

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 030-31830/94-001

EA No. 94-040

License No. 37-28556-01

Docket No. 030-31830

Priority 5

Category K

Licensee: Westinghouse Electric Corporation  
Resource Energy Systems Division  
2400 Ardmore Boulevard  
Forest Hills, Pennsylvania 15221

Facility Name: Westinghouse Electric Corporation  
Resource Energy Systems Division  
Front and Thurlow Streets  
Chester, Pennsylvania

Inspection Dates: January 31 to February 10, 1994

Inspectors:

Keith D. Brown  
Keith D. Brown, Health Physicist

February 23, 1994  
date

Approved by:

Walter J. Pasciak  
Walter J. Pasciak, Ph.D., Chief  
Industrial Applications Section

2/23/94  
date

Results: Within the scope of this inspection, two apparent violations were identified: failure to secure radioactive byproduct material in an unrestricted area against unauthorized removal (Section 3); and removal from service of a fixed gauge by persons not specifically licensed to perform such service (Section 3).

## DETAILS

### 1. Persons Contacted

<sup>1</sup>Nazre Adum, Environmental Engineer, Westinghouse Electric Corporation,  
Resource Energy Systems Division

<sup>1</sup>Wayne Bickerstaff, Manager, Corporate Industrial Hygiene,  
Westinghouse Environmental

<sup>1</sup>Mike Lauer, S.E.G. Corporation

<sup>1</sup>Present at exit (by telephone)

<sup>1</sup>Contacted by telephone only

### 2. Organization and Scope of Licensed Activities

Westinghouse Electric Corporation, Resource Energy Systems Division operates a trash-to-steam power generation plant located at Front and Thurlow Streets in Chester, Pennsylvania. The facility is licensed to possess and use six fixed weight measurement fixed gauges containing 100 millicuries of cesium 137 each and six level measurement fixed gauges containing 30 millicuries of cesium 137 each. The level measurement gauges are used to determine the level of ash in bins and to trigger a ram which pushes the ash out of the bins after they fill to a certain level. The weight measurement gauges were intended to measure the weight of the refuse on conveyers beneath them which carried the refuse into each of six incinerators. Since they had never provided reliable measurements of the weight of the refuse, they had not been used for over two years. The shutters of the gauges had been locked shut with padlocks during this time.

### 3. Description of the Incident

During a semiannual inventory, conducted on January 31, 1994, the licensee discovered that a Ronan Model SA-8-F37 fixed gauge containing 100 millicuries of cesium 137 was missing along with a six foot I-beam to which it was attached. The gauge had been present during the previous inventory conducted on July 9, 1993. The gauge and the six foot I-beam had been bolted to two other I-beams which were, in turn, connected to an inclined conveyer which carried refuse into the Number Five incinerator. Examination by licensee personnel and by NRC inspectors of the plates to which the gauge and I-beam assembly were attached did not reveal any evidence of a violent event in which the gauge and beam became detached. Licensee personnel also found no evidence that the bolts holding the assembly had sheared.

Upon discovery that the gauge was missing, the licensee began efforts to discover the location or the fate of the gauge. The efforts reported were as follows:

- The individuals who conducted the July 9, 1993 physical inventory were contacted to confirm that the gauge was present at that time.
- The licensee reviewed the logs of lock-out of the gauges and maintenance of the plant to determine when the assembly might have been removed.
- The licensee checked all bolts securing assemblies and source housings to the other five incinerator lines, and found less than five bolts out of a total of about sixty which were slightly loose (*i.e.* less than a quarter turn) and no missing bolts.
- The licensee interviewed personnel to determine if anyone had seen the gauge, seen activity in the area of the conveyer, or noted the gauge missing.
- The licensee hired S.E.G., a firm with experience in radiological safety, to conduct surveys in the incinerator bag house and throughout the facility. Surveys of the incinerator line, of the base of the stack, and of the facility found no evidence of activity above background.
- The licensee sent a portion of composite samples of ash, which had been collected each week since the facility began operation, to a laboratory to be analyzed for cesium 137.

During interviews with plant personnel, the licensee reported finding a contractor who had seen the I-beam and gauge assembly on a concrete pad on which the front-end loaders are repaired. The contractor described the assembly as a motor attached to an I-beam, but noted reading the yellow "Caution, Radioactive Material" tag on the gauge housing. The gauge had been removed from its position above the conveyer by personnel working at the facility. The contractor and other personnel collected the assembly along with other metal which was lying on the pad and put them in the scrap metal area to be sent out for recycling. Using records of work and other information, the licensee believes to have narrowed the time of these events to August 16 through 18, 1993. All scrap metal collected on those days were sent to Recycled Metals Corporation in Conshohocken, Pennsylvania.

Removal of the gauge from service by persons not specifically licensed by the Commission or an Agreement State to perform such services is an apparent violation of Condition 15 of License No. 37-285'6-01. Failure to secure material in an unrestricted area from unauthorized removal is an apparent violation of 10 CFR 20.207(a).

The licensee contacted Recycled Metals Corporation and determined that scrap metal coming into Recycled Metals Corporation's facility is shipped to one of several smelters within a few days. Smaller pieces such as the I beam-gauge assembly are crushed and sent to Lukens Steel Corporation where they are melted within a short time. The licensee obtained permission to perform a survey of the Recycled Metals Corporation facility in an attempt to locate the gauge or some remnant of it. The survey did not find any evidence of the gauge.

The licensee contacted Lukens Steel Corporation and learned that incoming scrap is loaded into a railway car which is rolled into the plant past large sodium iodide detectors. Because of the shielding of the gauge and the possible shielding by other scrap in the railroad car, it is possible that these sodium iodide detectors would not have detected the gauge as it passed by. The licensee reported that it is their belief that the gauge was melted at Lukens Steel Corporation. They believe that, if the microspheres containing the cesium 137 had stayed in the steel melt, it would be spread throughout a large mass of steel and would not now pose a threat to health and safety. Similarly, if the cesium 137 was trapped in the baghouse of the Lukens Steel Corporation facility, the licensee believes that it would be spread throughout a large volume of ash and would not pose a threat to health and safety.

#### 4. Exit Interview

The inspection findings were discussed with Mr. Adum and Mr. Bickerstaff by telephone on February 10, 1994 and February 18, 1994 respectively.