

TRANSMISSION VERIFICATION REPORT

TIME : 12/17/2008 07:39  
NAME : USNRC RIII  
FAX : 6308299782  
TEL :  
SER.# : 000A7J925774

DATE, TIME	12/17 07:36
FAX NO./NAME	85736815520
DURATION	00:02:16
PAGE(S)	08
RESULT	OK
MODE	STANDARD ECM



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

**TELEFAX TRANSMITTAL**

DATE December 17, 2008

NUMBER OF PAGES 8

SEND TO Steven Meredith, Ph.D.

LOCATION Lincoln University of Missouri

FAX NUMBER (573) 681-5520

VERIFY BY CALLING

FROM: Bill Reichhold  
(Sender)

TELEPHONE NUMBER (630) 829-9839

FAX NUMBER (630) 515-1078

If you do not receive the complete fax transmittal, please contact the sender as soon as possible at the telephone number provided above.

MESSAGE See accompanying documents.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

**TELEFAX TRANSMITTAL**

DATE December 17, 2008

NUMBER OF PAGES 8

SEND TO Steven Meredith, Ph.D.

LOCATION Lincoln University of Missouri

FAX NUMBER (573) 681-5520

VERIFY BY CALLING

FROM: Bill Reichhold  
(Sender)

TELEPHONE NUMBER (630) 829-9839

FAX NUMBER (630) 515-1078

If you do not receive the complete fax transmittal, please contact the sender as soon as possible at the telephone number provided above.

MESSAGE See accompanying documents.

**NOTICE**

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, or exempt from disclosure under applicable law. If the reader of this message is not the intended recipient or the employee responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you received this communication in error, please notify the sender immediately by telephone and return the original to the above address, by U.S. Mail. Thank You.

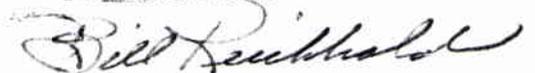
The following additional information is needed to review your request.

1. As we discussed by telephone on December 16, 2008, since Dr. Vander Tuig retired about 3 months ago, we need an qualified individual to be the Radiation Safety Officer (RSO) for your radiation protection program. We need an individual (such as an authorized user) who has the training and experience using radionuclides that are authorized on your license. As we discussed, please submit a request to amendment your license to add Dr. Chi as the Radation Safety Officer (RSO) at this time. The amendment needs to be signed by a representative of Lincoln University that is authorized to make binding commitments and to sign official document of behalf of Lincoln University. Please see the attached Appendix I that describes the typical RSO duties.
2. Before we can add Dr. Ikem as the RSO, we need to review his training and specific experience, with the types and quantities of radioacitive materials that are authorized on your license. Training should include the following subjects: Radiation protection principles, characteristics of ionizing radiation, units of radiation dose and quantities, radiation detection instrumentation, biological hazards of exposure to radiation, NRC regulatory requirements and standards, and hands-on-use of radioactive materials. This training should be obtained in a formal course designed for RSOs presented by an academic institution, commercial radiation safety consulting company, or a profesional organization of radiation protection experts. After Dr. Ikem has the required training and experience, you may resubmit your request to have him added as the RSO.
3. Please identify the individual who is authorized to use the 130 mircocurie cesium-137 sealed source for instrument calibration. See authorization for this source in Item 6.A. of your license.
4. Please identify the individual who is authorized to use the americium-241 sealed source in the Troxler Model 3320/3330 depth moisture gauge.

Please send a facsimile (630- 515-1078) of your response to the above within 5 days and refer to control 317596. Please call me at 630-829-9839 if you have any questions.

From the desk of:

*Bill Reichhold*



- Information Notice 84-94, "Reconcentration of Radionuclides Involving Discharges into Sanitary Sewerage Systems Permitted Under 10 CFR 20.203 (now 10 CFR 20.2003)," dated December 1984
- Information Notice 90-09, "Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licensees," dated February 1990

Information Notices are available at <<http://www.nrc.gov>>.

**Additional References:**

- Policy and Guidance Directive PG 8-10, "Disposal of Incinerator Ash as Ordinary Waste," dated January 1997
- Policy and Guidance Directive PG 94-05, "Updated Guidance on Decay-In-Storage," dated October 1994

## **8.12 ITEM 12: FEES**

The next two items on NRC Form 313 are to be completed on the form itself.

On NRC Form 313, enter the appropriate fee category from 10 CFR 170.31 and the amount of the fee enclosed with the application.

