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

Report Nos.: 50-413/89-08 and 50-414/89-08

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

Docket Nos.: 50-413 and 50-414 License Nos.: NPF-35 and NPF-52

Facility Name: Catawba 1 and 2

Inspection Conducted: March ~~13-14, 16~~-17, and 27-31, 1989

Inspector: _____ April 18, 1989
W. A. Kleinsorge P.E. Date Signed

Approved by: _____ 4/19/89
J. J. Blake, Chief Date Signed
Materials and Processes Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope

This routine, unannounced inspection was conducted in the areas of Inservice Inspection (ISI) and included a review of the ISI program implementing procedures and the Unit 2 ISI plan for this outage; reviews of nondestructive examination (NDE) procedures; reviews of NDE personnel qualifications; review of NDE equipment calibration and material certification documentation; and, a review of completed NDE examination data. Also, previously opened NRC items were addressed.

Results

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

The licensee's ISI program appears adequate in all areas inspected, however the implementation of that program shows signs of lack of attention to details. No major problems were identified in any of the areas reviewed.

Two Unresolved Items were Identified; the first concerning a magnetic particle examination technique used to examine reactor vessel studs and nuts, paragraph No. 2.e.(1), and the second concerning the protection of installed equipment, paragraph No. 2e(8).

During the exit interview, the station manager committed to correct all illegible print in all the Duke Power Company (DPC) Nondestructive Examination (NDE) procedures. These corrections are to be made during the occasion of the next revision of each procedure.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Barbour, Quality Assurance (QA) Director Operations
*J. Cherry, QA Specialist Inservice Inspection (ISI)
R. Giles, QA ISI Coordinator
*R. Glover, Technical Support (TS), Compliance
*V. King, TS Compliance
*T. Owens, Catawba Station Manager

Other licensee employees contacted during this inspection included craftsmen, engineers, technicians, and administrative personnel.

NRC Resident Inspectors

*W. Orders, Senior Resident Inspector
M. Lesser, Resident Inspector

*Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Inservice Inspection

The inspector 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 1981 (80W81). The Preservice Inspection (PSI) was performed to the requirements of 74S75 for both Unit 1 and Unit 2. The Construction Permits for both Unit 1 and Unit 2 were issued on August 7, 1975. The full power Operating Licenses were issued on June 24, 1985 and August 14, 1986, respectively. Commercial operation commenced June 29, 1985, for Unit 1 and August 19, 1986, for Unit 2. Unit 1 just completed the third outage of the first 40 month period of the first ten year interval. Unit 2 is in the second outage of the first 40 month period of the first ten year interval.

DPC nondestructive examination personnel are performing the liquid penetrant (PT), magnetic particle (MT), radiography (RT), and visual (VT) examinations under the umbrella of the DPC QA Program. Babcock and Wilcox

(B&W) personnel and DPC personnel are conducting the ultrasonic (UT) examinations for DPC under the umbrella of the B&W QA Program. Steam generator tubing eddy current (EC) examination data collection and the primary data analysis was performed by B&W personnel under the umbrella of the B&W QA Program, with DPC personnel performing a secondary data evaluation.

a. ISI Program Review, Units 1 and 2 (73051)

(1) Program

The inspector reviewed the following documents relating to the ISI program to determine whether the plan had been approved by the licensee and to assure that procedures and plans had been established (written, reviewed, approved and issued) to control and accomplish the following applicable activities: organizational structure including qualifications, training, responsibilities, and duties of personnel responsible for ISI; audits including procedures, frequency, and qualification of personnel; general Quality Assurance requirements including examination reports, deviations from previously established program, material certifications, and identification of components to be covered; work and inspection procedures; control of processes including suitably controlled work conditions, special methods, and use of qualified personnel; corrective action; document control; control of examination equipment; quality records including documentation of indications and NDE findings, review of documentation, provisions to assure legibility and retrievability, and corrective action; scope of the inspection including description of areas to be examined, examination category, method of inspection, extent of examinations, and justification for any exception; definition of inspection interval and extent of examination; qualification of NDE personnel; and, controls of generation, approval, custody, storage and maintenance of NDE records.

