shall obtain authorization from U.S. Nuclear Regulatory Commission before making any changes in the sealed source, device, or source-device combination that would alter the description or specifications as indicated in the respective Certificates of Registration issued either by the Commission pursuant to 10 CFR 32.210 or by an Agreement State.
19. The licensee is authorized to hold byproduct material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal without regard to its radioactivity if the licensee:
- A. Monitors byproduct material at the surface before disposal and determines that its radioactivity cannot be distinguished from the background radiation level with an appropriate radiation detection survey meter set on its most sensitive scale and with no interposed shielding; and
 - B. Removes or obliterates all radiation labels, except for radiation labels on materials that are within containers and that will be managed as biomedical waste after they have been released from the licensee; and
 - C. Maintains records of the disposal of licensed materials for 3 years. The record must include the date of the disposal, the survey instrument used, the background radiation level, the radiation level measured at the surface of each waste container, and the name of the individual who performed the disposal.
20. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
21. The licensee shall maintain records of information related to decommissioning as specified in 10 CFR 30.35(g) until this license is terminated by the Commission.

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22. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated December 29, 2009 (ML100400103)
 - B. Letter dated April 8, 2010 (ML101530548)
 - C. Letter dated August 25, 2015 (ML15261A098)
 - D. Letter dated April 19, 2016 (ML16123A195)



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: July 15, 2016

By: _____

/RA/

Roberto J. Torres, M.S., Senior Health Physicist
Nuclear Materials Safety Branch B
Region IV
Arlington, Texas 76011-4511