UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos. 50-413/81-06 and 50-414/81-06

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

Facility Name: Catawba

Docket Nos. 50-413 and 50-414

License Nos. CPPR-116 and CPPR-117

Inspection at Catawba site near Rock Hill, South Carolina

Inspector: A. S. Johnson for P. K. VanDoorn — Date Signed: 4/8/81

Approved by: J. C. Bryant, Section Chief, Division of Resident and Reactor Project Inspection — Date Signed: 4/8/81

SUMMARY

Inspection on February 26 - March 25, 1981

Areas Inspected

This routine unannounced inspection involved 163 resident inspector-hours on site in the areas of safety-related piping - observation of welding and non-welding work activities (Units 1 and 2); reactor coolant pressure boundary piping - observation of welding work activities; (Units 1 and 2) containment (structural concrete) - observation of work and work activities (Unit 2); observation of housekeeping and storage/protection of equipment (Units 1 and 2); safety-related pipe support and restraint systems (Unit 1); and observation of the Local Public Document Room.

Results

Of the six areas inspected, no violations or deviations were identified in five areas; two violations were found in one area (Failure to document corrective action concerning inadequate design of a hanger -paragraph 9.c. and Failure to follow procedure for installation of hangers and to provide appropriate qualitative criteria on a hanger drawing paragraph 9.d.).

DETAILS

1. Persons Contacted

Licensee Employees

D. G. Beam, Project Manager
S. R. Dressler, Senior Construction Engineer
L. R. Barnes, Manager Support/Restraints
*E. C. Wall, General Superintendent
*R. A. Morgan, Senior QA Engineer
*T. D. Mills, Construction Engineer Mechanical
A. R. Hollins, Construction Engineer Hangers
K. R. Webber, Mechanic Superintendent
*J. C. Shropshire, QA Engineer Supervisor
T. A. Evans, Hanger Engineer
*H. D. Mason, QA Engineer Supervisor
*M. R. Hemphill, QA Engineer
D. H. Llewellyn, Welding Engineer

Other licensee employees contacted included 12 construction craftsmen, 4 technicians, 3 inspectors, and 3 office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 25, 1981 with those persons indicated in Paragraph 1 above. The unresolved items and violations described in paragraphs 5 and 9 respectively were discussed in detail.

3. Licensee Action on Previous Inspection Findings

(Open) Unresolved Item (413, 414/80-18-01) - Pipe design and inspection clearance requirements. This item concerned the fact that the licensee had not defined requirements for clearances between piping systems/components. As a result an NRC inspector noted two examples of nonsafety-related piping in contact with safety-related pipe/components. On March 18, 1981, the inspector noted that non-safety-related Hanger No. 1-CWL-6656 was in contact with the operator of Class A valve No. 1NV11-3. This is considered to be another example of the previously identified problem. Licensee personnel indicated that the requirements have been defined and procedures are being developed for implementation. This item remains open until procedures are issued and implemented.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. One new unresolved item identified during this inspection is discussed in paragraph 5.

5. Independent Inspection Effort (Units 1 and 2)

a. The inspector conducted general inspections of site work and work activities and observed equipment protection/storage and housekeeping in the auxiliary building, containment buildings and storage areas.

b. The inspector observed the Public Document Room in Rock Hill, South Carolina, to verify that NRC and facility documents are being filed in an orderly manner and are available to the public.

c. The inspector observed portions of the Unit 2 containment dome structural concrete placement for conformance to requirements in the areas of preplacement preparation; adequacy of crew, equipment and techniques; control of special technique requirements implemented for the dome pour; preparation of construction joints and curing.

d. On March 5, 1981, during a discussion with licensee personnel concerning interim valve storage requirements the inspector noted that some requirements were contained in a Design Engineering Department letter dated August 19, 1980. These requirements had not yet been implemented at the Catawba site. The specific requirements of the letter were of minimal safety significance. However, additional inspection is necessary to verify that this was an isolated case and to determine if a control system is necessary to assure timely implementation of design requirements. This is Unresolved Item 413/414/81-06-01, Delay in Implementation of Design Requirements.

No violations or deviations were identified.

6. Safety-Related Piping (Welding) - Observation of Work and Work Activities (Units 1 and 2)

The applicable code for installation of safety-related piping is the ASME Boiler and Pressure Vessel Code, Section III, 1974 Edition plus addenda through summer 1975. The inspector observed in process welds at various stages of completion and reviewed records for conformance to code and procedure requirements in the areas of documentation of pertinent information and QC signoffs via a weld traveler, availability of pertinent instructions, use of appropriate qualified welding procedure, provisions for weld repair provided, certification of filler material, verification of base material certification, control of welding parameters, verification of

welder qualification, use of specified shielding and purge gas, condition of welding equipment, provisions for voltage and amperage checks, verification of proper fitup, control of preheat and interpass temperature, condition of weld and base metal surfaces, and verification that appropriate inspections were being performed. The following welds were observed:

Weld No.*	Size (In. Dia.)	Stage of Welding Observed
1-RN224-3	20	Bevel repair
2-KF60-2	8	Intermediate
2-KF60-3	8	Final
2-KF111-3	10	Intermediate
2-ND27-11	8	Intermediate
2-ND25-11	8	Fitup
2-CA74-15	1	Intermediate
2-NI15-1	32	Bevel repair

*First number of weld number indicates Unit number.

No violations or deviations were identified.

7. Reactor Coolant Pressure Boundary Piping (Welding) - Observation of Work and Work Activities (Units 1 and 2)

The applicable code is delineated in paragraph 6. The inspector observed intermediate welding and in process weld records of Weld Nos. 1-NC230-3 and 2-NI91-3 for conformance to code and procedure requirements in the areas delineated in paragraph 6.

No violations or deviations were identified.

