



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

JUL 30 1981

Report Nos. 50-413/81-16 and 50-414/81-16

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

Facility Name: Catawba

Docket Nos. 50-413 and 50-414

License No. CPPR-116 and CPPR-117

Inspection at Catawba site near Rockhill, South Carolina

Inspector:

L. D. Zajac
L. D. Zajac

7/21/81
Date Signed

Approved by:

A. R. Herdt
A. R. Herdt, Section Chief
Engineering Inspection Branch
Engineering and Technical Inspection Division

7/21/81
Date Signed

SUMMARY

Inspection on July 14-17, 1981

Areas Inspected

This routine, unannounced inspection involved 31 inspector-hours on site in the areas of fitup, welding, radiographic film review, QA record review and visual examination of welds in the reactor coolant pressure boundary piping system (Units 1 and 2); walkdown inspection of installed reactor coolant pressure boundary piping systems (Unit 1); and storage of reactor coolant pressure boundary piping (Unit 1).

Results

Of the seven areas inspected, no violations or deviations were identified in six areas; one violation was found in one area (Violation - Failure to follow procedures for control of surface applied materials, paragraph 5.b).

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *S. W. Dressler, Senior Construction Engineer
- *R. A. Morgan, Senior QA Engineer
- *J. C. Shropshire, QA Engineer Supervisor
- *T. H. Robertson, Construction Engineer
- R. D. Blackwelder, QA Technician
- D. H. Llewellyn, Welding Engineer

Other licensee employees contacted included five welders and three office personnel.

NRC Resident Inspector

- *P. K. VanDoorn

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on July 17, 1981 with those persons indicated in paragraph 1 above. The following specific items were discussed in detail:

(Open) Violation 413, 414/81-16-01 - Failure to follow procedures for control of surface applied materials, paragraph 5.b.

(Open) Unresolved Item 413, 414/81-16-02 - Control of NDE for internal pipe weld repairs, paragraph 6.a.

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 violations or deviations. New unresolved items identified during this inspection are discussed in paragraph 6.a.

5. Independent Inspection Effort

a. Radiographic Film Review (Unit 1)

The inspector reviewed radiographic films, for the welds listed below, to determine if they meet the applicable ASME Code requirements. The applicable requirements are Section V of the ASME Code, 1974 edition with addenda thru summer 1975.

<u>Weld Ident.</u>	<u>Pipe Size and Material</u>	<u>System</u>
INV 613-3	3" Stainless Steel	Chemical Volume Control
INV 613-10	3" Stainless Steel	Chemical Volume Control
INV 22-7	27½" Stainless Steel	Reactor Coolant
INV 22-2	31" Stainless Steel	Reactor Coolant

No violations or deviations were noted.

b. Sighting of Completed Reactor Coolant Piping Welds (Unit 2)

The inspector sighted several completed piping welds installed in Unit 2 to determine if the weld contour, identification marking and the general pipe surface condition were in conformance with applicable procedures. The following discrepancies were noted:

- (1) Reactor coolant weld 2NC-9-3 had bare lead numbers attached to the stainless steel pipe surface, adjacent to the weld, with masking tape. This condition violates two different procedures CP-170 and CP-479. Catawba Construction Procedure CP-170, paragraph 4.3.C states that, "Contact of stainless with low melting metals such as copper, aluminum, tin, lead, etc., and low melting alloys such as brass shall be prohibited." The lead numbers in this case were used as location markers for radiographic examination and were left on the pipe after the examination was complete. Catawba Construction Procedure CP-479 specifies approved tapes that are permitted to be used on stainless steel surfaces. Masking tape is not one of the approved tapes.
- (2) Reactor coolant weld 2NC-9-7 also had bare lead numbers attached to the stainless steel pipe surface, adjacent to the weld, but with approved tape. In this case, thermal arcing had been performed in one weld area to remove a defect. The thermal arcing also melted part of the lead number "3" and the tape attaching the number to the pipe. The melting of lead on the austenitic stainless steel could affect the integrity of the pipe. Furthermore, leaving tape on the pipe surface during a heating operation violates CP-479 which, in part, states, "The tape shall be used at ambient temperatures and all tapes and residue must be removed prior to ... exposure to temperatures above ambient."

