



DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY 20TH CBRNE COMMAND
(CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVES)
2400 21ST STREET
ABERDEEN PROVING GROUND, MD 21010-5424

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REC RG 1 05 20 '16 AM 08:31

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JUN 13 2016

MEMORANDUM FOR Mr. Dennis Lawyer, Health Physicist, US Nuclear Regulatory Commission Region I, 2100 Renaissance Boulevard, Suite 100, King of Prussia, PA 19406-2713

SUBJECT: License No. 19-31127-01, Docket 03037133

1. References:

a. Application for Materials License, Renewal of License Number 19-31127-01, Docket No. 030-37133, 10 Mar 16.

b. Email from you, 31 Mar 16, subject: Department of the Army, Request for Additional Information Concerning Application for a License Renewal, Control 590461

c. Telephone conversation between you and Mr. B. Scott Davidson regarding reference 1a and 1b above, 1 Apr 16.

2. The following are our responses to your inquiries:

a. **NRC #1 and NRC#2:** These two comments were addressed in previous correspondence. Please refer to 20th CBRNE responses to Request for Additional Information Concerning Application for Amendment to License 19-31127-01, Control No. 590301, 8 Apr 16.

b. **NRC #3:** On page 3 and 4 of your application, you have submitted information associated with individuals responsible for radiation safety program and their training. Your training program is unclear. Section 8.8 of NUREG-1556, Volume 7, "Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope Including Gas Chromatographs and X-Ray Fluorescence Analyzers" states to 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." It appears the groups of workers are: authorized users and for individuals working in or frequenting restricted areas along with special training requirements for those involved with Cf-252. It did not appear that you clearly described the topics covered for each of these groups. It is unclear how training for individuals working in or frequenting restricted areas training is assessed. It did not appear what the frequency of training is required. Additionally, you have stated additional training is given but is not clear if these courses are required and to what group of workers. An outline of training topics is given Appendix J, of NUREG-1556,

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Volume 7. Please provide a clear statement for each group of workers what topics covered, how assessment of training is performed, the method, and frequency of training.

Response: The 20th CBRNE radiation safety training program is as follows.

Description of the 20th CBRNE Command Radiation Safety Training Program

There are two groups of workers in our program: individuals who work in or frequent restricted areas (radiation workers) and Authorized Users (AU).

Radiation Workers:

Before any radiation workers (RW) are allowed to enter restricted areas they receive training which is commensurate with the radiological risks present in the workplace.

The RW who works with the Portable Isotopic Neutron Spectroscopy (PINS) system receives PINS Operator Training which includes all of the radiation safety elements described in Appendix J to NRC guidance, in NUREG-1556, Volume 7, "Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope Including Gas Chromatographs and X-Ray Fluorescence Analyzers.

The Nuclear Disablement Team (NDT) RWs receive annual training taught by one of the NDT health physicists and all NDT-RWs receive Department of Energy (DOE) Radiation Worker II training every two years, also taught by NDT health physicists. This training contains all the radiation safety elements in Appendix J of the NUREG.

Each RW is required to have an annual briefing on Emergency procedures and any elements identified in local program standard operating procedures (SOP). Each new Authorized User receives training from the 20th CBRNE RSO or their training is waived (discussed below). All new Authorized Users take a written exam.

Authorized Users:

Selected CBRN soldiers assigned to Chemical Response Teams receive Authorized User training from the CBRNE Radiation Safety Officer.

Health physicists are assigned to the Nuclear Disablement Team (NDT). The NDT health physicist's resume is approved by the CBRNE RSO in lieu of the training from the CBRNE RSO. These individuals have formal education in health physics and most have been on an NRC license as either the RSO or an Assistant/Alternate RSO. These individuals are allowed to take a challenge exam to be Authorized Users.

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Previously approved Authorized Users in the CBRNE Analytical and Remediation Activity (CARA) maintain their qualifications through training programs identified in their Standard Operating Procedure(s) including an annual basic radiation refresher course and biennially a one-week operational radiation safety course taught at the US Army CBRN School, Fort Leonard Wood, MO, or equivalent.

Radiation Safety Program Topics Covered

20th CBRNE Command radiation safety training includes the following elements:

- 1) Basic radiation interactions;
- 2) Radioactivity;
- 3) Terms and Units;
- 4) Biological Effects;
- 5) Radiation detection and measurement;
- 6) Radiation and contamination control;
- 7) Radiation dosimetry; and,
- 8) The unit radiation safety officer also receives specific training the radioactive commodities and radiation generating devices for which s/he is responsible.

