Tennessee Valley Authority
Welding Project
Browns Ferry Nuclear Plant
Phase II Review

Volume V

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TVA WELDING PROJECT
BROWNS FERRY PHASE II REPORT

LIST OF ABBREVIATIONS AND ACRONYMS

AEC	Atomic Energy Commission
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
APTECH	Aptech Engineering Services, Inc.
ASME	American Society of Mechanical Engineers
ASNT	American Society of Nondestructive Testing
AWS	American Welding Society
BECHTEL	Bechtel Power Corporation
BFEPC6	Browns Ferry Engineering Project-Civil Group 6
BFN	Browns Ferry Nuclear Plant
CAR	Corrective Action Report
CATD	Corrective Action Tracking Document
CEBMA2	Civil Engineering Branch-Mechanical Analysis Group 2
CMTR	Certified Mill Test Report
CWI	Certified Welding Inspector
DAR	Design Analysis Report
DBE	Design Basis Earthquake
DNE	Division of Nuclear Engineering
DNQA	Division of Nuclear Quality Assurance
DWP	Detailed Welding Procedure
ERT	Employee Response Team
FSAR	Final Safety Analysis Report
GE	General Electric
HVAC	Heating, Ventilating, and Air Conditioning
ISI	Inservice Inspection
LER	Licensee Event Report
MT	Magnetic Particle Examination
NCIG	Nuclear Construction Issues Group
NEBCSM	Nuclear Engineering Branch-Codes, Standards, and Materials
NDE	Nondestructive Examination
NO	Nuclear Operations
NOI	Notification of Indication
NQAM	Nuclear Quality Assurance Manual
NRC	Nuclear Regulatory Commission
NSRS	Nuclear Safety Review Staff
OC	Office of Construction (Now Known as Division of Nuclear Construction, DNC)
PI	Project Instruction
PQR	Procedure Qualification Record
PSI	Preservice Inspection
PT	Liquid Penetrant Examination
QA	Quality Assurance
QC	Quality Control
QTC	Quality Technology Corporation
RT	Radiographic Examination
SMACNA	Sheet Metal and Air Conditioning Contractors National Assoc.
SSE	Safe Shutdown Earthquake

LIST OF ABBREVIATIONS AND ACRONYMS
(Continued)

SQN	Sequoyah Nuclear Plant
TR	Topical Report
TVA	Tennessee Valley Authority
UE&C	United Engineers and Constructors
USAS	United States of America Standards
UT	Ultrasonic Examination
VT	Visual Examination
VWAC	Visual Weld Acceptance Criteria
WBN	Watts Bar Nuclear Plant
WP	Welding Project

The results of the reinspection revealed that a high percentage of the weld joints reinspected meet design requirements. Complete details of the reinspection are contained in Section 4.0 of this report. The reinspection results did not substantiate the specific or non-specific employee concerns with the exception of BFN-85-019-001.

A complete summary of all the recommendations and the final conclusion statements are contained in Section 6.0 of this report.

2.0 BECHTEL AUDIT

2.1 Introduction

The independent Bechtel audit of the BFN welding program implementation during construction and operation was conducted during the period of February 17, 1986 to March 8, 1986. The audit also evaluated the effect of welding related employee concerns on the program. There were four audit team members and an audit team leader. The personnel had specific expertise in the audit areas assigned as required by the TVA WP Program Description, Volume I, Page 9, Paragraph IV, Part I. Two audit checklists were prepared and utilized by the audit team. The checklists were identified as TVA-02-OC for Office of Construction and TVA-02-NO for Nuclear Operations. The audit checklists were structured with 17 Key Elements and supplemental attributes which were used to conduct the audit. The audit report and copies of the checklists used are included in Section 2.5.

The audits included review of documentation and procedures for randomly selected welds in portions of several safety related systems. The welds selected from these systems represent a cross-section which allowed access to all applicable weld program procedures and specifications. The welds selected are listed on Sheet 1, Pages 1 and 2 attached to both audit checklists. These welds were used throughout the audit to generate other auditable items, e.g., list of welders, list of Nondestructive Examination (NDE) inspections, list of drawings, welding and heat treatment procedures and materials. These items are shown on Sheets 2 through 7 of the audit checklists.

The Bechtel audit confirmed TVA has had a welding program in place during construction and operations that meets licensing commitments. Although there were some audit findings and observations, the WP has concluded that none of the findings and observations had an adverse effect on the installed weldments.

2.2 Summary

2.2.1 Audit of the Office of Construction, Audit TVA-02-OC

The WP investigation of those elements with audit findings and observations is detailed below.

Key Element 2 - Adequacy of Design Output Documents

In this portion of the audit, three observations were made.

Observations 1 and 2 identify two TVA welding documents stating inadequate preheat temperatures. TVA's commitment for welding is to be in accordance with American National Standards Institute (ANSI) B31.1 1967 Edition, Sub-paragraph 131.2 "Preheating" which states, "Preheating shall be in accordance with the qualified welding procedure. Recommended preheat temperatures are shown in Table 131."

The temperatures stated in Table 131 were to serve as a guide to good practice and the note to the table reinforces the statement in Paragraph 131.2, that welding is to be performed in accordance with a qualified procedure. The TVA procedures

noted in observations 1 and 2 were qualified in accordance with the referenced Code.

Observation 3 - Key organizational TVA unit responsible for control of welding documents was not specified on the welding document.

Welding requirements were issued by Engineering as a requirement. The lack of identification of key organizational unit on the welding document had no adverse affect on the quality of the installed weldments.

Key Element 3 - Initial Welder or Welding Operator Qualifications

The audit team's evaluation of the initial welder and welding operator qualification resulted in two audit findings.

Audit Finding AF-01-OC - Lack of a procedure for qualification of welders.

Audit Finding AF-02-OC - Control of welding progression for vertical welding.

These two audit findings were determined by the audit team to have no impact on weld quality.

Key Element 9 - Use of Appropriate Welding Procedures
During the audit of welding and heat treatment procedures, one audit finding was issued:

Audit finding AF-03-OC - The applicable revision of the welding procedure used was not always available in the permanent plant records for all items.

Since the audit team determined that the correct procedures were used, the failure to maintain on site the applicable revisions had no effect on weld quality.

Key Element 10 - Use of Appropriate Inspection Procedures

The audit of appropriate inspection procedures resulted in two audit observations:

Observation 1 - A review of radiographic film taken during construction indicates that in some cases the "Manufacturer's Name" was not evident on the film as required by American Society of Mechanical Engineers (ASME) III. The audit team determined that this had no adverse effect on weld quality.

Observation 2 - Some records did not identify the specific procedures which were used.

The WP has determined that failure to list the inspection procedure used had no adverse affect on the quality of the installed weldments.

Key Element 12 - Use and Control of Welding Filler Metals

Audit Finding AF-04-OC - Six Certified Material Test Reports (CMTRs) for welding filler material did not comply with TVA requirements.

The WP investigation of the six discrepancies concluded these discrepancies had no impact on weld quality.

2.2.2 <u>Audit of the Office of Nuclear Operations - Audit - TVA-02-NO</u>

The WP investigation of the audit findings and observations is detailed below and refers to the applicable "Key Element" of the audit:

Key Element 2 - Adequacy of Design Output Documents

In this portion of the audit, one observation was made.

Observation - The TVA Detailed Welding Procedure (DWP) and the Procedure Qualification Records (PQRs) did not show the name of the key TVA organization unit responsible and accountable for welding control documents.

Welding requirements were issued by Engineering as a requirement. The lack of identification of key organizational unit on the welding document had no adverse effect on the quality of the installed weldments.

Key Element 11 - Use of Appropriately Trained and Qualified Personnel

The audit team's investigation of the use of appropriately trained and qualified personnel resulted in the issuance of one audit finding:

Audit finding - AF-01-NO - The requirements of Nuclear Quality Assurance Manual (NQAM) Part II, Section 5.3, paragraph 3.1, requires inspections to be performed by qualified individuals other than those who performed or directly supervised the activity being inspected. Standard Practice Procedure BF-6.2, paragraph 5.31, states in part "the Quality Control (QC) inspector shall perform fit up inspection and so indicate acceptance by his signature on the weld data sheet". Contrary to these requirements, fitup inspections of American Welding Society (AWS) D1.1 structural welds on safety related equipment is being performed by the welding foreman who is responsible for the work performed and not a QC inspector. In addition an apparent conflict exists between the Standard Practice Procedure BF-6.2 dated November 27, 1985 and N73M2 Process Specification 0.C.1.1 dated March 9, 1983, which allows the use of weld foreman for fitup inspection.

As stated in the BFN Phase I Report (Volume IV Section 3.5.1.4), the WP has determined this issue is not a deficiency at BFN.

Key Element 12 - Use and Control of Welding Filler Metals

The audit of the use and control of welding filler materials resulted in one audit observation.

Observation - The site's controlling procedures for use and control of welding materials are unnecessarily long and confusing. Too many procedures are required to be used simultaneously to do the job of controlling weld filler material.

The WP determined that this had no adverse effect on weld quality.

2.3 Review and Conclusions

Four audit findings and five observations resulted from the audit of the OC activities at BFN. Each of these has been evaluated by the WP and determined to have no adverse effect on weld quality.

The audit confirmed that QA was in effect at BFN from the beginning of construction. The audit also confirmed that TVA's program and procedures for control of welding, although cumbersome, proved adequate for the intended application. The audit team was unable to substantiate any of the employee concerns as being valid or with merit.

One audit finding and two observations resulted from the audit of the Office of Nuclear Operations activities at BFN. Each of these has been evaluated by the WP and determined to have no adverse effect on weld quality. The audit of the NO confirmed that TVA had in place an adequate Quality Assurance program for control of welding activities during the operational phase. The audit team was unable to substantiate any of the employee concerns as being valid or with merit.

2.4 Bechtel Audit Report

Audit Work Plan

TVA 64 (OS-9-65)

UNITED STATES GOVERNMENT

Memorandum

B27 '860215 001

TENNESSEE VALLEY AUTHORITY

860225T0723 (1)

TO : Richard P. Lynskey, LP 4N 89A-K

FROM : J. W. Coan, Project Manager, Welding Project, W9 C135 C-K

DATE : February 14, 1986

SUBJECT: BROWNS FERRY NUCLEAR PLANT - WELDING PROJECT IMPLEMENTATION AUDIT PLAN

This is to request you to perform a Quality Assurance (QA) review of the Browns Ferry Audit Plan.

The independent audit plan will be prepared by Tony Vuksan, Audit Team Leader, and you are to review it against the General Work Plan, prepared by the Welding Project.

The audit plan should be ready for review Thursday or Friday, (2/20, 2/21). Please plan on being at the BFN site by Thursday noon and staying until the review is completed and the plan signed.

In addition, please review the Sequoyah Audit Plan, prepared by Tony Vuksan, Audit Team Leader (copy attached), and forward your comments to me.

JWCoan

J. W. Coan

HSB:MP
Attachment
cc (Attachment):
RIMS, SL 26 C-K
E. G. Beasley, W12 B34 C-K
J. A. Crittenden, LP 4N 104B-C
R. G. Domer, DZFN, W12 A6 C-K
L. E. Martin, LP 6N 40A-C

B27 '860224 001

(10)

860310R0528

TO: J.W.Coan,Welding Project Manager
FROM:A.M.Vuksan, Audit Team Leader
DATE: 2/21/86
SUBJECT: Browns Ferry Audit

Transmitted with this memo are the audit plan and the key date schedule.

A.M.Vuksan 2/21/86

A.M.Vuksan date

2/24/86 JWC JWC:MP
cc (Attachment):
R. G. Domer, DEPN, W12 A6 C-K
L. E. Martin, Watts Bar, NUC PR
J. F. Weinhold, W12 B35 C-K
R. B. Kelly, LP 4N 45A-C
N. R. Beasley, A10-BFN
xc: RIMS, SL 26 C-K

Audit Plan for Browns Ferry Power Plant

This audit plan describes the activities to take place at Browns Ferry Nuclear Power Plant. These activities shall fulfill the scope of the audit of the welding elements of the quality assurance program. This audit shall verify, by examination of objective evidence, compliance with the welding aspects of the quality assurance program, shall determine the effectiveness of the welding aspects of the quality assurance program and shall address the site specific and generic employee concerns believed to be significant (by the auditors but not as defined in OEP-17) to the proper implementation of the welding elements of the quality assurance program. The quality assurance program for the Office of Construction is outlined in Attachment A. The quality assurance program for the Office of Nuclear Operations is outlined in Attachment B. The audit team will report findings and observations on the quality assurance program based on the review of objective evidence selected by the team and provided by TVA. These findings and observations will be documented in a written report and presented to the TVA Welding Project Manager. The minimum information to be reviewed to provide adequate confidence in the Construction and Nuclear Operation programs will be as follows:

Organization	Program	No. of Items Examined
Office of Nuclear Operations	Str. Steel & supports	1
Office of Nuclear Operations	Pipe Supports	1
Office of Nuclear Operations	Piping & equipment	3
Office of Construction	Str. Steel & supports	2
Office of Construction	Pipe Supports	2
Office of Construction	Piping & equipment	8

These items are in excess of the generic audit plan used by Bechtel for welding and NDE programs on construction sites. Items are defined as a specific item on a specific system. For instance, one weld joint on a system or component. This item will be reviewed for the adequacy of the key elements listed in Table 1, as applicable. Flexibility was incorporated into the audit plan to increase samplings at the discretion of the audit team. Items for audit and evaluation were selected by the audit team and are listed in Table 2. The evaluation items will be expanded by the audit checklists to include many hundreds of records.

A review of all the site specific and generic concerns provided by TVA to the audit team relating to welding was performed. The concerns were deemed significant or not significant based on evaluation of technical validity and applicability to the welding program. All the specific and generic employee concerns provided by TVA and reviewed by the audit team are listed in Table 3 as either significant or not significant. The concerns listed as significant will be evaluated for the adequacy of the program by incorporation into the audit checklists as elements for evaluation.

Prepared By: A. M. Vuksan / 2/19/86
A. M. Vuksan
Audit Team Leader

Approved By: Craig M. Turnbow for / 2/21/86
J. Coan
Welding Project Manager

WP QA Review
R. P. Lynskey
2/21/86

Table 1

Key Elements

1. Implementation of technical and welding program requirements
2. Adequacy[1] of design output documents
3. Initial welder or welding operator qualifications
4. Maintenance of welder or welding operator qualifications
5. Renewal of welder or welding operator qualifications
6. Initial welding inspection personnel qualifications
7. Maintenance of welding inspection personnel qualifications
8. Renewal of welding inspection personnel qualifications
9. Use of appropriate welding procedures
10. Use of appropriate inspection procedures
11. Use of appropriately trained and qualified personnel
12. Use and control of welding filler materials
13. Inprocess control of welding
14. Documentation of the above activities
15. Nonconformances and corrective actions
16. Training programs adequacy
17. Additional areas of concern as determined by a review of employee concerns as specified in Table 3

[1] The technical or engineering adequacy of the design output documents is not to be researched; their adequacy is to be checked in the sense of completeness of information for the organization or individual who must use the document to continue forward with the program.

Note: [illegible] items 1 - 12 for Office of Construction checklist. Use items 13 - 19 for Office of Nuclear Operations checklist.

Items for Inspection

OFFICE OF CONSTRUCTION

TABLE 2

PIPING

Item No.	Identification of weld	Drawing No.	System	Unit	Class
1.	GR-1-60	CH-M-1081-C rev. 6	Recirculation	1	TVA Class A ANSI B31.1 Cl
2.	GR-3-46	CH-M-2139-C rev. 1	Recirculation	3	TVA Class A ANSI B31.1 Cl
3.	DRWC-1-61	CHM-1098-C rev. 2	Reactor Core Isolation Cooling (RCIC)	1	TVA Class B ANSI B31.1 Cl
4.	RCRD-2-43	CHM-2073-C rev. 3	Control rod drive	2	TVA Class B ANSI B31.1 Cl
5.	TRCIC-2-2	CHM-2073-C rev. 3	RCIC	2	TVA Class B ANSI B31.1 Cl
6.	DRHR-2-8	CHM-2070-C rev. 1 sheet 1	Residual Heat Removal	2	TVA Class B ANSI B31.1 Cl
7.	THPCI-1-157	CHM-1099-C rev. 2	High Pressure Coolant Injection (HPCI)	1	TVA Class B ANSI B31.1 Cl
8.	THPCI-3-73A	CHM-2145-C rev. 1	HPCI	3	TVA Class B ANSI B31.1 Cl

PIPE HANGERS

Item No.	Identification	Drawing No.	System	Unit	Class
9.	H-103	47W455-H-2 rev. A	HPCI	1	N/A
10.	R-13	47W456-1 rev. C	RCIC restraint	2	N/A

STRUCTURAL SUPPORTS

Item No.	Identification	Drawing No.	System	Unit	Class
11.	Square No. A5	45N816-3	Cable tray support	3	N/A
12.	Square No. 6A	45N888-1	Cable tray support	3	N/A

Items Chosen ... \pection

OFFICE OF NUCLEAR OPERATIONS

TABLE 2 (Continued)

PIPING AND EQUIPMENT (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Clas
13.	GR-1-61	CH-M-1081-C rev. 6	Recirculation piping that was overlaid	1	MR#A-166738	TVA Class ANSI B31.1
14.	K (R-1)	48W 1260-1 rev. 2	Hatches added to pressure vessel in torus modification	2	WP# 6769	N/A
15.	Bay # 7 Mark 2 Penetration X-221-1 X-221-2 X-221-3 X-221-4	48W 1257-1 rev. 5	Piping torus modification for sleeves	3	WP# 13048	N/A

PIPE HANGERS (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Clas
16.	GR-2-56 (H2 support)	CH-M-2068C rev. 3	Recirc. pipe hanger moved during IHSI	2	MR#A-190669	N/A
17.	Support No. R-52-1 R-52-2 R-52-3 R-52-4	47B455-55	Pipe hangers from torus modification to HPCI	3	WP# 13076	N/A

STRUCTURAL SUPPORT (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Clas
18.	9-3-G25 Section F4-F4	46W414-2 rev. 3	Non-piping structural wire mesh partition	1	WP# 10305 rev. 1	N/A
19.	1-10-Z-R-1	48W1248-1 rev. 9	X & Y gussets structural support from torus modification	1	WP# 10268	N/A

TABLE 3

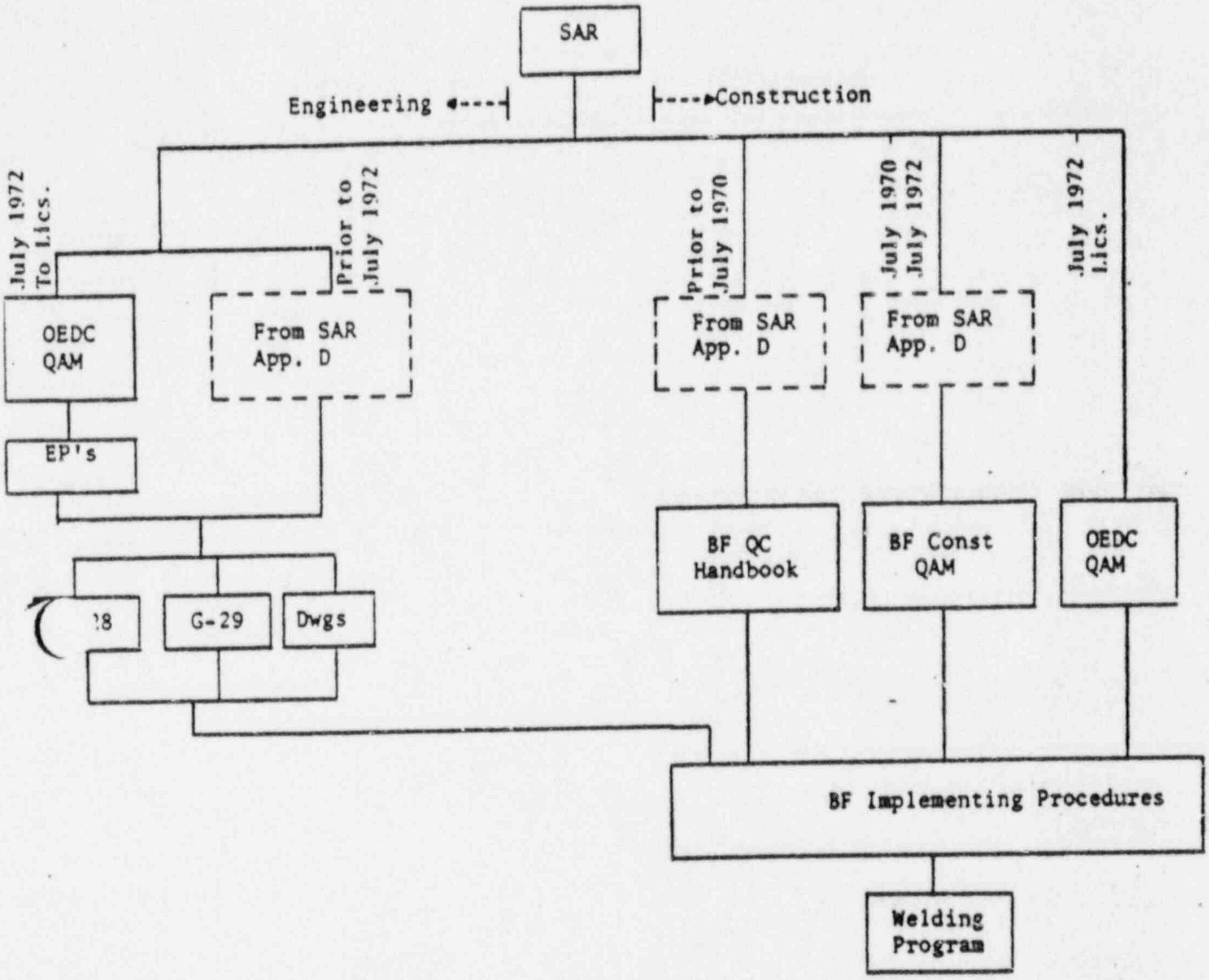
CONCERNS

Not Significant	Significant
XX-85-013-001	XX-85-049-X03, XX-85-101-006
XX-85-041-001	XX-85-108-002
XX-85-086-003	WI-85-053-004, XX-85-068-006
XX-85-088-001	XX-85-102-004
IN-85-346-003	
IN-85-007-001	
IN-85-134-002	
IN-85-406-003	
IN-85-007-003	
IN-85-406-002	
WI-85-041-008	
IN-85-438-001	
WI-85-041-006	
WI-85-013-003	
SQM-5-001-002	
XX-85-086-004	
BFM-5-001-002	
BFM-5-001-001	
IN-85-405-001	

ATTACHMENT A

FLOW CHART OF BROWNS FERRY QUALITY ASSURANCE PROGRAM

OFFICE OF CONSTRUCTION



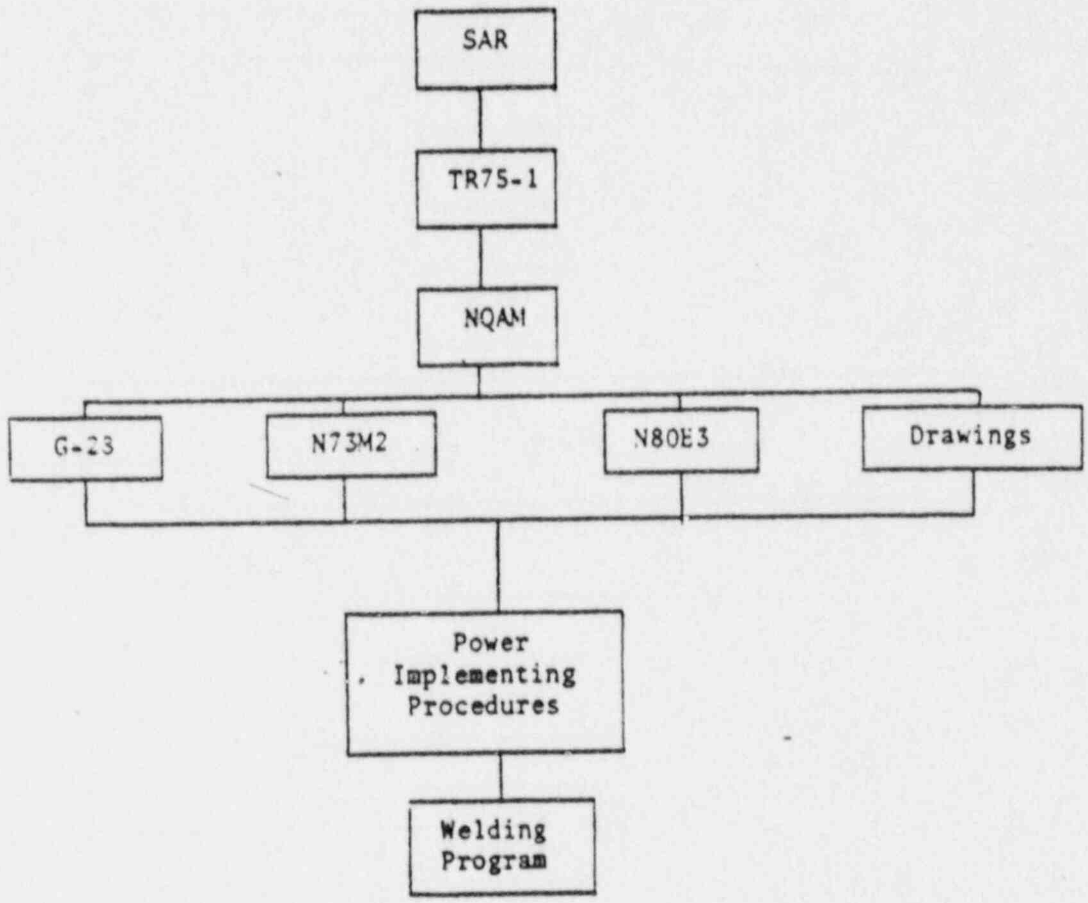
SAR - Safety Analysis Report
OEDC-QAM - Office of Eng. Design & Construction QA Manual
EN DES-EP's - Eng. Design - Engineering Procedures
G-28 - Construction of piping systems to boiling water reactor nuclear power plants.
G-29 - General Construction Specification for welding, heat treatment, nondestructive examination, and allied field fabrication operations.
BF QC Handbook - Browns Ferry Quality Control Handbook
BF Const QA Manual - Browns Ferry Construction QA Manual
BF Procedures - Browns Ferry Procedures

NOTE: Flow chart provided by TVA.

ATTACHMENT B

FLOW CHART OF BROWNS FERRY QUALITY ASSURANCE PROGRAM

OFFICE OF NUCLEAR OPERATIONS



SAR - Safety Analysis Report

TR75-1 - Topical Report

N73M2 - Process specs for welding, heat treatment, and allied field operations

N80E3 - Nondestructive examination procedures

NQAM - Nuclear Quality Assurance Manual

G-28 - Construction of p.ping systems for boiling water reactor nuclear power plants.

.OTE: Flow chart provided by TVA.

BROWNS FERRY AUDIT SCHEDULE WELDING PROGRAM

February 18, 1986:	Orientation, review of employee concerns and analysis using key elements.
February 18 through 21, 1986:	Audit Plan and Checklist development.
February 22 through March 3, 1986:	Begin audit of Office of Construction All checklist elements will be evaluated by audit and documented in accordance with audit plan.
March 4 through 11, 1986:	Begin audit of Office of Nuclear Operations. All checklist elements will be evaluated by audit and documented in accordance with audit plan.
March 12 through 18, 1986:	Develop and write Audit Report.
March 19, 1986:	Exit Meeting.

A. M. Vuksan / 2/20/86

A. M. Vuksan Date

2.5 Bechtel Audit Report

B27 '860311 001

TO : J. W. Coan, Welding Project Manager

FROM : A. H. Vuksan, Audit Team Leader

DATE : March 8, 1986

SUBJECT: REPORT OF BECHTEL QUALITY AUDIT OF BROWNS FERRY NUCLEAR PLANT WELDING PROGRAMS

The audit team from Bechtel Power Corporation independently conducted a formal quality audit of the Browns Ferry Nuclear Plant's welding programs during the weeks of February 17th, 24th, and March 3rd, 1986. Method and scope of the audit were in accordance with the Audit Plan for Browns Ferry Nuclear Plant dated February 19, 1986.

The following report details the audit team activities and identifies audit findings and observations of the Browns Ferry Nuclear Plant Quality Assurance Programs as applied to welding activities.

The audit addressed the welding programs as implemented during construction of the Browns Ferry Nuclear Plant and the current programs implemented by Nuclear Operations. Two audit checklists were utilized by the audit team and are identified as TVA 02-OC for Office of Construction and TVA 02-NO for Nuclear Operations, respectively. Copies of the checklists are attached as a part of this report.

Audit team members were assigned specific key elements of the checklist by the audit team leader based on the area of technical expertise held by the auditor. Cross checking was done throughout the audit between auditors and their checklist assignments as well as at daily summary and review meetings conducted by the audit team leader.

Employee concerns, Browns Ferry specific and TVA generic, were analyzed by the audit team as detailed in the audit plan and incorporated into checklists TVA 02-OC and TVA 02-NO as key element number 17.0 for both checklists.

For report consistency with the audit checklists, key element summaries, findings and observations identified for Browns Ferry Office of Construction, (checklist TVA 02-OC) form Part A of this report. Key element summaries, findings and observations identified for Nuclear Operations, (checklist TVA 02-NO) form Part B of this report. For quantities of samplings and specific documents reviewed by the auditors, reference to the applicable checklist should be made. Audit findings and observations are identified to a key element of the applicable checklist.

REPORT OF BECHTEL QUALITY AUDIT OF BROWNS FERRY NUCLEAR PLANT WELDING PROGRAMS

AUDIT SUMMARY-FINDINGS AND OBSERVATIONS

For Office of Construction, there were four findings documented for key elements 3.0, 9.0 and 12.0. There were five observations documented for key elements 2.0 and 10.0.

For Nuclear Operation, there was one finding documented for key element 11.0. There were two observations documented for key elements 2.0 and 12.0.

The audit found that prior to July 1972 some of the appropriate documentation for quality assurance was not available but a memorandum from G. H. Kimmons (Manager of Eng. Design and Construction) to J. P. Knight (QA Manager) dated March 26, 1973 states:

> "Field construction work on Browns Ferry units 1 and 2 was begun in September 1966. The construction permit was issued by AEC for units 1 and 2 on May 10, 1967; and for unit 3 on July 31, 1968. Subsequently, many AEC regulations, guides, and directives have been promulgated, applicable to nuclear plants under construction, as well as those being planned. In particular, Appendix B to 10CFR50 (the 18 criteria on quality assurance) became effective on July 27, 1970, or almost four years after ground was broken on the Browns Ferry project.
>
> The chronology of events, especially with reference to quality assurance, has placed Browns Ferry in an awkward situation. Appropriate documentation for quality assurance matters, now required for new nuclear plant starts, is simply not available for the bulk of design, procurement, and construction activities. While retroactive compliance with the 18 criteria is not possible, various steps have been taken to implement these requirements. For example, a Construction QA Manual for Browns Ferry, dated July 24, 1970, was prepared and issued, making extensive use of a former document, Browns Ferry Quality Control Handbook. For design and procurement, no formal QA manual has been prepared specifically for Browns Ferry. TVA's commitment with respect to QA is contained in Amendment 31 to the Browns Ferry FSAR; TVA agreed that effective July 1, 1972, all subsequent design, procurement, fabrication, construction, and maintenance of safety related components would conform to 10CFR50, Appendix B. See attached memorandum dated June 20, 1972, from J. E. Parrish to Those listed, "Browns Ferry Nuclear Plant - Quality Assurance Program," which states 'AEC has agreed that Browns Ferry was too far advanced at time of issuance of 10CFR50, Appendix B, to apply the regulation to all aspects of the plant, but AEC insists and we have agreed that all future design, procurement, fabrication, construction, and maintenance must conform to 10CFR50, Appendix B."

REPORT OF BECHTEL AUDIT OF BROWNS FERRY NUCLEAR PLANT WELDING PROGRAMS

GENERAL OBSERVATIONS

1. QUALITY ASSURANCE DURING CONSTRUCTION

Attachment A of the audit plan refers to Appendix D of the SAR. The Final Safety Analysis Report (FSAR) Appendix D for Browns Ferry (Rev. 3) states that the "original QA program for design and construction was described in Appendix D of the Preliminary Safety Analysis Report (PSAR)."

The audit team was unable to obtain this document during the audit. It seems that this statement in Rev. 3 of the FSAR is incorrect. There was no PSAR but a Design Analysis Report (DAR). According to the Compliance Section at BFNP the DAR did not have an Appendix D. The audit team realizes that the DAR/PSAR have been revised over the years. Efforts to establish what Browns Ferry committed to and what document this statement refers to were unsuccessful and should be resolved by TVA during their analysis of this audit.

Appendix D of the FSAR (rev. 3) also discusses the program being in the Topical Report (TR 75-1). It is not. Although there is program information for other TVA nuclear power plants, the Browns Ferry program during design and construction is not included.

Most of the construction for Units 1 & 2 was done between May 1967 (Construction Permit issued) and July 1972 (TVA's commitment that subsequent work would comply with 10CFR50, Appendix B). All the welds selected for audit and most of the critical piping welds were made in the time frame of 1969 to 1971.

The audit team was unable to tie the lower tiered documents listed on the QA program flowsheet (Attachment A of the audit plan) for the Office of Construction to Appendix D of the FSAR (rev. 3).

In summary, the entire section (D.1, page D.0-1) describing the QA program at Browns Ferry "Quality Assurance During Design and Construction" in the FSAR (rev. 3) appears to be incorrect in that the first document referred to seems to be nonexistant and the second document referred to does not cover Browns Ferry during design and construction.

2. PROCEDURES

TVA procedure BF-79 for the control of nonconformances and corrective actions during the construction phase carries many revision dates leading to confusion of the control system for identifying proper revision levels.

3. EMPLOYEE CONCERNS

Employee concerns were incorporated and addressed in Key Element 17.0 of both audit checklists.

There are no audit findings or observations reported which would substantiate the employee concerns.

CONCLUSIONS AND RECOMMENDATIONS

Office of Construction Activities

1. Welding procedures and welder qualification requirements for piping welding at Browns Ferry between 1966 and 1970 was controlled by a TVA document intended for use at all TVA facilities.

2. No structural welder qualification procedures were in effect between 1966 and 1970. The audit did not find evidence of unqualified welders during this time.

3. In 1970 a more complete welding procedure manual was issued which seems to have solved many of the problems associated with the older controlling document.

4. Weld inspections, primarily nondestructive examinations were done using controlled NDE procedures which complied with the applicable codes referenced in the controlling documents.

5. The audit team was unable to substantiate any of the employee concerns that were incorporated into the audit checklist as being valid or with merit.

6. Quality assurance was in effect at Browns Ferry from the beginning of construction. During the first four years of construction, many AEC regulations were issued relating to the quality assurance program of nuclear plants specifically about documentation. Retroactive compliance to 10CFR50, Appendix B was not possible nor required by the AEC. TVA committed that as of July 1, 1972 they would comply with 10CFR50, Appendix B for all subsequent design, procurement, fabrication, construction and maintenance of safety related components. The audit concluded that prior to July 1972 there were gaps in documentation of the welding aspects of the quality program but after that date the audit concluded that there was compliance with TVA's quality program with the exception of one audit finding and two observations.

REPORT OF BECHTEL AUDIT OF BROWNS FERRY NUCLEAR PLANT WELDING PROGRAMS

Nuclear Operations

1. The Nuclear Quality Assurance Manual (NQAM) in use at Browns Ferry was found to be well written with adequate program guidelines and criteria for control of Nuclear Operations quality activities as related to welding.

2. TVA has adequate procedures in place governing welder qualification and continuity. The audit indicates that TVA welders are qualified with TVA procedures as required.

3. Many of the referenced implementing procedures were found to be excessively long, ambiguous, and do not give clear and concise instructions to personnel to perform their activity.

4. The audit team was unable to substantiate any of the employee concerns that were incorporated into the audit checklist as being valid or with merit.

A. M. Vuksan 3/8/86
A. M. Vuksan
Bechtel Audit Team Leader

AUDIT TEAM

A. M. Vuksan	Audit Team Leader
S. R. Garreffa	Auditor
W. B. Keyser	Auditor
S. W. Borenstein	Auditor
G. R. Henke	Auditor

Signature	Initials
A.M. Vuksan	A.M.V.
Stephen Garreffa	SRG
W. B. Keyser	WBK
SW Borenstein	SWB
Gary R Henke	GRH

CONTACTS WHO ASSISTED THE AUDIT TEAM

Name	Title	TVA ORGANIZATION
John Boone	Welding Engineer	NO
Leo Hebert	QA Evaluator	OC
Horace Beckner	Staff Engineer	OE
Craig Turnbow	Staff Engineer	OE
Jerry Pettitt	Modifications	NO
Otto Wilkinson	Mechanical Engineer	OC
John T. Walker	Quality Engineer	OC
Larry Parvin	QA Supervisor	NO
Barbara Liles	Records Clerk	NO
Barbara McClanahan	Records Officer	NO
George Clark	QA Engineer	NO
B. Morris	Compliance	NO
Terrell Carden	Codes & Standards Supv.	NO
Karl Strother	Engineering Aide	NO
Tice Goodson	ISI Engineer	NO
Marshall Leahman	Mechanical Engineer	NO
Larry Jones	QA Supervisor	NO
Jerry Beasley	QC Shift Supervisor	NO
Larry Clardy	Surveillance Section Supervisor	NO
Fred Jefferson	QC Shift Supervisor	NO
Charles Elledge	QA Evaluator	NO
Walt Joest	Metallurgical Engineer	OE
Richard Lynskey	QA Supervisor	NO
Bob Jesse	Material, Codes and Standards	OE

PART A
BFN OFFICE OF CONSTRUCTION

AUDIT ASSIGNMENTS

Auditor	Audit Check List Item - (Key Elements)
A. H. Vuksan	11.0 14.0 15.0 17.0
G. R. Henke	6.0 7.0 8.0 10.0 11.0 16.0
S. W. Borenstein	12.0 17.0
S. R. Garreffa	3.0 4.0 5.0
W. B. Keyser	2.0 9.0 13.0

KEY ELEMENT NO. 1.0

OFFICE OF CONSTRUCTION
PREPARATION FOR AUDIT OF WELDING ACTIVITIES

Prior to the start of the audit, the audit team developed an audit plan and identified applicable documents, specific manuals, specifications and procedures which described and implemented the TVA welding activities.

The audit team developed an audit checklist to address all elements identified in the TVA work plan in addition to analysis of employee concerns for significance and integration into the checklist.

The audit team identified and selected a cross section of welded systems from applicable TVA specifications. Welds were selected in a random manner from drawings applicable to each individual system for programmatic audit.

KEY ELEMENT 2.0

OFFICE OF CONSTRUCTION
ADEQUACY OF DESIGN OUTPUT DOCUMENTS

For items selected for the audit, drawings, welding procedures and supporting records were reviewed and showed compliance with the TVA welding program and procedures. However, there were 3 observations.

OBSERVATIONS

Three observations were noted during the audit of the welding output documents.

One welding document stated inadequate preheat temperatures for some conditions and did not comply with ANSI B31.1. The document was titled "Qualified Welding Procedures and Welding Specifications For Field Welding of Principal Piping, Low Pressure and Service Piping, Steam Turbines, and Boiler Connections," dated March 1, 1965. The inadequate preheat temperatures were given on page 8, items 4 and 5.

For the second observation, Detailed Welding Procedure (DWP) SM 48-B-1, Revision 1, dated 2/28/75 randomly selected from G29 "General Construction Specification for Welding, Heat Treatment, Nondestructive Examination, and Allied Field Fabrication Operations," specified a minimum preheat of 250F, but the ANSI B31.1 code required a minimum preheat of 300F.

The third observation was with regard to the detailed welding procedures and the procedure qualification records. There was no name of the key organizational group within TVA that was responsible and accountable for the welding control documents on the welding control documents.

KEY ELEMENT 3.0

OFFICE CONSTRUCTION
INITIAL WELDER OR WELDING OPERATOR QUALIFICATIONS

AUDIT FINDING-AF-01-OC

Between 1968 and 1970 there were no welder qualification procedures in place governing work outside the scope of "Qualified Welding Procedures And Welding Specifications For Field Welding Of Principal Piping, Low Pressure And Service Piping, Steam Turbines, And Boiler Connections" dated March 1, 1965.

The absence of procedures for this time period violates Part 1 (B) and Part II (A) paragraph (4) of the Browns Ferry Nuclear Plant Construction Quality Control Handbook dated 11-1-68 which required the use of welding procedures for all welding.

Review of 134 welder qualification records indicates that welders were qualified in accordance with AWS D1.0 or ASME IX. Therefore this finding has no impact on weld quality.

AUDIT FINDING-AF-02-OC

Between 1967 and 1970 many welder qualification records do not specify or reference procedures which specify progression for vertical welding. Untraceable progression violates Q-22, paragraph W-3 of "Qualified Welding Procedures And Welding Specifications For Field Welding Of Principal Piping, Low Pressure And Service Piping, Steam Turbines, And Boiler Connections" dated March 1, 1965. Seventeen out of 38 welders and 25 out of 134 welder qualification records audited are applicable to this finding.

This problem was corrected when TVA replaced the above referenced document with the G-29 "General Construction Specification for Welding, Heat Treatment, Nondestructive Examination, and Allied Field Fabrication Operation." The G-29 has welder qualification procedures which specify progression. This document transition took place between 1970 and 1972. Since ASME IX eliminated progression as an essential variable for welder qualification in 1974, untraceable progression between 1967 and 1970 has no impact on weld quality.

KEY ELEMENT 4.0

OFFICE OF CONSTRUCTION
MAINTENANCE OF WELDER OR WELDING OPERATOR QUALIFICATIONS

Retention of welder qualification continuity records was not required per TVA's Browns Ferry QA program. Therefore this key element was not auditable.

KEY ELEMENT 5.0

OFFICE OF CONSTRUCTION
RENEWAL OF WELDER OR WELDING OPERATOR QUALIFICATIONS

Retention of welder qualification continuity records was not required per TVA's Browns Ferry QA program. Therefore this key element was not auditable.

KEY ELEMENT 6.0

OFFICE OF CONSTRUCTION
INITIAL WELDING INSPECTION PERSONNEL QUALIFICATION

Qualification/Certification records for nondestructive examination personnel (weld inspection) were reviewed for compliance with the applicable TVA procedure(s) that were in effect from November 1970 through December 1975.

The certification of nondestructive testing personnel complied with the TVA personnel qualification requirements of SNT-TC-1A (American Society of Nondestructive-Testing).

The personnel certification procedure (program) did not become mandatory until 1 June 1972 per BFNP Construction Procedure BF 27 (Revision 1). There is evidence that the qualification/certification program was being implemented prior to the mandatory starting period.

KEY ELEMENT 7.0

OFFICE OF CONSTRUCTION
MAINTENANCE OF WELDING INSPECTION PERSONNEL QUALIFICATION

Review of inspection personnel qualification records for completeness and recertification confirmed compliance with TVA procedures used for qualification certification of NDE personnel. Recertification of inspection personnel was accomplished as required by applicable procedures. In many instances recertification of personnel was accomplished on a more frequent schedule than required by TVA procedures or the industry standard (SNT-TC-1A).

KEY ELEMENT 8.0

OFFICE OF CONSTRUCTION
RENEWAL OF WELDING INSPECTION PERSONNEL QUALIFICATION

Renewal of all welding inspection personnel qualifications selected for audit indicated compliance with referenced TVA programs and procedures.

KEY ELEMENT 9.0

OFFICE OF CONSTRUCTION
USE OF APPROPRIATE WELDING PROCEDURES

Detailed welding procedures and qualification records applicable to the audit items were reviewed. Postweld heat treatment records were audited and showed compliance with the TVA program and procedure.

AUDIT FINDING AF-03-OC

Based upon the requirement given in the G-27 specification dated 12/12/68 that welding procedures shall be kept permanently, there was one audit finding regarding the welding procedures for audit item 1, 2, 3, 5, 7 and 8. The applicable revisions of the welding procedures for these items were not available.

KEY ELEMENT 10.0

OFFICE OF CONSTRUCTION
USE OF APPROPRIATE INSPECTION PROCEDURES

For items selected for audit, appropriate inspection procedures were used. Procedure review showed compliance with TVA program requirements and referenced codes and standards.

OBSERVATIONS

Two observations were noted during the audit for use of appropriate procedures.

The review of radiographic film taken during construction, indicated 3 of the 5 welds reviewed did not meet the requirements of ASME III (Summer 1967 addenda) N-624 Paragraph 624.7 (a) that requires the "Manufacturers Name"; this element of identification was missing therefore leaving the film unidentifiable to its origin.

This condition would have no safety impact on the effected welds as the radiographic report that was filled out at the time of interpretation and review identified the four elements required by ASME Sec III paragraph N-624.7 (a) and is signed (or initialed) to attest to this required information.

