NRC FORM 241 (7-1999) U.S. NUCLEAR REGULATORY COMMISSION

JAN - 3

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

*(Please read the instructions before completing this form)*

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.

1. NAME OF LICENSEE *(Person or firm proposing to conduct the activities described below)*

University of Colorado

2. TYPE OF REPORT

[x] INITIAL [ ] REVISION [ ] CLARIFICATION

3. ADDRESS OF LICENSEE *(Mailing address or other location where licensee may be located)*

Health Physics Laboratory
2200 Stadium Drive
Campus Box 441
Boulder, CO 80309-0441

4. LICENSEE CONTACT AND TITLE

Michelle S. Barry, RSO

5. TELEPHONE NUMBER *(Include Area Code)*

(303) 492-6523

6. FACSIMILE NUMBER *(Include Area Code)*

(303) 492-1322

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 [x] OTHER (Specify) ⇒ R&D for sealed sources in GCs (Ni-63)

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

8. CLIENT NAME, ADDRESS, CITY/COUNTY, STATE, ZIP CODE

NASA Dryden Flight Research Center
PO Box 273, MS D2407
Lilley Drive, Building 4800
Edwards Air Force Base, CA 93523

ATTN: Bette Davis/Dr. Linnea Avallone

9. ACTUAL PHYSICAL ADDRESS OF WORK LOCATION *(Street and Number or other location. Give as complete an address or directions as possible.)*

Same

10. CLIENT TELEPHONE NUMBER *(Include Area Code)*

(661) 258-3438

11. WORK LOCATION TELEPHONE NUMBER *(Include Area Code)*

(661) 258-3438

| 12. DATES SCHEDULED | | 13. NUMBER OF WORK DAYS | 14. ADD | 15. DELETE | 16. LOCATION REFERENCE NUMBER |
|---|---|---|---|---|---|
| FROM March 16, 2000 | TO April 30, 2000 | 46 | | | NUMBER TO BE ASSIGNED BY NRC |
| ~~January 1, 2000~~ | ~~January 13, 2000~~ | ~~13~~ | | | 000146 |
| January 30, 2000 | February 27, 2000 | 29 | | | |

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.)*

Ni-63, plated source, 15 mCi each totalling 60 mCi (see attached proposal)

| 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 | STATE | EXPIRATION DATE |
|---|---|---|---|
| | Colo. 82-08 | CO | November 30, 2003 |

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)* | SIGNATURE | DATE |
|---|---|---|
| Michelle S. Barry, RSO | Michelle S Barry | 12/28/99 |

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)* | SIGNATURE | DATE | TOTAL USAGE -- DAYS TO DATE |
|---|---|---|---|---|
| | M. C. Hernandez Radiation Specialist | M. C. Hernandez | 1/7/00 | 0 |

NRC FORM 241 (7-1999) PRINTED ON RECYCLED PAPER

NE05

Copy to RIV

PPR. STPRB

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

January 7, 2000

MEMORANDUM TO: Shirley Crutchfield
License Fee and Accounts Receivable Branch (T9 E10)

FROM: Christi Hernandez
Nuclear Materials Licensing Branch, Region IV MCH

SUBJECT: FEE TRANSMITTAL

A. Region IV

1. NRC FORM 241 ATTACHED

Applicant/Licensee: University of Colorado
NRC Form 241 Dated: December 28, 1999
Agreement State License: CO COLO 82-08
Program Code(s): 03620

2. REVISION ATTACHED

Licensee:
Agreement State License:

3. CLARIFICATION ATTACHED

Licensee:
Agreement State License:

4. FEE ATTACHED
Amount: $ Check: #

5. COMMENTS Licensee claims fee exemption as non-profit educations institution.

B. LICENSE FEE AND ACCOUNTS RECEIVABLE BRANCH

1. Fee Category and Amount: _____
2. Correct Fee Paid. Submittal may be processed for:

General License _____
Revision _____

Signed _____ Date _____

Enclosure

# Ni-63 Project Description

Assessing the effects of anthropogenic pollution on the atmosphere requires an understanding of the global distributions of dozens of trace chemical species, of the photochemical interactions and transformations of those species, and of the physical atmospheric processes that transport chemical compounds from one place to another. Chemical interactions in the upper troposphere/lower stratosphere region are reasonably represented in most model simulations, in large part due to extensive observations made during topical airborne campaigns. However, there is a deficiency in our knowledge of the effects of physical processes on trace gas distributions and in our ability to represent these phenomena in global models. Extensive spatial and temporal observations of key tracers whose lifetimes span the range of relevant dynamical timescales can be used to "validate" the transport schemes and parameterizations of small-scale events that are used in assessment models.

