



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

August 16, 2006

University of Hawaii
Office of the President
ATTN: Irene K. Sakimoto
Radiation Safety Officer
2444 Dole Street
Honolulu, Hawaii 96822

SUBJECT: LICENSE AMENDMENT

Please find enclosed Amendment No. 43 to NRC License No. 53-00017-23 **authorizing additional moisture density gauge model numbers as requested. Please note that 10 CFR 30.34, Terms and conditions of licenses, was revised to enhance the security requirements for portable gauges containing byproduct material. This revision became effective July 11, 2005. Revised 10 CFR 30.34 now requires that "each portable gauge licensee shall use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal, whenever portable gauges are not under the control and constant surveillance of the licensee" (i.e., when not in use). Guidance on these security procedures is provided in the errata sheet for Appendix H of NUREG-1556, Volume 1, Revision 1 which can be found in the following link: <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v1/r1/>.**

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/> and the link for frequently asked questions may be located at: <http://www.nrc.gov/reading-rm/sensitive-info/faq.html>. 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)(v). 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 due to budget constraints. However, an electronic version of the NRC's regulations is available on the NRC Web site at 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 Document Types" on the drop down menu. Scroll down to "NUREG-Series Publications" 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 and its enclosure 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: 030-07517
License: 53-00017-23
Control: 471042

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 1. University of Hawaii Office of the President 2. 2444 Dole Street Honolulu, Hawaii 96822		In accordance with letter dated July 19, 2006 3. License number 53-00017-23 is amended in its entirety to read as follows: 4. Expiration date August 31, 2015 5. Docket No. 030-07517 Reference No.
6. Byproduct, source, and/or special nuclear material A. Any byproduct material between Atomic Nos. 3 and 83, inclusive B. Carbon-14 C. Cesium-137 D. Phosphorus-32 E. Phosphorus-33 F. Nickel-63 G. Hydrogen-3 H. Iodine-125 I. Sulfur-35 J. Calcium-45 K. Chromium-51 L. Americium-241 M. Thorium-230 N. Thorium-229 O. Uranium-233	7. Chemical and/or physical form A. Any B. Any C. Sealed sources D. Any E. Any F. Foils in detector cells G. Any H. Any I. Any J. Any K. Any L. Sealed source Amersham Model No. AMC 2084 M. Any N. Any O. Any	8. Maximum amount that licensee may possess at any one time under this license A. 90 millicuries of each radionuclide within this category except as indicated below B. 900 millicuries C. 500 millicuries D. 1 curie E. 200 millicuries F. 60 sources, no source to exceed 20 millicuries G. 8 curies H. 300 millicuries I. 500 millicuries J. 200 millicuries K. 200 millicuries L. Not to exceed 10 millicuries per source and 20 millicuries total M. 100 microcuries N. 500 microcuries O. 20 microcuries

MATERIALS LICENSE SUPPLEMENTARY SHEET

License Number
53-00017-23

Docket or Reference Number
030-07517

Amendment No. 43

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
P. Uranium-236	P. Any	P. 1 microcurie
Q. Neptunium-237	Q. Any	Q. 25 microcuries
R. Protactinium-233	R. Any	R. 25 microcuries
S. Polonium-209	S. Any	S. 0.1 microcurie
T. Americium-241	T. Sealed neutron sources (CPN Model CPN-131)	T. Not to exceed 50 millicuries per source and 350 millicuries total
U. Americium-241	U. Sealed sources (Troxler Dwg. A-102700)	U. Not to exceed 10 millicuries per source and 20 millicuries total
V. Americium-241	V. Sealed neutron sources (Troxler Dwg. A-102451)	V. Not to exceed 50 millicuries per source and 600 millicuries total
W. Cesium-137	W. Sealed sources (Troxler Dwg. A-102112)	W. Not to exceed 10 millicuries per source and 150 millicuries total
X. Cesium-137	X. Sealed sources (CPN Model CPN-131)	X. 10 millicuries
Y. Americium-241	Y. Sealed sources (CPN Model CPN-131)	Y. 50 millicuries

9. Authorized Use

- A. through S. Research and development as defined in 10 CFR 30.4; calibration of instruments; and instructional purposes.
- T. For use in CPN Model MC-M gauging devices for sub-surface measurements of the moisture content of soils or construction materials.
- U. For use in Troxler Model 3320/3330 Series depth moisture gauges for moisture determinations.
- V. and W. To be used in Troxler Model 3411B and 3451 portable gauging devices for moisture and surface density measurements on construction materials.
- X. and Y. To be used in CPN Model MC Series Portaprob portable gauging device for moisture and surface density measurements on construction materials.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
53-00017-23Docket or Reference Number
030-07517

