



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

Report Nos.: 50-413/85-01 and 50-414/85-01

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

Docket Nos.: 50-413 and 50-414

License Nos.: NPF-31 and CPPR-117

Facility Name: Catawba 1 and 2

Inspection Conducted: January 8-11, 1985

Inspector:

N. Economics
N. Economics

1/30/85
Date Signed

Approved by:

J. J. Blake
J. J. Blake, Section Chief
Engineering Branch
Division of Reactor Safety

1/31/85
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 30 inspector-hours on site in the areas of review of Reactor Pressure Vessel and Internals Receipt and Installation Record Review; Reactor Coolant Pressure Boundary (RCPB), Piping Work Observation and Record Review; RCPB Piping Nonconforming Item Disposition and Nondestructive Examinations (RT), Safety-Related Piping.

Results: No violations or deviations were identified.

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REPORT DETAILS

1. Licensee Employees Contacted

- *T. B. Bright, Engineering Manager Construction
- *H. L. Atkins, QA Engineer Welding/NDE
- *E. B. Miller, Senior QA Engineer
- *P. G. Leroy, Licensing Engineer NPD/CNS
- J. Cavender, NDE Examiner - Level III
- B. Gillespie, QA Welding/NDE
- D. Mason, QA Mechanical
- D. Hensley, Licensing Specialist NPD
- T. H. Propst, Mechanical Technician/CNS
- J. E. Cherry, ISI Specialist

Other licensee employees contacted included construction craftsmen, technicians and office personnel.

Other Organizations

- P. J. Rapone, Site Manager, Nuclear Operations Division (NOD),
Westinghouse (W)
- P. Trnavsky, Site Mechanical Engineer, NOD (W)

NRC Resident Inspector

- *P. K. VanDoorn, Senior Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 11, 1985, with those persons indicated in paragraph 1 above. The inspector described the scope of the inspection and discussed inspection findings identified below.

Inspector Followup 414/85-01-01, Accumulator Tank 2D Weld Defects, paragraph 5

Inspector Followup 414/85-01-02, S/G "B" Stub Barrel to Shell Joint Weld Defects, paragraph 5

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort (92706)

Discussions held with cognizant licensee personnel monitoring the baseline inspection of Unit 2, disclosed the following:

The baseline ultrasonic examination (UT) of the welds on the SIS Accumulator tank 2D, disclosed the presence of multiple rejectable indications in the shell to upper head weld which is a vendor (Southwest) weld. Subsequent radiography confirmed the findings reported by the ultrasonic examination. Interpretation of the radiographs disclosed that out of the 34 film intervals, 29 were rejected for slag and two for lack of fusion. Rejection was based on Section III of the ASME Code, Subsection NC, and Duke's NDE-10 Radiographic Procedure. The inspector reviewed the vendor's radiographs and those shot by the licensee in order to ascertain the extent of the condition and concurred with the above findings. In discussing this matter with cognizant licensee personnel, the inspector learned that the vendor has acknowledged these findings and that discussions are underway to arrange for the repair of the weld(s). A nonconforming item report, S/N 19227, has been issued; however, at the time of this inspection no disposition had been generated. Also, the licensee's representative could not verify that a review of all the vendor film on Units 1 and 2 accumulator tanks had been performed at this time. Based on discussion with the licensee's representative, the inspector's understanding was that nine feet of each circumferential weld on the accumulator tank 2D would be U/T examined. However, the inspector indicated that, since the credibility of the construction radiographs had been compromised by the baseline examination, the extent and/or percentage of weld inspection should be expanded to assure that weld integrity meets construction code requirements. Inspector followup item 414/85-01-01, "Accumulator Tank 2D Weld Defects", was identified for the purpose of further review and evaluation of this matter.

The baseline examination of S/G "B" welds disclosed the presence of multiple rejectable indications on the stub-barrel to lower shell weld. The indications were relatively shallow and open to the surface. From discussions with the licensee's representative, the inspector understood that W removed the indications by grinding out about 0.040" of weld metal. Also, the inspector understood that a subsequent surface examination (MT), on the aforementioned weld and on similar welds in the other three S/Gs, showed them to be acceptable. Presently, the licensee plans to UT examine 100% of

one circumferential weld in each of the four S/Gs. These welds are as follows:

- SG "A" - Tube Sheet (TS) to Stub-Barrel
- SG "B" - Stub-Barrel to Lower Shell
- SG "C" - Lower Shell to Transition Cone
- SG "D" - Transition Cone to Upper Shell

On the primary side, the TS to channel-head weld will be examined after cold hydro. Inspector Followup item 414/85-01-02, "SG "B" Stub Barrel to Shell Joint Weld Defects," was identified for the purpose of further review and evaluation of this matter.

