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Yale University

OFFICE OF THE PROVOST
New Haven, Connecticut 06520

July 2, 1991

Mr. John Kinneman
Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pa. 19406

Subject: Notice - 30 Day Letter 10 CFR P[illegible].402

Dear Mr. Kinneman:

We are submitting this notice pursuant to 10 CFR Part 20.402 to report the inadvertent disposal of less than one millicurie of ^{51}Cr in a landfill on June 5, 1991.

1. Description of the material

The material was Dupont NEN Products catalog number NEZ 030S Chromium-51 as sodium chromate in normal saline. It was steri-packaged but not for human use. The material contained one millicurie of ^{51}Cr on May 17, 1991.

2. Description of the circumstances

On Tuesday June 4, 1991 a postdoctoral researcher was working in rooms 307 and 310 of the Laboratory for Surgery, Obstetrics and Gynecology building during the evening. He took a closed, screw-topped lead shield containing the ^{51}Cr from the storage area under the hood in room 310, placed it in a cardboard box with a styrofoam lining and carried the box to room 307 to take an aliquot and conduct an experiment. The movement of the stock solution vial was in violation of the laboratory's policy that stock solutions should remain inside the hood in Room 310 at all times. He later returned to room 310 with the ^{51}Cr still in the box, which was not marked to indicate that it contained radioactive materials, placed the box on a set of shelves in the hallway outside room 310 and went to dinner. On returning from dinner the researcher got involved doing other experiments and forgot about the ^{51}Cr.

In retrospect the researcher remembers that the package was not on the shelves when he closed room 310 for the night at approximately 2:00 AM; therefore between the time he left for dinner and 2:00 AM , a member of the Custodial Services Department presumably picked up the unmarked box along with other regular trash in the hallway and took it to the building's

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dumpster for disposal. (The custodians could not remember the specific box, but an open box that was not labeled as containing radioactive material or otherwise identified as containing any thing of value left in that location would normally be removed and discarded by the custodians.) The building's trash, presumably including the box containing the ^{51}Cr, was taken to the New Haven landfill at approximately Noon on June 5.

The researcher did not notice the ^{51}Cr was missing until approximately 11:00 AM on June 5. He initially thought that someone else used the material or that he had misplaced it. After questioning other people in the lab and searching rooms 307, 309, 310, 311, and 312 during the early afternoon he was not able to locate the box. He then talked with the custodians and searched the dumpster, unsuccessfully. He brought the matter to the attention of his Principal Investigator and notified the Radiation Safety Department at approximately 4:30 PM..

3. Disposition of material

The material is irretrievably in the New Haven landfill.

4. Radiation exposures

The three Custodial Services personnel and two Grounds Maintenance personnel who may have been in close proximity to the package would have received only minuscule exposures. Calculations indicate the exposures would have been less than one millirem to the individuals. Urine analysis indicated no significant levels above background.

Radiation exposure to the landfill personnel would have been even less than the Yale personnel.

5. Actions to recover material

Radiation Safety was notified at approximately 4:30 PM on June 5 that the package was missing. Between 4:30 and 6:30 PM Radiation Safety personnel made a search of the laboratories involved, the dumpster, and adjacent buildings without locating the material. The Grounds Maintenance supervisor indicated that the dumpster contents from the night of June 4 and the early morning of June 5 went to the New Haven landfill on the morning of June 5. A team from the Radiation Safety Department was dispatched to the New Haven landfill to attempt a retrieval. The team monitored the personnel, equipment and disposal area without uncovering the package. No contamination was encountered.

Meanwhile, Principal Investigators in the building and adjacent buildings were notified of the lost package and requested to conduct a search. A thorough search did not turn up the missing package.

Based on the thoroughness of the on-site search and discussions with Custodial Services and Grounds Maintenance personnel, it appears that the package was taken to the landfill and was covered with a day's debris by the time the loss was reported. Since the radioactive material was still in the lead shipping container, the vial was not detectable and therefore irretrievable. With the concurrence of the landfill operator, it was decided to leave the material buried in the landfill.

6. Measures to prevent a recurrence

Procedures were already in place in the laboratory (and throughout Yale) which would have prevented the occurrence but which were not followed. The individual researcher made a mistake in removing the material from Room 310 in an unmarked box and in leaving the package unattended. After learning of the incident, the Principal Investigator supervising the researcher instructed him to discontinue use of radioactive material pending Radiation Safety Committee review of the matter. The Radiation Safety Committee at its June 25, 1991 meeting sanctioned the researcher. He is no longer permitted to use radioactive material at Yale. If at some point in the future, he wishes to utilize radioactive material again, he must apply for reinstatement by the Committee as a user. The Committee at that time will review the situation and require appropriate control of his activities.

The University is concerned about this regrettable incident. Please contact me if there are questions.

Sincerely,

Robert H Szczarba

Robert H. Szczarba, Ph.D.
Deputy Provost

cc: George R. Holeman
Director, Radiation Safety Department

Dr. William Summers
Chairman, Radiation Safety Committee

Document Control Desk
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Kevin McCarthy
Radiation Control
Department of Environmental Protection
State of Connecticut
Hartford, CT. 06106