



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

Report Nos.: 50-369/84-06 and 50-370/84-06

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

Docket Nos.: 50-369 and 50-370

License Nos.: NPF-9 and NPF-17

Facility Name: McGuire 1 and 2

Inspection at McGuire site near Charlotte, North Carolina

Inspector: *Nick Economos*
 Nick Economos

4/18/84

Date Signed

Approved by: *J. J. Blake*
 J. J. Blake, Section Chief
 Engineering Branch, Division of Reactor Safety

4/18/84

Date Signed

SUMMARY

Inspection on March 26-29, 1984

Areas Inspected

This routine, unannounced inspection involved 24 inspector-hours on site in the areas of Inservice Inspection: review of program; review of procedures; Observation of work and work activities, and IE Bulletin 82-02 licensee action.

Results

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

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *M. D. McIntosh, Station Manager
- *D. Mendezoff, Licensing Engineer
- *R. P. Ruth, Project Senior QA Engineer
- *C. B. Cheezem, Inservice Inspection Engineer
- *T. M. Hilderbrand, ISI specialist
- *A. F. Batts, QA Technical Support Supervisor
- P. J. Helton, Project ISI Coordinator
- R. L. Moore, NDE Level II Examiner
- J. M. Washam, NDE Level II Examiner

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

NRC Resident Inspector

- *R. Pierson

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 5, 1984, with those persons indicated in paragraph 1 above. The inspector followup item listed below was discussed in detail.

Inspector followup Item 369/84-06-01, Measurement of Black Light Intensity (paragraph 8).

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. IE Bulletins (IEB's)

The licensee's response to IEB 82-02 dated August 2, 1982, addressed action item 3 as requested. Work on action item 2 was performed during this outage. Threaded fasteners examined included those on the reactor coolant pump, pressurizer manway, S/G manways ASME class A fanges, relief and check valves. Nondestructive examination procedures used were consistent with ASME Section XI requirements. The examinations were performed by

appropriately qualified personnel. Discussions with cognizant personnel disclosed that certain manway hole studs in the S/Gs and pressurizer exhibited evidence of corrosive attack on the flat section of the bolt-head. The condition is undergoing investigation to determine its nature. The licensee representative stated the affected bolts are being replaced with SA-193 Gr.B material.

6. Inservice Inspection-Review of Program (Unit 1)

The inspector reviewed the licensee's Inservice Inspection (ISI) program for the current outage in the areas of: program approval; QA program requirements including organizational structure, audit requirements, general QA requirements (examination reports, control of deviations from established program, quality documentation and identification of components), work and quality inspection procedures, control of processes, corrective action, document control, control of examinations and examination equipment, and quality records; inspection scope; inspection intervals; personnel qualification; and NDE records including provisions for storage. The applicable code for the ISI is the ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition, with Addenda through the Winter 1980.

Items scheduled for ISI during this outage included:

Item No.	Parts Examined
*B 3.90	Nozzle-to-Vessel
*B 3.100	Nozzle Inside Radius Section
*B 5.10	Nozzle to Safe-End Butt Welds
*B 9.11	Circumferential Welds
B 5.30	Nozzle to Safe End Butt Welds S/G
B 5.50	Dissimilar Metal Welds ∇ 4" dia.
B 9.30	Class 1 Pipe Branch Connection Pipe Welds
U 6.40	PPV Ligaments

*Item examined with ARIS (B&W) equipment. Documents reviewed during this work effort included:

- a. Inservice Inspection Plan, McGuire Nuclear Station Rev. 5
- b. QA-130 Rev. 8, Qualification and Training of Lead Auditors
- c. QA-131 Rev. 6, QA Training
- d. QA-140 Rev. 7, QA Inspector Training
- e. QA-190 Rev. 1, Review of QA Procedures
- f. QA-210 Rev. 15, Departmental Audit Procedure
- g. QA-230 Rev. 9, Departmental Audit Scheduling and Followup

- h. QA-500 Rev. 16, Audits/Surveillance
- i. QA-501 Rev. 4, Placing, Reviewing, and Verifying Quality Assurance Requirements on Station
- j. QA-502 Rev. 4, Evaluating and Approving QC Inspection Records
- k. QA-504 Rev. 11, QA Records Operations
- l. QA-513 Rev. 2, Control of Preservice and Inservice Inspection Plans
- m. Duke QA Dept. NDE Program Manual
- n. QCK-1 Rev. 12, Control of Nonconforming Items
- o. QCL-5 Rev. 3, Control of Preservice and Inservice Inspection Activities
- p. QCB-1 Rev. 17, Control of Measuring and Test Equipment and Calibration Standards
- q. NDE-A Rev. 3, Nondestructive Examination Program
- r. NDE-B Rev. 6, Training Qualification & Certification of NDE Personnel

In addition, from the flow diagram of the safety injection system, (NI, upper head), Dwg# MC-1562-4.0 Rev. 12, the inspector selected, at random, pipe lines between valve 1NI-252 and the RPV nozzle, valve 1NI-253 and the RPV nozzle and valve 1NI-251 and the RPV nozzle. From the corresponding ISO #MCFI-1NI 38 Rev. 13, the inspector selected welds which fell under category B-J, item No. B9.11, Table IWB-2500-11, and checked back to the ISI examination listing under Appendix 11-A of the ISI Plan to determine whether weld population scheduled for ISI was consistent with code requirements. Welds checked for this purpose included: NI1F-1953, 1952, 1951; NI1F-1389, 1382, 1396 and 1NIP-547.

