



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

February 29, 2008

U. S. Nuclear Regulatory Commission
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Ref: Docket #70-398
License No. SNM-362
TAC # L32643

**SUBJECT: RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
 REGARDING THE NATIONAL INSTITUTE OF STANDARDS AND
 TECHNOLOGY LICENSE RENEWAL APPLICATION
 (TAC # L32643)**

We have completed our internal review and response to the RAIs issued February 1, 2008. We are transmitting two modified hard copies of the original application submittal with page change modifications to address most of the RAIs. One copy is in MS word mark up format so the NRC reviewers can easily identify the changes. The second is in MS word standard format that does not highlight the changes. Minor modifications in pagination occurred due to the edits. These were not highlighted but are apparent with the full submittal. This document will also be transmitted electronically.

A summary of our responses are as follows:

NRC RAI: Nuclear Criticality Analysis

" N1. Commit to or request an exemption from the criticality accident alarm system (CAAS) requirements specified in 10 CFR 70.24. Provide the appropriate change pages to your license renewal application.

10 CFR 70.24(a) requires licensees authorized to possess a critical mass of special nuclear material (SNM), as defined in 10 CFR 70.4, to maintain a CAAS in each area where the licensed SNM is handled, used, or stored."

In addition to the application page changes in the attachment, we will be committing to performing a contracted study to provide a more defined decommissioning funding estimate that includes the accelerator facilities.

Through page changes to the original application (p. 48,49, 62) we are requesting an exemption to this requirement based on the low mass of each discrete source and

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the separation of the sources into three separate reporting areas (Building 235, Building 227, and Building 245).

NRC RAI: Fire Safety

F1. There are various flammable, combustible, and explosive gases and liquids referenced throughout the license renewal application, and were observed during our site visit, however, no specific code commitments were found in reference to the safe handling, storage, and use of these materials. Through change pages to your license renewal application, provide either a code commitment or the details on how safe practices are insured in the handling, storage, and use of these materials. Chapter 7 of NFPA 801, "Standard for Fire Protection for Facilities Handling Radioactive Materials," describes several means of compliance on how safe practices may be insured in the handling, storage, and use of these materials.

10 CFR 70.23(a)(1) requires that the licensees equipment and facilities are adequate to protect health and minimize danger to life or property.

Through page changes (p. 29, 51, 52) we are consistent with NFPA 45, Standard for Fire Protection in Laboratory Facilities.

NRC RAI Decommissioning Funding Plan

D1. The decommissioning funding plan (DFP) does not contain sufficient detail to determine if the requirements of 10 CFR 70.25(e) have been addressed. Therefore, the DFP should be supplemented to: (1) explain how the items listed below were included; or (2) revise the cost estimate to include the following:

a. NUREG-1757, Vol. 3, App. A.3.1.2.1 Labor costs associated with all decommissioning tasks and activities should include basic wages and benefits for licensee and contractor staff performing decommissioning-related tasks, overhead costs, and contractor profit sufficient to allow an independent third party to carry out the decommissioning project.

b. NUREG-1757, Vol. 3, App. A.3.1.2.3, Because of the uncertainty in contamination levels, waste disposal costs, and other costs associated with decommissioning, the cost estimate should apply a contingency factor of 25 percent to the sum of all estimated decommissioning costs.

c. 10 CFR Part 30.35(e) Means for Adjusting the Cost Estimate; Cost estimates must be adjusted at intervals not to exceed three years. D2. National Institute of Standards and Technologies (NIST) cost estimate states, "In addition, other areas of Building 245 have residual induced activity due to accelerator operations conducted from the 1960s through the 1980s." These are not considered in this analysis but will require additional resources to address before all portions of the building may be released for uncontrolled use.

As described in NUREG-1757, Vol. 3, App. A.3.1, the NRC staff evaluates the completeness of decommissioning cost estimates. To ensure completeness of the cost estimate, substantiate all sources and costs associated with fully decommissioning, including the general costs associated with decommissioning Building 245. After our site visit, it appears that the additional costs associated with the areas of Building 245, which were not addressed in the cost estimate, will exceed \$10,000.00. If the total cost of decommissioning increases by more than \$10,000.00, the amount of NIST statement of intent will need to be increased in order to provide a satisfactory level of financial assurance. Note that the language of the statement of intent has been found acceptable, but the dollar amount may need to be increased.

