



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

Report Nos. 50-369/82-32 and 50-370/82-26

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, NC

Inspector: *N. Economos* 9/21/82  
 N. Economos Date Signed

Approved by: *J. J. Blake* 9/22/82  
 J. J. Blake, Section Chief Date Signed  
 Engineering Inspection Branch  
 Division of Engineering and Technical Programs

SUMMARY

Inspection on August 31 - September 3, 1982

Areas Inspected

This routine, unannounced inspection involved 26 inspector-hours on site in the areas of licensee action on previous enforcement matters, licensee identified items, and hanger weld fabrication.

Results

Of the three areas inspected, no violations or deviations were identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*Morris Sample, Project License Engineer
- \*H. B. Barron, Operations
- \*E. B. Miller, Project QA Construction
- W. W. McCollough, Mechanical Maintenance Support
- W. R. Gillespie, Senior QA Technician

Other licensee employees contacted included construction craftsmen and technicians.

#### NRC Resident Inspector

- P. Bemis
- \*P. C. Hopkins

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on September 3, 1982, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings.

### 3. Licensee Action on Previous Enforcement Matters

- a. (Closed) Unresolved Item (UNR) 369/81-14-01 and 370/81-06-01, Base Metal and Adjacent Weld Defects on RT Films Were Not Evaluated. Corrective actions taken by the licensee on Units 1 and 2 penetration welds were reviewed and found satisfactory during a previous inspection described in RII Report No. 50-369/81-19 and 50-370/81-08. However, in closing this item, the identifying number for Unit 1 (369/81-14-01) was inadvertently omitted from the closing actions statement.
- b. (Closed) UNR 369/82-23-01, Undercut on Pipe Hanger. As a result of NRC inspection of hanger number MC-1683-WZ-R026, a random sample of ten hangers were reinspected by the licensee for weld undercut. The inspector reviewed results of the licensee's inspection and the evaluation/report by design engineering on the finding which stated the calculations showed the condition identified for hanger number MC-1683-WZ-R026 had insignificant structural impact.
- c. (Closed) UNR 369/81-27-01, Methods for Identifying Safety-Related Electrical Cable Trays. The licensee's corrective action on this item was reviewed and found satisfactory during a previous inspection documented in RII Report 50-370/82-06. The corrective action,

according to the licensee, was applicable to both units. This position was subsequently corroborated with the responsible NRC inspector who agreed that the item should be closed.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort (92706) - Unit 2

Construction Progress

The inspector conducted a general inspection of Unit 2 Auxiliary Building to observe the status of construction and testing of systems/components including charging pumps, safety injection pumps and isolation valves, component cooling and RHR heat exchangers. Housekeeping and storage conditions were observed in and around these areas.

During this work effort, the inspector observed the fabrication of seismic restraints for component cooling pumps 2B1 and 2B2 which appear on drawing numbers MC 2690-451 Rev. 0, and MC 2690-452 Rev. 0, respectively. The inspector checked each restraint for compliance with drawing requirements. Attributes of special interest included plate material dimensions, as well as weld size and workmanship quality.

Within the areas examined no violations or deviations were noted.

6. Licensee Identified Items (50.55(e)) (92700) - Units 1 and 2

- a. (Closed) 370/80-14-05, Pipe Hanger Deficiencies. The licensee's corrective actions on these matters was reviewed and found satisfactory on an earlier inspection that was documented in RII Report No. 50-369/81-03. Discussions with the licensee and review of related documents, e.g., workplace procedure #40, revealed this matter did not apply to Unit 2. The licensee stated that this information had been communicated to the NRC inspector who had agreed to close the item in Report No. 50-369/81-03. This item is closed.
- b. (Closed) SD 369/80-19 and SD 370/80-14, SM Drain Pipe Rupture Analysis. During a review of piping for the analysis of pipe rupture effect for Catawba Nuclear Station, it was determined that the main steam (MS) drain lines at McGuire Nuclear Station were not considered for pipe rupture effects. The MS drain lines are moderate-energy, small diameter piping for all portions located within the Auxiliary Building. This line originated from the MS lines in the Doghouse and passed through the electrical penetration area, the feedwater pump room and the battery room of the Auxiliary Building, to the condenser connections in the Turbine Building. The specific problem of the MS drain lines was resolved by rerouting the lines from the Doghouse, across the roof of the Auxiliary Building, and to the Turbine Building. This

routing separated, by remote location, the potential pipe ruptures from the safety-related equipment areas.

