RADIATION SAFETY

OREGON STATE UNIVERSITY

127 Oak Creek Building
Corvallis, Oregon
97331-7404

Telephone
541-737-2227

Fax
541-737-9090

April 23, 2003

Judith Walker
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Reference: Oregon State University; Oregon radioactive materials license ORE-90005

Ms. Walker:

Attached is an NRC 241 form; one copy of OSU's radioactive materials license; three additional copies of the license are being sent via US mail.

This work is a continuation of work performed for the past 18 years involving use of ^{14}C in primary productivity studies. The site of the studies is Crater Lake National Park, Crater Lake, Oregon. Dates for the work are April 25 through May 23, 2003. Inclement weather may force the work to be rescheduled; if so, we will notify you via telephone or fax.

This project, if performed at a State-jurisdiction location, would conform to the provisions of ORE-90005, plus OSU radiation use authorization 321.

Please note that Oregon State University is a non-profit educational institution and is therefore exempt from reciprocity fees. If you have any questions, please call me at (541) 737-7080.

Sincerely,

Rainier Farmer
Radiation Safety Officer

attachments

STATE OF OREGON
DEPARTMENT OF HUMAN SERVICES
HEALTH SERVICES

RADIOACTIVE MATERIALS LICENSE

Page 1 of 6 Pages
License No. ORE-90005
Amendment Number 75C

Pursuant to the Radiation Control Act and the Oregon Rules for the Control of Radiation, and in reliance on statements and representations heretofore made by the Licensee designated below, a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material(s) designated below; and to use such radioactive materials for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders now or hereafter in effect of the State Health Division and to any and all conditions specified below.

Oregon Radioactive Materials License Number ORE-90005 is administratively amended to read as follows:

Licence		3. License Number	ORE-90005
1. Name	Oregon State University Radiation Safety Office	4. Expiration Date	✓ February 29, 2012
2. Address	127 Oak Creek Building Corvallis, Oregon 97331-7404	5. Reference Number	Priority 2/Program Code 01100 Broad Scope A

	6 Radioactive materials (element and mass number)		7. Chemical and/or physical form		8. Maximum quantity licensee may possess at any one time
A.	Any radioactive material between atomic numbers 1 through 83, inclusive	A.	Any	A.	4.44 TBq (120 Curies); 55.50 GBq (1500 millicuries) each except as provided below.
B.	Any radioactive material between atomic numbers 84 and 103, inclusive	B.	Any	B.	4.25 GBq (115 millicuries) 185 MBq (5 millicuries) each except as provided below).
C.	Any radioactive material with a half-life of 24 hours or less, incident to the irradiation of samples in a reactor	C.	Any	C.	3.70 TBq (100 Curies).
D.	Carbon-14	D.	Any	D.	370 GBq (10 Curies).
E.	Any radioactive material with a half-life of 90 days or less	E.	Any	E.	3.70 TBq (100 Curies).
F.	Hydrogen-3	F.	Any	F.	18.5 TBq (500 Curies).
G.	Americium-241	G.	Sealed sources	G.	37 GBq (1 Curie).
H.	Radium-226	H.	Sealed sources	H.	18.5 GBq (500 millicuries).
I.	Strontium-90	I.	Sealed sources	I.	18.5 GBq (500 millicuries)
J.	Cadmium-117	J.	Cadmium shields	J.	111 Gbq (3 Curies)
K.	Cesium-137	K.	Sealed source (M. W. Kellogg, Type 23, Amersham Model X.19)	K.	851 GBq (23 Curies).

