

**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.

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| Licensee<br>1. Old Dominion University   | In accordance with letter dated<br>February 27, 2017,                               | 4. Expiration Date: January 31, 2026   |   |
| 2. 5255 Hampton Blvd.<br>Spong Hill, Suite 2501<br>Norfolk, VA 23529                                 | 3. License number: 45-09599-05 is<br>amended in its entirety to read as<br>follows: | 5. Docket No.: 030-38886<br>Reference No.:   |   |
| 6. Byproduct, source,<br>and/or special nuclear<br>material<br><br>A. Hydrogen-3<br><br>B. Carbon-14 | 7. Chemical and/or physical form<br><br>A. Any<br><br>B. Any                        | 8. Maximum amount that licensee<br>may possess at any one time<br>under this license<br><br>A. 50 millicuries total<br><br>B. 50 millicuries total | 9. Authorized use<br><br>A. For research and development as<br>defined in 10 CFR 30.4.<br><br>B. For research and development as<br>defined in 10 CFR 30.4. |

**CONDITIONS**

10. Licensed material may be used at temporary job sites of the licensee in research vessels at sea in national and international waters, and in ponds, lakes, bays, and coastal waters anywhere in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material, including areas of exclusive Federal jurisdiction within Agreement States.

If the jurisdiction status of a Federal facility within an Agreement State is unknown, the licensee should contact the Federal agency controlling the job site in question to determine whether the proposed job site is an area of exclusive Federal jurisdiction. Authorization for use of radioactive materials at job sites in Agreement States not under exclusive Federal jurisdiction shall be obtained from the appropriate state regulatory agency.

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SUPPLEMENTARY SHEET**License Number  
45-09599-05Docket or Reference Number  
030-38886

Amendment No. 1

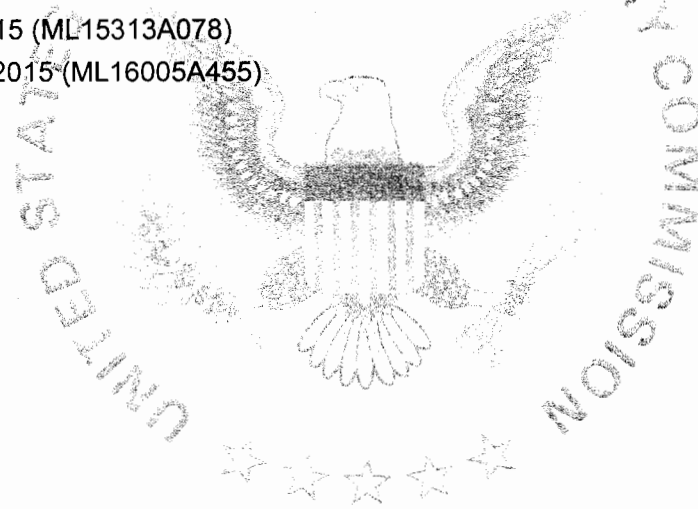
11. Licensed material shall only be used by, or under the supervision of, individuals designated, in writing, by the Radiation Safety Committee. The licensee shall maintain records of individuals designated as users for 3 years following the last use of licensed material by the individual.
12. The Radiation Safety Officer (RSO) for this license is Roy Heltzel.
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. Maintenance, repair, cleaning, replacement, and disposal of foils contained in detector cells shall be performed only by the device manufacturer or other persons specifically authorized by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
16.
  - A. Detector cells containing a titanium tritide foil or scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperature from exceeding that specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations from an Agreement State.
  - B. When in use, detector cells containing a titanium tritide foil or scandium tritide foil shall be vented to the outside.

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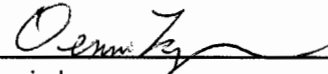
Amendment No. 1

17. 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 October 23, 2015 (ML15313A078)
- B. Application dated December 17, 2015 (ML16005A455)



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: March 23, 2017By:   
Dennis Lawyer  
Region 1