Within the areas inspected no violations or deviations were identified.

7. Inservice Inspection-Review of Procedures (Unit 1)

The inspector reviewed the ISI procedures indicated below to determine whether the procedures were consistent with regulatory requirements and licensee commitments. Based on the licensee's Technical Specification and 10 CFR 50.55a, the applicable code for ISI is the ASME Code, Section XI, 1980 Edition, Winter 1980 Addenda.

- a. The following procedures were reviewed in the areas of procedure approval, requirements for qualification of NDE personnel, and compilation of required records:
 - (1) NDE-44 Rev. 4, Ultrasonic Examination of Bolts and Studs for Preservice and Inservice Inspection

- (2) NDE-26A Rev. 2, Wet Nonfluorescent and Magnetic Particle Examination Technique for Examination of Pressure Retaining Bolting
 - (3) QCL-13 Rev. 0, ISI Visual Examination, VT-1
 - (4) ISI-423 Rev. 7, Multifrequency Eddy Current Examination of .750" OD x .044" Wall RSG Tubing in Westinghouse Steam Generators
- b. In addition to the review above, UT procedure NDE-44 was reviewed in the area of procedure content relative to: type of apparatus, extent of coverage including beam angles and scanning techniques, calibration requirements, search units, DAC curves, transfer requirements, reference level for monitoring discontinuities, method of demonstrating penetration, levels for evaluation and recording indications, and acceptance standards.
 - c. MT procedure NDE-26A was reviewed for technical content relative to: examination method, use of color contrast particles, surface preparation, surface temperature, particle suspension, viewing conditions, examination directions and overlap, pole or prod spacing, prod magnetizing current, technique for coil method and acceptance criteria.
 - d. Eddy current examination procedure ISI-423 was reviewed for technical content relative to equipment, frequencies, calibration, and reporting.

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

8. Inservice Inspection-Observation of Work Activities (Unit 1)

The inspector observed the ISI activities described below to determine whether these activities were being performed in accordance with regulatory requirements and licensee procedures. See paragraph 7 above for the applicable code.

- a. Personnel qualification records for two Level II examiners were reviewed.
- b. The inspector observed the in-process UT inspection of reactor closure head studs, item No. B6.30. The inspection was compared with applicable procedures in the following areas:
 - (1) Availability of and compliance with approved NDE procedures
 - (2) Use of knowledgeable NDE personnel
 - (3) Use of NDE personnel qualified to the proper level
 - (4) Recording of inspection results
 - (5) Type of apparatus used
 - (6) Extent of coverage of volume
 - (7) Calibration requirements

- (8) Search units
- (9) Beam angles
- (10) DAC curves
- (11) Reference level for monitoring discontinuities
- (12) Method for demonstrating penetration
- (13) Limits for evaluating and recording indications
- (14) Recording significant indications
- (15) Acceptance limits

In-process magnetic particle (MT) inspection was observed for studs numbered 4, 8, 10, and 12 and compared with applicable procedures in the following areas:

- (1) Availability of and compliance with approved NDE procedures
- (2) Use of knowledgeable NDE personnel
- (3) Use of NDE personnel qualified to the power level
- (4) Recording of inspection results
- (5) Examination method
- (6) Wet particles suspended in suitable medium and surface temperature
- (7) Examination overlap and directions
- (8) Pole spacing and lifting power for yoke method
- (9) Viewing conditions
- (10) Acceptance criteria

Within these areas the inspector noted that the recorded data from the magnetic particle examination showed the serial number of the meter used to measure the black light intensity at the surface under examination. However, the data failed to show the time that the meter was used to check black light intensity, therefore, it was not possible to verify whether the light intensity check was being performed once every eight (8) hours as required by T-753(c) of the code and the approved procedure. This requirement had added significance since the crew worked a ten hour shift. In a similar manner T-753(c) requires that two meter readings be taken; one with a filter and one without a filter on the meter. The difference of these two readings is required to be a minimum of 800 $\mu\text{W}/\text{cm}$. Discussions with personnel performing the MT examinations and project supervision disclosed that although these checks were being performed there was no effort to document them on the record. This item was discussed with the level III examiner who agreed to look further into the matter. This item was identified as Inspector Followup Item 369/84-06-01, Measurement of Black Light Intensity.

Within the areas examined no violation or deviations were identified.

9. Eddy Current Examination of Recirculating Steam Generator (RSG) Tubes

Discussion with cognizant licensee personnel disclosed that A and C S/G(s) were examined during this outage. The other two, B and D, were examined during the January 1983 outage. The number of tubes examined per steam generator included a 3% random sample required by TC/Code. Another sample of

approximately 380 tubes were examined for possible wear at the support plates. A sample of 43 in A and 17 in B that was checked with a special absolute multicoil (8x1) technique for supplemental information concerning wear at the support plates.

Preliminary results of the 3% tube sample showed one tube in S/G "A" produced an indication which was approximately 21% of tube wall thickness. The condition of the remaining tubes examined showed no significant changes from the previous examination.

Within the areas examined no violations or deviations were identified.