UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-269/94-35, 50-270/94-35 and 50-287/94-35

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 Nuclear Station Units 1, 2 and 3

Inspection Conducted: October 13, 19, 25-26 and October 31 to November 4, 1994

Inspector: _____ 11/29/94
N. Economos Date Signed

Accompanying Personnel: J. J. Blake, October 13 and 19, 1994
B. R. Crowley, October 25-26, 1994

Approved by: _____ 11/29/94
J. J. Blake, Chief Date Signed
Materials and Processes Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of Inservice Inspection (ISI), including Eddy Current testing of S/G tubing. In addition, plant modifications, i.e., letdown cooler replacement and N16 Holdup Tank removal were reviewed. Corrective actions for previous inspection findings were inspected.

Results:

In the areas inspected, violations or deviations were not identified.

Relative to ISI, adequate performance was observed. Progress was noted in the implementation of corrective actions taken to address weaknesses identified in certain maintenance and engineering activities that were documented in Region II Report 94-17. These included a lack of adequate procedures to administer and control hydrostatic testing, organization and administration of code

relief requests, and enhancements to documents used to control the erosion corrosion program.

Eddy Current(ET) examination of tubing in both once through steam generators (OTSG(s)) was performed by well trained personnel following procedures with acceptance criteria of sufficient conservatism to provide reasonable assurance that plant safety was not compromised. Plant engineering modifications identified above were performed and documented in a satisfactory manner.

REPORT DETAIL

1. Persons Contacted

Licensee Employees

J. Batton, OTSG Engineer
*E. Burchfield manager Regulatory Compliance
B. Carney, Component Engineer
*T. Coleman, Technical Specialist - ISI
D. Dalton, Generation Services Department
V. Dixon, Engineer, Hydrostatic Testing
R. Dobson, Engineer Modifications
E. Few, Senior Technical Specialist
B. Foster, Manager, Mechanical and Maintenance Safety Assurance
*J. Hampton, Vice President/Oconee Nuclear Station (ONS)
M. Hipps, Mechanical Maintenance Manager
D. Hubbard, superintendent maintenance
J. McArdle, Level III Nondestructive Testing Examiner
*B. Millsaps, Mechanical/Civil Equipment Supervisor
D. Nix, Compliance Engineer
E. Painter, Mechanical Maintenance
S. Perry, Assistant License Coordinator
T. Royal, Mechanical Engineering Supervisor
*J. Smith, Regulatory Compliance
*D. Sweigart, Superintendent Work Control
*J. Warren Jr., Technical Support Supervisor, Maintenance

Other licensee and contractor employees contacted during this inspection included engineers, QA/QC personnel, technicians, and administrative personnel.

NRC Employees

*P. Harmon, Senior Resident Inspector
G. Humphrey, Resident Inspector
*K. Poertner, Resident Inspector

*Attended exit interview

2. Inservice Inspection

The inspectors reviewed documents and records, and observed activities, as indicated below, to determine whether ISI was being conducted in accordance with applicable procedures, regulatory requirements, and licensee commitments. The applicable code for ISI is the American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME B&PV) Code, Section XI, 1980 Edition with Addenda through Winter 1980, except selection of category B-D class 3 components is in accordance with the 1980 Edition including Addenda through the Winter of 1982. Oconee 2 was in the 14th refueling outage, at the end of the 3rd period of the second ten year ISI interval. The current outage was the last refueling outage prior to the end of the second 10 year interval. ISI work scheduled for

this outage was limited to a few components needed to satisfy code inspection requirements and certain vessel welds where 90 percent weld volume coverage had not been achieved.

The licensee's Generation Service Department is responsible for the ISI program and furnishes nondestructive examination (NDE) inspection personnel. The site Mechanical/Civil Engineering Group is responsible for implementing the ISI program including the hydrostatic test program.

a. ISI Program Review (73051) (Unit 2)

The inspector reviewed the following documents related to the ISI program:

- Second Interval Inservice Inspection Plan, Revision 7
- Oconee, Refueling Outage No. 13 Report Revision 0, July 26, 1993
- QA-513, Revision 9, Control of Inservice Inspection Plans and Reports
- QA-516, Revision 2, Evaluation of ISI Indications
- NSD-701, Revision 0, Records Management

The documents were reviewed to verify:

- The plan had been approved by the licensee
- Relief requests had been approved by NRR
- The services of an Authorized Nuclear Inservice Inspector (ANII) had been procured and that the ANII was involved in ISI-activities.
- Procedures and plans had been established (written, reviewed, approved and issued) to control and accomplish the following applicable activities: program organization including identification of commitments and regulatory requirements, preparing plans and schedules, and qualification, training, responsibilities, and duties of personnel responsible for ISI; NDE personnel qualification requirements; and guidance for identifying and processing relief request. As such, the Quality Technical Services (QATS) prepares ISI plans and Summary Reports. Data Management, NDE Section in the Generation Services Department, issues the list of OTSG tubes to be ET tested during each outage. This list is reviewed and approved by the Nuclear Generation Maintenance Engineer responsible for OTSG(s).

b. Data Review and Evaluation (73755)

At the time of this inspection, scheduled examinations of designated welds had been completed. Therefore, the inspector reviewed selected records of welds examined during refueling outage 13, records of welds examined during the present refueling outage, RFO No. 14 and certain elements of the second 10 year Summary Report. Within these areas the inspector reviewed the records of the following Reactor Pressure Vessel (RPV) welds.

Weld	Description	Comments
2RPV - WR 19 B06.040.001 and .001B	Flange to Nozzle belt	No Recordable indications
2RPV - Ligaments B06.040.001 and .001A	RPV Ligaments	No Recordable indications

Both of these welds were examined during previous outages on a limited basis. A supplemental examination was performed during this outage to satisfy the 90-100 percent weld coverage code requirement. In reference to item B06.040.001 and .001A above, the inspector ascertained that a cladding interference precluded inspection of a certain portion of the area of interest associated with vessel flange stud holes. A change in inspection technique and an increase in the sound level i.e., 34db vs 12db achieved clad penetration and a satisfactory inspection of the area of interest.

- Review of second 10 year ISI plan, category B-A Class 1 Welds.

The following welds were selected for a review of examination results, degree of coverage and compliance with applicable code requirements.

Weld	Description	Refueling Outage Examination Performed
2RPV - WR19	Flange to Nozzle belt	No. 9 and No. 14
2RPV - WH5	Head Circumferential	No. 7 and No. 10
2RPV - WH7	Head to Flange	No. 7 and No. 10
2RPV - WR1A	Shell to Nozzle Belt	No. 12
2RPV - WR1	Shell Meridian	No. 12
2RPV - WR18	Nozzle Belt	No. 12
2RPV - WR34	Lower Head to Shell	No. 12
2RPV ____	Ligaments	No. 7, No. 12 and No. 14

By this review,the inspector ascertained that weld geometry, configuration or design interferences caused some of these welds to be examined on a limited basis. The limitations were documented and the licensee had submitted generic relief request 93-GO-01, covering all Duke plants, for review and approval. The licensee's reasoning for this type of relief request was based on the fact that all submittals pertained to limited ISI inspections and that all possible examinations permitted by present technology that could be performed were performed.

Following the close of this inspection, the inspector learned that NRR requested specific information on these welds before relief requests could be considered. In summary, there were 264 class 1 and class 2 welds, out of which 121 received limited examinations, 106 of these were class 1 and 15 involved class 2 welds. Inspector Followup Item 270/94-35-01, Generic Code Relief Request 93-GO-01 on Limited ISI Examinations, was identified to provide for monitoring the outcome of this matter.

○ Eddy Current Examination of OTSG Tubing (Unit 2)

As stated earlier, ISI activities during this outage included eddy current examination of tubes in "A" and "B" OTSG (s). Data acquisition and analysis had been performed in accordance with procedures identified earlier in this report. Controlling documents/code by reference, included ASME Code Section XI 1989, Regulatory Guide 1.83 (July 1975), and Code Cases N-401 and N-402. Data acquisition had been performed by licensee personnel. Data analysis had been performed offsite at McGuire and B&W Lynchburg, VA. Primary analysis was performed by the licensee and B&W utilizing Zetec's Eddynet system with software Version 25, Patch 10. Secondary analysis was performed by the licensee at McGuire utilizing computer data screening. Resolution of discrepancies between primary and secondary calls was the responsibility of the licensee. The code required eddy current examination utilizing bobbin coil probes was performed with multifrequency MIZ-18A remote data acquisition units (RDAUs).

○ Procedure Review

The following procedures were reviewed for technical adequacy and conformance with ASME Code Sections V and XI including regulatory documents and Code Cases identified above.

