

APPROVED BY OMB: NO. 3150-0013 EXPIRES: 07/31/2002  
 Estimated burden per response to comply with this mandatory collection request: 15 minutes. This notification is required so that NRC may schedule inspection of the activities to ensure that they are conducted in accordance with requirements for protection of the public health and safety. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0013), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

# REPORT OF PROPOSED ACTIVITIES IN NON-AGREEMENT STATES, AREAS OF EXCLUSIVE FEDERAL JURISDICTION, OR OFFSHORE WATERS

(Please read the instructions before completing this form)

1. NAME OF LICENSEE (Person or firm proposing to conduct the activities described below) <b>Oregon State University</b>		2. TYPE OF REPORT <input checked="" type="checkbox"/> INITIAL <input type="checkbox"/> REVISION <input type="checkbox"/> CLARIFICATION	
3. ADDRESS OF LICENSEE (Mailing address or other location where licensee may be located) <b>124 Radiation Center Corvallis, OR 97331-5904</b>		4. LICENSEE CONTACT AND TITLE <b>Rainier Farmer, Rad. Safety Officer</b>	
		5. TELEPHONE NUMBER (Include Area Code) <b>541-737-7080</b>	6. FACSIMILE NUMBER (Include Area Code) <b>541-737-0480</b>

7. ACTIVITIES TO BE CONDUCTED UNDER THE GENERAL LICENSE GIVEN IN 10 CFR 150.20

WELL LOGGING  LEAK TESTING AND/OR CALIBRATIONS  TELETHERAPY/IRRADIATOR SERVICE

PORTABLE GAUGES  OTHER (Specify) ⇒ Primary productivity studies

RADIOGRAPHY ⇒ REGISTERED AS USER OF PACKAGING (CERTIFICATES OF COMPLIANCE NUMBERS)

8. CLIENT NAME ADDRESS CITY/COUNTY, STATE, ZIP CODE <b>n/a</b>	9. ACTUAL PHYSICAL ADDRESS OF WORK LOCATION (Street and Number or other location. Give as complete an address or directions as possible.) <b>Crater Lake National Park Crater Lake, Oregon <b>25 2001</b></b>
10. CLIENT TELEPHONE NUMBER (Include Area Code)	11. WORK LOCATION TELEPHONE NUMBER (Include Area Code)

12. DATES SCHEDULED	13. NUMBER OF WORK DAYS	14. ADD	15. DELETE	16. LOCATION REFERENCE NUMBER
FROM <b>May 29, 2001</b>	TO <b>May 30, 2001</b>	<b>2</b>		NUMBER TO BE ASSIGNED BY NRC <b>000928</b>

LIST ADDITIONAL WORK SITES ON SEPARATE SHEET(S) TO INCLUDE ALL INFORMATION CONTAINED IN ITEMS 9-16 ABOVE.

17. LIST RADIOACTIVE MATERIAL, WHICH WILL BE POSSESSED, USED, INSTALLED, SERVICED, OR TESTED (Include description of type and quantity of radioactive material, sealed sources, or devices to be used.)

**unsealed NaH <sup>14</sup>CO<sub>3</sub>, 1 mCi maximum**

18. AGREEMENT STATE SPECIFIC LICENSE WHICH AUTHORIZES THE UNDERSIGNED TO CONDUCT ACTIVITIES WHICH ARE THE SAME, EXCEPT FOR LOCATION OF USE, AS SPECIFIED IN ITEM 9. ABOVE (Four copies of the specific license must accompany the initial NRC Form 241.)	LICENSE NUMBER <b>ORE-90005</b>	STATE <b>OR</b>	EXPIRATION DATE <b>10/31/2001</b>
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19. CERTIFICATION (MUST BE COMPLETED BY APPLICANT)

I, THE UNDERSIGNED, HEREBY CERTIFY THAT:

- a. All information in this report is true and complete.
- b. I have read and understand the provision of the general license 10 CFR 150.20 reprinted on the instructions of this form; and I understand that I am required to comply with these provisions as to all byproduct, source, or special nuclear material which I possess and use in non-Agreement States or offshore waters under the general license for which this report is filed with the U.S. Nuclear Regulatory Commission.
- c. I understand that activities, including storage, conducted in non-Agreement States under general license 10 CFR 150.20 are limited to a total of 180 days in calendar year. With the exception of work conducted in off-shore waters, which is authorized for an unlimited period of time in the calendar year.
- d. I understand that I may be inspected by NRC at the above listed work site locations and at the Licensee home office address for activities performed in non-Agreement States or offshore waters.
- e. I understand that conduct of any activities not described above, including conduct of activities on dates or locations different from those described above or without NRC authorization, may subject me to enforcement action, including civil or criminal penalties.