The inspector reviewed Duke design change authorization form MDS-AB-001 and McGuire Nuclear Station drawings 2MCSI-SMV-80-2, Rev. 0, and 2MCSI-SMV-90-1, Rev. 0. A walkdown inspection was conducted to observe the field changes and verify conformance with the aforementioned drawings.

- c. (Closed) SD 370/81-12, LER 369/81-19-2 Duke Flush Welds (Units 1 and 2). On or about December 16, 1981, the licensee discovered that circumferential butt welds on ASME Class 1 piping previously identified as "flush" may not meet the stringent requirements of the ASME Code criteria as defined in Table NB-3683.2-1, footnote (2). This requirement, which states in part that the finished contour of the weld shall not exceed a 7° slope, had not been met at the weld internal diameter (ID). In an effort to resolve the problem, the licensee's Design Engineering took the "worst case" ID weld profile and analyzed it to determine the stress indices associated with it. The analytical procedures employed were those outlined in the ASME Code. A review of a memo from the licensee's supervising design engineer to file dated February 18, 1982, stated in part that results of a detailed analysis based on Duke Flush Weld geometry showed pipe stresses were essentially equivalent to those from normal discontinuities in straight pipe and Code Flush Welds and concluded that the stress indices given in Table NM3682.2-1 of the Code were applicable to Duke Flush Welds.

In addition, the licensee has instituted special measures, e.g., revised erection specification(s) and, applicable weld data shuts to assure that ASME Class 1 welds are fabricated with minimum weld reinforcement and smooth contours.

- d. (Closed) SD 370/82-01, Valve Diaphragm Degradation. This item involved certain Grinnell valves whose diaphragms were not designed for exposure to diesel oil and therefore failed.

A review of QA records showed the affected diaphragms were replaced using Steam Production's work request program. The inspector discussed the matter with cognizant personnel and reviewed related QA/QC records and applicable procedures.

- e. (Closed) 370/80-14-03, Pressurizer Power Operated Relief Valve Operation. The pressurizer power operated relief valves NC-32, -34, and -36 have been modified to include: (a) a larger, environmentally qualified air operator; (b) valve disc stack modification for increased flow rate; and (c) a change from a pressure seal to a bolted bonnet. This work was performed through Design Change Authorizations MSEAB-037, MSEAB-062, and MSEAB-056. Procedures and related forms used to perform and document the modifications included:

M-12A Rev. 0	Valve Disassembly and Assembly Inspection
M-12B Rev. 0	Valve Part Repair Process Control Sheet
CP201-B Rev. 6	Request for Shutdown

- f. (Closed) SD 370/81-06, CRDM Welds. On June 8, 1981, the NRC was informed by Westinghouse of deficiencies noted in radiograph inspection records of the control rod drive penetration tube to rod drive adaptor on 11 reactor vessels supplied by Rotterdam Dockyard (RDM). The radiographic results failed to meet ASME Section III standards for clarity and density.

On June 24, 1981, Westinghouse determined that 11 RT films at McGuire exceeded the film density requirement, and an additional film for a CRDM housing weld could not be located in the records.

Westinghouse radiographed the 11 CRDM housing welds at McGuire and also radiographed the one weld for which no radiograph could be located. No rejectable indications were detected by this examination.

In addition, Westinghouse performed a fracture mechanics evaluation of the welds which indicated that a very large flaw would be necessary to cause failure of the weld. (The Westinghouse report "Rotterdam Drydock Reactor Vessel CRDM Weld Radiography" was submitted to the NRC via letter NS-EPR-2523, E. P. Rahe to R. C. DeYoung, dated November 25, 1981.) Therefore, DPC concluded that these welds would not have failed.

The licensee does not anticipate receiving any other radiographs produced by RDM. All other radiographs, which were produced by RDM on this vessel were reviewed and no other discrepancies were detected.

Within the areas inspected no violations or deviations were noted.

7. Inspector Followup Items (IFI), (92701) - Units 1 and 2

(Closed) IFI 369/81-38-01 and 370/81-24-01, Radiographic Problems with RECO Fabricated Safety Related Tanks. In response to the concern over radiographic quality of welds in certain RECO manufactured safety related tanks whose radiographs were not available for review at the time of an earlier RII inspection, the inspector discussed the matter with cognizant licensee personnel and reviewed available quality records. By memorandum the licensee's level III examiner stated that he reviewed randomly selected radiographs during an audit of RECO on April 14, 1982, and found the radiographs to be in compliance with the applicable specification(s) and code.