



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064**

February 1, 2000

University of South Dakota  
ATTN: Howard Coker, Ph.D.  
Radiation Safety Officer  
414 East Clark Street  
Vermillion, SD 57069

**SUBJECT: LICENSE AMENDMENT**

Please find enclosed Amendment No. 09 to License No. 40-02331-19. You should review this license carefully and be sure that you understand all conditions. If you have any questions, you may contact me at 817-860-8132.

NRC expects licensees to conduct their programs with meticulous attention to detail and a high standard of compliance. Because of the serious consequences to employees and the public that can result from failure to comply with NRC requirements, you must conduct your radiation safety program according to the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate by NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Notify NRC in writing of any change in mailing address.
3. By 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license:
  - a. When you decide to terminate all activities involving materials authorized under the license; or
  - b. If you decide not to complete the facility, acquire equipment, or possess and use authorized material.
4. Request and obtain a license amendment before you:
  - a. Change Radiation Safety Officers;
  - b. Order byproduct material more than the amount or form authorized on the license;
  - c. Add or change the areas or address(es) of use identified in the license application or on the license; or
  - d. Change the name or ownership of your organization.
5. Submit a complete renewal application or termination request at least 30 days before the expiration date on your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of radioactive material after your license expires is a violation of NRC regulations.

In addition, please note that NRC Form 313 requires the applicant, by signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

NRC will periodically inspect your radiation safety program. Failure to conduct your program according to NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC may result in enforcement action against you. This could include issuance of a notice of violation; imposition of a civil penalty; or an order suspending, modifying, or revoking your license as specified in the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG 1600.

Thank you for your cooperation.

Sincerely,

***/RA/***

Jacqueline D. Cook  
Health Physicist  
Nuclear Materials Licensing Branch

Docket: 030-15186  
License: 40-02331-19  
Control: 467673

Enclosures: As stated

License: 40-02331-19

Amendment: 09

Docket: 030-15186

Licensee: University of South Dakota

Certification of Application Review for a Part 30, 40, and 70 License

I certify that I have reviewed the letter dated December 23, 1999, as supplemented by any letters referenced in the license in accordance with guidance provided by the Office of Nuclear Materials Safety and Safeguards applicable Standard Review Plan and associated checklist and have concluded that:

A. If the license is being terminated, I have received adequate documentation to demonstrate that all radioactive materials and contamination possessed under this license has been properly removed and the licensee's facilities are suitable for unrestricted use, or that the radioactive material is covered by another valid license.

B. For a  new license,  amendment, or  renewal:

- (1) The application is for a purpose authorized by the Act;
- (2) The applicant's proposed equipment and facilities are adequate to protect health and minimize danger to life or property;
- (3) The applicant is qualified by training and experience to use the material for the purpose requested in such manner as to protect health and minimize danger to life;
- (4) The applicant satisfies any special requirements contained in Parts 32-40 and 70; and
- (5) The application is not for commercial waste disposal by land burial or for any other activity which the Commission has determined will significantly affect the quality of the environment.

**ORIGINAL SIGNED BY**

**JACQUELINE D. COOK** February 1, 2000

Health Physicist

Date

**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. University of South Dakota  2. 414 East Clark Street Vermillion, South Dakota 57069	In accordance with letter dated December 23, 1999  3. License number 40-02331-19 is amended in its entirety to read as follows:  4. Expiration date July 31, 2004  5. Docket No. 030-15186 Reference No.	
6. Byproduct, source, and/or special nuclear material  A. Any byproduct material listed in Section 10 CFR 33.100, Schedule A, Column I  B. Any byproduct material listed in Section 10 CFR 33.100, Schedule A, Column I  C. Californium-252  D. Plutonium	7. Chemical and/or physical form  A. Any, except sealed sources  B. Sealed sources, foils, wires, plated sources, seeds, plaques  C. Electrolytic deposition on a target disc obtained from Oak Ridge National Laboratory  D. Encapsulated as Pu- Be neutron sources	8. Maximum amount that licensee may possess at any one time under this license  A. As specified in Section 10 CFR 33.11(b) for a Type B specific license of broad scope, except as identified below:  Phosphorus-33 10 millicuries  B. 500 millicuries  C. 1 microgram  D. 32 grams
9. Authorized use  A. through D. Laboratory research, animal studies, student training, and calibration of licensee's survey instruments.		

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SUPPLEMENTARY SHEET**License Number  
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030-15186

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## CONDITIONS

10. Licensed material shall be used only at:
- A. The University of South Dakota, Vermillion, South Dakota.
  - B. University of South Dakota School of Medicine Health Science Center, 326 East 21st Street, Sioux Falls, South Dakota.
11. A. Licensed material shall be or under the supervision of Howard Coker, Ph.D.
- B. The Radiation Safety Officer for this license is Howard Coker, Ph.D.
12. 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 by the certificate of registration referred to in 10 CFR 32.210.
- 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.
- D. Sealed sources need not be leak tested if:
- (i) they contain only hydrogen-3; or
  - (ii) they contain only a radioactive gas; or
  - (iii) the half-life of the isotope is 30 days or less; or
  - (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
  - (v) they are not designed to emit alpha particles, 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.

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- E. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(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, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, ATTN: Director, Division of Nuclear Materials Safety. The report shall specify the source involved, the test results, and corrective action taken.
- F. 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.
13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
14. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.
15. 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 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.
16. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license.
17. Licensed material shall not be used in or on human beings.
18. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
19. The licensee is authorized to hold radioactive material with a physical half-life of less than 120 days for decay-in-storage before disposal in ordinary trash provided:
- A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
- B. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate meter 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.

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20. Pursuant to 10 CFR 20.2002, the licensee may dispose of incinerator ash containing hydrogen-3 and carbon-14 as ordinary waste in a landfill, provided the concentrations of the isotopes, expressed in  $\mu\text{Ci}$  per gram of ash, at the time of disposal, do not exceed 10 percent of the values listed in Table II, Column 2, 10 CFR Part 20, Appendix B.
21. This license does not authorize commercial distribution of licensed material.
22. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.
23. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
24. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of unsealed licensed material to quantities less than  $10^4$  times the applicable limits in Appendix B of 10 CFR Part 30 as specified in 10 CFR 30.35(d).
25. 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 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 March 30, 1990
  - B. Letter dated June 1, 1993
  - C. Letter dated March 14, 1997
  - D. Letter dated April 24, 1997
  - E. Letter dated December 17, 1997
  - F. Letter dated May 25, 1999
  - G. Letter dated August 16, 1999
  - H. Letter dated December 23, 1999
  - I. Letter dated January 31, 2000

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

**ORIGINAL SIGNED BY  
JACQUELINE D. COOK**Date February 1, 2000

By \_\_\_\_\_

Jacqueline D. Cook, Health Physicist  
Nuclear Materials Licensing Branch  
Region IV  
Arlington, Texas 76011