The licensee removed the lead numbers and the tape and agreed to initiate action to preclude recurrence. The licensee also agreed to ensure no lead contamination exists in the area where the lead number was melted. This item is violation 413, 414/81-16-01, "Failure to follow procedures for control of surface applied materials."

No violations or deviations were noted except for the violation identified above in paragraph 5.b.

6. Inspection of Reactor Coolant Pressure Boundary Piping

a. Observation of Work (Units 1 and 2)

The inspector observed various work activities related to reactor coolant pressure boundary piping welds to determine if work was being accomplished in accordance with NRC and licensee requirements. The following activities were observed:

<u>Weld Ident.</u>	<u>Pipe Size</u>	<u>System</u>	<u>Activity Observed</u>
1NC 194-17	5"	Reactor Coolant	Grinding bevel of weld end prep
1NC 192-5	8"	Reactor Coolant	Welding of root layer
1NI 312-24	8"	Safety Injection	Tacking of Consumable insert
2NC 42-11	12"	Reactor Coolant	Automatic welding of root layer
2NI 185-11	8"	Safety Injection	Visual examination of fitup
2NV 186-12	3"	Chemical Volume Control	Welding of root layer
1NC 256-4	3"	Reactor Coolant	Capping of pipe end and storage of assembly

The following discrepancies were noted:

- (1) During automatic welding of the first layer over the root layer of joint 2NC-42-11, two burn-throughs (BT) occurred, wherein two globs of oxidized molten metal formed on the inside surface of the root layer. After completing the joint, the welder elected to repair the burn-throughs by grinding the two globs flush with the adjacent weld metal. Since BT is a major defect which could

result in microcracking in austenitic stainless steel, the repaired surface after grinding should be liquid penetrant (PT) examined to assure that the weld surface is defect free. It is pointed out that Section III, paragraph NB 4440 of the ASME Code requires either a liquid penetrant or a magnetic particle test of the surface after grinding to remove a defect. However, in this case, the licensee did not intend to perform a PT after grinding because the weld in question was beyond the distance from the open end of the pipe considered accessible for PT. The licensee considered that the same accessibility rules applied regardless of whether the initial weld was being examined internally or internal weld repairs were being examined. The inspector pointed out that if the PT accessibility guidelines are to apply to repairs made by grinding, then the method of repair should be determined on the basis of the feasibility of nondestructive examination. The repairs in question were PT'd since PT was feasible even though, the conditions did not meet the licensee's accessibility guidelines. The licensee agreed to review their controlling procedures for weld repairs and ensure the required NDE is applied accordingly. This will be carried as Unresolved Item 413, 414/81-10-02, "Control of NDE for internal pipe weld repairs."

b. Walkdown of Installed Piping Systems (Unit 1)

The inspector performed a walkdown of the piping systems listed below to determine if they were installed in accordance with the as-built final design drawings.

<u>System</u>	<u>Drawing</u>
Residual Heat Removal	CN 1491-ND-001, Rev. 9
Residual Heat Removal	CN 1491-ND-003, Rev. 10
Chemical Volume Control	CN 1491-NV-029, Rev. 10
Reactor Coolant	CN 1491-NC-068, Rev. 9
Reactor Coolant	CN 1491-NC-057, Rev. 12

The walkdown check included the following:

- (1) pipe size and material
- (2) configuration of pipe run (correct number of fittings and components)
- (3) identification of valves and major components
- (4) fitting configuration, e.g., elbow, tee, reducer, etc.
- (5) correct position of valve.

c. QA Records Review (Unit 1)

The inspector reviewed records associated with the welds listed below to determine if the records are in conformance with established procedures and whether the records reflect work accomplishment consistent with applicable requirements.

<u>Weld Ident.</u>	<u>Pipe Size and Material</u>	<u>System</u>
INC 194-17	5" Stainless Steel	Reactor Coolant
INC 192-5	5" Stainless Steel	Reactor Coolant
INI 312-24	8" Stainless Steel	Safety Injection
INC 22-7	27½" Stainless Steel	Reactor Coolant
INC 22-2	31" Stainless Steel	Reactor Coolant
INI-1-13	8" Stainless Steel	Safety Injection
IND 1-14	14" Stainless Steel	Residual Heat Removal
IND 37-16	12" Stainless Steel	Residual Heat Removal
INI 1-3	8" Stainless Steel	Safety Injection

No violations or deviations were noted.