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U.S. Nuclear Regulatory Commission
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Gentlemen:

In the Matter of) Docket No. 50-260
Tennessee Valley Authority

BROWNS FERRY NUCLEAR PLANT (BFN) - RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION - BROWNS FERRY PHASE II WELD REPORT (TAC 62252)

This letter is in response to your April 19, 1988 request for additional information related to the Phase II Weld Project Report. The Phase II report was previously transmitted to the NRC Document Control Desk on March 7, 1988.

Enclosed are responses to the five questions in the April 19, 1988 transmittal. Also included as enclosure 2 is an additional letter related to the independent mechanical overview of the weld reinspection. You should insert this letter as the first entry in attachment 4.4 of the Phase II Report.

Please refer any questions regarding this submittal to B. C. Morris, BFN, Site Licensing, 205/729-3604.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 2

D030
1/1

U.S. Nuclear Regulatory Commission

JUN 24 1988

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ENCLOSURE 1

RESPONSE TO APRIL 19, 1988
NRC QUESTIONS - PHASE II WELD REPORT

NRC QUESTION 1

Refer to section 2.0 of the BFN-Phase II Report, Bechtel Audit. With respect to the independent Bechtel Audit, provide the following additional information for each audit observation and/or finding:

A. Details of the TVA Welding Project's (WP) review and investigations.

B. Reasons and bases for the WP conclusions listed in the Phase II Report.

TVA RESPONSE

TVA reviewed the results of the Bechtel independent audit and investigated the observations and findings to determine the impact, if any, on installed weldments. The details of the review and investigation supporting TVA's evaluation of each audit observation/finding are as follows:

AUDIT OF THE OFFICE OF CONSTRUCTION, AUDIT TVA-02-OC

Key Element 2.0 - Adequacy of Design Output Documents

The three observations identified by the audit were reviewed and evaluated by the WP to determine compliance of the issued documents to the requirements of the subject codes. The evaluation of the code requirements for observations 1 and 2 determined that the welding procedures were qualified in accordance with the referenced code. With respect to observation 3, the WP found that the lack of identification of the TVA organizational unit responsible for control of weld documents did not affect the quality of installed weldments.

Key Element 3.0 - Initial Welder or Welding Operator Qualifications

In reviewing Key Element 3.0 findings, the WP considered the Bechtel audit findings, the vintage of the plant, the requirements for specific systems, and the actual installed hardware.

A. Audit finding AF-01-OC - During the time period from 1968 to 1970, critical welds were governed by the TVA document titled, "Qualified Welding Procedures and Welding Specifications for Field Welding of Principal Piping, Low Pressure and Service Piping, Steam Turbines and Boiler Connection," dated March 1, 1965. For other type welds there were no procedures specifically addressing welder qualification. The records review found, however, that the welders, as identified in the last paragraph of AF-01-OC, were

qualified in accordance with either ASME IX or AWS D1.0. Therefore, the WP agrees with the statement of the audit finding that this finding had no impact on weld quality during this time period.

B. Audit Finding AF-02-OC - During the time period from 1967 to 1970, many of the welder qualification records did not reference a procedure that specified welding progression (uphill-downhill) for welding in the vertical position. This is considered an essential variable per ASME IX. This situation was corrected between 1970-1972 after TVA issued G-29 "General Construction Specification for Welding, Heat Treatment, Nondestructive Examination and Allied Field Fabrication Operation."

The statement, "Since ASME IX eliminated progression as an essential variable for welder qualification in 1974 . . ." made in the audit report by the Bechtel audit team was subsequently determined by TVA to be incorrect. However, considering the Phase II inspection results, there is no evidence that untraceable welding progression between 1967 and 1970 had an impact on weld quality.

Key Element 9.0 - Use of Appropriate Welding Procedures

The WP reviewed the Bechtel audit data and concurred with the conclusion of the Key Element 9.0 finding. The basis for this determination is that since the correct procedures were used, the failure to maintain on-site historical copies of applicable procedures had no effect on weld quality.