- Duke Power Company ASME, Section XI Manual (RO) (Implemented November 30, 1988)

  Section A (RO) Purpose, Organization, and Responsibility
  Section B (RO) Control of Manual
  Section D (RO) Inservice Inspection and Testing
  Section F (RO) Records
  Section G (RO) Control of Measuring and Test Equipment
  Section I (RO) Audit and Surveillance Activities

- Inservice Inspection Plan Catawba Nuclear Station Appendix A, Revision 4, 2nd Outage

DPC- QCL-5 (R9)	Control of Preservice and Inservice Inspection Activities
DPC- QA-116 (R12)	Quality Assurance Records Collection, Storage and Retention
DPC- QA-513 (R6)	Control of Inservice Inspection Plans and Reports
DPC- QA-516 (R0)	Evaluation of ISI Indications

(2) Relief Requests

The inspector reviewed the below listed Relief Requests. This review included record review and walkdown inspection to verify the bases for relief.

Relief Requests Reviewed

Units 1 and 2 Relief Request Serial No. CNS-001 and CNS-002

(3) Replacement Program

The inspector reviewed the completed portion of the licensee's Repair and Replacement Program for compliance with the requirements of ASME B&PV Code, Section XI, Subsections IWA 4000 and IWA 7000.

b. Review of NDE Procedures, Units 1 and 2 (73052)

(1) The inspector reviewed the procedures listed below to determine whether these procedures were consistent with regulatory requirements and licensee commitments. The procedures were also reviewed in the areas of procedure approval, requirements for qualification of NDE personnel, and compilation of required records; and, if applicable, division of responsibility between the licensee and contractor personnel if contractor personnel were involved in the ISI effort.

DPC-QCL-14 (R8)	ISI Visual Examination, VT-3 and VT-4
DPC-NDE-35 (R10)	Liquid Penetrant Examination
DPC-NDE-98 (R4)	(Special) Liquid Penetrant Examination Technique (Color Contrast, Solvent Removal Method) for Preservice and Inservice Inspection.

DPC-NDE-25 (R12)	Magnetic Particle Examination Procedure and Technique
DPC-NDE-44 (R7)	Ultrasonic Examination of Bolts, Studs, Bushings and Threads in Flanges for Preservice and Inservice Inspection
DPC-NDE-12 (R6)	General Radiography Procedure for Preservice and Inservice Inspection
DPC-NDE-90 (R0)	Reference System for Identification Layout of Welds and Components
B&W-ISI-21 (R9)	Administrative Procedure for the Written Practice of Personnel Qualification in Ultrasonic Examinations
B&W-ISI-50 (R11)	Technical Procedure Describing Surface Requirements of Welds Adjacent Base Metal and Components for Nondestructive Examination
B&W-ISI-55 (R3)	Technical Procedure for Sulfur Content Analysis
B&W-ISI-56 (R2)	Technical Procedure for Halogen Content Analysis
B&W-ISI-69 (R16)	Administrative Procedure for Processing Nondestructive Examination Data
B&W-ISI-76 (R15)	Administrative Procedure for the Design, Fabrication, and Certification of Calibration Standards
B&W-ISI-78 (R11)	Administrative Procedure for Tagging and Correction of Nonconforming Items
B&W-ISI-119 (R8)	Ultrasonic Examination of Stainless Steel and Nickel Base Alloy Weld Seams
B&W-ISI-120 (R25) With CA-88-006	Ultrasonic Examination of Pipe and Vessel Welds Joining Similar and Dissimilar Materials
B&W-ISI-130 (R24)	Ultrasonic Examination of Vessel Welds and Nozzle Inside Radius Sections

B&W-ISI-424 (R14)	Multi-frequency Eddy Current Examination Of Tubing .750" OD X .044" Wall RSG For ASME Exam. And Wear at Tube Support Plates

All procedures listed above have been reviewed during previous NRC inspections. Only current revisions were reviewed during this inspection.