By this letter, NIST is committing to a study to address the decommissioning funding estimates following NUREG 1757. This study and report will expand the scope of previous estimates to include the accelerator facilities.

NRC RAI: R1. With regard to the radiation protection programs required under 10 CFR 20.1101, provide the following information:

The section regarding the Radiation Safety Committee (pages 12-13 of the license renewal application) states that the Ionizing Radiation Safety Committee (IRSC) reviews proposals for major radiation facility uses (page 13). Through a change page to your license renewal application, specify the purpose of the review. If the IRSC provides recommendations, how are they addressed before approval of a new or modified program?

Through Page changes (pp 13, 15) we have modified the wording of specific IRSC responsibilities as follows:

"Reviews, comments, modifies, and recommends to the RSO approval or rejection of" ...

and the RSOs responsibilities as..... " implementing the radiation safety program under advice and oversight of the IRSC."

NRC RAI: R2. With regard to staff training and experience required under 10 CFR 70.23(a) (2), provide the following information:

Item 9 Facilities and Equipment (p. 24-25) describes a review and approval process that Health Physics will conduct for new radiological activities. The Hazards Assessment does not appear to include a review of the individuals training or qualification to use radioactive material. Through a change page to your license renewal application, provide a statement that Health Physics will review and verify that the laboratory staff has the requisite training and qualifications required to conduct the radiological activities.

Per telephone conversation with the reviewers, this was recognized as being addressed under the proposal to acquire process under RAM control on page 36.

NRC RAI: R3. With regard to worker training required under, 10 CFR 19.12, provide the following information:

The section entitled Training for Individuals Working in or Frequenting Restricted Areas contains multiple requirements for training. Provide additional training emphasis on the as low as reasonably achievable (ALARA) principles including minimizing dose through time, distance, and shielding.

This was addressed through page changes (p. 20, 21)

NRC RAI: R4. Consistent with the regulatory requirements in 10 CFR 20.1101 and 10 CFR 70.9(a), provide the following administrative corrections:

The section on Extremity Dosimetry (p. 40) contains a commitment to use extremity dosimetry under certain circumstances. The first bullet in the section is not clearly stated. Through a page change, clarify under what conditions extremity dosimetry will

be required. Specifically, clarify the meaning of, on the safety review of the facilities, source terms, and knowledge of previous similar operations.

This was addressed through page changes (p. 40). The original text was an editorial error with an incomplete sentence possibly due to a "cut and paste".

NRC RAI: R5. With regard to surveys and monitoring requirements in 10 CFR 20.1501(a), provide the following information:

In the last bullet of the section entitled "External Personnel Dosimetry Monitoring," on the top of page 40, revise the statement "secondary direct reading dosimetry" from a recommendation ("should") to a commitment.

Clarify the type of monitoring included in direct reading dosimetry, as used on page 40, and provide additional criteria for when direct reading dosimetry will be required.

The commitment to use secondary direct reading dosimetry (top of page 40) implies the licensee will take some precautionary, ALARA measures under some undefined circumstances. State the action levels and follow-up actions to be taken as a result of staff detecting elevated direct reading dosimetry values.

Telephone conversations with the reviewers clarified their concerns. Page change edits (p.39, 40) addressed part of this concern. They also were interested in a commitment to use personnel contamination monitoring following use of unsealed materials or leaving unsealed work areas. This was addressed by page change edits (p. 28, 41).

NRC RAI: General Information

G1. Item 3, page 1, of the license renewal application states that material under this license may be approved for use and possession at any location on the NIST campus and annex located in Gaithersburg, MD. In the same section, the main NIST facility is described as a fenced, federal facility consisting of 234 hectares (578 acres), encompassing fifty-two structures and facilities. Please provide a brief description of the annex, including its location in relation to the main NIST facility, and its size, structures, and activities.

Also, on page 2, the license renewal application states that any location within the NIST grounds may be approved by Health Physics for use and possession of licensed material. Please clarify whether the NIST grounds refers to both the campus and the annex.

10 CFR 70.22(a) (2) requires licensees to describe the activity for which a SNM license is requested and the place at which the activity is to be performed.

This was addressed by page edits (p. 1) removing all references to the annex.

Please direct any questions regarding this response to the RSO, Tim Mengers using the following contact information.

Sincerely,


Timothy F. Mengers, CHP, PE

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