



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

Report Nos. 50-369/81-07 and 50-370/81-02

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

Facility Name: McGuire

Docket Nos. 50-369 and 50-370

License Nos. NPF-9 and CPPR-84

Inspection at McGuire site near Charlotte, North Carolina

Inspector: *A. P. Herdt* 3/4/81
W. P. Kleinsorge Date

Approved by: *A. P. Herdt* 3/4/81
A. Herdt, Chief, M&P Section, EI Branch Date
ETI Division

SUMMARY

Inspection on February 3-6, 1981

Areas Inspected

This routine, unannounced inspection involved 29 inspector-hours onsite in the areas of licensee action on previous inspection findings (Unit 2), storage of installed equipment (Unit 2), marking (Unit 2), containment (Structural Steel Welding) - observation of work and work activities (Unit 2), reactor coolant pressure boundary piping - observation of work and work activities (Unit 2); reactor coolant pressure boundary piping - review of quality records (Unit 2), safety related piping - observation of work and work activities (Unit 2) and licensee identified items (50.55(e)) (Units 1 and 2).

Results

Of the ten areas inspected, no violations or deviations were identified in eight areas; two violations were found in two areas (Violation - Failure to Establish Adequate Controls for Storage of Installed Equipment Paragraph 5.b; Violation - Nonconforming CMTR - Paragraph 11.b(1)).

DETAILS

1. Persons Contacted

Licensee Employees

- *J. C. Rogers, Project Manager
- *E. B. Miller, Senior QA Engineer
- *T. E. Touchstone, Senior Construction Engineer
- *J. W. Willis, Project QA Engineer
- *R. M. Gillespie, Senior QA Technician
- *G. B. Robinson, QA Engineer, Mech.

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

Other Organizations

- *L. F. Horner, Authorized Nuclear Inspector
- *Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on February 6, 1981 with those persons indicated in paragraph 1 above. The violations, unresolved items and the inspector followup item were discussed in detail. No dissenting comments were received from the licensee.

3. Licensee Action on Previous Inspection Findings

(Closed) Infraction 370/80-03-01 "Paint Contamination on Filler Metal Wire Surface." Duke letter of response dated June 25, 1980 has been reviewed and determined to be acceptable by Region II. The inspector held discussions with project manager and examined the corrective actions as stated in the letter of response. The inspector concluded that Duke had determined the full extent of the subject noncompliance, performed the necessary survey and follow-up actions to correct the present conditions and developed the necessary corrective actions to preclude recurrences of similar circumstances have been implemented.

(Closed) Infraction 370/80-01-01: "Undersize Socket Welds". Duke letter of response dated April 10, 1980 has been reviewed and determined to be acceptable by Region II. The inspector held discussions with project manager and examined the corrective actions as stated in the letter of response. The inspector concluded that Duke had determined the full extent of the subject noncompliance, performed the necessary survey and follow-up actions to correct the present conditions and developed the necessary corrective actions

to preclude recurrence of similar circumstances. The corrective actions identified in the letter of response have been implemented.

This matter is further discussed in paragraph 12.

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 paragraph 5.c and 6.b(1).

5. Independent Inspection Effort (Unit 2)

a. Construction Progress

The inspector conducted a general inspection of the Unit 2 fuel, auxiliary and reactor buildings and welding material issue station to observe construction progress and construction activities such as welding, material handling and control, housekeeping and storage.

b. Storage of Installed Equipment

With regard to the inspection of paragraph 5.a, the inspector on February 3-6, 1981, accompanied by a representative of the licensee, noted the following in the Unit 2 reactor and auxiliary buildings:

- (1) Four examples of rigging from installed safety related piping.
- (2) Three examples of rigging lines impinging on cable trays or cables in trays. In each case the rigging lines distorted the trays or cables in the trays.
- (3) Approximately eight examples of material (structural steel, piping assemblies, piping fittings and buckets) stored in cable trays containing cables.
- (4) Five examples of scaffolding supported by safety related piping.

The licensee stated that they control scaffolding on, or rigging to installed piping by the "good judgement of the craft". Rigging line impingement on cable trays and cables is controlled also by craft judgement. The licensee further

stated that storage of materials in cable trays was controlled by housekeeping inspections. The inspector informed the licensee that the above indicated inadequate controls for storage of installed equipment. Failure to establish controls for storage of equipment in accordance with instructions to prevent damage, is in violation of 10 CFR 50 Appendix B, Criterion XIII. The above violation will be identified as 370/81-02-01: "Failure to Establish Adequate Controls for Storage of Installed Equipment".

c. Markings

With regard to the inspection of paragraph 5a the inspector noted numerous examples of extraneous markings on installed stainless steel tanks and piping. The inspector stated there was no reasonable assurance that the extraneous markings were produced with the approved marking materials contained in CP 538. The licensee indicated that they would look further into the matter. The inspector stated that the above would be an unresolved item, identified 370/81-02-04: "Extraneous Markings on Safety Related Stainless Steel".