- NDE-701, Revision 2, Multifrequency Eddy Current Examination on Steam Generator Tubing at McGuire, Catawba and Oconee

- NDE-703, Revision 4, Evaluation of Eddy Current Data for Steam Generator Tubing

- NDE-707, Revision 2, Multifrequency Eddy Current Examination of Non-Ferrous Tubing Sleeves and Plugs Using A Motorized Rotating Coil Probe

- NDE-708, Revision 2, Evaluation of Eddy Current Data for Non-Ferrous Tubing, Sleeves & Plugs Using MRPC

- NDE-710, Revision 1, Multifrequency Eddy Current Examination of Non-Ferrous Sleeved Tubes for Oconee

- NDE-711, Revision 1, Evaluation of Eddy Current data of Sleeved OTSG Tubing

○ Inspection Plan

The following summarizes the licensee's steam generator ET inspection program for the current outage.

- "Bobbin" Probe - The planned inspection included full length examination of approximately 60 percent (9431 for OTSG "A" and 9764 for OTSG "B") of the tubes in each generator. At the time of this inspection all tubes had been examined and analyzed.

- "Sleeve/Crosswound" - The planned inspection included 100 percent of the sleeves in both OTSGs (278 in "A" and 266 in "B"). Inspection was completed and all inspection results were analyzed and resolved.

- "MRPC LANE & WEDGE" - For "Lane and Wedge" area tubes, the planned inspection included 225 tubes in OTSG "A" and 225 tubes in OTSG "B." At the time of the inspection, all tubes scheduled for this type examination had been inspected and analyzed; no further problems were identified.

- "MRPC, Re-examined Tubes" - Two tubes in S/G "A" and two in OTSG "B" were in the inspection program. Examination in both OTSG (s) had been completed; one tube in OTSG "B" was scheduled for re-examination.

- Rolled plugs" - Examination of Inconel-690 plugs included a baseline examination involving 100 percent of plugs installed during the previous outage, a random sample of about 20 percent of Inconel-690 plugs in the hot and cold legs of "A" and "B" OTSG (s). A summary, of plugs inspected during this outage was as follows:

Activity	"A" H/L	"A" C/L	"B" H/L	"B" C/L
Baseline and Random sample of I-690, Plugs	59	45	123	81

At the time of this inspection all schedule examinations as outlined in the plan had been completed including analysis of results. The licensee provided the inspector the total number of tubes plugged as a result of this and previous ET examinations, which are as follows:

	OTSG "A"	OTSG "B"
Tubes Removed from Services Prior to this Outage	103*	228*
Tubes Plugged During this Outage	35	40
TOTAL Tubes Removed from Service	138	268
Number of I-690 (80") Sleeves Installed	157	143
Percentage of Tubes Plugged - 15,531 Tubes per OTSG	0.9%	1.7%

*Includes August 1994 leakage outage.

3. Engineering Plant Changes and Modifications (37700/55050)

a. Letdown Cooler 2A Replacement

This component replacement was performed as a Minor Modification under work order task No. 94080782-01 to remedy a leaking condition that could not be located. As required by 10 CFR 50.59, the licensee performed an evaluation which was reviewed and approved on October 21, 1994. As such it was determined that this replacement was an established maintenance activity which did not change the facility as described in the FSAR. The replacement was performed and controlled by existing maintenance procedures and the Maintenance Welding Program.

Documents applicable by reference were as follows:

OS-0243.00-00-001	Specification, Materials Requirements
OSC-3098	Unreviewed Safety Question Determination for NSM-52679/00 Replacement of Flanges on Letdown Cooler July 21, 1988

OSS-0254.00-00-1001	Design Basis Document
MP/O/A/1810/014 Change 20:	Procedure Process Record
MP/O/A/1100/011 Change 5:	Cooler Letdown Remove and Replace
MP/O/A/1800/001 Change 17:	Tool and Material Inventory Checklist on Open Safety Related Systems

At the same time the licensee replaced associated piping and the two containment, automatic isolation valves 2HP-003 and -004. This work effort was performed under Minor Modification Work Order Task No. 94054662-01 Existing Valves (Rockwell International) were replaced with Yarway's, DMV's-946 drawing No. OM-245-1778 Model 5617 NRBM. This replacement was evaluated and documented under EOC-6828 Valve Replacement Evaluation.

By document review, the inspector ascertained that the replacement valves exhibited certain differences in physical and design characteristics which were as follows:

	Rockwell International	DMV-946
Valve Size (FSAR)	$2\frac{1}{2}$"Ø	2"Ø
End to End Dimension	12"Ø	$7\frac{1}{4}$"Ø
Weight	160 lbs.	65 lbs.
Flow Coefficient	90	60
Pipe Connection	Groove	Socket
Valve Seat	F-316 SS	Satellite 6

These differences were discussed with on site design engineers who indicated that a review was performed and it was determined that the subject valves were suitable as replacements. Design calculations to account for the higher stress of socket welds would be performed and design drawings would be revised following this outage as appropriate. Valve actuators were not replaced. The valves were designed to meet Class A requirements and were service rated for 2500 psig at 650°F.

