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

DEC 18 1990

Report No.: 70-1151/90-11

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

Docket No.: 70-1151 License No.: SNM-1107

Facility Name: Columbia Nuclear Fuel Plant

Inspection Conducted: November 26-30, 1990

Inspector: for David A Collins Dec. 18, 1990
G. L. Troup, Fuel Facilities Project Inspector Date Signed

Accompanying Personnel: C. H. Bassett, Sr. Radiation Specialist

Approved by: for David J. Collins Dec. 18, 1990
E. J. McAlpine, Chief Date Signed
Radiation Safety Projects Section
Nuclear Materials Safety and Safeguards Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection covered the nuclear criticality safety program, operations review, and previously identified followup items.

Results:

Within the scope of the inspection, no violations or deviations were identified. Two previously identified followup items were closed.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Allen, Manager, Technical Services
J. Berry, Manager, IFBA
*D. Goldbach, Manager, Waste Recovery and Disposal
*W. Goodwin, Manager, Regulatory Affairs
J. Hooper, Safety Engineer
*E. Keelen, Manager, Manufacturing
*N. Kent, Sr. Regulatory Engineer
*R. Koga, Plant Manager
*R. Montgomery, Sr. Regulatory Engineer
*E. Reitler, Jr., Manager, Regulatory Engineering
*R. Williams, Technical Coordinator, Regulatory Affairs

The inspector also interviewed supervisors, and operators in various plant areas.

*Attended exit interview

2. Nuclear Criticality Safety (88015)

a. Facility Changes and Modifications

The inspector examined three nuclear criticality safety review requests and the associated analyses. The inspector verified that approved evaluation methods were used and that the calculations and analyses were checked by a second individual.

No violations or deviations were identified.

b. Nuclear Safety Analyses

The inspector discussed the methods used to perform nuclear safety calculations with the cognizant individuals and verified that the methods used were in accordance with the license requirements. No changes in the calculational methods have been made since the last inspection.

No violations or deviations were identified.

c. Computational Methods

The licensee currently uses the KENO-IV computer code. Use of the code is prescribed in procedure RA-305, Nuclear Criticality Safety Evaluations Using the NITAWL-XSDRN-KENO Code System. The inspector

discussed the plans for implementation of the KENO-Va computer code. At present, the Core Engineering group is working on the benchmarking and validation program. Once that is complete, Regulatory Engineering will do additional benchmark calculations so the code can be used by Columbia personnel.

The Core Engineering group is performing calculations in support of licensing actions for the Columbia plant, and have also performed the second party review for calculations performed by Regulatory Engineering personnel. The main frame computer used for these calculations was changed to a new model. A licensee representative showed the inspector a Core Engineering memo describing the calculations performed to verify the codes on the new machine. The memo concluded that the codes produce identical results on the new machine as did the different machines, and the results of the previous KENO-IV benchmarks remain applicable.

No violations or deviations were identified.

3. Procedures (88015, 88025)

a. The inspector verified that procedural controls are in place establishing the Regulatory Affairs procedure system (RA-001 and RA-110), the training of Regulatory Affairs personnel (RA-105), the performance and review of nuclear criticality safety analyses (RA-300), and control and testing of the nuclear criticality alarm system (RA-304). Other procedures exist for management controls and assignment of responsibilities. The inspector reviewed selected procedures and verified that they were reviewed and approved as required by internal procedures and the license.

No violations or deviations were identified.

b. The inspector reviewed revisions to three procedures. All of the procedures were reviewed and approved in accordance with the internal procedures and the license. The scope of changes were consistent with the regulations and the license.

No violations or deviations were identified.

4. Audits (88015, 88020)

a. The inspector reviewed the monthly criticality audit reports for the period of May - October 1990, and verified that the audits were conducted at the required frequency and in accordance with a plan, as required by the license. The reports identified problems to be rectified, the responsible individuals, and an action date. Correction of identified items and the close-out date were documented. The adequacy of corrective actions was also reviewed and documented in subsequent licensee audits.

No violations or deviations were identified.

b. In addition to the monthly plant inspection program, the licensee has implemented an internal program audit program, which is conducted in accordance with procedure RA-106, Internal Program Audits. Three audit reports have been issued. Licensee representatives informed the inspector that a total of 10 audits have been performed but the reports have not been issued due to the impact of other tasks. When problems were identified these were communicated to the responsible manager. The inspector stated that the audit reports should be issued in a more timely manner; this was acknowledged by licensee management.

No violations or deviations were identified.

