



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

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Report Nos. 50-413/80-02 and 50-414/80-02

Licensee: Duke Power Company
P. O. Box 33189
Charlotte, North Carolina 28242

Facility Name: Catawba Nuclear Station, Units 1 and 2

Docket Nos. 50-413 and 50-414

License Nos. CPPR-116 and CPPR-117

Inspection at Lake Wylie, South Carolina

Inspector: N. Economos

3/16/80
Date Signed

Accompanying Personnel: L. D. Zajac (Training)

Approved by: A. R. Herdt
A. R. Herdt, Section Chief, RCES Branch

3/16/80
Date Signed

SUMMARY

Inspection on February 12-14, 1980

Areas Inspected

This routine, unannounced inspection involved 33 inspector hours onsite in the areas of reactor coolant pressure boundary piping; safety-related piping; safety-related structures (welding) observation of work and work activities; and vendor pipe welds with rejectable indications.

Results

Of the four areas inspected, no apparent items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Licensee Employees

- *D. G. Beam, Project Manager
- *D. L. Freeze, Project Engineer
- *R. A. Morgan, Senior QA Engineer
- *R. G. Rouse, QA Technician
- *J. C. Shropshire, QA Engineer (QAE) Mechanical, Welding
C. R. Baldwin, QC Welding and NDE
- *L. R. Davison, Senior QC Engineer
- *H. D. Mason, QAE Civil, Electrical

Other licensee employees contacted included seven construction craftsmen five technicians, and two engineers.

Other Organizations

Hartford Steam Boiler Inspection and Insurance Company

*J. W. Kasko, Authorized Nuclear Inspector (ANI)

NRC Resident Inspector

*G. F. Maxwell

Richmond Engineering Company (RECO)

J. R. Palmore, QC Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on February 14, 1980, with those persons indicated in Paragraph 1 above. The inspection included reactor coolant pressure boundary piping, safety-related piping, and safety-related structures. No dissenting comments were received from the licensee.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in Paragraphs 5 and 8.

5. Independent Inspection Effort

a. Plant Tour (Units 1 and 2)

The inspector performed a general inspection of Unit 1 reactor building, auxiliary building and turbine building. Around the work areas the inspector observed certain pipe handling activities including installation and welding, the general state of housekeeping, cleanliness, control of used/unused weld electrodes around working areas and the proper use of wire brushes on stainless steel material.

b. Linear indications in SA-312 Stainless Steel Swepco Fabricated Pipe Welds

In response to a RII request the inspector reviewed the radiographs of certain field fabricated pipe welds that depicted rejectable rounded and/or linear indications in the vendor (SWEPCO) fabricated longitudinal joints. The welds in question were in 8" schedule 40 stainless steel type-304 material produced to SA-312, ASME Section III, Class 2 (74S74) and DPCO's specification CNS-1206.00-2.2 Rev. 12. The welds had been ultrasonically (UT) inspected by Swepco per procedure VE-102 Rev. 0 and ASME Section III, NC-2550. Records of UT test results indicated the welds were satisfactory. The following table identifies the welds and the radiographic indications observed.

<u>Weld No.</u>	<u>System</u>	<u>Size</u>	<u>Indication</u>	<u>Location-Distance from Circumferential Weld Fusion Line</u>
INS83-2	Containment Spray	8" sch.40	3/4" linear	5/8-inches
INS82-7	Containment Spray	8" sch.40	1/2" linear	5/8-inches
			3/16" linear	3/16-inches
INS73-12	Containment Spray	8" sch.40	1-3/8" linear	1/16-inches

All the indications appeared to be situated close to the root of the weld. The licensee has issued nonconformance item reports on these welds.

Nondestructive requirements relative to SA-312 specification were discussed in detail with the licensee's cognizant QA representative whose position was that quality records show the material met specification requirements, hence repairs and/or additional NDE testing e.g., radiography, would be in excess of code/specification minimum requirements.

The inspector stated that a reexamination of selected welds including the welds in question with the vendor's technique would help determine the adequacy of the UT procedure and/or the ability of UT to detect

these type of indications. The QA representative agreed to look further into this matter. During a telephone conversation with the licensee's representative on February 18, 1980, the inspector stated this matter would be identified as an unresolved item pending review of remedial licensee action on this matter. The unresolved item was identified as follows, 50-413/414/80-02, Linear indications in SWEPO fabricated SA-312 stainless pipe.

6. Reactor Coolant Pressure Boundary (RCPB) Piping (Welding) Observation of Work and Work Activities

The inspector observed field welding of reactor coolant pressure boundary at various stages of weld completion. The applicable Code for safety-related pipe welding is ASME B&PV Code Section III, 1974 Edition with Summer 1974 Addenda as implemented by Duke ASME QA Manual.

