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

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Report No. 50-370/80-01

Licensee: Duke Power Company
422 South Church Street
Chalotte, North Carolina 28242

Facility Name: McGuire Nuclear Plant

Docket No. 50-370

License No. CPPR-84

Inspection at McGuire site near Charlotte, North Carolina

Inspector: A R Herdt for E. H. Girard — 2/8/80 Date Signed

Approved by: A R Herdt A. R. Herdt, Section Chief, RC&ES Branch — 2/8/80 Date Signed

SUMMARY

Inspection on January 9-11, 1980

Areas Inspected

This routine, unannounced inspection involved 21 inspector-hours onsite in the areas of implementation of code requirements for socket weld size, safety-related piping (welding) - observation of work and work activities and reactor coolant pressure boundary piping (welding) - observation of work and work activities.

Results

Of the three areas inspected, no items of noncompliance were identified in one area; three items of noncompliance were found in two areas (Infraction - undersize socket welds, paragraph 5.a; Infraction - missing drawing and improper subassembly dimension, paragraph 6.a; and Infraction - inspector did not know offset requirement for final welded joint, paragraph 6.a). No deviations were found in the areas inspected.

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DETAILS

1. Persons Contacted

   Licensee Employees

   *J. C. Rogers, Project Manager
   *G. W. Grier, Project Engineer
   *E. B. Miller, Project Senior QA Engineer
   *G. B. Robinson, QA Engineer - Mechanical, Welding & NDE
   *D. C. Leslie, Assistant QA Engineer - Mechanical
   W. R. Gillespie, Senior QA Technician

   Other licensee employees contacted included eight construction craftsmen, four QC inspectors and four weld material issue station attendants.

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summarized on January 11, 1980, with those persons indicated in Paragraph 1 above. The items of noncompliance were discussed in detail. As two of the noncompliances identified were related to apparently unsatisfactory knowledge or performance of weld measurements (370/80-01-02 and -04), the NRC inspector requested that the licensee examine his QC inspectors knowledge in this area and determine what, if any, work might require reinspection. The inspector further requested that the licensee address this in his response to the noncompliances.

3. Licensee Action on Previous Inspection Findings

   Not inspected.

4. Unresolved Items

   Unresolved items were not identified during this inspection.

5. Independent Inspection

   a. Implementation of Code Requirements for Socket Weld Size

      The inspector reviewed procedures and instructions for socket welds in reactor coolant pressure boundary and other safety-related piping and

examined selected examples of the welds for compliance with the specified requirements. The applicable code for the subject piping is ASME Section III (71W71). The Code requirements for socket weld size specify a minimum fillet size as noted below:

For Socket-Welding Flanges -
Min. fillet leg = 1.4T or Thickness of hub, whichever is smaller but not less than 1/8" (T = nominal thickness of pipe)

For other Socket Welds -
Min. fillet leg = 1 1/4T but not less than 1/8"

The inspector examined the weld process control sheets (form M4) for ASME Section III Class 1 Reactor Coolant system socket welds NC2FW83-20 and -21 on socket-welding flanges. The weld size specified on the weld process control sheets for these welds was 1 1/4T rather than the code required 1.4T. Neither of the welds on these process control sheets had been started. The inspector selected and, with the licensee's assistance, measured the size of a completed socket-welding flange weld and a number of "other" socket welds. The flange weld and four of the other socket welds checked had sizes below the requirement specified by ASME Section III (71W71). The licensee informed the inspector that the weld process control sheets for these welds all specified 1½ T. These undersize welds are identified as follows:

Weld Joint	System	Pipe Size	Code Class
NV2FW274-6*	Chemical Volume Control	2" Sch 160	2
NV2FW274-10	Chemical Volume Control	2" Sch 160	2
NC2FWFT5070-1	Reactor Coolant	3/4" Sch 160	2
NC2FWFT5060-4	Reactor Coolant	3/4" Sch 160	2
NC2FW43-7	Reactor Coolant	1" Sch 160	1

*Socket-welding flange weld

The improperly specified size for the socket-welding flanges and the undersize socket welds are considered examples of a noncompliance with 10 CFR 50.55a, in that the requirements of the applicable quality standard were not met. This noncompliance is categorized as an infraction and is identified as item 370/80-01-01, Undersize Socket Welds.

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

The inspector observed work activities for a repair in progress on weld BB2FW48-6. This is an ASME Section III Class 2 weld. The inspector examined the work for proper weld/welder identification, qualified welder/weld procedure, use of specified weld material and physical appearance of the weld.

In the areas inspected no items of noncompliance, except as noted in paragraph 5.a above, or deviations were identified.

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

The applicable code for reactor coolant pressure boundary (RCPB) piping is ASME section III Class 1 (71W71). The inspector observed activities relative to welding RCPB piping as described below:

a. The inspector examined two pipe to fitting weld joints and the accompanying instructions and records for welds where welding was complete but had not received final visual inspection. The welds, instructions and records were checked for proper weld/welder identification qualified welder/weld procedure, use of specified weld material, weld appearance and weld size. The two joints subjected to this inspection were:

Weld Joint	Size	System
NC2FW79-6	1" SCH 160	Reactor Coolant
NI2FW54-21	5" Sch 160	Safety Injection

In examining the isometric drawing (ISO MCF1-2NI54 Rev. 7) for weld NI2FW54-21 the inspector noted that the partially completed subassembly did not match the configuration depicted on the Iso. A weld identified as NI2FW54-16 was shown between welds -11 and -14 on the Iso but was not present in the piping. The inspector requested the design drawing so that subassembly dimensions could be checked to determine if the omitted weld also represented a missing length of pipe. The design drawings was not available. The licensee's Procedure F9 Rev. 7 requires that the design drawing be maintained at the work station. At the inspector's request, licensee subsequently checked the subassembly dimensions and informed the inspector that the length of piping was between 4" and 5" too short. The licensee stated that this dimensional error would have been caught and corrected during installation. The missing drawing and improper piping length in the subassembly are considered to be a noncompliance with Criterion V of 10 CFR 50, Appendix B. The licensee was informed this would be categorized an infraction, identified item 370/80-01-02, Missing Drawing and Improper Subassembly Dimension.

During the NRC inspector's examination of weld NI2FW54-21 the licensee's QC inspector arrived to perform the final visual examination of the weld. The NRC inspector questioned the QC inspector to determine his knowledge of and ability to perform the required examination. The QC inspector indicated no knowledge of a requirement for final offset on the subject weld. Even after being shown the requirement in Procedure L80 Rev. 7, the QC inspector was not able to perform the measurement. This is considered a noncompliance with Criterion V of 10 CFR 50 Appendix in that the inspector could not accomplish the required

inspection. It is being categorized as an infraction and is identified as item 370/80-01-03, Inspector Not Knowing Offset Requirement for Final Welded Joint.

b. The inspector examined the following welds where nondestructive examination (penetrant inspection) was in progress to determine surface suitability, required examination being performed, and properly qualified personnel:

Weld Joint	Size	System
NC2FW83-4	3" Sch 160	Reactor Coolant
NC2FW83-14	3" Sch 160	Reactor Coolant

c. The inspector observed activities at weld material issue stations #1 and #3 to determine the adequacy of weld material storage/segregation, oven temperatures, issue records and return of unused weld material. Also, work areas were observed for uncontrolled weld material.

Two items of noncompliance were identified, as described in 6.a. No deviations were identified.