



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

July 14, 2016

Garnett B. Cross
Radiation Safety Officer
Andrews University
Department of Physics
4260 Administration Dr.
Berrien Spring, MI 49104-0380

Dear Mr. Cross:

We have reviewed your renewal application for NRC License No. 21-11654-03 issued to Andrews University. However, we could not complete our review because the application was incomplete. Before we can take further action, we will need the following additional information. For your references, the licensing guidance related to your licensed activities is in NUREG-1556, Volume 7, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope" published on the NRC web site at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v7/>.

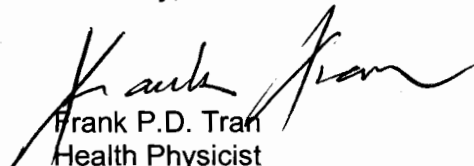
- 1) Please specify the maximum activity of activation products that you will possess.
- 2) If your research activities involve the use of licensed material in or on animals and/or humans, please provide a description of use.
- 3) Please provide name and training and experience information for the Radiation Safety Officer (RSO) (see Item 7 of the attachment).
- 4) Please provide a memorandum of authority for the RSO (see the attached sample).
- 5) Please provide name(s) and training and experiences information for the authorized user(s) (see Item 7 of the attachment).
- 6) Please provide a description of the radiation safety training program, including topics covered, groups of workers, assessment of training, qualifications of instructors, and the method and frequency of training (see Item 8 of the attachment).
- 7) Please provide facilities and equipment information (see Item 9 of the attachment).
- 8) Please provide information regarding the radiation safety program regarding the radiation monitoring instruments, material receipt and accountability, occupational dose, safe use of licensed material and emergency procedures, and radiation survey (see Item 10, "Radiation Safety Program", in the attachment).
- 9) Please provide information regarding licensed material disposal (see Item 11, "Waste Management", in the attachment).

To continue the review of your application, we request that you submit your written response to

this letter by August 15, 2016. Your response must be dated and signed by authorized personnel and please refer Mail Control Number 590272 in your response to facilitate proper mail handling in our office. To expedite the licensing process, you could fax your response to 630-515-1078. If you have any questions or require clarification on any of the information stated above, please do not hesitate to contact me at 630-829-9887 or frank.tran@nrc.gov.

In accordance with Title 10 Code of Federal Regulations 2.390 of the U.S. Nuclear Regulatory Commission's (NRC) "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,


Frank P.D. Tran
Health Physicist
Materials Licensing Branch

License No. 21-11654-03
Docket No. 030-09702

Attachments:

- 1) Appendix C to NUREG-1556, Volume 7
- 2) Delegation of Authority for RSO sample

Model Delegation of Authority to RSO

Memo To: Radiation Safety Officer
From: Chief Executive Officer (or designee)
Subject: Delegation of Authority

You, _____, have been appointed radiation safety officer and are responsible for ensuring the safe use of radiation. You are responsible for managing the Radiation Protection Program, identifying radiation protection problems, initiating, recommending, or providing corrective actions, verifying implementation of corrective actions, stopping unsafe activities, and ensuring compliance with regulations. You are hereby delegated the authority necessary to meet those responsibilities, including prohibiting the use of byproduct material by employees who do not meet the necessary requirements and shutting down operations, when justified, to maintain radiation safety. You are required to notify management if staff does not cooperate and does not address radiation safety issues. In addition, you are free to raise issues with the U.S. Nuclear Regulatory Commission at any time. It is estimated that you will spend _____ hours per week conducting radiation protection activities.

