



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W.
 ATLANTA, GEORGIA 30323

Report Nos.: 50-269/84-27, 50-270/84-26, and 50-287/84-29

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

Docket Nos.: 50-269, 50-270, and 50-287

License Nos.: DPR-38, DPR-47, and
 DPR-55

Facility Name: Oconee 1, 2, and 3

Inspection Conducted: October 22 - 26, 1984

Inspectors: *N. Economos* 11/14/84
 N. Economos Date Signed

R. W. Newsome 11-13-84
 R. W. Newsome Date Signed

Approved by: *W. P. Aug for* 11-14-84
 J. J. Blake, Section Chief Date Signed
 Engineering Branch
 Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection entailed 66 inspector-hours on site in the areas of letdown cooler 1B replacement, closing of open items, ISI-program review, record review, procedure review, and work observation, Unit 1.

Results: No violations or deviations were identified.

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DETAILS

1. Licensee Employees Contacted

- *M. S. Tuckman, Station Manager
- R. J. Brackett, Senior QA Engineer
- *C. B. Cheezem, ISI Engineer
- W. R. Hunt, Assistant QA Engineer, ISI
- *T. C. Matthews, Compliance Technical Specialist
- *R. H. Ledford, QA Technical Support Supervisor

Other licensee employees contacted included technicians and office personnel.

Other Organization

Babcock and Wilcox, Special Products and Intergrated Field Services
H. E. Stoppelmann, ISI Coordinator
D. Weber, Eddy Current Analyst
R. A. Mechalski, Supervisor, Aris Operations

NRC Resident Inspectors

J. Bryant, Senior Resident Inspector
K. Sasser, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 26, 1984, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the findings listed below.

(Open) Inspector Followup Item (IFI), 269/84-27-01, VT Level III Approval for QCL-13, QCL-14, and QCL-15 VT NDE Procedures, paragraph 8.

(Open) IFI, 269/84-27-02, Adequate Preservation and Storage of Ultrasonic Calibration Blocks, paragraph 10.

3. Licensee Action on Previous Enforcement Matters

(Closed) Violation 270/83-20-01: Failure to Follow Weld Procedure Specification Requirements. This violation addressed L-231 inadequacies in the licensee's controls on filler material usage. The licensee's letter of response dated August 26, 1983, has been reviewed and determined acceptable by Region II. The inspectors held discussions with the Nuclear Records Management Supervisor and examined the corrective actions as stated in the

letter of response. The inspectors concluded that the licensee had determined the full extent of the subject noncompliance, performed the necessary follow-up actions to correct the present conditions, and developed the necessary corrective conditions. The corrective actions identified in the letter of response have been implemented.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Inspector Followup Items (IFI)

(Closed) 269, 270, 287/84-05-01, Unavailable Drawings and Stress Report. As-built weld stress calculations for Oconee self-contained air conditioning unit performed by Corporate Consulting and Development Company Ltd. (CCL) dated May 24, 1984, and approved by Duke Power Company (DPC) Mechanical Division on May 31, 1984, are now on site.

The report indicated that CCL performed a seismic qualification analysis of the Bahnson self-contained air conditioning unit in accordance with Duke Power Company specification number OS-2351, Revision 0, for the as-designed construction of the unit. A finite element analysis was performed using the STARDYNE computer program. The report indicated that Bahnson performed a visual inspection of the as-built unit. CCL evaluated the as-built weld stresses and concluded that the maximum weld stresses for the SSE condition at the attachments of the compressor stand to the skid channels are less than allowable.

(Closed) 269, 270, 287/84-05-02 Undetermined Weld Inspection Acceptance Criteria. The licensee provided for review a copy of Bahnson's Quality Control Instruction, QCI-501, Rev. 5, entitled Quality Control Inspection, Welding Inspection - Visual. The procedure references AWS D1.1 as the applicable code and provides details concerning the inspection of welds. Acceptance/rejection criteria are included.

(Closed) 269, 270, 287/84-05-03 Welding Filler Material Type. The licensee provided for review a copy of the chemical analysis test report for filler material type E-70S-3, heat Nos. 357944 and 645225. The reports certified that the material complied with specification AWS A5.18-79, Class E70S-3. The designation NS-101, which appeared under "TYPE" on the vendor's test report, appears to be an in-house nomenclature used by the distributor (Piedmont Welding Supply) to identify the material and its manufacturer, who in this case, was National Standard Company.