8. Safety-Related Piping - Observation of Work and Work Activities (Unit 2)

The applicable code is delineated in paragraph 6. The inspector observed handling of piping for installation of Weld Nos. 2-KF40-16, 2-KF60-8, 2-KF111-3 and 2-FW42-20 for conformance to procedure and code requirements in the areas of control of tools for grinding, brushing and filing; use of appropriate handling and rigging equipment; control of cleanliness; and control of cold spring where applicable. The inspector noted on March 9, 1981 that internal jacking was being employed for fitup of Weld No. 2-FW42-20. This is another example of the use of internal jacking which has been previously questioned (See Unresolved Item 413/414/81-03-02).

No violations or deviations were identified.

9. Safety-Related Pipe Support and Restraint Systems (Unit 1)

a. The applicable code for safety-related support and restraint installation is the ASME Boiler and Pressure Vessel Code, Section III, Subsection NF, 1974 Edition plus addenda through summer 1975. The inspector observed various activities associated with installation of

supports and restraints to determine if code and procedure requirements were being met. The inspector observed warehouse storage areas,. the hanger fabrication shop and hanger pre-stage area to determine if requirements were being met in the areas of storage/protection of materials, control of prefabrication and presetting of cold load on spring hangers. During this inspection the inspector checked approximately 20 snubbers for smoothness of shaft travel, verified cold load settings for 6 spring hangers and observed shortening in progess of the sway strut for Hanger No. 1-A-NV-8367. In addition, the inspector observed installed hangers for conformance to requirements (as applicable) in the areas of deterioration and corrosion; deformation of materials; tightness of bolts, nuts and fasteners; use of lock nuts where required, cold load setting of snubbers, installation clearances, control of materials and appearance of welds. The following hangers were observed:

Hanger No.	Type
1-A-NV-8255	Trapeze
1-R-N1-1399	Snubber
1-R-BB-1092	Sway Strut
1-R-BB-1093	Sway Strut
1-R-BB-1094	Sway Strut
1-R-N1-1351	Sway Strut
1-R-N1-1487	Snubber
1-R-NV-1768	Rigid
1-A-N1-4135	Rigid
1-R-NV-1764	Snubber

b. On March 16, 1981, the inspector noted that cold load settings on spring hangers located in the hanger pre-stage area were not in accordance with the requirements of procedure CP-353, Rev. 8, Adjustment, Installation and Modification of Pre-Engineered Hanger Components. Procedure paragraph 1.B. requires the hanger fab shop to set cold load per design requirements with no tolerance allowed. Examples noted are as follows:

Hanger No.	Actual Setting (lbs.)	Required Setting (lbs.)
1-R-NI-50	425	427
1-R-NV-240	24	25
1-R-CM-2138	505[illegible]	4991
1-R-SM-1552	11315	12387
1-A-NV-3[illegible]1	212	211
1-R-NV-107	97	105

On March 18, 1981 the inspector noted that cold load settings on snubbers for two hangers also were not in accordance with the requirements of procedure CP-353. Procedure CP-353, paragraph 2.D. requires craft personnel to stroke the snubbers upon installation to the cold setting required by design drawings with no tolerance allowed. Hanger

Nos. 1-R-N1-1487 and 1-R-BB-1093 were set at 1½ inch and 1¼ inch respectively. The requirement for both hangers is 15/16-inch. Licensee personnel indicated that the cold load settings required by CP-353 are for fabrication purposes and not intended to be the final setting. Licensee personnel also indicated that some initial snubber settings will change as additional hangers are added to the line. In addition, the inspector noted that the applicable specification (CN-1206.-00-04-0003, Rev. 6) does allow a ± 10% tolerance for spring hanger settings and ± ¼-inch tolerance for snubbers. However, it appears that settings made during fabrication can be made more accurately resulting in improved final quality of the systems. Until the licensee addresses the improvement of practices for initial cold load setting and until the inspector can verify that a system to assure proper final cold load settings is being implemented, this will be Unresolved Item 413/414/81-06-02, Control of Hanger Cold Load Settings.

c. On March 12, 1981 the inspector noted that completed Hanger No. 1-A-NV-8255 was not supporting the piping it was designed to support. It appeared that the design was such that the trapeze portion of the hanger could easily become dislodged from the clamp around the pipe. Licensee personnel indicated that this inadequate design had been recognized and a drawing change had been issued for this hanger. The inspector verified that this hanger has been redesigned. However, it appears that this condition was not documented and reported to appropriate levels of management as required by Criterion XVI of Appendix B to 10 CFR 50. This could have resulted in additional design problems not being identified. However, after the inspector questioned the design, the licensee reviewed all possibly affected hanger designs. This review, completed on March 23, 1981, indicated that the inadequate design was an isolated case.

This is Violation, 413/81-06-03, Failure to Document Corrective Action Concerning Inadequate Design of a Hanger.

d. On March 18, 1981, examples of failure to comply with Criterion V of Appendix B to 10 CFR 50 were identified. These are as follows:

(1) Hanger Nos. 1-R-NI-1487 and 1-R-NV-1764 were installed without meeting the angular tolerance allowed by procedure CP-385, Rev. 8, Support/Restraint Erection Tolerances. The tolerance, allowed per procedure CP-385, paragraph 2.11.2, is ± 4°. The measured angle in both cases was 11°.

(2) The drawing approved and issued for Hanger No. 1-A-NI-4136 did not specify the weld to shorten the sway strut assembly as an ASME, Section III, Subsection NF weld as required by paragraph NF-1130.

This is Violation, 413/81-06-04, Failure to Follow Procedure for Installation of Hangers and to Provide Appropriate Qualitative Criteria on a Hanger Drawing.

No violations or deviations, except as described in paragraph 9.c. and 9.d., were identified.