Records that were required to be made and kept did not meet the requirements of G28 Appendix C, T1, Paragraph 4.1 which requires "inspection procedure identification." Some records do not identify the specific inspection procedures which were used. Four examples are as follows:

(a) TVA BFNP Radiographic Record (TVA 10047), (b) TVA BFNP Quality Assurance Records - Piping Systems - Welding Inspection Data, (c) TVA BFNP Quality Assurance Records - Piping Systems - Weld Inspection Data (BF45 Rev. 3, Attachment 1), (d) TVA Quality Assurance Records BFNP - Mechanical Equipment - Weld Data.

KEY ELEMENT 11.0

OFFICE OF CONSTRUCTION
USE OF APPROPRIATELY TRAINED AND QUALIFIED PERSONNEL

Training records of personnel were only retained or required to be retained by the TVA procedures until completion of the construction preoperational test phase.

KEY ELEMENT 12.0

OFFICE OF CONSTRUCTION
USE AND CONTROL OF WELDING FILLER METALS

AUDIT FINDING AF-04-OC

Six certified material test reports (CMTR's) for welding filler material did not comply with TVA requirements. Details on each package are identified in Attachment A.

On six CMTR's, details that indicated that the test reports met the contract requirements were omitted from the test reports.For example, a CMTR does not give any test temperature of impact testing required to be -20F by the contract. This does not indicate that TVA specifications were followed and the impact on quality can not be determined.

Some of the six CMTR's omitted information that was more significant from a quality standpoint. Two CMTR's do not give information that impact testing was performed as required by contract.

The system for determining if impact tested material was required from a design standpoint was determined by the engineering design group (EN-DES). No system by system list as to impact requirements was available to the audit team. The EN-DES group put the impact requirements for base materials on the bill of materials for the piping components and completed a spread sheet which gave the information about the joint, such as welding procedure to be used.

The fracture toughness requirements that TVA committed to for Units 1 & 2 are very vague. The GE Design Specification 22 A1406 on this topic states: "The possibility of brittle fracture in ferritic steel piping and equipment pressure parts... shall be considered." Reconstructing the requirements and documentation of the original materials and procedures is difficult. The audit team recommends that TVA review the system requirements and establish fracture toughness requirements by system for all future work (modifications, repair or replacement) on Units 1 and 2 as an integral part of establishing the current design basis for the plant.

KEY ELEMENT 13.0

OFFICE OF CONSTRUCTION
IN PROCESS CONTROL OF WELDING

The inprocess control procedures for welding were identified for the items that were selected for the audit. TVA documents that controlled welding activities and operation checklists were reviewed. The review results showed the construction work was accomplished in accordance with the TVA welding program and procedures.

KEY ELEMENT NO. 14.0

OFFICE OF CONSTRUCTION
DOCUMENTATION OF TECHNICAL AND QUALITY ACTIVITIES

In general, the documentation of technical and quality activities was adequate except as noted. Refer to Key Element 2.0 through 13.0 and 15.0 through 17.0.

KEY ELEMENT 15.0

OFFICE OF CONSTRUCTION
NONCONFORMANCES AND CORRECTIVE ACTIONS

Review of nonconformance and corrective action reports for completion and closure confirmed compliance with the TVA program and procedural requirements for this activity.

KEY ELEMENT 16.0

OFFICE OF CONSTRUCTION
TRAINING PROGRAMS

Training programs developed for the construction phase were reviewed for compliance to the TVA program requirements. For personnel not requiring certification, records of training were maintained only through completion of the construction preoperational test phase as required in training procedure BF-110.

For training programs requiring certifications, refer to Key Element 11.0 of this report for details.

KEY ELEMENT 17.0

OFFICE OF CONSTRUCTION EMPLOYEE CONCERNS

17.1 Concerns No. XX-85-049-X03 and XX-85-069-006 regard welder certification. The concerns were not substantiated by the audit of a random sampling of 38 welders which involved 134 welder qualification records from 1967 to 1975.

17.2 Concern No. XX-85-108-002 is regarding weld inspections. This concern could not be substantiated as evidenced by audit of inspection procedures and weld history records.

17.3 Concern No. WI-85-053-004 and XX-85-68-006 regard weld rod control satisfying code requirements. These concerns were not substantiated by audit of a sampling of 25 CMTR's which involved 11 types of weld metal covering the years 1970 to 1975. Audit finding, AF-04-OC against Key Element No. 12 of this report is documented against the TVA program and involves weld rod control not satisfying contract requirements.

PART B
BFN NUCLEAR OPERATIONS

AUDIT ASSIGNMENTS

Auditor	Audit Check List Items - (Key Elements)					
A. M. Vuksan	11.0	14.0	15.0	17.0		
G. R. Henke	6.0	7.0	8.0	10.0	11.0	16.0
S. W. Borenstein	12.0					
S. R. Garreffa	3.0	4.0	5.0			
W. B. Keyser	2.0	9.0	13.0			

KEY ELEMENT NO. 1.0

NUCLEAR OPERATIONS
PREPARATION FOR AUDIT OF WELDING ACTIVITIES

Prior to the start of the audit, the audit team developed an audit plan and identified applicable documents, specific manuals, specifications and procedures which describe and implement TVA welding activities.

The audit team developed an audit checklist to address all elements identified in the TVA work plan in addition to analysis of employee concerns for significance and integration into the checklist.

The audit team identified and selected a cross section of welded systems based on availability. Only systems which had been modified, repaired or replaced under the Nuclear Operations program were selected for audit. Welds were selected in a random manner from work plans applicable to systems selected for programmatic audit.

KEY ELEMENT 2.0

NUCLEAR OPERATIONS
ADEQUACY OF DESIGN OUTPUT DOCUMENTS

For items selected for the audit, drawings, welding procedures and supporting records were reviewed and showed compliance with the TVA program and procedures.

OBSERVATION

One observation was noted during the audit of the welding output documents. The TVA Detailed Welding Procedures (DWP) and the Procedure Qualification Records did not show the name of the key organizational group. By showing the name of the key unit that is responsible and accountable for the welding control documents, any questions concerning the welding documents could be more readily resolved.

KEY ELEMENT NO. 3.0

NUCLEAR OPERATIONS
INITIAL WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on an audit of welder qualification records and supporting documentation, TVA welders are qualified in accordance with TVA programs and procedures.

KEY ELEMENT NO. 4.0

NUCLEAR OPERATIONS
MAINTENANCE OF WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on an audit of welder continuity records, TVA welders demonstrated welding within certification expiration dates as required by TVA programs and procedures.

KEY ELEMENT NO. 5.0

NUCLEAR OPERATIONS
RENEWAL OF WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on an audit of welder qualification records and continuity records, TVA welders are requalified in accordance with TVA programs and procedures.

KEY ELEMENT 6.0

NUCLEAR OPERATIONS
INITIAL WELDING INSPECTION PERSONNEL QUALIFICATIONS

All inspector qualification records (NDE, including visual examination) audited indicated compliance with TVA programs and procedures and the referenced codes and standards.

KEY ELEMENT 7.0
NUCLEAR OPERATIONS
MAINTENANCE OF WELDING INSPECTION PERSONNEL QUALIFICATIONS

All welding inspection personnel qualification records audited were in compliance with TVA programs and procedures and the referenced codes and standards.

KEY ELEMENT 8.0

NUCLEAR OPERATIONS
RENEWAL OF WELDING INSPECTION PERSONNEL QUALIFICATIONS

For all records of personnel audited, renewal of welding inspection personnel qualifications were in compliance with TVA programs and procedures.

KEY ELEMENT 9.0

NUCLEAR OPERATIONS
USE OF APPROPRIATE WELDING PROCEDURES

Use of welding procedures and heat treating procedures were audited against the referenced Nuclear Operations documents and found to be in compliance.

KEY ELEMENT 10.0

NUCLEAR OPERATIONS
USE OF APPROPRIATE INSPECTION PROCEDURES

For all items audited, the use of appropriate inspection procedures was verified as complying with TVA program and procedures.

KEY ELEMENT 11.0

NUCLEAR OPERATIONS
USE OF APPROPRIATELY TRAINED AND QUALIFIED PERSONNEL

All audited records of certified personnel indicated that appropriate training had been administered and qualifications were in accordance with TVA programs and procedures for personnel trained and qualified including eye examinations. Actual copies of written examinations were on file.

AUDIT FINDING-AF-01-NO

A) NQAM Part II Sec. 5.3 dated 7/30/84 paragraph 3.1 states in part "QC Inspection shall be performed by qualified individuals other than those who performed or directly supervised the activity being inspected."

B) Standard Practice Procedure BF-6.2 dated Nov. 27, 1983 paragraph 5.3.1 states in part "the QC inspector shall perform fit up inspections and so indicate acceptance by his signature on the weld data sheet."

Contrary to A & B above, fitup inspection of AWS D1.1 structural welds on safety related equipment is being performed by the welding foreman who is responsible for the work performed and not a QC inspector. Furthermore a conflict exists between the Standard Practice procedure BF-6.2 dated Nov. 27, 1985 and from N73M2 "Process specifications of welding, heat treatment and allied field operations" Process Specification O.C.1.1. dated 3/9/83 which allows the use of weld foreman for fitup inspection.

KEY ELEMENT 12.0

NUCLEAR OPERATIONS
USE AND CONTROL OF WELDING FILLER METALS

OBSERVATION

The site's controlling procedures for use and control of welding materials are unnecessarily long and confusing. Too many procedures are required to be used simultaneously to do the job of controlling weld filler material. This puts the program and the personnel trying to enforce the program in a vulnerable position. The program could be condensed and simplified to be more functional and less vulnerable to error and misinterpretation by the users.

Extractions are for example "Receipt Inspection" Standard Practice BF 16.4

"2.5.2 As part of the receipt inspection of QA Level I items, Level II 10CFR21 item, Level II substituted items, and OE original ordered items with Quality Assurance requirements or 10CFR21 applicability, the QC inspector shall review and verify manufacturing documentation and material certifications of physical properties as listed below. The originator of the purchase request or his representative shall assist the receipt inspector in verification of certifications and documentation on QA Level II substituted items, and will assist when requested by the receipt inspector on QA Level I, Assurance requirement or 10CFR21 applicability.

a. Manufacturing Documentation--Assurance that the item received was fabricated, tested, and inspected prior to shipment in accordance with applicable code, specification, and/or drawings as required by the procurement documents.

b. Physical Properties--Assurance that physical properties conform to the specified requirements and that chemical and physical test reports, if required, meet the procurement document requirements.

Unidentified items and items without the required quality assurance documents shall be handled as nonconforming material in accordance with reference 2.

Level I, Level II substitute items, Level II 10CFR21 required items, and OE original ordered items with Quality Assurance requirements or 10CFR21 applicability, will prior to use, issuing, or being placed into stock, have verification of proper documentation by the Plant QA Staff supervisor."

Receipt Inspection for weld filler metal cannot be done by this procedure alone. Although 2.5.2.b implies that the receiving clerk can accept weld material, BF 6.2 "Quality Control of Welding Activities" and N73M2 Process Specification 1.M.3.a are also necessary before weld filler metal can be accepted.

Standard Practice BF 6.2 is 82 pages long and difficult to use. It is recommended that BF 6.2 be rewritten to give clear directions for the normal flow of welding material (for example for receipt at site, to power stores, to rod rooms, to issue to welder, to completion of all documentation including of weld data sheet).

Traceability of welding material is critically important to comply with 10CFR50, Appendix B and the procedures in effect at Brown Ferry are difficult to implement. There were CAR's relating to weld filler metal in three of the seven items for Nuclear Operations.

KEY ELEMENT 13.0

NUCLEAR OPERATIONS
INPROCESS CONTROL OF WELDING

Auditing covered the TVA documents that controlled the welding operations. The audit results confirmed compliance with the inprocess control requirements of the referenced TVA documents.

KEY ELEMENT NO. 14.0

NUCLEAR OPERATIONS
DOCUMENTATION OF TECHNICAL AND QUALITY ACTIVITIES

In general, the documentation of technical and quality activities was adequate except as noted. Reference Key Elements 2.0 through 13.0 and 15.0 through 17.0.

KEY ELEMENT NO. 15.0

NUCLEAR OPERATIONS
NONCONFORMANCES AND CORRECTIVE ACTIONS

A review of nonconformances and corrective action reports for completion and closure confirmed compliance with TVA program and procedural requirements for this activity.

KEY ELEMENT 16.0

NUCLEAR OPERATIONS
TRAINING PROGRAMS

Training programs were reviewed for compliance to the TVA Program. Reference Key Element No. 11.

KEY ELEMENT 17.0

OFFICE OF NUCLEAR OPERATIONS

17.1 Concerns No. XX-85-049-X03 and XX-85-069-006 regard welder certification. These concerns were not substantiated by the audit of a random sampling of 47 welders which involved 132 welder qualification records from 1978 to 1986.

17.2 Concern No. XX-85-108-002 is regarding welding inspections. This concern could not be substantiated as evidence by an audit of inspection procedures and weld history records.

17.3 Concerns No. W1-85-053-004 and XX-85-68-006 regard weld rod control satisfying code requirements. These concerns were not substantiated by audit of a random sampling of 25 receiving documents and associated CMTR's which involved 25 heat and/or lot numbers, and 8 different types of weld metal covering the years 1978 to the present.

17.4 Concern No. XX-85-102-004 is regarding inspection and verification of corrective action of notice of indications (NOI's).

The following 11 NOIs were reviewed:

U1/C6-001	U1/C6-39
U1/C6-002	U2/C5-062
U1/C6-003	U1/C6-73
U1/C6-004	U1/C6-76
U1/C6-12	U2/C5-135
U2/C5-015	

Based on review of the above sample, there was no evidence found to substantiate the concern that NOI's were mishandled.

SUMMARY OF FINDINGS AND OBSERVATIONS FOR ELEMENT 12.0
(AF-04-OC)

Package (as referenced in checklist)	Material	Heat No.	Comments
6	E7018	302701	See Comment 1
8	ER309	7-10279	See Comment 2
10	E70S-6	00147	See Comment 4
11	E60S-3	89D627	See Comment 3
12	E70S-3	82E317	See Comment 5
31	E308-16	610327	See Comment 6

COMMENTS

1. Contract required 1) impact testing and 2) tensile testing in the as-welded and heat treated condition. CMTR does not give 3 values for impact data as required by contract, and does not give information that heat treated tensile specimens were tested.

2. No information on CMTR as to what standard the information was tested to as required by contract. The material does conform to the contract requirements of ASTM A371, ER 309.

3. Contract required impact testing. CMTR does not give any impact test data.

4. Contract required impact testing and tensile testing. CMTR does not give any impact or tensile test data.

5. Contract required impact testing at -20F. CMTR does not give test temperature of impact testing.

6. The receiving report (form 209) was approved with heat no. and material (carbon steel) not matching the CMTR that had the same heat no. but different material (stainless steel).

QUALITY AUDIT CHECKLIST
COVER SHEET

A

1 AUDIT AREA: TVA

2 AUDIT TITLE: Welding Project Audit

3 CHECKLIST NO.: TVA 02-OC

B

4 PROJECT: Browns Ferry

8 AUDIT NO.: 2-86

5 JOB NO.: 16985

9 AUDIT DATE:

6 TYPE OF AUDIT: Welding Program

10 AUDITOR: See page 2

7 ORGANIZATIONS AUDITED: (OC) Office of Construction

C

11 NO.	12 REFERENCE * See Attachment A	13 REVISION	14 DATE
1	SAR	N/A	N/A
2	BF Constr. QAM	N/A	July 1970-July 1972
3	OEDC - QAM	N/A	July 1972-to license
4	G-28/G-29	Rev. 0-7/N/A	1968-1982/1965 to license

15 REV. NO.	16 PREPARED BY	17 DATE	18 APPROVED BY	19 DATE
0	See page 2	2/20/86	A. M. Vuksan AMV.	2/21/86
1	Corrections to Sheet 1	3/4/86	AMV.	3/4/86

SFP 20606

AUDIT TEAM

A. M. Vuksan	Audit Team Leader
S. R. Garroffo	Auditor
W. Keyser	Auditor
S. Borenstein	Auditor
G. R. Henke	Auditor

Signature	Initials
A. M. Vuksan	A.M.V.
S. R. Garroffo	SRG
W. B. Keyser	WBK
S. W. Borenstein	SWB
Gary R. Henke	GRH

Legend

S - Satisfactory
O - Observation
AF - Audit Finding

Cross-checking by auditors signified by circled initials in audit result column.

Brov a Parry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-QC
PAGE 3 OF 20

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
1.0	Preparation for Audit of Welding Activities	(1) (2) (3) (4)	1.0 Determine and identify applicable documents, the required edition, addenda, revision or amendments of specific manuals, specifications, standards, and procedures which apply.	Sheet 1 * N/A
1.1	Identification of Governing Documents (Manuals, Specifications, Standards, Procedures).		2.0 Randomly select systems and items by drawing review. Select specific welds to be audited.	
1.2	Determine what to audit.		3.0 The welds shall be a cross section from safety related systems to allow complete access to all applicable weld programs, procedures and specifications. Enter selected items on sheet 1. * NOT APPLICABLE AS AN AUDIT KEY ELEMENT	SWG 3/4/86 GRH SRG CRK ANV 3/4/86

BPP 20006

Browns Ferry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

PAGE 4 OF 20

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
2.0	Adequacy or design output documents. *	1) 2) 3) Sec 9 4)	1.0 Sample a minimum of 15 drawings for adequacy; i.e. where applicable drawing number, revision number, title, details and weld symbols.	See sheet 5 S
	* "Adequacy of Design Output Documents" The technical or engineering adequacy of the design output documents is not to be researched; their adequacy is to be checked in the sense of completeness of information for the organization or individuals who must use the document to continue forward with the program.		2.0 Sample 10 welding procedures for adequacy; i.e. welding variables given.	See sheet 6 O
			3.0 Verify procedure qualification records.	S
			4.0 The above samples shall include the drawings and welding procedures identified in sheet 1.	(SIG) JJSK 3/V/86

Browns Ferry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC
PAGE 5 OF 20

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
3.0	Initial welder or welding operator qualifications. APPLICABLE WELDER QUALIFICATION PROCEDURES: QUALIFIED WELDING PROCEDURES AND WELDING SPECIFICATIONS FOR FIELD WELDING OF PRINCIPAL PIPING, LOW PRESSURE AND SERVICE PIPING, STEAM TURBINES, AND BOILER CONNECTIONS DATED MARCH 1, 1965. GENERAL WELDING PROCEDURE SPECIFICATIONS 1.M.1.1 /REV-B/ 11-18-70 1.C.1.1 /REV-C / 6-17-70 1.E.1.1 /REV-A / 11-17-70 WELDER PERFORMANCE QUALIFICATION 1.M.2.1 /REV-B / 6-23-72 1.C.2.1 /REV-A / 7-7-70 WELDERS PERFORMANCE QUALIFICATION TESTING. BF-60 /REV-0 / 10-1-70 BF-60 /REV-2 / 12-26-72	2) Sec 7.0 4) G-29	1.0 Verify that welders* are qualified in accordance with TVA approved procedures. 2.0 Examine a minimum of 20 initial welder qualifications. This sample shall include welders identified per weld number in sheet 1. 3.0 List applicable welder qualification procedures. SEE LEFT HAND COLUMN * For the purpose of this audit the term welders shall include welders and welding operators.	See sheet 2 AF (AF-01-OC) (AF-02-OC) SRG 3-6-86

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Browns Ferry
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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
4.0	Maintenance of welder or welding operator qualifications	(2) Sec 7.0 (4) G-29	1.0 Examine the maintenance records for a minimum of 20 welders to verify welding within welder certification expiration dates.	See sheet 2
				N/A
			2.0 List applicable welder qualification procedures for review. SEE ITEM 3.0	SEE SHEET 2 NOTE 4 SRG 3-6-86
			NOTE: MAINTENANCE RECORDS AND CONTINUITY RECORDS ARE SYNONYMOUS. SRG 3-7-86	RBK

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
5.0	Renewal of welder or welding operator qualifications.	2) Sec 7.0 4) G-29	1.0 Examine the maintenance records for a minimum of 10 welders to verify renewal.	See sheet 2 N/A
			2.0 List applicable welder qualification procedures. SEE ITEM 3.0	SEE SHEET 2 NOTE 4 SRG 3-6-86
			NOTE: MAINTENANCE RECORDS AND CONTINUITY RECORDS ARE SYNONYMOUS SRG 3-7-86	

GBK

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
6.0	Initial welding inspection personnel qualifications. PROGRAM FOR ADMINISTRATION OF NONDESTRUCTIVE TESTING PERSONNEL QUALIFICATION AND CERTIFICATION,	(1) (2) (3) Sec 9 & Sec 10	1.0 Review inspector personnel qualification records using the welds selected for the audit as the means for identifying inspectors. CERTIFICATION STATUS OF INSPECTION PERSONNEL INDICATED ON SHEET 3	See sheet 1 S
			2.0 Review qualification records for compliance with referenced procedures.	
	CONSTRUCTION PROCEDURE No BF 27 NDT PERSONNEL CERTIFICATION & QUALIFICATION		3.0 Randomly select qualification records for a minimum of 10 additional welding inspection personnel and review.	See sheet 3
	DATED SEPT 30 1969 REV 1 FEB 10 ~~1965~~ 1975 GRH 6 MAR 86		4.0 List procedures used for qualification of inspection personnel. SEE DOCUMENT LISTED AT LEFT	GRH 6 MAR 86 [illegible] 4/7/86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
7.0	Maintenance of welding inspection personnel qualification. PROGRAM FOR ADMINISTRATION of NONDESTRUCTIVE TESTING PERSONNEL QUALIFICATION AND CERTIFICATION. CONSTRUCTION PROCEDURE NO BF 27 NDT PERSONNEL CERTIFICATION & QUALIFICATION DATED SEPT 30, 1969 REV 1 FEB 10 1975	1) 2) 3) Sec 9	1.0 Review welding inspection personnel qualification records for completeness and re-certificaton compliance to identified procedure. RECERTIFICATION STATUS OF INSPECTION PERSONNEL INDICATED ON SHEET 3 2.0 As a minimum, review qualification records on 10 personnel. 3.0 List the applicable procedures used. SEE DOCUMENT LISTED AT LEFT	S See sheet 3 GRH 6 MAR 86 q mv 3/5/86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
8.0	Renewal of welding inspection personnel qualification.	(1) (2) (3) Sec 9	1.0 Select and identify a minimum of 10 inspection personnel qualifications. 2.0 Review for renewal of qualifications in accordance with TVA procedures. Identify controlling procedures and list below. PROGRAM FOR ADMINISTRATION OF NONDESTRUCTIVE TESTING PERSONNEL QUALIFICATION AND CERTIFICATION. CONSTRUCTION PROCEDURE NO. BF 27 NDT PERSONNEL CERTIFICATION AND QUALIFICATION. DATED SEPT 30 1969 REV 1 FEB 10 1975	See sheet 3 S GRH 6 MAR 86 G.M.V. 3/6/86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. S/A-02-OC

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
9.0	Use of appropriate welding procedures.	2) Sec 7 3) Sec 5 & Sec 9 4) G-28 & G-29	1.0 Identify welding and heat treatment procedures applicable to welds listed on sheet 1.	AF (AF-03-OC)
			2.0 List welding and heat treatment procedures on sheet 6.	
			3.0 Verify that the welding procedures are applicable to referenced weld joints.	S
			4.0 Verify that heat treatment procedures have been used where applicable. HEAT CHART, UNIT 1, CQAM, APP. A, PART II, 2.75 HEAT CHART, UNIT 3, CQAM, APP. A, 10.5.4	S (gbo) JBK 3/6/86

BPP 20606

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
10.0	Use of appropriate inspection procedures. welds identified for audit.	2) Sec 3 & 8 3) Sec 5 & 10 4) G-28 Sec 4; G-29	1.0 Identify and review inspection procedures used for examination of welds identified for audit. CONSTRUCTION PROCEDURE BF-3 LIQUID PENETRANT INSPECTION (Rev 1 1 NOV 68 thru Rev 3 22 Jun 70) BF 15 RADIOGRAPHIC INSPECTION (Rev 1 13 Nov 70 thru Rev 2 17 Sep 71)	See sheet 1
			2.0 Verify that the inspection procedures are applicable to referenced weld joints. RADIOGRAPHIC FILM REVIEW DOCUMENTED ON SHEET 8	See Sheet 8 O QRH 6 MAR 86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
11.0	Use of appropriately trained and qualified personnel.	(2) Sec 2 & 8 (3) Sec 2 & 9 (4) G-28 & G-29	1.0 Identify programs and procedures used for training of personnel. Using the welds selected for audit, identify a minimum of 10 personnel training and qualification records.	See sheet 3 S Q.M.V. 3/4/86 GRH 6 MAR 86
			2.0 Review training records for compliance and completeness with governing procedures.	
			3.0 List applicable procedures used. ° Construction Procedure No. BF-27 - Issue Date - 9/30/69 & Rev. 1 - 5/8/73 - "Program For Administration of NDT Personnel Qualification and Certification". ° Construction Procedure No. BF-110 Dtd. 12/3/73 & 8/10/75 - "QA Training Program". ° QAS-QAP-4.1 Rev 0 Dtd 1/11/74 - "Q.A. Indoctrination Program".	Q.M.V. 3/4/86 -0- Q.M.V. 3/4/86 GRH 6 MAR 86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
12.0	Use and control of welding filler materials. Procedures BF 44 "Welding materials control" Rev 0 4/14/70 to Rev J May 1974 BF 8 "Receiving, inspection, storage and withdrawal of permanent material" Rev 0 10/17/68 - Rev 4 3/25/73 BF 72 "Document control" Rev 0 11/21/70 to Rev 7 7/24/75 from G-29 1.M.1.1 "General welding procedure spec." 1970-1975 1.M.3 "Specification for welding materials control" 1970-1975	(2) Sec 6.0 (3) Sec 8.0 (4) G-28 Sec 2 G-29	1.0 Verify that weld filler control procedures exist. See item 2.0 below.	AF (AF 04-OC) SWB 3/6/86
			2.0 List weld filler control procedures.	TBK
			3.0 Review a minimum of 25 filler material CMTRs against weld material specifications, and QA documentation of inspection. QA documentation of inspection was not available for some material. Procedures required retaining CMTR's in the permanent file but documentation of receiving inspection was done on the receiving report (form 209) and filed by contract no. Some form 209's list the material (such as E308 or SFA No.) but not a heat no. So there is no direct tie of a signed 209 to a CMTR in those cases. Some CMTR's did not list the contract no. ~~and~~.	See sheet 7

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-OC

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
13.0	Inprocess control of welding.	(2) Sec 7 (3) Sec 9 (4) G-28 & G-29	1.0 Identify and list the TVA documents that control welding operations. Review documents for adequacy to program requirements. G-27, DATED 12/12/68 G-28, DATED 12/13/68 BF-19 BF-45 BF-47	S
			2.0 Examine a minimum of 10 operation checklists (travelers) for procedure compliance. SEE BELOW	S
			3.0 Sample shall include welds identified in sheet 1. 1. BFQA PIPING WELD DATA SHEET, 3/8/71 2. ATTACHMENT 1 FROM BF-45, REV. 3 3. PIPING QA PIPING INSPECTION SHEET, 5/16/71 4. CRC SYSTEM WELD DATA SHEET, 4/10/71 5. WELD INSPECTION SHEET, 5/18/71 6. WELD INSPECTION SHEET, QA PIPING, 8/17/72 7. FORM FROM BF-45, REV. 6 8. QA WELD INSPECTION SHEET, 12/7/71 9. HANGER INSPECTION SHEET, BF-47, REV. 4 10. INSPECTION DATA SHEET, BF-113, ATT. 2	586 TBK 3/4/86

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QUALITY AUDIT CHECKLIST

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
14.0	Documentation of technical and quality activities.	N/A A.MV 3/6/86	Reference items 2 through 13 and 15 through 17 of this checklist.	N/A A.MV 3/6/86 SWB 3/6/86

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QUALITY AUDIT CHECKLIST

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
15.0	Non-conformance and corrective actions.	(2) Sec 12 (3) Sec 15 & 16	1.0 Verify by review of controlling procedures, non-conformance reports and related corrective action reports.	ANX 3/4/86 ~~Ø~~ S
			2.0 A minimum of 20 non-conformance reports and related corrective action reports shall be reviewed.	See sheet 4 S
			3.0 This review shall include the welds listed in sheet 1 if applicable.	S
			The Following Procedures were used For Verification Activities: Construction Procedure NO BF-79 - "Deficiency, Deviation, or Non Conformance Reporting" Issue Date 10/4/72 | Rev. 1, Pg. 2 - 5/24/73 Revised — 11/15/72 | Rev. 1, Pg 1 - 5/24/73 Revised — 3/23/73 | Rev. 2 - 8/28/73 QAS-QAP-4.2 Dtd. 1/11/74 "Quality Problem Analyses System"	G.M.U. 3/6/86

BFP 30606

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QUALITY AUDIT CHECKLIST

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
16.0	Training programs.	~~N/A~~ A.M.Z. 3/4/86 (2) (3)	See checklist item No. 11. ° Construction Procedure NO. BF-27 Issue Date 9/30/69 & Rev. 1 - 5/8/73 "Program For Administration of NDT Personnel Qualification And Certification" ° Construction Procedure NO. BF-110 Dtd. 12/3/73 & 2/10/75 - "QA Training Program" ° QAS-QAP-4.1 Rev. 0 Dtd 1/11/74 - "QA Indoctrination Program	S, SWB 3/6/86 GRW 6 MAR 86 A.M.Z. 3/6/86

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QUALITY AUDIT CHECKLIST

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
17.0	Additional areas of concern as determined by a review of employee concerns.	N/A		
17.1	Concern No. XX-85-049-X03 and XX-85-069-006 regarding welder certification.		See item 3.0 in checklist.	S SEG 3-6-86 AWD 3/6
17.2	Concern No. XX-85-108-002 regarding weld inspections.		See item 10.0	GRH 6 MAR 86 S AWD 3/4/86 WBK

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QUALITY AUDIT CHECKLIST

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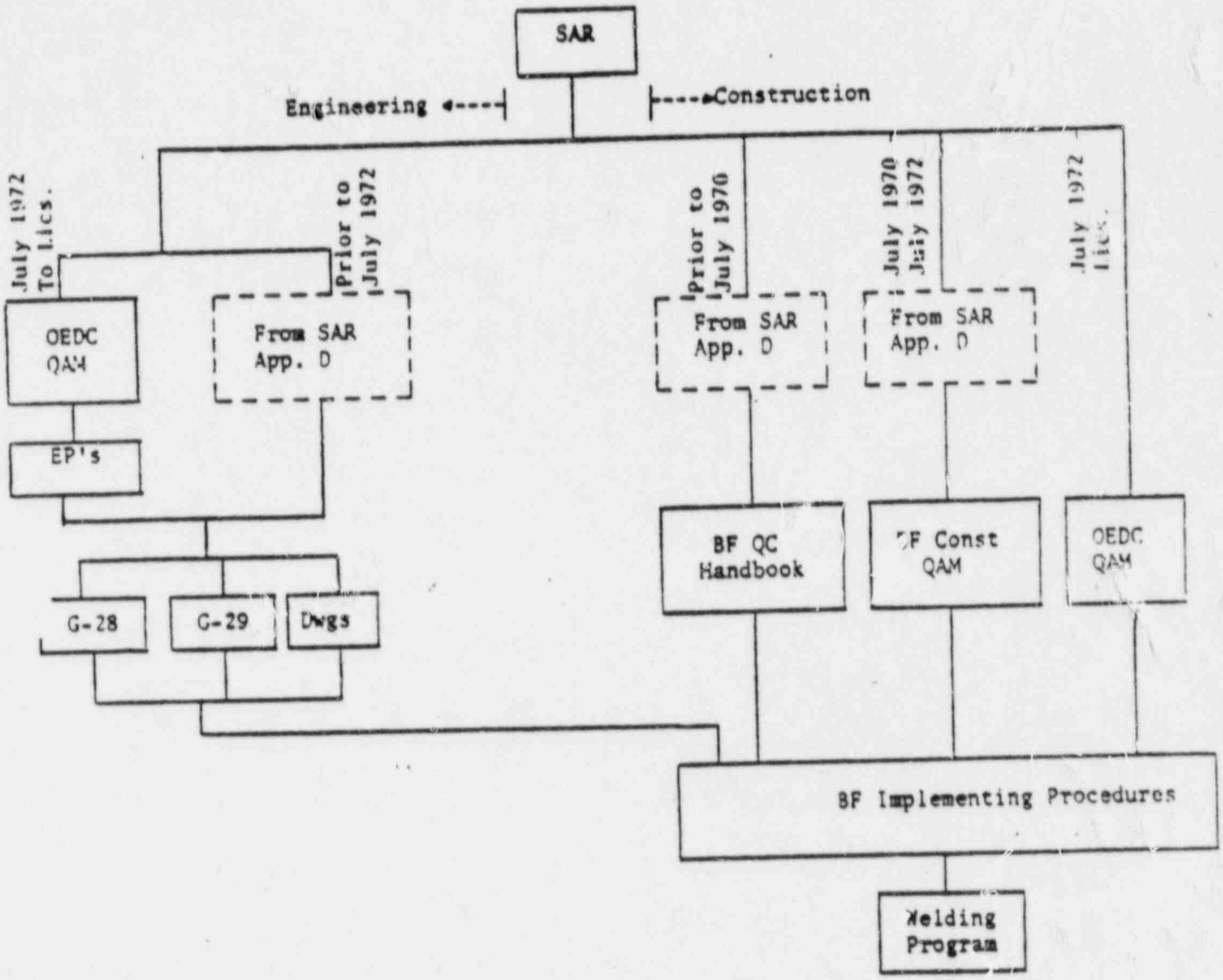
ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
17.3	Concern No. WI-85-053-004 and XX-85-68-006 regarding weld rod control satisfying code requirements.		See item 12.0.	S SWB 3/6/86 MGK

BFP 21

ATTACHMENT A

FLOW CHART OF BROWNS FERRY QUALITY ASSURANCE PROGRAM

OFFICE OF CONSTRUCTION



SAR - Safety Analysis Report
OEDC-QAM - Office of Eng. Design & Construction QA Manual
EN DES-EP's - Eng. Design - Engineering Procedures
G-28 - Construction of piping systems to boiling water reactor nuclear power plants.
G-29 - General Construction Specification for welding, heat treatment, nondestructive examination, and allied field fabrication operations.
BF QC Handbook - Browns Ferry Quality Control Handbook
BF Const QA Manual - Browns Ferry Construction QA Manual
BF Procedures - Browns Ferry Procedures

NOTE: Flow chart provided by TVA.

Note: Use items 1 - 12 for Office of Construction checklist. Use items 13 - 19 for Office of Nuclear Operations checklist.

Items for Inspection

OFFICE OF CONSTRUCTION

Sheet 1

PIPING

Item No.	Identification of weld	Drawing No.	System	Unit	Class	
1.	GR-1-60	CH-M-1081-C rev. 6	Recirculation	1	TVA Class A ANSI B31.1 Class	
2.	GR-3-46	CH-M-2139-C rev. 1	Recirculation	3	TVA Class A ANSI B31.1 Class	
3.	DRWC-1-61	CHM-1098-C rev. 2	Reactor Core Isolation Cooling (RCIC)	1	TVA Class B ANSI B31.1 Class	
4.	RCRD-2-43	CHM-2073-C rev. 3	Control rod drive	2	TVA Class B ANSI B31.1 Class	
5.	TRCIC-2-2	CHM-2073-C rev. 3	RCIC	2	TVA Class B ANSI B31.1 Class	
6.	DRHR-2-8	CHM-2070-C rev. 1 sheet 1	Residual Heat Removal	2	TVA Class A ANSI B31.1 Class	1
7.	THPCI-1-157	CHM-1099-C rev. 2	High Pressure Coolant Injection (HPCI)	1	TVA Class B ANSI B31.1 Class	
8.	THPCI-3-73A	CHM-2145-C rev. 1	HPCI	3	TVA Class B ANSI B31.1 Class	

PIPE HANGERS

Item No.	Identification	Drawing No.	System	Unit	Class	
9.	H-103	47W455-H-2 rev. A	HPCI	3	N/A	1
10.	R-13	47W456-1 rev. C	RCIC restraint	3	N/A	1

STRUCTURAL SUPPORTS

Item No.	Identification	Drawing No.	System	Unit	Class
11.	Square No. A5	45N816-3	Cable tray support	3	N/A
12.	Square No. 6A	45N888-1	Cable tray support	3	N/A

Rev. 1 3/4/86

WELDER QUALIFICATIONS

Welders Name	Stamp	Date of Initial Certification	Item No.	Are Welder Maintenance Records Satisfactory?	Renewal Date	Audit Status
	(Note 1)	(Note 2)	(Note 3)	(Note 4)	(Note 4)	
England	6T9	4-21-70	1	N/A	N/A	(See Note 5)
Peugh	6B69	2-25-71	1	N/A	N/A	S
Guthrie	6TT1	1-16-71	1	N/A	N/A	
Brindley	6S7	1-16-71	1	N/A	N/A	
Rhodes	6A3	5-15-72	2	N/A	N/A	
Evans	6F3	10-26-70	3	N/A	N/A	SRG 3-6-86
Young	6B9	7-21-70	4	N/A	N/A	(See Note 6)
Emmons	6D3	5-13-68 5-16-68	5	N/A	N/A	(See Note 7)
Roberts	6G6	4-30-71	6	N/A	N/A	S SRG 3-6-86
Rhodes	6A3	10-22-69 3-03-69	7	N/A	N/A	(See Note 8)
Guthrie	6LL3	10-09-70	7	N/A	N/A	(See Note 9)
Hunt	6RR8	3-25-71	8	N/A	N/A	S SRG 3-6-86
Pittman	6GG2	9-14-71 7-30-70	N/A	N/A	N/A	(See Note 10)
Cembow	6GG3	12-31-71 7-30-70	N/A	N/A	N/A	(See Note 11)

Items Chosen for Inspection

OFFICE OF NUCLEAR OPERATIONS

Sheet 1 (Continued)

PIPING AND EQUIPMENT (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Class
13.	GR-1-61	CH-M-1081-C rev. 6	Recirculation piping that was overlaid	1	MR#A-166738	TVA Class A ANSI B31.1 Class
14.	K (R-1)	48W 1260-1 rev. 2	Hatches added to pressure vessel in torus modification	2	WP# 6769	N/A
15.	Bay # 7 Mark 2 Penetration X-221-1 X-221-2 X-221-3 X-221-4	48W 1257-1 rev. 5	Piping torus modification for sleeves	3	WP# 13048	N/A

PIPE HANGERS (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Class
16.	GR-2-56 (H2 support)	CH-M-2068C rev. 4	Recirc. pipe hanger moved during IHSI	2	MR#A-190669	N/A 1
17.	TRH-2(modified weld I.D) Support No. R-52-1 R-52-2 R-52-3 R-52-4	47B455-55	Pipe hangers from torus modification to HPCI	3	WP# 13076	N/A 1

STRUCTURAL SUPPORT (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Class
18.	9-3-G25 Section F4-F4	46W414-2 rev. 3	Non-piping structural wire mesh partition	1	WP# 10305 rev. 1	N/A
19.	1-10-Z-R-1	48W1248-1 rev. 9	X & Y gussets structural support torus modification	1	WP# 10268	N/A

Rev. 1 3/4/86

WELDER QUALIFICATIONS

Welders Name	Stamp	Date of Initial Certification	Item No.	Are Welder Maintenance Records Satisfactory?	Renewal Date	Audit Status
	(Note 1)	(Note 2)	(Note 3)	(Note 4)	(Note 4)	
Stinson	6GG1	6-15-71 8-31-70	N/A	N/A	N/A	(See Note 12)
Foster	66A8	1-06-75	N/A	N/A	N/A	S
McGregor	66A9	10-06-75 1-03-75	N/A	N/A	N/A	
Thornton	66B1	1-14-75	N/A	N/A	N/A	
Henry	66B2	2-07-75	N/A	N/A	N/A	
Corum	66B3	2-27-75	N/A	N/A	N/A	
Hargrove	66B4	2-28-75	N/A	N/A	N/A	SRG 2-6-86
Butler	6J3	2-09-70 6-06-74	N/A	N/A	N/A	(See Note 13)
Partain	6J4	11-27-70 9-28-70	N/A	N/A	N/A	(See Note 14)
Terry	6J5	2-12-71	N/A	N/A	N/A	S SRG 2-6-86
Blevins	1C2	9-19-70 8-27-70	N/A	N/A	N/A	(See Note 15)
Letson	1C3	12-23-70	N/A	N/A	N/A	(See Note 16)

WELDER QUALIFICATIONS

Welders Name	Stamp	Date of Initial Certification	Item No.	Are Welder Maintenance Records Satisfactory?	Renewal Date	Audit Status
	(Note 1)	(Note 2)	(Note 3)	(Note 4)	(Note 4)	
Nichols	1E1	8-11-69 6-08-70	N/A	N/A	N/A	(See Note 17)
Hester	1E4	3-10-72 11-25-69	N/A	N/A	N/A	(See Note 18)
Merritt	1G1	3-24-70	N/A	N/A	N/A	(See Note 19)
Hicks	4A1	12-10-70	N/A	N/A	N/A	S SRG 3-6-86
Hayes	4A2	6-23-69 6-18-69	N/A	N/A	N/A	(See Note 20)
Gordon	4B1	11-26-75 9-12-69	N/A	N/A	N/A	(See Note 21)
Brickley	4B5	5-05-72 3-24-70	N/A	N/A	N/A	S
Quinn	4C9	11-10-75 6-17-71	N/A	N/A	N/A	
Myrick	5F2	11-29-68	N/A	N/A	N/A	
Plunkett	5D1	6-23-70	N/A	N/A	N/A	
Murphy	5-C	6-13-67	N/A	N/A	N/A	
Myric	5B2	7-16-70	N/A	N/A	N/A	
Williams	5B1	6-19-70 1-02-68	N/A	N/A	N/A	SRG 6-86

(Note 1) The stamp prefix number identifies the craft as follows:
1-Boiler Maker
4-Electrician
5-Iron Worker
6-Pipefitter

(Note 2) Many welders have multiple qualifications. Two dates listed indicates two separate welding processes or separate qualification codes.

(Note 3) Specific welder certifications are not traceable to weld joints for Items 9 thru 12. Items 9 thru 12 do not require welder traceability.

(Note 4) Welder maintenance records were not retained nor required to be retained per TVA Quality Assurance Manual. Therefore checklist items 4.0 and 5.0 are not auditable.

(Note 5) The welder qualification record does not specify or reference a procedure which specifies progression for vertical welding. Per qualified welding procedures and welding specifications dated March 1, 1965 progression is an essential variable for welder qualification. This comment applies to welder qualification records dated: 4-21-70 and 9-8-70.

(Note 6) Same comment as Note 5 applicable to welder qualification records dated: 7-21-70, 6-13-67, 9-1-70, and 3-5-70.

(Note 7) Same comment as Note 5 applicable to welder qualification records dated: 3-13-68 and 5-16-68.

(Note 8) Same comment as Note 5 applicable to welder qualification records dated: 10-22-69 and 3-3-69.

(Note 9) Same comment as Note 5 applicable to welder qualification record dated: 10-9-70.

(Note 10) Same comment as Note 5 applicable to welder qualification record dated: 7-30-70.

(Note 11) Same comment as Note 5 applicable to welder qualification record dated: 7-30-70.

S RG

(Note 12) Same comment as Note 5 applicable to welder qualification records dated: 8-31-70 and 8-28-70.

(Note 13) Same comment as Note 5 applicable to welder qualification records dated: 8-7-70, 2-9-70, 10-9-69, 4-7-69, and 4-2-69.

(Note 14) Same comment as Note 5 applicable to welder qualification records dated: 9-28-70 and 4-8-69.

(Note 15) Same comment as Note 5 applicable to welder qualification records dated: 10-31-68, 7-7-70, 10-17-69, 3-19-69, 10-3-68, and 10-29-68.

(Note 16) Same comment as Note 5 applicable to welder qualification record dated: 5-14-69.

(Note 17) Same comment as Note 5 applicable to welder qualification records dated: 6-8-70, 3-23-70, 11-6-69 and 8-11-69.

(Note 18) Same comment as Note 5 applicable to welder qualification records dated: 10-9-70, 3-30-70, 11-25-69 and 11-24-69.

(Note 19) Same comment as Note 5 applicable to welder qualification records dated: 3-23-70, and 3-24-70.

(Note 20) Same comment as Note 5 applicable to welder qualification record dated: 6-23-69.

(Note 21) Same comment as Note 5 applicable to welder qualification records dated: 10-23-70, 8-4-70, and 10-3-69.

