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

November 12, 2010

U.S. Nuclear Regulatory Agency
ATTN: Document Control Desk
Washington, D.C. 20555

SUBJECT: REPLY TO NOTICE OF VIOLATION

To whom it may concern:

I am hereby responding on behalf of the National Institute of Standards and Technology (NIST) to the letter that NIST received from Mr. James P. Dwyer, Chief, Commercial and R&D Branch, Division of Nuclear Materials Safety, Region 1, on October 15, 2010 with the subject line "NRC Inspection Report No. 07000398/2010001...and Notice of Violation".

Background

On May 6, July 19-21, and September 15, 2010, Mr. Todd Jackson of Mr. Dwyer's office conducted a special safety inspection in regard to a self-reported radioactive material contamination event. The inspection resulted in the identification of two violations of NRC regulations: failure to make surveys that may be necessary for a licensee to comply with the regulations as required by 10 CFR 20.1501(a)(2)(iii), and the failure to dispose of licensed material only as permitted by 10 CFR 20.2001(a).

As requested in the Notice of Violation, NIST is providing below:

(1) The reason for the violations,

(2) The corrective steps that have been taken and the results achieved,

(3) The corrective steps that will be taken to avoid further violations, and

(4) The date when full compliance will be achieved.

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Violation #1

NIST failed to make surveys necessary to assure compliance with the regulations in 10 CFR 20.1501(a). Specifically, NIST did not adequately evaluate the hazards of utilizing a plutonium reference source in the Secondary Ion Mass Spectrometer (SIMS) when its use was first proposed in 2004, and the surveys of the SIMS and materials used to clean the SIMS on April 19, 2010 were not adequate to identify the plutonium contamination present following use of the reference source.

Reason for Violation #1:

NIST did not adequately evaluate the hazards of utilizing the plutonium reference source in the Surface and Microanalysis Science Division (SMSD) SIMS when the source use was first proposed in 2004. This, in part, led to inadequately performing the surveys necessary to assure compliance with the regulations in 10 CFR 20.1501(a). Specifically, surveys of the SIMS and materials used to clean the SIMS were not adequate to identify the plutonium contamination present following the use of the plutonium reference source.

A detailed incident investigation identified the following primary contributing factors. First, the proposal to acquire the source did not include sufficient detail of all proposed utilization processes. As such, NIST did not identify or recognize all of the potential hazards. Second, there was inadequate development of comprehensive procedures covering all aspects of source utilization, including procedures for maintaining the SIMS. Third, there was inadequate training of the SMSD's Source Users and Source Custodians on the use of survey instruments and the interpretation of survey results. Finally, there was a failure to understand that licensed material must continue to be regarded and controlled as licensed material even at very low activity levels.

Corrective Actions and Results for Violation #1:

SMSD management immediately stopped all work in SMSD involving the use of source and special nuclear material pending the completion of updated hazard reviews and the review and approval of those hazard reviews by the Gaithersburg Radiation Safety Division (GRSD) and SMSD Management. These hazard reviews include two principal elements: an assessment of the hazards involved and the development of plans to mitigate those hazards (including the development of radioactive material utilization procedures).

The GRSD used, in part, the lessons learned from this contamination event to revise its procedure for conducting radiological hazard reviews. The revised procedure has resulted in more formal and rigorous assessments of known and potential radiological hazards and the documentation thereof.

The GRSD provided additional training to pertinent SMSD personnel on the requirements for radioactive material accountability and control and proper radiological survey techniques. These personnel are now cognizant of radioactive material accountability and control requirements and proper radiological survey techniques.

The SMSD has implemented a program of training for all Source Users and Source Custodians on the updated source-specific procedures and hazard analyses.

Corrective Actions to Be Taken for Violation #1:

The SMSD, in coordination with the GRSD, is in the process of updating all of its radioactive material hazard reviews. Any sources without updated, reviewed, and approved hazard reviews shall remain in storage pending the completion of such reviews. (Estimated Completion Date: 03/31/11)

Additionally, and independent of the self-reported contamination event that led to the Notice of Violation, the GRSD is in the process of retraining all Source Users and Source Custodians. This retraining includes a review of the lessons learned from recent incidents at NIST and practical training on the use of survey instruments. (Estimated Completion Date: 12/31/2010)

Violation #2

Contrary to 10 CFR 20.2001(a), NIST failed to dispose of licensed material only by transfer to an authorized recipient by transferring trash contaminated with licensed material to a normal trash collector for disposal on April 19, 2010.

Reason for Violation #2:

This violation occurred as a result of an inadequate survey, inadequate training of staff in the use of survey instruments, and the failure of the researcher to understand that licensed material must continue to be regarded and controlled as licensed material even at very low activity levels.

Corrective Actions and Results for Violation #2:

The GRSD has provided additional training to pertinent SMSD personnel on the requirements for radioactive material accountability and control and proper radiological survey techniques. These personnel are now cognizant of radioactive material accountability and control requirements and proper radiological survey techniques.

As indicated in our response to Violation #1 above, the SMSD has implemented a program of training for all Source Users and Source Custodians on the updated source-specific procedures and hazard analyses.

Corrective Actions to Be Taken for Violation #2:

As indicated in our response to Violation #1 above, the GRSD is in the process of retraining all Source Users and Source Custodians. This program includes a review of the lessons learned from recent incidents at NIST and practical training on the use of survey instruments. (Estimated Completion Date: 12/31/2010)

If you have any questions or require additional information, please contact me at 301-975-4502 or at richard.kayser@nist.gov.

Sincerely,

Richard Kayser
Chief Safety Officer

cc: William Dean, Regional Administrator, Region 1