Signature of Management Representative

Date

Name

Title

I accept the above responsibilities,

Signature of Radiation Safety Officer

Date

cc: Affected department heads

APPENDIX C

Item No.	Suggested Response	Yes	Description Attached
5.	<p>RADIOACTIVE MATERIAL</p> <p>Unsealed and/or Sealed Sources</p> <ul style="list-style-type: none"> • For unsealed materials: <ul style="list-style-type: none"> – Provide element name with mass number, chemical and/or physical form, and maximum requested possession limit. – For potentially volatile materials (e.g., I-125, I-131, H-3), specify whether the material will be free (volatile) or bound (non-volatile) and the requested possession limit for each form. • For sealed materials: <ul style="list-style-type: none"> – Identify each Radionuclide (element name and mass number) that will be used in each source. – Provide the manufacturer's (distributor's) name and model number for each sealed source and device requested. – Confirm that each sealed source, device, and source/device combination is registered as an approved sealed source or device by NRC or an Agreement State. – Confirm that the activity per source and maximum activity in each device will not exceed the maximum activity listed on the approved certificate of registration issued by NRC or by an Agreement State. • Provide an Emergency Plan (if required). <p>Financial Assurance and Recordkeeping for Decommissioning</p> <p>No response is needed from most applicants. If F/A or a DFP is required, submit the required documents as described in Regulatory Guide 3.66.</p>	<p style="text-align: center;">*</p> <p style="text-align: center;">*</p> <p style="text-align: center;">N/A</p>	<p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p> <p style="text-align: center;">[]</p>
6.	<p>PURPOSE FOR WHICH LICENSED MATERIAL WILL BE USED</p> <p>List the specific use or purpose of each radioisotope.</p>	<p style="text-align: center;">*</p>	<p style="text-align: center;">[]</p>

Item No.	Suggested Response	Yes	Description Attached
7.	<p>INDIVIDUALS RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE</p> <p>RSO</p> <p>Provide the name of the proposed RSO and information demonstrating that the proposed RSO is qualified by training and experience.</p> <p>AUs</p> <p>Provide the name of each proposed AU, with the types and quantities of licensed material to be used. Also provide information demonstrating that each proposed AU is qualified by training and experience to use the requested licensed materials.</p>	<p>*</p> <p>*</p>	<p>[]</p> <p>[]</p>
8.	<p>TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS (Occupationally Exposed Individuals and Ancillary Personnel)</p> <p>Submit a description of the radiation safety training program, including topics covered, groups of workers, assessment of training, qualifications of instructors, and the method and frequency of training.</p>	<p>*</p>	<p>[]</p>

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Item No.	Suggested Response	Yes	Description Attached
9.	<p>FACILITIES AND EQUIPMENT</p> <p>Describe the facilities and equipment to be made available at each location where radioactive material will be used. Include a description of the area(s) assigned for the receipt, storage, preparation and measurement of radioactive materials. Submit a diagram showing the locations of shielding, the proximity of radiation sources to unrestricted areas, and other items related to radiation safety. When applicable to facilities where radioactive materials may become airborne, the diagrams should contain schematic descriptions of the ventilation systems, with pertinent airflow rates, pressures, filtration equipment, and monitoring systems. Diagrams should be drawn to a specified scale, or dimensions should be indicated. For facilities where it is anticipated that more than one laboratory or room may be used, a generic laboratory or room diagram may be submitted.</p>	*	[]
10.	<p>RADIATION SAFETY PROGRAM</p> <p>Audit Program</p> <p>The applicant is not required to, and should not, submit its audit program to the NRC for review during the licensing phase.</p>	N/A	N/A

Item No.	Suggested Response	Yes	Description Attached
10.	<p data-bbox="297 415 894 447">RADIATION SAFETY PROGRAM (Cont'd)</p> <p data-bbox="297 489 753 520">Radiation Monitoring Instruments</p> <p data-bbox="297 562 1122 804">Describe the instrumentation that will be used to perform required surveys and state that: "We will use instruments that meet the radiation monitoring instrument specifications published in Appendix M to NUREG - 1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope,' dated December 1999. We reserve the right to upgrade our survey instruments as necessary."</p> <p data-bbox="691 846 740 877" style="text-align: center;">OR</p> <p data-bbox="297 919 1122 1350">Describe the instrumentation that will be used to perform required surveys and state that: "We will use instruments that meet the radiation monitoring instrument specifications published in Appendix M to NUREG - 1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope,' dated December 1999. Additionally, we will implement the model survey meter calibration program published in Appendix M to NUREG - 1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope,' dated December 1999. We reserve the right to upgrade our survey instruments as necessary."</p> <p data-bbox="297 1413 776 1444">Material Receipt and Accountability</p> <p data-bbox="297 1486 976 1549">Develop and maintain procedures for ensuring material accountability,</p> <p data-bbox="683 1591 748 1623" style="text-align: center;">AND</p> <p data-bbox="297 1665 1117 1759">State that: "Physical inventories will be conducted at intervals not to exceed 6 months, to account for all sealed sources and devices received and possessed under the license."</p>	<p data-bbox="1162 489 1187 520">*</p> <p data-bbox="1162 1665 1187 1696">*</p>	<p data-bbox="1292 562 1325 594">[]</p> <p data-bbox="1292 919 1325 951">[]</p> <p data-bbox="1292 1665 1325 1696">[]</p>

