



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report No.: 70-1201/78-12

Docket No.: 70-1201

License No.: SNM-1168

Licensee: Babcock and Wilcox Company
Commercial Nuclear Fuel Plant
P. O. Box 1260
Lynchburg, Virginia 24505

Facility Name: Commercial Nuclear Fuel Plant (CNFP)

Inspection at: Lynchburg, Virginia

Inspection conducted: August 14-17, 1978

Inspector: J. B. Kahle

Reviewed by:

J. P. Potter
J. P. Potter, Chief
Fuel Facilities and Materials Safety Section
Fuel Facility and Materials Safety Branch

9/19/78
Date

Inspection Summary

Inspection on August 14-17, 1978 (Report No. 70-1201/78-12)

Areas Inspected: Routine, unannounced inspection of facility changes and modifications, safety committees, nuclear criticality safety and nonroutine events. The inspection involved 22 inspector-hours on site by one NRC inspector.

Results: No items of noncompliance or deviations were identified in three areas. One item of noncompliance was identified in one area. Deficiency - Failure to follow posted nuclear criticality safety instructions - paragraph 4.b - 78-12-01.

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DETAILS

Prepared by:

J. B. Kahle
J. B. Kahle, Fuel Facilities Inspector
Fuel Facilities and Materials Safety
Section
Fuel Facility and Materials Safety
Branch

9/19/78
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Dates of Inspection: August 14-17, 1978

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1. Persons Contacted

- *E. J. Silk, Plant Manager
- H. Z. Dokuzoguz, Facilities Engineering Manager
- D. W. Zeff, Nuclear Material Control Manager
- *R. L. Vinton, Health Physicist
- K. E. Shy, Health Safety Supervisor
- *G. Johnson, Supervisor
- W. E. Cyrus, Supervisor
- R. T. Shutt, Nuclear Materials Operations Supervisor
- P. A. Cure, Associate Health Physicist
- J. P. Watters, Licensing Engineer
- D. C. Van Metre, Engineer
- *L. T. Lee, Manufacturing General Foreman

The inspector also interviewed nine licensee operators and technicians.

*Denotes those attending the exit interview.

2. Licensee Action on Previous Inspection Findings

Not inspected during this inspection.

3. Unresolved Items

No unresolved items were disclosed during this inspection.

4. Nuclear Criticality Safety

- a. During a tour of the plant the inspector observed that scrap special nuclear material was accumulated in safe volume containers and stored in approved storage arrays in accordance with require-

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ments of the license. Waste materials contaminated with uranium were placed in designated containers in accordance with requirements of the license and operating procedures.

- b. The inspector observed that special nuclear material from the oxidation furnace was temporarily stored in the pusher sintering furnace hood in a manner which did not conform to the posted instructions. A safe geometry (volume) container of U_3O_8 was stored on the left side of the hood while the right side of the hood contained plastic bags of filter media containing U_3O_8 from the oxidation furnace exhaust system. The posted nuclear criticality safety instructions on the hood required that the UO_2 mass was limited to 1 geometrically safe container to be stored on the left side of the hood or a maximum of a 4 inch safe slab. The area supervisor acknowledged that the filter media containing U_3O_8 should not have been placed in the hood when a safe geometry container of special nuclear material was placed on the left side. He further stated that the material from the oxidation furnace was normally placed in the scrap hood, but the special nuclear material mass limits would have been exceeded if the material had been placed in the scrap hood as required by the procedures. Licensee representatives were informed that storage of special nuclear material in a manner which did not meet the requirements of the posted procedures was in noncompliance with the requirements of the license. (78-12-01). The inspector verified that other special nuclear material in the plant was processed, handled, transferred and stored in safe geometries and masses and on approved carts. Containers of material were placed in safe storage arrays in accordance with requirements of the license and operating procedures. Isolation distances were maintained as required.
- c. The inspector verified that the following special nuclear criticality safety criteria and controls were maintained or performed.
- (1) Vessels of liquid moderators in the pelletizing area were limited to 3.5 gallons.
 - (2) Flammable solvent containers in the pelletizing area were limited to 2 gallons.
 - (3) Service water lines to the sintering furnaces were baffled to preclude spraying in the event of a ruptured line.
 - (4) Water sprinkler systems were prohibited in designated areas.

- (5) Fire fighting agents were limited to nonhydrogenous materials.
 - (6) Doors were posted as required by the conditions of the license.
 - (7) Independent calculations were made of the H/U ratio prior to placing special nuclear material in the blender.
 - (8) Unsafe geometry containers in the pelletizing area were marked and covered.
 - (9) There was no accumulation of sludge in the liquid waste retention tanks.
- d. The inspector verified that written instructions and acceptance criteria had been completed for calibrating and source checking the criticality alarm detectors.
 - e. The inspector verified from the material control and accounting records that the total quantity of special nuclear material at the plant did not exceed the license limit. A check of the Met Lab Log showed that the quantity of special nuclear material in the Met Lab had not exceeded the licensee's control limit.

5. Safety Committees

The Safety Review Board met on March 28 and May 23, 1978, with the required members in attendance. The minutes showed that topics of discussion dealt with the review of NRC and Company audits, the status of license amendments, facility changes and modifications, proposed new and changed processes, and industrial and nuclear safety considerations of existing programs. Activities of the Safety Review Board met the requirements of the license and the licensee's procedures, AS-AD-1120, CNFP Safety Review Board.

6. Facility Changes and Modifications

- a. There have been no new facility changes and modifications, since the inspection on March 15-16, 1978, by the Safety Review Board or the Nuclear Criticality Safety Group. The records included evaluations of several minor changes to equipment and processes with justifications to show that reviews by the Safety Review Board or the Nuclear Criticality Safety Group were not required.
- b. Documentation was available which showed that pre-operational audits were completed in accordance with the requirements of the license for the powder unloading room, the slug conveyor cleanout trap, and the pellet dryer assembly.

- c. The inspector discussed the conceptional design of the ultra filtration system for the liquid waste with licensee representatives. They stated that the detail design has not begun and a target date for completion has not been established.

7. Nonroutine Events

- a. On June 9, 1978, there was an acid fire in a cardboard trash container located at the base of the stairway leading to the cafeteria. The container was removed from the building where the contents continued to burn until immersed into a pail of water. The resulting solution was neutralized with soda ash. One individual became nauseated and vomited from inhalation of the fumes. He was taken to the Lynchburg General Hospital for medical attention.
- b. An investigation revealed that earlier in the day a nitric acid spill in the cleaning area had been wiped up with cheesecloth and paper towels which were discarded in the cardboard trash container. To prevent reoccurrence the acid containers were modified by providing drains to prevent spills and personnel were instructed to neutralize acid spills with caustic material prior to cleaning. The above corrective actions were verified by the inspector.

8. Organization

The nuclear Material Control Component of the Safety, Licensing and Safeguards Section has been established as a separate section reporting to the Plant Manager. Mr. David Zeff, formerly the Licensing and Control Administrator, has been appointed as Manager.

9. Housekeeping and Industrial Safety

General housekeeping conditions were excellent. Areas were clean and equipment and materials were placed in an orderly fashion. No industrial safety hazards were apparent. The inspector noted that numerous flammable control component assembly shipping containers were being stored in the final fuel assembly storage area. Licensee management stated that the situation is currently under review to eliminate this heavy combustible burden condition.

10. Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) on August 17, 1978, at the conclusion of the inspection. The inspection findings, particularly the apparent item of noncompliance, were discussed in detail.