U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 56

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 May 24, 2011
1. Department of the Interior Geological Survey, Western Region 2. 345 Middlefield Road, MS 409 Menlo Park, California 94025-3561	3. License number 04-06674-07 is amended in its entirety to read as follows: 4. Expiration date April 30, 2015 5. Docket No. 030-13620 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 between 3 through 83, except: Strontium-90 Iodine-129	A. Any	A. 25 millicuries per radionuclide and 2 curies total
B. Hydrogen-3	B. Any	B. 200 millicuries
C. Carbon-14	C. Any	C. 200 millicuries
D. Phosphorus-32	D. Any	D. 100 millicuries
E. Sulphur-35	E. Any	E. 50 millicuries
F. Uranium-235	F. Any	F. 20 microcuries
G. Uranium-235	G. NBS standards	G. 15 microcuries
H. Nickel-63	H. Foils or plated sources (Isotope Products Laboratory Model NER-004; Amersham Model NBC; Nuclear Radiation Development Model N-1001)	H. 100 millicuries
I. Americium-241	I. Any	I. 1 microcurie
J. Lead-205	J. Any	J. 1 microcurie

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
04-06674-07

Docket or Reference Number
030-13620

Amendment No. 56

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
K. Polonium-209	K. Any	K. 2 microcuries
L. Cesium-137	L. Sealed sources (Isotope Product Laboratories Model HEG-137, formerly 225)	L. 20 millicuries
M. Uranium-233	M. Any	M. 20 microcuries
N. Radium-226	N. Any, except sealed sources	N. 0.005 microcuries

9. Authorized Use:

A. through G. and M.	Research and development as defined in 10 CFR 30.4; animal studies.
H.	For use in gas chromatographs for sample analysis.
I. and N.	For instrument calibration.
J.	For use in sample analysis of rocks and minerals.
K.	For tracer studies in environmental sediment samples.
L.	For use in Schultheiss Geotek Multi-Sensor Whole Core Logger for measurement of the density of sediment cores.

CONDITIONS

10. Licensed material may be used at the licensee's facilities located at:

    A. 345 Middlefield Road, Menlo Park, California

    B. Temporary job sites of the licensee anywhere in the United States and aboard USGS vessels, or other vessels whose owners have granted authorization in writing prior to transfer of the licensed material to the vessel for sealed sources and a maximum of 5 millicuries each of hydrogen-3, carbon-14, phosphorus-32, sulphur-35, iron-59, copper-64, zinc-65, arsenic-73, selenium-75 and mercury-203.

11. A. Licensed material shall be used by or under the supervision of individuals designated in writing by the Radiation Safety Committee, Douglas B. Kent, Ph.D., Chairman.

    B. The Radiation Safety Officer for this license is Paul Kovach.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
04-06674-07

Docket or Reference Number
030-13620

Amendment No. 56

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

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

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

15. This license does not authorized commercial distribution of licensed material.

16. 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 and detector cells designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

C. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakages, and contamination prior to any use or transfer as a sealed source.

D. 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.

E. 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.

F. 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.

G. 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(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, 612 E. Lamar Blvd., 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. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
04-06674-07

Docket or Reference Number
030-13620

Amendment No. 56

H. Tests for leakage and/or contamination, including leak test sample collection and analysis, shall be performed by the license or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

I. Records of leak test results shall be kept in units of microcuries and shall be maintained for 3 years.

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

18. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

19. The licensee shall conduct a physical inventory every 6 months to account for all sources and devices containing licensed material and possessed under this 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.

20. 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.

21. 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 certificate of registration referred to in 10 CFR 32.210.

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

22. 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.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
04-06674-07

Docket or Reference Number
030-13620

Amendment No. 56

23. Radioactive waste generated shall be stored and disposed in accordance with the statements, representations and procedures included in the Radiation Safety Manual described in the licensee's application dated November 24, 2004.

24. 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."

25. Each source holder or logging toll containing radioactive material shall bear a legible and visible marking as specified in 10 CFR 39.31(a). The label must be on the smallest component that contains the licensed material which is transported as a separate piece of equipment.

26. The licensee shall not vacate or release a field office or storage location whose address is identified in Condition 10 for unrestricted use, without prior U.S. Nuclear Commission approval. Reports of residual levels of facility contamination or other information concerning facility status may be required.

27. Individuals involved in operations which utilize, at any one time, more than 100 millicuries of hydrogen-3 in a non-contained form, other than metallic foil, shall have bioassays performed within one week following a single operation and at early intervals for continuing operations.

28. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of unsealed byproduct material to quantities less than 10^5 as specified in 10 CFR 30.35(d).

29. In addition to the possession limits in Item 8, the license shall further restrict the possession of special nuclear material to quantities less than 10^4 as specified in 10 CFR 70.25(d).

30. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the limits specified in 10 CFR 30.72 that require consideration of the need for an emergency plan for responding to a release of licensed material.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
04-06674-07

Docket or Reference Number
030-13620

Amendment No. 56

31. 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 November 24, 2004	[ML043630424]
B.	Letter dated March 24, 2005	[ML151040213]
C.	Letter dated April 4, 2005	[ML051040213]
D.	Letter dated April 13, 2005	[ML051040213]
E.	Letter dated January 17, 2008	[ML080460123]
F.	Letter dated January 28, 2009 and email dated June 1, 2009	[ML091070456]
G.	Letter dated January 29, 2010	[ML100670538]
H.	Letter dated February 28, 2011	[ML11083A031]

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: July 28, 2011

By: ***/RA/***

Jacqueline D. Cook, Senior Health Physicist
Nuclear Materials Safety Branch B
Region IV
Arlington, Texas 76011-4125