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6.	Radioactive materials (element & mass number)	7.	Chemical and/or physical form	8.	Maximum quantity licensee may possess at any one time
L.	Cobalt-60	L.	Sealed source (U.S. Nuclear Corp. Model 339; ICN Model No. 373; AECL Type SRC-3 Drawing No. C-164)	L.	259 GBq (7 Curies).
M.	Natural uranium	M.	Any	M.	2500 kilograms.
N.	Depleted uranium	N.	Any	N.	10 kilograms.
O.	Cobalt-60	O.	Sealed sources (encapsulated by AECL per Budd Co. Drawing No. A-24476)	O.	148 TBq (4000 Curies).
P.	Radium-226	P.	Foil	P.	0.92 GBq (25 millicuries).
Q.	Cesium-137:Americium-241:Beryllium or Americium-Beryllium or Cesium-137	Q.	Sealed sources	Q.	See Subitem 9.Q. below.
R.	Any radioactive material	R.	Analytical samples	R.	See Subitem 9.R. below.
S.	Cobalt-60	S.	Sealed sources (AECL Model Numbers C-166 or C-167 or C-185 or C-198 source pencil)	S.	277 TBq (7500 Curies).
T.	Nickel-63	T.	Sealed source	T.	No single source to exceed 0.74 GBq (20 millicuries).
U.	Cobalt-57	U.	Sealed source (Amersham Model CTC.D2; Dupont/NEN Model NER-472)	U.	One source not to exceed 1.48 GBq (40 millicuries).
V.	Cobalt-57	V.	Sealed source (Amersham Model CTC.D2; Dupont/NEN Model NER-472)	V.	One source not to exceed 0.44 GBq (12 millicuries).
W.	Plutonium-239	W.	Sealed source (Monsanto Research Corp. Model Nos. MRC-N-SS-W-PuBe 359 and MRC-N-SS-W-PuBe 329)	W.	185 GBq (5 Curies).

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X.	Cesium-137	X.	Sealed source (ORNL capsule number DSK-2384)	X.	One source not to exceed 4.81 TBq (130 Curies).
Y.	Cesium-137	Y.	Sealed source (Nuclear Chicago Model OCD-S-104)	Y.	One source not to exceed 0.59 GBq (16 millicuries).
Z.	Cesium-137	Z.	Sealed source (Isotope Products Laboratories Model HEG-127-10)	Z.	One source not to exceed 0.44 GBq (12 millicuries).
AA.	Cadmium-109	AA.	Sealed source (Amersham Models CUC.D1, IEC.A1, CUCP.1, AMC.P4; Isotope Products Model XFB Series-3204 and 3205; NEN Model NER-467, NER-465; North American Scientific Model IND 1602)	AA.	One source not to exceed 1.85 GBq (50 millicuries).

9. Authorized use:

A. through I., N., P. and W. "Research and Development" as defined in Oregon Rules for the Control of Radiation, OAR 333-100-005(112).

J. For possession only.

K. For instruction and research in radiography, instrument calibration and lower animal irradiation.

L. For calibration of instruments.

M. For use in graphite sub-critical assembly.

O. To be used in custom-designed, self-shielded irradiator for the study of effects of radiation.

Q. To be used in Troxler, CPN, Siemens, Humboldt or other devices specifically authorized by the U.S. Nuclear Regulatory Commission or an Agreement State for portable moisture and/or density measurements.

R. For possession incident to the performance of tests for leakage or contamination of sealed sources containing licensed materials.

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9. Authorized use: (cont.)

S. To be used in Gammacell 220 for irradiation of materials.

T. To be used in gas chromatographs for sample analysis.

U. To be used in SCITEC MAP-3 Series spectrum analyzer for lead-in-paint analysis.

V. To be used in SCITEC MAP-4 Series spectrum analyzer for lead-in-paint analysis.

X. To be used in Amersham Corporation (formerly Technical Operations, Inc.) CDV-794 Model 2 calibrator for instrument calibration.

Y. To be used in CDV-790 Model 1 calibrator for instrument calibration.

Z. To be used in Geotek Multi-Sensor Core Logger to determine density of sediment core samples.

AA. For use in Niton Model 309 x-ray fluorescence lead-in-paint analyzer.

CONDITIONS

10. A. Radioisotopes may be stored or used in any Oregon-jurisdiction facility under administrative control of Oregon State University as follows:

1. OSU Main campus, 127 Oak Creek Building, Corvallis, Oregon.
2. Food Toxicology and Nutrition Lab, 28645 Highway 34, Corvallis, Oregon 97333.
3. Hatfield Marine Science Center, 2030 SE Marine Dr., Newport, Oregon 97365.
4. H.J. Andrews Experimental Forest, Forest Road 15-130-132, Blue River, Oregon 97413.
5. OSU Seafood Laboratory, 2001 Marine Drive, Rm 253, Astoria, Oregon 97103.
6. Columbia Basin Agricultural Research Center, 48037 Tubbs Ranch Road, Adams, Oregon 97810 (joint OSU/USDA facility).
7. Malheur Experiment Station, 595 Onion Avenue, Ontario, Oregon 97883.
8. Southern Oregon Experiment Station, 569 Hanley Road, Central Point, Oregon 97502.