We will provide some of the information that is lacking by constructing an instrument package that can take advantage of the near-global coverage of commercial aircraft. Four separate sensors, to measure ozone, carbon dioxide, water vapor, and halocarbons, will be packaged together into a single unit of a size and weight appropriate to be carried on a commercial airliner. Of these sensors, three currently fly on research aircraft; only one new detector, a gas chromatograph, will be developed as part of this project. As a demonstration or proof-of-concept, the instruments will be flown on the NASA DC-8 "Flying Laboratory", based at NASA Dryden Flight Research Center, as part of the SAGE III Ozone Loss and Validation Experiment (SOLVE). Instrument installation will begin on October 22, 1999, followed by local test flights in mid-November, and three 3-week deployments to Kiruna, Sweden (in December 1999 and January and March 2000).

Several halogenated compounds will be measured with a gas chromatograph coupled to an electron capture detector (GC/ECD). A two-channel instrument, consisting of two sets of chromatographic columns and two Hewlett-Packard micro-ECDs (model G2397-65500, 15 mCi of Ni-63 each), will measure CFCs 11 ($CFCl_3$), 12 ($CF_2Cl_2$), and 113 ($C_2Cl_3F_3$), carbon tetrachloride ($CCl_4$), chloroform ($CHCl_3$) and methyl chloroform ($CH_3CCl_3$) with a time resolution of about 5 minutes.

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

**RADIOACTIVE MATERIALS LICENSE**

Pursuant to the Radiation Control Act Title 25, Article 11, CRS 1989, Replacement Volume, as amended, and the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, Part 3, 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 material(s) 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 Colorado Department of Public Health and Environment and to any conditions specified below.

License

1. Name: University of Colorado

2. Address: Campus Box 441
Boulder, CO 80309-0441

3. In accordance with the correspondence dated October 14, 1999 License No. Colo. 82-08 is amended in its entirety.

4. Expiration date: November 30, 2003

5. Reference number:

| 6. Radioactive materials (element and mass no.) | 7. Chemical and/or physical form | 8. Maximum quantity licensee may possess at any one time |
|---|---|---|
| A. Any radioactive material with atomic numbers 3 through 83, except as listed below | A. Any | A. 37 GBq (1 Ci) of each |
| B. Any radioactive material with atomic numbers 1 through 96 | B. Any | B. as necessary for uses in Condition 9.B |
| C. Hydrogen 3 | C. Any | C. 3.7 TBq (100 Ci) |
| D. Carbon 14 | D. Any | D. 185 GBq (5 Ci) |
| E. Phosphorus 32 | E. Any | E. 92.5 GBq (2.5 Ci) |
| F. Cobalt 60 | F. Sealed sources | F. 185 GBq (5 Ci) |
| G. Strontium 90 | G. Sealed sources | G. 55.5 GBq (1.5 Ci) |
| H. Cesium 137 | H. Sealed sources | H. 197 GBq (5.3 Ci) |

Continued from Page 1



STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

**RADIOACTIVE MATERIALS LICENSE**

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

| 6. Radioactive materials (element and mass no.) | 7. Chemical and/or physical form | 8. Maximum quantity licensee may possess at any one time |
|---|---|---|
| I. Cesium 137 | I. Sealed sources (J.L. Shepherd and Assoc. model 6810 or ORNL model A-0096) | I. 33.3 TBq (900 Ci) |
| J. Cesium 137 | J. Sealed sources | J. 111 GBq (300 mCi) |
| K. Polonium 210 | K. Plated sources | K. 3.7 GBq (100 mCi) |
| L. Francium 221 | L. Any | L. 185 MBq (5 mCi) |
| M. Radium 225 | M. Any | M. 185 MBq (5 mCi) |
| N. Radium 226 | N. Sealed sources | N. 3.7 GBq (100 mCi) |
| O. Actinium 225 | O. Any | O. 185 MBq (5 mCi) |
| P. Actinium 227 | P. Any | P. 185 MBq (5 mCi) |
| Q. Natural Uranium and Thorium | Q. Any | Q. 400 pounds |
| R. Thorium 228 | R. Any | R. 1.85 GBq (50 mCi) |
| S. Thorium 229 | S. Any | S. 185 MBq (5 mCi) |
| T. Protactinium 231 | T. Ceramic Source | T. 37 kBq (1 μCi) |
| U. Uranium 232 | U. Plated Source | U. 370 MBq (10 mCi) |
| V. Uranium 233 | V. Ceramic Source | V. 37 kBq (1 μCi) |
| W. Uranium 234 | W. Ceramic Source | W. 37 kBq (1 μCi) |
| X. Uranium 235 | X. Foil | X. 500 milligrams |
| Y. Uranium 235 | Y. Ceramic Source | Y. 37 kBq (1 μCi) |

