

U. S. NUCLEAR REGULATORY COMMISSION

Region I

Report Nos. 30-3918/82-03
70-398/82-03

Docket Nos. 30-3918
70-398

License Nos. 08-00566-05
SNM-367 Priority 1 Category Pu-Ur

Licensee: U. S. Department of Commerce
National Bureau of Standards
Washington, D. C. 20234

Facility Name: National Bureau of Standards

Inspection At: Gaithersburg, Maryland

Inspection Conducted: July 7 - 9, 1982

Inspector:

J. R. White
P. Clemens, Radiation Specialist
Facilities Radiation Protection
Section

9/9/82
date signed

Approved by:

John R. White
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9/9/82
date signed

Inspection Summary:

Inspection on July 7 - 9, 1982 (Report No. 70-398/82-03 and 30-3918/82-03)

Areas Inspected: Routine, unannounced safety inspection by a region based inspector of the Radiation Protection Program including shipping radioactive material, source leak tests, posting, ventilation, smear surveys, drills, liquid waste, instrument calibration, training, procedures for opening packages, and receiving radioactive material. Shortly after arrival, areas where work was being conducted were examined to review radiation control procedures and practices. The inspection involved 22 inspector hours on site by one region based inspector.

Results: Three apparent violations were identified (licensed material was shipped in an unapproved package, paragraph 2; supporting documentation was not maintained for a Specification 7A container, paragraph 3 and a container was not properly labeled, paragraph 4).

Details

1. Persons Contacted

Dr. S. Carpenter, Scientific Assistant to the Director, National
Measurements Laboratory
Mr. T. Hobbs, Chief, Health Physics
Dr. C. Kuyatt, Director, Center for Radiation Research
Mr. L. Pevey, Chief, Occupational Health and Safety Division
Mr. L. Slaback, Supervisory Health Physicist

2. Shipment of Radioactive Materials

The inspector reviewed shipping documentation and determined that on May 26, 1981, the licensee shipped 2.2 curies of Californium-252 in a package identified by shipping documents as an Oak Ridge container No. US/5740 B/L. The inspector asked the Supervisory Health Physicist if he had a copy of the certificate of compliance, or other approval documents, for the container. A certificate of compliance was not available on site to demonstrate compliance with regulations.

After further discussion with the licensee, the inspector determined that as of May 26, 1981, the package identified as No. US/5740 BL was not an approved package.

Failure to transport licensed material in a package approved by the Commission constitutes a violation of 10 CFR 71.12. (82-03-01).

The package was approved by the Office of Nuclear Material Safety and Safeguards as of April 30, 1982; and, as of August 3, 1982, the licensee is not registered as a user of this package.

On May 28, 1982, 0.96 curies of Californium-252 were shipped by the licensee to the University of California in a DOT specification 7A package, Serial No. 241, and the licensee did not maintain the required documents. The licensee must maintain on file for at least one year after the latest shipment using a specification 7A package, a complete certification and supporting safety analysis demonstrating that the construction methods, packaging design, and materials of construction are in compliance with the specification. Failure to maintain the required documentation constitutes a violation of 10 CFR 71.5. (82-03-02).

3. Posting

10 CFR 20.203 requires containers be labeled under certain conditions.

On July 8, 1982, the inspector also observed two casks on the loading dock of Building 245. The inspector noted that both casks were labeled with radioactive labels, but only one cask was labeled identifying its contents. The inspector asked a licensee representative if he knew what radioactive material was contained in the second cask. The individual stated that he did not know. Using a survey meter supplied by the licensee, the inspector verified that radioactive material was in the cask.

On July 9, 1982, the licensee confirmed that the cask contained 70 milligrams of licensed material, Californium-252.

10 CFR 20.203(f)(1) requires each container of licensed material to bear a durable, clearly visible label identifying the radioactive contents.

The inspector noted that failure to label the cask, as required, represents a violation of 10 CFR 20.203. (82-03-03). The inspector observed that the cask was labeled as required prior to the conclusion of the inspection.

