ANCLEAR REGULAN ANCLEAR REGULAN STATES STATES UNITED STATES NUCLEAR REGULATORY COMMISSION **REGION II** 101 MARIETTA STREET, N.W. ATLANTA, GEORGIA 30323 Report Nos.: 50-259/86-17, 50-260/86-17, and 50-296/86-17 Licensee: Tennessee Valley Authority 6N38 A Lookout Place 1101 Market Street Chattanooga, TN 37402-2801 License Nos.: DPR-33, DPR-52, Docket Nos.: 50-259, 50-260 and 50-296 and DPR-68 Facility Name: Browns Ferry 1, 2, and 3 Inspection Conducted: May 19-23, 1986 Inspectors: 6 inson Colev Date 6-26-86 Date Signed Newsome Approved by: X J. J. Blake, Section Chief Engineering Branch Date Division of Reactor Safety

SUMMARY -

Scope: This was a routine, unannounced inspection in the areas of observation of nondestructive examination activities performed in accordance with NRC Generic Letter 84-11 (Unit 1), nondestructive examination data review and evaluation (Unit 1), independent re-examination of recirculation system welds (Unit 1) and followup on previous enforcement items (Unit 2).

Results: No violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

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Licensee Employees

*R. L. Lewis, Plant Manager, Browns Ferry Nuclear Plant (BFNP)

*B. C. Morris, Compliance Supervisor, BFNP

*R. D. Schurz, Compliance Engineer, BFNP *T. T. Gilbert, Inservice Inspection (ISI) Unit Supervisor,

Office of Engineering Services (OES) *O. L. Butler, Level III Examiner, OES

*E. D. Crane, ISI Programs Engineer, OES

*W. C. Thomison, Supervisor, Technical Services, BFNP

*R. K. Rowe, Engineer, Technical Services, BFNP

Other licensee employees contacted included engineers, technicians, and office personnel.

NRC Resident Inspectors

*G. L. Paulk, Senior Resident Inspector *C. A. Patterson, Resident Inspector ""

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on May 23, 1986, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters (92701B) (92702) Unit 2

(Open) Violation 260/86-03-01, Failure to Follow Procedures for Housekeeping in Radiation and Contaminated Areas.

TVA's letter of response, dated March 31, 1986, has been reviewed and determined to be acceptable by Region II. The inspectors held discussions with the compliance engineers, examined the corrective actions as stated in the letter of response and performed a surveillance inspection of the Unit 1 reactor building. All actions delineated in the letter of response were compeleted. The areas examined in the reactor building were also clean and organized. The compliance engineer informed the inspectors, however, that TVA quality control was still in the process of evaluating the corrective action to insure that personnel adhere to the new procedural requirements. This will be re-examined during a future inspection when more work activities are in progress. This item remains open. (Closed) Violation 260/86-03-02, Failure to Follow Procedure for Removal of Temporary Attachments on Recirculation System Pipe Spool Piece.

TVA's letter of response, dated March 31, 1986, has been reviewed and determined to be acceptable by Region II. The inspectors held discussions with the compliance engineer and examined the corrective actions as stated in the letter of response. The inspectors concluded that TVA had determined the full extent of the subject noncompliance, performed the necessary followup actions to correct the present conditions and developed the necessary corrective actions 'to preclude recurrence of similar circumstances. The corrective actions identified in the letter of response have been implemented.

(Closed) Unresolved Item 260/86-03-03, Radiographic Evaluation of Defects Fail to Indicate Basis of Acceptance.

Information furnished to TVA's welding and metallurgical section for their determination in accepting weld DSRHR-2-5A with no further action required and TVA's memorandum No. L29-851023-921 which disposition the indications have been inserted in the radiographic film package. In addition, TVA has also committed to performing successive inspections of the weld in accordance with Article IWB 2420(b) of Section XI of the ASME Code 1974 Edition Summer 1975 Addenda. This item is considered closed based on the above actions.

4. Unresolved Items

Unresolved items were not identified during the inspection.

5. Nondestructive Examination (NDE) Activities Performed in Accordance with NRC Generic Letter 84-11 (73753B) Unit 1

The inspectors examined documents, activities, and records as indicated below to determine whether nondestructive examinations are being conducted in accordance with applicable procedures, regulatory requirements and licensee commitments. The applicable codes for the examinations delineated below are ASME, Section XI, 74S75 for the extent of examination and ASME, Section XI 77S78 for inspection technique and defect evaluation. The primary purpose of the nondestructive examinations performed by the licensee at this time is to detect intergranular stress corrosion cracking (IGSCC), using the ultrasonic examination method, in an attempt to determine if pipe replacement will be necessary as a result of IGSCC. The licensee has selected a representative sample of 46 high stress welds for examination and a decision regarding pipe replacement will be made following the evaluation of these pipe welds.

