

R2-B 81

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DROP-IN VISIT  
BY WESTINGHOUSE ELECTRIC COMPANY  
TO COMMISSIONER JEFFREY S. MERRIFIELD  
FEBRUARY 15, 2001  
3:00 PM

*A-15*

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**Biographical Data of Senior Resident Inspector (N.A.) 9**

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TAB 3

Facility Data

Licensee Name: Westinghouse Electric Company LLC  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230-0355  
(803) 776-2610

Site: Westinghouse Nuclear Fuel  
Columbia Fuel Fabrication Facility  
5801 Bluff Road (S.C. State Route 48)  
Columbia, South Carolina 29250

Location of Meeting: NRC Headquarters, Rockville, MD

Agreement State: Max K. Batavia, Chief  
Bureau of Radiological Health  
Department of Health and Environmental Control  
Columbia, SC  
803-737-7400

Report Coordination: Donald Stout, Project Manager, NMSS/FCSS  
415-5269

Management Data

Licensed Activities:

Product Processing Operations

Westinghouse primarily manufactures fuel assemblies for commercial nuclear reactors. Operations include conversion of up to 5% enriched uranium hexafluoride to uranium dioxide powder via the Ammonium Diuranate (ADU) process. The uranium dioxide powder is pelletized and loaded into fuel rods. Fuel rods are fabricated into assemblies and shipped to various locations. The licensee is also authorized to produce uranium powder through a dry process called the Integrated Dry Route (IDR). This process has been mothballed since the IDR process alone does not have the capacity to satisfy fuel demand. In addition to standard fuel production, Westinghouse processes certain quantities of pellets through a boron coating process to produce Integral Fuel Burnable Absorber (IFBA) rods. Other licensed activities support fuel manufacturing and include uranium storage, scrap recovery, solvent extraction, waste disposal systems, and laboratory services.

General Service Operations

Westinghouse is authorized to perform work for other Westinghouse Divisions or outside customers which is within the authorized capabilities of the facility. This work could involve licensed material described in the materials license. The authorized

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capabilities include the following: Analytical and Metallurgical Laboratory Services, Chemical Process Development, Mechanical Process Development, Health Physics Laboratory, Quality Assurance and Control Inspection, In-house Scrap Recovery Operations, Equipment and Facility Decontamination, Non-radioactive Component Fabrication and Assembly,  $UF_6$  Cylinder Washing, and Shipping Container and Overpack Refurbishment.

#### Waste Storage and Disposal

Westinghouse is authorized to package radioactive waste for disposal, incinerate waste for recovery/disposal, recover material from conversion waste, treat liquid waste streams prior to environmental discharge, and dispose of recovered calcium fluoride.

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Possession Limits

Westinghouse is authorized to possess materials described in the following table, as specified in Conditions 6,7, and 8 of their license.

6. Byproduct, Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum Amount Licensee May Possess at Any One Time
A U-235	A Any	A 0.35 kg
B U-235	B Any, except metal, enriched to not more than 5.0 w/o	B 75,000 kgs
C U-233	C Any	C 5 grams
D Pu-238, Pu-239	D Sealed sources	D 1.5 grams
E Plutonium	E Feedstock with transuranics and fission products	E 5 grams

Effluent data

The licensee discharges effluents to the air, and to the Congaree River. All effluents are monitored and reported semiannually to the NRC. The average gaseous effluent value was 223.1 microcuries for the period covering January - June 2000. Average radionuclide concentrations discharged to the Congaree River for the period was 56.6 millicuries.

Decommissioning status

At this time there are not any decommissioning activities occurring at the Columbia facility. The license contains commitments to perform decommissioning activities in accordance with prevailing license conditions and/or regulator directives. Financial assurance mechanisms for decommissioning activities have been established and are acceptable to the NRC.

The licensee reported that technetium contamination was detected in a groundwater well outside the UF<sub>6</sub> Cylinder Recertification Facility.

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**Site Features**

The Westinghouse Columbia Facility is located 8 miles southeast of Columbia, South Carolina. The plant is situated on approximately 1,158 acres in Richland County with only 60 acres developed to accommodate the fuel fabrication facilities, holding ponds, and landscaped areas. The region around the site is sparsely settled, and the land is characterized by timbered tracts and swampy areas, penetrated by unimproved roads. Farms, single-family dwellings, and light commercial activities are located along nearby highways.

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Current IssuesDiscussion TopicsCriticality Safety Amendment

The licensee has been in the process of revising the Criticality Safety section (Chapter 6) of their license application. The revision of this chapter has involved several meetings and telephone conference calls to resolve questions between Westinghouse and the NRC. An RAI was issued on August 17, 2000, requesting information from a Westinghouse license application dated October 7, 1999. On September 8, 2000, the licensee provided responses to the RAI. The NRC issued a letter on October 10, 2000 declining to accept the responses provided by Westinghouse due to insufficient information provided in the September 8, letter. A meeting was conducted at NRC headquarters on November 8, 2000, with Westinghouse staff, to clarify NRC issues and answer Westinghouse questions. In a letter dated November 21, 2000, Westinghouse submitted revised RAI responses. These responses did not adequately address the RAI questions or topics discussed at the November 8 meeting. As a result, additional telephone conference calls were conducted on January 30 and 31, 2001 with the Westinghouse criticality safety engineer. Based on those calls, NRC believes that Westinghouse will provide sufficient information that will allow the NRC to make the required findings listed in sections 70.22 and 70.23 of the regulations.

