

**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.

<p>Licensee</p> <p>1. TTL Associates, Inc.</p>	<p>In accordance with application dated April 25, 2016.</p>	<p>4. Expiration Date: February 28, 2027</p>
<p>2. 44265 Plymouth Oaks Boulevard Plymouth, MI 48170</p>	<p>3. License number: 21-26666-01 is renewed in its entirety to read as follows:</p>	<p>5. Docket No.: 030-33903 Reference No.:</p>
<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Radium-226</p> <p>B. Cesium-137</p> <p>C. Americium-241</p> <p>D. Cadmium-109</p>	<p>7. Chemical and/or physical form</p> <p>A. Sealed Sources (Radium Chemical Company, Model RAN.W250)</p> <p>B. Sealed Sources (Troxler, Model A-102112)</p> <p>C. Sealed Sources (Troxler, Model A-102451)</p> <p>D. Sealed Sources (Isotope Products Laboratories, Model XFB-3)</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. 4.5 millicuries per source and 38.5 millicuries total</p> <p>B. 9 millicuries per source and 80 millicuries total</p> <p>C. 44 millicuries per source and 400 millicuries total</p> <p>D. 50 millicuries per source and 100 millicuries total</p> <p>9. Authorized use</p> <p>A. For use in Seaman Model C-200 portable gauging devices for measuring physical properties of materials.</p> <p>B. For use in Troxler Model 3400 series portable gauging devices for measuring physical properties of materials.</p> <p>C. For use in Troxler Model 3400 series portable gauging devices for measuring physical properties of materials.</p> <p>D. For use in a Thermo Scientific Analytical Instruments Model XLP-series for sample analysis in X-ray fluorescence analyzer devices.</p>

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Amendment No. 7

Docket or Reference Number  
030-33903**CONDITIONS**

10. Licensed material may be used or stored at the licensee's facilities located at 44265 Plymouth Oaks Blvd., Plymouth, Michigan, and may be used at temporary job sites of the licensee anywhere in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material.
11. Licensed material shall only be used by, or under the supervision and in the physical presence of, individuals who have received the training described in application dated April 25, 2016.
12. The Radiation Safety Officer for this license is Jeffrey S. Elliott.
13. A. Sealed sources 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. 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. 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.

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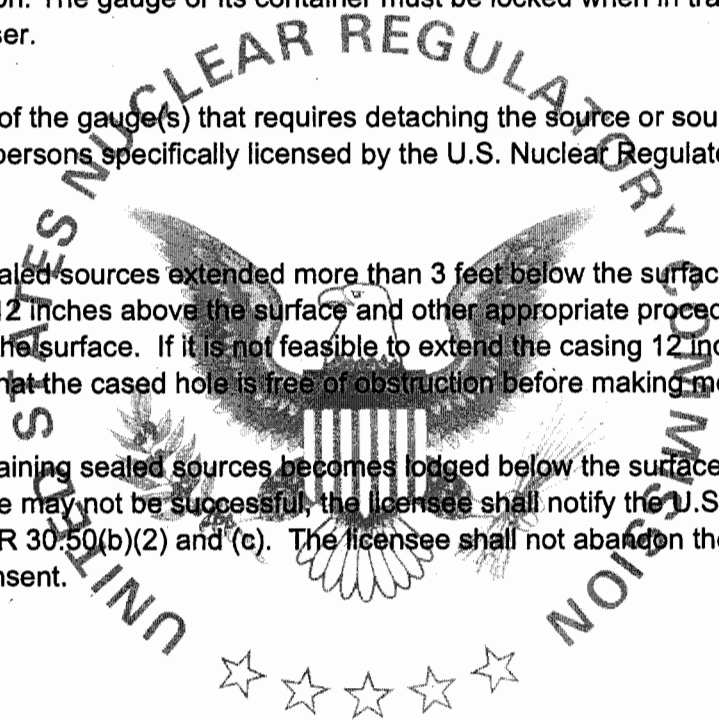
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- E. Sealed sources need not be tested if they are in storage and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall 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. Analysis of leak test samples and/or contamination shall be performed by persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services. The licensee is authorized to collect leak test samples but not perform the analysis.
- H. Records of leak test results shall be kept in units of becquerels (microcuries) and shall be maintained for 3 years.
14. Sealed sources containing licensed material shall not be opened or sources removed from source holders or detached from source rods by the licensee, except as specifically authorized.
15. 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.
16. Except for maintaining labeling as required by 10 CFR Part 20, or Part 71, the licensee shall obtain authorization from the 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 certificate of registration issued either by the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or by an Agreement State.

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17. 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.
18. Any cleaning, maintenance, or repair of the gauge(s) 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.
19. 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 a 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.
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- The seal of the U.S. Nuclear Regulatory Commission is centered on the page. It features an eagle with wings spread, perched on a shield with vertical stripes. Above the eagle, the words "UNITED STATES OF AMERICA" are written in a semi-circle. Below the eagle, the words "NUCLEAR REGULATORY COMMISSION" are written in a semi-circle. Five stars are positioned at the bottom of the seal.

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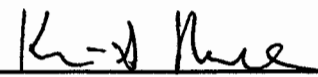
20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. This license condition applies only to those procedures that are 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 April 25, 2016 (ML16116A190).

B. Letter dated January 23, 2017 (ML17024A301).



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: FEB 07 2017By:   
Kevin G. Null  
Region 3