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a. Review of Procedures (73052B)

The following procedures were reviewed to determine whether they had been approved and were consistent with Regulatory requirements and licensee commitments:

Procedure ID

Title

N-UT-25 R5 Ultrasonic Examination of Piping Welds for the Detection of Low-Level Cracklike Reflectors Originating at the I.D. Surface

BF-UT-17 R5 Ultrasonic Examination of Nuclear Power Plant Piping

In addition, the above procedures were reviewed for technical adequacy in the following areas: type of apparatus used; extent of coverage of weldments; 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.

b. Observation of Work and Work Activities (73753B)

The inspectors observed in-process ultrasonic examinations, including calibration activities, performed independent verification examinations, and reviewed personnel and equipment certification records. The reviews conducted by the inspectors are documented below:

(1) Ultrasonic (UT) Examination

The inspectors observed inprocess ultrasonic examinations including calibration activities for the welds indicated below. The observations were compared with the applicable procedures in the following areas: availability of and compliance with approved NDE procedure; use of knowledgeable NDE personnel; use of NDE personnel qualified to the proper level; type of apparatus used; extent of coverage of weldment; calibration requirements; search units; beam angles; distance amplitude curve (DAC) curves; reference level for monitoring discontinuities; method of demonstrating penetration; limits of evaluating and recording indications; recording significant indications; and acceptance limits.

Weld No.	Size
DRHR-1-4	24"
DSRHR-1-6	24"
DSCS-1-1	12"
GR-1-36	12"
DSRHR-1-3	24"
DCS-1-9	10"
KR-1-34	22"

The inspectors also observed TVA's Level III examiner perform evaluations of ultrasonic reflectors that had been reported by level II examiners. The evaluation process was observed for the following welds:

Weld No.	<u>Size</u>
GR-1-35	12"
GR-1-39	12"

During the evaluation process the examiner used several different techniques that involved different equipment and ultrasonic principles that had been taught at the Electric Power Research Institute (EPRI) in Charlotte, North Carolina.

(2) Independent Verification Examinations

The inspectors also conducted verification ultrasonic examinations using Region II equipment on portions of the two Class 1 welds listed below. The examinations were performed in order to evaluate the technical adequacy of the ultrasonic examination procedures being used to perform ultrasonic examinations and to assess the validity of the information being reported by the ultrasonic examiners. The ultrasonic examination procedure used to perform the verification examinations was N-UT-25.

<u>Weld No.</u>	<u>Size</u>
GR-1-12	12"
GR-1-22	12"

The verification ultrasonic examinations conducted by the inspectors indicated that the procedure being used to conduct the examinations is adequate and that the information being reported by the ultrasonic examiners compares favorably with the verification examinations.

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(3) Personnel and Equipment Certification

The inspectors 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 representatives; basis used for certification; and annual visual acuity, color vision examination and periodic recertification.

	Method	- Level		
<u>Examiner</u>	^ <u>UT</u>	<u>PT</u>	MT	<u>vt</u>
DLA 01 B	*II *ITT	<u>II</u>	II	II
MSE	*II	II	II	II
CRG LDK	*11 *11	II II		II II
LBM	*II	II	II	II

*EPRI IGSCC Qualified

The following listed ultrasonic equipment and materials certification records were reviewed:

Ultrasonic Instruments

<u>Manufacturer/Model</u>	<u>Serial No.</u>
KB/USL38	902057
KB/USL38	522002
KB/USL38	522190

Ultrasonic Couplant - Ultragel II Batch No. 8554

Ultrasonic Transducers

	Frequency	<u>Serial No.</u>
3/8" X 3/4"	1.5MH_	J23303
3/8" X 3/4"	1.5MH_	D21332
1/2"	2.25MH _z	40449

Ultrasonic Calibration Block No. BF-65

At the conclusion of the NRC inspection a total of 31 welds had been ultrasonicly examined by the licensee with seven of these welds still under evaluation. The final examination results will be reported to the NRC following completion of all examinations.

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Nondestructive Examination, Data Review and Evaluation, Unit 1 (73755) c.

Records of completed nondestructive examinations were selected and reviewed to ascertain whether: the method, technique and extent of the examination complied with the 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 tabulated below:

<u>Report No.</u>	Weld I.D.	NDE Method
635	GR-1-1	UT
634	GR-1-45	UT
638	GR-1-2	UT
642	GR-1-22	UT
630	GR-1-38	UT
626	GR-1-49	UT
641	GR-1-12	UT
639	KR-1-13	UT
633	KR-1-35	UT
649	DRHR-1-9	UT
651	DRHR-1-14	UT
650	DRHR-1-21	UT
624	DSC-1-6	UT
647	DSCS-1-1	UT

Within the areas examined no violations or deviations were identified.

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