SRG

INSPECTION PERSONNEL QUALIFICATIONS
(Training Records)

Inspector	Training	Hrs. of Training Time / date	Audit Status
D. Barnoy	Mass. Spec. Leak Test	105.5/~~1985~~ 1975	S
J. Walker	Mass. Spec. Leak Test	85.5/1975	S
C. Elledge	Mass. Spec. Leak Test	90.5/1975	S
K. Nichols	Mass. Spec. Leak Test	89.5/1975	S
T. Carden	Mass. Spec. Leak Test	53.5/1975	S

a.w.V. 3/7/86

OFFICE OF CONSTRUCTION
INSPECTOR PERSONNEL QUALIFICATIONS

Inspector	Qualification	Dates	Audit Status
Bailey, Billy K.	PT II	26 Feb 72	S
	PT II recertification	23 Feb 73	
	PT II recertification	22 Feb 74	
	RT II	25 Apr 72	
	RT II recertification	10 Apr 73	
	RT II recertification	6 Apr 74	
Bentley, Norman E.	RT III	1 Dec 81	
	UT III	22 Dec 81	
Boney, Samuel J. Sr.	none specified III by appointment	3 Nov 70	
Brown, W.	RT II	22 Apr 72	
	RT II recertification	20 Apr 73	
	RT II recertification	8 May 74	
	PT II	10 Mar 71	
	PT II recertification	8 Mar 72	
	PT II recertification	5 Mar 73	
	PT II recertification	8 May 74	
Burch, R. Lloyd	PT II	15 May 72	
	PT II recertification	10 May 73	
	PT II recertification	6 May 74	
Hardy, Edward S.	PT II	10 Mar 71	
Hasting, Kenneth A.	RT II	5 Feb 72	
	RT II recertification	5 Feb 73	
Thompson, Jack B.	PT II	5 Jun 73	
	PT II recertification	5 Jun 73	
	PT II recertification	8 May 74	
	PT II recertification	8 Mar 75	
Self, John W.	PT II	15 Apr 72	
	PT II recertification	11 APR 72	
	RT II	1 May 72	
Andrews, George K.	PT II	26 Feb 72	
	PT II recertification	23 Feb 73	
	PT II recertification	22 Feb 74	
	RT II	11 Mar 72	
	RT II recertification	23 Feb 73	GRH
	RT II recertification	22 Feb 74	7 MAR 86

OFFICE OF CONSTRUCTION
INSPECTOR PERSONNEL QUALIFICATIONS

RANDOM SAMPLINGS

Inspector	Qualification	Dates	Audit Status
Byrd, John D.	PT II	5 Jun 72	S
	PT II recertification	5 Jun 73	
	PT II recertification	23 May 74	
Cole, Justin L.	PT II	20 May 72	
	PT II recertification	11 Apr 73	
Herbert, Johnson, L	PT II	23 May 72	
	PT II recertification	23 May 73	
	PT II recertification	8 May 74	
King, John W.	PT II	8 Jun 73	
	PT II recertification	8 Jun 73	
Linginfelter	PT II	5 Jun 72	
	PT II recertification	5 Jun 73	
	PT II recertification	6 May 74	
	UT II	15 Sep 72	
	UT II recertification	14 Sep 73	
	UT II recertification	6 Jun 74	
	RT II recertification	15 Jan 74	
	RT II recertification	6 Jun 74	
Massey, Robert E.	PT II	15 Jan 73	
	PT II recertification	15 Jan 74	
	PT II recertification	2 Dec 74	
Mee, Kenneth, C	PT II	27 Mar 81	
Nichols, Kenneth C	PT II	9 Feb 71	
	PT II recertification	7 Feb 72	
	PT II recertification	7 Feb 73	
	PT II recertification	7 Feb 74	
	PT II recertification	23 May 74	
	UT II	19 Feb 72	
	UT II recertification	16 Feb 73	
	UT II recertification	15 Feb 74	
	UT II recertification	28 May 74	GRH
	RT II	11 Mar 72	7 MAR 86

OFFICE OF CONSTRUCTION
INSPECTOR PERSONNEL QUALIFICATIONS

RANDOM SAMPLINGS

Inspector	Qualification	Dates	Audit Status
Olson, Robert W.	PT II	25 Sept 72	S
	PT II recertification	25 Sept 73	
	PT II recertification	6 May 74	
Wages, Charles W.	RT III Appointment	26 Mar 74	
	UT III		
	MT III		
	PT III		
	ET III		
	RT III Appointment	10 Jun 75	
	UT III		
	MT III		
	PT III		
	ET III		

RADIOGRAPHIC PERSONNEL

Hasting, Kenneth	RT II	5 Feb 72	GRH
	RT recertification	5 Feb 73	7 MAR 86

REVIEW OF NONCONFORMANCE REPORTS AND CORRECTIVE ACTION

NCR NO.	Date	Corrective Action	Audit Status
DDN-30	12/29/72	12/29/72	S
DDN-48	4/05/73	4/11/73	
DDN-110	4/25/73	4/26/73	
DDN-111	4/26/73	5/01/73	
DDN-113	5/04/73	5/24/73	
DDN-131	5/22/73	6/18/73	
DDN-147	6/11/73	6/25/73	
DDN-156	3/17/73	8/28/73	
DDN-157	8/20/73	9/17/73	
DDN-161	9/18/73	10/05/73	
DDN-201	10/29/74	11/08/74	
DDN-203	10/29/74	12/03/74	
DDN-221	10/27/75	11/11/75	
DKF-6902-1	2/19/69	2/25/69	
DKF-6902-2	2/19/69	2/25/69	
DKF-74-2-2	2/74	4/29/74	
DKF-7001-2	1/26/70	1/26/70	
DKF 7101-19	1/29/71	2/03/71	
DKF 7101-21	1/29/71	2/03/71	
DKF-N74-4-15	7/09/74	6/27/74	

G.M.V. 3/6/86

OFFICE OF CONSTRUCTION
DRAWING REVIEW

Drawing No.	Rev.	System	Date	Audit Status
47C430	1	Recirculation System Piping, Units 1, 2, & 3	12/28/71	S
CH-M1081-C	6	Weld ID, Recirc. System	6/05/81	
CH-M-2139	1	Weld ID, Recirc. System	9/02/81	
CH-M-1098-C	3	Weld locations, Reactor Core Isolation Cooling	7/27/81	
CH-M-2073-C	3	Weld Identification, Reactor Water Clean-Up & RCIC	7/01/81	
47W456	9	Reactor Core Isolation Cooling System	2/06/73	
CH-M-2070-C	1	Weld Locations, Residual Heat Removal (RHR)	3/25/81	
CH-M-1099-C	2	Weld Identification, High Pressure Coolant Injection	3/21/81	
CH-M-2145-C	1	Weld Identification, High Pressure Coolant Injection (HPCI)	7/07/81	
47W455-H-22	A	Mechanical High Pressure Coolant Injection	Restored 5/29/75	
47W456	C	Mechanical Reactor Core Isolation Cooling System Issued to Depict as-constructed Endes, Rev. 29	4/22/85	
Bergen-Patterson	3	RCIC Pipe Support	5/31/72	
45N830-1	D	Conduit & Grounding, Cable Trays	10/22/85	
45N816-3	5	Conduit & Grounding, EL. 664.0 Plan	11/15/85	
45N888-1	7	Conduit & Grounding, Floor Plan	11/20/81	

TBK
3/8/86

OFFICE OF CONSTRUCTION
REVIEW OF WELD AND HEAT TREATMENT PROCEDURES

Procedure No.	Rev. No.	Date	Audit Status
GT-SM88-0-1A & PQR	2	8/31/72	S
GT-SM11-0-3 & PQR	5	12/19/72	
GT-SM11-0-3 & PQR	5	12/19/72	
GT-18-0-1 & PQR	0	12/10/70	
GT-GM11-0-2 & PQR	3	12/19/72	
GT11-0-1 & PQR	0	12/07/70	
WS-1811R-1	0	3/01/65	
WS-1111R-1	0	3/01/65	
WS-4411R-1	0	3/01/65	
SM11-8-3	2	1/05/73	
Note 4, E 70XX, Dwg. 45N830-1	D	10/22/85	
WS-111 1R-2	0	3/01/65	
Post Weld Heat Treatment of Carbon Steel Pipe, BF-19	4	9/12/73	
Heat Chart, Unit 1	N/A	4/07/72	
Heat Chart, Unit 3	N/A	11/14/74	
Qualified Welding Procedures and Welding Specifications for Field Welding of Principal Piping, Low Pressure and Service Piping, Steam Turbines, and Boiler Connections.	0	3/01/65	AF-03-03 O
SM48-8-1 & PQR	1	2/28/75	O

[initials]
3/8/86

WELD FILLER METAL
OFFICE OF CONSTRUCTION

No.	Item No. (per Sheet 1)	Contract No	Heat No.	Lot No.	Material	Date Received*	Date Welded	Audit Status
1	1		45130	-	ER308	Note 1	3/71	S
2	1		05924	-	E308-16	Note 1	3/71	
3	1		29846		E308-16	Note 1	3/71	
4	1		29825	-	E308-16	Note 1	6/72	
5	2		none listed	-	ER308	Note 1	5/71	Note 2 S
6	3		302701	-	E7018	Note 1	5/71	Note 3 AF (AF-04-OC)
7	3		09L521	-	E70S-3	Note 1	5/71	S
8	4	32-79246	7-10279	-	ER309	Note 1	4/71	Note 4 AF
9	6	-	none listed		ER308	Note 1	9/72	Note 2 S
10	7	-	00147		E70S-G	Note 1	11/70	Note 6 AF
11	7	-	89D627		E60S-3	Note 1	12/71	Note 5 AF
12	8	-	82B317		E70S-3	Note 1	12/71	Note 7 AF
13	8	-	07L354		E7018	Note 1	12/71	S
14	-	72x32-60480-3	3636	-	Inconel 182	11/72	—	
15	-	73x33-60480-2	58063	-	ER308	6/73	—	
16	-	70C32-83516	625537	-	E60S3	9/73	—	
17	-	72x32-60480-1	641212	-	E70S3	12/75	—	

SWB
?18/86

* Materia[illegible] [illegible]pection report approved.

WELD FILLER METAL
OFFICE OF CONSTRUCTION

No.	Item No. (per Sheet 1)	Contract No.	Heat No.	Lot No.	Material	Date Received*	Date Welded	Audit Status
18	-	71C32-82044	OF23B Mix 13	-	E308L-16	4/18/71	-	S
19	-	71C32-82001	56B1	-	Inconel 82 ERNICR-3	3/25/71	-	
20	-	71C32-82009	55B9	-	Inconel 82 ERNICR-3	2/24/71	-	
21	-	71C32-82009	59B8D	-	Inconel 82 ERNICR-3	2/24/71	-	
22	-	71C32-82009	3102	-	Inconel 182 ENICRFE-3	3/22/71	-	
23	-	75K12-70828	AA-1004225	-	ER5356	8/75	-	
24	-	75C32-79377	26188	4336-22144	E70018	12/74	-	
25	-	72C32-54572	48573	8059	ER308	5/15/72	-	
26	-	72x32-60480-1	402J9741	3121242	E7018	2/23/73	-	
27	-	72x32x6080-1	401M7411	2640132	E7018	8/74	-	
28	-	70C32-83516	422C3841	-	E70S3	11/71	-	
29	-	70C32-83516	432C1271	-	E7018	10/71	-	
30	-	70C32-83516	30115	-	E308-16	10/71	-	
31	-	70C32-83516	610327	-	E308-16	10/71	-	Note 8 AF
32	-	70C32-83516	B-20443	-	ER309	10/71	-	S

*Date material inspection report approved.

SWB
3/6/86

OFFICE OF CONSTRUCTION
NOTES

1. No receiving reports (form 209's) available which gives QA documentation of inspection.

2. Procedure #BF 45 rev. 3, May 11, 1972 changed requirements and heat no's were no longer required on weld history records.

3. Contract required 1) impact testing and 2) tensile testing in the as welded and heat treated condition. CMTR does not give 3 values for impact data as required by contract; CMTR also does not give information that heat treated tensile specimens were tested.

4. No information on CMTR as to what standard the information was tested to as required by contract. The material does conform to the contract requirements of ASTM A371, ER 309.

5. Contract required impact testing. CMTR does not give any impact test data.

6. Contract required impact testing and tensile testing. CMTR does not give any impact or tensile testing. CMTR does not give any impact or tensile test data.

7. Contract required impact testing at -20F. CMTR does not give test temperature of impact testing.

8. The receiving report (form 209) was approved with heat no. and material (carbon steel) not matching the CMTR that had the same heat no. but different material (stainless steel).

SWB
3/8/86

RADIOGRAPHIC REVIEW
OFFICE OF CONSTRUCTION

Item No.	Weld	Drawing No.	Procedure	RT-Date	Audit Status	Comments
1	TRCIC 2-2	CHM 2073-C	Rev. 3 BF 15	23 May 71		K. Hasting RT-II 5 Feb 72
2	DRHR 2-8	CHM 2070-C	Rev. 1 BF 15	6 Sept 72		K. Hasting RT-II 5 Feb 72
3	GR-1-62	-	BF 15	12 Feb 71		Random
4	TRHR 2-479F	-	BF 15	-		Random
5	TCS 3-280	-	BF 15	-		Random

BECHTEL NDE LEVEL III [signature] 8 MAR 1986

QUALITY AUDIT CHECKLIST
COVER SHEET

A

1 AUDIT AREA: TVA

2 AUDIT TITLE: Welding Project Audit

3 CHECKLIST NO.: TVA 02-NO

B

4 PROJECT: Browns Ferry

8 AUDIT NO.: 2-86

5 JOB NO.: 16985

9 AUDIT DATE:

6 TYPE OF AUDIT: Welding Program

10 AUDITOR: See page (2)

7 ORGANIZATIONS AUDITED: (NO) - Nuclear Operations

C

11 NO.	12 REFERENCE * See Attachment B	13 REVISION	14 DATE
1	Topical Report (TR 75-1)	8	N/A
2	NQAM	N/A	license to 11/14/85
3	N73M2	N/A	license to 12/20/85
4	N80E3	N/A	license to 1/12/85

15 REV. NO.	16 PREPARED BY	17 DATE	18 APPROVED BY	19 DATE
0	See page 2	2/2?/86	A. M. Vuksan AMV	?/20/86
1	Corrections to Sheet 1	3/4/86	AMV	3/4/86

SFP 20508

AUDIT TEAM

A. M. Vuksan	Audit Team Leader
S. R. Garreffa	Auditor
~~W.~~ Keyser	Auditor
S. Borenstein	Auditor
G. R. Henke	Auditor

Signature	Initials
A. M. Vuksan	A.M.V.
S. R. Garreffa	SRG
W. B. Keyser	WBK
S W Borenstein	SWB
Gary R Henke	GRH

Legend
S = Satisfactory
O = Observation
AF = Audit Finding

Cross-checking by auditors signified by circled initials in audit result column.

Browns Ferry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-MO

PAGE 3 OF 20

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
1.0	Preparation for Audit of Welding Activities	(1) (2) (3) (4)	1.0 Determine and identify applicable documents, the required edition, addenda, revision or amendments of specific manuals, specifications, standards, and procedures which apply.	Sheet 1 N/A AMV 3/6/86 SRG 3/6/86 MBC 3/6/86 GRH 6MAR86 SWB 3/6/86
1.1	Identification of Governing Documents (Manuals, Specifications, Standards, Procedures).		2.0 Randomly select systems and items by drawing review. Select specific welds to be audited.	
1.2	Determine what to audit.		3.0 The welds shall be a cross section from safety related systems to allow complete access to all applicable weld programs, procedures and specifications. Enter selected items on sheet 1. * Not Applicable As An Audit Key Element	

BFP 20806

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
2.0	Adequacy of design output documents. *	(1) Sec 17.0 Sec 17.1, Sec 17.2 (2) Part II, Sec 3; Sec 6 (3)	1.0 Sample a minimum of 15 drawings for adequacy; i.e. where applicable drawing number, revision number, title, details and weld symbols.	See sheet 5 S
	* "Adequacy of Design Output Documents" The tec[illegible]ical or engineering adequa[illegible] of the design output documents is not to be researched; their [illegible]quacy is to be checked in the sen[illegible] of completeness of inform[illegible]ion for the organization or indi[illegible]iduals who must use the document to continue forward with t[illegible] program.		2.0 Sample 10 welding procedures for adequacy; i.e. welding variables given.	See sheet 6 S
			3.0 Verify procedure qualification records.	S
			4.0 The above samples shall include the drawings and welding procedures identified in sheet 1.	SRG 3/4/86

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QUALITY AUDIT CHECKLIST

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
3.0	Initial welder or welding operator qualifications. APPLICABLE WELDER QUALIFICATION PROCEDURES : GENERAL WELDING PROCEDURE SPECIFICATIONS 1.M.1.2 /REV-4 / 1-24-85 0.C.1.1 /REV-0 / 3-9-83 1.C.1.2 /REV-2 / 3-2-82 1.E.1.1 /REV-2 / 3-7-83 WELDER PERFORMANCE QUALIFICATION 1.M.2.2 /REV-3 / 1-24-85 1.C.2.2 /REV-1 / 3-4-83	(1) Sec 17.0 (2) Part II, Sec 6 (3)	1.0 Verify that welders* are qualified in accordance with TVA approved procedures. 2.0 Examine a minimum of 20 initial welder qualifications. This sample shall include welders identified per weld number in sheet 1. 3.0 List applicable welder qualification procedures. SEE LEFT HAND COLUMN * For the purpose of this audit the term welders shall include welders and welding operators.	S See sheet 2 S SBK SEG 3-6-86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO
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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
4.0	Maintenance of welder or welding operator qualifications	(1) Sec 17.0 (2) Part II, Sec 6 (3)	1.0 Examine the maintenance records for a minimum of 20 welders to verify welding within welder certification expiration dates. 2.0 List applicable welder qualification procedures for review. WELDER PERFORMANCE QUALIFICATION 1.M.2.2 / REV-3 / 1-24-85 1.C.2.2 / REV-1 / 3-4-83 WELDER QUALIFICATION CONTINUITY REQUIREMENTS AND RECORDS DPM NO. N73M2 SUPPLEMENT B, 12-20-85 NOTE: MAINTENANCE RECORDS AND CONTINUITY RECORDS ARE SYNONYMOUS SRG 3-7-86	See sheet 2 S JBK SRG 3-6-86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
5.0	Renewal of welder or welding operator qualifications.	(1) Sec 17.0 (2) Part II, Sec 6 (3)	1.0 Examine the maintenance records for a minimum of 10 welders to verify renewal. 2.0 List applicable welder qualification procedures. WELDER PERFORMANCE QUALIFICATION 1.M.2.2 / REV-3 / 1-24-85 1.C.2.2 / REV-1 / 3-4-83 WELDER QUALIFICATION CONTINUITY REQUIREMENTS AND RECORDS DPM NO. N73M2 SUPPLEMENT B, 12-20-85 NOTE: MAINTENANCE RECORDS AND CONTINUITY RECORDS ARE SYNONYMOUS. SRG 3-7-86	See sheet 2 S SRG 3-6-86 HK

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO
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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
6.0	Initial welding inspection personnel qualifications. TVA OFFICE NUCLEAR POWER NUCLEAR TRAINING PROGRAM QUALIFICATION & CERTIFICATION PROGRAM FOR NONDESTRUCTIVE EXAMINATION PERSONNEL PROCEDURE 0202.14 9 Aug 1985 △0 FORMERLY DPM N75C01 2 APRIL 1981	2) Part II, Sec 6.3 3) 4)	1.0 Review inspector personnel qualification records using the welds selected for the audit as the means for identifying inspectors. PERSONNEL IDENTIFIED ON SHEET 3	See sheet 1 S
			2.0 Review qualification records for compliance with referenced procedures.	
			3.0 Randomly select qualification records for a minimum of 10 additional welding inspection personnel and review.	See sheet 3
			4.0 List procedures used for qualification of inspection personnel. SEE DOCUMENTS LISTED AT LEFT	[illegible] 3/6/86 GRH 6 MAR 86

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Browns Ferry

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
7.0	Maintenance of welding inspection personnel qualification.	(2) Part II Sec 6.3 (3) (4)	1.0 Review welding inspection personnel qualification records for completeness and re-certificaton compliance to identified procedure. RECERTIFICATION STATUS OF INSPECTION PERSONNEL INDICATED ON SHEET 3	S
			2.0 As a minimum, review qualification records on 10 personnel.	See sheet 3
	TVA OFFICE NUCLEAR POWER NUCLEAR TRAINING PROGRAM QUALIFICATION & CERTIFICATION PROGRAM FOR NONDESTRUCTIVE EXAMINATION ~~PROCEDURE~~ GRH 6 MAR 86 PERSONNEL PROCEDURE 0202.14 0 9 JULY 1985 FORMERLY DPM N 75C01 2 APRIL 1981		3.0 List the applicable procedures used. SEE DOCUMENTS LISTED ON LEFT	GRH 6 MAR 86 [illegible] 3/6/86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO
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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
8.0	Renewal of welding inspection personnel qualification.	(2) Part II Sec 6.0 (3) (4)	1.0 Select and identify a minimum of 10 inspection personnel qualifications. RECERTIFICATION STATUS OF INSPECTION PERSONNEL INDICATED ON SHEET 3 2.0 Review for renewal of qualifications in accordance with TVA procedures. Identify controlling procedures and list below. TVA OFFICE NUCLEAR POWER NUCLEAR TRAINING PROGRAM QUALIFICATION + CERTIFICATION PROGRAM FOR NONDESTRUCTIVE EXAMINATION PERSONNEL PROCEDURE 0202.14 △0 9 JULY 1985 FORMERLY DPM N75C01 2 APRIL 1981	See sheet 3 S GRH 6 MAR 86 a.m.v. 3/6/86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
9.0	Use of appropriate welding procedures.	(2) Part II Sec 6 (3)	1.0 Identify welding and heat treatment procedures applicable to welds listed on sheet 1.	S
			2.0 List welding and heat treatment procedures on sheet 6.	
			3.0 Verify that the welding procedures are applicable to referenced weld joints.	S
			4.0 Verify that heat treatment procedures have been used where applicable. SPECIFICATION FOR POST WELD HEAT TREATMENT, P.S. 2.M.1.1, REV. 4, 1/24/85 NO NUCLEAR OPERATION ITEMS REQUIRED POST WELD HEAT TREATMENT.	S SRG [illegible] 3/4/86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO
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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
10.0	Use of appropriate inspection procedures. QUALITY ENGINEERING MANUAL N-VT-1 (4) 2 APR 1983 N-VT-2 (2) 1 JUL 1982 N-VT- (4) 23 APR 1984 N-PT- (5) 2 APR 1983 N-MT-1 (3) 27 MAY 1982 N-UT-18 (2) 30 SEP 1982 N-UT-25 (1) 11 MAY 1983	(2) Part II Sec 6 (3) (4)	1.0 Identify and review inspection procedures used for examination of welds identified for audit. 2.0 Verify that the inspection procedures are applicable to referenced weld joints. SEE DOCUMENTS LISTED ON LEFT	See sheet 1 S GRH 6 MAR 86 GMB 3/6/86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
11.0	Use of appropriately trained and qualified personnel.	(2) Part II, Sec 5; Part III, Sec 6 (3) (4)	1.0 Identify programs and procedures used for training of personnel. Using the welds selected for audit, identify a minimum of 10 personnel training and qualification records.	See sheet 3 BF-01-NO a.m.v. 3/6/86
			2.0 Review training records for compliance and completeness with governing procedures.	S a.m.v. 3/6/86
			3.0 List applicable procedures used. o PROCEDURE 0202.14 REV.0 - 7/9/85 (Formerly DPM N75C01 - 4/2/1981). NDE Personnel Qualification Certification Practice All NDE Methods o PROCEDURE BF-SDSP-3.3 REV. 2 "Training & Certification of Survey Personnel."	S a.m.v. 3/6/86

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QUALITY AUDIT CHECKLIST

Checklist No. TVA-02-NO

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Item	Element Characteristic	Reference	Method of Verification	Audit Result
12.0	Use and control of welding filler materials. Procedures from N73M2 1.M 1 "General welding procedure" continues to present 1.M 3 "Spec for welding materials control" continues to present N76A10 "Purchase spec for CSSC material" BF 16.4 Std Practice "Material, components and spare part receipt..." BF 6.2 Std Practice "Quality Control of welding activities"	2) Part II, Sec 6; Part III, Sec 2.2 & Sec 2.3 3)	1.0 Verify that weld filler control procedures exist. See Item 2.0 Below 2.0 List weld filler control procedures. 3.0 Review a minimum of 25 filler material CMTRs against weld material specifications, and QA documentation of inspection.	O See sheet 7 [illegible] SWB 3/4/86 [illegible] 3/4/86

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QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

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ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
13.0	Inprocess control of welding.	(2) Part II, Sec 6 (3)	1.0 Identify and list the TVA documents that control welding operations. Review documents for adequacy to program requirements. NQAM, N73M2, BF-6.2, BF-7.6	S
			2.0 Examine a minimum of 10 operation checklists (travelers) for procedure compliance. SEE BELOW	S
			3.0 Sample shall include welds identified in sheet 1. 1. SECTION XI REPAIR CHECKLIST, BF MMI 138, AND OVERLAY TRAVELER FOR WELD GR-1-61. 2. WELD DATA SHEET FOR WORKPLAN 6769 3. WELD DATA SHEET FOR WORKPLAN 13048 4. REPAIR/REPLACEMENT CHECKLIST FOR A190669 5. WELD DATA SHEET FOR WORKPLAN 13076 6. WELD DATA SHEET FOR WORKPLAN 10305 7. WELD DATA SHEET FOR WORKPLAN 10268 8. WELD DATA SHEET FOR WORKPLAN 13073 9. WELD DATA SHEET FOR WORKPLAN 13044 10. WELD DATA SHEET FOR WORKPLAN 2076-84	SRG TBK 3/4/86

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Browns Ferry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TV:-02-NO

PAGE 16 OF 20

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
14.0	Documentation of technical and quality activities.	N/A	Reference items 2 through 13 and 15 through 17 of this checklist. * Activity Verified By Above.	N/A * 3/6/86 GMV

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Browns Ferry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
15.0	Non-conformance and corrective actions. Control of this activity is NQAM-Part III section 7.2 & Procedure BF 10.3 dtd 1981 thru 1985-"Corrective Action Program".	2) Part III, Sec 7	1.0 Verify by review of controlling procedures, non-conformance reports and related corrective action reports.	S
			2.0 A minimum of 20 non-conformance reports and related corrective action reports shall be reviewed.	See sheet 4 S
			3.0 This review shall include the welds listed in sheet 1 if applicable.	S
				a.m.d. 3/4/86 SRC. 3/6/86

Browns Ferry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

PAGE 18 OF 20

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
16.0	Training programs.	~~N/A~~ Q.M.D. 3/6/86 (2) Part II Sect 5 Part III Sect. 6	See checklist item No. 11. ° Procedure 0202.14 Rev.0 · 7/19/85 (Formerly DPM N75601 ~~N75701~~ Amd. 3/6/86 - 4/2/1981). "NDE Personnel Qualification Certification Practice For All NDE Methods Including Visual Examination." ° NQAM - Part II Sect. 5.3A Rev. date 7/9/84 "Training and Certification Program For Quality Control Inspectors." ° Procedure BF-SASP-3.3 Rev.2 - "Training & Certification of Survey Personnel."	S SWD 3/6/86 Q.M.D. 3/6/86

Browns Ferry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO
ITEM 19 OF 20

ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
17.0	Additional areas of concern as determined by a review of employee concerns.	N/A		
17.1	Concern No. XX-85-049-X03 and XX-85-069-006 regarding welder certification.		See item 3.0 in checklist.	S SEG 3-6-86 a.m.V. 3/6/86
17.2	Concern No. XX-85-108-002 regarding weld inspections.		See item 10.0	S GRH 6 MAR 86 a.m.V. 3/6/86
17.3	Concern No. WI-85-053-004 and XX-85-68-006 regarding weld rod control satisfying code requirements.		See item 12.0.	S SWB 3/6/86 a.m.V 3/6/86

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Browns Ferry
Site

QUALITY AUDIT CHECKLIST

CHECKLIST NO. TVA-02-NO

PAGE 20 OF 20

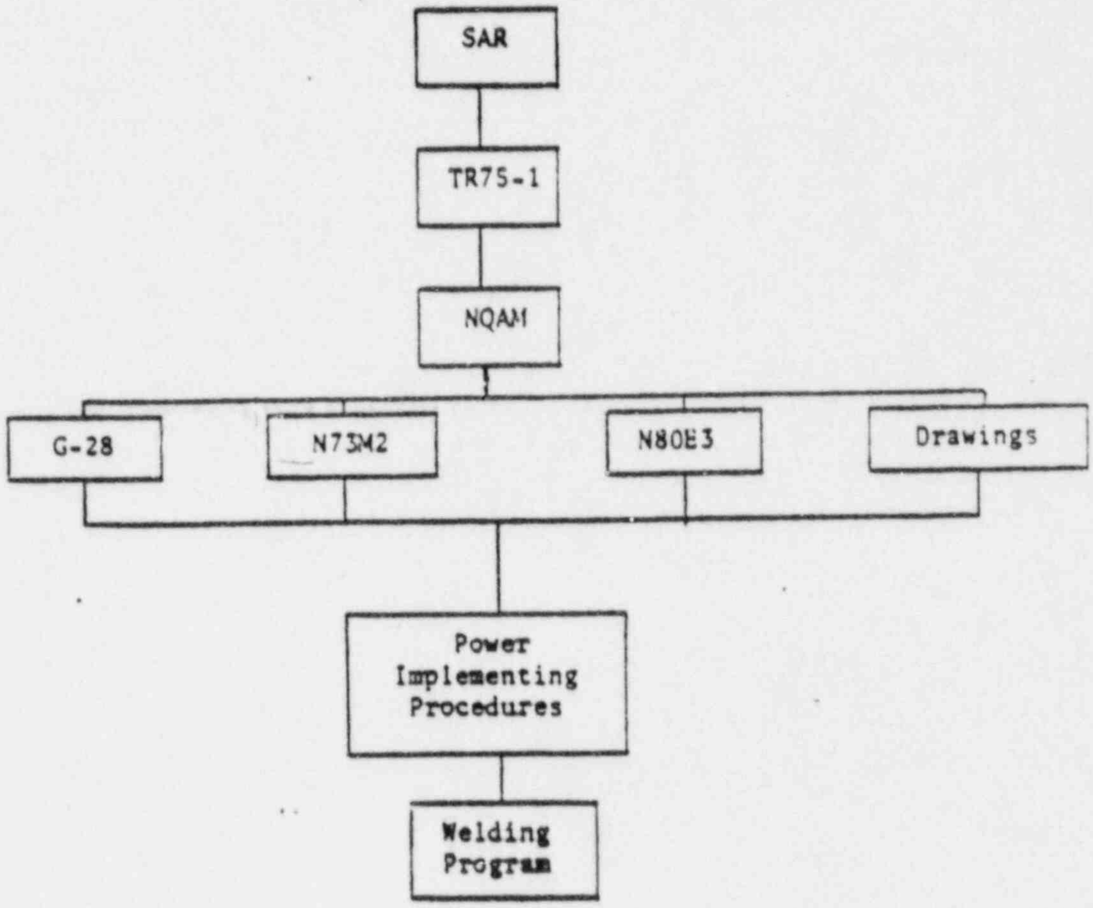
ITEM	ELEMENT CHARACTERISTIC	REFERENCE	METHOD OF VERIFICATION	AUDIT RESULT
17.4	Concern No. XX-85-102-004 regarding inspection and verification of corrective action of notice of indications (NOIs).	SURVEILLANCE INSTRUCTION 4.6.G	~~See item 10.0.~~ SRG 3-6-86 REVIEW A MINIMUM OF 10 (NOIs) FOR COMPLIANCE WITH TVA PROCEDURES. SRG 3-6-86	S SRG 3-6-86 3/6/86 WAC

BFF 20

ATTACHMENT B

FLOW CHART OF BROWNS FERRY QUALITY ASSURANCE PROGRAM

OFFICE OF NUCLEAR OPERATIONS



SAR - Safety Analysis Report

TR75-1 - Topical Report

N73M2 - Process specs for welding, heat treatment, and allied field operations

N80E3 - Nondestructive examination procedures

NQAM - Nuclear Quality Assurance Manual

G-28 - Construction of piping systems for boiling water reactor nuclear power plants.

ote: Use items 1 - 12 for Office of Construction checklist.
Use items 13 - 19 for Office of Nuclear Operations checklist.

Items for Inspection

OFFICE OF CONSTRUCTION

Sheet 1

PIPING

Item No.	Identification of weld	Drawing No.	System	Unit	Class	
1.	GR-1-60	CH-M-1081-C rev. 6	Recirculation	1	TVA Class A ANSI B31.1 Class	
2.	GR-3-46	CH-M-2139-C rev. 1	Recirculation	3	TVA Class A ANSI B31.1 Class	
3.	DRWC-1-61	CHM-1098-C rev. 2	Reactor Core Isolation Cooling (RCIC)	1	TVA Class B ANSI B31.1 Class	
4.	RCRD-2-43	CHM-2073-C rev. 3	Control rod drive	2	TVA Class B ANSI B31.1 Class	
5.	TRCIC-2-2	CHM-2073-C rev. 3	RCIC	2	TVA Class B ANSI B31.1 Class	
6.	DRHR-2-8	CHM-2070-C rev. 1 sheet 1	Residual Heat Removal	2	TVA Class A ANSI B31.1 Class	1
7.	THPCI-1-157	CHM-1099-C rev. 2	High Pressure Coolant Injection (HPCI)	1	TVA Class B ANSI B31.1 Class	
8.	THPCI-3-73A	CHM-2145-C rev. 1	HPCI	3	TVA Class B ANSI B31.1 Class	

PIPE HANGERS

9.	H-103	47W455-H-2 rev. A	HPCI	3	N/A	1
10.	R-13	47W456-1 rev. C	RCIC restraint	3	N/A	1

STRUCTURAL SUPPORTS

11.	Square No. A5	45N816-3	Cable tray support	3	N/A
12.	Square No. 6A	45N888-1	Cable tray support	3	N/A

Rev. 1 3/4/86

Items Chosen for I..pection

OFFICE OF NUCLEAR OPERATIONS

Sheet 1 (Continued)

PIPING AND EQUIPMENT (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Class
13.	GR-1-61	CH-M-1081-C rev. 6	Recirculation piping that was overlaid	1	MR#A-166738	TVA Class A ANSI B31.1 Class
14.	K (R-1)	48W 1260-1 rev. 2	Hatches added to pressure vessel in torus modification	2	WP# 6769	N/A
15.	Bay # 7 Mark 2 Penetration X-221-1 X-221-2 X-221-3 X-221-4	48W 1257-1 rev. 5	Piping torus modification for sleeves	3	WP# 13048	N/A

PIPE HANGERS (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Class
16.	GR-2-56 (H2 support) TRH-2(modified weld I.D)	CH-M-2068C rev. 4	Recirc. pipe hanger moved during IHSI	2	MR#A-190669	N/A 1
17.	Support No. R-52-1 R-52-2 R-52-3 R-52-4	47B455-55	Pipe hangers from torus modification to HPCI	3	WP# 13076	N/A 1

STRUCTURAL SUPPORT (MODIFIED)

Item No.	Identification Of Weld	Drawing No.	System	Unit	Workplan No.	Class
18.	9-3-G25 Section F4-F4	46W414-2 rev. 3	Non-piping structural wire mesh partition	1	WP# 10305 rev. 1	N/A
19.	1-10-Z-R-1	48W1248-1 rev. 9	X & Y gussets structural support from torus modification	1	WP# 10268	N/A

WELDER QUALIFICATIONS

Welders Name (Note 1)	Stamp	Craft	Date of Initial Certification (Note 2)	Item No.	Are Welder Maintenance Records Satisfactory?	Renewal Date (Note 3)	Audit Status
Brannon	G-1	GAPCO	4-26-83	13	N/A	N/A	S
Baldwin	G-2	GAPCO	4-28-83	13	N/A	N/A	
Taft	G-3	GAPCO	4-29-83	13	N/A	N/A	
Dumas	G-4	GAPCO	5-02-83	13	N/A	N/A	
Buttons	G-5	GAPCO	5-08-83	13	N/A	N/A	
Madsen	G-6	GAPCO	5-02-83	13	N/A	N/A	
Tilman	G-7	GAPCO	7-18-83	13	N/A	N/A	
Walden	G-8	GAPCO	7-18-83	13	N/A	N/A	
Brantly	G-9	GAPCO	7-18-83	13	N/A	N/A	
Sexton	G-11	GAPCO	7-18-83	13	N/A	N/A	
Lawson	G-13	GAPCO	7-18-83	13	N/A	N/A	
Mackelprang	G-14	GAPCO	7-18-83	13	N/A	N/A	
Mathis	G-15	GAPCO	5-12-83	13	N/A	N/A	
Kellerman	G-16	GAPCO	8-08-83	13	N/A	N/A	

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WELDER QUALIFICATIONS

Welders Name	Stamp	Craft	Date of Initial Certification	Item No.	Are Welder Maintenance Records Satisfactory?	Renewal Date	Audit Status
(Note 1)			(Note 2)			(Note 3)	
Hull	G-18	GAPCO	4-28-83	13	N/A	N/A	S
Deady	G-19	GAPCO	8-15-83	13	N/A	N/A	
Hish	G-20	GAPCO	8-15-83	13	N/A	N/A	
Blevins	BAMP	BOILER MAKER	2-02-82 8-06-80	14	YES	N/A	
Lyttle	BFO-282	BOLIER MAKER	8-10-82 11-24-82	14	YES	N/A	
Henderson	BFO-379	BOILER MAKER	7-27-83	15	YES	N/A	
Springer	BFO-459	STEAM FITTER	3-27-85	16	YES	N/A	
Johnson	BFO-506	STEAM FITTER	2-27-85	16	YES	N/A	
Parker	BFO-305	STEAM FITTER	9-26-82	17	YES	4-10-83	
Burcham	BFO-349	STEAM FITTER	4-20-83	17	YES	N/A	
Ezell	BFO-129	IRON WORKER	4-30-81	18	YES	N/A	SRG 3-6-86

WELDER QUALIFICATIONS

Welders Name	Stamp	Craft	Date of Initial Certification	Item No.	Are Welder Maintenance Records Satisfactory?	Renewal Date	Audit Status
(Note 1)			(Note 2)			(Note 3)	
McDole	BFO-291	BOLIER MAKER	8-12-82	19	YES	N/A	S
Davis	BFO-413	STEAM FITTER	6-23-78	19	YES	8-18-82	
Cannon	BFO-009	STEAM FITTER	8-25-80 8-28-80	N/A	YES	4-07-83 4-09-83	
Claunch	B24 BF	BOILER MAKER	3-06-84 6-21-83	N/A	YES	10-23-84 10-24-84	
Dial	699	ELECT.	7-20-83 9-29-83	N/A	YES	N/A	
Gautreau	BFO-422	STEAM FITTER	12-07-78 4-19-79	N/A	YES	N/A	
Golden	BFO-424	STEAM FITTER	3-18-85 3-26-85	N/A	YES	N/A	
Grisham	8-1-BF	BOLIER MAKER	6-28-85	N/A	YES	N/A	
Goach	13BF	IRON WORKER	4-23-82 5-14-82	N/A	YES	N/A	
League	BFO-042	ELECT.	4-12-84 4-03-85	N/A	YES	N/A	

SRG
3-6-86

WELDER QUALIFICATIONS

Welders Name (Note 1)	Stamp	Craft	Date of Initial Certification (Note 2)	Item No.	Are Welder Maintenance Records Satisfactory?	Renewal Date (Note 3)	Audit Status
Jackson	BFO-052	BOLIER MAKER	9-04-80 8-29-80	N/A	YES	N/A	S
McCray	BFO-438	STEAM FITTER	8-20-82 1-26-83	N/A	YES	4-09-83 4-10-83	
McGregory	BFO-249	STEAM FITTER	11-08-84 11-07-84	N/A	YES	N/A	
Nesbitt	BFO-497	SHEET METAL	1-14-85 1-15-85	N/A	YES	N/A	
Pettus	B-4-BF	BOILER MAKER	3-05-85 3-01-85	N/A	YES	N/A	
Posey	B-16-BF	BOILER MAKER	11-28-84 10-25-84	N/A	YES	N/A	
Smith	B7SS	IRON WORKER	1-05-79 2-04-83	N/A	YES	N/A	
Sims	BFO-544	CARPENTER	7-24-85	N/A	YES	N/A	
Tanner	BFO-461	STEAM FITTER	8-07-79 3-01-84	N/A	YES	N/A	
Woods	M6 BF	MACHINIST	9-15-80 9-21-83	N/A	YES	N/A	

SRG
3-6-86

WELDER QUALIFICATIONS

Welders Name	Stamp	Craft	Date of Initial Certification	Item No.	Are Welder Maintenance Records Satisfactory?	Renewal Date	Audit Status
(Note 1)			(Note 2)			(Note 3)	
Walton	BFO-062	STEAM FITTER	9-10-80 9-11-80	N/A	YES	N/A	S
White	BFO-100	STEAM FITTER	1-22-81 1-15-81	N/A	YES	N/A	SRG 3-6-86

(Note 1) Welders applicable to Item 13 were subcontracted to TVA from GAPCO. Welder Maintenance Records were not applicable to Item 13.

(Note 2) Many welders have multiple qualifications. Two dates listed indicates two separate welding processes or separate qualification codes.

(Note 3) N/A indicates that renewal of qualification is not applicable.

