U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 27

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, 39, 40, and 70, 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. Department of the Army U. S. Army Research Laboratory ATTN: RDRL-LO	In accordance with the letter dated June 5, 2014, 3. License number 19-12056-02 is amended in its entirety to read as follows:
2. 2800 Powder Mill Road Adelphi, Maryland 20783	4. Expiration date November 30, 2024
	5. Docket No. 03004555 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
A. Any byproduct material with atomic numbers 1 through 84	A. Plated and sealed sources	A. 101 millicuries per radionuclide and 8.5 curies total
B. Any byproduct material with atomic numbers 1 through 37 and 54 through 83	B. Any	B. 1 millicuries per radionuclide and 100 millicuries total
C. Hydrogen 3	C. Sealed Sources	C. 22 curies per source and 880 curies total
D. Cadmium 109	D. Sealed Sources (Isotope Product Laboratories Model XFB Series)	D. 250 millicuries per source and 250 millicuries total
E. Radium 226	E. Sealed Sources	E. 10 millicuries per source and 15 millicuries total
F. Americium 241	F. Sealed Sources	F. 2 millicuries per source and 2 millicuries total
G. Hydrogen 3	G. Sealed Sources (Sodern TPA containing TPA17 neutron Tube)	G. 19.5 curies per source and 85 curies total
H. Cesium 137	H. Sealed Sources (AEA Technology/QSA, Inc. Model CDC.805 and Isotope Product Laboratories Model HEG-137)	H. 11 millicuries per source and 44 millicuries total

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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
I. Americium 241	I. Sealed Sources (AEA Technology/QSA, Inc. Model AMN.V997 and Isotope Product Laboratories Model Am1.NO2)	I. 44 millicuries per source and 176 millicuries total

9. Authorized use:

A. through F. Research and development as defined in 10 CFR 30.4, calibration of instruments, analysis of environmental samples, and for processing and consolidation of waste of other Department of the Army tenants located at Aberdeen Proving Grounds and Adelphi Laboratory Center.

G. In Sodern Model ULIS or THOR devices for explosive materials detection, isomer research, and consolidation of waste.

H. and I. In Humboldt Scientific, Inc. Model No. 5001 and InstroTek, Inc. Model 3500 portable gauging devices for measuring the physical properties of materials.

CONDITIONS

10. Licensed material may be used or stored only at the licensee's facilities located at Aberdeen Proving Ground, Maryland and Adelphi Laboratory Center, 2800 Powder Mill Road, Adelphi, Maryland, and at temporary job sites anywhere in the United States.

11. A. Licensed material shall only be used by, or under the supervision of, individuals designated, in writing, by the Radiation Safety Committee. The licensee shall maintain records of individuals designated as users for 3 years following the last use of licensed material by the individual.

B. The Radiation Safety Officer for this license is Patrick Marine.

12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.

13. The licensee shall not use licensed material in or on human beings.

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

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15. A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed six months or at the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or under equivalent regulations of an Agreement State.

B. Notwithstanding 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. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

D. 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 under equivalent regulations of 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.

E. 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.

F. 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.

G. 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.

H. 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.

I. Records of leak test results shall be kept in units of microcuries and shall be maintained for 5 years.

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

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17. The licensee shall conduct a physical inventory every six 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 5 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. Sealed sources or source rods containing licensed material shall not be opened or sources removed or detached from source rods or gauges by the licensee, except as specifically authorized.

19. Each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport or storage, or when not under the direct surveillance of an authorized user.

20. Any cleaning, maintenance, or repair of the gauges that requires detaching the source or source rod from the gauge shall be performed only by the manufacturer or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

21. For portable gauges:

    A. If the licensee uses unshielded sealed sources extended more than 3 feet below the surface, the licensee shall use surface casing that extends from the lowest depth to 12 inches above the surface and other appropriate procedures to reduce the probability of the source or probe becoming lodged below the surface. If it is not feasible to extend the casing 12 inches above the surface, the licensee shall implement procedures to ensure that the cased hole is free of obstruction before making measurements.

    B. If a sealed source or a probe containing sealed sources becomes lodged below the surface and it becomes apparent that efforts to recover the sealed source or probe may not be successful, the licensee shall notify the U.S. Nuclear Regulatory Commission and submit the report required by 10 CFR 30.50(b)(2) and (c). The licensee shall not abandon the sealed source or probe without obtaining the Commission's prior written consent.

22. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

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23. 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. Memorandum dated June 5, 2014 (ML14184B179)
B. Application dated October 1, 2014 (ML14300A167)

For the U.S. Nuclear Regulatory Commission

Date December 8, 2014

By ***Original signed by Dennis R. Lawyer***

Dennis R. Lawyer
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