CERTIFYING OFFICER - RSO or Management Representative (Name and Title) <b>Daniel Harlan, Asst. Rad. Safety Off.</b>	SIGNATURE 	DATE <b>5/18/2001</b>
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WARNING: False statements in this certificate may be subject to civil and/or criminal penalties. NRC regulations require that submissions to the NRC be complete and accurate in all material respects. 18 U.S.C. Section 1001 makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

FOR NRC USE ONLY	REVIEWING OFFICIAL (Typed/Printed Name and Title) <b>Jacqueline D. Cook</b>	SIGNATURE 	DATE <b>5/20/01</b>	TOTAL USAGE -- DAYS TO DATE
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May 18, 2001

M. Christi Hernandez  
U.S. Nuclear Regulatory Commission  
Region IV  
DNMS/NMLB Attn: Reciprocity  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011-8064

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OREGON  
STATE  
UNIVERSITY

124 Radiation Center  
Corvallis, Oregon  
97331-5904

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

Ms. Hernandez:

Attached is an NRC 241 form and four copies of OSU's radioactive materials license.

This work is a continuation of work performed for the past 16 years involving use of  $^{14}\text{C}$  in primary productivity studies. The site of the study is Crater Lake National Park, Crater Lake, Oregon. Dates for the work are May 29-30, 2001. 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) 737-7082. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read 'Daniel Harlan'.

Daniel Harlan  
Assistant Radiation Safety Officer

Telephone  
541-737-2227

attachments

cc w/o attachments: G. Larson

**RADIOACTIVE MATERIALS LICENSE**

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.

In accordance with letters dated September 27, 2000 and October 23, 2000, Oregon Radioactive Materials License Number ORE-90005 is amended to read as follows:

Licensee  1. Name <b>Oregon State University</b>  <b>Radiation Safety Office</b> 2. Address <b>124 Radiation Center</b> <b>Corvallis, Oregon 97331-5904</b>	3. License Number <p style="text-align: center;"><b>ORE-90005</b></p> <hr/> 4. Expiration Date <p style="text-align: center;"><b>October 31, 2001</b></p> <hr/> 3. Reference Number <p style="text-align: center;"><b>Priority 2/Program Code 01100</b>  <b>Broad Scope A</b></p>
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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. 120 Curies (1500 millicuries each, except as provided below).
B. Any radioactive material between atomic numbers 84 and 103, inclusive	B. Any	B. 115 millicuries (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. 100 Curies.
D. Carbon-14	D. Any	D. 10 Curies.
E. Any radioactive material with a half-life of 90 days or less	E. Any	E. 100 Curies.
F. Hydrogen-3	F. Any	F. 500 Curies.
G. Americium-241	G. Sealed sources	G. 1 Curie.
H. Radium-226	H. Sealed sources	H. 500 millicuries.
I. Strontium-90	I. Sealed sources	I. 500 millicuries.
J. Cadmium-117	J. Cadmium shields	J. 3 Curies.
K. Cesium-137	K. Sealed source (M. W. Kellogg, Type 23, Amersham Model X.19)	K. 23 Curies.

State of Oregon  
 OREGON STATE HEALTH DIVISION  
 Department of Human Resources  
 RADIOACTIVE MATERIALS LICENSE

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 License No. ORE-90005  
 Amendment Number 71

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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.	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.	4000 Curies.
P.	Radium-226	P.	Foil	P.	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.	Americium-241	S.	Sealed sources (Amersham Models IE3.A1, AMM and CLC)	S.	30 microcuries.
T.	Curium-244	T.	Sealed sources (Amersham Models IE3.A1, AMM and CLC)	T.	13 millicuries.
U.	Iron-55	U.	Sealed sources (Amersham Models IE3.A, AMM and CLC)	U.	20 millicuries.
V.	Cobalt-60	V.	Sealed sources (AECL Model Numbers C-166 or C-167 or C-185 or C-198 source pencil)	V.	7500 Curies.
W.	Nickel-63	W.	Sealed source	W.	No single source to exceed 20 millicuries.