6. Reactor Vessel and Internals Work Observation/Record Review, Unit 2 (50053/50055)

At the time of this inspection, installation of the reactor pressure vessel (RPV) had been completed. Specific activities, i.e., storage, handling placement/installation of the reactor vessel and internals, were observed and addressed in Reports 50-413, 414/80-04, -05 and -07. This work effort was performed to ascertain by record review, whether appropriate requirements/procedures were in place to control the receiving, storage, handling, placement, housekeeping, etc., and whether there was sufficient objective evidence to demonstrate compliance with applicable requirements in the FSAR and the following procedures/specifications:

FSAR - Reactor Pressure Vessel Shipment and Installation Section 5.3.35

Westinghouse Specifications

616A407, Sub. 9, Gr. 15, Revision 10, Reactor Internals Assembly Specification

Appendix - Duke Power Company, Catawba Unit 2 (DDP)

6120E24, Sub. 10, 4 Loop-Bottom Mounted instrumentation and Secondary Core Support Assembly

6118E59, "DDP Vibration Check-Out Functional Test Inspection Data"

80281RG, Rev. 2, "Reactor Internals Field Fabrication Requirements"

Duke Power Company Procedures

P-1 Material and Equipment Receiving Inspection

P-3 General and Special Storage Maintenance Inspection Requirements

M-9	Equipment Release
M-28	Housekeeping Zone Inspection
CP-19	Receiving and Storage of NSSS Vessels
CP-198	Loading and Transporting NSSS Vessels
CP-183	NSSS Vessel Installation

Within these areas, the inspector reviewed the applicable records to ascertain whether appropriate vessel storage and protection were provided, installation techniques were as required, and post installation vessel protection and good housekeeping practices were followed. In addition, the inspector reviewed internals assembly check-off sheet Dwg # 6118E59 used to document QA/QC inspections, W Quality Releases applicable to the RPV and internals, i.e., QR # -37309(RPV) and QR-24395, -24927, -25127, -25339 and -25487. Items such as deficiencies and changes, identified during assembly/installation requiring disposition by W Engineering, were reviewed for adequacy and clarity. These were as follows:

FCN-DDPM-10527	Upper Internals Guide Tube Support Pin Replacement 7/11/82
FCN-DDPM-10535	Upper Internals T/C Conduit Lead-In Chamfer
FDR-DDPM-10031	Split Seal Washer Incorrect Material 7/24/83
MRR-FS-83-287	Lower Internals Roto-Lock Tab Welding Caps 7/24/83
FCN-DDPM-10540A	T/C Location and Seating 3/24/83

Field welding on the internals was performed under W Process Specification 80281RG, Rev. 2 which referenced ASME Code Section III, NG-4000. Welders and weld procedures were qualified to Section IX of the ASME Code. Filler metal and welder certifications were reviewed for compliance with applicable requirements.

Within the areas inspected, no deviations or violations were identified.

7. Reactor Coolant Pressure Boundary Piping - Observation of Work and Work Activities, Unit 2 (49054)

At the time of this inspection, the majority of work in this area had been completed. Earlier work efforts into this area are documented in RII Reports 50-414/81-16, /81-20 and /84-41. In an attempt to complete inspection requirements in this area, sections of reactor coolant piping (NC) were chosen for observation and/or record review of selected non-welding activities impacting the pipe assemblies listed below:

<u>Subassembly</u>	<u>Shop Order No.</u>	<u>Drawing No.</u>
18834	140-2-1	2 NC-9
18835	140-2-1	2 NC-9
18837	140-2-1	2 NC-2

The licensee's procedures controlling some of the selected activities are as follows:

P-1 Revision 28	Receiving Inspection
P-3 Revision 18	General and Special Storage Maintenance Inspection Requirements
CP-365 Revision 5	Housekeeping for RPV, SG, RC Pump Casing and Primary Coolant Loop Piping
M-28 Revision 6	Inspection of Housekeeping Requirements
CP-866 Revision 10	Housekeeping of Unit 2 SIS Accumulator Tanks
NDE-10A Revision 14	Radiographic Procedure
M-4 Revision 19	Weld Process Control

Within these areas, the inspector ascertained by interview and/or record review whether the following requirements, as applicable, were met:

- a. Inspection (QC) and/or work performance procedures, including specified frequency of inspections
- b. Recordkeeping requirements
- c. Construction/installation testing specification requirements
- d. Issuance and use of specified materials
- e. Utilization of qualified inspection personnel

Within the areas inspected, no deviations or violations were identified.

