

MATERIALS LICENSE

Amendment No. 30
ORC

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.

<p>Licensee</p> <p>1. University of Hawaii Office of the President</p> <p>2. 2444 Dole Street Honolulu, HI 96822</p>	<p>In accordance with letter dated October 30, 1996</p> <p>3. License Number 53-00017-23 is amended in its entirety to read as follows:</p> <p>4. Expiration Date April 30, 2005</p> <p>5. Docket or Reference No. 030-07517</p>	
<p>6. Byproduct, Source, and/or Special Nuclear Material</p> <p>A. Any byproduct material between Atomic Nos. 3 and 83, inclusive</p> <p>B. Carbon-14</p> <p>C. Cesium-137</p> <p>D. Phosphorus-32</p> <p>E. Phosphorus-33</p> <p>F. Nickel-63</p> <p>G. Hydrogen-3</p> <p>H. Iodine-125</p> <p>I. Sulfur-35</p> <p>J. Calcium-45</p> <p>K. Chromium-51</p>	<p>7. Chemical and/or Physical Form</p> <p>A. Any</p> <p>B. Any</p> <p>C. Sealed sources</p> <p>D. Any</p> <p>E. Any</p> <p>F. Foils in detector cells</p> <p>G. Any</p> <p>H. Any</p> <p>I. Any</p> <p>J. Any</p> <p>K. Any</p>	<p>8. Maximum Amount that Lic see May Possess at Any One Time Under This License</p> <p>A. 90 millicuries of each radionuclide within this category except as indicated below</p> <p>B. 900 millicuries</p> <p>C. 500 millicuries</p> <p>D. 1 curie</p> <p>E. 200 millicuries</p> <p>F. 60 sources, no source to exceed 20 millicuries</p> <p>G. 8 curies</p> <p>H. 300 millicuries</p> <p>I. 500 millicuries</p> <p>J. 200 millicuries</p> <p>K. 200 millicuries</p>

060017

o/i ML40

MATERIALS LICENSE
SUPPLEMENTARY SHEETLicense Number
53-00017-23Docket or Reference Number
030-07517

Amendment No. 30

(Continued)

L. Americium-241

L. Sealed sources
(Registered
pursuant to 10 CFR
32.210 or
equivalent
Agreement State
regulation and
incorporated in a
compatible gauging
device as specified
in Item 9 of this
license).

L. Not to exceed 50
millicuries per
source and 500
millicuries total

M. Cesium-137

M. Sealed sources
(Registered
pursuant to 10 CFR
32.210 or
equivalent
Agreement State
regulation and
incorporated in a
compatible gauging
device as specified
in Item 9 of this
license).

M. Not to exceed 10
millicuries per
source and 50
millicuries total

N. Americium-241

N. Sealed source
Amersham Model No.
AMC 2084

N. Not to exceed 10
millicuries per
source and 20
millicuries total

O. Americium-241

O. Sealed source

O. 1 millicurie

P. Strontium-90

P. Sealed source

P. 40 millicuries

Q. Thorium-230

Q. Any

Q. 100 microcuries

R. Thorium-229

R. Any

R. 500 microcuries

S. Uranium-233

S. Any

S. 20 microcuries

T. Uranium-236

T. Any

T. 1 microcurie

U. Neptunium-237

U. Any

U. 1 microcurie

V. Protactinium-233

V. Any

V. 1 microcurie

W. Polonium-209

W. Any

W. 0.1 microcurie

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number

53-00017-23

Docket or Reference Number

030-07517

Amendment No. 30

9. Authorized Use

- A. through K. Research and development as defined in Section 30.4(q), 10 CFR Part 30, "Rules and General Applicability to Licensing of Byproduct Material"; in vitro and in vivo studies in laboratory animals; calibration of instruments; and instructional purposes.
- L. and M. To be used in portable gauging devices which have been registered pursuant to 10 CFR 32.210 and distributed in accordance with an NRC or Agreement State specific license to persons specifically licensed by the NRC to receive, possess and use the devices.
- N. For calibration of instruments.
- O. and P. For calibration of thermoluminescent dosimeters.
- Q. through W. For laboratory research.

CONDITIONS

10. Licensed material shall be used only at: (1) any location, facility, community college or department of the University of Hawaii within the State of Hawaii; (2) hydrogen 3, carbon 14, phosphorus 32, silicon 32, sulfur 35, and iron 59 may 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; and (3) moisture/density gauges containing americium 241, cesium-137 and/or cobalt 60 sealed sources may be used at temporary job sites throughout the State of Hawaii.
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.
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.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number
53-00017-23

Docket or Reference Number
030-07517

Amendment No. 30

12. (Continued)

- 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.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
53-00017-23

Docket or Reference Number
030-07517

Amendment No. 30

12. (Continued)