3-6-86

NUCLEAR OPERATIONS

INSPECTOR PERSONNEL QUALIFICATIONS

Inspector			Qualification	Dates	Audit Status
1	TVA	Bedingfield, Larry W.	VT II ASME III	3 Mar 83	S
2	TVA	Bullington, Gene	VT II ASME III	3 Mar 83	
3	TVA	Sander, Willie	VT II ASME III	7 Mar 83	
4	TVA	Smedley, Paul R	VT II ASME III	19 Jan 83	
5	TVA	Thompson, Sandra	VT II ASME III	3 Mar 83	
6	TVA	Hulsey, Chris	MT II MT II Recertification	1 Apr 82 22 Mar 85	
7	TVA	Priest, W. L.	MT II	2 Aug 84	
8	TVA	Sander, Willie	MT II	1 Apr 82	
9	TVA	Thompson, Sandra	MT II MT II Recertification	1 Apr 82 22 Mar 85	
10	TVA	Blackburn, George T.	PT II PT II Recertification	15 Apr 81 16 Feb 84	
11	TVA	Martin, J. V.	PT II	14 Feb 85	
12	TVA	Miller, D. L.	PT II	14 Feb 85	
13	TVA	Sanders, Willie	PT II	1 Apr 81	
14	TVA	Smedley, Paul R	PT II PT II Recertification	15 Apr 81 19 Apr 84	
15	TVA	Thompson, Sandra	PT II	3 Nov 83	
16	TVA	Bentley, N. Roger	VT III VT N-VT-25 VT IGSCC	22 Dec 81 30 Mar 83 20 Apr 84	
17	UTL	Kurtz, Kenneth	VT II N-VT-25	26 Jul 83	
18	UTL	Whigdon, Sherrie	VT II VT N-VT-25	31 Jul 83 19 Aug 83	
19	TVA	Wille, Rudolph	VT II VT IGSCC	15 Mar 83 8 Mar 85	GRH 8 Mar 86

(Continued)

NUCLEAR OPERATIONS

INSPECTOR PERSONNEL QUALIFICATIONS

Inspector			Qualification	Dates	Audit Status
20	UTL	Burdett, David	UT II	7 Aug 83	
			UT N-UT-25	26 Aug 83	
21	UTL	Stephen, Timothy L.	UT II	19 Jun 83	S
			UT N-UT-25	25 Jul 83	
			UT N-UT-18	25 Jul 83	
22	UTL	Flint, Gary	UT II	7 Jul 83	
			UT N-UT-18	7 Jul 83	
			UT N-UT-18	27 Jul 83	
23	TVA	Robbins, Michael	UT II	15 Mar 83	
			UT IGSCC	8 Mar 85	
24	UTL	Burns, Thomas H	UT I	27 May 83	
			UT N-UT-25	3 Jun 83	
25	UTL	Johnson, Patrick	UTII N-UT-25	3 Jun 83	
26	UTL	Colvin	UT II	2 Aug 82	
			UT N-UT-25	22 May 83	
27	TVA	Schreeder, Thomas B.	RT III	15 Jan 82	

RANDOM SAMPLINGS

1.	TVA	Barnett, Ronnie E.	PT II	17 Jan 85	
2.	TVA	Bedingfield, Larry W.	VT II	14 Apr 83	
			VT ~~PT~~ II ASME III	3 Mar 83	
		GRH 7MAR86	MT II	5 May 83	
3.	TVA	Bridges, Crill	PT II	19 Apr 84	
4	TVA	Coffman, C. O.	PT II	17 Jan 85	
5.	TVA	Craver, J. F.	PT II	19 Sept 84	
6.	TVA	Gatewood, D. E.	MT II	22 Mar 85	
			PT II	17 Jan 85	

GRH
8 MAR 86

(Continued)

					AUDIT STATUS
7.	UTL	Leimbach, Dean	UT II N-VT-25/ UT IGSCC	31 Jul 83 4 Aug 83	
8.	UTL	Overton, James M.	UT II N-VT-25/ UT IGSCC	21 Aug 83 26 Aug 83	S
9.	UTL	Silva, Cruz	UT N-VT-25/ IGSCC	29 Jul 83	GRH
10.	UTL	Warren, Roderich	UT II N-VT-25/ UT IGSCC	24 Jul 83 29 Jul 83	8 MAR 86

INSPECTOR PERSONNEL QUALIFICATIONS
(Training and Certification of Survey Personnel)

Surveyor	Training/Certification	Audit Status
P. R. Bevil	5/17/85	S
C. Bridges	1/23/85	
G. Bullington	1/23/85	
T. Burdette	4/24/85	
L. Couch	1/25/85	
L. Clardy	2/20/85	
J. Dial	1/30/86	

A.M.V. 2/7/86

INSPECTOR PERSONNEL QUALIFICATIONS

Inspector	Qualification	Date Certified	Audit Status
R. E. Barnett	Vis. Weld Insp. Level II	5/22/85	S
	Mechanical - Partial	6/13/84	
	Receipt Insp.	11/14/84	
	Cable Tray Inst.	7/30/85	
L. Bedingfield	Vis. Weld Exam Level II	1/28/86	
	In Serv. Vis. Weld Exam Level II	12/18/84	
	Dim. Insp./Comp & Pipe Supports	5/31/83	
	Receipt Insp.	3/15/84	
	Mech. & Hydro	10/11/82 & 2/15/85 G.M.V. 3/4/86	
C. Bridges	Vis. Weld Exam (ASME III) Level II	2/24/83 Decertified 2/12/86 G.M.V. 3/4/86	
	Mechanical	6/9/83	
G. M. Bullington	Vis. Weld Exam (Sect. III) Level II	3/3/83 & 1/17/86	
	Receipt Insp.	7/18/84	
	Mechanical	2/12/86	
C. O. Coffman	Vis Weld Level II	5/23/85	
	Mechanical-Partial	2/25/85	
	Cable Tray Installation	7/25/85	
R. D. Cooper	Mechanical	4/16/85	
J. Craven	Vis Weld Exam Sect. III Level II	3/10/83 & 1/29/86	
	In Service Vis. Level II	6/24/85	
	Mechanical	2/21/84	
	Mechanical - Dimensional	12/14/83	
	Mechanical - Comp. & Pipe Support	6/22/84	
	Mechanical - Alignment	12/14/83	
J. Dial	Mechanical-Dimensional	2/13/85	
D. E. Gatewood	Vis. Weld Exam (Sect. III) Level II	7/01/83	
	In Service Vis (Sect XI) Level II	2/16/84	
	Mechanical - Full Cert.	4/10/85	
W. L. Priest	Vis Weld Exam (Sect III) Level II	4/17/84	
	Receipt Insp. Full Cert.	10/21/85	
	Mechanical Equip	8/23/84	
	Dimensional Insp.	8/23/84	

G.M.V. 3/4/86

REVIEW OF NONCONFORMANCE REPORTS AND CORRECTIVE ACTIONS

NCR No.	Date	Corrective Action	Audit Status
CAR 82-165 FS	8-16-82	8-31-82	S
CAR 82-170 FS	8-09-82	8-27-82	
CAR 83-162	10-14-83	1-12-84	
CAR 83-168	10-29-83	12-01-83	
CAR 83-171	11-14-83	4-23-84	
CAR 83-176	12-05-83	4-10-84	
CAR 83-56	2-23-83	3-05-83	
CAR 85-010	2-19-85	3-21-85	
CAR 85-055	8-01-85	10-10-85	
DR 82-07	11-12-82	11-12-82	
DR 83-410 R	8-21-83	11-02-83	
DR 83-429 R	9-08-83	10-07-83	
DR 84-0024	1-30-84	1-30-84	
DR 84-0055	3-06-84	3-25-84	
DR 85-0135	2-26-85	2-26-85	
DR 85-0265	5-6-85	5-29-85	
DR 85-0389	7-23-85	7-23-85	
DR 85-0427	9-10-85	OPEN C/A in process ([illegible])	
DR 85-0451	7-02-85	11-13-85	
DR 85-0552	10-29-85	OPEN C/A in process ([illegible])	

G.M.V. 3/6/86

NUCLEAR OPERATIONS
DRAWING REVIEW

Drawing No.	Rev.	System	Date	Audit Status
CH-M-1081-C	6	Weld Identification, Recirc.	6/05/81	S
48W1260-1	2	Torus Access Hatch	6/16/81	
48W1257-1	5	Torus Penetration Reinforcements	6/11/82	
CH-M-2068	4	Weld Identification, Recirc.	12/07/85	
47B455-55	2	Mechanical HPCI System Pipe Supports	6/01/81	
46W414-4	4	Wire Mesh Partition	4/29/83	
48W1248-1	9	Torus Ring Girder, External Reinforcement	1984	
47W455-2	F	High Pressure Coolant	1/20/85	
W455-H-10	A	High Pressure Coolant, As-Constructed	2/19/80	
45A830-5	B	Cable Trays	1/18/81	
47C430-12	1	RWCU System	12/28/71	
47W812-1	20	High Pressure Coolant Injection	5/01/81	
47W813-1	13	Reactor Core Isolation Cooling	3/11/80	
47W820-5	0	Control Rod Drive Hydraulic System	6/16/82	
47C430-7	2	Feedwater Piping, Weld & Not Requirements	9/11/73	

TBK
3/7/86

REVIEW OF WELD AND HEAT TREATMENT PROCEDURES

Procedure No.	Rev. No.	Date	Audit Status
GAPCO W-8/8-OL & PQR's	1	3/14/83	S
GT-SH11-O-3C & PQR's	1	4/19/79	
SH11-B-9B & PQR	0	10/18/78	
GT-88-O-1A & PQR	1	11/06/78	
SH-P-1 & PQR	8	5/27/81	
SH11-B9 & PQR	4	1/29/81	
SH88-B-4A & PQR	0	10/30/80	
SH 8.43-B-1A & PQR	1	2/28/75	
GT-SH14-O-1 & PQR	0	10/31/78	
SH55-B-2A & PQR	1	2/28/75	
Specification for Post Weld Heat Treatment, P.S.2.H.1.1	4	1/24/85	

MBK
3/8/86

WELD FILLER METAL
OFFICE OF NUCLEAR OPERATIONS

2.	Item No. (per sheet 1)	Contract No.	Heat No.	Lot No.	Material	Date Received*	Date Welded	Audit Status
	17	83K71-661784-2	8215	23324	E7018	-	12/82	S
	17	80P72-254381	72624	9297B222143	E7018	7/81	12/82	
	-	80P72-254381	22468	9338D122143	E7018	7/81	12/82	
	-	80P72-254381	22468	9334A122143	E7018	7/81	12/82	
	-	80P72-254381	22468	9338C122143	E7018	7/81	12/82	
	-	80P72-254381	43878	9298C222143	E7018	7/81	12/82	
	-	254314	658C253	--	E7056	about 79	12/82	
	-	340107 (Transf. Req.)		92121D	E7018	8/83	—	
-	-	340107 - (Transf. Req.)		92078D	E7018	8/83	—	
0		82P74-324688	97209C	-	E7018	2/82	—	
1		79P89-254352	643559	026B86	E7018	1/81	—	
2		80K76-607876	431L245	026B222	E7018	6/82	—	
.3	14, 17	81PM1-18660	27433	-	E7083	11/81	12/82	(Note CAR on (Item 14) S

SWB
3/8/86

*Date material inspection report approved.

WELD FILLER METAL
OFFICE OF NUCLEAR OPERATIONS

No.	Item No. (per sheet 1)	Contract No.	Heat No.	Lot No.	Material	Date Received*	Date Welded	Audit Status
14	14, 18, 19	-	N16873	026B219	E7018	-	12/82	(Note CAR on (item 19) S
15	16	-	761408	-	ER308L	-	3/81	S
16	15, 18	80P72-254381	43878	9298C2-22143	E7018	9/25/81	1/84	(Note CAR on (item 15) S
17	17, 14	81P74-17893	421L729	10751A	E7018	8/81	5/84	S
18	-	78P70-254314		10220-1	E309-15	3/79	-	S
19	-	78P70254314	10171-1	-	E308-15	3/79	from rod room	S
20	-	78P70254314	50017-1	-	E309-15	3/79	from rod room	
21	-	78P70-254314	50065-1	-	E308-15	3/79	from rod room	
22	-	78P70-254314		10218-1	E309-15	3/79	from rod room	
23	-	78P70-254314	56193	-	E308L-15	3/79	from rod room	
24	-	78P70-254314	55032-1	-	ENiCrFe-3	10/78	from rod room	
25	-	78P70-254314	55990	-	E308L-15	3/79	from rod room	

SWB
3/8/86

*Date material inspection report approved.

3.0 APTECH ENGINEERING REPORT

3.1 Introduction

TVA, through its contractor Aptech Engineering Services Inc. (APTECH), has performed a review of welding and subsequent preservice and inservice inspection activities at Browns Ferry Nuclear Plant for the purpose of determining the suitability for continuing service of welds currently installed at Browns Ferry. The basis for this determination is derived from historical records and activities related to the production of quality welds (via an appropriate welding and inspection program) and historical performance of welds during the operating phase of the plant. This review is an adjunct to other TVA activities focused on weld quality determination, weld reinspection, and welding program assessment, problem identification and resolution.

3.2 Summary

The results of this review are positive and indicate suitability for service of BFN welds. However, two welds identified by the report required further investigation to close out these items.

Weld RCRD-3-43 was identified in Section 2.4 of the report as "...containing a relevant indication not closed out...." This weld has been evaluated by a TVA American Society of Nondestructive Testing (ASNT) Level III inspector. The results are that the indication designated as linear in the original report is in fact "geometric" in nature, caused by the weld crown, and therefore nonrelevant. This weld was accepted with no further investigation required.

Weld DRWC-1-2 was reported on a Licensee Event Report (LER) as having a linear indication with no cause given. The report did not identify if the weld indication was service induced or was an initial 'quality of weld' problem. The LER covering the indication was issued in 1980. The Ultrasonic (UT) examinations for Cycle 0 of this weld (performed in 1973) indicates the weld was accepted and the linear indication was not identified. Therefore, WP determined that this indication is service related and not a result of initial construction.

3.3 Recommendations

APTECH recommends additional inspections be performed on supports within the ISI program during the next inspection interval.

APTECH also recommends that supports and hangers within the ISI program be examined for such attributes as configuration and missing welds. This would bring TVA's ISI program more in line with the program existing at other plants. This inspection should be performed by augmenting the existing ISI procedures to facilitate detection of configuration defects as well as service induced damage.

3.4 Aptech Report

APTECH IS APPLIED TECHNOLOGY

AES 8604658AQ-1
Rev. 0

EVALUATION OF THE QUALITY OF WELDS AT BROWNS FERRY NUCLEAR PLANT

Prepared by

Jeffrey L. Grover
Erwin L. Capener

Aptech Engineering Services, Inc.
1257 Elko Drive
Sunnyvale, California 94089

Prepared for

Tennessee Valley Authority
Chattanooga Office Complex
Chattanooga, Tennessee 37401

July, 1987

NOTICE

QUALITY ASSURANCE
VERIFICATION RECORD SHEET

EVALUATION OF THE QUALITY OF WELDS AT
BROWNS FERRY NUCLEAR PLANT (July 7, 1987)

(AES 8604658AQ-1)

Originated By:	Jeffrey L. Groyer, Project Manager	7/7/87 Date
Verified By:	Michael T. Cronin, Verifier	7/7/87 Date
Quality Assurance Reviewed By:	Russell C. Cipolla, QA Engineer	7/7/87 Date
Quality Assurance Approval By:	Peter D. Hedgecock, QA Manager	7/7/87 Date

APTECH
ENGINEERING SERVICES

TABLE OF CONTENTS

ABSTRACT

The quality of piping and support welds at Browns Ferry Nuclear Plant was evaluated by a review of relevant records. The welding and quality programs were evaluated by an audit performed by Bechtel Power Corporation. The rate of relevant inspection indications in the preservice and first five cycles of inservice inspection were reviewed and a projection was made as to the indication rates for those welds not yet inspected under the inservice inspection program. Licensee Event Reports were reviewed to determine if any were related to welding. Based on these reviews, there is no indication that piping welds are unfit for service. Additional inspection may be required to provide the same assurance for support welds.

1.0 INTRODUCTION

As a result of employee concerns regarding the quality of the welding program at Tennessee Valley Authority's Watts Bar Nuclear Plant, the quality of welds made by TVA at other plants within the TVA system also came into question. Aptech Engineering Services, Inc. (APTECH) was asked by TVA to review the quality of welds made at the Sequoyah Nuclear Plant in support of their effort to restart that plant. A report was prepared in January 1986 and the results were presented to the Nuclear Regulatory Commission (NRC). The scope of that project was subsequently extended to include Browns Ferry Nuclear Plant. This report covers the activities specifically related to the Browns Ferry Nuclear Plant. During the first phase of this project, a program plan was developed to evaluate the quality of welds based upon a three-pronged approach. That approach is illustrated in Figure 1-1 and is described below.

The first aspect of this evaluation is a review of the overall welding and quality assurance (QA) program at Browns Ferry. This review was performed by Bechtel Power Corporation, which audited the welding programs of both the Office of Construction and Nuclear Operations. The two remaining paths in Figure 1-1 were evaluated by APTECH under the scope of this project and are reported herein.

The second step in determining the quality of the welds is to evaluate the preservice and inservice inspection (PSI and ISI) results. As the inspection techniques and personnel involved in the PSI and ISI programs are typically different than those employed during construction (especially for piping) these inspections represent an independent measure of the quality of the welds. If the weld quality was poor, it would be anticipated that the inspection results would indicate an abnormally high indication rate.

The final step in validating the quality of the welds is to review the successful operating experience of the three Browns Ferry units. As each of the three units has experienced more than 45,000 hours of operation, any initially defective welds should have already been screened out by the "infant mortality" period associated with the initial operation of any component. Review of Licensee Event Reports (LER's) would show whether there has been any failures due to poor initial quality of the welds.

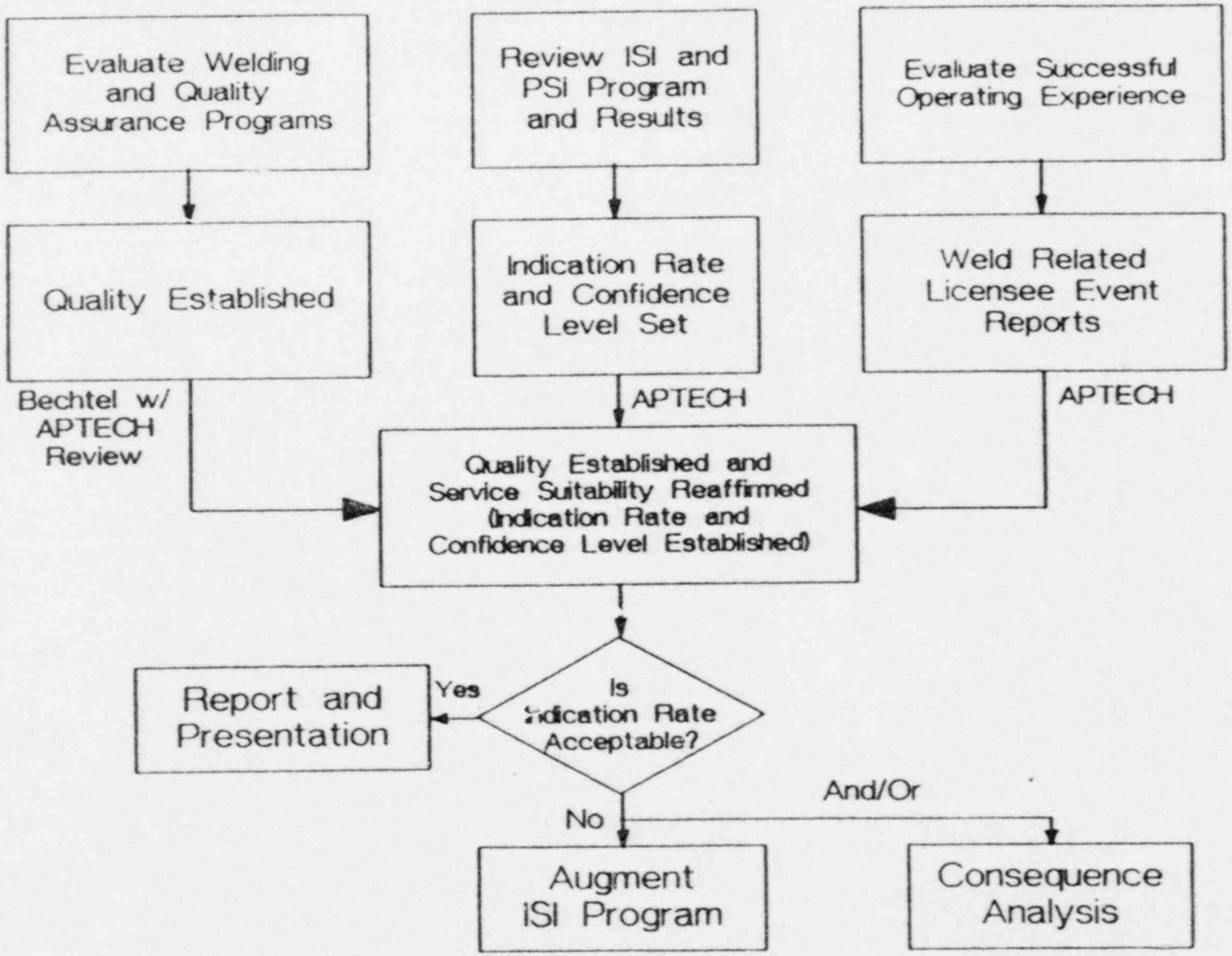
The lower half of Figure 1-1 illustrates the process that would be followed after the three separate reviews have been completed and the overall quality of the welds has been determined. If the results of those three reviews shows that the quality of welds is good, then no additional work is required. However, if these reviews indicate that the welds may not be satisfactory for their intended service, then several options still exist, including augmenting the existing ISI program and determining the consequence of failure of specific components.

The scope of this review was limited to two types of welds: piping welds and structurally significant or safety related structural welds, such as component supports and piping hangers. The basis for this delineation is that piping and structural welds are built to different procedures and acceptance criteria and therefore represent different populations that could have different measures of weld quality. A third population could be defined which falls somewhere between the other two categories: integral attachments. The welds on integral attachments resemble structural welds, but as the weld is made to the pressure boundary, fabrication procedures and inspection criteria are more rigorous than for typical structural welds. Structural welds made to the American Welding Society standard AWS-D1.1

require only visual examination, while integral attachments are usually inspected with penetrant or magnetic particle and may be inspected ultrasonically, which is usually limited to pressure boundary welds. It is therefore likely that indication rates on integral attachments will be higher than either of the other two populations. Although the intent of this project is to establish the quality of welds made by TVA, indication rates for welds made by other fabricators were also reviewed for comparison.

Section 2 of this report describes the scope of the PSI and ISI programs, reviews the inspection records obtained from those programs and presents the rate of indications detected to date. The operating experience and any relevant licensee event reports are reviewed in Section 3. The results and conclusions of this review are summarized in Section 4.

Figure 1-1 — Browns Ferry Weld Review Flow Chart



2.0 REVIEW OF PRESERVICE AND INSERVICE INSPECTION RESULTS

The best way to measure the quality of welds at Browns Ferry Nuclear Plant, short of inspecting 100% of the welds, which may be impossible to do because of problems of accessibility is to reinspect the welds using some form of sampling plan to ensure high confidence in the inspection results. The preservice and inservice inspections required by Section XI of the ASME Code represent independent sampling inspections of the quality of the welds. The PSI and ISI examinations are performed by different personnel (in some cases outside contractors) than those involved in the fabrication of the welds, and the techniques and procedures are different, ensuring an evaluation which is independent of the original construction inspections. Thus, the PSI and ISI results will be used as indicators of the quality of welds at Browns Ferry Nuclear Plant. If chronic deficiencies existed in the welding program at Browns Ferry, it would be expected that an unusually high number of defective welds would be detected in the PSI and ISI programs. The rate of generation of Notices of Indication (NOI's) will be used here as a measure of weld quality.

2.1 Review of Preservice and Inservice Inspection Programs

Browns Ferry is a relatively old nuclear plant (dates of commercial operation for the Browns Ferry units are 8/1/74, 3/1/75, and 3/1/77) and regulatory and TVA requirements have changed over the subsequent years. The inservice inspection program at Browns Ferry has undergone at least two major changes over the years to make it more consistent with the newer plants. In fact, the first baseline inspection was performed prior to the use of an ASME Section XI inspection plan, and is therefore not a true Section XI preservice inspection. This baseline inspection is still called the preservice, or cycle zero, inspection, however.

During the preservice and first three cycles of inservice inspection most indications that would be representative of poor weld quality were handled by trouble reports. The trouble report indicated some deficiency in the weld that had been inspected, however there was no closed loop to ensure that the deficiency was properly resolved. Prior to the fourth cycle of inservice inspection the inspection procedure was changed so that it employed maintenance reports instead of trouble reports. The maintenance reports were part of a closed loop designed to ensure that the deficiencies were resolved. The use of notices of indication was also started at this time, however when surface conditions would not permit performance of the examination, some discrepancies were resolved through the maintenance report rather than the notice of indication. During the preservice and first three cycles of inservice inspection the potential therefore existed for an indication to be detected but never dispositioned. In order to ensure that all indications detected in the early inspections were adequately dispositioned, all weld quality indications were investigated for proper closure. Section 2.4 describes the work performed under this project to ensure that the early indications were adequately dispositioned.

TVA provided APTECH with a summary of the inspections performed during the preservice inspection and five cycles of inservice inspection (the cycle 6 inspection data were not complete at the time this project was performed). These data were contained in externally generated controlled documents ECD-5 and ECD-10 (see the reference list in Section 5.0 for the controlled documents used in this project). The summary included all piping welds on systems larger than four inches in diameter, pressure vessel welds, and some support and hanger welds. Because NOI's were not used during the PSI or first three cycles of ISI, any

discrepancies were simply noted without further description. Therefore, if an indication was noted for a given weld, there was no means of establishing if the indication was due to poor initial weld quality or due to some other cause (service related). Starting with Cycle 4, NOI information is available which allows the determination of the type and cause of many, but not all of the indications. Because the scope of this project was limited to fabrication related defects, indications that were determined to be service induced, primarily those indicative of intergranular stress corrosion cracking (IGSCC) were deleted from the data provided to APTECH. It is likely that some of the indications included in the database are also service induced, but unless it can be positively shown to be service induced, the indication is conservatively assumed to be fabrication related.

This information was developed into a computer database for use in a statistical analysis of the indication rates. Welds from the reactor pressure vessel or heat exchangers were deleted from the computer database as they are outside the scope of this review of piping and support welds. Those welds that were deleted specifically include all those with a system name of RPV (reactor pressure vessel) or RCH (reactor closure head), or a weld number starting with N (nozzle), JP (jet pump), or RHRG (residual heat removal heat exchangers). Appendix A contains a complete listing of the data in the computer data base. Each entry represents a single inspection. An analysis of these data will be summarized in Section 2.2.

In order to perform a statistical analysis of the inspection results, it is necessary to know the size of the total population of welds. The total number of welds was assumed to be the same as the total population in the ISI program which was determined from Browns Ferry Surveillance

Instruction SI-4.6.G.(ECD-2) Table 2-1 shows the assumed values for the ISI population of piping welds and Table 2-2 shows the population of supports. These values are taken from Tables A and B of SI-4.6.G for Class 1 and Class 2 piping welds, and from Tables 13.1 through 13.3 of SI-4.6.G for supports. Note that the numbers in Table 2-2 represent numbers of supports, not welds. Many supports contain multiple welds, and the number of welds per component can not be easily determined from the ISI program plan.

2.2 Summary of Inspection Data

Using computerized sorting techniques, the inspection database shown in Appendix A was interrogated to establish the rate of occurrence of welds containing indications. As the database contained all inspections performed as a part of the PSI and ISI programs, the indication rate could be established for any population that could be identified. This could include the unit, piping system, inspection cycle, type of weld, type of NDE performed, or the fabricator. For piping welds, the fabricator is easily identified by the first letter of the weld identification number. The majority of the welds were made by TVA, although both Dravo and Kellogg provided piping systems containing shop welds. These are identified by the letters DS (for Dravo) or K (for Kellogg) at the start of the weld number. The primary population of interest is field welds fabricated by TVA. For comparison purposes, the populations associated with each fabricator were evaluated. The means of establishing the fabricator for each weld are described in the beginning of Appendix A.

Table 2-3 summarizes the results of the evaluation of inspection results for piping welds. The inspection results for supports are summarized in Table 2-4. Because many welds were inspected more than once over the years, each

unique weld inspected was only counted once. The number of NOI's reported includes only those determined not to be geometric in nature. Relevant NOI's include only those indications that were considered to be reportable based upon the relevant acceptance criteria. In most cases, this was from ultrasonic inspection procedure N-UT-10 (Rev.0 12/9/79) which uses a 100% distance-amplitude correction (DAC) as the reporting criterion. In addition, a given weld could have more than one NOI written against it but is only counted once. All indications were conservatively characterized as fabrication related.

From the values shown in Table 2-3, it is clear that the indication rate for TVA piping welds is low and is consistent with the indication rate for welds fabricated in the shop by Dravo. The indication rate for supports in Table 2-4 is higher. This is due to the anticipated high indication rate in integral attachments. No indications were noted in non-integral supports, although a relatively small number of these hangers were inspected.

2.3 Indication Rates

The values shown in Tables 2-3 and 2-4 represent the percentage of the number of piping welds and supports inspected that contained indications. As the inspection did not cover 100% of the components, there is some statistical uncertainty as to the rate of indications for the entire population. In order to quantify this, the size of the entire population must be known. From the information in Tables 2-1 and 2-2, the population size is known for any given piping system, for all systems in a given unit, or for all piping in all three units. The size of the populations associated with each fabricator are unknown, and therefore

the actual indication rates can not be determined. The expected indication rate can only be determined from the overall population of welds.

Based on a hypergeometric distribution of indications, the indication rate for the total population of piping welds is calculated to be 1.4% with greater than 95% confidence. The indication rate is determined to be 12.8% for integral attachments and 10.8% for all supports, with greater than 95% confidence. Even the non-integral hangers, which had no indications during the PSI and ISI programs have an expected indication rate of 10.0%, due to the low number of inspections. The reliability (one minus the indication rate) is lower than the 95% occurrence level/95% confidence limit that is normally accepted by the NRC for all types of supports. However, the indication rate for supports is based on the number of supports, not the number of welds. The indication rate per weld will be a smaller number.

2.4 Review of Disposition of Indications

As discussed in Section 2.1, the procedures in place for the preservice and first three cycles of inservice inspection did not ensure that all indications detected were properly dispositioned. This does not mean that the indications were not dispositioned, but means that no record was made of any repair or other action on the original trouble report. Without that record it is very difficult to locate the actual records related to the disposition of the indication.

In this project, it was noted that many welds were inspected more than once, and often after an indication was noted, a re-examination was performed during the same inspection cycle. If the subsequent re-inspection was satisfactory, it could be assumed that the indication was adequately dispositioned. This assumption was extrapolated such that

if a weld was inspected during a later cycle with the same inspection technique and no indication was noted, it was assumed that the indication had been properly closed out.

Based on this assumption, only three welds containing relevant indications were identified as not being closed out by subsequent reinspection. These are welds RCRD-3-43, RCRD-3-47, and DSHS-3-9, all of which are from Unit 3, inspection cycle 2. Weld RCRD-3-47 had an ultrasonic indication equal to the threshold for reporting and is therefore technically acceptable (the procedure states that an "indication exceeding 100% of the primary reference distance amplitude curve shall be evaluated", but the indication is reported as 100% DAC). The indication reported for weld DSHS-3-9 is weld spatter located 4-9 inches away from the weld, which is outside the area of examination and will not affect the integrity of the weld. Thus, the only weld containing a relevant indication not closed out by reinspection is weld RCRD-3-43.

Table 2-1
Summary of Piping Weld Population in ISI Program Plan

Type of Weld *	Unit 1	Unit 2	Unit 3	Total
Class 1 Piping				
Recirculation (circ)	72	72	72	216
Recirculation (branch)	11	11	11	33
Main Steam (circ)	110	107	108	325
Main Steam (branch)	27	27	27	81
Feedwater (circ)	68	67	73	208
Feedwater (branch)	2	2	2	6
Core Spray (circ)	0	20	20	40
RHR (circ)	50	47	47	144
CRD (circ)	11	11	11	33
RWCU (circ)	18	15	17	50
RCIC (circ)	4	6	4	14
HPCI (circ)	20	20	18	58
Head Spray (circ)	27	25	25**	77
			Total	1285
Class 2 Piping				
Main Steam (circ)	58	58	58	174
Main Steam (branch)	1	1	1	3
RHR (circ)	162	162	162	486
CCW (circ)	8	8	8	24
HPCI (circ)	16	20	20	56
RCIC (circ)	8	8	8	24
Core Spray (circ)	12	12	12	36
Auxilary Steam (circ)	41	40	35	116
			Total	919
Total Class 1 and 2 Piping Welds				2204

* circ = circumferential weld, branch = tee branch weld

** This system has been removed

Table 2-2

Summary of Support Population in ISI Program Plan*

Type of Support	Unit 1	Unit 2	Unit 3	Total
Class 1				
RHR	-	17/24	7/13	24/37
RWC	-	2/2	2/2	4/4
R	-	31/33	35/35	66/68
FW	32/32	32/32	32/32	96/96
MS	34/34	34/34	34/34	102/102
HPCI	3/3	3/3	3/3	9/9
CS	-	6/10	6/10	12/20
			Total	313/336
Class 2				
RHR	91/135	98/119	86/124	275/378
MS	17/43	17/41	16/41	50/125
CCW	0/1	0/2	0/2	0/5
CDR	6/37	4/36	6/31	16/104
CS	14/38	20/30	16/48	50/116
HPCI	22/43	20/44	20/50	62/137
RCIC	8/26	11/23	11/27	30/76
			Total	483/941

Total Class 1 and Class 2 Supports 796/1277

* The values in the table represent the number of integral attachments/number of total supports. For example, the value listed as 17/24 indicates that there are 17 integral attachments and 7 non-integral hangers, for a total of 24 supports.

Table 2-3

Percentage of Piping Welds Inspected Containing Indications

System Name	Fabricator	Number of Inspections	No. of Welds	No. of NOI's	Relevant NOI's	
Aux Steam (AS)						
	TVA	2	2	0	0	
	Dravo	8	5	0	0	
	TOTAL	10	7	0	0	
Closed Cooling Water (CCW)						
	TVA	3	2	0	0	
Control Rod Drive (CRD)						
	TVA	377	210	13	4	(1.9%)
Core Spray (CS)						
	TVA	405	107	24	3	(2.8%)
	Dravo	240	46	13	2	(4.3%)
	TOTAL	645	153	37	5	(3.3%)
Feedwater (FW)						
	TVA	252	102	18	0	
	Kellogg	277	105	29	0	
	TOTAL	529	207	47	0	
High Pressure Coolant Injection (HPCI)						
	TVA	152	67	7	1	(1.5%)
Head Spray (HS)						
	TVA	89	38	3	0	
	Dravo	89	38	1	1	(2.6%)
	TOTAL	178	76	4	1	(1.3%)

Table 2-3 (continued)

Percentage of Piping Welds Inspected Containing Indications

System Name	Fabricator	Number of Inspections	No. of Welds	No. of NOI's	Relevant NOI's	
Main Steam (MS)						
	TVA	266	113	29	0	
	Dravo	11	9	0	0	
	Kellogg	709	306	27	0	
	TOTAL	986	428	56	0	
Recirculation (R)						
	TVA	598	200	38	2	(1.0%)
	Kellogg	538	166	37	1	(0.6%)
	TOTAL	1136	366	75	3	(0.8%)
Reactor Core Isolation Cooling (RCIC)						
	TVA	42	20	3	0	
Residual Heat Removal (RHR)						
	TVA	308	146	11	4	(2.7%)
	Dravo	143	47	11	0	
	TOTAL	451	193	22	4	(2.0%)
Reactor Water Cleanup (RWC)						
	TVA	181	46	7	2	(4.3%)
	Dravo	169	37	4	0	
	TOTAL	350	83	11	2	(2.4%)
All Systems						
	TVA	2675	1048	151	16	(1.5%)
	Dravo	660	179	29	3	(1.7%)
	Kellogg	1524	577	93	1	(0.2%)
	TOTAL	4859	1804	273	20	(1.1%)

Table 2-4

Percentage of Supports Inspected Containing Indications

Support Type	Number of Inspections	No. of Welds	No. of NOI's	Relevant NOI's	
Integral Attachments	184	144	18	12	(8.3%)
Hangers	28	28	0	0	
Total Supports	212	172	18	12	(7.0%)

3.0 REVIEW OF OPERATIONAL EXPERIENCE

As discussed in Section 1, the three units at Browns Ferry have compiled a significant amount of operating time. This amount of service should be enough to identify any piping welds which are not of sufficient quality for their intended service. Once a plant is in operation, any failures would be reported to the Nuclear Regulatory Commission (NRC) as Licensee Event Reports (LER's). The LER's from Browns Ferry were reviewed looking for any events related to welds or welding.(ECD-6) The results of that review are summarized below.

Browns Ferry Unit 1 went into commercial operation August 1, 1974 and has compiled 59,521 reactor critical hours of operation. During this period, seven LER's related to welding were issued. Three of these events were related to fatigue cracks and two were related to IGSCC. Both of these types of indications are service induced and do not bear any indication of the initial quality of the welds. The final two events are linear indications detected, and no cause was given. As these indications can not be ruled out as being fabrication related, they must be considered to be related to the initial quality of the weld. One of these two indications was considered acceptable by a later addendum of the ASME Code.

Browns Ferry Unit 2 went into commercial operation March 1, 1975 and has compiled 55,860 hours of operation. Five weld related LER's have been filed with the NRC. Two are fatigue cracks and two are intergranular stress corrosion cracking (IGSCC). The fifth is likely IGSCC, as the indication was noted after induction heat stress improvement (IHSI) and was repaired with a weld overlay. No LER's related to the initial quality of the welds have been issued for this unit.

Browns Ferry Unit 3 went into operation March 1, 1977 and has compiled 45,307 hours of operation. Nine LER's related to welding have been issued for Unit 3. Three of these appear to be IGSCC, one is likely a fatigue failure on a motor mount and the other five are likely service induced failures on small instrument lines which are outside the scope of this review. Therefore no LER's related to the initial quality of welding on safety related or structurally significant welds were issued for this unit. All of the LER's for Browns Ferry Units 1, 2, and 3 are summarized in Table 3-1.

Table 3-1

Summary of Licensee Event Reports Related to Welding

LER No.	Docket	Unit	Comments
80-004	259	1	Linear indication in weld DRWC-1-2, no cause given
81-037	259	1	Indication on vessel side of primary containment isolation valve
82-020	259	1	Fatigue crack in 0.75 inch test connection in RWCS
82-056	259	1	Cracked weld in 1.0 inch switch line on jet pump riser (fatigue crack)
2-099	259	1	Fatigue crack in weld in 0.5 inch samples line on core spray system
83-023	259	1	IGSCC in Weld KR-1-37
83-049	259	1	IGSCC in welds DCS-1-7 and DSRWC-1-3
78-016	260	2	Fatigue crack in 1.0 inch instrument line
82-040	260	2	Cracks in welds KR-2-36 and KR-2-14 appear to be fatigue - analysis requested
83-059	260	2	IGSCC in weld DSHS-3-2
84-008	260	2	IGSCC in recirc piping, cleanup piping and jet pump instrumentation nozzles
85-001	260	2	Through-wall crack in riser - post IHSI

Table 3-1 (continued)

LER No.	Docket	Unit	Comments
78-019	296	3	Broken weld on 1.0 inch instrument sensing line on jet pump riser - design evaluation required
79-019	296	3	Suspected IGSCC in weld DCS-3-18
81-064	296	3	Weld on gas divider broke - no cause given
83-059	296	3	Suspected IGSCC in Weld DSHS-3-2
84-005	296	3	Linear indication in reactor water cleanup system weld after IHSI treatment
84-006	296	3	Cracked welds in jet pump instrumentation nozzles
85-005	296	3	Cracked weld on 0.75 inch test connection line
85-009	296	3	Cracked weld on pump motor surge ring
85-016	296	3	Pinhole leak in diesel generator fuel line/filter weld

4.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The welding and quality programs at Browns Ferry Nuclear Plant were evaluated by a quality audit performed by Bechtel Power Corporation. No significant problems related to weld quality were found in that audit, although several recommendations for improvement were provided, as well as recommendations required to evaluate the impact of the audit findings.

The results of the preservice and inservice inspections through five cycles have been reviewed to aid in the determination of the quality of the piping and structurally significant welds at Browns Ferry Nuclear Plant. That review showed that piping welds made by TVA had similar indication rates as shop welds made by other fabricators and the welds meet a 95% reliability/95% confidence limit. This means that the welds made by TVA at Browns Ferry are comparable to industry standards in quality. The indication rate for all types of supports, especially integrally welded attachments exceeds the industry standard acceptance level of 95% reliability with 95% confidence.

Based upon the program flow chart shown in Figure 1-1 and the position taken by the NRC on the question of the quality of welds at Sequoyah we conclude that no additional inspection is required at this time to ensure confidence in the quality of piping welds, but additional inspection may be required to provide the confidence level required for supports. [illegible] reinspection should be performed in conjunct[illegible] with the existing ISI program because the indicati[illegible] [illegible]ts is not significantly greater than th[illegible] [illegible] in the industry and because the plant has [illegible] [illegible]00 hours of operation without any demonstrated we[illegible] [illegible]ty induced problems. These facts

ustify the continued operation until the welds are reinspected over the next inspection interval.

An additional recommendation, which is based on a review of inspection procedures at TVA and on experience gained from other plants, is that supports and hangers should be examined for such attributes as configuration and missing welds. This reinspection should be performed in conjunction with the existing ISI program by augmenting the existing procedures to facilitate detection of configuration defects as well as service induced damage. Once configuration has been verified for a given component, that aspect can be deleted from the ISI program plan for future inspections of that component.

In order to ensure the proper disposition of the indication on weld RCRD-3-43 during cycle 2, this weld should be reinspected or a further search of the records should be made to verify that the indication was properly closed out. If reinspection is selected as the corrective action, the reinspection should be performed under the ongoing ISI program, as is the case with the configuration examination of supports and integral attachments.

5.0 EXTERNALLY GENERATED CONTROLLED DOCUMENTS USED

ECD-2 Surveillance Instructions SI 4.6.G (date of latest revision 02/08/85).

ECD-5 Browns Ferry Nuclear Plant Weld Data Summary (dated 09/09/86).

ECD-6 Licensee Event Report Batch Search (dated 03/13/86).

ECD-10 Browns Ferry Nuclear Power Plant NDE Inspection Data, Unit 2 (dated 12/12/86).