8. Reactor Coolant Pressure Boundary Piping Review of Quality Records, Unit 2 (49056)

As a followup to the previous work effort expended in this area, which was documented in RII Report 50-414/84-41, selected storage inspection records were reviewed to ascertain whether inspections were performed at required inspection frequencies and whether the records confirmed that storage

requirements were met. The controlling procedure for this activity was P-3C "Inspection of Stored Material and Equipment." Records reviewed covered storage inspection performed over the following time frames:

January 6, 1977 to October 20, 1977
 January 23, 1978 to February 9, 1978
 October 16, 1978 to November 6, 1978
 May 3, 1978 to May 24, 1978

Within the areas inspected, no deviations or violations were identified.

9. Reactor Coolant Pressure Boundary Piping (Welding) - Observation of Work and Work Activities, Unit 2 (55073)

Records of completed welds within the reactor coolant pressure boundary system were selected at random and reviewed to ascertain whether the prescribed QC inspections and nondestructive examinations had been performed at the proper state of fabrication. In addition, the inspector reviewed radiographs for the following welds in order to ascertain whether radiographic quality was consistent with the applicable procedure NDE-10A, "Radiographic Examination," and ASME Section III (74S75) requirements. Radiographs were reviewed with specific interest in the following attributes:

1. Penetrameter type, size, placement
2. Penetrameter sensitivity
3. Film density, density variation
4. Film identification
5. Film quality
6. Weld coverage (overlap)
7. Documentation of indications and artifacts
8. Corrective action as required

<u>Weld</u>	<u>Size</u>	<u>Dwg #</u>
2ND47-01	8 x .25	2ND-47
2ND47-16	8 x .25	2ND-47
2ND47-23	8 x .25	2ND-47
2NC41-13	3 x 0.438"	2NC-41
2RNC 1934-9	1" thick plate, Class A hanger	

Within the areas inspected, no deviations or violations were identified.

10. Reactor Coolant Pressure Boundary Piping (Welding) - Review of Quality Records, Unit 2 (55075)

As a followup to the previous work effort expended in this area, which was documented in RII Report 414/81-20, nonconforming item reports selected at random were reviewed to ascertain whether they were complete legible, adequately resolved properly closed out and retrievable. The Duke procedure controlling this activity was Q-1, Revision 21, "Control of Nonconforming Items." Records of nonconformances reviewed were as follows:

- 19085 - Inadvertant contamination of NI, NC, and ND systems with air compressor oil
- 19085 - Oil intrusion into NC, NI and ND systems. Open
- 19071 - Failure to prepare Class A welds for ISI as required by CP-106. Closed 11/1/84
- 19084 - Seating surfaces on S/G "D" access covers at 600' elevation exhibited gouges and uneven areas. Closed 11/5/85
- 19089 - Incorrect weld 2NC157-2C cut during cut-out-work. Closed 11/28/84
- 19114 - Arc strike on upper head of SIS Accumulator tank 2A. Closed 12/18/84
- 19134 - Root valve assembly attached to vendor supplied coupling in violation of Dwg # CN 1499-MI25. Closed 11/24/84
- 18904 - NDE (PT) was not performed before RT hold point on weld # 2NC39-23. Closed 9/13/84
- 18911 - LOP discovered in socket weld 2NV 325-F during review of weld 2NV325-6. Closed 10/5/84

Within the areas of inspection, no deviations or violations were identified.

11. Safety-Related Piping (Welding) - Review of Quality Records, Unit 2 (55085)

Completed field welds in safety-related piping systems where welding, NDE and inspection activities had been completed were selected at random for a record review with specific interest in the area of weld material control and compliance with applicable procedure, H-3 "Identification and Control of Welding Material," and ASME Section III (74S75) requirements.

Welds selected for this review were as follows:

2ND47-1, -16, -23, -30; 2KC651-12-11, -MJ1; 2ND24-40, -41, -42, -43 and -44.

Weld material used in the fabrication of the above welds included the following:

<u>TYPE</u>	<u>HEAT No.</u>	<u>SIZE</u>
AE308EB	E4475T308	5/32"
ER308	465890	1/16"
ER308	464176	3/32"
ER308	464390	1/8"
EA308EB	E41C3L308	5/32"
ER308	C3064	3/32"
E70S-2	97404	3/32"

By inspection of the weld-rod issue station, and a review of Quality records the inspector ascertained whether these materials complied with the code/procedure requirements in the following areas:

- a. Receipt verification of identity and conformance with specifications
- b. Control of pre-issue storage conditions
- c. Storage identification and issue control
- d. Post-issue control regarding identification, temperature and moisture
- e. Disposition of issued but unused materials

Within the areas inspected, no deviations or violations were identified.