New Erbium Pellet Production Line Amendment

In July 2000, Westinghouse informed the NRC that a major amendment was being prepared for submittal. NRC staff traveled to Columbia, SC on July 11, 2000, to receive a briefing on Westinghouse's Erbium Pellet Production line and tour the facility. During that visit Westinghouse pointed out that they would like to receive an amended license by July 1, 2001. At that time NRC staff stated that they would make every effort to support that date. It was mutually agreed upon at that meeting that Westinghouse would support NRC efforts to complete the Criticality Safety license amendment prior to beginning the review activities for the new pellet production line. As described in the above paragraph, the Criticality Safety license amendment has slipped from the original completion date and is now scheduled for completion on February 16, 2001. This revised date should not impact NRC efforts to meet the July 1, 2001 date for the new pellet production amendment.

On October 16, 2000, NRC received a request from Westinghouse to amend their license to allow relocation of certain equipment from Hematite, MO to Columbia, SC. Included in the letter was a revised license application, a process hazard report, and an integrated safety assessment for Hematite, MO equipment that would be relocated to Columbia, SC.

On January 16, 2001, NRC received an updated package from the licensee that included the safety documentation for new equipment and associated interfaces for the entire erbium pellet production process. This amendment is on a very tight schedule and every effort is being made to provide the amended license by July 1, 2001. This



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date is extremely important to the licensee and their commercial reactor customers due to shutdown of the present erbium poison pellet production.

### Streamlined Licensing Process

On August 30, 2000, Westinghouse was provided with a letter describing the streamlining licensing process. Previously, the licensee had expressed interest in using the streamline process for any existing amendment applications and particularly for the new Erbium Pellet Production Line amendment.

### ISA Plan Guidance Letter

On February 6, 2001, Westinghouse was provided with a copy of the letter from NRC, informing them that their October 18, 2000 letter addressing the requirements of section 70.62(c)(3)(i) for the Integrated Safety Analysis Plan did not address all requirements and would have to be resubmitted. As part of the same letter, Westinghouse was informed that one of their ISA summaries that they submitted in July 2000, did not meet some elements of revised Part 70 requirements. Specifically, it appeared that some elements required by section 70.62(c)(1)(v) and 70.65(b)(9) were not addressed.

### Future Plans

Discussion of the new Westinghouse, the new Nuclear Fuel organization and future plans for the Hematite, MO facility (formerly ABB-CE Hematite Commercial Nuclear Fuel Plant)

### Labor/Management Issues

None

### License Renewal Activities

Westinghouse license was renewed in July 1995. Twenty-six amendments have been issued since license renewal, and two are pending.

### Escalated Enforcement

None

### Open Investigations

None

### Open Allegations

None

### 2.206 Petitions

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None

Significant reportable events:

Transportation Event

On December 7, 2000, Westinghouse shipped thirty metal cylinders to the Portsmouth Gaseous Diffusion Plant. The cylinders were type 30B and contained residual quantities of radioactive material. During routine radiological receipt surveys, three of the cylinders were determined to be in excess of NRC and Department of Transportation external surface contact limits of 200millirem per hour. The actual safety significance was low due to the location of the contamination and the 20 hour exposure duration needed to incur an extremity dose in excess of NRC limits (5.0 rem shallow dose for members of the public. The estimated total transit time for the shipment was nine hours. Region II is evaluating this event to determine if a notice of violation will be issued.

91-01 Report on October 19, 2000

The licensee reported that periodic testing of the condensate level detection system in the 3A vaporizer steam chest determined that the system could not perform its intended function due to blockage in the system by loose debris. Further investigation determined that paint flaked from the recently processed cylinder and collected in the bottom of the vaporizer. However, the debris did not block the main condensate removal drain which allowed condensate to be removed from the vaporizer, so there was no condensate accumulation. The cylinder from which the paint residue came was provided by Urenco. Urenco was advised by the licensee of the situation. Prior to processing, the paint showed no indication of being defective. The paint was not chipping, peeling, bubbling from the surface, discolored, or otherwise distinguishable as flawed. The licensee stated that it was likely that the plugging of the drain occurred as a result of the functional test which detected it. During the test, it is likely the paint debris was sluiced underneath the debris screen by the relatively high flow rate of water which is used for the test. Cylinders heated in the vaporizer contain UF6 gas with a U-235 enrichment less than 5 weight %. No SNM was involved in this incident since UF6 was contained at all times within the UF6 piping system. The debris in the 3A vaporizer was removed and proper functioning of the level detection system was verified. The 3A vaporizer was released for restart on 10/19/2000. Other vaporizers not in use at the time of the incident were checked for proper functioning of the level detection system; each system responded correctly. Other vaporizers in use at the time were subject to increased frequency checks to verify proper functioning of the condensate removal system; all vaporizers were draining properly. In addition, the condensate level detection system for in-use vaporizers will be function-tested immediately after the UF6 cylinder currently being processed is removed. At no time was there any risk to the health or safety of any employee or member of the public. No exposure to hazardous material was involved. The safety significance of this event was evaluated to be low.