APPENDIX A
PSI AND ISI INSPECTION DATABASE

KEY TO SYSTEM ABBREVIATIONS USED IN DATABASE

AS = AUXILIARY STEAM
CCW = CLOSED COOLING WATER
CRD = CONTROL ROD DRIVE
CS = CORE SPRAY
FW = FEEDWATER
HPCI = HIGH PRESSURE COOLANT INJECTION
HS = HEAD SPRAY
MS = MAIN STEAM
R = RECIRCULATION
RCIC = REACTOR CORE ISOLATION COOLING
RHR = RESIDUAL HEAT REMOVAL
RWC = REACTOR WATER CLEANUP

KEY TO NDE ABBREVIATIONS USED IN DATABASE

UT0 = ULTRASONIC 0 DEGREE WAVE
UT45 = ULTRASONIC 45 DEGREE WAVE
VT = VISUAL TESTING
PT = PENETRANT TESTING
RT = RADIOGRAPHY

KEY TO DETERMINING FABRICATOR FROM WELD NUMBER

Weld number	Fabricator
CRDxxx	TVA
Dxxx (except DSxxx)	TVA
DSxxx	Dravo
FWxxx	TVA
Gxxx	TVA
HPCIxxx	TVA
Kxxx	Kellogg
MX-TEE	TVA
RCICxxx	TVA
RCRDxxx	TVA
RWCUxxx	TVA
Txxx	TVA
3-RHR-xxx	TVA

xxx implies any combination of letters and numbers

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
GFW-1-1	UT0	
GFW-1-1	UT45	
GFW-1-1	UT70	
KFW-1-1	UT0	
KFW-1-1	UT45	
KFW-1-1	UT70	
GFW-1-2	UT0	
GFW-1-2	UT45	
GFW-1-2	UT70	
GFW-1-3	UT0	
GFW-1-3	UT45	
GFW-1-3	UT70	
GFW-1-4	UT0	
GFW-1-4	UT45	
GFW-1-4	UT70	
KFW-1-5	UT0	
KFW-1-5	UT45	
KFW-1-5	UT70	
GFW-1-5	UT0	
GFW-1-5	UT45	
GFW-1-5	UT70	
KFW-1-7	UT0	
KFW-1-7	UT45	
KFW-1-7	UT70	
KFW-1-8	UT0	
KFW-1-8	UT45	
KFW-1-8	UT70	
GFW-1-6	UT0	
GFW-1-6	UT45	
GFW-1-6	UT70	
GFW-1-7	UT0	
GFW-1-7	UT45	
GFW-1-7	UT70	
KFW-1-9	UT0	
KFW-1-9	UT45	
KFW-1-9	UT70	
KFW-1-10	UT0	
KFW-1-10	UT45	
KFW-1-10	UT70	
GFW-1-8A	UT0	
GFW-1-8A	UT45	
GFW-1-8A	UT70	
KFW-1-11	UT0	
KFW-1-11	UT45	
KFW-1-11	UT70	
KFW-1-12	UT0	
KFW-1-12	UT45	
KFW-1-12	UT70	
GFW-1-8	UT0	
GFW-1-8	UT45	

UNIT 1 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
GFW-1-8	UT70	
KFW-1-13	UT0	
KFW-1-13	UT45	
KFW-1-13	UT70	
GFW-1-9	UT0	
GFW-1-9	UT45	
GFW-1-9	UT70	
GFW-1-10	UT0	
GFW-1-10	UT45	
GFW-1-10	UT70	
KFW-1-14	UT0	
KFW-1-14	UT45	
KFW-1-14	UT70	
KFW-1-15	UT0	
KFW-1-15	UT45	
KFW-1-15	UT70	
GFW-1-11	UT0	
GFW-1-11	UT45	
GFW-1-11	UT70	
GFW-1-12	UT0	
GFW-1-12	UT45	
GFW-1-12	UT70	
GFW-1-13	UT0	
GFW-1-13	UT45	
GFW-1-13	UT70	
KFW-1-16	UT0	
KFW-1-16	UT45	
KFW-1-16	UT70	
KFW-1-17	UT0	
KFW-1-17	UT45	
KFW-1-17	UT70	
GFW-1-14	UT0	
GFW-1-14	UT45	
GFW-1-14	UT70	
GFW-1-15	UT0	
GFW-1-15	UT45	
GFW-1-15	UT70	
KFW-1-32	UT0	
KFW-1-32	UT45	
KFW-1-32	UT70	
KFW-1-33	UT0	
KFW-1-33	UT45	
KFW-1-33	UT70	
GFW-1-28	UT0	
GFW-1-28	UT45	
GFW-1-28	UT70	
KFW-1-39	UT0	
KFW-1-39	UT45	
KFW-1-39	UT70	
GFW-1-16	UT0	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
GFW-1-16	UT45	
GFW-1-16	UT70	
KFW-1-18	UT0	
KFW-1-18	UT45	
KFW-1-18	UT70	
KFW-1-19	UT0	
KFW-1-19	UT45	
KFW-1-19	UT70	
GFW-1-17	UT0	
GFW-1-17	UT45	
GFW-1-17	UT70	
KFW-1-3	UT0	
KFW-1-3	UT45	
GFW-1-18	UT0	
GFW-1-18	UT45	
KFW-1-21	UT0	
KFW-1-21	UT45	
GFW-1-19	UT0	
GFW-1-19	UT45	
GFW-1-20	UT0	
GFW-1-20	UT45	
GFW-1-21	UT0	
GFW-1-21	UT45	
KFW-1-23	UT0	
KFW-1-23	UT45	
GFW-1-22	UT0	
GFW-1-22	UT45	
KFW-1-24	UT0	
KFW-1-24	UT45	
KFW-1-25	UT0	
KFW-1-25	UT45	
KFW-1-26	UT0	
KFW-1-26	UT45	
GFW-1-23	UT0	
GFW-1-23	UT45	
GFW-1-24	UT0	
GFW-1-24	UT45	
GFW-1-32	UT0	
GFW-1-32	UT45	
KFW-1-38	UT0	
KFW-1-38	UT45	
GFW-1-33	UT0	
GFW-1-33	UT45	
KFW-1-36	UT0	
KFW-1-36	UT45	
KFW-1-37	UT0	
KFW-1-37	UT45	
GFW-1-34	UT0	
GFW-1-34	UT45	
KFW-1-27	UT0	

UNIT 1 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-1-27	UT45	
KFW-1-28	UT0	
KFW-1-28	UT45	
KFW-1-29	UT0	
KFW-1-29	UT45	
GFW-1-29	UT0	
GFW-1-29	UT45	
GFW-1-30	UT0	
GFW-1-30	UT45	
KFW-1-34	UT0	
KFW-1-34	UT45	
KFW-1-35	UT0	
KFW-1-35	UT45	
GFW-1-31	UT0	
GFW-1-31	UT45	
KFW-1-30	UT0	
KFW-1-30	UT45	
GFW-1-35	UT0	
GFW-1-35	UT45	
KFW-1-31	UT0	
KFW-1-31	UT45	
GFW-1-26	UT0	
GFW-1-26	UT45	
GFW-1-27	UT0	
GFW-1-27	UT45	

NO. OF INSPECTIONS: 175

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-1-148	UT0	
THPCI-1-148	UT45	
THPCI-1-149	UT0	
THPCI-1-149	UT45	
THPCI-1-150	UT0	
THPCI-1-150	UT45	
THPCI-1-151A	UT0	
THPCI-1-151A	UT45	
THPCI-1-151	UT0	
THPCI-1-151	UT45	
THPCI-1-152	UT0	
THPCI-1-152	UT45	
THPCI-1-153B	UT0	
THPCI-1-153B	UT45	
THPCI-1-153A	UT0	
THPCI-1-153A	UT45	
THPCI-1-153	UT0	
THPCI-1-153	UT45	
THPCI-1-154	UT0	
THPCI-1-154	UT45	
THPCI-1-155	UT0	
THPCI-1-155	UT45	
THPCI-1-156	UT0	
THPCI-1-156	UT45	
THPCI-1-157	UT0	
THPCI-1-157	UT45	
THPCI-1-158	UT0	
THPCI-1-158	UT45	
THPCI-1-160	UT0	
THPCI-1-160	UT45	
THPCI-1-5	UT0	
THPCI-1-5	UT45	
THPCI-1-4	UT0	
THPCI-1-4	UT45	
THPCI-1-3	UT0	
THPCI-1-3	UT45	
THPCI-1-1	UT0	
THPCI-1-1	UT45	

NO OF INSPECTIONS: 38

UNIT 1 CYCLE 0 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
DHS-1-6	UT0	
DHS-1-6	UT45	
DSHS-1-19	UT0	
DSHS-1-19	UT45	
DSHS-1-18	UT0	
DSHS-1-18	UT45	
DSHS-1-17	UT0	
DSHS-1-17	UT45	
DHS-1-5	UT0	
DHS-1-5	UT45	
DHS-1-4	UT0	
DHS-1-4	UT45	
DSHS-1-16	UT0	
DSHS-1-16	UT45	
DSHS-1-15	UT0	
DSHS-1-15	UT45	
DSHS-1-14	UT0	
DSHS-1-14	UT45	
DSHS-1-13	UT0	
DSHS-1-13	UT45	
DSHS-1-12	UT0	
DSHS-1-12	UT45	
DSHS-1-11	UT0	
DSHS-1-11	UT45	
DSHS-1-10	UT0	
DSHS-1-10	UT45	
DSHS-1-9	UT0	
DSHS-1-9	UT45	
DHS-1-3	UT0	
DHS-1-3	UT45	
DSHS-1-8	UT0	
DSHS-1-8	UT45	
DSHS-1-7	UT0	
DSHS-1-7	UT45	
DSHS-1-6	UT0	
DSHS-1-6	UT45	
DHS-1-2	UT0	
DHS-1-2	UT45	
DSHS-1-5	UT0	
DSHS-1-5	UT45	
DSHS-1-4	UT0	
DSHS-1-4	UT45	
DSHS-1-3	UT0	
DSHS-1-3	UT45	
DSHS-1-2	UT0	
DSHS-1-2	UT45	
DSHS-1-1	UT0	
DSHS-1-1	UT45	
DSHS-1-1A	UT0	
DSHS-1-1A	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
DHS-1-1	UT0	
DHS-1-1	UT45	

NO. OF INSPECTIONS: 52

UNIT 1 CYCLE 0 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRD-1-19	UT0	
RCRD-1-19	UT45	
RCRD-1-20	UT0	
RCRD-1-20	UT45	
RCRD-1-21	UT0	
RCRD-1-21	UT45	
RCRD-1-22	UT0	
RCRD-1-22	UT45	
RCRD-1-23	UT0	
RCRD-1-23	UT45	
RCRD-1-24	UT0	
RCRD-1-24	UT45	
RCRD-1-25	UT0	
RCRD-1-25	UT45	
RCRD-1-26	UT0	
RCRD-1-26	UT45	
RCRD-1-28	UT0	
RCRD-1-28	UT45	
RCRD-1-29	UT0	
RCRD-1-29	UT45	
RCRD-1-30	UT0	
RCRD-1-30	UT45	
RCRD-1-31	UT0	
RCRD-1-31	UT45	
RCRD-1-32	UT0	
RCRD-1-32	UT45	
RCRD-1-33	UT0	
RCRD-1-33	UT45	

NO. OF INSPECTIONS: 28

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-1-13	UT0	
DCS-1-13	UT45	
DSCS-1-7	UT0	
DSCS-1-7	UT45	
DSCS-1-8	UT0	
DSCS-1-8	UT45	
DSCS-1-9	UT0	
DSCS-1-9	UT45	
DCS-1-14	UT0	
DCS-1-14	UT45	
DCS-1-15	UT0	
DCS-1-15	UT45	
DSCS-1-10	UT0	
DSCS-1-10	UT45	
DSCS-1-11	UT0	
DSCS-1-11	UT45	
DSCS-1-12	UT0	
DSCS-1-12	UT45	
DCS-1-16	UT0	
DCS-1-16	UT45	
DCS-1-17	UT0	
DCS-1-17	UT45	
DSCS-1-13	UT0	
DSCS-1-13	UT45	
DCS-1-18	UT0	
DCS-1-18	UT45	
DCS-1-4	UT0	
DCS-1-4	UT45	
DSCS-1-1	UT0	
DSCS-1-1	UT45	
DSCS-1-2	UT0	
DSCS-1-2	UT45	
DCS-1-5	UT0	
DCS-1-5	UT45	
DCS-1-6	UT0	
DCS-1-6	UT45	
DSCS-1-3	UT0	
DSCS-1-3	UT45	
DSCS-1-4	UT0	
DSCS-1-4	UT45	
DSCS-1-5	UT0	
DSCS-1-5	UT45	
DCS-1-7	UT0	
DCS-1-7	UT45	
DCS-1-8	UT0	
DCS-1-8	UT45	
DSCS-1-6	UT0	
DSCS-1-6	UT45	
DCS-1-9	UT0	
DCS-1-9	UT45	

NO. OF INSPECTIONS: 50

UNIT 1 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-1-8	UT0	
GMS-1-8	UT45	
KMS-1-28	UT0	
KMS-1-28	UT45	
KMS-1-27	UT0	
KMS-1-27	UT45	
GMS-1-7	UT0	
GMS-1-7	UT45	
GMS-1-6	UT0	
GMS-1-6	UT45	
KMS-1-24	UT0	
KMS-1-24	UT45	
KMS-1-21	UT0	
KMS-1-21	UT45	
KMS-1-22	UT0	
KMS-1-22	UT45	
KMS-1-23	UT0	
KMS-1-23	UT45	
KMS-1-18	UT0	
KMS-1-18	UT45	
KMS-1-19	UT0	
KMS-1-19	UT45	
KMS-1-20	UT0	
KMS-1-20	UT45	
KMS-1-15	UT0	
KMS-1-15	UT45	
KMS-1-16	UT0	
KMS-1-16	UT45	
KMS-1-17	UT0	
KMS-1-17	UT45	
KMS-1-12	UT0	
KMS-1-12	UT45	
KMS-1-13	UT0	
KMS-1-13	UT45	
KMS-1-14	UT0	
KMS-1-14	UT45	
KMS-1-9	UT0	
KMS-1-9	UT45	
KMS-1-10	UT0	
KMS-1-10	UT45	
KMS-1-11	UT0	
KMS-1-11	UT45	
KMS-1-6	UT0	
KMS-1-6	UT45	
KMS-1-7	UT0	
KMS-1-7	UT45	
KMS-1-8	UT0	
KMS-1-8	UT45	
KMS-1-3	UT0	
KMS-1-3	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-1-4	UT0	
KMS-1-4	UT45	
KMS-1-5	UT0	
KMS-1-5	UT45	
KMS-1-25	UT0	
KMS-1-25	UT45	
KMS-1-2	UT0	
KMS-1-2	UT45	
KMS-1-26	UT0	
KMS-1-26	UT45	
GMS-1-5	UT0	
GMS-1-5	UT45	
GMS-1-4	UT0	
GMS-1-3	UT0	
GMS-1-3	UT45	
GMS-1-2	UT0	
GMS-1-2	UT45	
GMS-1-1	UT0	
GMS-1-1	UT45	
GMS-1-34	UT0	
GMS-1-34	UT45	
KMS-1-108	UT0	
KMS-1-108	UT45	
KMS-1-107	UT0	
KMS-1-107	UT45	
GMS-1-33	UT0	
GMS-1-33	UT45	
GMS-1-32	UT0	
GMS-1-32	UT45	
KMS-1-104	UT0	
KMS-1-104	UT45	
KMS-1-101	UT0	
KMS-1-101	UT45	
KMS-1-102	UT0	
KMS-1-102	UT45	
KMS-1-103	UT0	
KMS-1-103	UT45	
KMS-1-98	UT0	
KMS-1-98	UT45	
KMS-1-99	UT0	
KMS-1-99	UT45	
KMS-1-100	UT0	
KMS-1-100	UT45	
KMS-1-95	UT0	
KMS-1-95	UT45	
KMS-1-96	UT0	
KMS-1-96	UT45	
KMS-1-97	UT0	
KMS-1-97	UT45	
KMS-1-92	UT0	

UNIT 1 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-1-92	UT45	
KMS-1-93	UT0	
KMS-1-93	UT45	
KMS-1-94	UT0	
KMS-1-94	UT45	
KMS-1-89	UT0	
KMS-1-89	UT45	
KMS-1-90	UT0	
KMS-1-90	UT45	
KMS-1-91	UT0	
KMS-1-91	UT45	
KMS-1-86	UT0	
KMS-1-86	UT45	
KMS-1-87	UT0	
KMS-1-87	UT45	
KMS-1-88	UT0	
KMS-1-88	UT45	
KMS-1-83	UT0	
KMS-1-83	UT45	
KMS-1-84	UT0	
KMS-1-84	UT45	
KMS-1-85	UT0	
KMS-1-85	UT45	
KMS-1-15	UT0	
KMS-1-15	UT45	
KMS-1-82	UT0	
KMS-1-82	UT45	
KMS-1-106	UT0	
KMS-1-106	UT45	
GMS-1-31	UT0	
GMS-1-31	UT45	
GMS-1-30	UT0	
GMS-1-30	UT45	
KMS-1-81	UT0	
KMS-1-81	UT45	
GMS-1-29	UT0	
GMS-1-29	UT45	
GMS-1-28	UT0	
GMS-1-28	UT45	
GMS-1-27	UT0	
GMS-1-27	UT45	
GMS-1-17	UT0	
GMS-1-17	UT45	
KMS-1-55	UT0	
KMS-1-55	UT45	
KMS-1-54	UT0	
KMS-1-54	UT45	
GMS-1-16	UT0	
GMS-1-16	UT45	
GMS-1-15	UT0	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-1-15	UT45	
GMS-1-14	UT0	
GMS-1-14	UT45	
KMS-1-40	UT0	
KMS-1-40	UT45	
KMS-1-41	UT0	
KMS-1-41	UT45	
KMS-1-42	UT0	
KMS-1-42	UT45	
KMS-1-43	UT0	
KMS-1-43	UT45	
KMS-1-44	UT0	
KMS-1-44	UT45	
KMS-1-45	UT0	
KMS-1-45	UT45	
KMS-1-53	UT0	
KMS-1-53	UT45	
KMS-1-46	UT0	
KMS-1-46	UT45	
KMS-1-47	UT0	
KMS-1-47	UT45	
KMS-1-48	UT0	
KMS-1-48	UT45	
KMS-1-49	UT0	
KMS-1-49	UT45	
KMS-1-50	UT0	
KMS-1-50	UT45	
KMS-1-51	UT0	
KMS-1-51	UT45	
KMS-1-52	UT0	
KMS-1-52	UT45	
KMS-1-38	UT0	
KMS-1-38	UT45	
KMS-1-35	UT0	
KMS-1-35	UT45	
KMS-1-36	UT0	
KMS-1-36	UT45	
KMS-1-37	UT0	
KMS-1-37	UT45	
KMS-1-32	UT0	
KMS-1-32	UT45	
KMS-1-33	UT0	
KMS-1-33	UT45	
KMS-1-34	UT0	
KMS-1-34	UT45	
KMS-1-31	UT0	
KMS-1-31	UT45	
GMS-1-13	UT0	
GMS-1-13	UT45	
GMS-1-12	UT0	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-1-12	UT45	
KMS-1-30	UT0	
KMS-1-30	UT45	
GMS-1-11	UT0	
GMS-1-11	UT45	
GMS-1-10	UT0	
GMS-1-10	UT45	
GMS-1-9	UT0	
GMS-1-9	UT45	
GMS-1-26	UT0	
GMS-1-26	UT45	
KMS-1-80	UT0	
KMS-1-80	UT45	
KMS-1-79	UT0	
KMS-1-79	UT45	
GMS-1-25	UT0	
GMS-1-25	UT45	
KMS-1-78	UT0	
KMS-1-78	UT45	
KMS-1-77	UT0	
KMS-1-77	UT45	
GMS-1-24	UT0	
GMS-1-24	UT45	
GMS-1-23	UT0	
GMS-1-23	UT45	
KMS-1-64	UT0	
KMS-1-64	UT45	
KMS-1-65	UT0	
KMS-1-65	UT45	
KMS-1-66	UT0	
KMS-1-66	UT45	
KMS-1-67	UT0	
KMS-1-67	UT45	
KMS-1-68	UT0	
KMS-1-68	UT45	
KMS-1-69	UT0	
KMS-1-69	UT45	
KMS-1-70	UT0	
KMS-1-70	UT45	
KMS-1-71	UT0	
KMS-1-71	UT45	
KMS-1-72	UT0	
KMS-1-72	UT45	
KMS-1-73	UT0	
KMS-1-73	UT45	
KMS-1-74	UT0	
KMS-1-74	UT45	
KMS-1-75	UT0	
KMS-1-75	UT45	
KMS-1-76	UT0	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-1-76	UT45	
KMS-1-62	UT0	
KMS-1-62	UT45	
KMS-1-63	UT0	
KMS-1-63	UT45	
KMS-1-61	UT0	
KMS-1-61	UT45	
KMS-1-60	UT0	
KMS-1-60	UT45	
KMS-1-59	UT0	
KMS-1-59	UT45	
KMS-1-58	UT0	
KMS-1-58	UT45	
GMS-1-22	UT0	
GMS-1-22	UT45	
GMS-1-21	UT0	
GMS-1-21	UT45	
KMS-1-57	UT0	
KMS-1-57	UT45	
KMS-1-56	UT0	
KMS-1-56	UT45	
GMS-1-20	UT0	
GMS-1-20	UT45	
GMS-1-19	UT0	
GMS-1-19	UT45	
GMS-1-18	UT0	
GMS-1-18	UT45	

NO. OF INSPECTIONS: 277

UNIT 1 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-1-53	UT0	
GR-1-53	UT45	
KR-1-45	UT0	
KR-1-45	UT45	
GR-1-54	UT0	
GR-1-54	UT45	
GR-1-55	UT0	
GR-1-55	UT45	
KR-1-46	UT0	
KR-1-46	UT45	
KR-1-47	UT0	
KR-1-47	UT45	
GR-1-56	UT0	
GR-1-56	UT45	
GR-1-57	UT0	
GR-1-57	UT45	
KR-1-49	UT0	
KR-1-49	UT45	
KR-1-48	UT0	
KR-1-48	UT45	
GR-1-58	UT0	
GR-1-58	UT45	
GR-1-1	UT0	
GR-1-1	UT45	
GR-1-2	UT0	
GR-1-2	UT45	
GR-1-3	UT0	
GR-1-3	UT45	
KR-1-2	UT0	
KR-1-2	UT45	
KR-1-55	UT0	
KR-1-55	UT45	
GR-1-65	UT0	
GR-1-65	UT45	
KR-1-1	UT0	
KR-1-1	UT45	
GR-1-4	UT0	
GR-1-4	UT45	
KR-1-5	UT0	
KR-1-5	UT45	
KR-1-6	UT0	
KR-1-6	UT45	
KR-1-7	UT0	
KR-1-7	UT45	
KR-1-8	UT0	
KR-1-8	UT45	
GR-1-5	UT0	
GR-1-5	UT45	
GR-1-6	UT0	
GR-1-6	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-1-9	UT0	
KR-1-9	UT45	
KR-1-10	UT0	
KR-1-10	UT45	
GR-1-7	UT0	
GR-1-7	UT45	
KR-1-4	UT0	
KR-1-4	UT45	
KR-1-3	UT0	
KR-1-3	UT45	
GR-1-8	UT0	
GR-1-8	UT45	
KR-1-12	UT0	
KR-1-12	UT45	
KR-1-15	UT0	
KR-1-15	UT45	
KR-1-14	UT0	
KR-1-14	UT45	
GR-1-9	UT0	
GR-1-9	UT45	
GR-1-10	UT0	
GR-1-10	UT45	
KR-1-16	UT0	
KR-1-16	UT45	
GR-1-11	UT0	
GR-1-11	UT45	
KR-1-13	UT0	
KR-1-13	UT45	
GR-1-12	UT0	
GR-1-12	UT45	
GR-1-13	UT0	
GR-1-13	UT45	
KR-1-17	UT0	
KR-1-17	UT45	
GR-1-14	UT0	
GR-1-14	UT45	
KR-1-11	UT0	
KR-1-11	UT45	
GR-1-15	UT0	
GR-1-15	UT45	
GR-1-16	UT0	
GR-1-16	UT45	
KR-1-18	UT0	
KR-1-18	UT45	
GR-1-17	UT0	
GR-1-17	UT45	
GR-1-18	UT0	
GR-1-18	UT45	
KR-1-19	UT0	
KR-1-19	UT45	

UNIT 1   CYCLE 0   SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-1-19	UT0	
GR-1-19	UT45	
GR-1-20	UT0	
GR-1-20	UT45	
KR-1-21	UT0	
KR-1-21	UT45	
GR-1-21	UT0	
GR-1-21	UT45	
KR-1-20	UT0	
KR-1-20	UT45	
GR-1-22	UT0	
GR-1-22	UT45	
GR-1-23	UT0	
GR-1-23	UT45	
KR-1-22	UT0	
KR-1-22	UT45	
GR-1-24	UT0	
GR-1-24	UT45	
GR-1-25	UT0	
GR-1-25	UT45	
GR-1-26	UT0	
GR-1-26	UT45	
GR-1-59	UT0	
GR-1-59	UT45	
KR-1-50	UT0	
KR-1-50	UT45	
GR-1-60	UT0	
GR-1-60	UT45	
GR-1-61	UT0	
GR-1-61	UT45	
KR-1-51	UT0	
KR-1-51	UT45	
GR-1-62	UT0	
GR-1-62	UT45	
GR-1-63	UT0	
GR-1-63	UT45	
GR-1-63B	UT0	
GR-1-63B	UT45	
KR-1-53	UT0	
KR-1-53	UT45	
GR-1-63A	UT0	
GR-1-63A	UT45	
KR-1-52	UT0	
KR-1-52	UT45	
GR-1-64	UT0	
GR-1-64	UT45	
GR-1-27	UT0	
GR-1-27	UT45	
GR-1-28	UT0	
GR-1-28	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-1-29	UT0	
GR-1-29	UT45	
KR-1-24	UT0	
KR-1-24	UT45	
KR-1-54	UT0	
KR-1-54	UT45	
GR-1-66	UT0	
GR-1-66	UT45	
KR-1-23	UT0	
KR-1-23	UT45	
GR-1-30	UT0	
GR-1-30	UT45	
KR-1-27	UT0	
KR-1-27	UT45	
KR-1-28	UT0	
KR-1-28	UT45	
KR-1-29	UT0	
KR-1-29	UT45	
KR-1-30	UT0	
KR-1-30	UT45	
GR-1-31	UT0	
GR-1-31	UT45	
GR-1-32	UT0	
GR-1-32	UT45	
KR-1-31	UT0	
KR-1-31	UT45	
KR-1-32	UT0	
KR-1-32	UT45	
GR-1-33	UT0	
GR-1-33	UT45	
KR-1-26	UT0	
KR-1-26	UT45	
KR-1-25	UT0	
KR-1-25	UT45	
GR-1-34	UT0	
GR-1-34	UT45	
GR-1-44	UT0	
GR-1-44	UT45	
GR-1-51	UT0	
GR-1-51	UT45	
GR-1-52	UT0	
GR-1-52	UT45	
KR-1-42	UT0	
KR-1-42	UT45	
GR-1-48	UT0	
GR-1-48	UT45	
GR-1-49	UT0	
GR-1-49	UT45	
KR-1-44	UT0	
KR-1-44	UT45	

UNIT 1 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-1-50	UT0	
GR-1-50	UT45	
KR-1-41	UT0	
KR-1-41	UT45	
GR-1-45	UT0	
GR-1-45	UT45	
GR-1-46	UT0	
GR-1-46	UT45	
KR-1-43	UT0	
KR-1-43	UT45	
GR-1-47	UT0	
GR-1-47	UT45	
KR-1-33	UT0	
KR-1-33	UT45	
GR-1-41	UT0	
GR-1-41	UT45	
GR-1-42	UT0	
GR-1-42	UT45	
KR-1-40	UT0	
KR-1-40	UT45	
GR-1-43	UT0	
GR-1-43	UT45	
KR-1-34	UT0	
KR-1-34	UT45	
KR-1-35	UT0	
KR-1-35	UT45	
GR-1-38	UT0	
GR-1-38	UT45	
GR-1-39	UT0	
GR-1-39	UT45	
KR-1-39	UT0	
KR-1-39	UT45	
GR-1-40	UT0	
GR-1-40	UT45	
KR-1-36	UT0	
KR-1-36	UT45	
GR-1-35	UT0	
GR-1-35	UT45	
GR-1-36	UT0	
GR-1-36	UT45	
KR-1-38	UT0	
KR-1-38	UT45	
GR-1-37	UT0	
GR-1-37	UT45	
KR-1-37	UT0	
KR-1-37	UT45	

NO. OF INSPECTIONS: 246

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-1-5	UT0	
TRCIC-1-5	UT45	
TRCIC-1-4	UT0	
TRCIC-1-4	UT45	
TRCIC-1-3	UT0	
TRCIC-1-3	UT45	
TRCIC-1-3A	UT0	
TRCIC-1-3A	UT45	
TRCIC-1-2	UT0	
TRCIC-1-2	UT45	

NO. OF INSPECTIONS: 10

UNIT 1 CYCLE 0 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DRHR-1-3	UT0	
DRHR-1-3	UT45	
DRHR-1-4	UT0	
DRHR-1-4	UT45	
DSRHR-1-1	UT0	
DSRHR-1-1	UT45	
DSRHR-1-2	UT0	
DSRHR-1-2	UT45	
DRHR-1-5	UT0	
DRHR-1-5	UT45	
DRHR-1-6	UT0	
DRHR-1-6	UT45	
DSRHR-1-3	UT0	
DSRHR-1-3	UT45	
DSRHR-1-4	UT0	
DSRHR-1-4	UT45	
DSRHR-1-4A	UT0	
DSRHR-1-4A	UT45	
DRHR-1-7	UT0	
DRHR-1-7	UT45	
DRHR-1-8	UT0	
DRHR-1-8	UT45	
DRHR-1-9	UT0	
DRHR-1-9	UT45	
DRHR-1-12	UT0	
DRHR-1-12	UT45	
DRHR-1-13	UT0	
DRHR-1-13	UT45	
DSRHR-1-5	UT0	
DSRHR-1-5	UT45	
DSRHR-1-5A	UT0	
DSRHR-1-5A	UT45	
DRHR-1-14	UT0	
DRHR-1-14	UT45	
DRHR-1-15	UT0	
DRHR-1-15	UT45	
DSRHR-1-6	UT0	
DSRHR-1-6	UT45	
DSRHR-1-7	UT0	
DSRHR-1-7	UT45	
DSRHR-1-8A	UT0	
DSRHR-1-8A	UT45	
DSRHR-1-8B	UT0	
DSRHR-1-8B	UT45	
DRHR-1-16	UT0	
DRHR-1-16	UT45	
DRHR-1-17	UT0	
DRHR-1-17	UT45	
DRHR-1-18	UT0	
DRHR-1-18	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DRHR-1-19	UT0	
DRHR-1-19	UT45	
DSRHR-1-8	UT0	
DSRHR-1-8	UT45	
DSRHR-1-9	UT0	
DSRHR-1-9	UT45	
DRHR-1-20	UT0	
DRHR-1-20	UT45	
DRHR-1-21	UT0	
DRHR-1-21	UT45	
DSRHR-1-10	UT0	
DSRHR-1-10	UT45	
DSRHR-1-11	UT0	
DSRHR-1-11	UT45	
DRHR-1-22	UT0	
DRHR-1-22	UT45	
TRHR-1-190	UT0	
TRHR-1-190	UT45	
TRHR-1-191	UT0	
TRHR-1-191	UT45	
TRHR-1-194	UT0	
TRHR-1-194	UT45	
TRHR-1-454A	UT0	
TRHR-1-454A	UT45	
TRHR-1-454D	UT0	
TRHR-1-454D	UT45	
TRHR-1-454E	UT0	
TRHR-1-454E	UT45	
TRHR-1-454F	UT0	
TRHR-1-454F	UT45	
TRHR-1-454G	UT0	
TRHR-1-454G	UT45	

NO. OF INSPECTIONS: 82

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 0 SYSTEM: RWC

WELD NO	NDE	INDICATIONS
DRWC-1-1B	UT0	
DRWC-1-1B	UT45	
DRWC-1-1A	UT0	
DRWC-1-1A	UT45	
DRWC-1-1	UT0	
DRWC-1-1	UT45	
DSRWC-1-1	UT0	
DSRWC-1-1	UT45	
DRWC-1-2	UT0	
DRWC-1-2	UT45	
DRWC-1-3	UT0	
DRWC-1-3	UT45	
DSRWC-1-1A	UT0	
DSRWC-1-1A	UT45	
DSRWC-1-2	UT0	
DSRWC-1-2	UT45	
DSRWC-1-3	UT0	
DSRWC-1-3	UT45	
DSRWC-1-4	UT0	
DSRWC-1-4	UT45	
DSRWC-1-5	UT0	
DSRWC-1-5	UT45	
DSRWC-1-6	UT0	
DSRWC-1-6	UT45	
DSRWC-1-7	UT0	
DSRWC-1-7	UT45	
DRWC-1-4	UT0	
DRWC-1-4	UT45	
DRWC-1-4A	UT0	
DRWC-1-4A	UT45	
DRWC-1-4E	UT0	
DRWC-1-4E	UT45	
DRWC-1-59	UT0	
DRWC-1-59	UT45	
DSRWC-1-11	UT0	
DSRWC-1-11	UT45	
DSRWC-1-10	UT0	
DSRWC-1-10	UT45	
DSRWC-1-9	UT0	
DSRWC-1-9	UT45	
DSRWC-1-8	UT0	
DSRWC-1-8	UT45	
DRWC-1-61	UT0	
DRWC-1-61	UT45	
DRWC-1-60	UT0	
DRWC-1-60	UT45	

NO. OF INSPECTIONS: 46

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 1 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRD-1-33	UT0	
RCRD-1-33	UT45	

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 1 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DSCS-1-6	UT0	
DSCS-1-6	UT45	
DCS-1-8	UT0	
DCS-1-8	UT45	
DCS-1-7	UT0	
DCS-1-7	UT45	
DSCS-1-3	UT0	
DSCS-1-3	UT45	
DSCS-1-4	UT0	
DSCS-1-4	UT45	
DCS-1-6	UT0	
DCS-1-6	UT45	
DCS-1-5	UT0	
DCS-1-5	UT45	
DSCS-1-2	UT0	
DSCS-1-2	UT45	
DSCS-1-1	UT0	
DSCS-1-1	UT45	
DCS-1-4	UT0	
DCS-1-4	UT45	
DSCS-1-13	UT0	
DSCS-1-13	UT45	
DCS-1-17	UT0	
DCS-1-17	UT45	
DCS-1-16	UT0	
DCS-1-16	UT45	
DSCS-1-12	UT0	
DSCS-1-12	UT45	
DSCS-1-11	UT0	
DSCS-1-11	UT45	
DSCS-1-10	UT0	
DSCS-1-10	UT45	
DCS-1-15	UT0	
DCS-1-15	UT45	
DCS-1-14	UT0	
DCS-1-14	UT45	
DSCS-1-9	UT0	
DSCS-1-9	UT45	
DSCS-1-8	UT0	
DSCS-1-8	UT45	
DSCS-1-7	UT0	
DSCS-1-7	UT45	
DCS-1-13	UT0	
DCS-1-13	UT45	
DSCS-1-5	UT0	
DSCS-1-5	UT45	

NO. OF INSPECTIONS: 46

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 2 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-1-4	UT45	
DSCS-1-1	UT45	
DSCS-1-2	UT45	
DCS-1-5	UT45	
DCS-1-6	UT45	
DSCS-1-3	UT45	
DSCS-1-4	UT45	
DSCS-1-5	UT45	
DCS-1-7	UT45	
DCS-1-8	UT45	
DSCS-1-6	UT45	
DCS-1-13	UT45	
DSCS-1-7	UT45	
DSCS-1-8	UT45	
DSCS-1-9	UT45	
DCS-1-14	UT45	
DCS-1-15	UT45	
DSCS-1-10	UT45	
DSCS-1-11	UT45	
DSCS-1-12	UT45	
DCS-1-16	UT45	
DCS-1-17	UT45	
DSCS-1-13	UT45	
DCS-1-18	UT45	
DCS-1-9	UT45	

NO. OF INSPECTIONS: 25

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 2 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-1-26	UT0	
KFW-1-26	UT45	
KFW-1-9	UT0	
KFW-1-9	UT45	
KFW-1-10	UT0	
KFW-1-10	UT45	
KFW-1-38	UT0	
KFW-1-38	UT45	
GFW-1-29	UT0	
GFW-1-29	UT45	

NO. OF INSPECTIONS: 10

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 2 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-1-15	UT0	
GMS-1-15	UT45	
GMS-1-24	UT0	
GMS-1-24	UT45	
GMS-1-12	UT0	
GMS-1-12	UT45	
KMS-1-30	UT0	
KMS-1-30	UT45	
KMS-1-59	UT0	
KMS-1-59	UT45	
KMS-1-60	UT0	
KMS-1-60	UT45	
KMS-1-36	UT0	
KMS-1-36	UT45	

NO. OF INSPECTIONS: 14

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 2 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-1-24	UT0	
KR-1-24	UT45	
GR-1-28	UT0	
GR-1-28	UT45	
GR-1-42	UT45	
GR-1-49	UT0	
GR-1-49	UT45	
GR-1-20	UT45	
GR-1-13	UT45	
GR-1-43	UT45	
GR-1-20	UT45	

NO. OF INSPECTIONS: 11

UNIT 1 CYCLE 2 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DSHS-1-14	UT0	
DSHS-1-14	UT45	

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 3 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRD-1-45	UT0	
RCRD-1-43	UT0	
RCRD-1-44	UT0	
RCRD-1-49	UT0	
RCRDS-1-1	UT0	
RCRDS-1-2	UT0	
RCRDS-1-3	UT0	
RCRDS-1-3	UT45	
RCRD-1-49	UT45	
RCRD-1-48	UT45	LINEAR IND
RCRD-1-47	UT45	
RCRD-1-46	UT45	
RCRD-1-45	UT45	
RCRD-1-44	UT45	
RCRD-1-43	UT45	
RCRD-1-48	UT45	LINEAR IND

NO. OF INSPECTIONS: 16

UNIT 1 CYCLE 3 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-1-18	UT45	
DSCS-1-13	UT45	
DCS-1-17	UT45	
DCS-1-16	UT45	
DCS-1-9	UT45	
DSCS-1-6	UT45	
DCS-1-7	UT45	
DSCS-1-5	UT45	
DCS-1-8	UT45	
DSCS-1-4	UT45	
DSCS-1-3	UT45	
DCS-1-6	UT45	
DCS-1-5	UT45	
DSCS-1-2	UT45	
DSCS-1-7	UT45	
DSCS-1-8	UT45	
DSCS-1-1	UT45	LINEAR IND
DCS-1-4	UT45	
DCS-1-6	UT45	
DSCS-1-4	UT45	
DSCS-1-9	UT45	
DCS-1-14	UT45	
DCS-1-15	UT45	
DSCS-1-10	UT45	
DSCS-1-11	UT45	
DSCS-1-12	UT45	
DCS-1-8	UT45	
DCS-1-17	UT45	
DCS-1-17	UT0	
DCS-1-16	UT0	
DCS-1-15	UT0	
DCS-1-14	UT0	
DCS-1-5	UT0	
DCS-1-6	UT0	
DCS-1-7	UT0	
DCS-1-8	UT0	

NO. OF INSPECTIONS: 36

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 3 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DRWC-1-1	UT45	
DSRWC-1-1	UT45	
DRWC-1-2	UT45	GEOMETRY
DRWC-1-3	UT45	
DSRWC-1-2	UT45	
DSRWC-1-1A	UT45	
DSRWC-1-3	UT45	
DSRWC-1-4	UT45	
DSRWC-1-5	UT45	
DSRWC-1-6	UT45	
DSRWC-1-7	UT45	
DRWC-1-4	UT45	
DRWC-1-1	UT0	
DRWC-1-2	UT0	
DRWC-1-3	UT0	
TRWC-1-2	UT0	
TRWC-1-2	UT45	
TRWC-1-1	UT0	
TRWC-1-1	UT45	

NO. OF INSPECTIONS: 19

UNIT 1 CYCLE 4 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRD-1-40	PT	
CRD MIX TEE	UT45	
RCRD-1-3	UT0	
RCRD-1-44	UT0	
RCRD-1-45	UT0	
RCRD-1-3	UT45	
CRD MIX TEE	UT0	
RCRD-1-45	UT45	
RCRD-1-44	UT45	

NO. OF INSPECTIONS: 9

UNIT 1 CYCLE 4 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-1-17	UT0	
DCS-1-15	UT0	
DCS-1-15-S	UT0	
DSCS-1-10	UT0	
DSCS-1-11	UT0	
DSCS-1-11-S	UT0	
DSCS-1-12	UT0	
DSCS-1-12-S	UT0	
DCS-1-16	UT0	
DCS-1-18	UT0	
DSCS-1-4	UT0	
DSCS-1-13-S	UT0	
DSCS-1-13	UT0	
DCS-1-17-S	UT0	
DCS-1-6	UT0	
DSCS-1-3	UT0	
DSCS-1-5	UT0	
DSCS-1-5-S	UT0	
DCS-1-7	UT0	
DCS-1-8	UT0	
DCS-1-8-S	UT0	
DSCS-1-6	UT0	
DSCS-1-6-S	UT0	
DCS-1-9	UT0	
DCS-1-16-S	UT0	
DCS-1-18-S	UT0	
DCS-1-9-S	UT0	
DCS-1-15	UT45	
DSCS-1-10	UT45	
DSCS-1-16	UT45	
DSCS-1-17	UT45	
DCS-1-18	UT45	
DSCS-1-12	UT45	
DSCS-1-11	UT45	
DSCS-1-13	UT45	
DCS-1-9	UT45	
DSCS-1-6	UT45	
DCS-1-8	UT45	
DCS-1-6	UT45	
DSCS-1-3	UT45	
DSCS-1-4	UT45	
DSCS-1-5	UT45	
DCS-1-7	UT45	
DCS-1-15	UT45	
DCS-1-17	UT45	
DSCS-1-13	UT45	
DCS-1-7	UT45	
DSCS-1-5	UT45	
CS-1-H3	PT	
CS-1-H6	PT	

UNIT 1 CYCLE 4 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
CS-1-R8	PT	
CS-1-R1	PT	
CS-1-R2	PT	
CS-1-R9	PT	
DSCS-1-6	UT45	

NO. OF INSPECTIONS: 55

UNIT 1 CYCLE 4 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-1-25	UT45	
KFW-1-26	UT45	
GFW-1-12	UT45	
GFW-1-9	UT45	
KFW-1-15	UT45	
KFW-1-13	UT45	
GFW-1-26	UT45	
KFW-1-3	UT45	
KFW-1-24	UT45	

NO. OF INSPECTIONS: 9

UNIT 1 CYCLE 4 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-1-151	UT45	
THPCI-1-153B	UT45	
THPCI-1-1	UT45	
THPCI-1-3	UT45	

NO. OF INSPECTIONS: 4

UNIT 1 CYCLE 4 SYSTEM: HS

WELD NO	NDE	INDICATIONS
HS-1-H5	PT	
DSHS-1-13	UT0	
DSHS-1-12	UT0	
DSHS-1-11	UT0	
HS-1-H4	PT	
HS-1-H6	PT	
HS-1-H1	PT	
DSHS-1-13	UT45	
DSHS-1-12	UT45	
DSHS-1-11	UT45	

NO. OF INSPECTIONS: 10

UNIT 1 CYCLE 4 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-1-8	UT0	
GMS-1-8	UT0	
GMS-1-34	UT0	
GMS-1-34	UT0	
KMS-1-108	UT0	
KMS-1-108	UT0	
KMS-1-108	UT0	
KMS-1-108	UT0	
GMS-1-8	UT45	
GMS-1-34	UT45	
KMS-1-108	UT45	
KMS-1-108	UT45	
KMS-1-9	PT	
KMS-1-6	PT	
KMS-1-3	UT45	
KMS-1-21	UT45	
KMS-1-22	UT45	
KMS-1-8	UT45	
KMS-1-7	UT45	
KMS-1-5	UT45	
KMS-1-4	UT45	
KMS-1-5	UT0	
KMS-1-4	UT0	
KMS-1-7	UT0	
KMS-1-8	UT0	
KMS-1-22	UT0	
GMS-1-6	UT45	
GMS-1-30	UT45	
GMS-1-30	UT45	
KMS-1-63	PT	
KMS-1-21	UT0	
KMS-1-3	UT0	
KMS-1-104	UT45	

NO. OF INSPECTIONS: 33

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 4 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-1-50	UT0	
KR-1-44	UT0	
KR-1-44	UT45	
GR-1-50	UT45	
R-1-H10	PT	
GR-1-51	UT45	
KR-1-42	UT45	
GR-1-51	UT45	
GR-1-48	UT45	
GR-1-45	UT45	
R-1-SS3	PT	
GR-1-51	UT0	
KR-1-42	UT0	
GR-1-48	UT0	
GR-1-45	UT0	
R-1-H6	PT	
KR-1-55	PT	
KR-1-54	PT	
R-1B-H1	PT	
GR-1-2	UT0	
KR-1-54	UT45	
KR-1-55	UT45	
KR-1-2	UT45	
GR-1-2	UT45	
R-1B-H1	UT45	
R-1-H7	PT	
R-1-H2	PT	
GR-1-7	PT	
KR-1-4	PT	
GR-1-4	PT	
GR-1-30	PT	
GR-1-33	PT	
R-1-SS6	PT	
R-1-H11	PT	
R-1-H3	PT	
R-1-SS1	PT	
R-1-SS4	PT	
R-1-H8	PT	
R-1-H1	PT	
R-1-H5	PT	
R-1-H9	PT	
R-1-SS2	PT	
R-1-SS5	PT	

NO. OF INSPECTIONS: 43

UNIT 1 CYCLE 4 SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-1-5	UT0	
TRCIC-1-5	UT45	

NO. OF INSPECTIONS: 2

UNIT 1 CYCLE 4 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
RHR-1-H3	PT	
DSRHR-1-8A	UT45	
DSRHR-1-8A	UT45	
DSRHR-1-8A	UT45	
DRHR-1-16	UT45	
DSRHR-1-8	PT	
DSRHR-1-8B	UT45	
DSRHR-1-8B	UT45	SPOT 60% DAC
DRHR-1-16	UT0	
TRHR-1-191	UT45	
TRHR-1-454G	UT45	
TRHR-1-454G	UT0	
DRHR-1-16	UT0	
TRHR-1-454G	PT	
RHR-1-H7	PT	
DRHR-1-16	UT45	

NO. OF INSPECTIONS: 16

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1   CYCLE 4   SYSTEM: RWC

WELD NO	NDE	INDICATIONS
TRWC-1-1	UT45	
DRWC-1-3	UT45	
DSRWC-1-1A	UT45	
DRWC-1-4	UT45	
DSRWC-1-7	UT45	
DSRWC-1-5	UT45	
DSRWC-1-6	UT45	
DSRWC-1-4	UT45	
DSRWC-1-2	UT45	
DRWC-1-1	UT45	
DRWC-1-1A	UT45	
DRWC-1-1	UT0	
TRWC-1-1	UT0	
TRWC-1-2	UT0	
DRWC-1-3	UT0	
DSRWC-1-1A	UT0	
DSRWC-1-2	UT0	
DSRWC-1-3	UT0	
DSRWC-1-4	UT0	
DSRWC-1-5	UT0	
DSRWC-1-6	UT0	
DSRWC-1-7	UT0	
DRWC-1-4	UT0	
DSRWC-1-9	UT0	
TRWC-1-3	UT0	
TRWC-1-3	UT45	
TRWC-1-2X1	UT45	
TRWC-1-4	UT45	
TRWC-1-2X1	PT	
TRWC-1-4	PT	
DRWC-1-1A	UT0	
DSRWC-1-9	UT45	
TRWC-1-5	PT	

NO. OF INSPECTIONS: 33

UNIT 1 CYCLE 5 SYSTEM: CCW

WELD NO.	NDE	INDICATIONS
TCCW-1-1D	UT45	

NO. OF INSPECTIONS: 1

UNIT 1 CYCLE 5 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
TCRD-1-33	UT0	
TCRD-1-33	UT45	
TCRD-1-34	UT0	
TCRD-1-34	UT45	
TCRD-1-35	UT0	
TCRD-1-35	UT45	
TCRD-1-36	UT0	
TCRD-1-36	UT45	
TCRD-1-37	UT0	
TCRD-1-37	UT45	
TCRD-1-38	UT0	
TCRD-1-38	UT45	
TCRD-1-21	UT0	
TCRD-1-21	UT45	
TCRD-1-22	UT0	
TCRD-1-22	UT45	
TCRD-1-23	UT0	
TCRD-1-23	UT45	
TCRD-1-24	UT0	
TCRD-1-24	UT45	
TCRD-1-25	UT0	
TCRD-1-25	UT45	
TCRD-1-26	UT0	
TCRD-1-26	UT45	
TCRD-1-27	UT0	
TCRD-1-27	UT45	
TCRD-1-29	UT0	
TCRD-1-29	UT45	
TCRD-1-30	UT0	
TCRD-1-30	UT45	
TCRD-1-31	UT0	
TCRD-1-31	UT45	
TCRD-1-32	UT0	
TCRD-1-32	UT45	
TCRD-1-65	UT0	
TCRD-1-65	UT45	
TCRD-1-30	PT	
RCRDS-1-3	UT45	
CRD MIX TEE	UT0	
RCRD-1-45	UT45	
RCRD-1-44	UT45	
TCRD-1-70	UT0	
TCRD-1-69	UT0	
TCRD-1-68	UT0	
TCRD-1-67	UT0	
TCRD-1-66	UT0	
TCRD-1-66	UT45	
TCRD-1-25A	UT0	
TCRD-1-28	UT0	
TCRD-1-9	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 5 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
TCRD-1-12	UT45	
TCRD-1-15	UT45	
TCRD-1-18	UT45	
TCRD-1-18	PT	
TCRD-1-28	UT45	
TCRD-1-122	UT45	
TCRD-1-121	UT45	
TCRD-1-120	UT45	
TCRD-1-119	UT45	
TCRD-1-66	PT	
TCRD-1-67	UT45	
TCRD-1-68	UT45	
TCRD-1-25A	UT45	
TCRD-1-69	UT45	
TCRD-1-70	UT45	

NO. OF INSPECTIONS: 65

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 5 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-1-34	UT45	
GFW-1-34	UT45	
FW-1-SSB1	MT	NOI 121 BUILD-UP
FW-1-H3	MT	
FW-1-SSB4	MT	
FW-1-H3	PT	
FW-1-SSB1	VT	
FW-1-SSB4	VT	
FW-1-SSB1	MT	

NO. OF INSPECTIONS: 9

UNIT 1 CYCLE 5 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-1-152	UT45	

NO. OF INSPECTIONS: 1

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 5 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
DHS-1-5	UT45	
DSHS-1-16	UT45	
DSHS-1-15	UT45	
DHS-1-3	UT45	
H-109	MT	
DSHS-1-1A	PT	
DHS-1-5	UT45	

