SUMMARY OF A PRE-APPLICATION CONFERENCE CALL WITH PENNSYLVANIA STATE UNIVERSITY REGARDING CHEMICAL SAFETY AND FIRE SAFETY IN THE RENEWAL OF SPECIAL NUCLEAR MATERIALS LICENSE SNM-95

DATE AND TIME

Thursday, January 30, 2014
10:00 AM – 10:45 AM (eastern)

PURPOSE

The purpose of the call was for the staff at the U.S. Nuclear Regulatory Commission (NRC) to discuss their expectations of the topics that need to be addressed in a renewal application.

ATTENDEES

NRC	Pennsylvania State University
Christopher Ryder[(a)]	Jeffrey Leavey[(d)]
Marilyn Diaz[(b)]	
James Downs[(c)]	
Mollie Semmes[(c)]	

a. Licensing project manager
b. Chemical safety specialist
c. Fire safety specialist
d. Radiation safety officer

BACKGROUND

The licensee submitted (Ref. 1) an application to renew special nuclear materials (SNM) license SNM-95, thus meeting the requirement for a timely renewal.[a] During the acceptance review of the application, the NRC staff found that the submittal lacked sufficient information regarding chemical safety, fire safety, and physical security to begin a technical review; the NRC staff issued a letter (Ref. 2), informing the licensee as such.

The licensee requested a conference call (Ref. 3) to discuss the expectations of the NRC staff regarding the topics that must be addressed by a revised application. The NRC staff arranged for a conference call (Ref. 4) to take place on January 30, 2014.

The subject conference call was about chemical safety and fire safety. Although this conference call was open to the public, no member of the public requested to participate. A conference call on February 4, 2014, regarding physical security, was closed to the public.

[a] § 70.38(a) states, in part, that if an application for renewal has been filed at least 30 days before the expiration date stated in the existing license, the existing license expires at the end of the day on which the Commission makes a final determination to deny the renewal application or, if the determination states an expiration date, the expiration date stated in the determination.

The NRC staff conveyed only their expectations for a revised application to renew license SNM-95. The NRC staff neither made suggestions or recommendations to the licensee, nor consulted with the licensee.

Participants were informed that a summary would be prepared, circulated to ensure accuracy, and docketed.

REGULATORY REQUIREMENTS

Title 10 of the *Code of Federal Regulations* (10 CFR) § 70.22 states, in part, that an application must contain a description of equipment, facilities, and procedures which will be used by the applicant to protect health and minimize danger to life or property, such as handling devices, working areas, shields, measuring and monitoring instruments, devices for the disposal of radioactive effluents and wastes, and storage facilities.

CHEMICAL SAFETY

Typically, chemical safety is regulated by the Occupational Safety and Health Administration (OSHA). But NRC has a memorandum of understanding (Ref. 5) with OSHA stating that chemical safety comes under the purview of NRC when chemicals are comingled with SNM.

The renewal application submitted to the NRC (Ref. 1) lacked information about the use of chemicals. Although most of the SNM is in the form of sealed sources, the licensee is authorized to use unsealed fission products, by Amendment 2 of license SNM-95. The application lacks a discussion of this or other chemicals that will be in contact with the SNM.

If future undefined activities are to be done with SNM and chemicals, then the issues that the licensee must address include, but are not limited to, the following:

- Demonstrating an effective process for reviewing and evaluating the operations to identify the presence of chemical hazards and determining the need for controls on the chemical hazards.

- Ensuring that the process is conducted and reviewed by personnel with the appropriate technical qualifications.

The NRC staff expects a discussion of the procedures and operations that will involve the SNM and chemicals. The licensee inquired as to the amount of detail that should appear in the next application. The NRC staff explained that the operations, procedures, and environments should be described in sufficient detail to give assurance that hazards are known and adequate measures of protection are taken. Detailed procedures do not have to be submitted. The application should discuss whether other employees and students will be working with hazardous chemicals while the SNM is in use.