(2) Ultrasonic Examination (UT)

The inspector reviewed the procedure Nos. B&W-ISI-119 and B&W-ISI-120 to ascertain whether they had been reviewed and approved in accordance with the licensee's established QA procedures. The procedures were also reviewed for technical adequacy and conformance with ASME, Section V, Article 5 and other licensee commitments/requirements in the following areas: type of apparatus used; extent of coverage of weldment; calibration requirements; search units; beam angles; DAC curves; reference level for monitoring discontinuities; method for demonstrating penetration; limits for evaluating and recording indications; recording significant indications; and, acceptance limits.

(3) Eddy Current Examination (EC)

The inspector reviewed procedure No. B&W-ISI-424 to ascertain whether it had been reviewed and approved in accordance with the licensee's established QA procedures. The procedure was reviewed for technical content relative to: multichannel examination unit, multichannel examination indication equipment was specified, examination sensitivity, material permeability, method of examination, method of calibration and calibration sequence, and acceptance criteria.

(4) Magnetic Particle Examination (MT)

The inspector reviewed procedure No. DPC-NDE-25 to ascertain whether it had been reviewed and approved in accordance with the licensee's established QA procedures. The procedure was reviewed for technical adequacy and for conformance with the ASME Code Section V, Article 7, and other licensee commitments and/or requirements in the following areas: examination methods; contrast of dry powder particle color with background; surface temperature; suspension medium and surface temperature requirement for wet particles; viewing conditions; examination overlap and directions; pole or prod spacing; current or lifting power (yoke); and, acceptance criteria.

(5) Visual Examination (VT)

The inspector reviewed procedure No. DPC-QCL-14 to determine whether it contained sufficient instructions to assure that the following parameters were specified and controlled within the limits permitted by the applicable code, standard, or any other specification requirement: method - direct visual, remote visual or translucent visual; application - hydrostatic testing, fabrication procedure, visual examination of welds, leak testing, etc.; how visual examination was to be performed; type of surface condition available; method or implement used for surface preparation, if any; whether direct or remote viewing was used; sequence of performing examination, when applicable; data to be tabulated, if any; acceptance criteria was specified and consistent with the applicable code section or controlling specification; and, report form completion.

(6) Radiographic Examination (RT)

The inspector reviewed procedure No. DPC-12 to determine whether it contained sufficient information to assure that the following parameters were specified and controlled within the limits permitted by the applicable code, or any other specification requirement: type of material to be radiographed; material and weld surface condition requirements; type of radiation source, effective focal spot or effective source size; film brand or type; number of films in cassette; minimum source to film distance; type and thickness of intensifying screens and filters; quality of radiographs; film density and contrast for single and composite viewing; use of densitometers for assuring compliance with film density requirements; system of radiograph identification; use of location markers; methods of reducing and testing for back-scatter; selection of penetrameters including penetrameter placement; number of penetrameters; shims under penetrameters; radiographic technique for double wall viewing; surface conditioning; method used for pre-examination surface cleaning; surface drying time prior to penetrant application; method of penetrant application; penetrant dwell time; method used for excess penetrant removal; surface drying prior to developer application, if applicable; type of developer; examination technique; evaluation techniques; and, procedure requalification.

c. Observation of Work and Work Activities, Unit 2 (73753)

The inspector observed examination activities, reviewed NDE equipment and materials certification records, and reviewed NDE personnel qualifications for personnel that had been utilized during the required ISI examinations during this outage. The observations and reviews conducted by the inspector are documented below.

(1) Ultrasonic Examination (UT)

The inspector observed calibration activities and the in-process ultrasonic examination described below. The observations were compared with the applicable procedures and the ASME B&PV Code in the following areas: availability of and compliance with approved NDE procedures; use of knowledgeable NDE personnel; use of NDE personnel qualified to the proper level; type of apparatus used; calibration requirements; search units; beam angles; DAC curves; reference level for monitoring discontinuities; method of demonstrating penetration; extent of weld/component examination coverage; limits of evaluating and recording indications; recording significant indications; and, acceptance limits.