## **8.13 ITEM 13: CERTIFICATION**

Individuals acting in a private capacity are required to date and sign NRC Form 313. Otherwise, representatives of the corporation or legal entity filing the application should date and sign NRC Form 313. Representatives signing an application must be authorized to make binding commitments and to sign official documents on behalf of the applicant. As discussed previously in "Management Responsibility," signing the application acknowledges management's commitment and responsibilities for the radiation protection program. NRC will return all unsigned applications for proper signature.

*Note:*

- It is a criminal offense to make a willful false statement or representation on applications or correspondence (18 U.S.C. 1001).
- When the application references commitments, those items become part of the licensing conditions and regulatory requirements.

## **Appendix I**

# **Radiation Safety Officer Duties and Responsibilities**

## Radiation Safety Officer Duties and Responsibilities

The RSO's duties and responsibilities include ensuring radiological safety and compliance with NRC and DOT regulations and the conditions of the license; see Figure 8.1. Typically, these duties and responsibilities include the following:

- Ensure that licensed material possessed by the licensee is limited to the types and quantities of byproduct material listed on the license.
- Maintain documentation that demonstrates that the dose to individual members of the public does not exceed the limit specified in 10 CFR 20.1301.
- Ensure security of radioactive material.
- Posting of documents as required by 10 CFR Parts 19.11 and 21.6.
- Ensure that licensed material is transported in accordance with applicable NRC and DOT requirements.
- Ensure that radiation exposures are "ALARA."
- Oversee all activities involving radioactive material, including monitoring and surveys of all areas in which radioactive material is used.
- Act as liaison with NRC and other regulatory authorities.
- Provide necessary information on all aspects of radiation protection to personnel at all levels of responsibility, pursuant to 10 CFR Parts 19 and 20, and any other applicable regulations.
- Oversee proper delivery, receipt, and conduct of radiation surveys for all shipments of radioactive material arriving at or leaving from the institution, as well as packaging and labeling all radioactive material leaving the institution.
- Determine the need for personnel monitoring, distribute and collect personnel radiation monitoring devices, evaluate bioassays, monitor personnel radiation exposure and bioassay records for trends and high exposures, notify individuals and their supervisors of radiation exposures approaching the limits, and recommend appropriate remedial action.
- Conduct training programs and otherwise instruct personnel in the proper procedures for handling radioactive material prior to use, at periodic intervals (refresher training), and as required by changes in procedures, equipment, regulations, etc.
- Supervise and coordinate the radioactive waste disposal program, including effluent monitoring and recordkeeping on waste storage and disposal records.
- Oversee the storage of radioactive material not in current use, including waste.
- Perform or arrange for leak tests on all sealed sources and calibration of radiation survey instruments.

## APPENDIX I

- Maintain an inventory of all radioisotopes possessed under the license and limit the quantity to the amounts authorized by the license.
- Immediately terminate any unsafe condition or activity that is found to be a threat to public health and safety or property.
- Supervise decontamination and recovery operations.
- Maintain other records not specifically designated above, for example, records of receipts, transfers, and surveys as required by 10 CFR 30.51 and 10 CFR 20, Subpart L, "Records."
- Hold periodic meetings with, and provide reports to, licensee management.
- Ensure that all users are properly trained.
- Perform periodic audits of the radiation safety program to ensure that the licensee is complying with all applicable NRC regulations and the terms and conditions of the license (e.g., leak tests, inventories, use limited to trained, approved users, etc.), the content and implementation of the radiation safety program to achieve occupational doses and doses to members of the public that are ALARA in accordance with 10 CFR 20.1101 and required records are maintained.
- Ensure that the results of audits, identification of deficiencies, and recommendations for change are documented (and maintained for at least 3 years) and provided to management for review; ensure that prompt action is taken to correct deficiencies.
- Ensure that the audit results and corrective actions are communicated to all personnel who use licensed material.
- Ensure that all incidents, accidents, and personnel exposure to radiation in excess of ALARA or Part 20 limits are investigated and reported to NRC and other appropriate authorities, if required, within the required time limits.
- Maintain understanding of and up-to-date copies of NRC regulations, the license, revised licensee procedures, and ensure that the license is amended whenever there are changes in licensed activities, responsible individuals, or information or commitments provided to NRC during the licensing process.

CONTENTS OF AN APPLICATION

**Reference:** Supplement to Policy and Guidance Directive FC 84-20, "Impact of Revision of 10 CFR Part 51 on Materials License Actions," dated March 1994.