6. Independent Inspection Effort, Unit 1 (92706)

Letdown Cooler 1B Replacement. At the time of this inspection, work on the replacement of letdown cooler 1B had been completed. Replacement of the existing cooler was prompted by a primary to secondary leak detected while the plant was operating. The work was performed under station temporary maintenance procedure TM/0/A/1100/2, Rev.0. The inspectors inspected the two three inch (3") weld joints on the primary side of the cooler which

connected it to the system. These welds had been completed and ground to accommodate ASME Section XI inspection requirements. The governing code was ASME Section XI (80W80); however, weld fabrication requirements and acceptance criteria were based on the construction code of record, USAS B31.7-69. The welds were identified as 1A and 10A, and appeared on ISO 137 of system 51A. The replacement cooler was identified as a Heliflow Letdown Cooler which was manufactured by Graham Mfg. Co., and supplied to DPC under P.O. # J11151-74. The Code Data Report indicated the cooler, S/N 44773-2, was manufactured to ASME Section III (80S80) Class 3 requirements. Receipt Inspection was performed by DPC on February 8, 1984, and documented on form QCG-1A, Rev. 7. In addition, the inspectors reviewed installation/weld fabrication records including weld tickets, weld consumal (filler metal), quality records and welds qualifications. Final NDE and preservice inspections on the aforementioned welds were not performed during the time of this inspection. Within these areas, the inspectors noted the presence of several pieces of partially consumed filler metal wire on the floor at the work area. The inspectors collected and disposed the material as required by the applicable station directive. In addition, the inspectors discussed this finding with cognizant QA personnel and station management stating that, although the finding was not indicative of a programmatic breakdown, it is a condition which cannot be overlooked and, therefore, supervision needs to take immediate and appropriate steps to assure that material control requirements as delineated by the approved station directive and regulatory requirements are vigorously enforced. Management assured the inspector that this matter will be investigated and appropriate actions taken. Within the areas of inspection, no deviations or violations were identified.

7. Inservice Inspection, Programmatic Review Unit 1 (73501).

The inspectors reviewed the licensee's Inservice Inspection (ISI) program (Plan) 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; quality records; inspection scope; inspection intervals; personnel qualifications; 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 of 1980.

The Plan had been approved by the QA Manager of Operations on September 13, 1984. In addition to the aforementioned Code, Regulatory Guides 1.14, 1.83, and 1.150 have been invoked with certain provisions delineated in the applicable procedures.

Within the areas of inspection, no deviations or violations were identified.

8. Inservice Inspection - Procedure Review, Unit 1 (73052)

The ISI inspection activities being conducted during this outage were being accomplished by Duke Power Company, (DPC) and their agent, Babcock and Wilcox (B&W). B&W was performing all ultrasonic examinations and the eddy current examination of tubing in once through steam generators (OTSGs) A and B. DPC was performing all magnetic particle, liquid penetrant, and visual examinations.

- a. The inspectors 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.

- (1) The following procedures were reviewed in the areas of procedure approval, requirements for qualification of NDE personnel, and compilation of required records.

BABCOCK AND WILCOX PROCEDURES

<u>Procedure No.</u>	<u>Title</u>	<u>Revision</u>
ISI-24	Personnel Qualification-Eddy Current Examination	5
ISI-120	Ultrasonic Examination of Piping Welds Joining Similar and Dissimilar Materials	22
ISI-130	Ultrasonic Examination of Vessel Welds and Nozzle Inside Radius Sections	21
ISI-131	Remote Ultrasonic Examination Using the Aris Device	
ISI-418	Technical Procedure for the Multi-frequency Eddy Current Examination of OTSG Tubing in 177 Steam Generators using the MIZ-18	0

DUKE POWER COMPANY PROCEDURES

<u>Procedure No.</u>	<u>Title</u>	<u>Revision</u>
QA-100	Preparation and Issue of Quality Assurance Procedures	8
QA-116	Qualification Assurance Records Collection, Storage and Retention	5
QA-130	Qualification and Training of Lead Auditors	10
QA-131	Quality Assurance Training	6
QA-140	Quality Assurance Inspector Training	8
QA-210	Departmental Audit Procedure	17
QA-230	Departmental Audit Scheduling and Follow-up	10
QA-500	Operations Division Surveillance Program	11
QA-501	Placing, Reviewing and Verifying QA Requirements on Station Procedures	7
QA-502	Evaluating and Approving QC Inspection Records	5
QA-509	Preparation and Issue of Quality Control Procedures	10
QA-513	Control of Preservice and Inservice Inspection Plans	3
NDE-21	M. T. Inspection Techniques Direct Current Prod Method	11
NDE-30	Liquid Penetrant Examination Technique (Color Contrast, Solurnt Removable Method)	16
QCL-13	ISI Visual Examination VT-1	10
QCL-14	ISI Visual Examination VT-3 and VT-4	1
QCL-15	ISI Visual Examination VT-2	1