Key Element 10.0 - Use of Appropriate Inspection Procedures

The WP reviewed the Bechtel report and concurred with the evaluations for Key Element 10.0 observations.

A. Observation 1 - A review of radiographic film taken during construction indicated that the "Manufacturer's Name" was not always evident on the film as required by ASME III. However, in all cases as noted in the observation, the radiographic reports identified the necessary elements required by ASME III. Therefore, the observation is considered to have no effect on weld quality.

B. Observation 2 - Some historical records did not identify the specific procedures that were used. This observation is strictly related to documentation and this oversight does not affect physical weldment quality.

Key Element 12.0 - Use and Control of Welding Filler Materials

The WP reviewed the subject documentation history and evaluated the results. The six discrepancies related to welding filler materials noted in the audit finding AF-04-06 are individually addressed as follows:

Item (1)

Teledyne-McKay
Type E7018 (3/32" diameter)
Lot No. 302701

The TVA contract for this filler material required tensile tests and Charpy V Notch (CVN) values in the as-welded and Post Weld Heat Treatment conditions. The Certified Mill Test Reports (CMTRs) only reported one set of tensile values and a single CVN value. The vendor (Teledyne-McKay) was contacted to determine if additional test data existed for this particular lot number. They indicated that the data represented typical results for E7018 and not the actual results of tests as solicited by the TVA contract. In this case, the omission of the test data was attributed to a specific breakdown in the procurement system. The electrodes were purchased from a welding distributor who apparently failed to relay the TVA contract requirements to the electrode supplier. Additionally, receipt inspection failed to detect the CMTR omissions. The electrodes, however, should be adequate for use in any quality system based on similar mechanical test data published by the vendor. The data on another heat of E7018 produced for TVA during the same time period indicates that E7018 electrodes manufactured by Teledyne-McKay will develop mechanical properties (tensile and Charpy V Notch) in both the as-welded and stress relieved conditions that satisfy the requirements noted in the TVA specification. Therefore, use of the filler material should have no adverse effect on weld quality. We add that this data correlates to published values of four other electrode manufacturers (Chematron, Airco, Lincoln, and Hobart) and with data published in Dr. Linnet's text, Volume II Welding Metallurgy. See Table 1 for a listing of mechanical properties for E7018.

TABLE 1
TYPICAL MECHANICAL PROPERTIES
E7018

Vendor/ Reference	Tensile Strength as Welded KSI	CVN at -20°F as Welded ft/lbs	Tensile Strength Stress Relieved KSI	CVN at -20°F Stress Relieved ft/lbs
Chematron	75	70	52	72
Airco	78	90	73	120
Hobart	73.7	84		
Lincoln	74	80	72	120
Welding Metallurgy Linnert Vol. II	70-85	26	72	35

ITEM (2)

Hobart
Type ER309 (3/32" diameter x 36")
Serial No. 7-10279

The vendor CMTR on this material shows that the chemical analysis complies with the specification for Type ER309 as required by the TVA specification. The vendor, however, failed to indicate a reference on the CMTR to the specification (AWS-ASME, etc.) for which the tests were conducted. The subject vendor was contacted and it was determined that the chemical analysis was performed in accordance with the requirements of ASME-SFA 5.9.69. Since the material has been determined to conform to specification, this portion of the finding could have been deleted.

Item (3)

Page
Type E70S-G (3/32" diameter x 36")
Control No. 00147

This material was procured before issuance of TVA Specification No. PF-1019, "Purchase Specification for Carbon Steel Bare Electrodes and Rods," which required tensile and CVN tests in the as-welded and stress relieved conditions. The filler metal specification ASME SA-559 and the subsequent SFA 5.18 specification for this type filler material did not require chemical or CVN tests. However, both specifications did require an all-weld metal tensile test in the as-welded condition.

