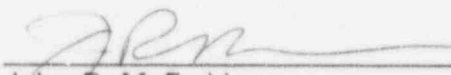


U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

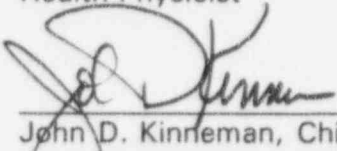
Report No. 070-00048/97-001 Program Code 22110  
Docket No. 070-00048  
License No. SNM-47 Priority 2 Category A  
Licensee: Westinghouse Electric Corporation  
NES License Administration  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230  
Facility Name: Science and Technology Center  
Inspection At: 1310 Beulah Road, Churchill Borough  
Pittsburgh, Pennsylvania  
Inspection Conducted: January 13, 1997

Inspector:

  
John R. McFadden  
Health Physicist

01-24-97  
date

Approved By:

  
John D. Kinneman, Chief  
Nuclear Materials Safety Branch 2  
Division of Nuclear Materials Safety

1/30/97  
date

Inspection Summary: Confirmatory Survey on January 13, 1997.  
(Inspection Report No. 070-00048/97-001)

Areas Inspected: Announced, special inspection limited to a confirmatory survey of Buildings 501, 502, 601, and 602 at the facility at 1310 Beulah Road. Surveys were performed to independently evaluate the facility for residual contamination prior to release for unrestricted use. Direct radiation and radioactive contamination level surveys were performed in selected areas throughout the facility to evaluate direct radiation and radioactive contamination levels from any potential residual radioactivity. Eighteen surface smears also were taken and subsequently assayed for removable contamination.

Results: No violations were identified. No residual contamination or radioactive material, other than a sealed depleted uranium flywheel (see Sections 2 and 7), was found at the facility.

RETURN ORIGINAL TO  
REGION I

## DETAILS

### 1. Persons Contacted

\*John R. Lehnhardt, Radiation Safety Officer

\*A. Joseph Nardi, License Administrator

\*Indicates presence at exit interview.

### 2. Background

The facilities at 1310 Beulah Road are currently authorized for use of byproduct, source, special nuclear, and transuranic materials, in the curie, thousand kilogram, millicurie, and curie ranges, respectively. The authorized uses include: research and development as defined in 10 CFR 70.4 or 10 CFR 30.4, instrument calibration, and fabrication and calibration of in-core neutron dosimeters for distribution to persons authorized to receive the licensed material pursuant to the terms and conditions of a specific license issued by the U.S. Nuclear Regulatory Commission.

In a letter dated April 30, 1996 and in an application dated October 31, 1996, the licensee stated that it had decided to permanently cease licensed activities at certain separate buildings (i.e., buildings 501, 502, 601, and 602) located on the Science and Technology Center site at 1310 Beulah Road. The Final Survey Report for Buildings 501, 502, 601, and 602 was received by the NRC on November 29, 1996. The licensee's correspondence reported that the large majority of the floor space in building 501 had no history of radioactive material use or storage. The areas in this building with a history of use or storage were identified, and the types and quantities of radioactive materials were also identified: exempt quantities of contaminated soil, contaminated samples, contaminated ash, exempt quantities of uranium, and bench-scale amounts of uranium deposits for testing of in situ solution mining. It was stated that use in building 502 was limited to storage of packaged radioactive materials. For building 601, it was similarly reported that the large majority of the floor space in building 601 had no history of radioactive material use or storage. The areas in this building with a history of use or storage were identified, and the types and quantities of radioactive materials were also identified: uranium dioxide pellets (storage and handling) and a sealed depleted uranium flywheel (operation and storage). Finally, for building 602, it was stated that there was no history of radioactive material use or storage.

The final survey and report for these four buildings was performed by a contractor. The design of the survey was based on Draft NUREC/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination, and on the release guidelines in the NRC's Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material. The final survey

report stated that, to be conservative, all direct and removable alpha survey data were compared to the most restrictive alpha limits of 100 disintegrations per minute (dpm) per 100 squared centimeters (cm<sup>2</sup>) (fixed) and 20 dpm/100 cm<sup>2</sup> (removable).

All licensed materials were transferred to their other authorized places of use or to a licensed waste broker/facility, except for the sealed depleted uranium flywheel which is situated in the North High Bay area (601-NHB) of building 601. All licensed materials have been removed from the soil cleaning laboratory (501-3Y85) in building 501, but the licensee stated that this laboratory may be used in the future on a temporary basis for projects involving licensed materials. The licensee has requested that these two areas, 601-NHB and 501-3Y85, be considered temporary job sites and be subject to the commitments for control of such temporary job sites made in their license application. The commitments for control of such temporary job sites made in their license application include a survey of any affected area or equipment which is to be conducted and documented upon job completion to ensure that the facilities and equipment meet the requirements and limits specified in NRC's Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material.

### 3. Instruments Used in Survey

The following instrument was used during the NRC confirmatory inspection for radiation and radioactive contamination level surveys throughout the identified radioactive material use locations: a Ludlum Model 14C Survey Meter (NRC Serial No. 9659) (calibration date of 12-05-96) with a thin, end-window, GM detector (2 milligrams per cm<sup>2</sup>, mica). The background radiation level detected with this Ludlum Model 14C Survey Meter and detector was approximately 25 microrem per hour (0 - 2 milliRoentgen per hour scale, X 0.1 Range).

The surface smears which were taken at the licensee's facility were counted for 10 minutes on a Tennelec Model LB5100 Alpha/Beta Counting System at the Region I office for gross alpha and for gross beta emitter activity. The counting efficiency for natural uranium (0.209 counts per disintegration) was used to calculate radioactivity. The lower limits of detection were: gross alpha, 2 dpm; gross beta, 10.7 dpm.