Item No.	Weld No.	Description
C01.030.001	2 S G-02-03	Tubesheet to Stub Barrel

The following listed ultrasonic equipment certification records were reviewed:

Ultrasonic Instruments

Serial No.
1344
1346
1343
1289
12087
12088

The inspector reviewed spectrum analysis data for the ultrasonic transducers listed below:

Serial No.	Size	Frequency
DB32349	0.5"x0.5"	2.25 MHz
M18423	1.0"	2.25 MHz
M18416	1.0"	2.25 MHz
I84282	1.0"	2.25 MHz
32725	0.25"	2.25 MHz
32723	0.25"	2.25 MHz
K86082	0.5"	2.25 MHz
K86094	0.5"	2.25 MHz
32381	.5"	2.25 MHz
80784	1.0"	2.25 MHz

The certification documentation for the below listed Ultrasonic Couplant Batch was reviewed:

BATCH NO.

9552

The certification documentation for the below listed Ultrasonic Calibration Blocks was examined:

SERIAL NOS.

50308, 50374, 50376, 1078-83

The certification documentation for the below listed Thermometers was examined:

SERIAL NOS.

CNIAC-18608, CNIAC-18601, CNIAC-18606

(2) Liquid Penetrant Examination (PT)

The inspector observed the PT examinations indicated below. The observations were compared with the applicable procedure and the ASME B&PV Code in the following areas: specified method; penetrant materials identified; penetrant materials analyzed for halogens and sulfur; acceptable pre-examination surface; surface temperature; surface drying time prior to penetrant application; method of penetrant application; penetrant dwell time; method used for excess penetrant removal; surface drying prior to developing, if applicable; type of developer; examination technique; evaluation technique; and, reporting of examination results.

Item No.	Weld ID	Description	Class
B09.011.310A	2NI59-04	Pipe Weld	1
B09.011.311A	2NI61-03	Pipe Weld	1
B09.011.312A	2NI61-05	Pipe Weld	1

The inspector reviewed the below listed liquid penetrant materials certification records to ascertain if the sulfur and

halogen content of the material was within acceptable content limits:

Materials	Batch Number
Liquid Penetrant	78E084
Cleaner/Remover	86J005, 88F051
Developer	83G033, 86B076

(3) Magnetic Particle Examination (MT)

The inspector observed the magnetic particle examinations indicated below. The observations were compared with the applicable procedures and the Code in the following areas: examination methods; contrast of dry powder particle color with background; surface temperature; suspension medium for wet particles, if applicable; viewing conditions; examination overlap and directions; pole or prod spacing; current or lifting power (yoke); and acceptance criteria.

Item No.	Weld ID	Description	Class
C05.011.453	2SV3-05	Pipe Weld	2
C05.011.452	2SV3-04	Pipe Weld	2

The inspector reviewed the certification documentation for the below listed MT equipment:

Yoke ID: CN030
Test Weight ID: MTC-1
MT Unit Serial No.: 851001

Calibration documentation records were reviewed for the below listed Light Meter to confirm that it was in a properly calibrated state at the time of their use:

Light Meter ID: 803145

A review of the material certification records for below listed magnetic particles indicated the sulfur and halogen content of the material was within acceptable content limits:

Batch Nos: 87F008, 86D062 (4) Visual Examination (VT)

The inspector observed/independently reexamined the visual examinations indicated below. The observations were compared with the applicable procedures and the Code in the following areas: method - direct visual, remote visual or translucent visual; application - hydrostatic testing, fabrication procedure, visual examination of welds, leak testing, etc.; how visual examination was to be performed; type of surface condition available; method or implement used for surface preparation, if any;

whether direct or remote viewing was used; sequence of performing examination, when applicable; data to be tabulated, if any; acceptance criteria was specified and consistent with the applicable code section or controlling specification; and, report form completion.