Event Report on August 7, 2000(Reporting Requirement 71.95(c))

The licensee reported a violation of Shipping Container Certificate of Compliance USA/9203/AF. On 7/9/2000, it was determined that two model DHTF packages had been used for fissile material shipments from the licensee's Columbia, South Carolina, facility to the licensee's Hematite, Missouri, facility that did not have the required number of bolts (eight) to secure the lid to the containment vessel. While unloading the DHTF packages at the Hematite facility, it was discovered that drum 0108 and drum 0519 were both missing two adjacent bolts

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and drum 0519 was missing one bolt. It was subsequently determined that several DHTF packages with missing bolts had been used for fissile material shipments between the licensee's Columbia facility and the licensee's Wilmington, North Carolina, facility. All shipments were immediately suspended and the packages in question were taken out of service. The reason for this violation was incomplete translation of the Certificate of Compliance requirements into the appropriate procedures. DHTF packages were inspected for compliance and a plan was established to make repairs before returning them to service. A new transport procedure will be written containing the instructions to check for the presence of the bolts.

91-01 Report on July 27, 2000

The licensee reported that during a routine procedure review associated with a plant-wide procedure upgrade process, a Nuclear Criticality Safety (NCS) engineer noted that a procedure was not written in compliance with the documented criticality safety evaluation. The procedure under review was "Filter Disassembly Process," which provides instructions for the disassembly of HEPA filters to remove non-combustible material and recover gross contamination prior to incineration. The procedure instructed the operator to place paper filter media into a 30-gallon paper bag for shredding. The NCS engineer subsequently examined the criticality safety evaluation for the shredder system and found that mass control in the system is maintained by administrative controls which prohibit the shredding of filters surveyed to contain greater than 5 grams U-235/10 liters. It was determined that the procedure for shredding of the paper bags filled with un-assayed filter media failed to provide the documented double contingency protection for the system. Immediately upon determining that less than double contingency protection remained, the NCS engineer directed that shredding of bags containing disassembled filter media be stopped. Thus double contingency protection was immediately restored. At no time was greater than a safe mass involved.

Event Report on February 25, 2000 (Reporting Requirement 70.(b)(1)(ii))

The licensee reported that contamination was discovered on a small portion (approximately 100 square feet) of a 20 foot by 50 foot outside concrete pad, located adjacent to the Columbia Plant Manufacturing Building (between the building and the Uranyl Nitrate Tank Storage Pad). The contamination resulted from leakage of aqueous radioactive material through the wall of the Manufacturing Building from a spill of uranyl nitrate material in the UF6 Bay, near the HF Spiking Station, which occurred on 2/7/2000. The leakage of aqueous radioactive material outside the building was identified after the inside spill was decontaminated. The concrete pad was roped off and decontamination efforts started. Based upon initial contamination survey results, the event was not deemed reportable because contamination levels did not exceed the limits. Decontamination efforts were hampered by the presence of soil on the concrete pad, which had accumulated over the years. As these materials were removed on 2/25/2000, additional radioactive materials were discovered, making this event reportable. Contamination levels measured on 2/25/2000 averaged approximately 133 dpm/100 cm<sup>2</sup> alpha removable and approximately 6000 dpm/100 cm<sup>2</sup> alpha non-removable. The decontamination plan will address removal of any loose material on the surface of the concrete, decontamination of the concrete, evaluation of the potential for further movement of material through the walls of the Plant, and an assessment of any movement of radioactive material into the soil. Additional surveys were performed to ensure that all contaminated areas were identified. As a result, two additional areas in the immediate vicinity of the originally reported area were identified. The first area is in the corner of the southwest expansion and the UF6 Bay. This area consists of approximately three square feet and had fixed contamination measuring 100,000 dpm/cm<sup>2</sup> resulting from a scrubber leak in which some of the material migrated through the wall. The

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second area is on the east side of the southwest expansion where pipes from the cylinder wash area exit the facility. This area consists of approximately 60 square feet and the material, Uranyl Fluoride, measured 120,000 dpm/cm<sup>2</sup> fixed and 305 dpm/cm<sup>2</sup> average removable contamination. These areas were isolated and a decontamination plan was devised. The removable contamination was cleaned to within the limit of 200 dpm/cm<sup>2</sup>. Some fixed contamination is still present. A more aggressive decontamination plan is in place to remove the fixed contamination. The Westinghouse Maintenance Department is removing obsolete piping and conduit from the exterior wall before sealing the wall to prevent future leakage. The exposure of individuals to radiation is minimal since the areas where the contamination was found are not routinely occupied by employees.

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Facility Organization

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Biographical Data of Principal Managers