

April 3, 2009

MEMORANDUM TO: License File  
Environmental Protection Agency, Region V  
Chicago, IL  
License No: 12-10243-01  
Docket No: 030-04192

THRU: Mike McCann, Senior Health Physicist */RA/*  
Materials Control, ISFSI, & Decommissioning Branch  
Division of Nuclear Materials Safety, Region III

FROM: Katie Streit, Health Physicist */RA/*  
Materials Control, ISFSI, & Decommissioning Branch  
Division of Nuclear Materials Safety, Region III

DATE: March 6, 2009

PURPOSE OF VISIT: US ENVIRONMENTAL PROTECTION AGENCY CHICAGO  
REGIONAL LABORATORY LICENSE TERMINATION FINAL  
STATUS SURVEY MEETING AND SITE TOUR

Meeting Participants:

NRC Region III:

George (Mike) McCann, Senior Health Physicist, MCID/DNMS  
Katie Streit, Health Physicist, MCID/DNMS

EPA Region V:

Marc Colvin, CSP, CHMM, 312-886-0138

Background:

A meeting between representatives from the US Environmental Protection Agency (USEPA), Region V (the licensee) and NRC Region III staff was held to discuss the USEPA's radioactive material license termination. The meeting was held at USEPA's regional facility, 77 W. Jackson, Chicago, Illinois.

The licensee possessed both sealed and unsealed byproduct materials. The sealed sources were mostly used in gas chromatographs, and the unsealed form involved Carbon-14 (C-14), which was used for laboratory research on an EPA research vessel "The Guardian." The EPA used a small laboratory area at its main office as a sanitary radiological disposal point for the C-14 from the EPA's research vessel. On October 9, 2008, (ML082890377) the EPA submitted Form 314 to facilitate the license termination by certifying all licensed materials have been transferred and disposed. Since the licensee had demonstrated their remaining devices are

generally licensed and had provided disposal and leak test records for all sealed sources, sealed sources were removed from the license in amendment 27. The EPA's license allows for storage of C-14 at the EPA Region 5 Chicago Regional Laboratory and onboard the EPA's research vessel. Previous license amendments allowed use of Carbon-14 at a different authorized location and ship, but these locations were removed in subsequent license amendments by the NRC. The purpose of the site visit was to discuss the need for a historical site assessment (HSA) of past licensed activities, and additional detailed final status survey documentation, which are necessary to support the EPA's request for release of its facilities and terminate the EPA's license.

Discussion:

During the site visit, Requests for Additional Information (RAIs) were discussed and a copy was provided to the licensee. These RAIs were based on NRC staff review of the licensee's documents provided by the USEPA to support their termination request. A copy of the RAIs is enclosed.

The NRC staff informed the licensee that the survey information submitted as part of the EPA's termination request was not consistent with the requirements of 10 CFR 30.36(j). To assist the licensee in preparing an adequate final status survey (FSS) and HSA, NRC staff discussed with the EPA regarding current guidance documents, such as NUREG-1757.

The licensee described to the NRC staff the past C-14 usages on board the EPA's research vessel, and at the main laboratory location. The licensee stated that C-14 was only used in a mobile self-contained lab on the research vessel and that the container was no longer located on the ship. The licensee staff also indicated that the main laboratory was used only for storage and sanitary disposal of the C-14 waste from the research vessel. The licensee staff committed to completing FSSs of the research vessel's container laboratory, and of the storage and disposal areas at the main laboratory.

Additionally, the NRC took a tour of the Chicago Regional Laboratory and toured rooms where C-14 sources were stored and disposed of. The EPA stated that all licensed material, including sealed and C-14 sources, had been transferred to or disposed of to authorized recipients.

Enclosure:  
As stated

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Licensee: Environmental Protection Agency, Region V  
License No. 12-10243-01  
Docket No. 030-04192

Subject: LICENSE TERMINATION SITE VISIT QUESTIONS FOR  
ENVIRONMENTAL PROTECTION AGENCY, REGION V, LICENSE  
TERMINATION

1. The current release surveys are not adequate to demonstrate or support the release of facilities. To terminate the license, a survey complying with 10 CFR 30.36(j) must be performed and reported. This survey should include all areas where unsealed licensed materials were used and/or stored and should be reproducible and defensible. Acceptable guidance on surveys can be found in Figure 8.1 and Section 15.4 of NUREG-1757 Vol. 1, rev. 2 and Appendices A and B of NUREG-1757 Vol. 2. Areas noted which need to be addressed are discussed as follows:
  - a. For the final status survey of past locations of use, each building must be described, including number of floors and rooms where licensed material was used and/or stored. Describe if unsealed material was used in the area. Each location of use (e.g., laboratories, process areas, storage areas, sinks, hold-up tanks, etc.) must be specified with enough detail to understand size, equipment and associated ventilation and sanitary/sewer discharge systems.
  - b. Clarify if a 100 percent scan of all surfaces in the area of the facility where unsealed licensed material was used or stored was performed, using an appropriate radiation detection instrument. The type of instrument used should be specified with their associated scan sensitivities, discussion of calibration, and certified calibration sources used. Provide results in dpm using correction for instrument efficiency and area factors.
  - c. Describe the method used to identify individual measurement/swipe points on each surface in the facilities where licensed material was used and stored. Describe basis for frequency of wipes based on area classification and determination of fixed versus removable contamination. NUREG-1757 Figure 8.1 provides guidance.
  - d. Final status survey data must be tabulated in a report form, which correlates area dose measurements, direct survey meter results and tests for removable contamination keyed to an attached detailed diagram for each area. The survey report should indicate findings in individual sections according to location, buildings and areas. The report should also have a section, which discusses instrumentation, analytical procedures (MDC, MDCsr), calibration and instrument efficiencies, conversion factors, and QA.

