UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

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Report No.: 70-1151/90-07

Licensee: Westinghouse Electric Corporation
Commercial Nuclear Fuel Division
Columbia, SC 29250

Docket No.: 70-1151 (Fuel Division)

Facility Name: Westinghouse Electric Corporation

Inspection Conducted: September 4-7, 1990

Inspector: R. R. Marston — 9/25/90
R. R. Marston — Date Signed

Approved by: T R Decker — 9/28/90
T. R. Decker, Chief — Date Signed
Radiological Effluents and Chemistry Section
Emergency Preparedness and Radiological
Protection Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of radiological liquid and gaseous effluents, radiological environmental monitoring, and quality control.

Results:

In the areas inspected, violations or deviations were not identified.

The licensee's control of radioactive effluents was demonstrated by the continued decrease in gaseous effluents during the first half of this year. The liquid effluents continued to decrease after a significant increase during the second half of 1989.

The environmental monitoring program continued to be adequate. The monitoring was done at required frequencies and the analytical results did not show any anomalies.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*R. Fischer, Senior Engineer
*W. Godwin, Regulatory Affairs Manager
J. Heath, Manager, Regulatory Operations
*R. Koga, Plant Manager
*E. Keelen, Manufacturing Manager
*E. Reitler, Jr., Regulatory Engineering Manager
*R. Williams, Technical Coordinator, Regulatory Affairs

*Attended exit interview

2. Audits (88035, 88045)

License Application, Section 3.1.4.5 states that the Radiation Protection Component shall perform quarterly data audits of environmental quality to assure that chemical and radiological effluents and environmental concentrations are within license and permit conditions. The inspector reviewed the monthly data audits for January-June 1990. The audits all included a statement that all radiological and chemical results were within permitted license limits. The first section of data was for liquid effluent discharged to the river. Chemical parameters were listed and compared to NPDES permit limits. Radioactivity was listed in terms of percent MPC released during the month, measured as gross alpha. The second section discussed environmental air measurements. The data was listed for each of the four environmental air samplers, and listed the average concentration at that sampler for the month in microcuries per milliliter x E-15, and in percent of MPC. The third section of the report discussed gaseous effluents. This section included discussion of effluents from the Pellet Area Furnace Air Exhausts and the Chemical Process Air Exhausts, and any other effluent points that might be significant. For the six month period, the environmental air samples were consistently less than 1.0E-15 microcuries per milliliter, or approximately 0.03 percent MPC. The radioactivity in the liquid effluents remained at less than one percent MPC each month, ranging from 0.34 percent to 0.81 percent MPC during the period.

The data audits appeared to be a comprehensive review and were done more frequently than required. No violations or deviations were identified.

3. Procedures (88035, 88045)

License Application, Section 3.2.1.1 states that written procedures describing general radiation protection requirements shall be maintained and followed. License Application 3.2.1.2 states that the necessity for

and application of instrumentation shall be established by the Radiation Protection Component.

The inspector selectively reviewed Regulatory Affairs Procedures and Regulatory Operations Operating Procedures (listed in Attachment 1) to determine that the License Application requirements were met.

The Procedures were adequate for the purposes for which they had been written. No violations or deviations were identified.

4. Liquid and Gaseous Effluents (88035)

Title 10 CFR 20.106 specifies liquid and gaseous effluent release concentration limits, and the License Application, Section 3.2.3.6 requires that the release of gaseous effluents shall be in compliance with 40 CFR 190. The inspector reviewed Effluent Air Sampling Reports for the period from March 2 to July 8, 1990, the Effluent Composite Analytical results from the vendor laboratory for the period from January through June 1990, Semiannual Effluent Report for the first half of the year, and the Semiannual ALARA Report for the first half of the year to verify compliance. The inspector toured the waste processing systems in the plant yard area accompanied by a cognizant licensee engineer in order to verify compliance and evaluate capability.

The Gaseous Effluent Report showed the concentration of uranium leaving each effluent point each week. In some cases, the concentration from one or more stacks would be greater than the MPC. Section V. of the ALARA Report for the first half of 1990 stated that Effluents at point of discharge from the stacks averaged 13.8 percent of the unrestricted area MPC, and summaries in the Monthly Data Audits stated that these values would be reduced to acceptable levels at the site boundary. The Liquid Effluent Composite results showed that the liquid effluents were within MPC limits.

Based on the above, the inspector determined that the licensee maintained adequate control of liquid and gaseous effluents. No violations or deviations were identified.

5. Reports (88035, 88045)

a. ALARA Report

License Application, Section 3.1.2.5.1 specifies requirements and contents for the Semiannual ALARA Report. The inspector reviewed the ALARA Report for the six month period ending June 30, 1990, to verify compliance with the requirements. The Report discussed effluent trends, discussed cleanup of liquid and gaseous effluents, waste treatment, chemical effluent levels, environmental levels, and unusual occurrences. The Report showed that gaseous effluents were up slightly in the first half of 1990 over the last half of 1989, but the two year and five year trends were still downward. The liquid

effluents in the last half of 1989 were considerably higher than the releases for the first half of 1989 and the first half of 1990, but the overall two year trend was still downward. The Report was done in accordance with requirements and appeared to be capable of serving as a valuable tool to management in determining trends and problem areas.

b. Semiannual Effluent Release Report

10 CFR 70.59 requires the licensee to submit a report to the NRC Region II office within 60 days after January 1 and July 1 of each year specifying the quantity of each of the principal radionuclides released to unrestricted areas in liquid and gaseous effluents during the previous six months of operations. 10 CFR 20.106(g) requires licensees engaged in uranium fuel cycle operations to be subject to 40 CFR 190 which limits the annual whole body dose to any member of the public to 25 millirem (mrem).