Authorized User training is provided by the CBRNE RSO and includes a review of the eight elements above. Additional NRC License specific program requirements or topics taught include, but are not limited to:

- 9) License terms and conditions, including leak test and inventory requirements
- 10) Responsibilities of the AU and unit Radiation Safety Officer including regulatory requirements;
- 11) Selected topics from the Registry of Radioactive Sealed Sources and Devices Safety Evaluation of Source, No. OH-0298-S-102-S, Frontier Technology Corporation (FTC) Model 100 series Cf-252 source information; and,
- 12) Emergency procedures.

Training is conducted initially before assignment. Refresher training occurs annually and retraining will occur after a significant regulatory or program change or every 5 years.

Annual refresher training can be accomplished through local training, distance learning or formal course of instruction.

Assessment of training

Written examinations and safe handling demonstration using a dummy source are used to assess the effectiveness of the AU/RSO training. The PINS User training includes

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use of sources under the supervision of, an Authorized User. All examinations have a minimum passing score of 70% or higher.

Instructors' qualifications

The CBRNE RSO is a Certified Health Physicist. The NDT health physicists have formal education in a health physics related field. The CARA RSO and Alternate RSO are Authorized Users. All the INL PINS instructors hold science degrees (two with doctorate in nuclear physics and one master's in nuclear engineering) and have PINS operating experience; and they all have taken (or wrote) the PINS training course.

Methods of training are a combination of lectures, facilitation and discussion, and lab/hands-on training with the PINS equipment and safe handling of radioactive sources.

c. **NRC #4:** In section 9 of your application, you state that the sources are stored in shielded drums. You describe the storage in yard areas as secured but did not appear to describe if the storage in buildings are secured. Please describe the security of materials that are stored in buildings.

Response: The Cf-252 sources are stored in drums manufactured by FTC. The drums have water extended polyester and lead shot for neutron and gamma shielding and are also designed as DOT Specification 7A Type A shipping containers. The Cf-252 possessed by NDT are in a drum stored in the locked source storage area in Building 4118, Aberdeen Proving Ground (APG), MD, CARA uses a locked source storage area in the Chemical Demilitarization Training Facility, Building 4516, APG, MD. For all other sites, the Cf-252 sources are stored in the FTC drums inside a locked storage unit such as an ISU-90. The locked storage unit is stored in secure yard areas on Army installations.

Other licensed material (gamma-emitter sources) possessed by the NDT are also stored in the locked source storage area in building 4118, APG, MD. These are stored in shielded pigs or original shipping containers.

d. **NRC #5:** No response required.

e. **NRC #6:** You appear to have used the guidance in NUREG-1556, Volume 7, Revision 1, for your application. Unfortunately, that revision is currently in Draft. Please make the following similar statements in your application about instruments and leak testing:

"We will use instruments that meet the radiation monitoring instrument

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specifications published in Appendix M to NUREG -1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Laboratory Licenses of Limited Scope,' dated December 1999." And,

"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."

Responses:

(1) 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 Laboratory Licenses of Limited Scope,' December 1999.

(2) 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.

f. **NRC #7:** In section 10.3 Calibration of your application, you stated that contamination survey equipment is calibrated and maintained by your units. In section 8.10.2, it states to make the following statement if you wish to calibrate instruments: "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." Or you can provide a description of alternative equipment and/or procedures for ensuring that appropriate radiation monitoring equipment will be used during licensed activities and that proper calibration and calibration frequency of survey equipment will be performed.

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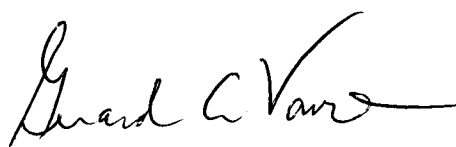
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Response: We will use instruments that meet the radiation monitoring instrument specifications published in Appendix M to NUREG -1556, Vol. 7, 'Program-Specific Guidance About Academic, Research and Development, and Other Laboratory Licenses of Limited Scope,' dated December 1999.

g. **NRC #8:** No response is required.

3. The point of contact for this response is Mr. B. Scott Davidson, (410) 436-9643, email barry.s.davidson.civ@mail.mil.

FOR THE COMMANDER:



GERARD A. VAVRINA
Colonel, MS
Chief of Staff