U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 85-02

Docket No. 030-10538

License No. 29-16185-01 Priority 3 Category E

Licensee: U.S. Department of Commerce

NOAA, NMFS, NEFC

Highlands, New Jersey 07732

Inspection at: Sandy Hook, New Jersey

Facility Name: Sandy Hook Facility

Inspection Conducted: October 25, 1985

Inspector: Marlene J. Taylor 1/30/86
Marlene J. Taylor, Health Physicist date

Approved by: J. D. Kinneman 1/30/86
John D. Kinneman, Chief date
Nuclear Material Safety Section A

Inspection Summary: Inspection on October 25, 1985 (Inspection Report No. 030-10538/85-02

Areas Inspected: Special announced inspection of the remains of the laboratory facility in which radioactive materials were used and stored, which was destroyed by fire. This included interviewing personnel, and performing radiological surveys.

Results: No violations of NRC requirements were identified.

DETAILS

1. Persons Contacted

*John E. O'Reilly, Chief, Chemical Processing Branch
Andrew Draxler, Acting Chief, Environmental Chemistry-Investigations

*Denotes those present at exit interview.

2. Description of Activities

U.S. Department of Commerce is authorized by NRC License No. 29-16185-01 to possess and use carbon-14 in any form for laboratory tracer studies.

No violations were identified.

3. Notification

The NRC Headquarters Duty Officer was notified by a licensee representative on September 21, 1985 that a fire on that day caused extensive damage to the licensee's laboratory and resulted in the loss of approximately 75 millicuries of carbon-14.

4. Interviews

The Chief of the Chemical Processing Branch confirmed the report made to the NRC Duty Officer and stated that an employee was at the scene when the fire companies arrived and informed a fire company officer of the locations of radioactive and hazardous material. The employee stated that he did not see any firefighters enter the building to fight the fire.

The Chief of the licensee's Chemical Processing Branch stated that access to the site was restricted immediately after the fire due to an arson investigation and he could not gain access to the area until October 14, 1985. At that time they located the laboratory area, and found the wooden storage cabinet and freezer in which the carbon-14 had been stored. There was approximately three feet of debris on top of the laboratory remains indicating it was not disturbed by the arson investigators. Surveys were conducted by the licensee prior to moving the remains of the refrigerator and storage cabinet using a Nuclear Associates Minimontor Model 125. No areas of contamination were found. Only a small section of the cabinet remained following the fire, which contained a plastic object. Prior to the fire this object was a plastic tub, measuring approximately fourteen inches in diameter and eleven inches deep, in which glass vials containing carbon-14 were stored. The inspector viewed the tub and saw that it was now three inches thick and about twelve inches wide and was also burned through in several areas. The inspector also saw that all the vials remaining in the plastic were broken. Several of the vials had liquid at the bottom.

A survey of the vials conducted by the inspector revealed levels of 0.2 millirem per hour to 1.2 millirem per hour on contact and 0.01 millirem per hour at eighteen inches away. The licensee representative stated that the vials had each contained 1 milliliter of solution which contained 0.5 millicuries of carbon-14. This plastic tub was bagged and removed from the laboratory site to the licensee's waste storage area.

The licensee's representative stated that the last inventory conducted was in May 1985. This inventory was salvaged from the licensee's Radiation Safety Book which was damaged in the fire. According to the licensee representative's review of this record the following was present in the laboratory at the time of the fire.

Number of Container(s)	Total Solution	Activity of carbon-14
56 ampules	20 ml each	about 1 to 2 µCi/ml
44 ampules	5 ml each	about 1 to 2 µCi/ml
44 ampules	2 ml each	0.5 µCi/ml
1 glass vial	20 ml	25 µCi/ml
1 glass vial	30 ml	25 µCi/ml
4 glass vials	35 ml each	25 µCi/ml
1 glass vial	9 ml	25 µCi/ml
1 glass vial	35 ml	25 µCi/ml
14 glass vials	40 ml each	25 µCi/ml
10 teflon vials	4.1 ml each	250 µCi/ml
2 glass vials	25 ml total	25 µCi each

The licensee representative stated that the carbon-14 was in the form of aqueous sodium bicarbonate. Pictures showing the site, refrigerator, and melted tub are attached to this report.

5. Radiological Surveys

The inspector made surveys of the area surrounding the laboratory and of the melted tub and vials with a Ludlum Model 3 with an end-window Geiger Mueller tube calibrated on August 2, 1985. No radiation levels above background were identified in the area surrounding the laboratory. Radiation levels of 0.2 millirem per hour to 1.2 millirem per hour on contact and 0.01 millirem per hour at eighteen inches were found in surveying the melted tub and vials. Samples of the liquid found in several of the vials wipes of the tub and vials were collected and analyzed, in the Region I laboratory, for carbon-14 using a Packard liquid scintillation counter.

6. Conclusion

Based on the information gathered during this inspection it appears no individual was exposed to carbon-14 in excess of NRC limits as a result of the fire.

7. Exit Interview

The inspector met with the individual denoted in paragraph 1. The scope of the inspection was summarized and it was noted that no violations were identified.