



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA ST., N.W., SUITE 3100
 ATLANTA, GEORGIA 30303
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Report No. 50-370/80-03

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

Facility Name: McGuire Nuclear Station, Unit 2

Docket No. 50-370

License No. CPP2-84

Inspection at McGuire site near Charlotte, North Carolina

Inspectors:

N. Economos *N. Economos*

5/23/80
Date Signed

L. D. Zajac *L. D. Zajac*

5/23/80
Date Signed

Approved by:

A. R. Herdt *A. R. Herdt*
 A. R. Herdt, Section Chief, RCES Branch

5/23/80
Date Signed

SUMMARY

Inspection on May 7-9, 1980

Areas Inspected

This routine, unannounced inspection involved 42 inspector-hours on site in the areas of preservice inspection data review, evaluation and work observation; welding of pressure boundary piping; hanger fabrication (welding); licensee action on previous findings.

Results

Of the five areas inspected, no items of noncompliances or deviations were found in four areas; one item of noncompliance was found in one area (Infraction - Paint contamination on filler metal wire surface, paragraph 5b).

DETAILS

1. Persons Contacted

Licensee Employees

- *J. C. Rogers, Project Manager
- *T. E. Touchstone, Sr. Construction Engineer
- *E. B. Miller, Senior QA Engineer
- *D. C. Leslie, Assistant QA Engineer
- *G. B. Robinson, QA Engineer, Mechanical Welding, NDE

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

Other Organizations

Babcock & Wilcox Construction Co. (B&W)

- J. DiLuvio, Level II Examiner (UT)
- G. Dunkle, Level II Examiner (UT)
- P. Pitz, Level II Examiner (UT)

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on May 9, 1980 with those persons indicated in Paragraph 1 above. The inspectors identified the areas inspected which included preservice inspection activities, reactor coolant pressure boundary pipe welding; hanger fabrication. The finding identified in paragraph 5.b was discussed in detail. The licensee concurred with the inspection findings.

3. Licensee Action on Previous Inspection Findings

(Closed) Deficiency 370/79-08-04 Lost Equipment Hatch Heat Treat Charts. Duke Power Company (DPCO) letter of response dated May 3, 1979 has been reviewed and determined to be acceptable by Region II. The inspectors held discussions with the Senior QA Engineer and examined the corrective actions as stated in the letter of response. The inspectors concluded that DPCO 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.

(Closed) Unresolved item 370/79-08-03 Cleanliness/Fitup Inspection of Socket Welds. The licensee has implemented a requirement to monitor cleanliness inspections of socket welds, other than those in the Class A category, through trend analysis studies on a quarterly basis. Reports of eight (8)

analyses, performed between 12/1/79 and 4/1/80, were reviewed and no adverse conditions were noted.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort

a. Liquid Penetrant Inspection of Socket Welds

The inspectors observed liquid penetrant testing of two Class A socket welds, Nos. NC2FW-76-22 and NC2FW-76-24, in order to ascertain whether code requirements were being met. The applicable code for this testing is ASME Boiler and Pressure Vessel Code Section V, 1971 Edition. The testing was performed by two different liquid penetrant examiners. Within these areas, the inspectors reviewed personnel certification records, and the certification records for six different batches of liquid penetrant, penetrant-remover, and developer in order to ascertain whether the sulfur and halogen requirements of the code were met.

No items of noncompliance or deviations were identified.

b. Weld Rod Issue Station

Rod issued station 3 was inspected to ascertain whether procedural requirements were being met in the areas of material storage, identification, segregation and cleanliness, rod oven temperature control, records and material handling. In addition, the inspectors randomly selected the following consumable heat numbers for a check of material certifications:

<u>Heat No./Lot</u>	<u>Size</u>	<u>Type</u>
#C3064	1/8"	ER-308
*16799C	1/8"	309
*36551C	3/32"	309
17454C	3/32"	E308-16
36L	1/8"	7018
47L	3/32"	"

Within these areas the inspectors noted that a substantial quantity of paint coded filler metal, IIG wire,* exhibited overspray and paint spatter. This condition appeared on the surface of the filler metal wire and varied from four to six inches in length from the paint coated end as did the concentration of paint.

Later inside the reactor building while observing field weld fabrication, discussed in paragraph 8 of this report, the inspectors noted that paint contaminated material was in the welder's possession and some of it had been consumed in the process. The inspector interviewed the welders involved in order to ascertain whether filler metal wire

was inspected for bulk surface contaminants, e.g., paint, dirt, ect., and subsequently cleaned as required before using it. In response to these questions the welders stated that there was no such requirement and, therefore, this was not being done. Moreover the inspector ascertained that filler metal is generally consumed to the point where it becomes too hot to handle or down to a stub of approximately three to four inches long. In subsequent discussions the licensee representative stated that although inspection and cleaning of filler metal prior to using it is not a procedural requirement, field supervision has instructed the craft to inspect and clean consumables as required.