5. Inspections and Calibrations (88015, 88025)

a. Boron glass Raschig rings are used in certain tanks as as secondary criticality control methods. The license requires that the rings and tanks be checked annually for settling, minimum volume of rings and boron content. The inspections/checks were performed in June 1990. All values met or exceeded the license requirements. Additionally, Regulatory Engineering conducted an audit of the Raschig ring program as part of the internal audit program.

No violations or deviations were identified.

b. Criticality Accident Monitoring System

The inspector reviewed the calibration and test procedures and calibration records for the criticality accident monitoring system conducted in 1989 and 1990. Calibrations were conducted at the frequency required by the licensee. No troubles were encountered with the system or equipment.

During tours of the security station the inspector observed that the detector read-out displays were functioning and were in normal ranges. Personnel at this station were knowledgeable about the alarm panel and of their response actions.

No violations or deviations were identified.

6. Operations Review (88020)

a. Storage of Materials

By procedure, the licensee can establish storage areas for materials by use of floor spacers (disks which show the storage area and maintain the necessary distance from other materials), or marking off areas with a tape labelled "crit zone", designating storage areas and blocking off adjacent areas. The use of tape "crit zones" has been

decreasing with more emphasis being placed on the use of storage racks.

During tours of plant areas the inspector observed two situations which were not violations of requirements but were not good practices. In IFBA two crit zones were marked on the floor. Containers of special nuclear material (SNM) were stored in the designated areas but containers of other materials were stored in the "prohibited" area. Operators stated that these containers did not contain SNM and were put in the zone for orderly storage. However, the supervisor acknowledged that any material placed in the crit zone should by properly stored. The materials were removed or properly spaced.

In the Advanced Waste Water treatment building, polypaks of filter cake were stored in an approved configuration with concrete blocks separating the polypaks. However, empty polypaks were stored on top of the blocks. The empty polypaks were removed. The cognizant manager said that the material could be placed in a drum because of the low SNM content and initiated action to remove the polypak storage area.

b. Tours

During the inspection, tours were made of the various work areas to observe operations. Items reviewed or verified included:

(1) Special nuclear material was stored in arrays on carts, and in designated storage locations in accordance with posted instructions (except as noted above)

(2) Housekeeping in all areas was acceptable.

(3) Differential pressure readings in filters and enclosures were within the authorized limits.

(4) Flow rates of fixed air samples were within the specified range.

No violations or deviations were identified.

c. Fuel Handling and Storage

During tours of the production areas, the inspector observed the handling of pellets, fuel rods, and fuel assemblies. All observed activities were in accordance with posted safety limits and storage requirements. Completed assemblies were stored in permanent fixtures. Storage and transport of completed rods were in accordance with the license requirements for slab thickness and unit separations.

No violations or deviations were identified.

7. NRC Information Notices

The inspector verified that Information Notice (IN) 90-63: Management Attention to the Establishment and Maintenance of a Nuclear Criticality Safety Program had been received by the licensee. After reviewing IN 90-63 and reevaluating the previous IN 89-24, the licensee identified the items to be reviewed in the nuclear criticality safety program, assigned responsibility for each item and entered the identified actions into the Commitment Tracking System. As part of the review, the licensee identified additional items which have been added to the tracking system as well. Evaluation of each action is progressing.

8. Review of Previous Inspection Findings (92701)

a. (Closed) IFI 89-02-01, Improve Emergency Brigade Training

The licensee has implemented a training program for the Emergency Brigade (EB) members which includes training sessions, quarterly exercises, and a full-day session at the South Carolina Fire Academy. Each session is covered by a lesson plan and outline and supplemented with training materials. The Fire Academy session includes training on structural fires. The actions in implementing the training program address the concerns raised by the inspector.

This item is closed.

b. (Closed) IFI 89-02-02, Review Corrective Actions in Response to FHA and ANI Recommendation

As the result of two fire protection audits/reviews by outside groups, a total of 130 recommendations were received by the licensee. The inspector reviewed the status of specific recommendations and also discussed the overall program for handling the recommendations. Some recommendations are incomplete as capital appropriations are required. Others are not being acted on because plant modifications have negated the action. The licensee is conducting an on-going review of plant modifications and operating procedure changes for fire and industrial safety.

This item is closed for record purposes.

9. Exit Interview

The inspection scope and results were summarized on November 30, 1990, with those indicated in paragraph 1. The inspector described his concern about the practice of placing a non-SMN bearing container in crit zones. Senior management acknowledged these concerns and stated that the proper labeling and handling of containers would be reviewed with plant personnel. The inspector also discussed close-out of the two IFIs discussed in paragraph 8. Dissenting comments were not received from the licensee.