Continued from Page 2



STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

**RADIOACTIVE MATERIALS LICENSE**

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

| 6. Radioactive materials (element and mass no.) | 7. Chemical and/or physical form | 8. Maximum quantity licensee may possess at any one time |
|---|---|---|
| Z. Uranium 238 (depleted of $^{235}U$) | Z. Any | Z. 583 grams |
| AA. Uranium 238 | AA. Any | AA. 37 MBq (1 mCi) |
| BB. Neptunium 237 | BB. Ceramic Source | BB. 37 kBq (1 $\mu$Ci) |
| CC. Plutonium 238 | CC. Plated sources | CC. 10 micrograms |
| DD. Plutonium 239 | DD. Alpha source | DD. 0.1 gram |
| EE. Plutonium 239:Be | EE. Sealed sources | EE. 160 grams |
| FF. Plutonium 240 | FF. Plated sources | FF. 0.1 gram |
| GG. Plutonium 241 | GG. Plated sources | GG. 10 micrograms |
| HH. Plutonium 241 | HH. Ceramic Sources | HH. 37 MBq (1 mCi) |
| II. Plutonium 242 | II. Ceramic Sources | II. 37 kBq (1 $\mu$Ci) |
| JJ. Americium 241 | JJ. Sealed sources | JJ. 37 GBq (1 Ci) |
| KK. Americium 241 | KK. Plated sources | KK. 370 MBq (10 mCi) |
| LL. Americium 241:Be | LL. Sealed sources | LL. 7.4 GBq (200 mCi) |
| MM. Americium 243 | MM. Plated sources | MM. 370 MBq (10 mCi) |
| NN. Curium 244 | NN. Plated sources | NN. 370 MBq (10 mCi) |
| OO. Californium 252 | OO. Plated sources | OO. 370 MBq (10 mCi) |
| PP. Nickel 63 | PP. Plated sources (Amersham or DuPont) | PP. 4 sources, no single source to exceed 555 MBq (15 mCi) |

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

**RADIOACTIVE MATERIALS LICENSE**

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

---

**CONDITIONS**

9.A. Radioactive materials authorized in Items 6.A., 6.C. through 6.H., and 6.K. through 6.OO. to be used for research and development as defined in RH 1.4 of the Regulations.

B. Radioactive materials authorized in Item 6.B may be collected, analyzed, stored, and disposed as contamination on wipe tests and as contaminants in environmental monitoring samples. The licensee is authorized to perform wipe tests for leakage and/or contamination on sealed sources containing radioactive material or devices containing such sources. The licensee shall dispose of Item 6.B materials in accordance with the requirements of RH 4.33 of the Regulations.

C. Radioactive materials authorized in Items 6.H. and 6.LL. may also be used in moisture/density gauges to determine the moisture content and density of soils and construction materials.

D. Radioactive material authorized in Item 6.I. to be used in a J.L. Shepherd and Assoc. model 143-35 shelf shielded gamma irradiator for the irradiation of academic and commercial biological research samples.

E. Radioactive material authorized in Item 6.J. to be used in a J.L. Shepherd and Assoc. model 28-6 instrument calibrator for the calibration of survey instruments.

F. Radioactive materials authorized in Item 6.PP. may be used in a Hewlett-Packard micro-ECD model G2397-6550 in a gas chromatograph for sample analysis.

10.A. Radioactive materials authorized in Items 6.A. through 6.H., and 6.J. through 6.OO. shall be used and stored in the University of Colorado facilities which have been reviewed and approved by the Radiation Safety Committee located at:

University of Colorado, Boulder, Colorado;
University of Colorado East Campus and Research Park, Boulder, Colorado;
University of Colorado Environmental Health and Safety Center, Boulder, Colorado;
University of Colorado Campus at Colorado Springs, Colorado;
University of Colorado Campus at Denver, Colorado;
University of Colorado Mountain Research Station, Nederland, Colorado; and

B. Radioactive material authorized in Item 6.I. shall be used only at the University of Colorado, Porter Biology Building, Room ST B010A, Boulder, Colorado.

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

**RADIOACTIVE MATERIALS LICENSE**

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

10.C. Radioactive materials authorized in Items 6.H. and 6.LL. used in a moisture/density gauge may also be used at temporary job sites of the licensee anywhere in the State of Colorado where the State of Colorado maintains jurisdiction for regulating the use of radioactive materials.