- e. Provide details of evaluations and/or surveys, analysis of samples collected from drains, hold-up tanks, leaks via sewer lines, re-concentration of radionuclides release to the sanitary or septic fields (if any), air vents, or other fixtures or equipment that may have become contaminated during licensed material use. This is especially significant in situations where renovations have occurred and potentially contaminated areas may be inaccessible under current conditions.
  - f. Form 314 needs to be completed to show that the radiation survey confirms that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is as low as reasonably achievable.
2. To demonstrate that you have adequately assessed all areas where licensed material was used, you should perform a historical site assessment (HSA). The HSA involves comprehensive description of past locations of use, including buildings, mobile laboratories, outdoor areas (if any), and rooms in each building where materials were used. The HSA should address the type of activity performed in each area, quantities and form of materials possessed and used (flow through) for each area. The response needs to be a comprehensive document, which list sites of use, past buildings located at each site, rooms, and facilities where licensed radioactive materials were used, since the base license was issued on August 20, 1964. The staff reviewed past license amendments issued to your agency and predecessor agencies. Information, not necessarily limited to the above (refer to NUREG-1757 Vol. 1) should be addressed regarding the following past locations:
- a. 1819 Pershing Road, Chicago, Illinois. This location was approved in Condition 10 in the original license and removed in Amendment 10. Describe what close out survey, if any, was completed when this location was released.
  - b. Amendment No. 21 issued on December 5, 1995, Condition 10 adds TAT Mobile laboratory located at 203 Sangamon, Chicago, IL and 1701 S. State St., Chicago, IL. These locations were removed from the license in Amendment 27. Verify that only Ni-63 sealed sources listed in the sealed source inventory provided to the NRC in the responses to NRC requests for information provided on January 29, 2008, were used or stored at these locations. If additional sources were ever used in these facilities, provide their leak test results.
  - c. Amendment No. 9 issued on January 18, 1979, Condition 10 adds 536 South Clark Street, Chicago, Illinois. As indicated above, a comprehensive historical site assessment of the building including a list of all rooms and locations within the building where C-14 and licensed sealed sources were used. The HSA must address the type of activity performed in each area, quantities and form of materials possessed and used (including disposal activities) for each area. Additionally, verify that the only licensed sealed sources are those listed in the sealed source inventory provided to the NRC in the responses to NRC requests for information provided on January 29, 2008.

- d. Amendment No. 18 issued on August 26, 1992, Condition 10 adds the research vessel, "R.V. Lake Guardian." Provide a comprehensive historical site assessment for the ship including a list of locations on the ship where C-14 was used. The HSA must address the type of activity performed in each area, quantities and form of materials possessed and used (including disposal activities) for each area.
3. Close-out swipe survey report was provided for room 728 in 536 S. Clark St., Chicago, IL.
  - a. Provide a list of activities using licensed material from that room.
  - b. When was C-14 last removed from that room? What date was the actual close out survey and wipes were conducted.
  - c. Response to additional information provided on October 9, 2008, states efficiency of survey instrument, model STG-ABS44, was found to be 0.42 using a Sr-90 source. However, the survey was looking for C-14, which has a much lower efficiency than Sr-90 with this instrument. Provide updated survey results for the highest location in the room taking C-14/Sr-90 sensitivity differences into account.
  - d. Explain where the background sample was taken.
4. The C-14 close-out report survey provided on August 28, 2008, states total activity of materials that were disposed of since the spring of 1993 is 10.86 mCi. However, the C-14 liquid waste disposal records provided on January 29, 2008, shows 29.65 mCi was disposed since August 1993. Additionally, response to a request of additional information dated January 29, 2008, states 1.848 mCi of dry active waste was stored, and 9.482 millicuries of liquid waste was disposed of. Explain the difference.
5. Where is The Guardian currently located? Is there any C-14 currently in storage at the Guardian?
6. Staff review indicates that liquid discharges were conducted to dispose of C-14 at 536 South Clark Street, Chicago, Illinois. The licensee needs to discuss evaluations of potential environmental contamination resulting from all licensed material liquid discharges. The licensee must determine and indicate whether there were any potential for contamination in hold-up tanks, leach or septic fields, sewer lines, or in-house plumbing. Consideration for surveys in suspect or non-impacted areas, which could have had potential for contamination, should also be considered.
7. The licensee license approved a wider range of materials than that inferred in the licensee's current responses. Explain if any additional licensed materials were ever possessed under this license, including those approved by past license amendments, including:
  - a. The H-3 gas chromatography foils in 130 millicuries per cell approved in the original license. If material was used, provide the most recent leak test results and disposal records.

- b. Byproduct material with Atomic numbers between 3 through 83 in 2 millicuries approved in amendment 7 and reapproved in amendment 23. If any material of this nature was possessed, explain where the sources were used and if the sources were sealed or unsealed. If material was sealed, provide the most recent leak test results.
8. Provide a copy of the ADCO manifest form from your December 26, 2007 shipment of C-14 waste, signed by an appropriate ADCO representative as an "acknowledgement of receipt" for your radioactive waste.