



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005

April 19, 2007

U.S. Department of Commerce  
National Institute of Standards and Technology  
ATTN: Lawrence E. Grimm  
Radiation Safety Officer  
325 Broadway - MC 104.02  
Boulder, Colorado 80305-3328

SUBJECT: LICENSE AMENDMENT

Please find enclosed Amendment No. 28 to NRC License No. 05-03166-05 **adding special nuclear and source material as requested. Based on the April 11, 2007 telephone conversation with Mr. Larry Grimm we have not added the byproduct material sealed sources listed in your February 15, 2007 amendment request. Also, based on the April 17, 2007 telephone conversation with Mr. Grimm we have decreased the possession limits requested in your February 15, 2007 amendment request for natural uranium, thorium and depleted uranium.**

NRC's Regulatory Issue Summary (RIS) 2005-31, provides criteria to identify security-related sensitive information and guidance for handling and marking of such documents. This ensures that potentially sensitive information is not made publicly available through ADAMS. The RIS may be located on the NRC Web site at: <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/2005/>. Additionally, the link for frequently asked questions may be located at: <http://www.nrc.gov/reading-rm/faqlist.html>, then select "Withholding of Sensitive Information." Pursuant to NRC's RIS 2005-31, the enclosed materials license will be made publicly available.

An environmental assessment for this action is not required, since this action is categorically excluded under 10 CFR 51.22(c)(14)(viii). You should review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or if you have any questions, please contact me at 925-673-9646.

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. Since the NRC also accepts a letter requesting amendment of an NRC license, the signatory for such a request should also 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 NRC Enforcement Policy. The NRC Enforcement Policy is available on the following internet address: <http://www.nrc.gov/what-we-do/regulatory/enforcement/enforc-pol.pdf>.

The NRC no longer publishes the NRC Rules and Regulations loose leaf supplements. However, an electronic version of the NRC's regulations is available on the NRC Web site at [www.nrc.gov](http://www.nrc.gov). To view these regulations, highlight "Electronic Reading Room" and choose "Regulations" on the drop down menu. An electronic version of the NUREG-1556 Series publications is also available on the NRC Web site. To view these guidance documents, highlight "Electronic Reading Room," choose "All Collections" on the drop down menu; choose "NUREGS (NRC Reports)" and select "Publications Prepared by the NRC Staff." Then, choose "NUREG-1556" from the table and select the appropriate volume(s) for your license type.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Thank you for your cooperation.

Sincerely,

**\RA\**

James L. Montgomery, Health Physicist  
Nuclear Materials Licensing Branch

Docket: 030-03732  
License: 05-03166-05  
Control: 471270

Enclosures: As stated

**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	In accordance with letter dated February 15, 2007
1. U.S. Department of Commerce National Institute of Standards and Technology	3. License number 05-03166-05 is amended in its entirety to read as follows:
2. 325 Broadway - MC 104.02 Boulder, Colorado 80305-3328	4. Expiration date May 31, 2015
	5. Docket No. 030-03732 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. Nickel-63	A. Foils or plated sources (AEA Technology Model NBCD; DuPont Merck Pharmaceutical Model NER-004P) incorporated in a compatible gas chromatograph as specified in Item 9 of this license	A. No single source to exceed the maximum activity specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission or an Agreement State
B. Iron-55	B. Sealed sources (Isotope Products Laboratories, Model XFB series)	B. 20 millicuries
C. Gadolinium-153	C. Sealed source (Isotope Products Laboratories, Model PHI-153 GFS Series)	C. 10 millicuries
D. Americium-241	D. Sealed source (Isotope Products Laboratories, Model PHI-241 GFS Series)	D. 10 millicuries
E. Uranium, Natural (source material)	E. Any solid, encapsulated form	E. 1 kilogram
F. Depleted Uranium	F. Any solid, encapsulated form	F. 2 kilograms
G. Uranium 235	G. Any solid, encapsulated form, enriched to less than 20 weight percent in the Uranium-235 isotope	G. 175 grams total; not to exceed 60 grams per source

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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
H. Thorium (source material)	H. Any solid, encapsulated form	H. 1 kilogram
I. Thorium-232	I. Sealed sources, monazite sand, wire and foils	I. 10 millicuries total; not to exceed 500 microcuries per source
J. Any plutonium isotope except Plutonium-238	J. Any solid, encapsulated form	J. 15 grams total; not to exceed 4 grams per source

9. Authorized use

- A. To be used for sample analysis in compatible gas chromatography devices which have been registered either with NRC under 10 CFR 32.210 or with an Agreement State and have been distributed in accordance with an NRC or Agreement State specific license authorizing distribution to persons specifically authorized by an NRC or Agreement State license to receive, possess, and use the devices.
- B. through J. To be used for physics research, materials and instrument development, testing and calibration of radiation detection instruments and measurement standards applications.

CONDITIONS

10. Licensed material identified in Item 6.A. through 6.J. may be used or stored only at the licensee's facilities located at 325 Broadway, Boulder, Colorado.
11. A. Licensed material shall be used by, or under the supervision of, Lawrence E. Grimm, Sonja G. Ringen, Thomas J. Bruno, Ph.D, or Joel Ullom, Ph.D.
- B. The Radiation Safety Officer for this license is Lawrence E. Grimm.
12. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from detector cells or source holders by the licensee.
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 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. 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

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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.

- 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.
- 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 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, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005, 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 persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services. In addition, the licensee is authorized to collect leak test samples but not perform the analysis; analysis of leak test samples must be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.
14. 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 Commission or an Agreement State to perform such services.
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 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.
16. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
17. Except for plutonium contained in a medical device designed for individual human application, no plutonium, regardless of form, shall be delivered to a carrier for shipment by air transport or transported in

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an aircraft by the licensee except in packages the design of which the U.S. Nuclear Regulatory Commission has specifically approved for transport of plutonium by air.

18. 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.
19. 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 December 15, 2004  
B. Letter dated February 15, 2007



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date April 19, 2007

By

/RAI

James L. Montgomery, Health Physicist  
Nuclear Materials Licensing Branch  
Region IV  
Arlington, Texas 76011