The vendor (Page) supplied a chemical analysis which is indicative of the material used for filler metal conforming to both the ASTM and SFA specifications for similar types. Considering the reported chemical analysis, and since there were no reported problems associated with this filler material for elapsed time in service, it was determined that this omission of tensile data had no adverse effect on weldment quality.

Items (4) and (5)

Murex
Type E60S-3
Heat No. 89D627 (.035" diameter) and
Type E70S-3
Heat No. 82E317 (3/32" diameter)

The E60S-3 was procured before issuance of TVA Specification PF-1019 and was supplied in accordance with ASME SA-559. The reported chemical analysis and mechanical properties conform to those specified in the governing specification although there were no CVN tests performed. The E70S-3 was also procured after the issuance of TVA Specification PF-1019 as noted on the supplier's CMTR. The CMTR reported chemical analysis of the wire, tensile data, and impact data in the stress relieved condition though failing to note

the temperature at which the CVNs were tested. The chemical analysis and the mechanical tests conform to the specification requirements for this type material. Since the material specification required CVNs to be tested at 0° F, it is reasonable to expect that the vendor tested at this temperature. The reported CVN values conform with those expected for this type material tested at 0° F. Based on the reported data from the CMTR, it has been determined that the omission of the test temperature does not have an adverse effect on weldment quality.

Item (6)

Teledyne-McKay
Type E308-16
Heat No. 610327

The receipt inspection report (Form 209) was approved but recorded the material as carbon steel instead of stainless steel. Since the correct heat number was recorded, this appears to be a documentation error and is not considered to have an adverse effect on weldment quality.

Current Practice

TVA currently has in place a stringent specification for procurement of welding filler metals. This specification requires that filler metals be procured to the highest standard of anticipated use. For example, E7018 is procured with actual chemical and mechanical properties including impact testing to -20° F. This material may then be used in any location in the plant. This practice ensures that filler metal is tested to conservative requirements. It is also TVA's practice to perform a review of filler metal CMTRs at receipt inspection and again by the responsible welding engineering group.

AUDIT OF THE OFFICE OF NUCLEAR OPERATIONS, AUDIT TVA-02-NO

Key Element 2.0 - Adequacy of Design Output Documents

The observation from Key Element 2.0 was reviewed and evaluated by the TVA WP regarding compliance of the issued documents to the requirements of the codes. This observation is the same as that identified for Construction Key Element 2.0 of Audit TVA-02-OC. This was to be expected since the same welding procedures and qualification records were used as a basis for the program requirements for Nuclear Operations. The same conclusion reached for the Office of Construction observation is applicable.

Key Element 11.0 - Use of Appropriately Trained and Qualified Personnel

The WP reviewed the Bechtel audit data for Key Element 11.0 and concurred with the finding. An additional review on the subject of preweld checks was performed related to an employee concern on the same subject. An expanded discussion of this finding and the evaluation is below.

Part II, section 5.3, paragraph 3.1 of the Nuclear Quality Assurance Manual (NQAM) required inspections to be performed by qualified individuals other than those who performed or directly supervised the activity being inspected. The plant instruction, Standard Practice BF-6.2, "Quality Control (QC) of Welding Activities," paragraph 5.3.1 also stated in part "the QC inspector shall perform fit-up inspections and so indicate acceptance by his signature on the weld data sheet." Contrary to these requirements, fit-up inspections of AWS D1.1 structural welds on safety related equipment were performed by the welding foremen responsible for the work. In addition, a conflict also existed between Standard Practice BF-6.2 and Process Specification O.C.1.1 of Office of Power Procedure N73M2 dated March 9, 1983, which allowed the use of welding foremen for fit-up inspections.