4. Source Leak Test

Condition 13.C of License Number 08-00566-05 requires that Californium sources be tested for leakage at intervals not to exceed three months. Condition 13.D requires that records of leak test results shall be maintained for inspection by the Commission.

The inspector reviewed leak test records for several Californium sources and noted records were not available for the Californium source identified as No. 136Z. The inspector questioned a licensee representative as to the leak test requirements and was assured that the sources had been leak tested; but, apparently, the results were not recorded for source No. 136Z. The records were not available to the inspector prior to the end of the inspection, but in a telephone conversation on July 15, 1982, the inspector was informed that the leak test records for source No. 136Z were available for review on site.

These records will be reviewed during a subsequent inspection. (82-03-04).

5. Procedures for Opening Packages

10 CFR 20.205(d) requires each licensee to maintain procedures for safely opening packages in which licensed material is received. The inspector reviewed procedure No. HPI 4-2, "General Opening Instructions for Radioactive Material Packages" on July 8, 1982. The procedures appeared to be adequate.

No violations were identified.

6. Smear Surveys

Smear surveys are performed throughout the licensee's facility to detect the presence of radioactive material, as required by 10 CFR 20.201(b).

The inspector reviewed weekly smear survey data for the period March - July 1982. The data indicated no areas where contamination exceeded 100 disintegrations per minute per 100 cm².

No violations were identified.

7. Ventilation

Condition No. 10 of Special Nuclear Material License No. SNM-362 incorporates the statements, representations, and conditions specified in the licensee's application dated December 18, 1975. On Page 3 of the licensee's December 18, 1975, application is a requirement that air velocities across hood faces be maintained at a nominal 30.5 linear meters per minute.

The inspector reviewed velometer data for 1982 for three hoods located in Building 221 to determine if the required linear face velocity was being maintained. The linear face velocity exceeded requirements for each case.

No violations were identified.

8. Evacuation Drills

Evacuation drills are required to be held twice annually, as stated in the licensee's application dated December 18, 1975. The inspector reviewed documentation which indicated that the drills were conducted on September 29, 1981, and April 15, 1982. The documentation did not indicate problem areas.

No violations were identified.

9. Liquid Waste

The inspector toured Building 245 on July 8, 1982, to examine the Liquid Waste area. This area houses two large storage tanks that contain liquid radioactive waste collected from the various laboratories in the building.

The last discharge was made on September 11, 1981, and contained a total activity of 9.4 microcuries gross beta. Alpha emitters were not present. The last prior discharge to the environs was made in June 1974.

No violations were identified.

10. Instrument Calibration

Condition No. 10 of SNM-362 incorporates the licensee's application dated December 18, 1975. The NBS Radiation Safety Manual, submitted as an attachment to the December 18, 1975, application stated in Section 1-B-2(e), "That the Health Physics Section is responsible for providing, calibrating, and repairing radiation survey instruments."

The inspector randomly selected two portable alpha survey instruments and verified that they had been calibrated in a timely manner. The instruments were calibrated in February and June 1982. The licensee

does not state the frequency required for calibrating the instruments, but calibration records indicated that they are done approximately quarterly.

No violations were identified.

11. Training

The NBS Radiation Safety Manual states in Section 1-B-16 that, "The Health Physics Section shall conduct at periodic intervals, not to exceed one year, training . . . in the fundamentals of radiation safety for all Bureau personnel who indirectly enter radiological work areas in the course of their own duties."

The inspector reviewed documentation that indicated that Site Firemen (sample selected) were trained in 1981 and 1982.

No violations were identified.

12. Receiving Radioactive Material

10 CFR 20.205(b)(1) requires that each licensee, upon receipt of a package of radioactive material, shall monitor the external surfaces of the package for radioactive contamination caused by leakage of the radioactive contents.

The inspector reviewed documentation, smear, and external radiation surveys for several receipts of radioactive material during 1982 to determine if the licensee was in compliance with the monitoring requirements.

No violations were identified.

13. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on July 9, 1982. The inspector summarized the purpose and the scope of the inspection and the findings as presented in this report.