The inspectors stated that failure to prescribe activities which affect quality in documented procedures was in noncompliance with Criterion V of Appendix B, 10 CFR 50, as implemented by paragraph 17.1.5 of DPC Topical Report Duke 1-A. This noncompliance was categorized as an infraction and was identified as item 370/80-03-01, Paint Contamination on Filler Metal Wire Surface.

c. Plant Tour

The inspector performed a general inspection of various work areas to observe certain pipe handling, installation and welding activities in progress and to inspect the general state of housekeeping, cleanliness, including control of unused weld electrodes near the working areas and proper use of wire brushes on stainless steel material.

d. Hanger Fabrication

During the general plant tour inspection the inspectors observed hanger fabrication (welding) and selected hangers NV-4410, NV-541-1-V, CA-H15 and CA-H36 for an inspection of components, drawings, QA/QC records and weld appearance.

Within these areas no items of noncompliance or deviations were identified.

e. Hydrostatic Testing - Record Review

Hydrostatic testing of safety related piping systems is being performed in accordance with ASME Section III (71W71) along with QA/QC procedures and the applicable piping specification MCS-1206-00-2.2 which references the aforementioned code. Individual procedures are written to accommodate specific system requirements and to provide the mechanism for signing off designated QC hold points as required.

The inspector reviewed hydro test records for Once Thru Steam Generator blowdown recycle system sections 5 and 6 for compliance with procedural and code requirements. Instrument calibration procedures, calibration records and certification of calibration standards e.g., thermometer S N363, dead weight pressure gauge S Ns 5493, 5178 and master gauge S Ns MC111 and MC112 were reviewed for completeness and accuracy.

No items of noncompliance or deviations except for item 5.b., above were identified.

6. Preservice Inspection - Observation of Work and Work Activities

The applicable code for preservice inspection is ASME Section XI, (74S75). Babcock and Wilcox Construction Company is under contract to Duke Power Company to perform the preservice inspection. The inspector observed the ultrasonic examination of two 31-inch reactor coolant pipe stainless steel circumferential seam welds, NC2F3-5 and NC2F2-5 in order to ascertain whether procedure and code requirements were being met. The ultrasonic procedure being used for this inspection was Babcock and Wilcox Inservice Inspection Procedure, ISI-119 Rev. 2, "Ultrasonic Examination of Stainless Steel and Nickel Base Alloy Weld Seams". Areas observed included the following:

- a. Methods and extent of examination
- b. Qualification records for each of three individuals performing examinations
- c. Type of apparatus used and frequency range applied
- d. Extent of coverage including beam angles, scanning rate and transducer overlap
- e. Calibration methods and frequency of calibration
- f. Plotting of the reference level (DAC curve) for monitoring discontinuities
- g. Recording of meaningful and reproducible data
- h. Layout of the weld surface prior to scanning for future landmark reference
- i. Type of couplant used and certification of the couplant

No items of noncompliance or deviations were identified.

7. Preservice Inspection - Data Review and Evaluation

The inspector reviewed the completed records, for the welds listed below, to determine whether they met code and procedural requirements.

<u>System</u>	<u>Weld No.</u>	<u>Pipe Size & Material</u>
Pressure Boundary Piping - Circular Seam Steam Generator Outlet Nozzle to Loop 1 Crossover	NC2F-1-3	31" Carbon Steel/Stainless Steel

<u>System</u> (Continued)	<u>Weld No.</u>	<u>Pipe Size & Material</u>
Pressure Boundary Piping - Reactor Coolant Loop 1 Cold Leg Boron Injection Nozzle	Nozzle 1-1	27-1/2" Stainless Steel

No items of noncompliance or deviations were identified.

8. Reactor Coolant Pressure Boundary Piping (Welding) - Work Observation

Field weld fabrication, inspection and testing is being controlled by the ASME Code, Section III, (71 W71).

In-process field welds in various stages of fabrication were randomly selected for observation in order to ascertain whether welding QC inspection and NDE was consistent with code and procedural requirements. Welds selected for this work were as follows:

<u>Weld No.</u>	<u>Size</u>	<u>ISO/Dwg.</u>	<u>Fabrication Stage</u>	<u>Type</u>
NC2FW-75-21	2"	2NC75	Partial	Socket
NC2FW-75-19	2"	2NC75	"	"
NC2FW-22-21	6"	2NC22	"	Pipe to Ell
NC2FW-22-19	6"	2NC22	"	14" to 6" reducer
NC2FW-22-22	6"	2NC22	"	Pipe to valve
NI2FW-85-11	6"	2NI85	"	SND69795 "

For the above welds, the inspector reviewed applicable field drawings (ISOs), weld data sheets; weld rod issue slips and material certifications; welder qualifications; process control sheets; weld repair history and corrective action records. Fitup and alignment, purge, weld prep, bead appearance including undercut, arc strikes, etc., were checked to verify conformance with code and procedural requirements. Work areas were surveyed for uncontrolled weld consumables. QA/QC personnel monitoring work progress appeared to be adequately trained to perform the assigned tasks.

Within these areas the inspector noted that certain filler metal wire rods were partially covered with green paint overspray from the color coding operation. This matter was discussed in paragraph 5.b of this report.

No items of noncompliance or deviations were identified during this work effort.