The inspector reviewed the Report for the first half of 1990, and discussed the report with a licensee Senior Engineer. The effluent trends are discussed in the previous paragraph (ALARA Report).

During the previous inspection (70-1151/90-04), the inspector noted that the liquid effluent releases for the second half of 1989 were significantly higher than for the previous six month period. At that time, a licensee representative stated that an investigation of the cause was being conducted, but no conclusions had been reached at that time. During the current inspection, the inspector reviewed a memo from CNFD-Columbia, to various addressees, dated March 23, 1990, SUBJECT: Increase in Total Quantity of Radioactivity in the Liquid Effluent. The memo stated in general terms that all possible contributing streams had been evaluated. The Senior Engineer stated that the only consistent measurement of the streams was at the discharge point after all the streams had come together. The various contributing streams had each been evaluated, estimates had been made of the likelihood of each being significant contributors to the increased releases, and in most cases, corrective action was implemented. The Pellet Buffing System in the Met Lab appeared to have the capability to discharge grinder sludge directly to the contaminated system. This was considered the best possibility. One possibility considered was that the contaminated sump might have accumulated material over the past few years. None was found in the inspection, however, the inspector and Senior engineer noted that a holding tank in the system had accumulated a significant layer of sludge and was being cleaned. A further consideration was that the cuno filtration system did not appear to be routinely operated on the 3000 gallon contaminated discharge tanks and was only used if the stream exceeded one MPC. Other possibilities considered were that

the blowdown on the incinerator had significantly increased the volume of discharge water or that some liquid could have been discharged to the uranium hexafluoride pump. The Senior Engineer stated that some proposed corrective actions were still being considered.

The Reports discussed in Paragraphs a and b above had been written and submitted in accordance with requirements. No violations or deviations were identified.

6. Environmental Monitoring (88045)

License Application, Section 2.7.1 states requirements for the licensee's environmental monitoring program. Regulatory Operations Operating Procesures 06-003, Ambient Environmental Air Monitoring for Radioactivity, and 06-006, Collection of Routine Weekly and Monthly Environmental Samples, implement the program.

The inspector and a licensee Senior Engineer toured the environmental sampling points to verify location, operability, and calibration of the instruments. The inspector observed that the sampling points were placed as described in the License Application and Procedures, and that the air sampler calibrations were current. The sampling equipment was operating, with the exception of Air Sampler Number 4, which had a blown fuse. The licensee Senior Engineer reported the problem.

The inspector reviewed the Ambient Environmental Air Monitoring Data Summary Log to verify that environmental air samples were collected and analyzed as required. The samples were collected at required frequencies, and after the required seven day decay, were counted for alpha. The period covered was from January 3 to August 1, 1990, and the maximum concentration identified was 1.21E-15 microcuries per milliliter. The inspector reviewed the vendor's analytical reports for the remaining environmental samples, which were collected during the period January through July, 1990. These samples included surface and well water samples, rainwater (for fallout), vegetation, soil, and sediment. The inspector determined that the samples were collected at required frequencies, were analyzed for required substances, and that significant levels of uranium were not identified. Other water samples were sent monthly to another vendor. These were analyzed for calcium, fluoride, ammonia, and radiometric uranium, and pH was determined. For the February through May 1990 samples, the reports identified no uranium, and the other parameters were within limits.

Based on the above information, the inspector determined that the licensee's environmental monitoring program was adequate. No violations or deviations were identified.

7. Measurement and Quality Control (88035, 88045)

License Application, Section 2.2.4 requires that laboratory assay instruments used for alpha measurements shall have the capability to detect alpha levels as low as 0.1 MPC. License Application, Section 3.2.1.2 requires that laboratory alpha counting equipment shall be calibrated at least semiannually and a background determination and source check conducted daily. A voltage plateau and proper operating voltage shall be determined each quarter.

The inspector toured the counting laboratory and discussed the measurement program with the Manager, Regulatory Operations to determine the laboratory capability and operability of the equipment. The lab was equipped with seven gas proportional counting systems. One was calibrated for beta counting only. The remainder, with one exception, were in current calibration for alpha. Counter No. 7 had last been calibrated in June 1989. The Manager stated that that unit was not in current use. The inspector examined the lab's Sodium Iodide well counter. The system was equipped with a single channel analyzer (set for Uranium-235). System calibration checks had been performed each shift using check sources of either 5 grams uranium per liter or 10. The check sources or samples were counted in vials in liquid form. The Manager stated that this system was used to count Conversion samples or Waste Recovery and Disposal miscellaneous samples.

The lab appeared to be clean and had adequate space. The equipment appeared to be operable and the records were in order. No violations or deviations were identified.

8. Exit Interview (30703)

The inspection scope and results were summarized on September 7, 1990, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. The licensee appeared to adequately control liquid and gaseous effluents and maintain an adequate environmental monitoring program. Dissenting comments were not received from the licensee. The licensee did not identify as proprietary any of the information included in this report.