Item No.	Identification	Description	Method
F1.02.335	2-R-ND-0350	Rigid Support	VT-3
F1.03.624	2-RKD-0048	Class 3 Support	VT-3
F1.03.626	2-RKD-0050	Class 3 Support	VT-3
FI.03.618	2-RKD-0057	Class 3 Support	VT-3
F1.03.621	2-RKD-0060	Class 3 Support	VT-3

(5) Personnel Qualification

The inspector reviewed the qualification documentation for the below listed examiners in the following areas: employer's name; person certified; activity qualified to perform; effective period of certification; signature of employer's designated representative; basis used for certification; and, annual visual acuity, color vision examination, and periodic recertification.

Company	Examiner	Method-Level
DPC	WCL	UT II
DPC	GEH	UT I
DPC	LEM	UT I
DPC	RBC	PT II MT II
DPC	WMc	PT II MT II
DPC	DKZ	PT II MT II
DPC	WF	MT II
DPC	TMB	PT II
DPC	JKT	PT II
DPC	DJG	PT II
DPC	KLW	PT II
DPC	MW	VT-2 II
DPC	MM	VT-1 II VT-3 II
DPC	KBG	VT-1 II
DPC	LW	VT-3 II
DPC	WKD	EC IIA
DPC	AG	EC I
DPC	LGC	EC II
B&W	RJP	UT II
B&W	JW	UT II
B&W	WSJ	UT II
B&W	MJK	EC IIA
B&W	JBW	EC IIA
B&W	ACG	EC IIA
B&W	CBW	EC IIA
B&W	JMB	EC IIA
B&W	JB	EC III

d. Inservice Inspection, Data Review and Evaluation, Unit 2 (73755)

(1) Records of completed nondestructive examinations were selected and reviewed to ascertain whether: the methods, 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. Records selected for this review are listed below:

Item No.	Weld/Component ID	NDE Method
B01.021.002	2RPV-102-101	UT
B05.010.010	2RPV-W81-101SE	UT
B05.010.010A	2RPV-W81-101SE	PT
B06.010.002	2RPV-NUT-02A	MT
B06.030.002A	2RPV-STUD-02A	MT
B06.050.003	2RPV-WASHER-03	VT-1
B07.030.003	2SGB-MW-W-X	VT-1
B09.011.040	2NC24-07	UT
B09.011.040A	2NC24-07	PT
B09.040.229	2NV323-22	PT
B15.020.001	2PRZ	VT-2
B15.030.001	2SG-2A	VT-2
B16.020.001	2SG-TUBES	EC
B05.070.004A	1SGB-OUTLET-SE	PT
B09.011.310A	2NI59-04	PT
B09.011.311A	2NI61-03	PT
B09.011.312A	2NI61-05	PT
B09.011.055A	2NC45-02	PT
B09.011.056A	2NC45-03	PT
B09.011.057A	2NC46-02	PT
B09.011.058A	2NC46-04	PT

Unit 2 (Eddy Current)	SG-A	SG-B	SG-C	SG-D
Tubes plugged during baseline	0	7	0	0
Tubes plugged 9/87 outage	0	0	0	0
Tubes plugged 2/88 outage	4	1	0	2
Total tubes plugged	4	8	0	0

e. Observations

(1) The documentation for examination Nos. B06.010.002 (RPV Nut) and B06.030.002A (RPV Stud) do not support a code acceptable examination, in that the Circular Direct Current Amps and the Longitudinal Amp Turns indicated are not consistent with DPC NDE 25 or ASME B&PV Code, Section V, Article 7. The licensee

indicated that they would preform a demonstration to support all the MT examinations performed on RPV Studs and Nuts at this site which are not consistent with the code. Pending the NRC review of this demonstration, this matter will be identified as unresolved item 50-413,414/89-08-01: "MT Demonstration".

