U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 999-90003/94031(DRSS)

License No. SNM-0323

Docket No. 070-00351 (terminated)

Licensee: National Aeronautics and Space Administration (NASA)
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135

Inspection At: Lewis Research Center
Materials and Stress Building (No. 49)
Material Processing Laboratory (No. 105)

Inspection Conducted: March 14-18, 1994

Inspector: _____ Date 3/25/94
D. G. Wiedeman
Senior Health Physicist

Assisted By: _____ Date 3/29/94
S. McDuffie
Intern

Approved by: _____ Date 3/29/94
G. M. McCann, Chief
Fuel Facilities and Decommissioning
Section

Inspection Summary

Inspection on March 14-18, 1994 (Report No. 999-90003/94031(DRSS))
Areas Inspected: This was a special inspection to review the licensee's activities and to determine if licensed material was properly transferred to an authorized recipient and buildings used under the former AEC licenses were properly decontaminated prior to the termination of the license. The inspectors conducted an independent review of transfer records and performed radiation surveys in the licensee's buildings that were used for research and testing. This inspection was part of an NRC project which evaluated approximately 17,000 retired licenses. An NRC contractor, Oak Ridge National Laboratories (ORNL) performed the evaluation. On the basis of the information in the retired license files, such as type and quantity of authorized materials and lack of adequate decontamination documentation, ORNL concluded

that these facilities have the potential for residual radioactive contamination.

Results: All licensed material possessed under AEC License No. SNM-0323 was properly transferred to NASA's Special Nuclear Material License No. SNM-0746. All buildings and facilities formerly covered under AEC License No. SNM-0323 were free of residual contamination.

DETAILS

1. Persons Contacted

*Gayle Reid, Radiation Safety Officer, NASA
*Michael Blotzer, Chief, Industrial Hygiene Office, NASA
John Cooper, Ph.D, Service Contractor for NASA, Bionetics, Hampton, Virginia
Henry Pfanner, P.E., Engineering Manager, Plum Brook Reactor Facility, NASA
Len Homyak, Engineer, Plum Brook Reactor Facility, NASA
Ray Ruffing, Rad Technician, Plum Brook Reactor Facility, NASA
*Larissa Gilham, Health Physicist, Ohio Department of Health

* Attended the exit meeting conducted on March 18, 1994.

2. Background

AEC License No. SNM-0323 was issued to NASA on March 19, 1962 and was terminated in 1968. This license authorized 500 grams of uranium enriched with uranium-235 in the form of fuel plates, pins, powder and pellets to be used in support of research and development. The NRC inspectors' review of historical documents in the license file indicated that this material was used in rooms 2,4 and 6 in the Materials and Stress Building, (No. 49) and rooms 208, 209, 209A, shop 107, 114A and 114B in the Material Processing Laboratory, (No. 105). The NRC inspectors' review of transfer records indicate that prior to the termination of this license, all special nuclear materials were transferred in 1968 to NASA's Special Nuclear License No. SNM-0746.

3. Facility Status

Licensed activities are currently being conducted in certain rooms in Building No. 49 and 105 under NASA's broadscope license, Byproduct Material License No. 34-00707-16. The NRC inspectors noted that many of the rooms in Building No. 105 that were formerly used for licensed activities under License No. SMN-0323 had been remodeled which included new floor coverings, ceilings, light fixtures and wall coverings.

4. Independent Measurements

Independent radiation surveys were performed with a Victoreen Model 190 portable survey instrument with a Model RP-1 pancake probe, NRC Tag No. 040608, and Ludlum Model 19, NRC Tag No. 015522, calibrated on February 14, 1994 and July 28, 1993, respectively. Prior to the surveys all instruments were checked for accuracy and constancy with dedicated and traceable check sources. All instruments responded as expected.

Comparative background radiation measurements were taken in the downtown area of Cleveland, Ohio with the Victoreen Model 190 and Ludlum Model 19

portable survey instruments. Background measured 45-55 counts per minute (cpm) with the Victoreen and 7-15 microroentgens per hour (μR/h) (1.8-3.8 nanocoulomb per kilogram per hour) (nC/kg/h) with the Ludlum.

The inspectors conducted radiation surveys in and around selected rooms in Buildings 49 and 105. The areas surveyed included hallways, offices, former manufacturing and storage areas, loading docks and all rooms associated with former licensed activities under license No. SNM-0323. The NRC inspectors' survey of the above referenced rooms, buildings and adjacent property did not identify any radiation levels above natural background.

5. Exit Meeting

The NRC inspectors conducted an exit meeting at the conclusion of the inspection with the individuals identified in Section 1 of this report and summarized the findings of the inspection. The inspectors informed the licensee that it appeared that all licensed material formerly licensed under AEC Special Nuclear Material License No. SNM-0323 had been properly transferred prior to the termination of the license, and all remaining buildings used for licensed activities had been properly decommissioned. During the exit meeting, none of the participants indicated to the inspectors that any of the inspection findings or documents provided to the inspectors were considered proprietary.