U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 32

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 the letter dated August 01, 2018,	4. Expiration Date: June 30, 2025
1. Smithsonian Institution Office of Safety, Health & Environmental Management 2. Suite 7106, MRC 514 600 Maryland Ave., SW, P.O. Box 37012 Washington, DC 20013-7012	3. License number: 08-05938-13 is amended in its entirety to read as follows:	5. Docket No.: 030-30945 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. Hydrogen-3	A. Any	A. 90 millicuries total	A. For research and development as defined in 10 CFR 30.4.
B. Carbon-14	B. Any	B. 85 millicuries total	B. For research and development as defined in 10 CFR 30.4.
C. Phosphorus-32	C. Any	C. 120 millicuries total	C. For research and development as defined in 10 CFR 30.4.
D. Phosphorus-33	D. Any	D. 120 millicuries total	D. For research and development as defined in 10 CFR 30.4.
E. Sulfur-35	E. Any	E. 120 millicuries total	E. For research and development as defined in 10 CFR 30.4.
F. Iodine-125	F. Any	F. 125 millicuries total	F. For research and development as defined in 10 CFR 30.4.
G. Cesium-137	G. Solid (Graphite blocks,)	G. 0.04 microcuries per source and 15 microcuries total	G. Component part of replica of CP-1 Fermi Pile for storage and display only.

MATERIALS LICENSE SUPPLEMENTARY SHEET

License Number: 08-05938-13
Amendment No. 32
Docket or Reference Number: 030-30945

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
H. Promethium-147	H. Luminous Paint (Painted Dials,)	H. 800 millicuries total	H. Component part of replica of Lunar Rover for storage and display only.
I. Radium-226	I. Any	I. 50 microcuries total	I. Storage and display only.
J. Radium-226	J. Sealed Sources	J. 3.8 millicuries total	J. Storage and display only.
K. Uranium- depleted in Uranium-235	K. Metal	K. 11 kilograms total	K. Component part of thermoelectric generator for storage and display only.
L. Chlorine-36	L. Sealed Sources (Eckert & Ziegler, Model GF-series, SET-AM1CL6-LSC-20FSUGAB)	L. 0.05 microcuries per source and 0.05 microcuries total	L. For research and development as defined in 10 CFR 30.4, including calibration and checking of the licensee's instruments.
M. Iron-55	M. Sealed Sources (AEA Technology, Model IEC.A1; Isotope Products Laboratories, Model XFB series or NER-462)	M. 700 millicuries total and no single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State	M. For research and development as defined in 10 CFR 30.4, including calibration and checking of the licensee's instruments.
N. Americium-241	N. Sealed Sources (Eckert & Ziegler, Model GF-series, SET-AM1CL6-LSC-20FSUGAB)	N. 0.05 microcuries total	N. For research and development as defined in 10 CFR 30.4, including calibration and checking of the licensee's instruments.

CONDITIONS

10. A. Licensed material identified in Items 6.A. through 6.K. above may be used or stored at the licensee's facilities located at:
    1. National Air and Space Museum, 601 Independence Avenue, Washington, D.C.

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number 08-05938-13	Docket or Reference Number 030-30945
	Amendment No. 32	

2. National Museum of American History, 14th and Constitution Avenue, N.W., Washington, D.C.
3. Smithsonian Environmental Research Center, 647 Contees Wharf Road, Edgewater, Maryland
4. Paul E. Garber Facility, Buildings 10, 11, 15, 17, and 24, 3904 Old Silver Hill Road, Suitland, Maryland
5. Museum Support Center, 4210 Silver Hill Road, Silver Hill, Maryland
6. Smithsonian Conservation Biology Institute, 1500 Remount Rd, Front Royal, Virginia
7. Steven F. Udvar-Hazy Center, 14390 Air & Space Museum Parkway, Chantilly, Virginia

B. Licensed material identified in items 6.A. through 6.F. may be used at temporary job sites onboard ships in U.S. coastal waters, at sea, and in U.S. inland waters.