Within the areas examined no violations or deviations were identified except as described in paragraph 5b.

6. Containment (Structural Steel Welding) - Observation of Work and Work Activities (Unit 2)

The inspector observed field welding activities associated with steel containment structures and steel supports for major equipment within the containment at various stages of weld completion. The applicable Code for containment miscellaneous structural steel support structure is AWS D1.1-80.

a. The inspector observed welding activities where welding was in progress to determine conformance with specifications and procedures in the areas of; weld identification, specified weld procedures, qualified welders, specified weld material, specified purge (if applicable); repair procedures, specified NDE being performed and periodic checks of welding variables.

(1) <u>Containment Structures</u>	<u>Weld Joints</u>
Structural Steel Support Structure	2-SF-E-5
(2) <u>Structural Support</u>	<u>Weld Joints</u>
Steam Generator Upper Lateral Supports	2-SC-22

- b. Observation of weld material control included; identification, segregation, oven temperatures, issue slips and control of unused material at issue stations and work areas:

- (1) With regard to the above inspection, on February 5, 1981, it was noted that low hydrogen electrodes intended for safety related structural application were reconditioned in baking ovens. Construction Procedure 92, Rev. 4, "Care, Handling and Reconditioning of Low Hydrogen Electrodes" requires type E7018 electrodes to be baked at a temperature of $725\text{ F} \pm 25\text{ F}$. The licensee stated that they were not aware of any temperature verification, independent of the oven system, to assure compliance to procedural temperature requirements. The licensee indicated that they would look further into the matter. The inspector stated that the above would be an unresolved item identified as 370/81-02-03: "Temperature Control of Baking Oven".

- c. During observation of welding activities there appeared to be a sufficient number of qualified inspection personnel at the work site.

Within the areas examined, there were no violations or deviations identified.

7. Safety Related Structures - Observation of Work and Work Activities (Unit 2)

The inspector observed field welding activities associated with safety related structures and supports outside containment during various stages of weld completions. Observations were made in order to determine whether the requirements of applicable specifications, standards, work and/or inspection procedures are being met for the activities involved and in the following stages of weld completion.

- a. The inspector examined weld joints where welding is in process to determine whether weld identification, weld procedures, welder qualification, weld material, defect removal (if applicable), specified NDE, and periodic checks of welding variables are in conformance with existing requirements.

Drawing No.

Structure

MC-1220-146, Rev. 2

Main Steam Isolation Valve
Access Platform

The applicable code for safety related structural welding outside of containment is AWS D1.1-80.

- b. Observation of weld material control included; identification, segregation, oven temperatures, issue slips and control of unused material at issue stations and work areas.
- c. During observation of welding activities there appeared to be a sufficient number of qualified inspection personnel at the work site.

Within the areas examined, there were no violations or deviations identified.

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

The inspector observed field welding of reactor coolant pressure boundary piping at various stages of weld completion. The applicable Code of reactor coolant pressure boundary piping is ASME B and PV Code Section III 1971 Edition with Addenda through the Winter 1971.

- a. The inspector examined the following welds where nondestructive testing (NDE) had been accomplished to determine surface suitability, specified NDE being performed and with qualified personnel. The below listed joints, records, and radiographs were examined:

<u>Weld Joint</u>	<u>Size</u>	<u>System</u>
NI-2F-560	10"	Safety Injection
NC-2FW-24-7	6"	Reactor Coolant
NC-2FW-24-1	10"	Reactor Coolant

- b. The inspector observed activities at weld material issue stations to determine adequacy of; weld material storage/segregation, oven temperatures, issue records and return of unused weld material. Also, the inspector observed work areas for uncontrolled weld material.

Within the areas examined, there were no violations or deviations identified.

9. Reactor Coolant Pressure Boundary Piping - Review of Quality Records (Unit 2)

The inspector reviewed the quality records described below relative to reactor coolant pressure boundary pipe welding to determine whether these records reflected work accomplishment consistent with NRC requirements and SAR commitments. For the applicable code see paragraph 8.

- a. The following completed weld records were reviewed in the areas of; visual and dimensional inspections, weld history, preheat and interpass temperature, stress relief, NDE, weld repair, welder qualification, and inspector qualification, as applicable to each weld:

<u>Weld Number</u>	<u>Pipe Size</u>	<u>System</u>
NI-2F-560	10"	Safety Injection
NC-2FW-24-7	6"	Reactor Coolant
NC-2FW-24-1	10"	Reactor Coolant

- b. The welding material records, for the joints listed in paragraph 9a, relative to; receipt inspection, weld material certification, issue and storage control, and disposition of unused materials were reviewed.
- c. With regard to the above inspection and the inspection of paragraph 11.b the inspector noted that as listed below, qualification examinations and the eye examination records for the dates indicated, were not retrievable.