- (2) During the review of DPC VT Procedures, QCL-13, QCL-14 and QCL-15, the inspectors noted that these procedures did not have an NDE VT Level III approval signature. Discussions with the licensee revealed that the licensee was aware of the requirement for NDE Procedures approval by an NDE Level III. The licensee indicated that the procedures had been prepared by a VT Level III but since the procedures had been included as part of the Quality Control Manual instead of the ISI NDE Procedures Manual, the need for a VT Level III approval signature on the procedures had not been addressed. During further discussion with the licensee regarding this matter, the licensee agreed to have the aforementioned VT Procedures approved and signed by the licensee's VT Level III. These procedure approval signatures will be reviewed on a future inspection. This matter is identified as IFI 269/84-27-01, VT Level III Approval for QCL-13, QCL-14, and QCL-15 VT NDE Procedures.
- (b) In addition to the review above, B&W UT Procedures ISI-120, ISI-130, and ISI-131, were reviewed in the area of technical 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 evaluating and recording indications, and acceptance standards.
- (c) DPC MT procedure NDE-21 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, prod spacing, prod magnetizing current, and acceptance criteria.
- (d) DPC PT procedure NDE-30 was reviewed for technical content relative to: method consistent with ASME code, specification of brand names of penetrant materials, specification of limits for sulfur and total halogens for materials, pre-examination surface preparation, minimum drying time following surface cleaning, penetrant application and penetration time, temperature requirements, solvent removal, method of surface drying, type of developer and method of application, examination technique, technique for evaluation, acceptance standards, and requalification requirements.
- (e) B&W Eddy Current Procedure ISI-418 was reviewed for technical content relative to: multichannel examination unit, multichannel examination indication equipment is specified, maximum examination sensitivity, material permeability, method of examination, method of calibration and calibration sequence, and acceptance criteria.

Within the areas of inspection, no violations or deviations were identified.

9. Inservice Inspection, Data Review and Evaluation, Unit 1 (73755).

Records of completed nondestructive examinations were selected and reviewed to ascertain whether: the method(s), technique and extent of the examination complied with the ISI plan and applicable NDE procedures; findings were properly recorded and evaluated by qualified personnel; programmatic deviations were recorded as required; personnel, instruments, calibration blocks and NDE materials (penetrants, couplants) were designated and qualifications/certifications were on file. The applicable Code for this activity was discussed in the paragraph above. Records selected for this review were as follows:

<u>ISI Item No.</u>	<u>Weld I.D.</u>	<u>NDE Method</u>
B03.110.002	1PZR-WP34- Pressurizer Spray Nozzle	UT 0° and 45°
B03.110.004	1PZR-WP33-2- Pressurizer Relief Nozzle On Y-Axis	UT 0° and 45°
B03.110.003	1PZR-WP33-3- Pressurizer Relief Nozzle Between W and Z Axis	UT 0° and 45°
B09.021.033	1-51A-04-23C- High Pressure Injection	PT
B05.051.001	1PIA1-11- Suction Drain Nozzle Safe End	PT
B02.011.005	1PZR-WP76- Pressurizer Upper HD To Shell CIR SM ID 05 to 01	UT 0°
B02.012.001	1PZR-WP1-1- Pressurizer Shell Long Seam ID 01 to 01	UT 0°

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

10. Inservice Inspection - Observation of Work and Work Activities, Unit 1 (73753B)

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 as listed below for NDE examiners were:

<u>Certification Level</u>	<u>Method</u>	<u>Number Reviewed</u>
II	UT	3
III	UT	1
I	ET	2
II	ET	3
II	PT	2

- b. Eddy Current (EC) Examination of Steam Generator (SG) Tubes, Unit 1.

ISI activities during this refueling outage included the eddy current (EC) examination of tubes in "A" & "B" SGs. Data acquisition and analysis were being performed by B&W. The approved B&W procedure ISI-418, Rev. 0, and related references are the governing documents.