C. Licensed material listed in Subitem Nos. 6.L. and 6.N. may be used at the licensee's facilities located at the Paul E. Garber Facility, Buildings 10, 11, 15, 17, and 24, 3904 Old Silver Hill Road, Suitland, Maryland and the Steven F. Udvar-Hazy Center, 14390 Air & Space Museum Parkway, Chantilly, Virginia, and at temporary jobsites of the licensee anywhere in the United States.

D. Licensed material identified in Item. 6.M. above may be used or stored at the Smithsonian Astrophysical Observatory, Cambridge Discovery Park, 100 Acorn Park Drive, Cambridge Massachusetts and at temporary jobsites of the licensee anywhere in the United States.

11. The Radiation Safety Officer (RSO) for this license is David M. Peters.

12. A. Licensed material listed in Items 6.A. through 6.N. may be used by, or under the supervision, of David M. Peters and William Beckett.

B. Licensed material listed in Items 6.A. through 6.F., 6.L., and 6.N., may be used by, or under the supervision, of Janine Brown, Adrienne Crosier, Nicole Presley, Patrick Megonigal, Patrick J. Neale, Cynthia Gilmour, Olav T. Oftedal, or Liza Hamill.

C. Licensed material listed in Items 6H. through 6.J. may be used by, or under the supervision of, Roger Connor, Julie Kowalsky, or Robert Weihrauch.

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number 08-05938-13	Docket or Reference Number 030-30945
	Amendment No. 32	

D. Licensed material listed in Items 6.G., 6.I., and 6.K., shall be used by, or under the supervision of, Roger Sherman.

E. Licensed material listed in Items 6.M. may be used by, or under the supervision of, Thomas Gauron.

13. The licensee shall not use the licensed material in or on humans.

14. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.

15. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 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. In the absence of a registration certificate, sealed sources shall be tested for leakage and/or contamination at intervals not to exceed 6 months, or at such other intervals as specified.

B. Not withstanding Paragraph A of this Condition, sealed sources designed to primarily emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

C. 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 received from another person shall not be put into use until tested and the test results received.

D. Sealed sources need not be tested if they contain only hydrogen 3; or they contain only a radioactive gas; or the half-life of the isotope is 30 days or less; or they contain not more than 100 microcuries of beta- and/or gamma-emitting material or not more than 10 microcuries of alpha-emitting material.

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number 08-05938-13	Docket or Reference Number 030-30945
	Amendment No. 32	

E. Sealed sources 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 shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The leak test shall be capable of detecting the presence of 185 becquerels (0.005 microcuries) of radioactive material on the test sample. If the test reveals the presence of 185 becquerels (0.005 microcuries) 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.

G. Tests for leakage and/or contamination, including leak test sample collection and analysis, shall be performed by the licensee or other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

H. Records of leak test results shall be kept in units of becquerels (microcuries) and shall be maintained for 3 years.

16. Sealed sources or detector cells containing licensed material shall not be opened or the foil sources removed from the detector cell by the licensee.

17. A. 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 sealed 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.

B. Notwithstanding Paragraph A of this Condition, the licensee may conduct a physical inventory of its collection of small objects in storage that contain radium-226, on a 3 year frequency, to account for all such sources and/or devices received and possessed in storage under the license, in accordance with the letter dated June 5, 2015. Records of inventories shall be maintained as stated in Paragraph A of this condition.

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number 08-05938-13	Docket or Reference Number 030-30945
	Amendment No. 32	

18. 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.

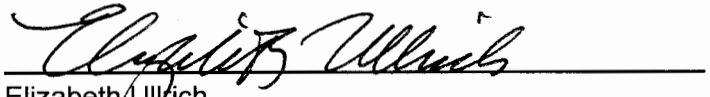
MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number 08-05938-13	Docket or Reference Number 030-30945
	Amendment No. 32	

19. 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. 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 22, 2014 (ML15014A361)
B. Letter dated February 27, 2015 (ML15069A288)
C. Letter dated April 3, 2015 (ML15104A151)
D. Letter dated June 5, 2015 (ML15183A475)
E. Letter dated November 17, 2016 (ML16343A972)
F. Letter dated December 30, 2016 (ML17011A242)
G. Letter dated November 29, 2017 (ML17342A242)
H. Letter dated January 19, 2018 (ML18031A770)

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: August 30, 2018

By: 
Elizabeth Ullrich
Region 1