D. Radioactive materials authorized in Item 6.PP. used in accordance with the procedures described in the amendment request and project description dated September 23, 1999 may also be used at temporary job sites of the licensee anywhere in the State of Colorado where the State of Colorado maintains jurisdiction for regulating the use of radioactive materials.

11. The licensee shall comply with the provisions of the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, Part 4, "Standards for Protection Against Radiation" and Part 10, "Notices, Instructions and Reports to Workers; Inspections".

12.A. Radioactive materials shall be used by, or under the direct supervision of individuals designated as users by the Radiation Safety Committee.

B. Radioactive materials authorized in Items 6.H. and 6.LL. in a moisture/density gauges shall be used by individuals, designated as users by the Radiation Safety Committee, who have successfully completed a training class in the safe use and handling of portable nuclear gauges which has been accepted by the U.S. Nuclear Regulatory Commission or an Agreement State.

C. The Radiation Safety Committee shall maintain written records indicating the date and basis of approval or designated users.

13.A. The designated Radiation Safety Officer is Michelle S. Barry, M.S.

B. The designated Assistant Radiation Safety Officer is Margaret E. Ashton.

14. Radioactive material authorized by Item 6 of this license shall be stored and used in a manner that will preclude use by unauthorized personnel.

15.A. Each sealed source containing radioactive material shall be tested for leakage and/or contamination in accordance with RH 4.16 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control* at intervals not to exceed six (6) months.

B. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage and contamination prior to use or transfer as a sealed source. If the inspection or test reveals any construction defects or 0.005 microcurie or greater of contamination, the source shall not be used or transferred as a sealed source until it has been repaired, decontaminated and retested.

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

16. Sealed sources containing radioactive material shall not be opened.

17.A. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

B. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

18. Detector cells containing radioactive material shall not be opened or the foil sources removed from the detector cell by the licensee.

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

20. Experimental animals administered radioactive material or their products shall not be used for human consumption.

21. Radioactive material shall not be used in or on human beings or in products distributed to the public.

22. Individuals involved in operations which utilize, at any one time, more than 1.85 GBq (50 mCi) of I-125 and/or I-131 or unvented laboratory operations involving 370 MBq (10 mCi) of I-125 and/or I-131 in a noncontained form shall have bioassays performed within one week following a single operation. Records of the bioassays shall be maintained for inspection by the Department and the action points listed below shall be observed.

A. Whenever the thyroid burden at the time of measurement exceeds 4.44 kBq (0.12 μCi) of I-125 or 1.48 kBq (0.04 μCi) of I-131, the following actions shall be taken:

(1) An investigation of the operations involved, including ventilation surveys shall be carried out to determine the causes of exposure and to evaluate the potential for further exposures.

(2) If the investigation indicates that further work in the area might result in exposure of a worker to concentrations that are excessive, the licensee shall restrict the worker from further exposure until the source of exposure is discovered and corrected.

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

**RADIOACTIVE MATERIALS LICENSE**

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

22.A. (3) Corrective actions that will eliminate or lower the potential for further exposures shall be implemented.

(4) A repeat bioassay shall be taken within one week of the previous measurement in order to confirm the effectiveness of the corrective action taken or to verify internal radioiodines present.

(5) Reports or notification shall be provided as required by RH 4.52 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control.*

B. If the thyroid burden at any time exceeds 18.5 kBq (0.5 μCi) of I-125 or 5.18 kBq (0.14 μCi) of I-131, the following actions shall be taken:

(1) Prevent the individual from any further handling of I-125 or I-131 until the thyroid burden is below the above limits.

(2) Carry out all steps described above.

(3) As soon as possible, refer the case to appropriate medical consultation for recommendations regarding therapeutic procedures that may be carried out to accelerate removal of radioactive iodine from the body. This should be done within 2-3 hours after exposure when the time of exposure is known so that any prescribed thyroid blocking agent would be effective.

(4) Carry out repeated measurements at approximately 1-week intervals at least until the thyroid burden is less than 4.44 kBq (0.12 μCi) of I-125 or 1.48 kBq (0.04 μCi) of I-131.

23.A. Individuals involved in operations which utilize, at any one time, more than 3.7 GBq (100 mCi) 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 weekly intervals for continuing operations. Records of the bioassays shall be maintained for inspection by the Department and the action points listed below shall be observed.

B. (1) Tritium shall not be used in such a manner as to cause any individual to receive a radiation exposure such that urinary excretion rates exceed 1.04 MBq (28 μCi) of tritium per liter when averaged over a calendar quarter.

