



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30303

Report Nos.: 50-413/84-36 and 50-414/84-20

Licensee: Duke Power Company  
422 South Church Street  
Charlotte, NC 28242

Docket Nos.: 50-413 and 50-414

License Nos.: CPPR-116 and CPPR-117

Facility Name: Catawba 1 and 2

Inspection at Catawba site near Rock Hill, South Carolina

Inspectors: *T. E. Conlon* *for* 4-18-84  
W. H. Miller, Jr. Date Signed

*G. R. Wiseman* 4-18-84  
G. R. Wiseman Date Signed

Approved by: *T. E. Conlon* 4-18-84  
T. E. Conlon, Section Chief Date Signed  
Engineering Branch  
Division of Reactor Safety

SUMMARY

Inspection on April 3-6, 1984

Areas Inspected

This routine, unannounced inspection involved 56 inspector-hours on site in the areas of fire protection/prevention.

Results

Of the areas inspected, no violations were identified. One apparent deviation was found, (Hydrogen Gas Piping System for Reactor Coolant Drain Tank paragraph 5.F).

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*R. L. Dick, Vice President-Construction
- \*E. M. Couch, Project Administrator
- \*H. H. Wallace, Construction Engineer
- \*L. R. Davison, Project QA Engineer
- \*R. A. Morgan, Senior QA Engineer
- \*P. G. LeRoy, Licensing
- \*J. R. Hendricks, Design Engineer
- \*H. D. Brandes, Design Engineering
- \*J. M. Rucci, Design Engineering
- \*L. E. Vincent, Office Engineer
- N. Osburn, Mechanical Engineer
- S. P. Chandle, Mechanical Technician
- D. James, QA-Civil
- \*D. P. Hensley, QA Technician

#### NRC Resident Inspector

- \*P. H. Skinner

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on April 6, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the following inspection findings:

- a. Inspector Followup Item (413/84-36-01), Inadequate Number of 8 Hour Emergency Lighting Units - paragraph 5.b.
- b. Inspector Followup Item (413/84-36-02), Verification of Orifice Size in Water Supply Connections to Auxiliary Buildings - paragraph 5.d.
- c. Inspector Followup Item (413/84-36-03), Reevaluation of Fire Protection/Detection Systems for Ventilation Systems - paragraph 5.e.
- d. Deviation (413/84-36-04), Hydrogen Gas Piping System for Reactor Coolant Drain Tank - paragraph 5.f.

### 3. Licensee Action on Previous Enforcement Matters

- a. (Open) Unresolved Item (413/84-11-02 and 414/84-07-01), Fire Protection Piping Systems Over Safety-Related Equipment Are Not Seismically Supported: Fire protection piping is located above safety-related

equipment in a number of areas and is not yet seismically supported. Records were not available on site to verify that vendor designed fire protection systems had been reviewed to assure that the systems are seismically supported. Also, documentation was not available on site for review to determine how construction type hangers were reclassified as seismic supports. Therefore, this item remains open and will be further evaluated during a subsequent NRC inspection.

- b. (Open) Unresolved Item (413/84-11-03), Verification of QC Welding Inspection for Fire Protection System IRF-7: A Nonconformance Report (NCR 18053) has been issued by the licensee for the craft to inspect this piping system and to notify QC of any welds that do not have an inspection sign off. This inspection has not been completed.
- c. (Open) Unresolved Item (413/84-11-04), Verification of QC Inspection of Underground Piping for the Diesel Generator Carbon Dioxide System: The licensee is to inspect sample sections of the underground piping to verify that the piping is provided with an adequate protective coating as required by the construction drawings. This item remains open pending completion of the inspection and followup corrective action.
- d. (Open) Unresolved Item (413/84-11-05), Unapproved Hardware on Locking Type Fire Doors: Fire doors have been modified to permit the hardware to positive latch when the door is unlocked. However, this item remains open since the hardware will not be adjusted until fuel load.
- e. (Closed) Unresolved Item (413/84-16-06 and 414/84-07-02), Inadequate Fire Protection QA Program: The QA program provided for fire protection features apparently meets the commitments in the licensee's fire protection review of July 1983. Therefore, this item is closed.

#### 4. Unresolved Items

Unresolved items were not identified during this inspection.

#### 5. Permanent Plant Fire Protection/Prevention Features

The inspectors reviewed the following permanent plant fire protection features:

- a. Oil Collection System for Reactor Coolant Pumps (Module TI 2515/61)

The oil collection system for the reactor coolant pumps was reviewed. Potential oil leakage points for each pump have been provided with a Westinghouse designed and furnished spray catchment enclosure. These enclosures are provided for the lubrication oil lift pumps, oil heat exchangers and lower drip pans and are connected to drain piping which discharges into a 385 gallon tank. A separate tank is provided for each pump. The entire oil collection system is designed and installed to function following a design base seismic event. This system was

installed under the licensee's seismic quality assurance (QA) program as verified by a review of the following records:

(1) Pipe Configuration

<u>Design Isometric Drawing</u>	<u>Date of Final QC Inspection</u>
CN-1491-NC078	3/26/84
CN-1491-NC080	5/26/83
CN-1491-NC082	3/23/83

(2) Weld Inspection

<u>Weld Number</u>	<u>Date of Final QC Inspection</u>
INC211-1	3/26/84
INC211-10	11/11/82
INC213-9	1/14/80
INC213-17	1/10/80
INC215-14	1/12/83
INC215-22	1/12/83