NO. OF INSPECTIONS: 7

UNIT 1 CYCLE 5 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
DSAS-10	UT45	
DSAS-6	UT45	
GMS-1-6	UT45	
KMS-1-104	UT45	
GMS-1-23	UT45	
HPASH-1-7	MT	
KMS-1-73	MT	
KMS-1-43	MT	
MSGEH-1-17	MT	
MS-1-GB1	PT	NOI 110
MS-1-GB1	VT	CRACKED WELD
MS-1-GA1	PT	NOI 112
MS-1-GA1	VT	CRACKED WELD
MS-1-GD1	PT	NOI 113
MS-1-GD1	VT	CRACKED WELD
MS-1-GC1	PT	NOI 114
MS-1-GC1	VT	CRACKED WELD
MS-1-SSB1	MT	NOI 118 ARC STRIKES
GMS-1-8	UT45	
DSMS-1-1	UT45	
DSMS-1-28	UT45	
DSMS-1-38	UT45	
MS-1-SSB4	MT	NOI 106 ARC STRIKES
MS-1-HC3	MT	
GMS-1-3	PT	
GMS-1-3	UT45	
GMS-1-19	UT45	
MS-1-SSC6	MT	NOI 107 ARC STRIKES
MS-1-SSD12	MT	NOI 108 ARC STRIKES
MS-1-SSC6	MT	
MS-1-SSD12	MT	
MS-1-SSB1	MT	
MS-1-GB1	PT	
MS-1-GC1	PT	
MS-1-GD1	PT	
MS-1-GA1	PT	

NO. OF INSPECTIONS: 36

UNIT 1 CYCLE 5 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-1-1	PT	
GR-1-63A	PT	
KR-1-53	PT	
KR-1-4	PT	
GR-1-7	PT	
GR-1-55	UT45	
GR-1-51	UT45	
GR-1-52	UT45	
KR-1-42	UT45	
KR-1-35	UT45	
KR-1-41	UT45	
KR-1-19	UT45	
KR-1-13	UT45	
GR-1-26	UT45	
GR-1-25	UT45	
KR-1-13	UT45	
KR-1-3	UT0	
KR-1-3	UT45	
KR-1-3	UT70	
KR-1-23	PT	
GR-1-30	PT	
GR-1-60	UT45	
KR-1-15	UT0	
KR-1-15	UT45	
KR-1-15	UT70	
KR-1-36	UT0	
KR-1-24	UT45	
GR-1-33	PT	
GR-1-8	PT	
GR-1-8	UT45	
GR-1-57	PT	
GR-1-56	PT	
R-1-SS5	PT	
R-1-SS8	PT	
KR-1-26	PT	
KR-1-49	PT	
GR-1-4	PT	
R-35-B	MT	NOI 120

NO. OF INSPECTIONS: 38

UNIT 1 CYCLE 5 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
R-17	MT	
R-35-B	MT	
R-50	MT	
H-17	MT	
H-158	MT	
H-30	MT	
R-12	MT	
H-112	MT	
RHR PUMP	MT	
HOUSING "IA"	MT	
DSRHR-1-8	PT	
TRHR-1-191	UT45	
RHR-1-R24	PT	
DRHR-1-7	UT45	
TRHR-1-454G	UT45	
TRHR-1-454G	PT	
TRHR-1-369	UT45	
TRHR-1-372	UT45	
TRHR-1-175	UT45	
TRHR-1-120	UT45	
DRHR-1-3	PT	
TRHR-1-339	UT45	
H-4	MT	
TRHR-1-246	UT45	
TRHR-1-359X	UT45	
TRHR-1-300	UT45	
TRHR-1-266	UT45	
TRHR-1-375	UT45	
TRHR-1-81	UT45	
TRHR-1-108	UT45	
TRHR-1-313	UT45	
TRHR-1-429	UT45	
DRHR-1-12	PT	
DSRHR-1-9	PT	
DSRHR-1-8B	UT45	
DSRHR-1-4	UT45	
DRHR-1-20	UT45	
H-52	MT	
H-109	MT	
RHRPH-1-A	MT	
HPASH-1-7	MT	

NO. OF INSPECTIONS: 41

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 1 CYCLE 5 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
TRWC-1-4	PT	
TRWC-1-2X1	PT	
DRWC-1-4	UT45	
TRWC-1-1	UT45	
TRWC-1-2X1	UT45	
TRWC-1-4	UT45	
DSRWC-1-1A	UT45	
DSRWC-1-2	UT45	
DSRWC-1-4	UT45	
DSRWC-1-3	UT45	
DSRWC-1-6	UT45	
DSRWC-1-7	UT45	
DSRWC-1-5	UT45	
DRWC-1-1A	UT45	
DRWC-1-1	UT45	
RWC-1-H2	PT	
DRWC-1-61	UT45	
DSRWC-1-1AX	UT45	
TRWC-1-4A	UT45	
DSRWC-1-2X	UT45	
DSRWC-1-3X	UT45	
DSRWC-1-4X	UT45	
DRWC-1-1A	PT	
DRWC-1-1A	PT	NOI 174 CRACK

NO. OF INSPECTIONS: 24

UNIT 2 CYCLE 0 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
FW-1	UT0	
FW-1	UT45	
FW-2	UT0	
FW-2	UT45	
FW-3	UT0	
FW-3	UT45	
FW-4	UT0	
FW-4	UT45	
FW-5	UT0	
FW-5	UT45	
FW-6	UT0	
FW-6	UT45	
FW-7	UT0	
FW-7	UT45	
FW-8	UT0	
FW-8	UT45	GEOMETRY
FW-9	UT0	
FW-9	UT45	
FW-10	UT0	
FW-10	UT45	
FW-11	UT0	
FW-11	UT45	
FW-12	UT0	
FW-12	UT45	
FW-13	UT0	
FW-13	UT45	
FW-14	UT0	
FW-14	UT45	
FW-15	UT0	
FW-15	UT45	
FW-16	UT0	
FW-16	UT45	
FW-17	UT0	
FW-17	UT45	
FW-18	UT0	
FW-18	UT45	

NO. OF INSPECTIONS: 36

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-2-1	UT0	
TRCIC-2-1	UT45	GEOMETRY
TRCIC-2-1A	UT0	
TRCIC-2-1A	UT45	GEOMETRY
TRCIC-2-2	UT0	
TRCIC-2-2	UT45	
TRCIC-2-3	UT0	
TRCIC-2-3	UT45	
TRCIC-2-4	UT0	
TRCIC-2-4	UT45	
TRCIC-2-7	UT0	
TRCIC-2-7	UT45	

NO. OF INSPECTIONS: 12

UNIT 2 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-2-17	UT0	
KFW-2-17	UT45	
KFW-2-16	UT0	
KFW-2-16	UT45	GEOMETRY
GFW-2-13	UT0	
GFW-2-13	UT45	
GFW-2-17	UT0	
GFW-2-17	UT45	GEOMETRY
KFW-2-19	UT0	
KFW-2-19	UT45	
KFW-2-18	UT0	
KFW-2-18	UT45	GEOMETRY
GFW-2-16	UT0	
GFW-2-16	UT45	
GFW-2-33	UT0	
GFW-2-33	UT45	GEOMETRY
GFW-2-9	UT0	
GFW-2-9	UT45	
KFW-2-13	UT0	
KFW-2-13	UT45	
GFW-2-8	UT0	
GFW-2-8	UT45	
KFW-2-12	UT0	
KFW-2-12	UT45	GEOMETRY
GFW-2-12	UT0	
GFW-2-12	UT45	
KFW-2-11	UT0	
KFW-2-11	UT45	GEOMETRY
KFW-2-10	UT0	
KFW-2-10	UT45	GEOMETRY
KFW-2-9	UT0	
KFW-2-9	UT45	GEOMETRY
GFW-2-15	UT0	
GFW-2-15	UT45	GEOMETRY
GFW-2-15	UT45	GEOMETRY
KFW-2-39	UT0	
KFW-2-39	UT45	GEOMETRY
GFW-2-7	UT0	
GFW-2-7	UT45	GEOMETRY
GFW-2-6	UT0	
GFW-2-6	UT45	GEOMETRY
KFW-2-8	UT0	
KFW-2-8	UT45	SMALL IND <DAC
KFW-2-7	UT0	
KFW-2-7	UT45	GEOMETRY
GFW-2-26	UT0	
GFW-2-26	UT45	
KFW-2-31	UT0	
KFW-2-31	UT45	GEOMETRY
GFW-2-25	UT0	

UNIT 2 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
GFW-2-25	UT45	
KFW-2-30	UT0	
KFW-2-30	UT45	GEOMETRY
GFW-2-29	UT0	
GFW-2-29	UT45	
KFW-2-29	UT0	
KFW-2-29	UT45	GEOMETRY
KFW-2-28	UT0	
KFW-2-28	UT45	GEOMETRY
KFW-2-27	UT0	
KFW-2-27	UT45	GEOMETRY
GFW-2-32	UT0	
GFW-2-32	UT45	
KFW-2-38	UT0	
KFW-2-38	UT45	
GFW-2-24	UT0	
GFW-2-24	UT45	GEOMETRY
GFW-2-23	UT0	
GFW-2-23	UT45	GEOMETRY
KFW-2-26	UT0	
KFW-2-26	UT45	GEOMETRY
KFW-2-25	UT0	
KFW-2-25	UT45	GEOMETRY
KFW-2-6	UT0	
KFW-2-6	UT45	GEOMETRY
KFW-2-5	UT0	
KFW-2-5	UT45	GEOMETRY
GFW-2-4	UT0	
GFW-2-4	UT45	GEOMETRY
GFW-2-3	UT0	
GFW-2-3	UT45	GEOMETRY
KFW-2-24	UT0	
KFW-2-24	UT45	GEOMETRY
GFW-2-22	UT0	
GFW-2-22	UT45	GEOMETRY
KFW-2-23	UT0	
KFW-2-23	UT45	GEOMETRY
GFW-2-21	UT0	
GFW-2-21	UT45	GEOMETRY
GFW-2-20	UT0	
GFW-2-20	UT45	
GFW-2-18	UT0	
GFW-2-18	UT45	SMALL POROSITY <DAC
GFW-2-19	UT0	
GFW-2-19	UT45	SPOT IND <DAC
KFW-2-21	UT0	
KFW-2-21	UT45	
GFW-2-1	UT0	
GFW-2-1	UT45	SMALL IND < DAC
KFW-2-1	UT0	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-2-1	UT45	GEOMETRY
KFW-2-3	UT0	
KFW-2-3	UT45	GEOMETRY
KFW-2-36	UT0	
KFW-2-36	UT45	
GFW-2-34	UT0	
GFW-2-34	UT45	
GFW-2-30	UT0	
GFW-2-30	UT45	
KFW-2-34	UT0	
KFW-2-34	UT45	
KFW-2-35	UT0	
KFW-2-35	UT45	SUCKBACK <DAC
GFW-2-31	UT0	
GFW-2-31	UT45	GEOMETRY
GFW-2-28	UT0	
GFW-2-28	UT45	GEOMETRY
KFW-2-33	UT0	
KFW-2-33	UT45	GEOMETRY
KFW-2-32	UT0	
KFW-2-32	UT45	GEOMETRY
GFW-2-27	UT0	
GFW-2-27	UT45	
GFW-2-11	UT0	
GFW-2-11	UT45	GEOMETRY
KFW-2-15	UT0	
KFW-2-15	UT45	GEOMETRY
KFW-2-14	UT0	
KFW-2-14	UT45	GEOMETRY
GFW-2-10	UT0	
GFW-2-10	UT45	GEOMETRY
GFW-2-14	UT0	
GFW-2-14	UT45	
GFW-2-2	UT0	
GFW-2-2	UT45	
KFW-2-37	UT0	
KFW-2-37	UT45	GEOMETRY
GFW-2-5	UT0	
GFW-2-5	UT45	

NO. OF INSPECTIONS: 139

UNIT 2 CYCLE 0 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-2-17	UT0	
DCS-2-17	UT45	
DCS-2-13	UT0	
DCS-2-13	UT45	GEOMETRY
DCS-2-18	UT0	
DCS-2-18	UT45	
DCS-2-9	UT0	
DCS-2-9	UT45	GEOMETRY
DSCS-2-6	UT0	
DSCS-2-6	UT45	SPOT IND 5% DAC
DCS-2-8	UT0	
DCS-2-8	UT45	
DCS-2-16	UT0	
DCS-2-16	UT45	
DSCS-2-12	UT0	
DSCS-2-12	UT45	GEOMETRY
DSCS-2-11	UT0	
DSCS-2-11	UT45	GEOMETRY
DSCS-2-10	UT0	
DSCS-2-10	UT45	
DCS-2-15	UT0	
DCS-2-15	UT45	
DCS-2-14	UT0	
DCS-2-14	UT45	
DSCS-2-9	UT0	
DSCS-2-9	UT45	GEOMETRY
DSCS-2-8	UT0	
DSCS-2-8	UT45	
DSCS-2-7	UT0	
DSCS-2-7	UT45	GEOMETRY
DCS-2-13	UT0	
DCS-2-13	UT45	LINEAR IND 32% DAC
DCS-2-4	UT0	
DCS-2-4	UT45	
DSCS-2-1	UT0	
DSCS-2-1	UT45	
DSCS-2-2	UT0	
DSCS-2-2	UT45	GEOMETRY
DCS-2-5	UT0	POROSITY 25% DAC
DCS-2-5	UT45	
DCS-2-6	UT0	
DCS-2-6	UT45	
DSCS-2-3	UT0	
DSCS-2-3	UT45	
DSCS-2-4	UT0	
DSCS-2-4	UT45	
DSCS-2-5	UT0	
DSCS-2-5	UT45	SPOT IND 20% DAC
DCS-2-7	UT0	
DCS-2-7	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2   CYCLE 0   SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-2-12	UT0	
DCS-2-12	UT45	
DCS-2-3	UT0	
DCS-2-3	UT45	

NO. OF INSPECTIONS: 54

UNIT 2 CYCLE 0 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRD-2-37	UT0	
RCRD-2-37	UT45	
RCRD-2-36	UT0	
RCRD-2-36	UT45	GEOMETRY
RCRD-2-35	UT0	
RCRD-2-35	UT45	
RCRD-2-34	UT0	
RCRD-2-34	UT45	
RCRD-2-33	UT0	
RCRD-2-33	UT45	
RCRD-2-32	UT0	
RCRD-2-32	UT45	
RCRD-2-31	UT0	
RCRD-2-31	UT45	
RCRD-2-30	UT0	
RCRD-2-30	UT45	GEOMETRY
RCRD-2-29	UT0	
RCRD-2-29	UT45	GEOMETRY
RCRD-2-28	UT0	
RCRD-2-28	UT45	GEOMETRY
RCRD-2-27	UT0	
RCRD-2-27	UT45	GEOMETRY
RCRD-2-26	UT0	
RCRD-2-26	UT45	
RCRD-2-25	UT0	
RCRD-2-25	UT45	
RCRD-2-22	UT0	
RCRD-2-22	UT45	
RCRD-2-23	UT0	
RCRD-2-23	UT45	

NO. OF INSPECTIONS: 30

UNIT 2 CYCLE 0 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DHS-2-7	PT	
DHS-2-7	UT0	
DHS-2-7	UT45	GEOMETRY
TRHR-2-479-H	UT0	
TRHR-2-479-H	UT45	GEOMETRY
TRHR-2-479-G	UT0	
TRHR-2-479-G	UT45	GEOMETRY
TRHR-2-479-D	UT0	
TRHR-2-479-D	UT45	POROSITY 20% DAC
DHS-2-6	UT0	
DHS-2-6	UT45	
DSHS-2-19	UT0	
DSHS-2-19	UT45	SPOT & GEOM <DAC
DHS-2-5	UT0	
DHS-2-5	UT45	GEOMETRY
DHS-2-4	UT0	
DHS-2-4	UT45	
DSHS-2-16	UT0	
DSHS-2-16	UT45	
DSHS-2-15	UT0	
DSHS-2-15	UT45	
DRHR-2-6	UT0	
DRHR-2-6	UT45	
DSRHR-2-3	UT0	
DSRHR-2-3	UT45	
DSRHR-2-4	UT0	
DSRHR-2-4	UT45	
DSRHR-2-4A	UT0	
DSRHR-2-4A	UT45	
DRHR-2-7	UT0	
DRHR-2-7	UT45	
DRHR-2-9	UT0	
DRHR-2-9	UT45	
DRHR-2-8	UT0	
DRHR-2-8	UT45	
DHS-2-19	UT0	
DHS-2-19	UT45	
DRHR-2-18	UT0	
DRHR-2-18	UT45	
DRHR-2-17	UT0	
DRHR-2-17	UT45	
DRHR-2-16	UT0	
DRHR-2-16	UT45	GEOMETRY
DSRHR-2-7	UT0	
DSRHR-2-7	UT45	
DSRHR-2-6	UT0	
DSRHR-2-6	UT45	
DRHR-2-15	UT0	
DRHR-2-15	UT45	POROSITY 10% DAC
DRHR-2-14	UT0	

UNIT 2 CYCLE 0 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DRHR-2-14	UT45	
DSRHR-2-5A	UT0	
DSRHR-2-5A	UT45	
DRHR-2-13	UT0	
DRHR-2-13	UT45	
DRHR-2-19	UT0	
DRHR-2-19	UT45	
DSRHR-2-9	UT0	
DSRHR-2-9	UT45	
DSRHR-2-8	UT0	
DSRHR-2-8	UT45	GEOMETRY
DRHR-2-21	UT0	
DRHR-2-21	UT45	
DRHR-2-22	UT0	
DRHR-2-22	UT45	
DSRHR-2-10	UT0	
DSRHR-2-10	UT45	GEOMETRY
DSRHR-2-11	UT0	
DSRHR-2-11	UT45	
DRHR-2-23	UT0	
DRHR-2-23	UT45	
TRHR-2-192	UT0	
TRHR-2-192	UT45	
TRHR-2-191	UT0	
TRHR-2-191	UT45	
DRHR-2-4	UT0	
DRHR-2-4	UT45	
DSRHR-2-2	UT0	
DSRHR-2-2	UT45	
DSRHR-2-1	UT0	
DSRHR-2-1	UT45	
DRHR-2-5	UT0	
DRHR-2-5	UT45	
DRHR-2-12	UT0	
DRHR-2-12	UT45	
TRHR-2-194	UT0	
TRHR-2-194	UT45	
DRHR-2-3	UT0	
DRHR-2-3	UT45	
TRHR-2-479B	UT0	
TRHR-2-479B	UT45	
TRHR-2-192	PT	

NO. OF INSPECTIONS: 92

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-2-66	UT0	
THPCI-2-66	UT45	
THPCI-2-66A	UT0	
THPCI-2-66A	UT45	
THPCI-2-67	UT0	
THPCI-2-67	UT45	GEOMETRY
THPCI-2-68	UT0	
THPCI-2-68	UT45	
THPCI-2-68A	UT0	
THPCI-2-68A	UT45	
THPCI-2-69	UT0	
THPCI-2-69	UT45	GEOMETRY
THPCI-2-70	UT0	
THPCI-2-70	UT45	
THPCI-2-65	UT0	
THPCI-2-65	UT45	GEOMETRY
THPCI-2-63	UT0	
THPCI-2-63	UT45	
THPCI-2-62	UT0	
THPCI-2-62	UT45	GEOMETRY
THPCI-2-61	UT0	
THPCI-2-61	UT45	
THPCI-2-74	UT0	
THPCI-2-74	UT45	GEOMETRY
THPCI-2-73	UT0	
THPCI-2-73	UT45	
THPCI-2-75	UT0	
THPCI-2-75	UT45	
THPCI-2-76	UT0	
THPCI-2-76	UT45	
THPCI-2-72	UT0	
THPCI-2-72	UT45	
THPCI-2-71	UT0	
THPCI-2-71	UT45	
THPCI-2-70A	UT0	
THPCI-2-70A	UT45	
THPCI-2-82	UT0	
THPCI-2-82	UT45	

NO. OF INSPECTIONS: 38

UNIT 2   CYCLE 0   SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DSRWC-2-5	UT0	
DSRWC-2-5	UT45	
DSRWC-2-6	UT0	
DSRWC-2-6	UT45	
DSRWC-2-4	UT0	
DSRWC-2-4	UT45	
DSRWC-2-3	UT0	
DSRWC-2-3	UT45	
DSRWC-2-2	UT0	
DSRWC-2-2	UT45	
DSRWC-2-1A	UT0	
DSRWC-2-1A	UT45	
DRWC-2-3	UT0	
DRWC-2-3	UT45	
DRWC-2-2	UT0	
DRWC-2-2	UT45	
DSRWC-2-1	UT0	
DSRWC-2-1	UT45	
DRWC-2-4	UT0	
DRWC-2-4	UT45	
DRWC-2-1A	UT0	
DRWC-2-1A	UT45	
DRWC-2-1	UT0	
DRWC-2-1	UT45	
DRWC-2-60	UT0	
DRWC-2-60	UT45	GEOMETRY
DSRWC-2-8	UT0	
DSRWC-2-8	UT45	GEOMETRY
DSRWC-2-9	UT0	
DSRWC-2-9	UT45	GEOMETRY
DRWC-2-58	UT0	
DRWC-2-58	UT45	GEOMETRY
DSRWC-2-7	UT0	
DSRWC-2-7	UT45	
DRWC-2-59	UT0	
DRWC-2-59	UT45	GEOMETRY
DRWC-2-5A	UT0	
DRWC-2-5A	UT45	
DRWC-2-5B	UT0	
DRWC-2-5B	UT45	

NO. OF INSPECTIONS: 40

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-47	UT0	
GR-2-47	UT45	
KR-2-43	UT0	
KR-2-43	UT45	GEOMETRY
GR-2-46	UT0	
GR-2-46	UT45	
GR-2-43	UT0	
GR-2-43	UT45	
KR-2-40	UT0	
KR-2-40	UT45	GEOMETRY
GR-2-42	UT0	
GR-2-42	UT45	
GR-2-40	UT0	
GR-2-40	UT45	
KR-2-39	UT0	
KR-2-39	UT45	GEOMETRY
GR-2-39	UT0	
GR-2-39	UT45	GEOMETRY
GR-2-37	UT0	
GR-2-37	UT45	POROSITY <DAC
GR-2-36	UT0	
GR-2-36	UT45	GEOMETRY
GR-2-59	UT0	
GR-2-59	UT45	
KR-2-50	UT0	
KR-2-50	UT45	
KR-2-60	UT0	
KR-2-60	UT45	GEOMETRY
GR-2-11	UT0	
GR-2-11	UT45	
KR-2-16	UT0	
KR-2-16	UT45	
GR-2-10	UT0	
GR-2-10	UT45	GEOMETRY
GR-2-14	UT0	
GR-2-14	UT45	
KR-2-17	UT0	
KR-2-17	UT45	GEOMETRY
GR-2-13	UT0	
GR-2-13	UT45	
GR-2-17	UT0	
GR-2-17	UT45	
KR-2-17	UT0	
KR-2-17	UT45	
GR-2-16	UT0	
GR-2-16	UT45	GEOMETRY
GR-2-21	UT0	
GR-2-21	UT45	SPOT IND <DAC
KR-2-21	UT0	
KR-2-21	UT45	GEOMETRY

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-20	UT0	
GR-2-20	UT45	
GR-2-24	UT0	
GR-2-24	UT45	
KR-2-22	UT0	
KR-2-22	UT45	
GR-2-23	UT0	
GR-2-23	UT45	
GR-2-53	UT0	
GR-2-53	UT45	GEOMETRY
GR-2-54	UT0	
GR-2-54	UT45	
GR-2-45	UT0	
GR-2-45	UT45	GEOMETRY
GR-2-34	UT0	
GR-2-34	UT45	
KR-2-37	UT0	
KR-2-37	UT45	
KR-2-11	UT0	
KR-2-11	UT45	
GR-2-8	UT0	
GR-2-8	UT45	
KR-2-3	UT0	
KR-2-3	UT45	GEOMETRY
GR-2-25	UT0	
GR-2-25	UT45	
GR-2-51	UT0	
GR-2-51	UT45	
KR-2-41	UT0	
KR-2-41	UT45	
GR-2-44	UT0	
GR-2-44	UT45	
KR-2-34	UT0	
KR-2-34	UT45	
KR-2-33	UT0	
KR-2-33	UT45	
GR-2-41	UT0	
GR-2-41	UT45	
GR-2-38	UT0	
GR-2-38	UT45	
GR-2-38	UT0	
GR-2-38	UT45	GEOMETRY
KR-2-35	UT0	
KR-2-35	UT45	
GR-2-35	UT0	
GR-2-35	UT45	
KR-2-36	UT0	
KR-2-36	UT45	
KR-2-15	UT0	
KR-2-15	UT45	

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-9	UT0	
GR-2-9	UT45	GEOMETRY
KR-2-14	UT0	
KR-2-14	UT45	
GR-2-12	UT0	
GR-2-12	UT45	
KR-2-13	UT0	
KR-2-13	UT45	
KR-2-12	UT0	
KR-2-12	UT45	GEOMETRY
GR-2-15	UT0	
GR-2-15	UT45	
GR-2-18	UT0	
GR-2-18	UT45	
KR-2-19	UT0	
KR-2-19	UT45	
KR-2-20	UT0	
KR-2-20	UT45	
GR-2-26	UT0	
GR-2-26	UT45	
GR-2-52	UT0	
GR-2-52	UT45	
KR-2-42	UT0	
KR-2-42	UT45	
GR-2-19	UT0	
GR-2-19	UT45	POROSITY <20% DAC
GR-2-22	UT0	
GR-2-22	UT45	GEOMETRY
GR-2-55	UT0	
GR-2-55	UT45	
KR-2-46	UT0	
KR-2-46	UT45	
GR-2-61	UT0	
GR-2-61	UT45	
GR-2-27	UT0	
GR-2-27	UT45	
GR-2-28	UT0	
GR-2-28	UT45	INDICATIONS <DAC
KR-2-23	UT0	
KR-2-23	UT45	
KR-2-27	UT0	
KR-2-27	UT45	
GR-2-29	UT0	
GR-2-29	UT45	
KR-2-28	UT0	
KR-2-28	UT45	GEOMETRY
GR-2-30	UT0	
GR-2-30	UT45	GEOMETRY
GR-2-32	UT0	
GR-2-32	UT45	GEOMETRY

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-2-29	UT0	
KR-2-29	UT45	GEOMETRY
KR-2-30	UT0	
KR-2-30	UT45	
GR-2-31	UT0	
GR-2-31	UT45	GEOMETRY
KR-2-24	UT0	
KR-2-24	UT45	
KR-2-54	UT0	
KR-2-54	UT45	INDICATIONS <DAC
KR-2-47	UT0	
KR-2-47	UT45	GEOMETRY
GR-2-56	UT0	
GR-2-56	UT45	
GR-2-57	UT0	
GR-2-57	UT45	GEOMETRY
KR-2-49	UT0	
KR-2-49	UT45	
KR-2-48	UT0	
KR-2-48	UT45	
GR-2-58	UT0	
GR-2-58	UT45	
GR-2-1	UT0	
GR-2-1	UT45	
GR-2-2	UT0	
GR-2-2	UT45	
GR-2-3	UT0	
GR-2-3	UT45	
KR-2-2	UT0	
KR-2-2	UT45	
KR-2-55	UT0	
KR-2-55	UT45	GEOMETRY
KR-2-8	UT0	
KR-2-8	UT45	
GR-2-6	UT0	
GR-2-6	UT45	
GR-2-5	UT0	
GR-2-5	UT45	GEOMETRY
KR-2-7	UT0	
KR-2-7	UT45	
KR-2-6	UT0	
KR-2-6	UT45	GEOMETRY
KR-2-5	UT0	
KR-2-5	UT45	
KR-2-1	UT0	
KR-2-1	UT45	
KR-2-4	UT0	
KR-2-4	UT45	
KR-2-9	UT0	
KR-2-9	UT45	GEOMETRY

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-7	UT0	
GR-2-7	UT45	GEOMETRY
KR-2-10	UT0	
KR-2-10	UT45	
KR-2-51	UT0	
KR-2-51	UT45	
GR-2-62	UT0	
GR-2-62	UT45	
GR-2-63	UT0	
GR-2-63	UT45	
GR-2-63B	UT0	
GR-2-63B	UT45	
KR-2-52	UT0	
KR-2-52	UT45	
GR-2-64	UT0	
GR-2-64	UT45	
KR-2-53	UT0	
KR-2-53	UT45	
KR-2-31	UT0	
KR-2-31	UT45	
GR-2-33	UT0	
GR-2-33	UT45	GEOMETRY
KR-2-26	UT0	
KR-2-26	UT45	
KR-2-32	UT0	
KR-2-32	UT45	
GR-2-50	UT0	
GR-2-50	UT45	
KR-2-44	UT0	
KR-2-44	UT45	GEOMETRY
GR-2-49	UT0	
GR-2-49	UT45	
GR-2-48	UT0	
GR-2-48	UT45	
GR-2-63A	UT0	
GR-2-63A	UT45	
GR-2-4	UT0	
GR-2-4	UT45	GEOMETRY
R-2A-H2	UT45	SMALL IND <DAC
R-2B-H1	UT45	SMALL IND <DAC
R-2A-H3	UT45	SMALL IND <DAC
R-2A-H1	UT45	SMALL IND <DAC
R-2B-H3	UT45	SMALL IND <DAC
R-2B-H2	UT45	SMALL IND <DAC
KR-2-25	UT0	
KR-2-25	UT45	GEOMETRY
KR-2-25	UT0	
KR-2-25	UT45	

NO. OF INSPECTIONS: 248

UNIT 2 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-2-50	UT0	
KMS-2-50	UT45	
KMS-2-51	UT0	
KMS-2-51	UT45	
KMS-2-46	UT0	
KMS-2-46	UT45	
KMS-2-47	UT0	
KMS-2-47	UT45	
KMS-2-48	UT0	
KMS-2-48	UT45	
KMS-2-43	UT0	
KMS-2-43	UT45	
KMS-2-44	UT0	
KMS-2-44	UT45	
KMS-2-45	UT0	
KMS-2-45	UT45	
KMS-2-40	UT0	
KMS-2-40	UT45	
KMS-2-41	UT0	
KMS-2-41	UT45	
KMS-2-42	UT0	
KMS-2-42	UT45	
GMS-2-14	UT0	
GMS-2-14	UT45	GEOMETRY
GMS-2-15	UT0	
GMS-2-15	UT45	GEOMETRY
KMS-2-38	UT0	
KMS-2-38	UT45	GEOMETRY
KMS-2-35	UT0	
KMS-2-35	UT45	
KMS-2-36	UT0	
KMS-2-36	UT45	
KMS-2-37	UT0	
KMS-2-37	UT45	
KMS-2-32	UT0	
KMS-2-32	UT45	
KMS-2-33	UT0	
KMS-2-33	UT45	
KMS-2-34	UT0	
KMS-2-34	UT45	
KMS-2-31	UT0	
KMS-2-31	UT45	GEOMETRY
KMS-2-58	UT0	
KMS-2-58	UT45	GEOMETRY
KMS-2-61	UT0	
KMS-2-61	UT45	
KMS-2-60	UT0	
KMS-2-60	UT45	
KMS-2-59	UT0	
KMS-2-59	UT45	

UNIT 2 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-2-62	UT0	
KMS-2-62	UT45	GEOMETRY
GMS-2-24	UT0	
GMS-2-24	UT45	GEOMETRY
GMS-2-23	UT0	
GMS-2-23	UT45	GEOMETRY
KMS-2-64	UT0	
KMS-2-64	UT45	
KMS-2-65	UT0	
KMS-2-65	UT45	
KMS-2-66	UT0	
KMS-2-66	UT45	
KMS-2-67	UT0	
KMS-2-67	UT45	
KMS-2-68	UT0	
KMS-2-68	UT45	
KMS-2-69	UT0	
KMS-2-69	UT45	
KMS-2-70	UT0	
KMS-2-70	UT45	
KMS-2-73	UT0	
KMS-2-73	UT45	
KMS-2-74	UT0	
KMS-2-74	UT45	
KMS-2-75	UT0	
KMS-2-75	UT45	
KMS-2-76	UT0	
KMS-2-76	UT45	GEOMETRY
KMS-2-71	UT0	
KMS-2-71	UT45	
KMS-2-72	UT0	
KMS-2-72	UT45	
KMS-2-53	UT0	
KMS-2-53	UT45	
KMS-2-26	UT0	
KMS-2-26	UT45	GEOMETRY
GMS-2-13	UT0	
GMS-2-13	UT45	GEOMETRY
GMS-2-5	UT0	
GMS-2-5	UT45	GEOMETRY
GMS-2-4	UT0	
GMS-2-4	UT45	GEOMETRY
GMS-2-3	UT0	
GMS-2-3	UT45	
GMS-2-2	UT0	
GMS-2-2	UT45	
GMS-2-30	UT0	
GMS-2-30	UT45	GEOMETRY
GMS-2-29	UT0	
GMS-2-29	UT45	GEOMETRY

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-2-28	UT0	
GMS-2-28	UT45	GEOMETRY
GMS-2-21	UT0	
GMS-2-21	UT45	GEOMETRY
KMS-2-57	UT0	
KMS-2-57	UT45	GEOMETRY
GMS-2-20	UT0	
GMS-2-20	UT45	
GMS-2-19	UT0	
GMS-2-19	UT45	
KMS-2-63	UT0	
KMS-2-63	UT45	
GMS-2-32	UT0	
GMS-2-32	UT45	GEOMETRY
KMS-2-104	UT0	
KMS-2-104	UT45	GEOMETRY
KMS-2-103	UT0	
KMS-2-103	UT45	
KMS-2-102	UT0	
KMS-2-102	UT45	
KMS-2-101	UT0	
KMS-2-101	UT45	
KMS-2-100	UT45	
KMS-2-100	UT45	
KMS-2-99	UT0	
KMS-2-99	UT45	
KMS-2-98	UT0	
KMS-2-98	UT45	
KMS-2-95	UT0	
KMS-2-95	UT45	
KMS-2-96	UT0	
KMS-2-96	UT45	
KMS-2-97	UT0	
KMS-2-97	UT45	GEOMETRY
KMS-2-92	UT0	
KMS-2-92	UT45	
KMS-2-91	UT0	
KMS-2-91	UT45	
KMS-2-90	UT0	
KMS-2-90	UT45	
KMS-2-89	UT0	
KMS-2-89	UT45	
KMS-2-94	UT0	
KMS-2-94	UT45	
KMS-2-93	UT0	
KMS-2-93	UT45	
KMS-2-86	UT0	
KMS-2-86	UT45	
KMS-2-87	UT0	
KMS-2-87	UT45	

UNIT 2 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-2-88	UT0	
KMS-2-88	UT0	
KMS-2-83	UT0	
KMS-2-83	UT45	
KMS-2-84	UT0	
KMS-2-84	UT45	
KMS-2-85	UT0	
KMS-2-85	UT45	
KMS-2-105	UT0	
KMS-2-105	UT45	
KMS-2-82	UT0	
KMS-2-82	UT45	GEOMETRY
KMS-2-2	UT0	
KMS-2-2	UT45	GEOMETRY
KMS-2-25	UT0	
KMS-2-25	UT45	GEOMETRY
KMS-2-3	UT0	
KMS-2-3	UT45	SMALL IND <DAC
KMS-2-4	UT0	
KMS-2-4	UT45	
KMS-2-5	UT0	
KMS-2-5	UT45	SMALL IND <DAC
KMS-2-6	UT0	
KMS-2-6	UT45	
KMS-2-7	UT0	
KMS-2-7	UT45	
KMS-2-8	UT0	
KMS-2-8	UT45	
KMS-2-9	UT0	
KMS-2-9	UT45	
KMS-2-10	UT0	
KMS-2-10	UT45	
KMS-2-11	UT0	
KMS-2-11	UT45	
KMS-2-12	UT0	
KMS-2-12	UT45	
KMS-2-13	UT0	
KMS-2-13	UT45	
KMS-2-14	UT0	
KMS-2-14	UT45	
KMS-2-15	UT0	
KMS-2-15	UT45	
KMS-2-16	UT0	
KMS-2-16	UT45	
KMS-2-17	UT0	
KMS-2-17	UT45	
KMS-2-18	UT0	
KMS-2-18	UT45	
KMS-2-19	UT0	
KMS-2-19	UT45	

UNIT 2 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-2-20	UT0	
KMS-2-20	UT45	
KMS-2-21	UT0	
KMS-2-21	UT45	
KMS-2-22	UT0	
KMS-2-22	UT45	
KMS-2-23	UT0	
KMS-2-23	UT45	
KMS-2-24	UT0	
KMS-2-24	UT45	GEOMETRY
GMS-2-6	UT0	
GMS-2-6	UT45	GEOMETRY
KMS-2-52	UT0	
KMS-2-52	UT45	GEOMETRY
KMS-2-49	UT0	
KMS-2-49	UT45	
GMS-2-8	UT0	
GMS-2-8	UT45	GEOMETRY
KMS-2-28	UT0	
KMS-2-28	UT45	GEOMETRY
KMS-2-27	UT0	
KMS-2-27	UT45	GEOMETRY
KMS-2-55	UT0	
KMS-2-55	UT45	GEOMETRY
KMS-2-54	UT0	
KMS-2-54	UT45	GEOMETRY
KMS-2-108	UT0	
KMS-2-108	UT45	GEOMETRY
KMS-2-107	UT0	
KMS-2-107	UT45	GEOMETRY
GMS-2-26	UT0	
GMS-2-26	UT45	GEOMETRY
KMS-2-80	UT0	
KMS-2-80	UT45	GEOMETRY
KMS-2-79	UT0	
KMS-2-79	UT45	GEOMETRY
GMS-2-33	UT0	
GMS-2-33	UT45	GEOMETRY
GMS-2-25	UT0	
GMS-2-25	UT45	GEOMETRY
GMS-2-7	UT0	
GMS-2-7	UT45	GEOMETRY
GMS-2-16	UT0	
GMS-2-16	UT45	GEOMETRY
GMS-2-22	UT0	
GMS-2-22	UT45	
GMS-2-106	UT0	
GMS-2-106	UT45	GEOMETRY
GMS-2-31	UT0	
GMS-2-31	UT45	GEOMETRY

UNIT 2 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-2-12	UT0	
GMS-2-12	UT45	GEOMETRY
KMS-2-30	UT0	
KMS-2-30	UT45	GEOMETRY
GMS-2-11	UT0	
GMS-2-11	UT45	GEOMETRY
GMS-2-10	UT0	
GMS-2-10	UT45	INDICATIONS <DAC
GMS-2-1	UT0	
GMS-2-1	UT45	GEOMETRY
GMS-2-9	UT0	
GMS-2-9	UT45	GEOMETRY
GMS-2-18	UT0	
GMS-2-18	UT45	
GMS-2-27	UT0	
GMS-2-27	UT45	GEOMETRY
GMS-2-17	UT0	
GMS-2-17	UT45	GEOMETRY
GMS-2-34	UT0	
GMS-2-34	UT45	GEOMETRY

NO. OF INSPECTIONS: 270

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-2-23	UT0	
KR-2-23	UT45	
GR-2-30	UT0	
KR-2-27	UT0	
KR-2-27	UT45	GEOMETRY
KR-2-28	UT0	
KR-2-28	UT45	
KR-2-29	UT0	
KR-2-30	UT0	
KR-2-30	UT45	GEOMETRY
GR-2-32	UT0	
KR-2-31	UT0	
KR-2-32	UT0	
GR-2-33	UT0	
KR-2-26	UT0	
KR-2-1	UT0	
KR-2-1	UT45	
GR-2-4	UT0	
KR-2-5	UT0	
KR-2-6	UT0	
KR-2-7	UT0	
KR-2-8	UT0	
KR-2-8	UT45	GEOMETRY
GR-2-5	UT0	
KR-2-9	UT0	
KR-2-10	UT0	
GR-2-7	UT0	
KR-2-4	UT0	
KR-2-4	UT45	
GR-2-7	PT	
GR-2-4	PT	
GR-2-33	PT	
GR-2-30	PT	
KR-2-23	UT0	
KR-2-23	UT45	
GR-2-30	UT45	
KR-2-27	UT0	
KR-2-27	UT45	
KR-2-28	UT0	
KR-2-28	UT45	
KR-2-29	UT45	
KR-2-30	UT45	
GR-2-31	UT45	
GR-2-32	UT45	
KR-2-31	UT0	
KR-2-31	UT45	GEOMETRY
KR-2-32	UT45	GEOMETRY
GR-2-33	UT45	GEOMETRY
KR-2-26	UT0	
KR-2-26	UT45	

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-2-1	UT0	
KR-2-1	UT45	GATE NOISE
GR-2-4	UT45	GEOMETRY
KR-2-5	UT45	GEOMETRY
KR-2-6	UT45	
KR-2-7	UT45	
KR-2-8	UT0	
KR-2-8	UT45	GEOMETRY
GR-2-5	UT45	GEOMETRY
KR-2-9	UT45	
KR-2-10	UT45	GEOMETRY
GR-2-7	UT45	GEOMETRY
KR-2-4	UT0	
KR-2-4	UT45	GEOMETRY
KR-2-4	UT0	
KR-2-4	UT45	SMALL IND <DAC
GR-2-7	UT0	
GR-2-7	UT45	SMALL IND <DAC
KR-2-10	UT0	
KR-2-10	UT45	GEOMETRY
KR-2-9	UT0	
KR-2-9	UT45	
GR-2-6	UT0	
GR-2-6	UT45	
GR-2-5	UT0	
GR-2-5	UT45	
GR-2-6	UT0	
GR-2-6	UT45	
KR-2-7	UT0	
KR-2-7	UT45	GEOMETRY
KR-2-6	UT0	
KR-2-6	UT45	GEOMETRY
KR-2-5	UT0	
KR-2-5	UT45	
GR-2-4	UT0	
GR-2-4	UT45	GEOMETRY
KR-2-1	UT0	
KR-2-1	UT45	
KR-2-26	UT0	
KR-2-26	UT45	
GR-2-33	UT0	
GR-2-33	UT45	GEOMETRY
KR-2-32	UT0	
KR-2-32	UT45	
KR-2-31	UT0	
KR-2-31	UT45	GEOMETRY
GR-2-32	UT0	
GR-2-32	UT45	
GR-2-31	UT0	
GR-2-31	UT45	ROOT CONCAVITY <DAC

UNIT 2   CYCLE 0   SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-2-30	UT0	
KR-2-30	UT45	GEOMETRY
KR-2-29	UT0	
KR-2-29	UT45	GEOMETRY
KR-2-28	UT0	
KR-2-28	UT45	
KR-2-27	UT0	
KR-2-27	UT45	
GR-2-30	UT0	
GR-2-30	UT45	GEOMETRY
KR-2-23	UT0	
KR-2-23	UT45	
KR-2-1	UT0	
KR-2-1	UT45	
GR-2-4	UT0	
GR-2-4	UT45	GEOMETRY
KR-2-5	UT0	
KR-2-5	UT45	
KR-2-6	UT0	
KR-2-6	UT45	GEOMETRY
KR-2-7	UT0	
KR-2-7	UT45	GEOMETRY
GR-2-5	UT0	
GR-2-5	UT45	GEOMETRY
KR-2-8	UT0	
KR-2-8	UT45	
GR-2-6	UT0	
GR-2-6	UT45	GEOMETRY
KR-2-9	UT0	
KR-2-9	UT45	GEOMETRY
KR-2-10	UT0	
KR-2-10	UT45	
GR-2-7	UT0	
GR-2-7	UT45	GEOMETRY
KR-2-4	UT0	
KR-2-4	UT45	
KR-2-23	UT0	
KR-2-23	UT45	
GR-2-30	UT0	
GR-2-30	UT45	GEOMETRY
KR-2-27	UT0	
KR-2-27	UT45	GEOMETRY
KR-2-28	UT0	
KR-2-28	UT45	
KR-2-29	UT0	
KR-2-29	UT45	
GR-2-31	UT0	
GR-2-31	UT45	
KR-2-30	UT0	
GR-2-32	UT0	

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-32	UT45	
KR-2-31	UT0	
KR-2-31	UT45	
KR-2-32	UT0	
KR-2-32	UT45	
GR-2-33	UT0	
GR-2-33	UT45	GEOMETRY
KR-2-26	UT0	
KR-2-26	UT45	GEOMETRY
KR-2-26	UT45	GEOMETRY