<u>Inspector I.D.</u>	<u>Note</u>
PJH-PT-Level II	No Qualification Examination
HAD-MT Level II	No Qualification Examination and no Eye Examination Record for 4-3-78
TLT-PT Level II	No Qualification Examination
TDT-Welding Inspector	No Qualification Examination
KWK-Welding Inspector	No Qualification Examination
TOB-Welding Inspector	No Qualification Examination and No Eye Examination for 4-9-79

The licensee indicated that all the above inspectors were qualified at Duke sites other than McGuire and that the missing records were at the site of qualification. The licensee stated that they would retrieve the records for a future inspection. The above is an inspector followup item identified as 370/81-02-05: "Non-Retrievable NDE Personnel Records".

Within the areas examined, there were no violations or deviations identified.

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

The inspector observed field welding of safety-related piping outside the reactor coolant pressure boundary at various states of weld completion. For the applicable code see paragraph 8.

- a. The inspector examined the following welds where non-destructive testing (NDE) had been accomplished to determine; surface suitability, specified NDE being performed and with qualified personnel. The below listed joints, records, and radiographs were examined.

<u>Joint Number</u>	<u>Size</u>	<u>System</u>
2NDP-127-2	8"	Residual Heat Removal
2NVP-187-1	2"	Chemical and Volume Control

- b. The inspector observed activities at weld material issue stations to determine adequacy of; weld material storage/segregation, oven temperatures, issue records and return of unused weld material. Also, the inspector observed work areas for uncontrolled weld material.

Within the areas examined, there were no violations or deviations identified.

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

The inspector reviewed the quality records described below relative to safety related pipe welding to determine whether these records reflected work accomplishment consistent with NRC requirements and SAR commitments. For the applicable code see paragraph 8.

- a. The following completed weld records were reviewed in the areas of; visual and dimensional inspections, weld history, preheat and interpass temperature, stress relief, NDE, weld repair, welder qualification, and inspector qualification, as applicable to each weld:

<u>Weld Number</u>	<u>Size</u>	<u>System</u>
CF-2FW-49-8	2"	Feedwater
CF-2FW-49-9	2"	Feedwater
2NDP-127-1	8"	Residual Heat Removal
2NDP-127-2	8"	Residual Heat Removal
2NVP-187-1	2"	Chemical and Volume Control
NV2FWFE-5310-7	3/4"	Chemical and Volume Control
CA-2F-269	8"	Aux. Feedwater
CA-2F-82	8"	Aux. Feedwater
2NCP-50-5	2"	Reactor Coolant
2NCP-50-6	2"	Reactor Coolant

- b. The welding material records for the joints listed in paragraph 11a, relative to; receipt inspection, weld material verifica-

tion, issue and storage control, and disposition of unused materials were reviewed.

- (1) With regard to the above inspection, the inspector, on February 5, 1981 noted that the Certified Material Test Report (CMTR) for type 308 consumable weld insert material heat No. D 3403R308, used in ASME Class 2 Chemical and Volume Control System weld joint No. 2NVP-187-1 did not conform to the requirements of ASME B and PV Code Section II, Part C, SFA-5.9. SFA-5.9, Table 1, Note 1 states: "Analysis shall be made for the elements for which specific values are shown in this table. If, however, the presence of other elements is indicated in the course of routine analysis, further analysis shall be made to determine that the total of these other elements, except for iron, is not present in excess of 0.70 per cent."

The total of other elements except iron was 0.744 per cent for the material represented by the above CMTR. The above CMTR represents 3700 ft of material. Therefore, it appears nonconforming material was installed in the plant. Failure to fabricate and inspect systems to quality standards commensurate with the importance of the safety function to be performed is in violation of 10 CFR 50.55a(a)(1). The above violation will be identified as 370/81-02-02: "Nonconforming CMTR."

Within the areas examined, there were no violations or deviations identified, except as described in paragraph 11.b(1).

12. Licensee Identified Items (50.55 (e)) (Units 1 and 2)
 - a. (Closed) Item 370/80-06-09 "Socket Welds Do Not Meet Applicable Quality Standards" (10 CFR 50.55(e)). On April 3, 1980, Duke notified IE:II of a 50.55(e) item concerning under size socket welds. The Construction Deficiency Report was submitted on May 2, 1980. The report has been review and determined to be acceptable by IE:II. The inspector held discussions with the responsible licensee representative, reviewed supporting documentation, and observed representative samples of work to verify that the corrective action identified in the report have been completed. This item is closed.
 - b. (Open) Item 369/80-10-10 "Socket Welds Do Not Meet Applicable Quality Standards". (10 CFR 50.55(e)). On April 3, 1980, Duke notified IE:II of a 50.55(e) item concerning under size socket welds. The final Construction Deficiency Report was submitted on May 2, 1980. The report has been reviewed and determined not be acceptable by IE:II, because the licensee's sampling plan for thin wall flange socket joint and non-flange socket joint acceptability covered Unit 2 only. The licensee indicated that they would look further into the matter. This item remains open.