U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 24

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	
1. South Dakota State University	In accordance with e-mail dated November 9, 2016 3. License number 40-02194-17 is amended in its entirety to read as follows:
2. SAV 143; P.O. Box 2202 Brookings, South Dakota 57007-0896	4. Expiration date February 28, 2022
	5. Docket No. 030-13079 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 83, inclusive	A. Any, except sealed sources, plated sources or foils	A. Not to exceed 50 millicuries per radionuclide and 500 millicuries total, except: Carbon-14 500 millicuries Hydrogen-3 100 millicuries
B. Any byproduct material with Atomic Numbers 1 through 83, inclusive	B. Sealed sources, plated sources or foils	B. 15 millicuries per radionuclide and 500 millicuries total, except: Hydrogen-3 1 curie
C. Americium-241:Be	C. Sealed neutron source (CPN Model CPN-131)	C. 50 millicuries per source and 100 millicuries total
D. Curium-244	D. Sealed neutron source (AEA Technology/QSA Inc. Model CLC.A1)	D. 30 millicuries per source and 30 millicuries total
E. Radium-226:Be	E. Sealed sources (Amersham Corporation Models RAN6004, Atomic Energy of Canada, Ltd., Model C112 or C143)	E. 2.1 millicurie per source and 2.1 millicuries total
F. Americium-241:Be	F. Sealed neutron sources (Troxler Drawing No. A-	F. 10 millicuries per source and 20 millicuries total

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
40-02194-17

Docket or Reference Number
030-13079

Amendment No. 24

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
	102700)	

9. Authorized use:

A. and B. Research and development as defined in 10 CFR 30.4, including small animal research, academic instruction, and calibration of licensee's instruments.

C. To be used in CPN International, Inc., Model 503 portable gauging devices for measuring physical properties of materials, research and development as defined in 10 CFR 30.4, and academic instruction.

D. To be used in a Metorex International Model HCPS X-Ray fluorescence analyzer for element analysis of material, research and development as defined in 10 CFR 30.4, and academic instruction.

E. For storage only pending disposal of a Troxler Electronic Laboratories, Inc., Model 2401 portable gauging device.

F. For storage only pending disposal of a Troxler Electronic Laboratories, Inc., Model 3221 portable gauging device.

CONDITIONS

10. A. Licensed material specified in Items 6.A. through 6.F. shall be used and/or stored only at South Dakota State University, Brookings, South Dakota.

B. Licensed material specified in Item 6.C shall be stored only at South Dakota State University, Box Elder Research Center, 22735 Radar Hill Road, Box Elder, South Dakota.

C. Licensed material specified in Items 6.C. and 6.D. 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. A. Licensed material shall only be used by, or under the supervision of, individuals designated by the Radiation Safety Committee, Gary L. Yarrow, Ph.D., Chairperson.

B. The Radiation Safety Officer for this license is Gary L. Yarrow, Ph.D.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
40-02194-17

Docket or Reference Number
030-13079

Amendment No. 24

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

13. This license does not authorize commercial distribution of licensed material.

14. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as 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 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 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested and the test results received.

D. Sealed sources need not be leak 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.

E. Sealed sources need not be leak 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 or detector cell 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 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. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region IV, 1600 East Lamar Boulevard, Arlington, Texas 76011-4511, ATTN: Director, Division of Nuclear Materials Safety. The report shall specify the source involved, the test results, and corrective action taken.

G. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
40-02194-17

Docket or Reference Number
030-13079

Amendment No. 24

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

16. 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.

17. A. Detector cells containing a titanium tritide foil or a 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 by the manufacturer and approved by the U.S. Nuclear Regulatory Commission.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

18. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

19. Licensed material shall not be used in or on human beings.

20. Pursuant to 10 CFR 20.1302(c) and 10 CFR 20.2002, the licensee is authorized to dispose of licensed material by incineration provided the gaseous effluent from incineration does not exceed the limits specified for air in Appendix B, Table II, of 10 CFR Part 20.

21. The licensee is authorized to hold byproduct material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal without regard to its radioactivity if the licensee:

A. Monitors byproduct material at the surface before disposal and determines that its radioactivity cannot be distinguished from the background radiation level with an appropriate radiation detection survey meter set on its most sensitive scale and with no interposed shielding; and

B. Removes or obliterates all radiation labels, 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; and

C. Maintains records of the disposal of licensed materials for 3 years. The record must include the date of the disposal, the survey instrument used, the background radiation level, the radiation level measured at the surface of each waste container, and the name of the individual who performed the disposal.

22. The licensee is authorized to transport licensed material only in accordance with the provisions of

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
40-02194-17

Docket or Reference Number
030-13079

Amendment No. 24

10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

23. 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 sealed 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.

24. Except for maintaining labeling in portable gauging devices as required by 10 CFR Part 20 or 71, the licensee shall obtain authorization from 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 Certificates of Registration issued either by the Commission pursuant to 10 CFR 32.210 or by an Agreement State.

25. 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, storage or when not under the direct surveillance of an authorized user.

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

27. 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 in a portable gauging device from 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 in a portable gauging device 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. Notification and reporting requirements should be made to the NRC Emergency Operations Center at 301-816-5100.

28. Nothwithstanding the requirements of License Condition 29, the licensee is authorized to make program changes and changes to procedures specifically identified in the application dated August 29, 2011, which were previously approved by the Commission and incorporated into the license, without prior Commission approval, as long as:

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
40-02194-17

Docket or Reference Number
030-13079

Amendment No. 24

A. The proposed revision is documented, reviewed, and approved by the licensee's Radiation Control Committee in accordance with established procedures prior to implementation;

B. The revised program is in accordance with regulatory requirements, will not change license conditions, and will not decrease the effectiveness of the Radiation Safety Program;

C. The licensee's staff is trained in the revised procedures prior to implementation; and

D. The licensee's audit program evaluates the effectiveness of the change and its implementation.

29. 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. Application dated August 29, 2011 [ML11243A255]
B. Letter received February 14, 2012 [ML12053A459]

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
40-02194-17

Docket or Reference Number
030-13079

Amendment No. 24

Date: February 6, 2017

By /RA/

Michelle M. Hammond, M.Sc., Health Physicist
Nuclear Materials Safety Branch B
Region IV
Arlington, Texas 76011-4511