Preweld checks of safety-related structural welds have been performed by the welder, welder foreman, or QC in accordance with Process Specification O.C.1.1 of General Construction Specification G29-C since the time of issuance. Routine surveillance and inspection of welding have also been performed by the site quality assurance organization in accordance with the NQAM. Fit-up requirements are currently addressed in Site Director Standard Practice (SDSP) 13.1, "Quality Control of Welding." Standard Practice BF-6.2 is no longer being used on current work instructions involving welding. The WP determined that preweld fit-up inspections of structural welds have been adequately addressed and implemented by BFN site procedures. This issue, therefore, does not constitute a deficiency at BFN.

Key Element 12.0 - Use and Control of Welding Filler Materials

The one audit observation was reviewed and evaluated by TVA Engineering. The audit found that the site's controlling procedure for use and control of welding materials was unnecessarily long and confusing. Specifically, too many procedures were required to be simultaneously used. The technical acceptability of welding filler materials was not questioned. The audit team recommended that TVA consider simplifying the procedures for the use and control of welding filler materials. This recommendation is considered an enhancement and not a deficiency that would affect weld quality. Note that BFN has since taken action to more efficiently control use of filler material. This process is described in SDSP series 13 weld procedures.

NRC QUESTION 2

Refer to Section 3.0 of the BFN-Phase II Report, Aptech Engineering Report. With respect to the review performed by Aptech Engineering Services, provide the following additional information:

Why were the welding-related Potentially Reportable Occurrences Reports omitted from the Aptech scope of review?

TVA RESPONSE

TVA and Aptech formulated a "scope of review" to address the quality of welding at BFN. In this formulation, Licensee Event Reports (LERs) and Notice of Indications (NOIs) were considered the most reliable quality indicators of welding. Namely, LERs would show whether there have been any significant failures due to poor initial quality of welds. The rate of generation of NOIs was used as a direct measure of weld quality.

Potentially Reportable Occurrences (at Browns Ferry, these are called Licensee Reportable Event Determinations (LREDs)) are primarily used to determine reportability under 10 CFR 50.72 and 50.73. Note that LREDs are routinely the administrative precursors to LERs and Conditions Adverse to Quality which are both considered as quality measurement indicators.

NRC QUESTION 3

Refer to section 4.0 of the BFN-Phase II Report, Browns Ferry welding reinspection report. The reinspection report indicated among other things that the coatings were not removed during the reinspection of structural welds. In view of this fact, clarify the following:

a. Was the intent of the Phase II reinspection not to inspect for cracks?

b. If so, provide the reason why this was done.

TVA RESPONSE

The intent of the BFN reinspection effort was to inspect to the criteria of NCIG-01 "Visual Weld Acceptance Criteria for Structural Welding at Nuclear Power Plants." This criteria allows the reinspection of welds for cracks and other attributes through coatings. This is noted in NCIG-01, Section 3.4.7 as repeated below.

> "These acceptance criteria are to be used for the acceptance inspection of welds in the uncoated condition. These criteria may also be used for subsequent inspections after the welds have been coated with the concurrence of the Engineer. Subsequent inspections related to suspected weldment cracking may require removal of the coating or the use of appropriate magnetic particle inspection."

The BFN reinspection effort is characterized as a "subsequent inspection" to the original acceptance inspection. The reinspection personnel were instructed to visually examine the coatings for any indication that might indicate a crack in the weld. The BFN reinspection found no such cracks or suspected cracks. Although fine cracks cannot be easily detected through paint, it would be expected that any problems would become observable wide cracks due to the length of service. Therefore, coatings were not removed for the specific purpose of weldment crack inspection. Paint was removed from approximately 23 percent of the reinspected welds for the other investigations. The reinspection of these particular welds did not reveal any cracks. Additionally, from the APTECH review of LER's, the WP found no cracks that were weld quality related. In summary, the WP has not identified a generic concern of weld cracking as a result of welding fabrication.

