U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 53

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	In accordance with letter dated October 4, 2016.	4. Expiration Date: April 30, 2025
1. VHS Children's Hospital of Michigan, Inc. 2. 3901 Beaubien Boulevard Detroit, MI 48201	3. License number: 21-03298-05 is amended in its entirety to read as follows:	5. Docket No.: 030-13166 Reference No.:

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	9. Authorized use
A. Any byproduct material permitted by 10 CFR 35.100	A. Any	A. As Needed	A. For use in uptake, dilution and excretion studies permitted by 10 CFR 35.100.
B. Any byproduct material permitted by 10 CFR 35.200	B. Any	B. As Needed	B. For use in imaging and localization studies permitted by 10 CFR 35.200.
C. Any byproduct material permitted by 10 CFR 35.300	C. Any	C. 1 curie total	C. For any use permitted by 10 CFR 35.300.
D. Hydrogen-3	D. Any	D. 50 millicuries total	D. In vitro clinical diagnosis and in vitro laboratory research.
E. Carbon-14	E. Any	E. 20 millicuries total	E. In vitro clinical diagnosis and in vitro laboratory research.
F. Chromium-51	F. Any	F. 400 millicuries total	F. In vitro clinical diagnosis and in vitro laboratory research.

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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	9. Authorized use
G. Zinc-65	G. Any	G. 5 millicuries total	G. In vitro clinical diagnosis and in vitro laboratory research.
H. Iodine-125	H. Any	H. 100 millicuries total	H. In vitro clinical diagnosis and in vitro laboratory research.
I. Sulfur-35	I. Any	I. 100 millicuries total	I. In vitro clinical diagnosis and in vitro laboratory research.
J. Phosphorus-32	J. Any	J. 100 millicuries total	J. In vitro clinical diagnosis and in vitro laboratory research.
K. Phosphorus-33	K. Any	K. 100 millicuries total	K. In vitro clinical diagnosis and in vitro laboratory research.

CONDITIONS

10. Licensed material may be used or stored at the licensee's facilities located at Children's Hospital of Michigan, 3901 Beaubien Boulevard, Detroit, Michigan.

11. The Radiation Safety Officer (RSO) for this license is Cari A. Dzanbazoff, BS, MBA.

12. Licensed material shall only be used by, or under the supervision of:

A. Individuals permitted to work as authorized users in accordance with 10 CFR 35.13 and 10 CFR 35.14.

B. The following individuals are authorized users for the material and medical uses as indicated:

Authorized User(M.D.,D.O.,etc.)	Material and Use
J. Michael Zerin, M.D.	10 CFR 35.100 and 35.200.

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Authorized User(M.D.,D.O.,etc.)	Material and Use
Richard N. Joyrich, M.D.	10 CFR 35.100, 35.200, and 35.300.
William John Powell, M.D.	10 CFR 35.100 and 35.200.
Florence Prigent, M.D.	10 CFR 35.200.
Ajay Kumar, M.D.	10 CFR 35.100 and 35.200.

C. The following individuals are authorized users for nonmedical uses as indicated:

Non-Medical Use	Material and Use
Patrick Long, Ph.D.	Subitems 6.D. through 6.K.
William Lyman, M.D.	Subitems 6.D. through 6.K.

13. Licensed material listed in Subitems 6.D. through 6.K. shall not be used in or on humans.

14. The licensee is authorized to hold radioactive material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash provided:

A. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated, 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.

B. A record of each such disposal permitted under this license condition shall be retained for 3 years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.

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15. 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. This license condition applies only to those procedures that are required to be submitted in accordance with the regulations. Additionally, this license condition does not limit the licensee's ability to make changes to the radiation protection program as provided for in 10 CFR 35.26. 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 November 17, 2014 (with cover letter dated November 12, 2014) (ML14324A904)
    B. Letter dated December 9, 2014 (ML14344A962)
    C. Letter dated June 8, 2015 (ML15182A215)
    D. Letter dated October 1, 2015 (ML15294A468)
    E. Letter dated October 4, 2016 (ML16292A826)

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: November 28, 2016

By: _____
Frank P. D. Tran
Region III