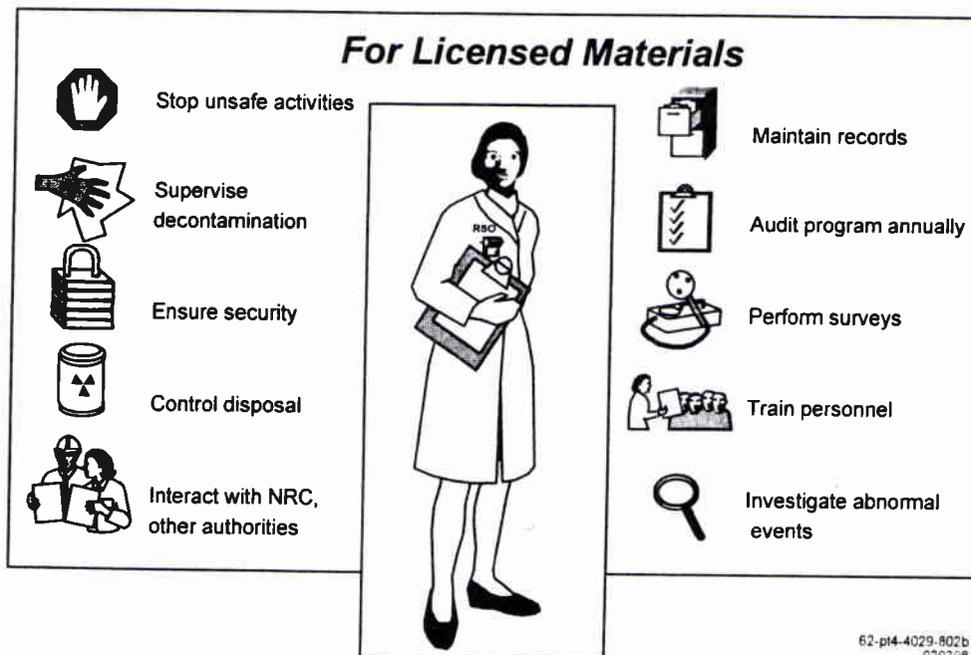
## 8.7 ITEM 7: INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE

### ➔ 8.7.1 RADIATION SAFETY OFFICER (RSO)

**Regulations:** 10 CFR 30.33(a)(3).

**Criteria:** RSOs must have training and specific experience, with the types and quantities of licensed material to be authorized on the license.

**Discussion:** The person responsible for implementing the radiation protection program is called the Radiation Safety Officer, or RSO. This individual may also be called the Radiation Protection Officer (RPO). The RSO needs independent authority to stop operations that he or she considers unsafe. He or she must have sufficient time and commitment from management to fulfill certain duties and responsibilities to ensure that radioactive materials are used in a safe manner. Typical RSO duties are illustrated in Figure 8.4 and described in Appendix I. NRC requires the name of the RSO on the license to ensure that licensee management has identified a responsible, qualified person and that the named individual knows of his or her designation as RSO.



**Figure 8.4 RSO Responsibilities.** *Typical duties and responsibilities of RSOs.*

## CONTENTS OF AN APPLICATION

NRC believes that to demonstrate adequate training and experience, the RSO should have (1) as a minimum, a college degree at the bachelor level, or equivalent training and experience in physical, chemical, biological sciences, or engineering; and (2) training and experience commensurate with the scope of proposed activities. Training should include the following subjects:

- Radiation Protection Principles
- Characteristics of Ionizing Radiation
- Units of Radiation Dose and Quantities
- Radiation Detection Instrumentation
- Biological Hazards of Exposure to Radiation (appropriate to types and forms of byproduct material to be used)
- NRC Regulatory Requirements and Standards
- Hands-on use of radioactive materials.

The amount of training and experience needed will depend upon the type, form, quantity and proposed use of the licensed material requested. Ultimately, the proposed RSO's training and experience should be sufficient to identify and control the anticipated radiation hazards. In addition, the RSO designee should have obtained the above training in a formal course designed for RSOs presented by an academic institution, commercial radiation safety consulting company, or a professional organization of radiation protection experts.

**Response from Applicant:** Provide the following:

- Name of the proposed RSO
- Information demonstrating that the proposed RSO is qualified by training and experience.

Applicants should provide information about the proposed RSO's training and experience relative to the licensed material requested in the application. Applicants should not submit extraneous information such as unrelated lists of publications, research grants, committee and society memberships, etc. Submittal of unrelated material serves only to slow the review process.

**Note:** It is important to notify NRC, as soon as possible, of changes in the designation of the RSO. The name and qualifications of the replacement RSO must be submitted to NRC as part of an amendment request.