- (1) Examination was being performed with a multi-frequency technique and utilized the computerized MIZ-18 EC Examination System to analyze tube integrity. Discussions with the licensee disclosed that as of October 26, 1984, there had been 2187 tubes in steam generator A probed with three tubes being required to be plugged. In Steam Generator B, 5204 tubes had been probed with 49 being required to be plugged.
- (2) During the observation of the examination activities, the inspectors observed, by remote T.V. camera, the probing of the tubes listed below and an EC System calibration check using calibration standard DB-49065 for Steam Generator A.

<u>Row</u>	<u>Tube No.</u>
42	41
52	51
61	14
67	4
68	12

Certification records for EC calibration standard DB-49065 were reviewed for material type, correct fabrication, and artificial flaw location/size.

- (3) During the observation of EC examinations, the inspectors selected, at random, two tubes from Steam Generator B, which had been analyzed as having experienced wall degradation, in order to verify the ability of the EC System to reproduce the original examination data within acceptable limits. The tubes selected were in Row 133, Column 10, which had shown a wall degradation of 43% at one location and in Row 134, Column 14, which had shown wall degradation at two separate locations, one of 47% and one of 28%. The EC Data Analysis Personnel were able to recall the original data and were able to recapture the original analysis determination within acceptable limits.
- (4) The work observations listed above were accomplished to verify: use of approved procedure and equipment; use of knowledgeable examination personnel with proper qualifications; proper recording of examination data; proper examination frequencies; calibration standard adequacy; and performance of calibration at proper intervals.
- c. The inspectors observed Liquid Penetrant Examination of two welded joints identified below, to determine whether or not the examinations were performed per code requirements, and the licensee's written procedures.

<u>ISI Item No.</u>	<u>Weld Joint No.</u>	<u>Size</u>
B05.051.001	1 PIA1-11	3.5"
B09.021.033	1-51A-04-23C	2.5"

- (1) The Liquid Penetrant Examinations of the welds listed above were performed in accordance with procedural requirements while using the below listed penetrant materials.

	<u>Batch No.</u>
Liquid Penetrant	7J010
Penetrant Remover	84D060
Developer	84B020

- (2) Review of the above noted penetrant materials certification records indicated the materials had been tested for total sulfur and halogen content and were within acceptable content requirements.

- d. The inspectors observed B&W personnel performing in-process ultrasonic examination both by manual means and by use of the Aris automated system.
- (1) The automated near surface ultrasonic examination of the reactor vessel outlet nozzle on the "Z"-Axis was observed remotely, by television camera, and by observation of the ultrasonic examination equipment CRT presentation. Satisfactory confirmation of the ultrasonic examination system by means of a simulator attached to the Aris mechanized scanning apparatus was observed by the inspectors upon completion of the near surface examination.
 - (2) Manual Ultrasonic Examination of the knuckle areas of the below listed pressurizer nozzles was observed. The examination was being performed from the outside surface of the pressurizer with a 45 degree angle beam probe (transducer).

<u>ISI Item No.</u>	<u>Nozzle Location</u>
B03.110.002	Spray Nozzle
B03.110.004	Relief Nozzle on Y-Axis
B03.110.003	Relief Nozzle Between W and Z Axis

Following completion of the nozzle knuckle areas examinations, the inspectors observed the satisfactory ultrasonic system calibration confirmation on calibration block No. 40394. The inspectors noted several additional calibration blocks in the same area stacked one on top of the other. A close visual inspection of the calibration blocks revealed most of the carbon steel blocks exhibited a light coating of rust and nearly all of the blocks had been scratched, nicked, and/or gouged. Concern regarding the preservation of the blocks for future inspections was expressed to DPC Plant Management. Plant Management immediately and voluntarily had a survey of the blocks performed to determine if the scratches and/or gauges were located on areas of the blocks that might have an adverse effect on their future use. The survey indicated none of the current blemishes were detrimental to future use. During further discussion with the licensee, the inspectors stated and management agreed that a better method of storing and preserving the calibration blocks should be established. The method established to adequately store and preserve the calibration blocks will be reviewed on a future inspection. This matter is identified as IFI, 269/84-27-02. Adequate preservation and storage of ultrasonic calibration blocks

- (3) The in-process ultrasonic examinations observed were compared with applicable procedures in the following areas: compliance with NDE procedures; use of knowledgeable NDE personnel; use of NDE personnel qualified to the proper level; recording of inspection results; type of ultrasonic equipment used; extent of examination coverage; equipment calibration requirements; search units; beam angles; DAC curves; reference level for monitoring discontinuities; limits for evaluating and recording indications; and acceptance criteria.

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