Amendment No. 43

CONDITIONS**10. A. Licensed material shall be used only at:**

1. University of Hawaii at Manoa
Manoa Campus
2444 Dole Street
Honolulu, Hawaii 96822
2. University of Hawaii
Cancer Research Center of Hawaii
1236 Lauhala Street
Honolulu, Hawaii 96813
3. University of Hawaii
School of Medicine
Leahi Hospital
3675 Kilauea Avenue
Honolulu, Hawaii 96816
4. University of Hawaii
Small Animal Care Facility
2721 Woodlawn Drive
Honolulu, Hawaii 96822
5. Kewalo Marine Laboratory
41 Ahui Street
Honolulu, Hawaii 96813
6. University of Hawaii at Hilo
Hawaii Agriculture Experiment Station
Dept. of Plant Physiology
461 W. Lanikaula Street
Hilo, Hawaii 96720
7. University of Hawaii at Hilo
Natural Sciences Division
523 W. Lanikaula Street
Hilo, Hawaii 96720
8. University of Hawaii
Hawaii Institute of Marine Biology
46-007 Lilipuna Road
Kaneohe, Hawaii 96744

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
53-00017-23Docket or Reference Number
030-07517

Amendment No. 43

9. Institute for Astronomy
2690 Woodlawn Drive
Honolulu, Hawaii 96822
10. Core Laboratory Building
Snug Harbor
1 Sand Island Access Road
Honolulu, Hawaii 96818
11. Environmental Health and Safety Office
2040 East-West Road
Honolulu, Hawaii 96822
12. University of Hawaii, Kaka'ako Campus
Wellness Center
John A. Burns School of Medicine (JABSOM)
Biosciences Building
651 Ilalo Street
Honolulu, Hawaii 96813-5534
13. University of Hawaii
School of Medicine
The Queen's Medical Center
University Towers
1356 Lusitana Street
Honolulu, Hawaii 96808

- B. Licensed material may also be used on any University of Hawaii research ship or other ships under contract between the University of Hawaii and the ship owner for in vitro tracer studies at temporary job sites at sea.
- C. Portable gauging devices containing americium-241 and cesium-137 sealed sources 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, including areas of exclusive Federal jurisdiction within Agreement States.

If the jurisdiction status of a Federal facility within an Agreement State is unknown, the licensee should contact the federal agency controlling the job site in question to determine whether the proposed job site is an area of exclusive Federal jurisdiction. Authorization for use of radioactive materials at job sites in Agreement States or under exclusive Federal jurisdiction shall be obtained from the appropriate state regulatory agency.

11. A. Licensed material shall only be used by, or under the supervision of, individuals designated by the Radiation Safety Committee, Dr. Kenton J. Kramer, Chairperson.
- B. The Radiation Safety Officer for this license is Irene K. Sakimoto.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
53-00017-23Docket or Reference Number
030-07517

Amendment No. 43

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, not to exceed three years.
- 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. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.
- E. 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.
- F. 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, ATTN: Director, Division of Nuclear Material Safety, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011. 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.
13. 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

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
53-00017-23Docket or Reference Number
030-07517

Amendment No. 43

temperature from exceeding that specified in 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.
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 Nuclear Regulatory Commission or an Agreement State to perform such services.
15. A. Licensed material shall not be used in or on human beings.
- B. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.
16. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
17. This license does not authorize commercial distribution of licensed material.
18. The licensee is authorized to transport licensed material only in accordance with the provisions of CFR Part 71, "Packaging and Transportation of Radioactive Material." 10
19. 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.
20. This license does not authorize disposal of licensed material at sea.
21. Radioactive waste generated shall be stored in accordance with the statements, representations and procedures included with the waste storage plan described in the licensee's application dated April 27, 2005.
22. Each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
53-00017-23Docket or Reference Number
030-07517

Amendment No. 43

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.

23. Any cleaning, maintenance, or repair of the gauge(s) that requires removal of the source rod shall be performed only by the manufacturer or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
24. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee, except as specifically authorized.
25. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license.
26. Except for maintaining labeling as required by 10 CFR Part 20 or 71, the licensee shall obtain authorization from NRC 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 an Agreement State.
27. 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.
28. 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 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.
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 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 27, 2005
B. Letter dated September 7, 2005

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

53-00017-23

Docket or Reference Number

030-07517

Amendment No. 43



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

\RA\

Date August 16, 2006

By _____

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