NRC QUESTION 4

Refer to section 4.0 of the BFN-Phase II Report, Browns Ferry Welding Reinspection Report. Paragraph 4.8, "Assessment of Reinspection Results," among other things states that in the area of instrumentation piping and HVAC supports some welded connections were determined to be unstable for seismic loading. As a result of this determination, the BFN "Small Bore Pipe Reconciliation Program" and the "Seismic Qualification Program" will include evaluation of structurally significant weld attributes. Paragraph 4.9, "Root Cause Evaluation and Corrective Action," among other things also states, "TVA is instituting a requirement that weld size, length, and location be determined in all programs at BFN that require a walkdown to obtain data for structural evaluation." In view of this comment, provide the following:

A. Identify the BFN programs that require walkdown inspections for structural evaluation.

B. Define the scope of each program as a percent of applicable plant population and identify the extent of the planned walkdown inspection effort for each of these programs (e.g., the small bore pipe reconciliation program will look at 10 percent of the small bore pipe, the walkdown inspection effort constitutes 50 percent of the program).

TVA RESPONSE

Listed in Table 2 are the major structural evaluation programs from the Browns Ferry Nuclear Performance Plan (NPP). The majority of these programs have been previously described to NRC in a series of submittals related to seismic issues. The program listings are shown with the currently defined percentages related to prerestart planning. The percentages and details of the programs are subject to change in future submittals on individual topics.

The "size, length, location" guidelines have been incorporated into SDSP-9.8, "BFEP Walkdown Program and Constructability Surveys," and are being instituted into the walkdown programs that were ongoing at the time of the Weld Project Phase II Report recommendations. Other programs, as footnoted, utilized field inspection of welds by QC personnel. Note also that items 3.3, "Cable Tray Supports" and 3.4, "Conduit Supports," were previously evaluated under separate programs. The programs describing these two particular items have been previously docketed. Your attention is directed to the footnote comments for the program methodology utilized on individual issues.

TABLE 2

STRUCTURAL PROGRAMS SUMMARY

NPP PROGRAM DESCRIPTION	PRERESTART PROGRAM (1)	PRERESTART PROGRAM (2)	POSTRESTART PROGRAM (1)	POSTRESTART PROGRAM (2)	COMMENTS
3.1 TORUS MODIFICATIONS					
3.1.1 TORUS ATTACHED PIPING	100	100			(3)
3.1.2 TORUS INTERNAL STRUCTURE COMPONENTS	100	100			(3)
3.2 PIPE SUPPORTS-LARGE BORE	40	100	60	100	(4)
3.3 CABLE TRAY SUPPORTS	(5)	(5)		(10)	(10)
3.4 CONDUIT SUPPORTS	(6)	(6)		(10)	(10)
3.5 HVAC DUCTWORK SUPPORT	100	100			(4)
3.6 CRD INSERT & WITHDRAWAL PIPING SUPPORT	100	100			(3)
3.7 PIPE SUPPORTS - SMALL BORE	100	10			(4)
3.8 DRYWELL STEEL PLATFORM					
Upper	100	100			(3)
Lower	100	100			(11)
3.9 MISCELLANEOUS STEEL	53	100	47	100	(7)
3.10 CLASS II FEATURES OVER CLASS I FEATURES	100				(8)
3.11 SECONDARY CONTAINMENT PENETRATION					(9)
3.12 MISCELLANEOUS CIVIL ISSUES					
3.12.1 CAPILLARY TUBING SUPPORTS	100	100			(3)
3.12.2 CONTROL BAY FLOOR STEEL					(9)
3.12.3 REACTOR BUILDING STEEL SUPERSTRUCTURE					(9)

TABLE 2 (Cont'd)

STRUCTURAL PROGRAMS SUMMARY

COMMENTS:

(1) PERCENTAGE OF PROGRAM COVERAGE COMPARED TO PLANT POPULATION

(2) PERCENTAGE OF PROGRAM POPULATION BEING WALKED DOWN

(3) WELDS INSPECTED BY FIELD QUALITY CONTROL (QC) PERSONNEL

(4) REINSPECTION BEING CONDUCTED UNDER SITE DIRECTOR STANDARD PRACTICE 9.8 (SIZE, LENGTH, LOCATION) GUIDELINES

(5) SEPARATE EVALUATION PROVIDED EARLIER BY UNITED ENGINEERS AND CONSTRUCTORS. RESULTS PREVIOUSLY DOCKETED.