NO. OF INSPECTIONS: 160

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-2-18	UT0	
DCS-2-18	UT45	GEOMETRY
DSCS-2-13	UT0	
DSCS-2-13	UT45	
DCS-2-17	UT0	
DCS-2-17	UT45	
DCS-2-16	UT0	
DCS-2-16	UT45	
DCS-2-9	UT0	
DCS-2-9	UT45	GEOMETRY
DCS-2-6	UT0	
DCS-2-6	UT45	GEOMETRY
DCS-2-8	UT0	
DCS-2-8	UT45	
DCS-2-7	UT0	
DCS-2-7	UT45	
DSCS-2-4	UT0	
DSCS-2-4	UT45	
DSCS-2-5	UT0	
DSCS-2-5	UT45	GEOMETRY
DSCS-2-3	UT0	
DSCS-2-3	UT45	
DCS-2-5	UT0	
DCS-2-5	UT45	
DSCS-2-2	UT0	
DSCS-2-2	UT45	SPOT IND 10% DAC
DSCS-2-1	UT0	
DSCS-2-1	UT45	
DSCS-2-4	UT0	
DSCS-2-4	UT45	SPOT IND 10% DAC
DSCS-2-12	UT0	
DSCS-2-12	UT45	GEOMETRY
DSCS-2-11	UT0	
DSCS-2-11	UT45	
DCS-2-14	UT0	
DCS-2-14	UT45	POROSITY 5% DAC
DSCS-2-9	UT0	
DSCS-2-9	UT45	GEOMETRY
DSCS-2-10	UT0	
DSCS-2-10	UT45	GEOMETRY
DCS-2-15	UT0	
DCS-2-15	UT45	
DSCS-2-8	UT0	
DSCS-2-8	UT45	GEOMETRY
DSCS-2-7	UT0	
DSCS-2-7	UT45	
DCS-2-13	UT0	
DCS-2-13	UT45	GEOMETRY
DCS-2-9	UT0	
DCS-2-9	UT45	GEOMETRY

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-2-6	UT0	
DCS-2-6	UT45	
DCS-2-12	UT0	
DCS-2-12	UT45	
DCS-2-3	UT0	
DCS-2-3	UT45	

NO. OF INSPECTIONS: 56

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: CRD

WELD NO	NDE	INDICATIONS
RCRD-2-27	UT0	
RCRD-2-27	UT45	GEOMETRY
RCRD-2-30	UT0	
RCRD-2-30	UT45	GEOMETRY

NO. OF INSPECTIONS: 4

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DSRWC-2-3	UT0	
DSRWC-2-3	UT45	
DSRWC-2-2	UT0	
DSRWC-2-2	UT45	SPOT 20% DAC

NO. OF INSPECTIONS: 4

UNIT 2   CYCLE 0   SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DHS-2-6	UT0	
DHS-2-6	UT45	SPOT 40% DAC

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-63A	UT0	
GR-2-63A	UT45	
GR-2-63B	UT0	
GR-2-63B	UT45	GEOMETRY
GR-2-52	UT0	
GR-2-52	UT45	
GR-2-26	UT0	
GR-2-26	UT45	
GR-2-35	UT0	
GR-2-35	UT45	
GR-2-36	UT0	
GR-2-36	UT45	LINEAR IND <DAC

NO. OF INSPECTIONS: 12

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 0 SYSTEM: RHR

WELD NO	NDE	INDICATIONS
DRHR-2-15	UT0	
DRHR-2-15	UT45	
DRHR-2-22	UT0	
DRHR-2-22	UT45	POROSITY 45% DAC
DRHR-2-13	UT0	
DRHR-2-13	UT45	GEOMETRY
DSRHR-2-10	UT0	
DSRHR-2-10	UT45	GEOMETRY

NO. OF INSPECTIONS: 8

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 1 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-2-8	UT0	
KFW-2-8	UT45	GEOMETRY
KFW-2-9	UT0	
KFW-2-9	UT45	GEOMETRY
KFW-2-26	UT0	
KFW-2-26	UT45	GEOMETRY
KFW-2-10	UT0	
KFW-2-10	UT45	GEOMETRY
GFW-2-15	UT0	
GFW-2-15	UT45	
KFW-2-38	UT0	
KFW-2-38	UT45	GEOMETRY
KFW-2-39	UT0	
KFW-2-39	UT45	GEOMETRY

NO. OF INSPECTIONS: 14

UNIT 2 CYCLE 1 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
TCS-2-401	UT0	
TCS-2-401	UT45	GEOMETRY
TCS-2-402	UT0	
TCS-2-402	UT45	GEOMETRY
TCS-2-403	UT0	
TCS-2-403	UT45	GEOMETRY
TCS-2-404	UT0	
TCS-2-404	UT45	GEOMETRY
TCS-2-405	UT0	
TCS-2-405	UT45	
TCS-2-406	UT0	
TCS-2-406	UT45	
TCS-2-407	UT0	
TCS-2-407	UT45	GEOMETRY
TCS-2-408	UT0	
TCS-2-408	UT45	GEOMETRY
TCS-2-409	UT0	
TCS-2-409	UT45	GEOMETRY
TCS-2-410	UT0	
TCS-2-410	UT45	GEOMETRY
TCS-2-417	UT0	
TCS-2-417	UT45	GEOMETRY
TCS-2-418	UT0	
TCS-2-418	UT45	GEOMETRY
TCS-2-419	UT0	
TCS-2-419	UT45	GEOMETRY
TCS-2-420	UT0	
TCS-2-420	UT45	GEOMETRY
TCS-2-421	UT0	
TCS-2-421	UT45	
TCS-2-422	UT0	
TCS-2-422	UT45	GEOMETRY
TCS-2-423	UT0	
TCS-2-423	UT45	GEOMETRY
TCS-2-424	UT0	
TCS-2-424	UT45	
TCS-2-425	UT0	
TCS-2-425	UT45	GEOMETRY
TCS-2-426	UT0	
TCS-2-426	UT45	

NO. OF INSPECTIONS: 40

UNIT 2 CYCLE 1 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-2-30	UT0	LAMINATION 25% DAC
KMS-2-30	UT45	GEOMETRY
KMS-2-30	UT0	INCLUSIONS <20% DAC
KMS-2-30	UT45	
GMS-2-15	UT0	
GMS-2-15	UT45	GEOMETRY
GMS-2-24	UT0	
GMS-2-24	UT45	GEOMETRY
GMS-2-32	UT0	
GMS-2-32	UT45	GEOMETRY
KMS-2-102	UT0	
KMS-2-102	UT45	GEOMETRY
KMS-2-37	UT0	
KMS-2-37	UT45	DROP-THROUGH <DAC
KMS-2-59	UT0	
KMS-2-59	UT45	
KMS-2-36	UT0	
KMS-2-36	UT45	
KMS-2-60	UT0	
KMS-2-60	UT45	

NO. OF INSPECTIONS: 20

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 1 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-53	UT0	
GR-2-53	UT45	GEOMETRY
GR-2-27	UT0	
GR-2-27	UT45	GEOMETRY
GR-2-24	UT0	
GR-2-24	UT45	GEOMETRY
GR-2-37	UT0	
GR-2-37	UT45	INCLUSIONS 20% DAC
GR-2-40	UT0	
GR-2-40	UT45	GEOMETRY
GR-2-47	UT0	
GR-2-47	UT45	GEOMETRY

NO. OF INSPECTIONS: 12

UNIT 2 CYCLE 1 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DSRHR-2-7	UT0	
DSRHR-2-7	UT45	GEOMETRY

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2   CYCLE 1   SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DSRWC-2-4	UT0	
DSRWC-2-4	UT45	GEOMETRY
DRWC-2-1	UT0	
DRWC-2-1	UT45	GEOMETRY
DRWC-2-1A	UT0	
DRWC-2-1A	UT45	GEOMETRY

NO. OF INSPECTIONS: 6

UNIT 2 CYCLE 1 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-2-72	UT0	
THPCI-2-72	UT45	GEOMETRY

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 3 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-18	UT0	
GR-2-18	UT45	
KR-2-19	UT0	
KR-2-19	UT45	
R-2A-H1	PT	
R-2-H1	VT	
R-2-H3	VT	
R-2-SS1	VT	
R-2-H14	VT	
R-2A-H3	PT	

NO. OF INSPECTIONS: 10

UNIT 2 CYCLE 3 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-2-65	UT0	
THPCI-2-65	UT45	GEOMETRY

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 3 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DHS-2-6	UT0	
DHS-2-6	UT45	
DSHS-2-19	UT0	
DSHS-2-19	UT45	
HS-2-H11	VT	
HS-2-H11	PT	
HS-2-H73	VT	
HS-2-R73	PT	
HS-2-H72	VT	
TRHR-2-191	UT0	
TRHR-2-191	UT45	
TRHR-2-191	PT	
TRHR-2-191	PT	
DSRHR-2-11	UT0	
DSRHR-2-11	UT45	
DSRHR-2-4A	UT0	
DSRHR-2-4A	UT45	
RHR-2-H-10	VT	

NO. OF INSPECTIONS: 18

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 3 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRD-2-44	UT0	
RCRD-2-44	UT45	
RCRD-2-43	UT0	
RCRD-2-43	UT45	
RCRDS-2-3	UT0	
RCRDS-2-3	UT45	
RCRDS-2-1	UT0	
RCRDS-2-1	UT45	
RCRD-2-47	UT0	
RCRD-2-47	UT45	GEOMETRY
RCRD-2-45	UT0	
RCRD-2-45	UT45	
RCRD-2-46	UT0	
RCRD-2-46	UT45	GEOMETRY
RCRD-2-48	UT0	
RCRD-2-48	UT45	GEOMETRY
RCRD-2-49	UT0	
RCRD-2-49	UT45	GEOMETRY
RCRD-2-7	UT0	
RCRD-2-2	UT45	
RCRD-2-2	PT	
RCRD-2-49	PT	

NO. OF INSPECTIONS: 22

UNIT 2 CYCLE 3 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-2-53	UT0	
KMS-2-53	UT45	
KMS-2-46	PT	
KMS-2-43	PT	
MS-2-SSB5	MT	
MS-2-HC2	MT	
MS-2-HC1	MT	
MS-2-HA2	VT	
MS-2-SSA12	VT	
MS-2-HD2	VT	
MS-2-SSD12	VT	
MS-2-HB4	VT	
MS-2-SSB6	VT	

NO. OF INSPECTIONS: 13

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 3 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
CS-2-H3	VT	
CS-2-H3	MT	
CS-2-H6	VT	
CS-2-H6	MT	
CS-2-H1	VT	

NO. OF INSPECTIONS: 5

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 3 SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-2-2	UT0	
TRCIC-2-2	UT45	GEOMETRY

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2   CYCLE 3   SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DSRWC-2-1	UT0	
DSRWC-2-1	UT45	
DRWC-2-1A	UT0	
DRWC-2-1A	UT45	
DRWC-2-2	UT0	
DRWC-2-2	UT45	
DRWC-2-3	UT0	
DRWC-2-3	UT45	
DSRWC-2-3	UT0	
DSRWC-2-3	UT45	
DSRWC-2-2	UT0	
DSRWC-2-2	UT45	
DSRWC-2-4	UT0	
DSRWC-2-4	UT45	
DSRWC-2-5	UT0	
DSRWC-2-5	UT45	
DSRWC-2-6	UT0	
DSRWC-2-6	UT45	
DRWC-2-1A	UT0	
DRWC-2-1A	UT45	
DRWC-2-1	UT0	
DRWC-2-1	UT45	
DRWC-2-59	UT0	
DRWC-2-59	UT45	
DSRWC-2-7	UT0	
DSRWC-2-7	UT45	
DRWC-2-4	UT0	
DRWC-2-4	UT45	
RWC-2-H1	PT	

NO. OF INSPECTIONS: 29

UNIT 2 CYCLE 3 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
FW-2-SSA7	MT	
FW-2-SSA7	VT	
FW-2-SSA4	VT	
FW-2-H5	VT	
FW-2-SSA3	VT	
FW-2-SSB89	VT	
FW-2-H7	VT	

NO. OF INSPECTIONS: 7

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
DHS-2-1	UT45	
DSHS-2-14	UT45	
DHS-2-7	PT	ARC STRIKE
DHS-2-6	PT	LINEAR IND
DHS-2-7	UT45	
DHS-2-6	UT45	
DHS-2-7	PT	
DHS-2-6	PT	
DSHS-2-12	UT45	

NO. OF INSPECTIONS: 9

UNIT 2 CYCLE 4 SYSTEM: AS

WELD NO	NDE	INDICATIONS
DAS-2-6	UT45	
DAS-2-3	UT45	

NO. OF INSPECTIONS: 2

UNIT 2 CYCLE 4 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-2-5	UT45	
DSCS-2-2	UT45	
DSCS-2-1	UT45	
DCS-2-4	UT45	
DCS-2-3	UT0	
DCS-2-3	UT45	
DCS-2-3	PT	
DCS-2-12	UT0	
DCS-2-12	UT45	
DCS-2-12	PT	
DCS-2-13	UT45	
DCS-2-7	UT45	
DSCS-2-9	UT45	
DCS-2-14	UT45	
TCS-2-423	UT45	
TSCS-2-424	UT45	
TCS-2-410	UT45	IND NOI
TCS-2-410	PT	IND NOI
TCS-2-406	UT45	
TCS-2-406	PT	
TCS-2-401	UT45	
TCS-2-401	PT	
TCS-2-410	PT	
DCS-2-2	UT45	
DCS-2-13A	UT45	

NO. OF INSPECTIONS: 25

UNIT 2 CYCLE 4 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
TCRD-2-15	UT45	
TCRD-2-5X	UT45	
RCRDS-2-3	UT45	
CRD TEE	UT45	
RCRDS-2-2	PT	
RCRD-2-46	UT45	
RCRD-2-45	UT45	
RCRD-2-44	UT45	
RCRDS-2-3	PT	
TCRD-2-25T	UT0	
TCRD-2-25T	UT45	
TCRD-2-15T	UT0	
TCRD-2-15T	UT45	
TCRD-2-20T	UT0	
TCRD-2-20T	UT45	
TCRD-2-7T	UT0	
TCRD-2-7T	UT45	
TCRD-2 2T	UT0	
TCRD-2-2T	UT45	
TCRD-2-12T	UT0	
TCRD-2-12T	UT45	
TCRD-2-9	UT0	
TCRD-2-9	UT45	
TCRD-2-10	UT0	
TCRD-2-10	UT45	
TCRD-2-11	UT0	
TCRD-2-11	UT45	
TCRD-2-4	UT0	
TCRD-2-4	UT45	
TCRD-2-1	UT0	
TCRD-2-1	UT45	
TCRD-2-3	UT0	
TCRD-2-3	UT45	
TCRD-2-2	UT0	
TCRD-2-2	UT45	
TCRD-2-5	UT0	
TCRD-2-5	UT45	
TCRD-2-12	UT0	
TCRD-2-12	UT45	
TCRD-2-8	UT0	
TCRD-2-8	UT45	
TCRD-2-7	UT0	
TCRD-2-7	UT45	
TCRD-2-6	UT0	
TCRD-2-6	UT45	
TCRD-2-40	UT0	
TCRD-2-40	UT45	
TCRD-2-39	UT0	
TCRD-2-39	UT45	
TCRD-2-38	UT0	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
TCRD-2-38	UT45	
TCRD-2-37	UT0	
TCRD-2-37	UT45	
TCRD-2-36	UT0	
TCRD-2-36	UT45	
TCRD-2-35	UT0	
TCRD-2-35	UT45	
TCRD-2-13F	UT0	
TCRD-2-13F	UT45	
TCRD-2-16F	UT45	
TCRD-2-19F	UT0	
TCRD-2-19F	UT45	
TCRD-2-22F	UT0	
TCRD-2-22F	UT45	
TCRD-2-41	UT0	
TCRD-2-41	UT45	
TCRD-2-42	UT0	
TCRD-2-42	UT45	
TCRD-2-42A	UT0	
TCRD-2-42A	UT45	
TCRD-2-43	UT0	
TCRD-2-43	UT45	
TCRD-2-44	UT0	
TCRD-2-44	UT45	
TCRD-2-1F	UT0	
TCRD-2-1F	UT45	
TCRD-2-4F	UT0	
TCRD-2-4F	UT45	
TCRD-2-6AF	UT0	
TCRD-2-6AF	UT45	
TCRD-2-7F	UT0	
TCRD-2-7F	UT45	
TCRD-2-10F	UT0	
TCRD-2-10F	UT45	

NO. OF INSPECTIONS: 84

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-2-24	UT45	
GFW-2-4	UT45	
GFW-2-8	UT45	
KFW-2-31	UT45	
GFW-2-26	UT45	
GFW-2-12	UT45	
KFW-2-14	UT45	
GFW-2-11	UT45	
KFW-2-26	PT	
FW-2-SSB1	MT	
FW-2-SSB2	VT	

NO. OF INSPECTIONS: 11

UNIT 2 CYCLE 4 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-2-62	UT45	
THPCI-2-70	UT45	
HPCI-2-H2	PT	
THPCI-2-72	UT45	
THPCI-2-72	PT	

NO. OF INSPECTIONS: 5

UNIT 2 CYCLE 4 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-2-6	UT45	
KMS-2-104	UT45	
KMS-2-55	UT45	
KMS-2-54	UT45	
GMS-2-23	UT45	
KMS-2-25	UT45	
GMS-2-29	UT45	
KMS-2-90	UT45	
KMS-2-91	UT45	
KMS-2-7	UT45	
KMS-2-8	UT45	
KMS-2-65	UT45	
KMS-2-89	MT	
KMS-2-6	MT	
KMS-2-63	MT	
MS-2-HB4	VT	
MS-2-HB4	MT	
MS-2-SSA1	PT	IND NOI 64
DMS-2-3	UT45	
DSMS-2-27	UT45	
DAS-2-3	UT45	
DAS-2-6	UT45	
DSMS-2-26	UT45	
KMS-2-89	MT	
MS-2-SSA2	PT	NOI

NO. OF INSPECTIONS: 25

UNIT 2 CYCLE 4 SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-2-1A	UT45	

NO. OF INSPECTIONS: 1

UNIT 2 CYCLE 4 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-54	UT45	
GR-2-54-LS	UT45	
GR-2-51	UT45	
GR-2-20	UT45	
KR-2-51	UT45	
KR-2-16	UT45	
KR-2-53	PT	
R-2-H6	VT	
R-2-H6	PT	
R-2-553	VT	
R-2-553	PT	
GR-2-4	PT	
GR-2-33	PT	
KR-2-45	UT45	
GR-2-14	UT45	
KR-2-17	UT45	
GR-2-12	UT45	
GR-2-41	UT45	

NO. OF INSPECTIONS: 18

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DRWC-2-1A	UT45	
DRWC-2-1A	PT	
DRWC-2-1	UT45	
DSRWC-2-1	UT45	
DRWC-2-2	UT45	
DRWC-2-3	UT45	
DRWC-2-3	PT	
DSRWC-2-1A	UT0	
DSRWC-2-1A	UT45	
DSRWC-2-2	UT45	
DSRWC-2-3	UT45	
DSRWC-2-4	UT45	
DSRWC-2-5	UT45	
DSRWC-2-6	UT45	
DSRWC-2-7	UT45	
DRWC-2-4	UT45	
DRWC-2-59	UT45	

NO. OF INSPECTIONS: 17

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DSRHR-2-7	UT45	
DSRHR-2-5	UT45	
DSRHR-2-6	UT45	
TRHR-2-192	UT45	
DSHS-2-14	UT45	
DHS-2-7	PT	IND NO1
DSRHR-2-8	PT	
RHR-2-H3	VT	
RHR-2-H3	PT	
DHS-2-6	PT	
DHS-2-7	PT	
TRHR-2-222	UT45	
TRHR-2-170	UT45	
TRHR-2-67	UT45	
TRHR-2-241	UT45	
TRHR-2-262	UT45	
TRHR-2-362	UT45	
TRHR-2-385	UT45	
TRHR-2-182	UT45	
TRHR-2-110	UT45	
TRHR-2-35	UT45	
TRHR-2-319	UT45	
TRHR-2-408	UT45	
TRHR-2-[illegible]	UT45	
DSRHR-2-9	UT45	
DHS-2-1	UT45	
TRHR-2-395	UT45	
TRHR-2-35	UT45	
DRHR-2-7LS	UT45	
DSRHR-2-4	UT45	

NO. OF INSPECTIONS: 30

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4I SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-2-36	UT45	LINEAR IND 60% DAC
KR-2-14	UT45	LINEAR IND 60% DAC
KR-2-20	UT45	
KR-2-42	UT45	
GR-2-35	UT45	GEOMETRY
KR-2-13	UT45	
KR-2-19	UT45	
KR-2-41	UT45	GEOMETRY
KR-2-35	UT45	
GR-2-43	UT45	GEOMETRY
KR-2-40	UT45	GEOMETRY
GR-2-42	UT45	GEOMETRY
KR-2-18	UT45	GEOMETRY
GR-2-14	UT45	GEOMETRY
KR-2-17	UT45	GEOMETRY
GR-2-13	UT45	GEOMETRY
GR-2-12	UT45	GEOMETRY
GR-2-38	UT45	GEOMETRY
GR-2-41	UT45	GEOMETRY
GR-2-53	UT45	GEOMETRY
KR-2-45	UT45	GEOMETRY
GR-2-54	UT45	GEOMETRY
KR-2-51	UT45	GEOMETRY
GR-2-27	UT45	GEOMETRY
KR-2-24	UT45	GEOMETRY
KR-2-15	UT45	GEOMETRY
KR-2-37	UT45	GEOMETRY
GR-2-18	UT45	
GR-2-51	UT45	
GR-2-52	UT45	GEOMETRY
GR-2-4	UT45	GEOMETRY
GR-2-33	UT45	GEOMETRY

NO. OF INSPECTIONS: 32

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4I SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DRWC-2-2	UT45	
DRWC-2-1A	UT45	GEOMETRY

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4I SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DSRHR-2-6	UT45	GEOMETRY
DSRHR-2-4A	UT45	GEOMETRY
DRHR-2-7	UT45	
DSRHR-2-11	UT45	GEOMETRY
DSRHR-2-9	UT45	GEOMETRY
DSRHR-2-4	UT45	GEOMETRY
DSRHR-2-7	UT45	GEOMETRY

NO. OF INSPECTIONS: 7

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2   CYCLE 4I   SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-2-14	UT45	GEOMETRY
DSCS-2-9	UT45	GEOMETRY

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4I SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DHS-2-1	UT45	
DSHS-2-12	UT45	GEOMETRY

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2   CYCLE 4A   SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-2-72	UT0	
THPCI-2-72	UT45	GEOMETRY
THPCI-2-72	UT45	

NO. OF INSPECTIONS: 3

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4A SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-2-3	UT0	
KFW-2-3	UT45	GEOMETRY

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4A SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-2-55	UT45	
R-2B-H2	UT45	
R-2-H10	VT	
R-2-H5	VT	
R-2-H9	VT	

NO. OF INSPECTIONS: 5

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4A SYSTEM: MS

WELD NO.	NDE	INDICATIONS
MS-2-SSB1	VT	

NO. OF INSPECTIONS: 1

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 4A SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
RHR-2-R69	VT	

NO. OF INSPECTIONS: 1

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-2-1A	UT45	
THPCI-2-13F	UT45	
THPCI-2-60	UT45	
THPCI-2-63	UT45	
THPCI-2-65	UT45	
THPCI-2-127	UT45	
HPCI-2-1	UT45	
HPCI-2-2	UT45	
HPCI-R-23	MT	
HPCI-R-24	MT	
THPCI-2-61X	UT45	

NO. OF INSPECTIONS: 11

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: FW

WELD NO	NDE	INDICATIONS
GFW-2-2	UT45	

NO. OF INSPECTIONS: 1

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
CSH-2-1	VT	
CSH-2-1	PT	
TCS-2-14	UT45	
TCS-2-197	UT45	

NO. OF INSPECTIONS: 4

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
MX-TEE	UT45	
RCRD-2-6	UT45	
RCRD-2-44	UT45	
RCRD-2-45	UT45	
RCRDS-2-3	UT45	
TCRD-2-40A	UT45	
TCRD-2-41A	UT45	
TCRD-2-140	UT45	
TCRD-2-141	UT45	
TCRD-2-143	UT45	
TCRD-2-199A	UT45	
TCRD-2-199B	UT45	
TCRD-2-208	UT45	
TCRD-2-7A	UT45	
TCRD-2-8A	UT45	
TCRD-2-12A	UT45	
TCRD-2-39A	UT45	
TCRD-2-40A	UT45	
TCRD-2-41A	UT45	
TCRD-2-42B	UT45	
TCRD-2-42C	UT45	
CRD-2-542	PT	
CRD-2-566	PT	

NO. OF INSPECTIONS: 23

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: CCW

WELD NO.	NDE	INDICATIONS
TCCW-2-01	PT	
TCCW-2-01	UT45	

NO. OF INSPECTIONS: 2

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2   CYCLE 5   SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-2-1	UT45	
GMS-2-9	UT45	
HPASH-2-7	MT	
MSH-17	MT	
RG-2-1ST	MT	

NO. OF INSPECTIONS: 5

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2   CYCLE 5   SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-2-144	UT45	
RCIC-2-C07X1	UT45	
RCIC-2-1R4	UT45	
RCIC-2-2X1	UT45	

NO. OF INSPECTIONS: 4

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-2-4	PT	
GR-2-4	PT	
GR-2-8	PT	NOI 129
GR-2-8	PT	
GR-2-9	PT	
GR-2-12	PT	
GR-2-15	PT	NOI 125
GR-2-15	PT	
GR-2-18	PT	
GR-2-19	PT	
GR-2-20	UT45	
GR-2-22	PT	
GR-2-30	PT	
GR-2-30	PT	
GR-2-33	PT	
GR-2-34	PT	
GR-2-38	PT	
GR-2-41	PT	
GR-2-41	UT45	
GR-2-44	PT	
GR-2-45	PT	
GR-2-45	PT	
GR-2-48	PT	
GR-2-35	PT	
GR-2-53	PT	
GR-2-53	UT45	
GR-2-55	PT	
GR-2-59	PT	
GR-2-61	PT	
GR-2-63A	PT	
GR-2-63B	PT	
GR-2-63B	PT	
GR-2-7	PT	
GR-2-7	PT	
KR-2-33	PT	
KR-2-34	PT	
KR-2-37	PT	
KR-2-37	PT	
KR-2-45	UT45	
KR-2-46	PT	
KR-2-49	PT	
KR-2-49	PT	
KR-2-53	PT	
KR-2-53	PT	
KR-2-1	PT	
KR-2-1	PT	
KR-2-3	PT	
KR-2-11	PT	
KR-2-12	PT	NOI 127
KR-2-23	PT	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-2-23	PT	
KR-2-25	PT	
KR-2-26	PT	

NO. OF INSPECTIONS: 53

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DRWC-2-1	PT	
DRWC-2-1A	PT	NOI 126
DRWC-2-1A	PT	
DRWC-2-2	PT	
DRWC-2-3	PT	
DRWC-2-4	UT45	
DRWC-2-5A	PT	
DRWC-2-5B	PT	
DSRWC-2-6	UT60	
DSRWC-2-7	UT45	
DSRWC-2-7	UT60	
DRWC-2-4A	UT45	
DRWC-2-4B	UT45	
DRWC-2-7A	UT45	
DRWC-2-7B	UT45	

NO. OF INSPECTIONS: 15

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 2 CYCLE 5 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DRHR-2-2	PT	
DRHR-2-3	PT	
DRHR-2-4	PT	
DRHR-2-5	PT	NOI 134
DRHR-2-5	PT	
DRHR-2-7	PT	
DRHR-2-9	PT	
DRHR-2-11	PT	
DRHR-2-12	PT	
DRHR-2-13	PT	NOI 133
DRHR-2-13	PT	
DRHR-2-17	PT	
DRHR-2-18	PT	
DRHR-2-19	PT	
DSRHR-2-4	UT45	
DSRHR-2-5	PT	
DSRHR-2-5A	RT	
DSRHR-2-5A	RT	
DSRHR-2-5A	RT	
DSRHR-2-5A	PT	
DSRHR-2-5A	PT	
DSRHR-2-6	PT	
DSRHR-2-6	UT45	
DSRHR-2-8	PT	
DSRHR-2-8	PT	
DSRHR-2-9	PT	
DSRHR-2-9	PT	
DSRHR-2-9	UT45	
RHR-H-12	MT	
RHR-H-22	MT	
RHR-H-7	MT	
RHR-H-31	MT	
RHR-H-36	MT	
RHR-H-54	MT	
RHR-H-55	MT	
RHR-H-122	MT	
RHR-R-12	MT	
RHR-R-35B	MT	
RHR-R-51	MT	
RHR-R-64	MT	
RHRPH-2-B	VT	
RHRPH-2-B	MT	
TRHR-2-29	PT	
TRHR-2-29	UT45	
TRHR-2-191	PT	
TRHR-2-462	PT	
TRHR-2-462	UT45	

NO. OF INSPECTIONS: 47

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRD-3-37	UT0	
RCRD-3-37	UT45	
RCRD-3-36	UT0	
RCRD-3-36	UT45	
RCRD-3-35	UT0	
RCRD-3-35	UT45	
RCRD-3-34	UT0	
RCRD-3-34	UT45	
RCRD-3-33	UT0	
RCRD-3-33	UT45	
RCRD-3-32	UT0	
RCRD-3-32	UT45	
RCRD-3-30	UT0	
RCRD-3-30	UT45	
RCRD-3-29	UT0	
RCRD-3-29	UT45	
RCRD-3-28	UT0	
RCRD-3-28	UT45	
RCRD-3-27	UT0	
RCRD-3-27	UT45	
RCRD-3-26	UT0	
RCRD-3-26	UT45	
RCRD-3-25	UT0	
RCRD-3-25	UT45	
RCRD-3-22	UT0	
RCRD-3-22	UT45	
RCRD-3-23	UT0	
RCRD-3-23	UT45	
RCRD-3-31	UT0	
RCRD-3-31	UT45	

NO. OF INSPECTIONS: 30

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-3-18	UT0	
DCS-3-18	UT45	
DCS-3-17	UT0	
DCS-3-17	UT45	
DCS-3-16	UT0	
DCS-3-16	UT45	
DCS-3-7	UT0	
DCS-3-7	UT45	
DSCS-3-5	UT0	
DSCS-3-5	UT45	
DCS-3-8	UT0	
DCS-3-8	UT45	
DCS-3-9	UT0	
DCS-3-9	UT45	
DSCS-3-6	UT0	
DSCS-3-6	UT45	
DSCS-3-2	UT0	
DSCS-3-2	UT45	
DSCS-3-12	UT0	
DSCS-3-12	UT45	
DSCS-3-11	UT0	
DSCS-3-11	UT45	
DSCS-3-10	UT0	
DSCS-3-10	UT45	
DCS-3-15	UT0	
DCS-3-15	UT45	
DCS-3-14	UT0	
DCS-3-14	UT45	
DSCS-3-9	UT0	
DSCS-3-9	UT45	
DSCS-3-8	UT0	
DSCS-3-8	UT45	
DSCS-3-7	UT0	
DSCS-3-7	UT45	
DCS-3-13	UT0	
DCS-3-13	UT45	
DSCS-3-13	UT0	
DSCS-3-13	UT45	
DSCS-3-4	UT0	
DSCS-3-4	UT45	
DSCS-3-3	UT0	
DSCS-3-3	UT45	
DCS-3-6	UT0	
DCS-3-6	UT45	
DCS-3-5	UT0	
DCS-3-5	UT45	
DSCS-3-1	UT0	
DSCS-3-1	UT45	
DCS-3-4	UT0	
DCS-3-4	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-3-12	UT0	
DCS-3-12	UT45	
DCS-3-3	UT0	
DCS-3-3	UT45	

NO. OF INSPECTIONS: 54

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
GFW-3-32	UT0	
GFW-3-32	UT45	
KFW-3-38	UT0	
KFW-3-38	UT45	
KFW-3-28	UT0	
KFW-3-28	UT45	
KFW-3-27	UT0	
KFW-3-27	UT45	
GFW-3-24	UT0	
GFW-3-24	UT45	
GFW-3-23	UT0	
GFW-3-23	UT45	
KFW-3-26	UT0	
KFW-3-26	UT45	
GFW-3-9	UT0	
GFW-3-9	UT45	
KFW-3-13	UT0	
KFW-3-13	UT45	
GFW-3-8	UT0	
GFW-3-8	UT45	
KFW-3-12	UT0	
KFW-3-12	UT45	
GFW-3-12	UT0	
GFW-3-12	UT45	
KFW-3-11	UT0	
KFW-3-11	UT45	
KFW-3-10	UT0	
KFW-3-10	UT45	
KFW-3-9	UT0	
KFW-3-9	UT45	
KFW-3-39	UT0	
KFW-3-39	UT45	
GFW-3-15	UT0	
GFW-3-15	UT45	
GFW-3-7	UT0	
GFW-3-7	UT45	
GFW-3-6	UT0	
GFW-3-6	UT45	
KFW-3-8	UT0	
KFW-3-8	UT45	
GFW-3-22	UT0	
GFW-3-22	UT45	
KFW-3-24	UT0	
KFW-3-24	UT45	
KFW-3-23	UT0	
KFW-3-23	UT45	
GFW-3-4	UT0	
GFW-3-4	UT45	
KFW-3-5	UT0	
KFW-3-5	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
GFW-3-5	UT0	
GFW-3-5	UT45	
KFW-3-6	UT0	
KFW-3-6	UT45	
GFW-3-6	UT0	
GFW-3-6	UT45	
GFW-3-34	UT0	
GFW-3-34	UT45	
KFW-3-37	UT0	
KFW-3-37	UT45	
KFW-3-36	UT0	
KFW-3-36	UT45	
GFW-3-33	UT0	
GFW-3-33	UT45	
GFW-3-17	UT0	
GFW-3-17	UT45	
KFW-3-19	UT0	
KFW-3-19	UT45	
KFW-3-18	UT0	
KFW-3-18	UT45	
GFW-3-16	UT0	
GFW-3-16	UT45	
GFW-3-14	UT0	
GFW-3-14	UT45	
KFW-3-17	UT0	
KFW-3-17	UT45	
KFW-3-16	UT0	
KFW-3-16	UT45	
GFW-3-13	UT0	
GFW-3-13	UT45	
GFW-3-11	UT0	
GFW-3-11	UT45	
KFW-3-15	UT0	
KFW-3-15	UT45	
KFW-3-14	UT0	
KFW-3-14	UT45	
GFW-3-28	UT0	
GFW-3-28	UT45	
KFW-3-33	UT0	
KFW-3-33	UT45	
GFW-3-27	UT0	
GFW-3-27	UT45	
GFW-3-31	UT0	
GFW-3-31	UT45	
KFW-3-35	UT0	
KFW-3-35	UT45	
KFW-3-34	UT0	
KFW-3-34	UT45	
GFW-3-30	UT0	
GFW-3-30	UT45	

UNIT 3 CYCLE 0 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
GFW-3-26	UT0	
GFW-3-26	UT45	
KFW-3-31	UT0	
KFW-3-31	UT45	
GFW-3-25	UT0	
GFW-3-25	UT45	
KFW-3-30	UT0	
KFW-3-30	UT45	
GFW-3-29	UT0	
GFW-3-29	UT45	
KFW-3-29	UT0	
KFW-3-29	UT45	
GFW-3-19	UT0	
GFW-3-19	UT45	
KFW-3-21	UT0	
KFW-3-21	UT45	
GFW-3-18	UT0	
GFW-3-18	UT45	
GFW-3-2	UT0	
GFW-3-2	UT45	
KFW-3-3	UT0	
KFW-3-3	UT45	
KFW-3-1	UT0	
KFW-3-1	UT45	
GFW-3-1	UT0	
GFW-3-1	UT45	
GFW-3-21	UT0	
GFW-3-21	UT45	
GFW-3-20	UT0	
GFW-3-20	UT45	
KFW-3-25	UT0	
KFW-3-25	UT45	
KFW-3-7	UT0	
KFW-3-7	UT45	
KFW-3-40	UT0	
KFW-3-40	UT45	
KFW-3-32	UT0	
KFW-3-32	UT45	
GFW-3-10	UT0	
GFW-3-10	UT45	

NO. OF INSPECTIONS: 140

UNIT 3 CYCLE 0 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
TRHR-3-455C	UT0	
TRHR-3-455C	UT45	
TRHR-3-455D	UT0	
TRHR-3-455D	UT45	
TRHR-3-455E	UT0	
TRHR-3-455E	UT45	
DSHS-3-15	UT0	
DSHS-3-15	UT45	
DSHS-3-16	UT0	
DSHS-3-16	UT45	
DHS-3-4	UT0	
DHS-3-4	UT45	
DHS-3-5	UT0	
DHS-3-5	UT45	
DHS-3-6	UT0	
DHS-3-6	UT45	
DHS-3-7	UT0	
DHS-3-7	UT45	
DHS-3-1	UT0	
DHS-3-1	UT45	
DHS-3-1A	UT0	
DHS-3-1A	UT45	
DSHS-3-1	UT0	
DSHS-3-1	UT45	
DSHS-3-2	UT0	
DSHS-3-2	UT45	
DSHS-3-3	UT0	
DSHS-3-3	UT45	
DSHS-3-4	UT0	
DSHS-3-4	UT45	
DSHS-3-5	UT0	
DSHS-3-5	UT45	
DHS-3-2	UT0	
DHS-3-2	UT45	
DSHS-3-6	UT0	
DSHS-3-6	UT45	
DSHS-3-7	UT0	
DSHS-3-7	UT45	
DSHS-3-8	UT0	
DSHS-3-8	UT45	
DHS-3-3	UT0	
DHS-3-3	UT45	
DSHS-3-9	UT0	
DSHS-3-9	UT45	
DSHS-3-10	UT0	
DSHS-3-10	UT45	
DSHS-3-11	UT0	
DSHS-3-11	UT45	
DSHS-3-12	UT0	
DSHS-3-12	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
DSHS-3-13	UT0	
DSHS-3-13	UT45	
DSHS-3-14	UT0	
DSHS-3-14	UT45	

NO. OF INSPECTIONS: 54

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-3-65	UT0	
THPCI-3-65	UT45	
THPCI-3-64	UT0	
THPCI-3-64	UT45	
THPCI-3-61	UT0	
THPCI-3-61	UT45	
THPCI-3-62	UT0	
THPCI-3-62	UT45	
THPCI-3-68	UT0	
THPCI-3-68	UT45	
THPCI-3-67	UT0	
THPCI-3-67	UT45	
THPCI-3-66	UT0	
THPCI-3-66	UT45	
THPCI-3-69	UT0	
THPCI-3-69	UT45	
THPCI-3-70	UT0	
THPCI-3-70	UT45	
THPCI-3-70B	UT0	
THPCI-3-70B	UT45	
THPCI-3-70A	UT0	
THPCI-3-70A	UT45	
THPCI-3-71	UT0	
THPCI-3-71	UT45	
THPCI-3-72	UT0	
THPCI-3-72	UT45	
THPCI-3-73	UT0	
THPCI-3-73	UT45	
THPCI-3-73A	UT0	
THPCI-3-73A	UT45	
THPCI-3-73B	UT0	
THPCI-3-73B	UT45	
THPCI-3-73E	UT0	
THPCI-3-73E	UT45	
THPCI-3-73G	UT0	
THPCI-3-73G	UT45	

NO. OF INSPECTIONS: 36

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-3-103	UT0	
KMS-3-103	UT45	
KMS-3-102	UT0	
KMS-3-102	UT45	
KMS-3-100	UT0	
KMS-3-100	UT45	
KMS-3-99	UT0	
KMS-3-99	UT45	
KMS-3-95	UT0	
KMS-3-95	UT45	
KMS-3-97	UT0	
KMS-3-97	UT45	
KMS-3-92	UT0	
KMS-3-92	UT45	
KMS-3-94	UT0	
KMS-3-94	UT45	
KMS-3-89	UT0	
KMS-3-89	UT45	
KMS-3-91	UT0	
KMS-3-91	UT45	
KMS-3-88	UT0	
KMS-3-88	UT45	
KMS-3-87	UT0	
KMS-3-87	UT45	
KMS-3-86	UT0	
KMS-3-86	UT45	
KMS-3-83	UT0	
KMS-3-83	UT45	
KMS-3-85	UT0	
KMS-3-85	UT45	
KMS-3-84	UT0	
KMS-3-84	UT45	
KMS-3-3	UT0	
KMS-3-3	UT45	
KMS-3-5	UT0	
KMS-3-5	UT45	
KMS-3-4	UT0	
KMS-3-4	UT45	
KMS-3-59	UT0	
KMS-3-59	UT45	
KMS-3-61	UT0	
KMS-3-61	UT45	
KMS-3-66	UT0	
KMS-3-66	UT45	
KMS-3-65	UT0	
KMS-3-65	UT45	
KMS-3-64	UT0	
KMS-3-64	UT45	
KMS-3-69	UT0	
KMS-3-69	UT45	

UNIT 3 CYCLE 0 SYSTEM: MS

WELD NO	NDE	INDICATIONS
KMS-3-68	UT0	
KMS-3-68	UT45	
KMS-3-67	UT0	
KMS-3-67	UT45	
KMS-3-70	UT0	
KMS-3-70	UT45	
KMS-3-71	UT0	
KMS-3-71	UT45	
KMS-3-72	UT0	
KMS-3-72	UT45	
KMS-3-73	UT0	
KMS-3-73	UT45	
KMS-3-74	UT0	
KMS-3-74	UT45	
KMS-3-75	UT0	
KMS-3-75	UT45	
KMS-3-98	UT0	
KMS-3-98	UT45	
KMS-3-101	UT0	
KMS-3-101	UT45	
KMS-3-49	UT0	
KMS-3-49	UT45	
KMS-3-35	UT0	
KMS-3-35	UT45	
KMS-3-36	UT0	
KMS-3-36	UT45	
KMS-3-32	UT0	
KMS-3-32	UT45	
KMS-3-33	UT0	
KMS-3-33	UT45	
KMS-3-7	UT0	
KMS-3-7	UT45	
KMS-3-8	UT0	
KMS-3-8	UT45	
KMS-3-9	UT0	
KMS-3-9	UT45	
KMS-3-10	UT0	
KMS-3-10	UT45	
KMS-3-11	UT0	
KMS-3-11	UT45	
KMS-3-12	UT0	
KMS-3-12	UT45	
KMS-3-13	UT0	
KMS-3-13	UT45	
KMS-3-14	UT0	
KMS-3-14	UT45	
KMS-3-15	UT0	
KMS-3-15	UT45	
KMS-3-16	UT0	
KMS-3-16	UT45	

UNIT 3 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-3-17	UT0	
KMS-3-17	UT45	
KMS-3-18	UT0	
KMS-3-18	UT45	
KMS-3-19	UT0	
KMS-3-19	UT45	
KMS-3-20	UT0	
KMS-3-20	UT45	
KMS-3-21	UT0	
KMS-3-21	UT45	
KMS-3-22	UT0	
KMS-3-22	UT45	
KMS-3-23	UT0	
KMS-3-23	UT45	
KMS-3-24	UT0	
KMS-3-24	UT45	
KMS-3-63	UT0	
KMS-3-63	UT45	
KMS-3-42	UT0	
KMS-3-42	UT45	
KMS-3-41	UT0	
KMS-3-41	UT45	
KMS-3-40	UT0	
KMS-3-40	UT45	
KMS-3-44	UT0	
KMS-3-44	UT45	
KMS-3-43	UT0	
KMS-3-43	UT45	
KMS-3-47	UT0	
KMS-3-47	UT45	
KMS-3-46	UT0	
KMS-3-46	UT45	
KMS-3-50	UT0	
KMS-3-50	UT45	
KMS-3-96	UT0	
KMS-3-96	UT45	
KMS-3-90	UT0	
KMS-3-90	UT45	
KMS-3-104	UT0	
KMS-3-104	UT45	
KMS-3-25	UT0	
KMS-3-25	UT45	
KMS-3-2	UT0	
KMS-3-2	UT45	
GMS-3-24	UT0	
GMS-3-24	UT45	
KMS-3-62	UT0	
KMS-3-62	UT45	
GMS-3-23	UT0	
GMS-3-23	UT45	