Welding: The new welds were fabricated using the gas tungsten arc (GTA) welding process. Field weld data sheet L-231 Revision 18, was qualified to weld >1.00"OD stainless steel pipe material from 0.062" through .872" thickness. Field weld data sheet L-250 was qualified to weld carbon steel piping with the GTA welding process and was used where carbon steel welding was performed. Codes applicable to welding, inspections and testing were ASME Code Section XI, Subsection IWV and, Nuclear Power Piping B31.7. Welders who fabricated the welds in this replacement were identified by stencil No. B2320, M3239, G6687, W0821 and W7732. Their qualifications were reviewed and found to be in order.

Material used on this replacement project, selected for review of chemical and mechanical properties were as follows:

Component	Description	Heat
Pipe Elbow, 2½" ∅ Stainless Steel	90° schedule 160	JMXZ-1 QA No. 70347
Coupling Reducer 3" x 2"∅	No. 6000 lb. Class B	DAK QA No. ONO70201
Valves: -2HP-003	Globe, 2"∅ DMV-946	C-3229 QA No. ONO71927
-2HP-004		C-3233 QA No. ONO71927
Reducer 2½" x 2" ∅	Coupling Reducer Sch. 160, Class B	GGM QA No. ONO70202
Pipe: -2"∅	Type 316 Stainless Steel	432002 QA No. 70142
-2½"∅	Stainless Steel	k26812 QA No. ONO59177
7018 Electrodes	3/32"∅	93161 QA No. 67918
ER-308	3/32"∅	PJ 112 QA No. 68798

b. N-16 Decay Tank Removal

This plant engineering modification was performed to alleviate an extremely high dose condition associated with crud accumulation in the N-16 decay tank in the HPI System. This modification deletes the subject tank and replaces it with 2½" diameter schedule 160 stainless steel piping. The controlling document for this work effort was work order No. 94021743-01. Field activities were implemented through, TN/2/A/2939/0, Procedure for Implementation and Verification of NSM-22939. This document provided detailed instruction and referenced applicable maintenance procedures to be used. Step-by-step sign - offs were provided for specific activities including; 1) fabrication of replacement piping and supports; 2) hot particles spot removal, and removal of the N-16 decay tank; 3) installation of new pipe and 4) close-out and testing. Hydrostatic testing would be performed per procedure

MO/O/A/1720/10/ Welding was performed per AWS specification D1.1 and field weld data sheet L-350 Revision 17 which was qualified for the shielded metal arc (SMA) welding process. Welder qualification and filler metal certifications were reviewed and were identified earlier in this report.

Within the areas inspected violations or deviations were not identified.

4. Corrective Action in Response to Programmatic Weaknesses Identified on Previous Inspections.

Report 50-287/94-400 issued following an inspection by the NRC Mobile NDE Laboratory in January of 1994 identified a weakness in radiography and in documentation of ultrasonic examinations. Additional weakness were identified during an inspection performed by Region II inspectors that was documented in Report 269,270,287/94-17. Weaknesses identified during this inspection pertained to 1) lack of administrative procedures for hydrostatic testing; 2) organization and control of Code Relief Request and 3) erosion corrosion program was not well defined procedurally.

Within these areas the inspector reviewed documentation of planned or completed corrective actions, held discussions with cognizant personnel on the subject areas and determined following:

- Documentation of Ultrasonic examination Results:

Through discussion with the licensee's Level III NDE examiner and the review of objective evidence including Problem Investigation Report No. 0-094-0155, August 11, 1994 the inspector determined that NDE technicians were provided training on plotting and resolving ultrasonic indications. Topics covered by this training included 1) implementation of plotting requirements of procedure NDE-600 Revision 2, Ultrasonic Examination of Similar Metals; 2) use of measured beam angle in stainless steel, use of correction factor when indications are believed to be due to mode conversion and the differences between mode converted signals and beam redirection. Results of future UT examinations will be monitored by Region inspectors to determine whether this training achieved its objectives.

- Excessive Artifacts on Radiographs of Recently Fabricated Welds.