(2) ASME, Section XI, Paragraph IWA-4500, requires that repairs be examined by the method that detected the flaw that required repair. This requirement is implemented in Procedure NDE-25, Revision 12, Paragraph 12.2.4.1 (c) and NDE-35, Revision 10, Paragraph 17.4. This requirement is not implemented in NDE-12 or NDE-98. The licensee indicated that this requirement is covered in other documents in their program. The licensee indicated that they would amend the above procedures to uniformly address this requirement. This matter will be identified as inspector followup item 50-414/89-08-02: "ISI Baseline Inspection Method".

(3) The licensee was unable to provide objective quality evidence of calibration for temperature instrument A0668 for January 1988. In addition, the licensee could not provide the spectrum analysis for transducer Nos. M18416 and M18423. The licensee indicated that they would make the above documents available at a future inspection. This matter will be identified as inspector followup item 50-414/89-08-03: "Unavailable ISI Records".

(4) Relative to the observation of MT Examination the inspector noted the following:

(a) The examiners used a puffer ball to remove excess particles during the examination with excessive air flow force.

(b) Light gray particles were used on bright steel which did not provide good contrast between the steel surface and the particles. When the inspector asked the examiners why they chose gray particles, they stated that the red particles were too messy.

(c) The examination record for the two welds the inspector observed being examined indicated only one certified examiner performed the examination, when in point of fact, there were two examiners who each only performed portions of each examination on each weld. The licensee corrected the records for the two welds discussed above and identified and corrected two additional examples.

(d) The certification of calibration for the yoke used to perform the MT examination, observed by the inspector, did not specify how the calibration was accomplished (Was ten pound lift test performed? Was the weight traceable to the National Bureau Of Standards?). The licensee corrected the report reflecting the calibration method and the test weight employed.

(e) Items (a)-(d) above were the subject of licensee training given to all the DPC MT examiners.

(f) A valve, immediately upstream, of the two welds, the inspector observed being MT examined was tagged "2SV27A". The isometric drawing (CN-25V-3 R10) the examiners had to locate and identify the welds to be examined, identified the the valve as "2SV027". When asked, the examiners could not explain why the discrepancy. Further investigation revealed that the valve tag number corresponded to the system flow drawing (CN-2593-1.0 R9) identification. The licensee indicated that they would provide training in this area and correct the isometric drawings to reflect the correct valve numbers. This matter will be identified as inspector followup item 50-413,414/89-08-04: "Valve Identification."

(5) Notes on sketches in DPC NDE Manual copy 31, Procedure NDE-12 due to the reproduction process and the size of the print was not legible. The licensee committed to correct all the illegible figures in each NDE procedure at the NEXT REVISION of each NDE procedure.

(6) DPC ASME, Section XI Manual, Section E, "Repairs And Replacements And Maintenance Activities" is the Licensees' program procedure for the implementation of the ASME B&PV Code, Section XI, Article IWA-4000 and IWA-7000. Section E, Paragraph 2.0 b) **note** is a list of "Items which are not considered a replacement." This list includes all the items contained in ASME B&PV Code, Paragraph IWA-7400, "Items Exempt From Requirements Of this Article" (IWA-7400). In addition, this list (2.0 b) **note**), contains all the items included in ASME B&PV Code, Section III, Subsection NB, Paragraph NB-2121(b). Items that are included in NB-2121(b) and section "E" of the DPC ASME, Section XI Manual, which are, therefore, not included in the DPC Repair and Replacement Program include: Shafts, Stems, Springs, Bearings, Bushings, and Springs.

ASME B&PV Code, Section III, provides rules covering the requirements for strength and pressure integrity, the failure of which would violate the pressure retaining boundary. ASME B&PV Code, Section XI, provide rules for Inservice inspection and Inservice testing of systems for light water cooled nuclear power plant integrity and operational readiness, the loss of which would adversely impact the shutting down of the reactor or mitigation of an accident.

The scope of ASME B&PV, Sections III and XI, are different. The items excluded by Section III are items that do not form the pressure boundary. By the same logic, items excluded by Section XI should not form part of the pressure boundary and should not affect the operational readiness of components necessary for reactor shutdown and mitigation of an accident.

