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

Report Nos.: 50-491/78-8, 50-492/78-8 and 50-493/78-8

Docket Nos.: 50-491, 50-492 and 50-493

License Nos.: CPPR-167, CPPR-168 and CPPR-169

Categories: A2, A2 and A2

Licensee: Duke Power Company

Facility Name: Cherokee Nuclear Station

Inspection at: Cherokee County, South Carolina

Inspection Conducted: October 30 - November 2, 1978

Inspectors: J. K. Rausch
J. Harris

Reviewed by: FOR A. R. Wright 11/24/78
A. R. Herdt, Chief Date
Projects Section
Reactor Construction and Engineering
Support Branch

Inspection Summary

Inspection on October 30 - November 2, 1978 (Report Nos. 50-491/78-8, 50-492/78-8 and 493/78-8)

Areas Inspected: Routine, unannounced inspection; site preparation; QA program implementation; warehouse storage; laydown areas; construction procedures; site QA records; structural concrete; nuclear service water piping; IE bulletins and circulars. The inspection involved 45 man-hours on-site by two NRC inspectors.

Results: Of the eight areas inspected, no apparent items of noncompliance were identified in five areas; three apparent items of noncompliance (one infraction - failure to calibrate sieves, paragraph 6.g, Details II, and two deficiencies - improper concrete aggregate storage, paragraph 4.e, Details II, and failure to provide fire control in document vault, Details I, paragraph 8) were identified in three areas.

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DETAILS I

Prepared by: M. J. Sloan for 11/24/77
J. K. Rausch, Principal Inspector Date
Projects Section
Reactor Construction and Engineering
Support Branch

Date of Inspection: November 1 and 2, 1978

Reviewed by: R W Wright 12/24/78
A. R. Herdt, Chief Date
Projects Section
Reactor Construction and Engineering
Support Branch

1. Persons Contacted

Duke Power Company (DPC)

L. R. Barnes, QA Manager, Construction
*C. B. Aycock, Project Engineer, Construction
*A. R. Hollins, Senior QC Engineer
*K. W. Schmidt, QA Engineer
J. E. Beall, Engineering Specialist - DPC Charlotte Office
W. H. Bradley, Manager, Engineering and Services Division

*Denotes those present at the Exit Interview.

2. Licensee Action on Previous Inspection Findings

This area was not inspected.

3. Unresolved Items

There were no new unresolved items identified as a result of this inspection.

4. Independent Inspection Effort

The inspector traveled through various areas of the plant warehouses and laydown areas to observe operations and activities in progress and to inspect the general state of cleanliness and housekeeping. The inspector also observed progress made and construction activities on the nuclear service water (NSW) dam, pump structure, and concrete placement for reactor building Unit 1 and the auxiliary building.

No items of noncompliance or deviations were noted in the areas examined.

5. IE Bulletins

(Closed) IEB 78-06, Defective Cutter-Hammer Type M Relays with DC Coils

RII has received DPC's letter of response to this bulletin, dated July 25, 1978. The licensee states that the subject items are not used or planned for use in safety-related systems at Cherokee. This item is closed.

(Closed) IEB 78-08, Radiation Levels from Fuel Element Transfer Tubes

This IEB is not applicable to Cherokee and is therefore closed.

(Closed) IEB 78-10, Bergen-Patterson Hydraulic Shock Suppressor Accumulator Spring Coils

RII has reviewed DPC's letter of response to this bulletin, dated August 22, 1978. The licensee states that the subject components are not used in the Cherokee Station. This item is closed.

6. IE Circulars

Discussions with licensee personnel show that they have received copies of the following circulars and have distributed them to management and cognizant personnel for their information and for necessary action:

- IEC 78-02
- IEC 78-03
- IEC 78-16

7. Quality Assurance Program Implementation

The inspector reviewed the NCR log and selected two NCR's, No. 0206-NSW, Pump Structure A, and No. 0178, Boric Acid Educter, for close examination to determine that follow-up and corrective action is being taken. In addition, training programs for all site personnel as described in Procedures V-1, QA-131 and T-1 were discussed. The QA Engineer's surveillance schedule for the fourth quarter of 1978 was reviewed.

No items of noncompliance or deviations were identified.

8. QA Record Storage

The inspector noted during an examination of the vault that permanent QA records were being stored in the vault without any provisions for fire detection or control of fire should one occur. The licensee advised that procurement of a halogen system was underway, but had not yet been obtained. The inspector advised the licensee that this condition does not meet their PSAR Chapter 17 (Topical Report, paragraph 17.1.17) commitments. This is an item of noncompliance and is identified as a deficiency, No. 491/492/493-78-08-03, Vault Fire Control.

9. Exit Interview

The inspector met with licensee representatives denoted in paragraph 1 at the conclusion of the site inspection on November 2, 1978. The inspector summarized the purpose and scope of the inspection and the findings. The noncompliance described in paragraph 8 was discussed in detail.