### 4. Survey for Surface Contamination

The Ludlum Model 14C Survey Meter with the thin, end-window, GM detection probe was used to monitor for surface contamination. In addition to surrounding unrestricted areas, the following areas, identified in the licensee's final radiation survey, were surveyed: rooms 3Y85 and 3W3A in building 501, rooms 502A and 502B in building 502, NHB area and room 1A18 in building 601, and the area

covered by cubicles 602I through 602Y in building 602. Surface locations were selected based on highest probability of contamination: lab bench tops, floor areas in front of lab bench tops, work surfaces inside radiochemical fume hoods, floor areas in front of radiochemical fume hoods, and floor areas in door ways and in other high foot-traffic areas. Readings were taken in contact with the sealed depleted uranium flywheel in 601-NHB. No areas or readings registering twice instrument background were identified.

Based on the results of the surface contamination survey, no areas were identified as not meeting the NRC Guidelines for unrestricted release.

#### 5. Survey for Removable Surface Contamination

The inspector took eighteen surface smears in various areas. Surface smears were taken at facility locations where radioactive material was previously stored or used. Surface locations were selected based on highest probability of contamination: lab bench tops, floor areas in front of lab bench tops, work surfaces inside radiochemical fume hoods, floor areas in front of radiochemical fume hoods, and floor areas in door ways and in other high foot-traffic areas. Each surface smear for removable radioactive contamination was taken with a dry Whatman filter paper (42.5 millimeter, diameter) over an area of approximately 100 cm<sup>2</sup>. Removable radioactive contamination surface smear counting results and the facility locations where the surface smears were taken are provided in Table 1 at the end of this report. The removable contamination criterion for the radionuclides involved is 20 alpha disintegrations per minute (dpm) per 100 squared centimeters (cm<sup>2</sup>) and 200 beta disintegrations per minute (dpm) per 100 squared centimeters (cm<sup>2</sup>).

Based on the counting results of the surface contamination smears, none of the surveyed areas were identified as exceeding the NRC Guidelines for unrestricted release.

#### 6. Survey for Radiation Levels

The Ludlum Model 14C Survey Meter with the thin, end-window, GM detection probe was used to monitor for radiation levels. In addition to surrounding unrestricted areas, the following areas, identified in the licensee's final radiation survey, were surveyed: rooms 3Y85 and 3W3A in building 501, rooms 502A and 502B in building 502, NHB area and room 1A18 in building 601, and the area covered by cubicles 602I through 602Y in building 602. Each location was surveyed over its entire area (meter distance equal or less than five feet) with the meter at waist level. Readings were taken in contact with the sealed depleted uranium flywheel in 601-NHB. No areas or readings registering twice instrument background were identified.

Based on the results of the radiation level survey, no areas were identified as not meeting the NRC Guidelines for unrestricted release.

7. Residual Radioactive Material

No residual radioactive materials, containers, devices, postings, or labelling were observed at the facility other than the presence of a sealed depleted uranium flywheel which is discussed in the fourth paragraph in Section 2. The licensee has reported that all materials, other than this flywheel, were transferred to the other authorized use locations or were dispositioned as radioactive waste.

8. Records

The licensee's letter dated April 30, 1996, the licensee's application dated October 31, 1996, and the Final Survey Report received on November 29, 1996 were reviewed. These documents were discussed with licensee representatives during the confirmatory survey.

No violations or concerns were identified.

9. Exit Interview

The preliminary results of the inspector's surveys were discussed with the individuals identified in Section 1 of this report at the conclusion of the inspection.

TABLE 1. Results - Surface Smears\*

Smear Number	Location	Gross Alpha (dpm/100 cm <sup>2</sup> )	Gross Beta (dpm/100 cm <sup>2</sup> )
1	601-NHB Floor by flywheel	0 ± 0.7	- 0.4 ± 2
2	601-NHB Floor by flywheel	0.5 ± 0.8	3 ± 2
3	601-1A18 Floor-general area	1 ± 1	3 ± 2
4	601-1A18 Floor-general area	1 ± 1	0.4 ± 2
5	601-1A18 Counter Top	1.4 ± 1.1	- 1 ± 2
6	502-502A Floor-general area	1 ± 1	- 0.8 ± 2
7	502-502B Floor-general area	1.4 ± 1.1	5 ± 3
8	501-3Y85 Floor-general area	0 ± 0.7	- 0.4 ± 2
9	501-3Y85 Floor-general area	1 ± 1	3 ± 2
10	501-3Y85 Floor-general area	0.5 ± 0.8	3 ± 2
11	501-3Y85 Counter Top	0 ± 0.7	0 ± 2
12	501-3Y85 Working surface of hood	1.4 ± 1.1	4 ± 3
13	501-3W3A Floor-general area	2.4 ± 1.3	3 ± 2
14	501-3W3A Floor-general area	1 ± 1	- 0.4 ± 2
15	501-3W3A Floor-general area	2.4 ± 1.3	1 ± 2
16	501-3W3A Floor-In front of hood	2.4 ± 1.3	2 ± 2
17	501-3W3A Working surface of hood	5 ± 0.8	3 ± 2
18	501-3W3A Working surface of hood	2.4 ± 1.3	6 ± 3

\*Random uncertainties reported are 1 standard deviation (1  $\sigma$ ); the lower limits of detection (LLDs) were: gross alpha, 2 dpm and gross beta, 10.7.