(3) Hanger Inspection

<u>Hanger Number</u>	<u>Date of Final QC Inspection</u>
1-R-NC-2062	2/16/84
1-R-NC-2070	3/17/84
1-R-NC-2077	2/18/84

The inspectors inspected the oil collection system for reactor coolant pump nos. 1A and 1B and verified that these systems were in conformance to the general design requirements. A review of the licensee's surveillance procedures on this system will be made during a subsequent NRC inspection.

b. Emergency Lighting Units (Module TI 2515/61)

A review was made of the 8-hour emergency lighting units for the auxiliary feedwater pump rooms, essential switchgear rooms A and B, access to Standby Shutdown Facility and Control Room. These areas contained the lighting units required by the construction drawings, except lighting units had not been provided for the control panel area of the control room. The licensee is to investigate why these units have not been installed and initiate appropriate corrective action. This item is identified as Inspector Followup Item (413/84-36-01), Inadequate Number of 8-Hour Emergency Lighting Units, and will be reviewed during a subsequent NRC inspection. The construction drawings

require only one lighting unit in the auxiliary feedwater pump area. This appears inadequate. Also, the drawings do not require a lighting unit in the Train B disconnect enclosure in the Train A Essential Switchgear Room. These areas are to be further evaluated by the licensee to assure that adequate emergency lighting is provided. These discrepancies are also part of Inspector Followup Item (413/84-36-01). During future NRC inspections, the licensee's surveillance procedures will be reviewed and the rating of the battery units will be evaluated.

c. Fire Pumps - Fire Barrier Wall

The inspectors verified that the fire rated masonry wall had been provided to separate fire pump 'B' from pumps A and C as required by NRC; letter to Duke of January 20, 1984. The power cables to pump 'B' beneath the intake structure deck are to be enclosed within a fire rated enclosure. This feature is scheduled to be completed prior to fuel load and will be reviewed during a subsequent NRC inspection.

d. Yard Fire Protection Piping System

The water supply connections to the auxiliary buildings were reviewed. Records were not located to indicate the size of the orifice plate which had been installed in these connections. The licensee is to investigate this problem and take the necessary action required to verify that the correct orifice plates are installed in these connections. This is identified as Inspector Followup Item (413/84-36-02), Verification of Orifice Size in Water Supply Connections to Auxiliary Buildings, and will be reviewed during a subsequent NRC inspection.

e. Fire Protection for Charcoal Filter Type Ventilation Units

A review was made of the fire detection and suppression system for the charcoal filter type ventilation units for auxiliary building Unit 1B, annulus systems 1A and 1B, and fuel pool system. These ventilation units are manufacturer by Mine Safety Appliance (MSA) and have a thermister type fire detection system on the supply and exhaust side of the charcoal filter units which is not connected to the fire protection alarm system, but actuates on the ventilation systems control panel. The water spray fire suppression system within each unit is designed and installed as part of the ventilation unit. The water to these systems are supplied from the fire protection water system and manually activated by opening a normally closed valve. The electrical installation work to the fire detection system was installed under the safety-related QA program. However, during this inspection, information on the type pre-operational tests and future surveillance and maintenance inspections and tests to be conducted on these systems were not obtained. This item will be further evaluated during a subsequent NRC inspection and is identified as Inspector Followup Item (413/84-36-03), Reevaluation of Fire Protection/Detection Systems for Ventilation Systems.

## f. Hydrogen Piping Systems

A review was made of the hydrogen gas piping system to the volume control tank, waste gas decay tanks and reactor coolant pumps drain tank. The attachment to Duke's letter of April 14, 1983, to the NRC states that all hydrogen piping within the auxiliary and reactor buildings would be Duke Class F which is designed to maintain pressure boundaries during design basis seismic events. The hydrogen for the volume control tank and waste gas decay tanks is supplied from the bulk gas storage located in the plant yard. Piping inside the auxiliary building from the bulk gas supply to these tanks is designed and installed as Duke Class F (ANSI B31.1 - Seismic Loading). The following hanger supports were reviewed to verify that the system was seismically supported in accordance with the construction drawings:

<u>Hanger No.</u>	<u>Date of QC Inspection</u>
1-A-NV-3109	10/5/81
1-A-NV-3503	9/24/83
1-A-GS-3136	6/3/82
1-A-WG-8396	7/27/82

The original design for the hydrogen system to the reactor coolant pump drain tanks required this system to be supplied from two cylinders located within each reactor building. The piping between the cylinders and tank was to be Duke Class F (seismic type). This system has been modified by relocating the cylinders to the bulk gas storage building outside the plant structures. The gas piping now extends from the yard supply through the auxiliary and reactor buildings to the drain tank. The piping at the entrance to the auxiliary building in the mechanical penetration room is Class G (ANSI B31.1 - not designed for seismic loading) and the piping within the reactor building to the drain tank is Duke Class E (ANSI 31.1 - not designed for seismic loading). Relocating the cylinders to a location outside the plant structure was a fire safety improvement. However, the installation of the non-seismic type piping within the auxiliary building and reactor building creates a potential fire hazard and does not conform to the commitments to the NRC. This discrepancy is identified as Deviation (413/84-36-04), Hydrogen Gas Piping System for Reactor Coolant Pump Drain Tank not installed for seismic loading.

Other than noted above, within the areas examined, no additional deviations and no violations were identified.