DETAILS II Prepared by: _____ 11/21/78
J. R. Harris, Civil Engineer/Geologist, Date
Engineering Support Section No. 1
Reactor Construction and Engineering
Support Branch

Dates of Inspection: October 30 - November 2, 1978

Reviewed by: _____ 11/21/78
J. C. Bryant, Chief, Date
Engineering Support Section No. 1
Reactor Construction and Engineering
Support Branch

1. Persons Contacted

Duke Power Company (DPC)

C. B. Aycock, Project Engineer, Construction
A. R. Hollis, Senior QC Engineer
K. W. Schmitt, Senior QA Engineer

2. Licensee Actions on Previous Inspection Findings

(Closed) Noncompliance (491/78-05-01): Improper concrete pour documentation. Documentation concerning the incorrect pour number has been corrected. Discussions with responsible engineers and examination of records indicate documentation on concrete pours is being controlled as specified in procedure M2, "Inspection of Design Concrete." This item is closed.

3. Unresolved Items

No unresolved items were disclosed within the areas inspected.

4. Independent Inspection Effort

The inspector examined the following areas:

a. Concrete batch plant and aggregate storage area

b. Borrow area

c. Excavations for Units 1, 2 and 3 powerhouse blocks

d. Reinforcing steel laydown yard

e. Pipe coating facilities

Examination of concrete aggregate storage facilities disclosed improper stockpiling of fine and coarse aggregates. Specification number P815-1109.00-00-001 and referenced ACI Standard 304-73, Paragraph 2.1.3, require concrete aggregates be stored so as to prevent overlapping of different sizes.

Contrary to the above, the inspector found fine and coarse aggregate stockpiles exceeding the capacity of storage bins and fine and coarse aggregates sloughing on to one another in the lower parts of the stockpiles. The licensee cleaned up the overspills; however, due to overfilling of storage bins, the sloughing problem will continue until stockpiles are reduced to less than bin capacity. Failure to stockpile aggregates as required by specifications is contrary to Criterion V of Appendix B to 10 CFR 50 and was identified to the licensee as Deficiency 491, 492, 493/78-08-01.

5. Containment (Structural Concrete I) - Review of Quality Records, Unit 1

The inspector examined quality records on concrete pour numbers RB1-1, RB1-3 and RB1-5. Acceptance criteria examined by the inspector were:

a. Topical Report, Duke 1-A, Amendment 3

b. PSAR Section 3.8.1.6.1

c. P815-1109.00-00-0001, "Concrete for Category I Structures"

d. M-2, "Inspection of Design Concrete"

Records examined included: prepour site inspection, concrete placement data, mixer performance tests, batch tickets, inspection personnel qualification records, drawings, calibration records and nonconformance report numbers 0320, 0223, 0255, 0251, 0220, 0261, 0235 and 0220.

No deviations or items of noncompliance were disclosed within the areas examined.

6. Lakes, Dams and Canals - Observation of Work and Work Activities, Units 1, 2 and 3

The inspector examined results of excavation, concrete activities and fill placement for the nuclear service water facility. Acceptance criteria examined by the inspector include those cited in paragraph 5 and the following:

a. SER and PSAR Section 2.5

b. CKB-3, "Foundation Grouting"

c. CKB-4, "Foundation Preparation, Verification For Nuclear Safety-Related Structures"

d. CKS 1114.00-00-001, "General Grading Work"

e. M-26, "Laboratory Soil Testing"

f. M-1, "Inspection of Compacted Earth Fills"

g. Drawings CK-0026-04 to CK-0026-06, "Earthwork and Drainage, Nuclear Service Water Pond Dam, Sections and Details"

Observations included excavations for the spillway, placement of granular materials in the chimney drain and drainage blanket, partial placement of pour number H-4 in the pump structure, certification of soils inspectors, and the soils testing laboratory. Inspection of the soils laboratory disclosed that sieves used for grain sieze analysis of soils and concrete aggregates are not checked in accordance with procedure and ASTM standards. Procedure M-26 and referenced ASTM D422 require that sieves used for grain size analysis conform to the requirements of ASTM E11. Contrary to the above, discussions with responsible engineers indicated sieves used for grain size analysis are not checked for conformance to ASTM E11. Failure to check sieves as required by procedure is contrary to Criterion V of Appendix B to 10 CFR 50 and was identified to the licensee as Infraction 491, 492, 493/78-08-02.

7. Exit Interview

The inspector met with licensee representatives listed in paragraph 1 at the conclusion of the inspection. The licensee was apprised of the scope of the inspection which included examination of work performance, quality records and QA implementation on structural

concrete, site preparation and nuclear service water facility. The licensee acknowledged tbe items of noncompliance in structural concrete and nuclear service water facility.