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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
X. Cobalt-57	X. Sealed source (Amersham Model CTC.D2; Dupont/NEN Model NER-472)	X. One source, not to exceed 40 millicuries.
Y. Cobalt-57	Y. Sealed source (Amersham Model CTC.D2; Dupont/NEN Model NER-472)	Y. One source, not to exceed 12 millicuries.
Z. Plutonium-239	Z. Sealed sources (Monsanto Research Corp. Model Nos. MRC-N-SS-W-PuBe 359 and MRC-N-SS-W-PuBe 329)	Z. 5 Curies.
AA. Cesium-137	AA. Sealed source (ORNL capsule number DSK-2384)	AA. One source, not to exceed 130 Curies.
BB. Cesium-137	BB. Sealed source (Nuclear Chicago Model OCD-S-104)	BB. One source, not to exceed 16 millicuries.
CC. Cesium-137	CC. Sealed source (Isotope Products Laboratories Model HEG-127-10)	CC. One source, not to exceed 12 millicuries.
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9. Authorized use:		
A.	through I., N., P., and Z. "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 subcritical assembly.	

RADIOACTIVE MATERIALS LICENSE

Continued from Page 3

- (9.) O. To be used in a 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.
  - S. through U. To be used in an ASOMA Model 8620 x-ray fluorescence analyzer to analyze materials.
  - V. To be used in a Gammacell 220 for irradiation of materials.
  - W. To be used in gas chromatographs for sample analysis.
  - X. To be used in a SCITEC MAP-3 Series spectrum analyzer for lead-in-paint analysis.
  - Y. To be used in a SCITEC MAP-4 Series spectrum analyzer for lead-in-paint analysis.
  - AA. To be used in an Amersham Corporation (formerly Technical Operations, Inc.) CDV-794 Model 2 calibrator for instrument calibration.
  - BB. To be used in a CDV-790 Model 1 calibrator for instrument calibration.
  - CC. To be used in a Geotek Multi-Sensor Core Logger to determine density of sediment core samples.
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**CONDITIONS**

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

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**CONDITIONS (cont.)**

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 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(17) (internal monitoring), 333-102-305(18) (6-month leak test), 333-102-305(22) (decay-in-storage), 333-102-305(23) (constant surveillance of materials in unrestricted area), and 333-102-305(24) (manufacturer's instructions for detector cells), "Terms and Conditions of Licenses".
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.
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 dated September 28, 1994, signed by W. Lee Schroeder.
  - B. Facsimile document dated December 2, 1994, signed by Rainier Farmer.
  - C. Letter dated March 1, 1995, signed by Rainier Farmer.

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**CONDITIONS (cont.)**

- (20.) D. Facsimile document dated May 8, 1995, signed by Rainier Farmer.
- E. Letter dated June 7, 1995, signed by Rainier Farmer.
- F. Letter, with revised documents, dated May 16, 1996, signed by Rainier Farmer.
- G. Facsimile document dated August 14, 1996, signed by Rainier Farmer.
- H. Letter dated August 29, 1996, signed by Rainier Farmer.
- I. Letter dated October 1, 1996, signed by Rainier Farmer.
- J. Letter dated June 16, 1997, from Rainier Farmer.
- K. Facsimile document dated June 27, 1997, signed by Rainier Farmer.
- L. Letter dated December 2, 1997, signed by Rainier Farmer.
- M. Letter dated February 24, 1998, signed by Rainier Farmer.
- N. E-mail correspondence dated April 8, 1998, from Rainier Farmer.
- O. Letter dated November 24, 1998, signed by Rainier Farmer.
- P. Letter dated September 27, 2000, signed by Rainier Farmer.
- Q. Letter dated October 23, 2000, signed by Rainier Farmer.**

Date November 9, 2000

**FOR THE OREGON HEALTH DIVISION**

By Terry D. Ruben  
for Ray D. Paris, Manager  
Radiation Protection Services