Observation of field welding activities included, where applicable, the following areas: weld identification and location, joint preparation and alignment, specified weld procedure, welder qualification, specified weld material, specified purge, specified temperature (pre-heat, interpass), welding variables within limits, evidence of QC verification, physical appearance suitable for NDE and specified NDE being performed. Weld repairs were observed and related QC records were reviewed for completeness and accuracy. Following are welds selected for this effort:

a. Joint Fitup

<u>Joint Number</u>	<u>Isometric</u>	<u>System/Size</u>
INC 226-1	CN-INC-226 NC	(6" Diameter)

b. Root Pass Only

<u>Joint Number</u>	<u>Isometric</u>	<u>System/Size</u>
INC-46-19	CN-INC-46 NC	(3" Diameter)
NC-1506-5	CN-NC-1506 NC	(3/4" socket)

c. Welding Complete and Testing in Progress/Complete

<u>Joint Number</u>	<u>Isometric</u>	<u>System/Size</u>
INI-162-14	CN-INI-162 NI	(10" Diameter)
INC-82-5	CN-INC-82 NC	(1-1/2" Socket)

d. Repairs

<u>Joint Number</u>	<u>Isometric</u>	<u>System/Size</u>
INC-29-7	CN-INC-29 NC	(10" Diameter)
INC-29-4	CN-INC-29 NC	(10" Diameter)
INI-162-12	CN-INI-162 NI	(6" Diameter)
INI-162-9	CN-INI-162 NI	(6" Diameter)

Work areas were observed for the presence of uncontrolled weld consumables and the rod issue station was inspected for compliance with procedural requirements. The number of QA/QC inspection personnel assigned to work areas appeared to be commensurate to the amount of work in progress.

Within the areas inspected no items of noncompliance or deviations were identified.

7. Safety-Related Piping (Welding) - Observation of Work and Work Activities

The inspector observed field welding of safety-related piping outside the reactor coolant pressure boundary at various states of weld completion. See Paragraph 6 above for the applicable code.

The inspector examined weld joint fitup, prior to welding, to determine whether weld identification/location, joint preparation and alignment, and evidence of QC verification meet applicable procedures. Selected completed welds were inspected to ascertain whether surface conditions were suitable for nondestructive examinations performed. Weld repairs were observed and related QC records were reviewed for completeness and accuracy.

Following are welds selected for this effort:

a. Joint Fitup

<u>Joint Number</u>	<u>Isometric</u>	<u>System/Size</u>
1NS-122-2,-4,-6, -8,-10,-12	CN-1NS-122 NS	(1" Diameter)

b. Welding Complete and Testing in Progress/Complete

<u>Joint Number</u>	<u>Isometric</u>	<u>System/Size</u>
1NS-111-1B (Spool No.)	CN-1NS-111 NS	(Containment Spray Header Nipple welds)
1NI-162-12	CN-1NI-162 NI	(6" Diameter)
1WL-927-6 to -12	CN-1WL-927 WL	(2" Diameter)
1VB-20-1	CN-1VB-20	

c. Repairs

<u>Joint Number</u>	<u>Isometric</u>	<u>System/Size</u>
2 FD-37-13	CN-2FD-37 FD	(3" Diameter)

Within these areas, the inspector noted that the application of liquid penetrant (PT) developer, on the nozzle and nipple socket welds on containment spray header spool INS-111-1B, appeared to be extremely thin and nonuniform in some cases. The inspector discussed this observation with DPCO's cognizant NDE personnel who stated that NDE technicians have been instructed to apply a thin and uniform coating of developer on welds under examination. The technician was asked to PT some other similar welds in the same manner and the results were observed by the licensee and the NRC inspectors. This time, the developer appeared to be more uniform but still on the thin side. In view of these circumstances the inspector stated that since these items "thin" and "uniform" are subject to individual interpretations it would be worthwhile to develop acceptance standards that could be used for training and reference purposes on the job. The licensee agreed to look into this matter further and report in a subsequent inspection. This matter was identified as inspector follow-up item 50-413/80-02-01, "Liquid Penetrant Developer Application Standards".

Within the areas inspected, no items of noncompliance or deviations were identified.

8. Safety-Related Structures (Welding I) - Observation of Work and Work Activities (Unit 2)

The refueling water storage tank (RWST) for Unit 2 is being fabricated by Richmond Engineering Company (RECO) under contract with DPCO. The controlling specification is CNS-1148.00-03 "Specification for Fabricating and Designing, Erecting and Furnishing Water Storage Tanks" while the applicable code is ASME Sections VIII and III, NA, NC (74S75) Class 2. At the time of this inspection work was in progress on the roof and on the vertical and the horizontal welds on the sidewall of the tank. Field weld activities observed included weld identification and location with respect to drawing CN-1325-02, D-76-414 Rev. 4; joint preparation and alignments; use of properly qualified weld procedures and welders; use of specified weld material that was properly controlled and its quality verified by appropriate quality records. Welds selected for this work effort were as follows:

Vertical Seams - 11, 12, 27, 28, 29, 31 and 32

Horizontal Seams - 9 and 10

The tank is being fabricated from material produced in accordance with ASME, SA-240 stainless steel type 304. Shell plates with serial numbers W2250 and W2318 were selected for a review of receipt inspection reports and quality records.

Weld consumable storage and issuing facilities were inspected and quality records of material on hand identified by heat numbers 586062, 5/32" diameter R308 and #586062 1/8 diameter R308 were reviewed for compliance with code and procedural requirements. Also radiographs of selected completed welds 9 (horizontal) and 11, 12 (vertical) were reviewed for code compliance.

Within those areas the inspector noted that heavy grinding of the base material in the area of the heat affected zone of vertical weld no. 31 of the 5th ring may have resulted in a violation of a minimum wall requirements and at the same time produced an abrupt weld to base-metal transition with associated stress risers. This condition was discussed in detail with RECO's cognizant QC inspector and DPCO who agreed to measure the thickness of the suspect material and to inspect for abrupt weld to base-metal transitions. The inspector stated this matter would be identified as unresolved item number 50-414/80-02-01 "Weld and Base-Metal Grinding on RWST".