FIRE SAFETY

The NRC began the discussion of fire safety by acknowledging that the guidance for NRC-licensed universities needs to be improved. In the past, universities renewing their SNM licenses have had to resubmit their applications at least once or have had several requests for additional information. During the conference call, the NRC staff discussed a few topics that would need to be addressed:

- floor plan indicating the location of the SNM in relation to exits
- description of building materials
- compliance with fire codes
- compliance with electrical codes
- emergency lighting

The NRC staff said that other topics that the licensee may consider are as follows:

- A list of all radioactive material, the location of materials, and quantity of the materials, as well as a description, including their fire rating, of the physical barriers separating the materials.
- A description of the facility's building construction, fire area determination, fire rated walls and opening protection, electrical installation, lightning protection, emergency lighting, safety and egress, ventilation systems, and fire water drainage.
- A description of the facility's fire protection systems (i.e., detection, alarm, and suppression).
- A description of the protection for laboratory equipment that may handle licensed material (e.g., glove boxes, hot cells, fume hoods).
- A description of inspection, testing, and maintenance of fire protection systems.
- A description of fire safety training given to employees (e.g., fire extinguishers, safe shutdown, evacuation).
- A description of the emergency response capabilities for the facility, including the proximity, qualifications, and training of the responding fire department. A description of any coordination during preparations with the fire department should be included (e.g., fire drills, hazardous materials training).
- A list of all hazardous chemicals or processes which may present a fire hazard in radiological areas.
- A description, by fire area, of any potential combustible loading, possible fire scenarios and their consequences, and any mitigative controls.

Much information can be conveyed to the NRC staff by citing applicable building codes.

The licensee asked the relevance of fire codes and electrical codes to radiation safety. The NRC cited 10 CFR § 70.22, stating that the NRC staff needs assurance that the SNM can be used safely in the context that fires accidently occur:

- The extent to which SNM is subject to fires.

- If a fire were to occur, that the SNM can be safely secured.

- Fire fighters have enough information about the SNM so that they will not be leery of responding to a fire.

ORGANIZATION

The NRC staff expects a discussion of the radiation safety committee, including information about the expertise of committee members to make decisions about the SNM in light of chemical and fire safety.

CLOSING REMARKS

The NRC staff acknowledged that a standard review plan for NRC-licensed universities is lacking. For organizing the next submittal so that the NRC can readily find information, the standard review plan for major fuel cycle facilities (Ref. 6) can be used.

REFERENCES

1. Letter from J. Leavey, Pennsylvania State University, "License renewal request for License SNM-95 (Docket: 070-0113)", September 23, 2013. Agencywide Documents and Management System (ADAMS) accession number ML13273A207.

2. Letter from R. Johnson, U.S. Nuclear Regulatory Commission, to J. Leavey, PSU, "Non-Acceptance Of Pennsylvania State Universtity License Renewal Application For Special Nuclear Materials License Special Nuclear Materials-95 (TAC NO. L33248)", November 18, 2013. ADAMS accession number ML13311A122.

3. E-mail from J. Leavey, PSU, to C. Ryder, U.S. Nuclear Regulatory Commission, "Request For A Pre-Application Meeting", November 22, 2013. ADAMS accession number ML13326A655.

4. Memorandum to R. Johnson, NRC, from C. Ryder, NRC, "Public Conference Call: Pre-Application Discussion With Pennsylvania State University Regarding An Application To Renew Special Nuclear Material License SNM-95", January 15, 2014. ADAMS accession number ML14013A345.

5. Memorandum to R.W. Borchardt, NRC, from C. Haney, NRC, "Memorandum Of Understanding Between The U.S. Nuclear Regulatory Commission And The Occupational Safety And Health Administration", July 11, 2013. ADAMS accession number ML11354A411.

6. U.S. Nuclear Regulatory Commission, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility", NUREG-1520, Rev. 1, May 2010. ADAMS accession number ML101390110.