- 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. Each sealed source containing licensed material to be used outside of a shielded exposure device shall have a durable, legible, and visible tag permanently attached by a durable ring. The tag shall be at least 1 inch square, shall bear a conventional radiation symbol prescribed in 10 CFR 20.203(a) and a minimum of the following instructions: DANGER - RADIOACTIVE MATERIAL - DO NOT HANDLE - NOTIFY CIVIL AUTHORITIES IF FOUND.
14. 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 NRC.
- B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.
15. The licensee shall maintain records of information related to decommissioning at the University of Hawaii Manoa Campus, per the provision of 10 CFR 30.35(g) and 10 CFR 40.36(f) until this license is terminated by the Commission.
16. 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.
17. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
18. 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."
19. Pursuant to 10 CFR 20.106(b) and 10 CFR 20.302, 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, 10 CFR Part 20.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
53-00017-23

Docket or Reference Number
030-07517

Amendment No. 30

20. The licensee is authorized to hold radioactive material with a physical half-life of less than 164 days for decay-in-storage before disposal in ordinary trash provided:
- A. Such wastes shall be segregated before decay-in storage from waste with longer half-lives.
 - B. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
 - C. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate survey 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.
 - D. A record of each disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
21. This license does not authorize disposal of licensed material at sea.
22. 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.
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.
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.

MATERIALS LICENSE
SUPPLEMENTARY SHEETLicense Number
53-00017-23Docket or Reference Number
030-07517

Amendment No. 30

26. 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. Letter dated October 12, 1993
- B. Letter dated November 30, 1993
- C. Application dated October 28, 1994
- D. Letter dated April 5, 1995
- E. Letter dated April 13, 1995
- F. Facsimile dated April 27, 1995
- G. Facsimile dated April 28, 1995
- H. Letter dated September 19, 1995
- I. Letter dated October 30, 1996

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date NOV 26 1996

By

Beth A. Pange
Materials Branch
Region IV, WCFO
Walnut Creek, California 94596

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: 01100
Status Code: 0
Fee Category: EX 3L 2C
Exp. Date: 20050430
Fee Comments: 170.11(A)(4)
Decom Fin Assur Req'd: Y

96 NOV 12 PM 12:43

LICENSE FEE TRANSMITTAL

A. REGION V

1. APPLICATION ATTACHED

Applicant/Licensee: HAWAII, UNIVERSITY OF
Received Date: 961030
Docket No.: 3007517
Control No.: 572424
License No.: 53-00017-23
Action Type: Amendment

2. FEE ATTACHED

Amount:
Check No.: None

3. COMMENTS

Signed
Date

Juan Garcia
10-31-96

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered / 4)

1. Fee Category and Amount: EX 3L 2C

2. Correct Fee Paid, Application may be processed for:

Amendment ☒
Renewal ☐
License ☐

FEE EXEMPT
170.11(A)(4)

3. OTHER

Signed
Date

Rita Messier
11/7/96

1996 NOV -6 AM 7:30

RECEIVED BY LFMS	
Date	<u>11/6/96</u>
Log	<u>Nov 1 V</u>
By	<u>Rena</u>
Date Completed	<u>11/7/96</u>



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV

Walnut Creek Field Office
1450 Maria Lane
Walnut Creek, California 94596-5368

NCV 2 6 1996

University of Hawaii
ATTN: Kenneth P. Mortimer, Ph.D.
President
2444 Dole Street
Honolulu, Hawaii 96822

SUBJECT: LICENSE AMENDMENT

Please find enclosed License No. 53-00017-23. You should review this license carefully and be sure that you understand all conditions. If you have any questions, you may contact the reviewer who signed your license at (510) 975-0250.

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 which can result from failure to comply with NRC requirements, you must conduct your program involving radioactive materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

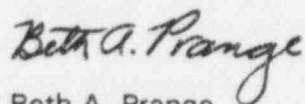
1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Possess radioactive material only in the quantity and form indicated in your license.
3. Use radioactive material only for the purpose(s) indicated in your license.
4. Notify NRC in writing of any change in mailing address (no fee required if the location of radioactive material remains the same).
5. Request and obtain written NRC consent before transferring your license or any right thereunder, either voluntarily or involuntarily, directly or indirectly, through transfer of control of your license to any person or entity. A transfer of control of your license includes not only a total change of ownership, but also a change in the controlling interest in your company whether it is a corporation, partnership, or other entity. In addition, appropriate license amendments must be requested and obtained for any other planned changes in your facility or program that are contrary to your license or contrary to representations made in your license application, as well as supplemental correspondence thereto, which are incorporated into your license. A license fee may be charged for the amendments if you are not in a fee-exempt category.

6. Maintain in a single document decommissioning records that have been certified for completeness and accuracy listing all the following items applicable to the license:
 - Onsite areas designated or formerly designated as restricted areas as defined in 10 CFR 20.3(a)(14) or 20.1003.
 - Onsite areas, other than restricted areas, where radioactive materials in quantities greater than amounts listed in Appendix C to 10 CFR 20.1001-20.2401 have been used, possessed, or stored.
 - Onsite areas, other than restricted areas, where spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site have occurred that required reporting pursuant to 10 CFR 30.50(b)(1) or (b)(4), including areas where subsequent cleanup procedures have removed the contamination.
 - Specific locations and radionuclide contents of previous and current burial areas within the site, excluding radioactive material with half-lives of 10 days or less, depleted uranium used only for shielding or as penetrators in unused munitions, or sealed sources authorized for use at temporary job sites.
 - Location and description of all contaminated equipment involved in licensed operations that is to remain onsite after license termination.
7. Submit a complete renewal application with proper fee, 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.
8. Request termination of your license if you plan to permanently discontinue activities involving radioactive material.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will 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), 60 FR 34381, June 30, 1995.

