



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

January 25, 2012

Docket No. 030-37785
Control No. 576684

License No. 06-27895-02

Anne Gobin
Chief, Bureau of Air Management
State of Connecticut
Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106

SUBJECT: STATE OF CONNECTICUT, REQUEST FOR ADDITIONAL INFORMATION
CONCERNING APPLICATION FOR AMENDMENT TO LICENSE, CONTROL
NO. 576684

Dear Ms. Gobin:

Based on the activities being performed under the above-listed license with radium-226 at the New England Air Museum, and discussions between NRC representatives and Dr. Edward Wilds of your office, we administratively opened a licensing action to amend Nuclear Regulatory Commission License No. 06-27895-02. In order to continue our review, we need the following additional information:

1. We understand that you possess radium-226 in the form of gauges and other devices, and in the form of contaminated facilities and items as a result of leaking and/or damaged gauges and other devices at the warehouse associated with the New England Air Museum (NEAM). We understand that you have been in control of the NEAM warehouse since the fall of 2010. We further understand that you have been performing surveys and collecting samples at the NEAM warehouse to determine the extent of contamination and the number of devices containing radium-226, and to assist with appropriate disposal of unwanted items containing radium-226. If any of our understandings are incorrect, please inform us in writing.
 - a. The current license does not authorize the possession of radium-226 in "any" form. Please request an appropriate amount of radium-226 in "any" form, for the contamination in the warehouse, leaking gauges, and samples collected for analysis. Note that the addition of this line item may affect the amount of financial assurance required to be provided.
 - b. The current license does not authorize the possession of more than 0.01 millicuries of radium-226 in the form of sealed sources or foils. Gauges and dials containing radium-226, that are not leaking, are considered sealed devices. If you possess more than 100 gauges or devices containing radium-226 in the NEAM warehouse (the number of devices limited under the general license in 10 CFR 31.12(a)(4)), you must amend your specific license for the estimated amount

of radium-226 in the form of sealed sources or devices. Please estimate the total number of gauges and dials, and request an appropriate amount of radium-226 in the form of "sealed sources or devices", for the gauges and dials in the warehouse, if the quantity of gauges and dials exceeds the number for which a specific license is required.

- c. Provide the address for the NEAM warehouse location, to be added to your specific license as a place of use and/or storage.
2. Items 6, 7 and 8 of the current license list a very small number of radionuclides you are authorized to use or possess, considering your activities in performing confirmatory surveys, environmental sampling and other such activities where radionuclides other than those listed on your license could be present. The authorization of a range of radionuclides is acceptable on a limited scope license. The quantities per radionuclide and the total quantities can be adjusted to enable the scope of your program.
 - a. Confirm if you wish to be authorized for a range of radionuclides. The generic condition is:

Item 6 "Any byproduct material with atomic numbers 1 through 83"
Item 7 "Any" form
Item 8 " X millicurie per radionuclide and Y millicuries total"

Examples of such ranges are:
 - i. Any byproduct material with atomic numbers 1 through 83, in any form, 1 millicurie per radionuclide and 100 millicuries total [Note that financial assurance may require adjustment with this authorization.]
 - ii. Any byproduct material with atomic numbers 84 through 103, in any form, 10 microcuries per radionuclide and 100 microcuries total. [Note that financial assurance may require adjustment with this authorization.]
 - iii. Any byproduct material with atomic numbers 1 through 83 with half-lives less than or equal to 120 days, in any form, 10 millicuries per radionuclide and 1000 millicuries total [This has no effect on financial assurance.]
 - b. For the few radionuclides that are required in quantities larger than the limits for the range of radionuclides as described in "a" above, you should request the individual radionuclide and the quantity for each.
3. Condition 9 of the current license authorizes, in part, the collection of environmental samples related to decommissioning activities. Environmental samples are usually considered to be air, water, and soil samples. The license does not authorize the collection of wipe samples or collection and analysis of leak-test samples from devices. If you wish to collect wipe samples for decommissioning activities and leak-testing, you should request to amend your license for these activities. Specify both the uses that you

wish to be authorized to perform, and the radionuclides (or range of radionuclides) for this authorized use.

4. Condition 9 of the current license authorizes, in part, the use for radionuclides listed in Items 6/7/8.N through P as “for the possession of any enrichment...” This phrase is applicable only to Item O, uranium 235, and is not applicable to radium 226 or plutonium 239. This authorization will be issued separately for the uranium 235 when this license is next amended. Based on our conversations, we understand that you may wish to make changes in one or more of these items. If there are any other changes needed for these materials or uses, you may submit them with this action.
5. At the time of the initial license application dated May 30, 2008, the application contained the following paragraph under “Emergency Response”:

“The licensee may collect and secure orphaned material requiring licensing under NRC regulation. The NRC will be notified of the possession of any material not specified above. In the event of a radiological incident, licensed quantities of material may be collected for analysis, public safety, or preservation of evidence.”

Although the initial application is listed in Condition 19 of the license, and therefore allows this to be done, we were incorrect in doing so without placing limits on the types, forms, and quantities of material to which this authorization would be applicable. In addition, we did not request sufficient information to determine if you have appropriate facilities and equipment to retrieve any orphaned material, and procedures adequate to handle such materials. At this time, we will amend the license including Items 6, 7, 8 and Condition 9 to clearly authorize this activity. In order to do so, please provide the following additional information:

- a. Provide information describing the radionuclides, forms, and quantities that you wish to be authorized to retrieve as part of your emergency response; describe the facilities and equipment you have available for the materials you may handle, and confirm that you have procedures that describe how such retrieval activities will be planned, implemented, and controlled.
- b. If the types and quantities of radionuclides to be authorized for orphan source retrieval are larger than those already listed on the license, provide additional information about your training program, including the number of hours of training required in each topic, the minimum requirements for the individual(s) providing the training; the method of assessing the knowledge of the areas in which training is given (written test/minimum score, practical exam, etcetera).
- c. If material not listed in Items 6/7/8 of the NRC license needs to be retrieved, confirm that you will contact a representative of the Region 1, Division of Nuclear Materials Safety (DNMS) inspection or licensing staff immediately by telephone to inform us so that we can open an amendment action for your license. Also, confirm that you will submit the information to support the amendment of the license within 5 working days of the telephone call.

6. Confirm that you will determine if any changes in financial assurance requirements are necessary, after you have determined the changes in the radionuclides, forms, and quantities to be authorized. If changes in your financial assurance are required, confirm that you will revise your current financial assurance instrument to be in agreement with the requested materials. Note that there are separate financial assurance requirements for 1) unsealed byproduct materials, 2) sealed byproduct materials, 3) dispersible source materials, and 4) unsealed special nuclear material. The total amount of financial assurance required is the sum of all four categories. If you have questions regarding the types, forms and quantities and the financial assurance options, please contact me.

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Nuclear Materials; Med, Ind, & Academic Uses**; then **Licensee Toolkits**, see our **toolkit index page**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

We will continue our review upon receipt of this information. Please reply to my attention at the Region I Office and refer to Mail Control No. 576684. If you have any technical questions regarding this deficiency letter, please call me at (610) 337-5040.

If we do not receive a reply from you within 30 calendar days from the date of this letter, we will assume that you do not wish to pursue your application.

Sincerely,

Original signed by Elizabeth Ullrich

Betsy Ullrich
Senior Health Physicist
Commercial and R&D Branch
Division of Nuclear Materials Safety

cc:
Edward I. Wilds, Ph.D., Radiation Safety Officer

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