(6) CONDUIT PREVIOUSLY EVALUATED IN ACCORDANCE WITH BROWNS FERRY ENGINEERING INSTRUCTION 85-02 FOR FUNCTIONALITY

(7) COMBINATION QC INSPECTION AND SDSP 9.8 WALKDOWN

(8) WALKDOWNS FOR WATER SPRAY INTERACTIONS PRIOR TO RESTART, WALKDOWNS FOR SEISMIC INTERACTIONS AS REQUIRED TO RESOLVE USI-A46

(9) SUPPORT OR STRUCTURAL WELDS NOT INVOLVED

(10) WALKDOWNS AS REQUIRED BY THE PROGRAM TO RESOLVE USI A-46

(11) COMBINATION QC INSPECTION, SDSP 9.8 WALKDOWN AND SPECIAL MAINTENANCE INSTRUCTION INSPECTION

NRC QUESTION 5

Refer to section 6.0 of the BFN-Phase II Report, Browns Ferry Program Results Subsection 6.6, Recommendations, Item 11 states that supports included within the inservice inspection program shall be examined for support and weld configuration. With respect to this commitment, clarify the following:

A. Are integral attachments to pressure containing components included in this commitment?

B. Define the "weld configuration."

TVA RESPONSE

A. Yes. Integral attachments are to be included in the inspection program related to the item 11 recommendation.

B. Weld configuration is the verification of the weld design to the "as constructed" condition, i.e., the type of weld, location of weld with respect to the joint, length of weld, and size of weld.

ENCLOSURE 2

INSERT FOR ATTACHMENT 4.4 - INDEPENDENT MECHANICAL OVERVIEW

To:	Horace Beckner, Manager TVA Welding Project	File No. GRH-106-06	
Subject:	Welding Project Phase 2, Part 2 Browns Ferry Reinspection of Selected Welds	Date:	October 14, 1986
		From:	G. R. Henke
		Of:	R&D/Materials and Quality Services Department
Copies:	R. A. Montgomery	At:	50/15/A49 Ext. 8-1466

INDEPENDENT SURVEILLANCE

An independent surveillance of the TVA welding project reinspection program at Browns Ferry Nuclear Plant was undertaken during the weeks of July 7, 1986 through August 22, 1986.

The portion of the reinspection overviewed by myself included pipe welds inspected using procedure MMI-168 - Welding Project Reinspection of Selected Welds, and the TVA Visual Inspection Procedures NVT1 and NVT3 Rev. 5, Liquid Penetrant Inspection Procedure NPT1 Rev. 6, and the Radiographic Examination Procedure NRT1 Rev. 4 for radiography interpretation.

The overview of the weld reinspection included:

1) Certifications of the inspectors.

2) Use of weld inspection tools.

3) Compliance with applicable procedures.

4) The thoroughness of the inspections.

5) The uniformity and consistency of each inspector.

6) The proper use and application of liquid penetrant materials.

7) Accuracy of radiographic film interpretation.

8) Accuracy and representativeness of reports to the actual welds.

OBSERVATIONS

The personnel performing inspections were certified to ASNT SNT-TC-1A Level I for NDE examinations in liquid penetrant and magnetic particle, and the radiographic film review; the visual inspection personnel were certified to Level II to the equivalent of SNT-TC-1A.

From: C. K. Henke
Subject: Welding Project Phase 2, Part
Browns Ferry Reinspection of
Selected Welds

The inspection tools and materials used were adequate and proper to carry out the required inspections.

The inspectors demonstrated an excellent understanding of the applicable procedures and the interdependence of MHI-168 and the procedures.