Clearly shafts, bearings, bushings, and springs necessary for operational readiness of important plant components, should not be excluded from the Section XI Replacement Program. The absenting the above items from the program would exclude them from the suitability evaluation required for Section XI replacement items delineated in IWA-7220. This matter will be the subject of a future inspection.

(7) There was insufficient information in the relief requests examined to support the relief requested. After drawing review, review of photographs and a walkdown inspection, the inspector was able to verify that the relief requests, though sketchy, were accurate. The inspector discussed the above with the licensee indicating that in the future they should include enough information to support the request for relief. The licensee indicated that they would supplement their existing relief requests with sufficient information to support those requests.

(8) The inspector noted, during his inspections in the lower level of the Unit Two containment building, that both the licensee's personnel and contractor personnel climbed on anything convenient in order to reach their work location. Items employed for personnel support included instrument lines, lines to gage glasses, small bore pipe supports and struts, small valves, and cable trays containing cables thus providing a hazard to the equipment important to safety and to personnel. In addition, contrary to the licensee's documented safety program, none of the licensee or contractor personnel, observed by the inspector, had or were using safety belts when working more than six feet above the floor. This matter will be examined in more detail in a future inspection to determine whether the Licensees' program for the protection installed equipment is consistant with the Licensees' commitments and regulatory requirements. This matter will be identified as Unresolved Item 50-413, 414/89-08-05: "Protection of installed equipment."

The licensee's ISI program appears adequate in all areas however the implementation, of that program, shows signs of lack of attention to details.

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

3. Inspector Followup Items (IFI)

a. (Closed) IFI 50-413/89-01-01: "Revision Of UT Instrument Vertical Linearity Calibration"

This issue concerns the procedural discrepancy between ASME B&PV Code, Section XI, and DPC Procedure NDE 44 for vertical linearity recalibration intervals (three months vs. 12 months). Procedure NDE 44, Revision 8, issued March 6, 1989, corrected the discrepancy. This matter is considered closed.

4. Exit Interview

The inspection scope and results were summarized on March 31, 1989, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. Although reviewed during this inspection, proprietary information is not contained in this report. Dissenting comments were not received from the licensee. The licensee committed to correct all the illegible figures in each NDE procedure at the NEXT REVISION of each NDE procedure, Paragraph 2e(5). The Licensee was informed of Unresolved Item 50-413, 414/89-08-05 by telephone on April 17, 1989.

Unresolved Item 50-413,414/89-08-01:	"MT Demonstration"-Paragraph No. 2.e.(1)
Inspector Followup Item 50-414/89-08-02:	"ISI Baseline Inspection Method"-Paragraph No. 2.e.(2)
Inspector Followup Item 50-414/89-08-03:	"Unavailable ISI Records" -Paragraph No. 2.e.(3)
Inspector Followup Item 50-413,414/89-08-04:	"Valve Identification" -Paragraph No. 2. e.(4)(f)
Unresolved Item 50-413, 414/89-08-05:	"Protection of Installed Equipment"-Paragraph 2.e(8)

5. Acronyms and Initialisms

AC - Alternating Current
ASME - American Society of Mechanical Engineers
B&PV - Boiler and Pressure Vessel
B&W - Babcock and Wilcox
Col - Column
DAC - Distance Amplitude Curve
DC - Direct Current
DPC - Duke Power Company
EC - Eddy Current
ID - Identification
IFI - Inspector Followup Item
ISI - Inservice Inspection
KB - Krautkramer/Branson
MT - Magnetic particle
MHz - Megahertz
NDE - Nondestructive Examination
No. - Number
NPF - Nuclear Power Facility
NRC - Nuclear Regulatory Commission
OD - Cutside Diameter
P.E. - Professional Engineer
PT - Liquid penetrant
QA - Quality Assurance
R - Revision
RPV - Reactor Pressure Vessel
RSG - Recirculating Steam Generator
RT - Radiographic Test
SG - Steam Generator
TK - Tokyo Keiki
TS - Technical Support
UT - Ultrasonic
VT - Visual