In response to this weakness, the inspector ascertained that the licensee took certain steps to improve the radiography program both administratively and technically. Some of the administrative measures included streamlining of paper work, improved telephone communications to reduce work interruption, uniformity of shooting techniques, training in the maintenance and operation of the film processor, changes to working practices inside the vault/darkroom to streamline and improve efficiency. However, through discussions with cognizant personnel and a

review of selected radiographs the inspector determined that although film artifacts and/or processor roller marks on final radiographs have been reduced, the condition or the problem has not been eliminated. From this work effort, the inspector believes that the cause of the problem is the film processor which has been in service over a considerable number of years and continues to remain in service even though its efficiency has diminished considerably. A list of the radiographs reviewed for this purpose and for compliance with applicable Code and procedural requirements were as follows. Applicable procedures included NDE-10A Revision 18 and NDE-12A Revision 9. Applicable Codes included ANSI B31.7 and ASME Code Sections III and XI.

Weld	Pipe Size	Comments
2-51A-146-37	3" x .438"	Artifacts in all intervals
2-51A-147-31	3" x 0.438"	Artifacts in all intervals
2-54A-7-34	8" x 0.250"	Artifacts in all intervals
2-45A-7-35	6" x 0.280"	Artifacts in all intervals
1-51A-1-44773-1-6	8" x 0.875"	Roller marks, artifacts
1-51A-1-44773-1-7	8" x 0.875"	Roller marks, artifacts
2-50-11-24	1½" x 0.281"	Artifacts
2-51B-18-96	6" x 0.134"	Artifacts
2-53B-22PT	14" x 0.250"	Artifacts
*2-03-18-23A	24" x 1.219"	Artifacts
*2-03-18-24	24" x 1.219"	Artifacts
*2-03-18-25	24" x 1.29"	Film artifacts
*2-03-18-26	24" x 1.29"	Film artifacts
*2-03-18-28	24" x 1.29"	Film artifacts
*2-03-18-46	24" x 1.29"	Film artifacts

*These welds were radiographed to satisfy ISI requirements for volumetric examination.

○ Administrative Procedures on Hydrostatic Testing Activities.

A review and inspection of the licensee's hydrostatic testing program documented in Region II Report 270/94-17 paragraph 3, stated in part that the owner of the program has a system which he uses for testing, assignment of test numbers, and identification of test boundaries. Although this system appears to be functioning satisfactorily there are no administrative procedures to describe and provide control of these activities. In addition this inspector noted that presently there is no document which describes the hierarchy of responsibility for the program and for approval of test boundaries and test results. The inspector discussed this weakness with the responsible engineer and site management who agreed to take the necessary steps that would generate an appropriate administrative document. The inspector stated that, Inspector Followup Item IFI 270/94-35-02 Administrative Procedure on Hydrostatic Testing, would be identified to assure review and evaluation of this document when issued.

- Erosion Corrosion Programmatic Weaknesses.

A review of the licensee's Erosion Corrosion program procedures, performed during the inspection documented in Report 270/94-17, paragraph 5, disclosed that the program and implementing procedures were limited in details of actual practices and a description of how the program works. Specific examples included: selection criteria for inspection points, decision process for determining component replacement, utilization of EPRI's Checmate software program and other such tools. Also, the Controlling Erosion Control Manual was out-of-date. These elements were discussed with the site engineer and program corporate management to identify more fully, and clarify, the areas of concern.

Through these discussions this inspector ascertained that the Control Manual has been revised and is currently undergoing review for approval. Therefore the identified weaknesses would be addressed either through procedure enhancement or through amplification of applicable sections in the Manual undergoing revision. This area will be revisited after the revised Manual has been approved.

- Organization and Control of Code Relief Requests.

This weakness was identified in Report 270/94-17, paragraph 2.a, to underscore the apparent lack of organization, and the apparent inability to provide the status of code relief requests submitted during the Second Interval of plant operation. During this inspection the responsible engineer stated that all relief request have been retrieved and entered into a computerized program. As such, relief requests are readily available for review. A manual containing hard copies is also available for review.

Within these areas violations or deviations were not identified.

5. Control Rod Drive Mechanism (CRDM) Nozzle Inspections (Unit 2)

Problems with Primary Water Stress Corrosion Cracking (PWSCC) in CRDM nozzles in foreign plants, has resulted in an ongoing pilot inspection program in U.S. plants. As part of this pilot program, Oconee unit 2 nozzles were inspected during the current outage. The inspection was performed by B&W Nuclear Technologies (BWNT).