Thank you for your cooperation.

Sincerely,



Beth A. Prange
Sr. Health Physicist (Licensing)
Materials Branch

Docket: 030-07517
License: 53-00017-23
Control: 572424

Enclosures: As stated

University of Hawaii

-4-

bcc:

Docket File
WCFO Inspection File
LFARB, T-9 E10
State of HI (License Only)

DOCUMENT NAME: G:\beth\572424

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

RIV:MB	N	C:MB						
BPrange <i>BAP</i>		FWenslawski						
11/26/96		11/ /96	11/ /96	11/ /96	11/ /96	11/ /96	11/ /96	

OFFICIAL RECORD COPY



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV

Walnut Creek Field Office
1450 Maria Lane
Walnut Creek, California 94596-5368

NOV - 1 1996

University of Hawaii at Manoa
Environmental Health and Safety Office
ATTN: Irene K. Sakamoto
Radiation Safety Officer
2040 East-West Road
Honolulu, Hawaii 96822

SUBJECT: ACKNOWLEDGMENT OF REQUEST FOR LICENSING ACTION

REFERENCE: Letter dated October 30, 1996

We have completed the administrative review and initial processing of your application.

Please note that the technical review may identify additional omissions in the submitted information or technical issues that require additional information.

Amendment actions are normally processed within 90 days, unless the technical review identifies:

- Major technical deficiencies
- Policy issues that require input and coordination with other NRC Regional offices, Agreement State offices, or NRC's Office of Nuclear Materials and Safeguards

A copy of your correspondence has been forwarded to our License Fee and Accounts Receivable Branch, Office of the Controller, who will contact you separately if the appropriate license fee has not been submitted for your request, or for billing if your request is subject to full cost recovery.

Any correspondence about this application should reference the Control number listed below.

Sincerely,

Beth A. Prange

Beth Prange
Sr. Health Physicist (Licensing)
Materials Branch

Docket No. 030-07517
License No. 53-00017-23
Control No. 572424

bcc:
Docket File

To receive a copy of this document, indicate in the box "C" - Copy without attachment/enclosure "E" - Copy with attachment/enclosure "N" - No Copy

OFFICE	RIV:AO:NMLB	N		N				
NAME	J. Garcia <i>Jy</i>		B. Prange <i>BUP</i>					
DATE	11/1/96		11/1/96					

Amendment

030-07517

University of Hawaii at Manoa

2040 East-West Road
Honolulu, HI 96822
(808) 956-8591
Fax: (808) 956-3205

FAX TRANSMISSION COVER SHEET

Date: October 30, 1996
To: Ms. Beth Prange, USNRC, Region IV, WCFO
Fax: 510-975-0381
Re: license no. 53-00017-23 amendment
Sender: Irene Sakimoto

YOU SHOULD RECEIVE 2 PAGE(S), INCLUDING THIS COVER SHEET. IF
YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (808) 956-8591.

Hello Beth,

Attached is the University of Hawaii's license amendment as per our conversation on
Oct. 28, 1996.

Thank you!

Irene Sakimoto

572424



University of Hawai'i at Mānoa

Environmental Health and Safety Office
2040 East-West Road • Honolulu, Hawai'i 96822
Telephone: (808) 956-8600 • Facsimile: (808) 956-3205

October 30, 1996

United States Nuclear Regulatory Commission
Region IV, Walnut Creek Field Office
Attention: Ms. Beth Prange
1450 Maria Lane
Walnut Creek, CA 94596-5368

Docket No.: 030-07517
License No.: 53-00017-23

RE: Amendment to the University of Hawaii License No. 53-00017-23

Dear Ms. Prange,

1. The University of Hawaii is requesting an amendment to the above referenced license to allow for possession of up to 0.1 microcuries of Polonium-209. The Radiation Safety Committee has approved the proposal to use this material. The materials will be used in sea water and rock samples for analysis by autodeposition onto Ag disks followed by alpha spectrometry. Plating is 100% efficient. The Ag disks with the polonium on them will be disposed of as solid waste.

All conditions the license and NRC regulations will apply to the use of the material in this request. This laboratory is already equipped to handle and use alpha emitter such as U-233, Th-229 and U-236. Surveys will be performed and storage and waste will be handled in the same manner as with the above mentioned radioisotopes. This material will not change our decommissioning plan.

2. An increase of the P-33 limit to 200 millicuries is also being requested. The increase is requested to accommodate researchers who are switching to P-33 because of its lower energy betas and longer half-life.

Thank you for your prompt attention to this request.

Sincerely,

Irene K. Sakimoto
Radiation Safety Officer