APPENDIX C

Item No.	Suggested Response	Yes	Description Attached
10.	<p>RADIATION SAFETY PROGRAM (Cont'd)</p> <p>Occupational Dose</p> <p>State that: "we have done a prospective evaluation and determined that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10% of the allowable limits in 10 CFR Part 20," or "we will monitor individuals in accordance with the criteria in the section entitled 'Radiation Safety Program - Occupational Dose' in NUREG - 1556, Vol. 7, 'Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Academic, Research and Development and Other Licenses of Limited Scope,'" dated December 1999."</p> <p>Public Dose</p> <p>No response is required from the applicant in a license application.</p> <p>Safe Use of Radionuclides and Emergency Procedures</p> <p>Develop and maintain procedures for safe use and emergencies. State that such procedures have been developed.</p> <p>If an emergency response plan is needed, submit it as a separate part of the application.</p>	<p>*</p> <p>N/A</p> <p>*</p> <p>[]</p>	<p>[]</p> <p>N/A</p> <p>[]</p> <p>[]</p>

Item No.	Suggested Response	Yes	Description Attached
10.	RADIATION SAFETY PROGRAM (Cont'd)		
	Survey	*	
	<p>State that: "We will survey our facility and maintain contamination levels in accordance with the survey frequencies and contamination levels published in Appendix Q to NUREG - 1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope,' dated December 1999. Leak tests will be performed at the intervals approved by NRC or an Agreement State and specified in the SSD Registration Certificate. Leak tests will be performed by an organization authorized by NRC or an Agreement State to provide leak testing services to other licensees or using a leak test kit supplied by an organization authorized by NRC or an Agreement State to provide leak test kits to other licensees and according to the sealed source or plated foil manufacturer's (distributor's) and kit supplier's instructions."</p>	[]	[]

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Item No.	Suggested Response	Yes	Description Attached
10.	<p>RADIATION SAFETY PROGRAM (Cont'd)</p> <p style="text-align: center;">OR</p> <p>State that: "We will survey our facility and maintain contamination levels in accordance with the survey frequencies and contamination levels published in Appendix Q to NUREG - 1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope,' dated December 1999. Leak tests will be performed at the intervals approved by NRC or an Agreement State and specified in the SSD Registration Certificate. Leak tests will be performed by an organization authorized by NRC or an Agreement State to provide leak testing services to other licensees or using a leak test kit supplied by an organization authorized by NRC or an Agreement State to provide leak test kits to other licensees and according to the sealed source or plated foil manufacturer's (distributor's) and kit supplier's instructions. As an alternative, we will implement the model leak test program published in Appendix R to NUREG - 1556, Vol. 7, "Consolidated Guidance about Materials Licenses: 'Program-Specific Guidance About Academic, Research and Development, and Other Licensees of Limited Scope,' dated December 1999."</p> <p>Transportation</p> <p>No response is needed from applicants during the licensing phase.</p>	<p>[]</p> <p>N/A</p>	<p>N/A</p>

Item No.	Suggested Response	Yes	Description Attached
10.	<p>RADIATION SAFETY PROGRAM (Cont'd)</p> <p>Minimization of Contamination</p> <p>The applicant does not need to provide a response to this item under the following condition. NRC will consider that the above criteria have been met if the applicant's responses meet the criteria in the following sections: "Radioactive Material - Unsealed and/or Sealed Sources," "Facilities and Equipment," "Radiation Safety Program - Safe use of Radioisotopes and Emergency Procedures," "Radiation Safety Program - Surveys," and "Radiation Safety Program - Waste Management."</p>	N/A	N/A
11.	<p>WASTE MANAGEMENT</p> <p>State that: "We will use the model waste procedures published in Appendix T to NUREG - 1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope,' dated December 1999."</p> <p style="text-align: center;">OR</p> <p>"We will use the (<i>specify either (1) Decay-In-Storage, (2) Disposal of Liquids Into Sanitary Sewerage</i>) model waste procedures that are published in Appendix T to NUREG - 1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope,' dated December 1999."</p>	* [] []	[]