B. Radioisotopes may be used and stored temporarily at any other Oregon-jurisdiction locations provided that specific approval has been given by the Oregon State University Radiation Safety Committee for the work proposed and location(s) proposed, and specific approval of the location's owner or operator is obtained.

C. Radioisotopes may be used at non-Oregon jurisdiction locations pursuant to reciprocity agreement with the regulatory agencies having jurisdiction.

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CONDITIONS (cont.)

11. This license is subject to and void without an annual validation certificate. Insofar as the licensee has submitted the proper fee prior to the expiration of a validation certificate, such existing validation certificate shall not expire until the issuance of a new validation certificate for the then current fiscal year.

12. The Radiation Safety Officer for the activities authorized by this license is Rainier Farmer.

13. Radioactive material shall be used by, or under the supervision of, individuals designated by the Chairperson, Radiation Safety Committee.

14. The licensee shall comply with provisions of OAR 333-102-305(9) (registered sealed sources), 333-102-305(10) (registration of sealed sources in new manufacture), 333-102-305(11) (6-month inventory), 333-102-305(12) (transportation), 333-102-305(13) (6-month shutter inspection of gauges), 333-102-305(14) (prohibition to dismantle sources), 333-102-305(15) (prohibition to modify or repair gauges without authorization), 333-102-305(16) (gauge installation & maintenance), 333-102-305(17) (internal monitoring), 333-102-305(18) (6-month leak test), 333-102-305(19) (detector cell temperature limits), 333-102-305(20) (documents at temporary job sites), 333-102-305(21) (authorization for depleted uranium for shielding), 333-102-305(22) (decay-in-storage), 333-102-305(23) (constant surveillance of materials in unrestricted area), 333-102-305(24) (manufacturer's instructions for detector cells), "Terms and Conditions of Licenses". Records required by 333-102-305(11) and 333-102-305(13) shall be kept until the agency authorizes disposition.

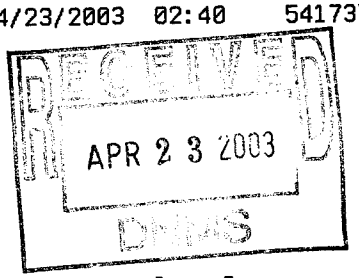
15. Experimental animals administered radioactive materials or their products shall not be used for human consumption.

16. Notwithstanding the specific terms and conditions for broad licenses, byproduct materials produced in the Oregon State University TRIGA Reactor, and used under this license, are exempt from the requirements of OAR 333-102-910(3).

17. The licensee shall only offer plutonium to a carrier for shipment by air, or transport plutonium by air, in accordance with the provisions of 10 CFR Part 71 and the IATA Dangerous Goods Regulations, as applicable.

18. The licensee shall ensure that radioactive material used in open form does not result in a total effective dose equivalent (TEDE) that exceeds the limits in OAR 333-120-100 (Appendix B, Table 1).

19. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternately, tests for leakage and/or contamination may be performed by persons specifically licensed by the Oregon Health Division, U.S. Nuclear Regulatory Commission, or another Agreement State to perform such services.



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CONDITIONS (cont.)

20. Except as specifically provided otherwise by this license, the licensee shall conduct its program in accordance with statements, representations and procedures contained in the documents, including any enclosures listed below. The Oregon Rules for the Control of Radiation shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the rules.

A. Application received February 19, 2002, signed by Mark McCambridge, Vice President for Finance and Administration.

B. Facsimile document dated March 22, 2002, from Rainier Farmer.

C. E-mail correspondence dated March 22, 2002, from Rainier Farmer.

D. Facsimile document dated March 25, 2002, from Rainier Farmer.

E. E-mail correspondence dated April 3, 2002, from Rainier Farmer.

F. E-mail correspondence dated April 5, 2002, from Rainier Farmer.

Date October 25, 2002

FOR DHS HEALTH SERVICES

By _____
Terry D. Lindsey, Manager
Radiation Protection Services