Prior to the outage, BWNT developed and demonstrated remotely operated equipment for cleaning, eddy current (ET) inspection with a thin "Blade" probe, ET inspection using a Mechanized Rotating Pancake Coil (MRPC) probe, visual (VT) inspection, liquid penetrant (PT) inspection, ultrasonic (UT) inspection, mechanical excavation of defects, and weld repair. The inspectors witnessed demonstration of the majority of this equipment at the B&W facilities in Lynchburg, Virginia, prior to the outage.

The primary inspection method was the ET "Blade" probe (BPEC) inspection performed by inserting the probe between the inside surface of the nozzle and the leadscrew support. The area of concern for all nozzles was inspected 100% with this method. If indications were detected, the inspection plans included removal of the leadscrew and leadscrew support and the indications further examined using MRPC ET, PT, VT, and UT, as necessary to define the indications. The indications were to be accepted based on the approved acceptance criteria, or excavated and repaired, as necessary.

The following summarizes the inspection activities observed by the inspectors and the inspection results:

a. During an onsite inspection on October 13, 1994, the inspectors observed the following:

- The licensee had selected ten penetrations, (locations # 57, 52, 50, 45, 18, 17, 15, 14, 5, & 3) as the initial sample for cleaning and inspection. Cleaning of location # 5 was observed on the video monitors located in the inspection trailer.

- The Level III and Level II eddy current examiners were preparing for the inspection of the initial sample by initial calibration of the BPEC equipment.

b. On October 19, 1994, the inspectors reviewed/observed the following:

- The inspector observed BPEC inspection and evaluation of several of the nozzles.

- The data for inspections conducted between October 13 and 19, 1994, were reviewed.

c. On October 25-26, 1994, the inspectors reviewed/observed the following:

- Reviewed ET data (BPEC and MRPC) and the resolution and disposition of the indication in nozzle 28

- Reviewed BPEC ET data for nozzles 23, 60, 62, 63, & 65

- Observed MRPC ET inspections, including calibrations, at various frequencies and reviewed data for nozzles 23 & 63

- Reviewed VT inspection results for nozzles 23 & 63

- Reviewed inspection results for nozzles 1, 2, 5, 29, 30, & 34

d. The BPEC inspection identified ET indications in nozzles 23, 28, 60, 62, 63, and 65. These indications were observed as follows:

- Nozzle 23 - The BPEC inspection identified numerous small, shall axial indications near the top of the weld at the 180° orientation. The lead screw and lead screw support were removed and the indication area VT, PT, and ET (MRPC) inspected. These inspections confirmed the presence of indications. PT showed 21 individual indications ranging in length from 0.08" to 0.33". All indications were axial in direction, except for two: one turned in a circumferential direction at the upper end and the second was 0.100" in length and lying in the circumferential direction. UT inspection was performed and found indications to be too shallow to detect. The UT technique has been demonstrated to size indication having depths of 2 mm (0.079") and greater. Assuming the flaws to be less than 0.079" in depth, all flaws were determined to be within the approved acceptance criteria for one fuel cycle. The indications will be re-inspected during future outages.

- Nozzle 28 - The BPEC inspection identified a short, shallow indication at the 15° orientation below the weld area. The leadscrew and leadscrew support were removed and the area inspected using the ET MRPC probe. The MRPC inspection exhibited indications with non-flaw-like characteristics, including improper phase rotation, which were dispositioned as a non-flaw indication.

- Nozzles 60, 62, 63, and 65 - The BPEC inspection identified numerous small axial indications at locations above and below the weld. The indications were near the phase threshold for distinguishing flaws from non-flaw indications. Since the indications in nozzle 63 were typical of those in the other three nozzles and appeared to be the most significant of the four nozzles, the leadscrew and leadscrew support were removed from nozzle 63 and further NDE evaluations performed using PT, VT, UT and MRPC ET inspections. The MRPC inspections at various frequencies verified and further defined the BPEC results. However, the PT and UT inspections did not reveal any flaws. The VT inspection showed surface roughness that could have contributed to the ET indications. The ET indications in all four nozzles were dispositioned as non-flaws.

Results

Inspections and analysis of results was being performed in a conscientious manner. Personnel performing inspections and analyzing results were knowledgeable in their tasks.

No violations or deviations were identified.

6. Exit Interview

The inspection scope and results were summarized on November 3, 1994, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

(Open) IFI 270/94-35-01, Generic Code Relief Request, 93-GO-01 on limited ISI Examinations.

(Open) IFI 270/94-35-02, Administrative Procedures on Hydrostatic Testing.