Continued from Page 7



STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

23.B. (2) Urinalysis shall be performed at weekly intervals on all individuals who work in the restricted areas of facilities in which tritium is used. If the average concentration of tritium in urine for any single individual during a calendar quarter is less than 370 kBq (10 μCi) per liter, urinalysis may be performed on that individual at monthly intervals for the following calendar quarter and may continue at monthly intervals so long as the average concentration in the calendar quarter remains below 370 kBq (10 μCi) per liter. The urine specimen shall be collected on the same day of the week insofar as possible.

(3) A report of an average concentration in excess of the limit specified in B. (1) above for any individual shall be filed, in writing, within thirty days of the end of the calendar quarter with the Director, Laboratory and Radiation Services Division, Colorado Department of Public Health and Environment, 8100 Lowry Boulevard, Denver, CO 80220-6928. The report shall contain the results of all urinalyses for the individual during the calendar quarter, the cause of the excessive concentrations, and the corrective steps taken or planned to assure against a recurrence.

(4) Any single urinalysis which discloses a concentration of greater than 1.85 MBq (50 μCi) per liter shall be reported, in writing, within seven days of the licensee's receipt of the results, to the Director, Laboratory and Radiation Services Division, Colorado Department of Public Health and Environment, 8100 Lowry Boulevard, Denver, CO 80220-6928.

24.A. The licensee may transport radioactive material or deliver radioactive material to a carrier for transport, in accordance with the provisions of RH 17.5 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, Transportation of Licensed Material".

B. The transportation of Colorado radioactive materials shall be subject to all applicable regulations of the Colorado Public Utilities Commission, Colorado Department of Transportation, Colorado Department of Public Safety, Colorado Department of Revenue (Port of Entry), U.S. Department of Transportation, and other agencies of the Unites States having jurisdiction. When the U.S. Department of Transportation Regulations (Title 49, Chapter I, Code of Federal Regulations) are not applicable to shipments by land of Colorado radioactive materials by reason of the fact that the transportation does not occur in interstate or foreign commerce, the licensee must be in compliance with the requirements relating to packaging of the radioactive material, marking and labeling of the package, placarding of the transport vehicle, and accident reporting set forth in the regulations of the U.S. Department of Transportation.

Continued from Page 8



STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

**RADIOACTIVE MATERIALS LICENSE**

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

25. Except for plutonium contained in a medical device designed for individual human application, no plutonium, regardless of form, shall be delivered to a carrier for shipment by air transport or transported in an aircraft by the licensee.

26. The licensee shall not transfer possession and/or control of materials or products containing radioactive material as a contaminant except:

A. by transfer of waste to an authorized recipient;

B. by transfer to a specifically licensed recipient; or,

C. as provided otherwise by specific condition of this license pursuant to the requirements of RH 3.22 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control*.

27. A. All users of radioactive materials authorized in moisture/density gauges who are likely to receive an occupational dose exceeding 10% of any applicable limit specified in Part 4 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control* must be equipped with personnel monitoring devices capable of detecting both gamma and neutron radiation.

B. If personnel monitoring devices will not be used, the Radiation Safety Officer must maintain written records demonstrating that personnel dose monitoring was not required pursuant to RH 4.18 of the Regulations.

28. The licensee shall maintain a use log indicating gauge number, user, date, and location of use for radioactive materials authorized in moisture/density gauges.

29. For the use of radioactive materials authorized in moisture/density gauges the licensee shall list the telephone number(s) of the Radiation Safety Officer in the procedures manual for emergency notification.

30. Prior to the use of radioactive materials authorized in moisture/density gauges outside the State of Colorado, the licensee shall comply with the applicable provisions of 10CFR 150.20 or if the use shall take place in an Agreement State the licensee shall comply with the applicable provisions of that State's reciprocity requirements.

31. The licensee shall restrict the possession of licensed material authorized in Item 6 to quantities below the minimum limit specified in RH 3.9.5.1.2.5 for establishing decommissioning financial assurance for these materials.

Continued from Page 9



STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

License Number Colo. 82-08
Expiration Date: November 30, 2003
Amendment No. 28

32. The State of Colorado *Rules and Regulations Pertaining to Radiation Control* shall govern the licensee's statements in applications or letters, unless the licensee's statements are more restrictive than the regulations. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Items 6, 7 and 8 of this license in accordance with statements, representations, and procedures contained in:

A. the license application dated October 27, 1998;

B. the University of Colorado Radiation Safety Handbook, dated 1998, with amendments reviewed and approved by the Radiation Safety Committee.

C. the license correspondence dated January 15, 1999; September 23, 1999; and facsimile dated October 14, 1999.

FOR THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Date October 15, 1999 By W. Jacobi

OR-RH-18