The thoroughness of the inspections and examinations was excellent, with good communication between team members checking actual observed conditions against each other's opinion and against procedure requirements.

Each of the teams inspection methods were uniform and the results of the inspections were consistent between teams and individuals; in the cases where there were second thoughts about a unique condition and a reinspection was performed, the reinspections confirmed the accuracy of the first activity.

Visual inspections included 391 pipe welds of both stainless steel, mild steel and aluminum materials. The mild steel welds had paint removed prior to reinspection (some minor amounts of paint remained on some welds and was not considered detrimental to the inspection). A generic type filler metal check was performed on all stainless steel weld material using a permanent magnet; no carbon steel welds were detected in conjunction with stainless materials. The inspections were accurate and well documented, using the required record of visual weld examination report form and supplemented with sketches to clearly depict problem areas.

As the overviewer, there was only one disagreement with the visual inspections (weld TFPO-3-24M) (This amounted to 0.26% of the total). The weld was rejected for not having a 1:3 slope or an underfill of weld material because of its encroachment on a material preparation surface; the weld should have been rejected for over-height (7/16) weld in one 3/4 inch area.

Welds the inspectors found that had slight magnetic abnormalities, though of no concern, were checked with a Fisher Ferritescope (Type Fe 8E KP). To eliminate any future doubts concerning weld filler materials, the Ferritescope findings confirmed all welds were well within the requirements for stainless weld filler materials.

Liquid penetrant examination was performed on 158 welds; 66 of these welds required PT at the time of construction. The remainder had been PT'd at the time of construction even though the inspection was not required by the code. The penetrant examinations were done to N-PT1 in a very professional manner, and any questionable nonrelevant indications were evaluated by the team members. Any indication in doubt was recleaned and reexamined. The penetrant examinations revealed no rejectable welds. There were several minor base metal indications detected. These were outside the scope of the original construction and testing requirements for the specific item.

From: G. R. Henke
Subject: Welding Project Phase 2, Part 2
Browns Ferry Reinspection of
Selected Welds

A radiographic film review (reinterpretation) for weld quality only was carried out on 29 of the 30 welds specified in the review program. The film for one weld (TRHRS-3-110B) had not been located prior to my departure from Browns Ferry.

A TVA Level II (RT) (Wyatt Golden) reinterpreted the selected welds prior to reviewing the original reader sheet. The reinspection was consistent with the original interpretation, both were conservative and the weld quality complied with the code. Two rejects were called that were subjective in nature, a call of porosity (reject) rather than porosity and slag (acceptable), and an internal root with an abrupt density change (reject) rather than a filled mismatch (which would be acceptable). All other radiographs had the weld quality interpreted correctly.

During the course of the radiographic review, one weld (TRHRS-2-117) was found that had two sets of film that were from different welds. The original (earliest dated) film was of the correct weld, and the repair (R1) radiograph was of a different weld. The correct R1 radiograph had not been located prior to my departure and reradiography of this weld was being scheduled at the time of my departure from BFNP. A second weld (TRHRS-3-123) had two sets of film shot on different days and of different welds. Both sets had code-acceptable weld quality. The original (earliest dated) film had low (light) density but was acceptable for composite viewing. The second set of film was darker and within code for single film viewing. The film jacket was rubber stamped "Density Acceptable." The weld quality is acceptable for weld joint TRHRS 3-123 and there is no impact on the weld quality because of this disparity.

In view of the above two discrepancies, a visual comparison of the weld surfaces versus the radiographic image was undertaken for 15 welds (50 percent sample).

The following results were noted:

3 welds - had good confirmation
4 welds - had a reasonable confirmation
5 welds - part of the weld was confirmable
1 weld - did not have enough "signatures"

In addition to the selected 30 welds, 15 additional welds were revieved and all were found to be correctly interpreted and identified. There does not appear to be any generic film identification problem.

Magnetic particle inspection was carried out on three ferritic welds in lieu of PT. The examinations were performed properly and revealed no rejectable welds.