UNIT 3 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
KMS-3-60	UT0	
KMS-3-60	UT45	
KMS-3-76	UT0	
KMS-3-76	UT45	
KMS-3-82	UT0	
KMS-3-82	UT45	
KMS-3-38	UT0	
KMS-3-38	UT45	
KMS-3-37	UT0	
KMS-3-37	UT45	
KMS-3-34	UT0	
KMS-3-34	UT45	
GMS-3-6	UT0	
GMS-3-6	UT45	
GMS-3-8	UT0	
GMS-3-8	UT45	
KMS-3-27	UT0	
KMS-3-27	UT45	
KMS-3-28	UT0	
KMS-3-28	UT45	
GMS-3-7	UT0	
GMS-3-7	UT45	
GMS-3-34	UT0	
GMS-3-34	UT45	
KMS-3-108	UT0	
KMS-3-108	UT45	
KMS-3-107	UT0	
KMS-3-107	UT45	
GMS-3-33	UT0	
GMS-3-33	UT45	
GMS-3-25	UT0	
GMS-3-25	UT45	
KMS-3-79	UT0	
KMS-3-79	UT45	
KMS-3-80	UT0	
KMS-3-80	UT45	
GMS-3-26	UT0	
GMS-3-26	UT45	
GMS-3-17	UT0	
GMS-3-17	UT45	
KMS-3-54	UT0	
KMS-3-54	UT45	
GMS-3-16	UT0	
GMS-3-16	UT45	
GMS-3-15	UT0	
GMS-3-15	UT45	
GMS-3-14	UT0	
GMS-3-14	UT45	
GMS-3-11	UT0	
GMS-3-11	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-3-10	UT0	
GMS-3-10	UT45	
GMS-3-19	UT0	
GMS-3-19	UT45	
GMS-3-20	UT0	
GMS-3-20	UT45	
KMS-3-57	UT0	
KMS-3-57	UT45	
GMS-3-22	UT0	
GMS-3-22	UT45	
GMS-3-31	UT0	
GMS-3-31	UT45	
GMS-3-29	UT0	
GMS-3-29	UT45	
GMS-3-28	UT0	
GMS-3-28	UT45	
KMS-3-106	UT0	
KMS-3-106	UT45	
GMS-3-4	UT0	
GMS-3-4	UT45	
GMS-3-2	UT0	
GMS-3-2	UT45	
KMS-3-26	UT0	
KMS-3-26	UT45	
GMS-3-13	UT0	
GMS-3-13	UT45	
GMS-3-27	UT0	
GMS-3-27	UT45	
GMS-3-18	UT0	
GMS-3-18	UT45	
GMS-3-1	UT0	
GMS-3-1	UT45	
GMS-3-9	UT0	
GMS-3-9	UT45	
GMS-3-3	UT0	
GMS-3-3	UT45	
KMS-3-31	UT0	
KMS-3-31	UT45	
KMS-3-55	UT0	
KMS-3-55	UT45	
GMS-3-5	UT0	
GMS-3-5	UT45	
KMS-3-58	UT0	
KMS-3-58	UT45	
KMS-3-52	UT0	
KMS-3-52	UT45	
KMS-3-53	UT0	
KMS-3-53	UT45	
GMS-3-21	UT0	
GMS-3-21	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-3-30	UT0	
GMS-3-30	UT45	
GMS-3-12	UT0	
GMS-3-12	UT45	
KMS-3-30	UT0	
KMS-3-30	UT45	
KMS-3-105	UT0	
KMS-3-105	UT45	
KMS-3-51	UT0	
KMS-3-51	UT45	
KMS-3-93	UT0	
KMS-3-93	UT45	
GMS-3-32	UT0	
GMS-3-32	UT45	
KMS-3-6	UT0	
KMS-3-6	UT45	
KMS-3-45	UT0	
KMS-3-45	UT45	
KMS-3-48	UT0	
KMS-3-48	UT45	

NO. OF INSPECTIONS: 270

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-3-2	UT0	
TRCIC-3-2	UT45	
TRCIC-3-5	UT0	
TRCIC-3-5	UT45	
TRCIC-3-6	UT0	
TRCIC-3-6	UT45	
TRCIC-3-7	UT0	
TRCIC-3-7	UT45	

NO. OF INSPECTIONS: 8

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-3-38	UT0	
GR-3-38	UT45	
KR-3-26	UT0	
KR-3-26	UT45	
GR-3-33	UT0	
GR-3-33	UT45	
KR-3-32	UT0	
KR-3-32	UT45	
GR-3-45	UT0	
GR-3-45	UT45	
KR-3-41	UT0	
KR-3-41	UT45	
KR-3-29	UT0	
KR-3-29	UT45	
KR-3-30	UT0	
KR-3-30	UT45	
GR-3-32	UT0	
GR-3-32	UT45	
KR-3-31	UT0	
KR-3-31	UT45	
KR-3-24	UT0	
KR-3-24	UT45	
GR-3-29	UT0	
GR-3-29	UT45	
GR-3-28	UT0	
GR-3-28	UT45	
GR-3-27	UT0	
GR-3-27	UT45	
KR-3-52	UT0	
KR-3-52	UT45	
GR-3-64	UT0	
GR-3-64	UT45	
GR-3-63B	UT0	
GR-3-63B	UT45	
GR-3-63A	UT0	
GR-3-63A	UT45	
GR-3-63	UT0	
GR-3-63	UT45	
GR-3-62	UT0	
GR-3-62	UT45	
KR-3-51	UT0	
KR-3-51	UT45	
KR-3-54	UT0	
KR-3-54	UT45	
KR-3-27	UT0	
KR-3-27	UT45	
GR-3-30	UT0	
GR-3-30	UT45	
KR-3-28	UT0	
KR-3-28	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-3-58	UT0	
GR-3-58	UT45	
KR-3-48	UT0	
KR-3-48	UT45	
GR-3-57	UT0	
GR-3-57	UT45	
KR-3-13	UT0	
KR-3-13	UT45	
KR-3-15	UT0	
KR-3-15	UT45	
GR-3-31	UT0	
GR-3-31	UT45	
GR-3-61	UT0	
GR-3-61	UT45	
KR-3-8	UT0	
KR-3-8	UT45	
KR-3-7	UT0	
KR-3-7	UT45	
GR-3-6	UT0	
GR-3-6	UT45	
GR-3-5	UT0	
GR-3-5	UT45	
KR-3-55	UT0	
KR-3-55	UT45	
KR-3-2	UT0	
KR-3-2	UT45	
GR-3-4	UT0	
GR-3-4	UT45	
KR-3-5	UT0	
KR-3-5	UT45	
KR-3-6	UT0	
KR-3-6	UT45	
KR-3-4	UT0	
KR-3-4	UT45	
GR-3-7	UT0	
GR-3-7	UT45	
KR-3-10	UT0	
KR-3-10	UT45	
KR-3-9	UT0	
KR-3-9	UT45	
KR-3-1	UT0	
KR-3-1	UT45	
KR-3-49	UT0	
KR-3-49	UT45	
GR-3-48	UT0	
GR-3-48	UT45	
KR-3-42	UT0	
KR-3-42	UT45	
KR-3-34	UT0	
KR-3-34	UT45	

UNIT 3 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-3-44	UT0	
GR-3-44	UT45	
KR-3-35	UT0	
KR-3-35	UT45	
KR-3-36	UT0	
KR-3-36	UT45	
GR-3-35	UT0	
GR-3-35	UT45	
KR-3-37	UT0	
KR-3-37	UT45	
KR-3-25	UT0	
KR-3-25	UT45	
GR-3-13	UT0	
GR-3-13	UT45	
GR-3-11	UT0	
GR-3-11	UT45	
KR-3-16	UT0	
KR-3-16	UT45	
GR-3-10	UT0	
GR-3-10	UT45	
GR-3-21	UT0	
GR-3-21	UT45	
GR-3-20	UT0	
GR-3-20	UT45	
GR-3-59	UT0	
GR-3-59	UT45	
KR-3-50	UT0	
KR-3-50	UT45	
GR-3-60	UT0	
GR-3-60	UT45	
GR-3-51	UT0	
GR-3-51	UT45	
GR-3-52	UT0	
GR-3-52	UT45	
GR-3-55	UT0	
GR-3-55	UT45	
KR-3-46	UT0	
KR-3-46	UT45	
GR-3-26	UT0	
GR-3-26	UT45	
GR-3-25	UT0	
GR-3-25	UT45	
KR-3-20	UT0	
KR-3-20	UT45	
GR-3-22	UT0	
GR-3-22	UT45	
GR-3-19	UT0	
GR-3-19	UT45	
GR-3-15	UT0	
GR-3-15	UT45	

UNIT 3 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-3-19	UT0	
KR-3-19	UT45	
KR-3-11	UT0	
KR-3-11	UT45	
GR-3-18	UT0	
GR-3-18	UT45	
GR-3-8	UT0	
GR-3-8	UT45	
KR-3-12	UT0	
KR-3-12	UT45	
KR-3-3	UT0	
KR-3-3	UT45	
GR-3-9	UT0	
GR-3-9	UT45	
KR-3-14	UT0	
KR-3-14	UT45	
GR-3-12	UT0	
GR-3-12	UT45	
GR-3-17	UT0	
GR-3-17	UT45	
KR-3-18	UT0	
KR-3-18	UT45	
GR-3-16	UT0	
GR-3-16	UT45	
GR-3-24	UT0	
GR-3-24	UT45	
KR-3-22	UT0	
KR-3-22	UT45	
GR-3-23	UT0	
GR-3-23	UT45	
GR-3-53	UT0	
GR-3-53	UT45	
KR-3-45	UT0	
KR-3-45	UT45	
GR-3-54	UT0	
GR-3-54	UT45	
GR-3-50	UT0	
GR-3-50	UT45	
KR-3-44	UT0	
KR-3-44	UT45	
GR-3-49	UT0	
GR-3-49	UT45	
GR-3-47	UT0	
GR-3-47	UT45	
KR-3-43	UT0	
KR-3-43	UT45	
GR-3-46	UT0	
GR-3-46	UT45	
GR-3-43	UT0	
GR-3-43	UT45	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-3-40	UT0	
KR-3-40	UT45	
GR-3-42	UT0	
GR-3-42	UT45	
GR-3-41	UT0	
GR-3-41	UT45	
KR-3-33	UT0	
KR-3-33	UT45	
GR-3-40	UT0	
GR-3-40	UT45	
KR-3-39	UT0	
KR-3-39	UT45	
GR-3-39	UT0	
GR-3-39	UT45	
GR-3-37	UT0	
GR-3-37	UT45	
KR-3-38	UT0	
KR-3-38	UT45	
GR-3-36	UT0	
GR-3-36	UT45	
GR-3-14	UT0	
GR-3-14	UT45	
KR-3-17	UT0	
KR-3-17	UT45	
GR-3-56	UT0	
GR-3-56	UT45	
KR-3-47	UT0	
KR-3-47	UT45	
KR-3-23	UT0	
KR-3-23	UT45	
GR-3-1	UT0	
GR-3-1	UT45	
GR-3-2	UT0	
GR-3-2	UT45	
KFW-3-44	UT0	
KFW-3-44	UT45	
GR-3-3	UT0	
GR-3-3	UT45	
KR-3-53	UT0	
KR-3-53	UT45	
KR-3-21	UT0	
KR-3-21	UT45	
GR-3-34	UT0	
GR-3-34	UT45	
R-3B-H3	UT0	
R-3B-H3	UT45	
R-3A-H2	UT0	
R-3A-H2	UT45	
R-3A-H1	UT0	
R-3A-H1	UT45	

UNIT 3 CYCLE 0 SYSTEM: R

WELD NO.	NDE	INDICATIONS
R-3A-H3	UT0	
R-3A-H3	UT45	
R-3B-H2	UT0	
R-3B-H2	UT45	
R-3B-H2 #2	UT0	
R-3B-H2 #2	UT45	

NO. OF INSPECTIONS: 256

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DRHR-3-19	UT0	
DRHR-3-19	UT45	
DSRHR-3-8	UT0	
DSRHR-3-8	UT45	
DSRHR-3-9	UT0	
DSRHR-3-9	UT45	
DRHR-3-21	UT0	
DRHR-3-21	UT45	
DRHR-3-22	UT0	
DRHR-3-22	UT45	
DSRHR-3-10	UT0	
DSRHR-3-10	UT45	
DSRHR-3-11	UT0	
DSRHR-3-11	UT45	
DRHR-3-23	UT0	
DRHR-3-23	UT45	
DRHR-3-15	UT0	
DRHR-3-15	UT45	
DRHR-3-14	UT0	
DRHR-3-14	UT45	
DSRHR-3-6	UT0	
DSRHR-3-6	UT45	
DSRHR-3-5A	UT0	
DSRHR-3-5A	UT45	
DSRHR-3-5	UT0	
DSRHR-3-5	UT45	
DRHR-3-13	UT0	
DRHR-3-13	UT45	
DRHR-3-7	UT0	
DRHR-3-7	UT45	
DSRHR-3-4A	UT0	
DSRHR-3-4A	UT45	
DRHR-3-8	UT0	
DRHR-3-8	UT45	
DRHR-3-6	UT0	
DRHR-3-6	UT45	
DSRHR-3-4	UT0	
DSRHR-3-4	UT45	
DRHR-3-9	UT0	
DRHR-3-9	UT45	
DRHR-3-5	UT0	
DRHR-3-5	UT45	
DSRHR-3-2	UT0	
DSRHR-3-2	UT45	
DSRHR-3-1	UT0	
DSRHR-3-1	UT45	
DRHR-3-4	UT0	
DRHR-3-4	UT45	
DSRHR-3-3	UT0	
DSRHR-3-3	UT45	

UNIT 3 CYCLE 0 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DRHR-3-17	UT0	
DRHR-3-17	UT45	
DRHR-3-18	UT0	
DRHR-3-18	UT45	
DRHR-3-16	UT0	
DRHR-3-16	UT45	
DSRHR-3-7	UT0	
DSRHR-3-7	UT45	
TRHR-3-191	PT	
TRHR-3-191	UT0	
TRHR-3-191	UT45	
TRHR-3-194	UT0	
TRHR-3-194	UT45	
DRHR-3-12	UT0	
DRHR-3-12	UT45	
DRHR-3-3	UT0	
DRHR-3-3	UT45	
TRHR-3-455A	UT0	
TRHR-3-455A	UT45	
TRHR-3-192	UT0	
TRHR-3-192	UT45	

NO. OF INSPECTIONS: 71

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 0 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DRWC-3-1A	UT0	
DRWC-3-1A	UT45	
DRWC-3-1	UT0	
DRWC-3-1	UT45	
DRWC-3-59	UT0	
DRWC-3-59	UT45	
DRWC-3-60	UT0	
DRWC-3-60	UT45	
DRWC-3-59A	UT0	
DRWC-3-59A	UT45	
DRWC-3-59B	UT0	
DRWC-3-59B	UT45	
DSRWC-3-8	UT0	
DSRWC-3-8	UT45	
DSRWC-3-9	UT0	
DSRWC-3-9	UT45	
DRWC-3-58	UT0	
DRWC-3-58	UT45	
DRWC-3-3	UT0	
DRWC-3-3	UT45	
DRWC-3-2	UT0	
DRWC-3-2	UT45	
DSRWC-3-1A	UT0	
DSRWC-3-1A	UT45	
DSRWC-3-2	UT0	
DSRWC-3-2	UT45	
DSRWC-3-3	UT0	
DSRWC-3-3	UT45	
DSRWC-3-4	UT0	
DSRWC-3-4	UT45	
DSRWC-3-1	UT0	
DSRWC-3-1	UT45	
DSRWC-3-5	UT0	
DSRWC-3-5	UT45	
DSRWC-3-6	UT0	
DSRWC-3-6	UT45	
DSRWC-3-7	UT0	
DSRWC-3-7	UT45	
DRWC-3-4	UT0	
DRWC-3-4	UT45	
DRWC-3-5B	UT0	
DRWC-3-5B	UT45	
DRWC-3-5A	UT0	
DRWC-3-5A	UT45	

NO. OF INSPECTIONS: 44

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3   CYCLE 1   SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DSCS-3-5	UT45	
DSCS-3-4	UT45	
DCS-3-7	UT45	
DSCS-3-3	UT45	
DCS-3-8	UT45	
DSCS-3-6	UT45	
DCS-3-9	UT45	
DCS-3-4	UT45	
DSCS-3-1	UT45	
DCS-3-5	UT45	
DCS-3-6	UT45	
DCS-3-2	UT45	
DCS-3-15	UT45	
DCS-3-17	UT45	
DSCS-3-8	UT45	
DCS-3-13	UT45	
DSCS-3-7	UT45	
DSCS-3-13	UT45	
DCS-3-18	UT45	
DCS-3-14	UT45	
DSCS-3-9	UT45	
DCS-3-16	UT45	
DSCS-3-12	UT45	
DSCS-3-11	UT45	
DSCS-3-10	UT45	

NO. OF INSPECTIONS: 25

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: AS

WELD NO.	NDE	INDICATIONS
DSAS-3	UT0	
DSAS-3	UT45	
DSAS-15	UT0	
DSAS-15	UT45	

NO. OF INSPECTIONS: 4

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3   CYCLE 2   SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRDS-3-1	UT45	
RCRDS-3-2	UT45	
RCRDS-3-3	UT45	
RCRD-3-44	UT45	
RCRD-3-45	UT45	LINEAR IND
RCRD-3-43	UT45	LINEAR IND 112% DAC
RCRD-3-46	UT45	
RCRD-3-47	UT45	LINEAR IND 100% DAC
RCRD-3-48	UT45	
RCRD-3-49	UT45	

NO. OF INSPECTIONS: 10

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-3-17	UT45	
DCS-3-16	UT45	
DSCS-3-12	UT45	
DSCS-3-11	UT45	
DSCS-3-10	UT45	
DCS-3-8	UT45	
DCS-3-7	UT45	
DCS-3-15	UT45	
DCS-3-9	UT45	
DCS-3-6	UT45	
DCS-3-18	UT45	LINEAR IND 75% DAC
DSCS-3-3	UT45	SPOT 70% DAC
DCS-3-4	UT45	
DCS-3-1	UT45	
DSCS-3-2	UT45	
DCS-3-14	UT45	
DCS-3-13	UT45	
DSCS-3-7	UT45	
DSCS-3-2	UT45	
DSCS-3-13	UT45	
DCS-3-5	UT45	
DSCS-3-12	UT45	
DSCS-3-10	UT45	
DSCS-3-11	UT45	
DSCS-3-4	UT45	
DSCS-3-5	UT45	
DSCS-3-13	UT45	
TCS-3-410	UT0	
TCS-3-410	UT45	
TCS-3-410	PT	
TCS-3-409	UT0	
TCS-3-409	UT45	
TCS-3-409	PT	
TCS-3-408	UT0	
TCS-3-408	UT45	
TCS-3-408	PT	
TCS-3-407	UT0	
TCS-3-407	UT45	
TCS-3-407	PT	
TCS-3-406	UT0	
TCS-3-406	UT45	
TCS-3-406	PT	
TCS-3-405	UT0	
TCS-3-405	UT45	
TCS-3-405	PT	
TSCS-3-404	UT0	
TSCS-3-404	UT45	
TSCS-3-404	PT	
TCS-3-403	UT0	
TCS-3-403	UT45	

UNIT 3 CYCLE 2 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
TCS-3-403	PT	
TCS-3-402	UT0	
TCS-3-402	UT45	
TCS-3-402	PT	
TCS-3-418	UT0	
TCS-3-418	UT45	
TCS-3-418	PT	
TCS-3-419	UT0	
TCS-3-419	UT45	
TCS-3-419	PT	
TSCS-3-420	UT0	
TSCS-3-420	UT45	
TSCS-3-420	PT	
TCS-3-421	UT0	
TCS-3-421	UT45	
TCS-3-421	PT	
TCS-3-422	UT0	
TCS-3-422	UT45	
TCS-3-422	PT	
TCS-3-423	UT0	
TCS-3-423	UT45	
TCS-3-423	PT	
TCS-3-424	UT0	
TCS-3-424	UT45	
TCS-3-424	PT	
TSCS-3-425X	PT	
TSCS-3-425X	UT0	
TSCS-3-425X	UT45	
TCS-3-426	UT0	
TCS-3-426	UT45	
TCS-3-426	PT	
TSCS-3-402	UT0	
TSCS-3-402	UT45	
TSCS-3-410	UT45	
TCS-3-401	UT45	
TCS-3-401	PT	
TCS-3-417	UT45	
TCS-3-417	PT	

NO. OF INSPECTIONS: 88

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
GFW-3-6	UT0	
GFW-3-6	UT45	
KFW-3-23	UT0	
KFW-3-23	UT45	
GFW-3-14	UT0	
GFW-3-14	UT45	
KFW-3-39	UT0	
KFW-3-39	UT45	
GFW-3-12	UT0	
GFW-3-12	UT45	
GFW-3-26	UT0	
GFW-3-26	UT45	
KFW-3-36	UT0	
KFW-3-36	UT45	
KFW-3-3	UT0	
KFW-3-3	UT45	
KFW-3-28	UT0	
KFW-3-28	UT45	
KFW-3-23	UT0	
KFW-3-23	UT45	
FW-3-H6	MT	
FW-3-H7	MT	

NO. OF INSPECTIONS: 22

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
DHS-3-1	UT0	
DHS-3-1	UT45	
DSHS-3-9	UT0	WELD SPATTER
DSHS-3-9	UT45	WELD SPATTER

NO. OF INSPECTIONS: 4

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-3-66	UT0	
THPCI-3-66	UT45	LINEAR IND
THPCI-3-70	UT0	
THPCI-3-70	UT45	
THPCI-3-65	UT0	
THPCI-3-65	UT45	
HPCI-3-66	UT0	
HPCI-3-66	UT45	

NO. OF INSPECTIONS: 8

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: MS

WELD NO.	NDE	INDICATIONS
GMS-3-5	UT0	
GMS-3-5	UT45	
GMS-3-32	UT0	
GMS-3-32	UT45	
GMS-3-20	UT0	
GMS-3-20	UT45	
GMS-3-17	UT0	
GMS-3-17	UT45	
GMS-3-15	UT0	
GMS-3-15	UT45	
GMS-3-25	UT0	
GMS-3-25	UT45	
KMS-3-53	UT0	
KMS-3-53	UT45	
KMS-3-32	UT0	
KMS-3-32	UT45	
KMS-3-103	UT0	
KMS-3-103	UT45	
KMS-3-36	UT0	
KMS-3-36	UT45	
KMS-3-59	UT0	
KMS-3-59	UT45	
KMS-3-3	UT0	
KMS-3-3	UT45	
KMS-3-70	UT0	
KMS-3-70	UT45	
KMS-3-53LS	UT0	
KMS-3-53LS	UT45	
KMS-3-22	UT0	
KMS-3-22	UT45	
DMS-3-9	UT0	
DMS-3-9	UT45	
DMS-3-29	UT0	
DMS-3-29	UT45	
DSMS-3-15	UT0	
DSMS-3-15	UT45	
DMS-3-17	UT0	
DMS-3-17	UT45	
GMS-3-20LS	UT0	
GMS-3-20LS	UT45	
GMS-3-32LS	UT0	
GMS-3-32LS	UT45	
GMS-3-15LS	UT0	
GMS-3-15LS	UT45	
GMS-3-5LS	UT0	
GMS-3-5LS	UT45	
MS-3-HA1	MT	
RG-1-ST	MT	

NO. OF INSPECTIONS: 48

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3   CYCLE 2   SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-3-2	UT0	
TRCIC-3-2	UT45	

NO. OF INSPECTIONS: 2

UNIT 3 CYCLE 2 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DRWC-3-59	UT0	
DRWC-3-59	UT45	
DSRWC-3-3	UT0	
DSRWC-3-3	UT45	
DRWC-3-1A	UT0	
DRWC-3-1A	UT45	
RWCU-3-19	UT0	
RWCU-3-19	UT45	

NO. OF INSPECTIONS: 8

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-3-53	UT0	
GR-3-53	UT45	
GR-3-60	UT0	
GR-3-60	UT45	
KR-3-46	UT0	
KR-3-46	UT45	
KR-3-22	UT0	
KR-3-22	UT45	
KR-3-42	UT0	
KR-3-42	UT45	
GR-3-53	UT0	
GR-3-53	UT45	
GR-3-46	UT0	
GR-3-46	UT45	
KR-3-22	UT0	
KR-3-22	UT45	
KR-3-54	UT0	
KR-3-54	UT45	

NO. OF INSPECTIONS: 18

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DSRHR-3-6	UT0	
DSRHR-3-6	UT45	
TRHR-3-281	UT0	
TRHR-3-281	UT45	
TRHR-3-67	UT0	
TRHR-3-67	UT45	
TRHR-3-39A	UT0	
TRHR-3-39A	UT45	
TRHR-3-197	UT0	
TRHR-3-197	UT45	
TRHR-3-204	UT0	
TRHR-3-204	UT45	
TRHR-3-183C	UT0	
TRHR-3-183C	UT45	
TRHR-3-104	UT0	
TRHR-3-104	UT45	
TRHR-3-448	UT0	
TRHR-3-448	UT45	
TRHR-3-239	UT0	
TRHR-3-239	UT45	
TRHR-3-374	UT0	
TRHR-3-374	UT45	
TRHR-3-320	UT0	
TRHR-3-320	UT45	
TRHR-3-253	UT0	
TRHR-3-253	UT45	
TRHR-3-404	UT0	
TRHR-3-404	UT45	
TRHR-3-118C	UT0	
TRHR-3-118C	UT45	
DSRHR-3-10	UT0	
DSRHR-3-10	UT45	
TRHR-3-191	UT0	
TRHR-3-191	UT45	
TRHR-3-191	PT	
DRHR-3-7	UT0	
DRHR-3-7	UT45	
TRHR-3-118B	UT0	
TRHR-3-118B	UT45	
DRHR-3-7LS	UT0	
DRHR-3-7LS	UT45	
DRHR-3-10LS	UT0	
DRHR-3-10LS	UT45	
3-RHR-2	UT45	
3-RHR-1	UT45	
HS-3-H15	PT	
H-158	MT	
R-50	MT	
H-122	MT	
H-62	MT	

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 2 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
H-6	MT	

NO. OF INSPECTIONS: 51

UNIT 3 CYCLE 3 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DSRWC-3-1	UT0	
DSRWC-3-1	UT45	
DSRWC-3-2	UT0	
DSRWC-3-2	UT45	
DSRWC-3-3	UT0	
DSRWC-3-3	UT45	
DSRWC-3-1A	UT0	
DSRWC-3-1A	UT45	
DSRWC-3-4	UT0	
DSRWC-3-4	UT45	
DSRWC-3-5	UT0	
DSRWC-3-5	UT45	
DSRWC-3-6	UT0	
DSRWC-3-6	UT45	
DSRWC-3-7	UT0	
DSRWC-3-7	UT45	
DRWC-3-2	UT0	
DRWC-3-2	UT45	
DRWC-3-3	UT0	
DRWC-3-3	UT45	
DRWC-3-4	UT0	
DRWC-3-4	UT45	
DRWC-3-1	UT0	
DRWC-3-1	UT45	
DRWC-3-1A	UT0	
DRWC-3-1A	UT45	

NO. OF INSPECTIONS: 26

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 3 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-3-66	UT0	
THPCI-3-66	UT45	LINEAR IND 30% DAC

NO. OF INSPECTIONS: 2

UNIT 3   CYCLE 4   SYSTEM: AS

WELD NO.	NDE	INDICATIONS
DSAS-3-15	UT45	
DSAS-3-14	UT0	
DSAS-3-14	UT45	
DSAS-22	UT45	

NO. OF INSPECTIONS: 4

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 4 SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
CRD MIXING T	UT45	
RCRD-3-45	UT45	
RCRD-3-44	UT45	
RCRD-3-48	UT45	
RCRDS-3-3	UT45	
CRD-HRL	UT45	

NO. OF INSPECTIONS: 6

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3   CYCLE 4   SYSTEM: CS

WELD NO	NDE	INDICATIONS
DCS-3-4	UT45	
DSCS-3-1	UT45	
DSCS-3-2	UT45	
DCS-3-13	UT45	
DSCS-3-7	UT45	
DSCS-3-9	UT45	
DCS-3-14	UT45	
DCS-3-5	UT45	
DSCS-3-8	UT45	
DCS-3-12	UT45	
DCS-3-3	UT45	
TSCS-3-424	UT45	
TCS-3-421	UT45	
TCS-3-423	UT45	
TCS-3-410	UT45	
TCS-3-401	UT45	

NO. OF INSPECTIONS: 16

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 4 SYSTEM: FW

WELD NO.	NDE	INDICATIONS
KFW-3-19	UT45	
KFW-3-16	UT45	
GFW-3-9	UT45	
GFW-3-17	UT45	
GFW-3-15	UT45	
KFW-3-38	UT45	
KFW-3-6	UT45	
GFW-3-5	UT45	

NO. OF INSPECTIONS: 8

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 4 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
DSHS-3-7	UT45	
DSHS-3-1	UT45	
DHS-3-7	UT45	
DHS-3-7	PT	

NO. OF INSPECTIONS: 4

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 4 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-3-66	UT0	
THPCI-3-66	UT45	LINEAR IND 50% DAC
THPCI-3-70A	UT45	

NO. OF INSPECTIONS: 3

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 4 SYSTEM: MS

WELD	NDE	INDICATIONS
DSMS-3-5	UT45	
DSMS-3-37	UT45	
DMS-3-17	UT45	
KMS-3-44	UT45	
KMS-3-10	UT45	
KMS-3-7	UT45	
KMS-3-87	UT45	
KMS-3-84	UT45	
KMS-3-32	MT	
KMS-3-83	MT	
KMS-3-63	MT	
GMS-3-24	UT45	
GMS-3-6	UT45	
KMS-3-26	UT45	
KMS-3-80	UT45	
KMS-3-54	UT45	
KMS-3-57	UT45	
KMS-3-80	UT45	
MSH-3-14	MT	

NO. OF INSPECTIONS: 19

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 4 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DSRWC-3-1A	UT45	
DSRWC-3-1	UT45	
DRWC-3-3	UT45	
DSRWC-3-2	UT45	
DRWC-3-2	UT45	
DSRWC-3-3	UT45	
DSRWC-3-4	UT45	
DSRWC-3-5	UT45	
DRWC-3-1	UT45	
DRWC-3-1A	UT45	
DSRWC-3-6	UT45	
DRWC-3-7	UT45	
DRWC-3-4	UT45	
DSRWC-3-9	UT45	
DRWC-3-59	UT45	

NO. OF INSPECTIONS: 15

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 4 SYSTEM: R

WELD NO.	NDE	INDICATIONS
KR-3-12	UT45	
GR-3-15	UT45	
KR-3-44	UT45	
GR-3-42	UT45	
KR-3-40	UT45	
GR-3-61	UT45	
KR-3-53	PT	
GR-3-30	PT	
KR-3-51	UT45	

NO. OF INSPECTIONS: 9

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 4 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DSRHR-3-8	PT	
TRHR-3-194	UT45	
TRHR-3-429	UT45	
TRHR-3-315	UT45	
DRHR-3-3	UT45	
DRHR-3-4	UT45	
DSRHR-3-7	UT45	
TRHR-3-395	UT45	
TRHR-3-42	UT45	
TRHR-3-222	UT45	
TRHR-3-300	UT45	
TRHR-3-208	UT45	
TRHR-3-169	UT45	
TRHR-3-342	UT45	
TRHR-3-323	UT45	
TRHR-3-53	UT45	
TRHR-3-30	UT45	
TRHR-3-435	UT45	

NO. OF INSPECTIONS: 18

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3   CYCLE 5   SYSTEM: CRD

WELD NO.	NDE	INDICATIONS
RCRD-3-40	UT45	
RCRD-3-44	UT45	
RCRD-3-45	UT45	
RCRD-3-49	PT	
RCRD-3-49	UT45	
RCRD-3-9A	UT45	
RCRDS-3-3	UT45	
TCRD-3-1	UT45	
TCRD-3-1	PT	
TCRD-3-101	UT45	
TCRD-3-11	UT45	
TCRD-3-13	UT45	
TCRD-3-13	PT	
TCRD-3-15	UT45	
TCRD-3-15	PT	
TCRD-3-21	UT45	
TCRD-3-21A	UT45	
TCRD-3-22	UT45	
TCRD-3-22A	UT45	
TCRD-3-23	UT45	
TCRD-3-24	UT45	
TCRD-3-25A	UT45	
TCRD-3-25X	UT45	
TCRD-3-26	UT45	
TCRD-3-26A	UT45	
TCRD-3-27	UT45	
TCRD-3-27A	UT45	
TCRD-3-28A	UT45	
TCRD-3-28X	UT45	
TCRD-3-29	UT45	
TCRD-3-29A	UT45	
TCRD-3-3	UT45	
TCRD-3-3	PT	
TCRD-3-30	UT45	
TCRD-3-31	UT45	
TCRD-3-30A	UT45	
TCRD-3-33	UT45	
TCRD-3-34	UT45	
TCRD-3-35	UT45	
TCRD-3-36	UT45	
TCRD-3-37	UT45	
TCRD-3-38	UT45	
TCRD-3-39	UT45	
TCRD-3-39B	UT45	
TCRD-3-5	UT45	
TCRD-3-7	UT45	
TCRD-3-7	PT	
TCRD-3-9	UT45	
TCRD-3-9	PT	

NO. OF INSPECTIONS: 49

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 5 SYSTEM: CS

WELD NO.	NDE	INDICATIONS
DCS-3-10	PT	
DCS-3-11	PT	
DCS-3-12	PT	
DCS-3-13	UT45	
DCS-3-14	UT45	
DCS-3-14	PT	
DCS-3-3	PT	
DCS-3-4	UT45	
DCS-3-5	PT	
DCS-3-5	UT45	
DSCS-3-1	UT45	
DSCS-3-2	UT45	
DSCS-3-7	UT45	
DSCS-3-8	UT45	
DSCS-3-9	UT45	
TCS-3-109	UT45	
TCS-3-203	UT45	
TCS-3-205	PT	
TCS-3-207	PT	
TCS-3-405	PT	
TCS-3-405	UT45	
TCS-3-406	PT	
TCS-3-406	UT45	
TCS-3-410	PT	
TCS-3-410	UT45	
TCS-3-421	PT	
TCS-3-421	UT45	
TCS-3-422	UT45	
TCS-3-422	PT	
TCS-3-426	UT45	
TCS-3-426	PT	
TCS-3-402	UT45	
TCS-3-402	PT	
TCS-3-418	PT	
TCS-3-418	UT45	
DSCS-3-1	UT45	

NO. OF INSPECTIONS: 36

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 5 SYSTEM: HS

WELD NO.	NDE	INDICATIONS
DHS-3-3	UT60	
DHS-3-4	PT	
DHS-3-5	PT	
DHS-3-5	UT60	
DHS-3-7	UT45	
DSHS-3-15	PT	
DSHS-3-16	UT60	

NO. OF INSPECTIONS: 7

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 5 SYSTEM: HPCI

WELD NO.	NDE	INDICATIONS
THPCI-3-111	UT45	
THPCI-3-120A	PT	
THPCI-3-120A	UT45	
THPCI-3-4	UT45	

NO. OF INSPECTIONS: 4

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 5 SYSTEM: RCIC

WELD NO.	NDE	INDICATIONS
TRCIC-3-144	UT45	

NO. OF INSPECTIONS: 1

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 5 SYSTEM: RWC

WELD NO.	NDE	INDICATIONS
DRWC-3-1	UT45	
DRWC-3-1	UT60	
DRWC-3-1A	PT	
DRWC-3-1A	UT45	
DRWC-3-1A	UT60	
DRWC-3-2	PT	
DRWC-3-2	UT45	
DRWC-3-2	UT60	
DRWC-3-3	PT	
DRWC-3-3	UT60	
DRWC-3-4	UT60	
DSRWC-3-1	UT60	
DSRWC-3-1A	PT	
DSRWC-3-1A	UT60	
DSRWC-3-1B	PT	
DSRWC-3-1B	UT60	
DSRWC-3-2	UT45	
DSRWC-3-2	UT60	
DSRWC-3-3	UT45	
DSRWC-3-3	UT60	
DSRWC-3-4	UT60	
DSRWC-3-5	UT60	
DSRWC-3-6	UT60	
DSRWC-3-7	UT60	

NO. OF INSPECTIONS: 24

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 5 SYSTEM: R

WELD NO.	NDE	INDICATIONS
GR-3-7	PT	
GR-3-8	PT	
KR-3-1	PT	
KR-3-11	PT	
KR-3-16	UT45	
KR-3-23	PT	
KR-3-26	PT	
KR-3-33	PT	
KR-3-4	PT	
KR-3-43	UT45	
KR-3-45	UT45	
GR-3-30	PT	
GR-3-33	PT	
GR-3-34	PT	
GR-3-29	UT45	
GR-3-4	PT	
GR-3-51	UT45	
GR-3-51	UT45	
GR-3-20	UT45	
KR-3-49	PT	
KR-3-53	PT	
KR-3-54	PT	
KR-3-55	PT	
GR-3-20	UT45	

NO. OF INSPECTIONS: 24

BROWNS FERRY NUCLEAR PLANT
INSPECTION RESULTS

UNIT 3 CYCLE 5 SYSTEM: RHR

WELD NO.	NDE	INDICATIONS
DRHR-3-11	PT	
DRHR-3-12	PT	
DRHR-3-13	PT	
DRHR-3-2	PT	
DRHR-3-3	PT	
DRHR-3-5	PT	
DRHR-3-6	UT45	
DSRHR-3-4	UT45	
DSRHR-3-4	UT45	

4.0 BROWNS FERRY WELDING REINSPECTION REPORT

4.1 Introduction

The weld reinspection effort at Browns Ferry Nuclear Plant (BFN) was developed to address generic and plant specific employee concerns, to determine adequacy of welds produced by the BFN welding program, and to provide additional data for determining the suitability of welding for restarting of the BFN units.

4.2 Scope

The reinspection focused on safety-related systems and components of the plant except for those covered by the PSI/ISI program. The systems covered by the PSI/ISI programs were reviewed and are included in APTECH's report "Weld Quality Review of Browns Ferry Plant" and are addressed in Section 3.0 of this report. The reinspection was performed in accordance with the "Browns Ferry Nuclear Plant-Welding Project Reinspection Plan" Attachment 4.1 The discrepancies were evaluated in accordance with TVA Welding Project Procedure WP-07, "Browns Ferry Nuclear Plant-DNE Plan for the Evaluation of Reinspection Results" Attachment 4.2. A total of 70 structural items, 21 spiral welded duct butt welds, and 391 mechanical piping welds were included in the reinspection. Information concerning the structural and mechanical welds reinspected is tabulated on the following pages.

SUMMARY
OF
STRUCTURAL WELDS REEXAMINED

Type	No. of Items Reinspected
Welds of Pipe Supports (including six instrumentation piping supports)	33
Welds of cable tray and conduit supports (including two each for electric pull box supports and electrical panels)	16
Structurally significant welds on miscellaneous structural steel (includes instrumentation panel attachments to building steel, platform components, barriers, main steel items, monorails, and motor generator anchorage)	12
Heating, Ventilating, and Air Conditioning (HVAC) supports	9
Total	70

SUMMARY
OF
PIPING WELDS REEXAMINED

System	TVA Class	No. Welds Reinspected	Materials
PIPING			
Diesel Generator-Starting Air (DGA)	P	20	Carbon Steel
Diesel Generator-Fuel Oil (DGFO)	P	12	Carbon Steel
Diesel Generator-Emergency Equipment Cooling Water (EECW-DG)	M&P	116	Stainless Steel & Carbon Steel
Reactor Building-Emergency Equipment Cooling Water (EECW-RB)	P	31	Stainless Steel
Fuel Pool Cooling (FPC)	F	50	Carbon Steel & Aluminum
Instrument Sensing Lines (ISL)	D&B31.1	66	Carbon Steel
RHR Drain Pump Piping (RHR)	F	25	Carbon Steel
Residual Heat Removal Service Water (RHR[illegible]) Reactor Building & Service Tunnel	E,M&P	54	Carbon Steel
Radwaste System Piping (RW) Reactor Building	F	10	Carbon Steel
Standby Liquid Control (SBLC)	E	7	Stainless Steel
HVAC			
Standby Gas Treatment (SBGT)	NA	21	Carbon Steel
	Total	412	

Note: TVA piping classes are defined in Specification G-28 (Attachment 4.5)

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4.3 Reinspection Personnel, Quality Assurance, and Special Criteria

Personnel who performed the reinspection were given site specific training to familiarize them with the reinspection plan, the methods to be employed, and the specifications and acceptance criteria to be followed in performing the reinspection. Personnel performing the structural and structural support reinspections were AWS Certified Welding Inspectors (CWIs). Personnel performing the piping reinspections were Level II inspectors certified in accordance with SNT-TC-1A or equivalent (certification program for visual patterned after the format of Nondestructive Examination established in SNT-TC-1A).

An independent overview of the reinspection was performed by Bechtel personnel. The piping reinspections were overviewed by a SNT-TC-1A Level III inspector and structural reinspections by an AWS CWI. The overviews confirmed compliance to the reinspection procedure and verified the accuracy of data collected. Reports of the independent overview inspectors are shown in Attachments 4.3 (structural) and 4.4 (piping).

During the conduct of the overview, the AWS CWI made additional observations which indicated problems in the welding program and the welder qualification program. These observations were considered in the detailed Welding Project technical evaluations of the corresponding issues raised by the employee concerns.

In addition to the specific requirements noted in the implementing procedures, the inspectors confirmed the use of generic welding filler material using a magnet. Acceptability was based on the weld/filler material being: carbon steel (magnetic), austenitic stainless steel (slightly magnetic or not magnetic), or aluminum (not magnetic). Stainless steel welds exhibiting strong magnetic attraction were confirmed as being stainless steel by measuring ferrite content using a Fisher ferritescope. The inspectors also performed a subjective evaluation of the general workmanship of the welder and rated the welder performance as: better than average, average, or unacceptable. The surface coating of structural welds was noted. Where painted the paint thickness was measured and recorded. Coating on mechanical piping welds was removed for all reinspections. All data from visual reinspections were recorded on the forms included in Attachment 4.1. Supplemental sketches were prepared to provide specific as-built details if the details were not shown on the drawing, were different from those shown on the drawing, or a drawing did not exist.

4.4 Criteria for Selection of Welds to be Reinspected

The selection of the welds to be reinspected was based on the following criteria:

- o Selection not statistically based.
- o Provide a representative look at each of the classes of items to be reinspected.
- o Cover the work of both construction and operations.
- o Cover the work of all crafts (e.g. pipefitters, ironworkers, etc.)

- Cover safety-related systems and structures but exclude items covered by the PSI/ISI program.
- Select items to minimize radiation exposure of the inspectors.
- Cover the range of welded materials (carbon steel, stainless steel, and aluminum).
- Cover various types of weld joint configurations in both piping and structures (e.g., butt welds, fillets, sockets, etc.).
- Select from all three units using piping and structural drawings, weld maps, flow diagrams, and a physical walkdown of each unit.
- Select structural welds to include all positions in areas of limited accessibility.

4.5 Reinspection Procedures

Current revisions of TVA-approved nondestructive examination procedures were used for piping reinspection with exceptions taken to reflect the criteria in effect at the time the welds were originally inspected. The exceptions are noted in Attachment 4.1. Structural weld reinspection was in accordance with TVA-approved procedures which reflect the NRC approved "Nuclear Construction Issues Group" NCIG-01 Rev. 2 "Visual Weld Acceptance Criteria (VWAC) for Structural Welding at Nuclear Power Plants."

4.6 Reinspection Results

Reinspection data have been tabulated and are shown in Tables 4.1 and 4.2 for the structural welds and Tables 4.3 and 4.4 for the piping and HVAC duct welds.

4.7 Criteria for Evaluation of Reinspection Data

4.7.1 Structural

The results of the reinspection were evaluated by design engineers. The evaluation was conducted in two ways, structural and attribute. The structural evaluation considered the suitability for service based on the adequacy of the weld to carry the loads within the design allowables.

The attribute evaluation was performed as defined in the DNE plan for the evaluation of reinspection results (Attachment 4.2). Attribute discrepancies in excess of those allowed by NCIG-01 are shown in the Structural Weld Attribute Summary in Section 4.8.1. The NCIG approved equivalency methodology was used to derive the tabulated values. The attribute evaluation was performed independently of the structural evaluation and was not used to qualify any structures for suitability for service.

The structural evaluation consisted of a design reanalysis of the joint using data from the reinspection. The reanalysis was compared to the original analysis when available to assure that uniformity in design concept existed and that any new loads were identified and considered. For cases where the reinspection report confirmed compliance to the original drawing requirements, evaluation was not required. Calculations were performed to verify the adequacy of the as constructed welds for those structures that did not have design

drawings (generally field designed structures for field located or routed items).

4.7.2 Mechanical

The results of the reinspection were evaluated by design engineers.

The evaluation consisted of a two-step process.

- o Step one was an evaluation of the weld's attributes as determined by the reinspection. If the results of the reinspection were satisfactory, no further evaluation was required.
- o Step two - Those welds with specific attribute indications were evaluated by the cognizant design discipline for their ability to carry the required loads within the design allowable stresses and consequently meet code requirements.

A total of 412 welds were reinspected visually and for generic filler metal type. In addition to the Visual (VT) examination, 164 pipe welds also received Liquid Penetrant (PT) or Magnetic Particle (MT) examination and 30 pipe welds received a review of the weld Radiographic (RT) examination by re-reading the original film.

4.8 Assessment of Reinspection Results

4.8.1 Structural Welds (Tables 4.1 and 4.2)

The structures included in the reinspection are from the following major categories:

1. Pipe Supports
   a. Process Pipe Supports
   b. Instrumentation Piping Supports

2. Electrical

   a. Electrical Pull Box Supports

   b. Electrical Panel Supports

   c. Cable Tray Supports

   d. Conduit Supports

3. Structural

   a. Structural Steel

   b. Miscellaneous Steel

   c. Instrumentation Panel Supports

4. HVAC Supports

The reinspection results for each major category are described below with a discussion of the results.

1. Pipe Supports - This category was further sudivided into two sub-categories:

   a. Process Piping Supports - There were 3,843 inches of weld reinspected with 2,392 inches accepted by reinspection. There were 788 inches of weld which had no reportable indications and were accepted after determining that weld size was sufficient. There were 663 inches of weld which had indications that were found to be acceptable after an engineering evaluation.

   b. Instrumentation Piping Supports - There were 149 inches of weld reinspected. None of the welds were accepted as reinspected. Eighty-seven inches of weld had no reportable indications and were accepted after determining that weld size was sufficient. Twenty one inches of weld had indications that were found to be acceptable after an engineering evaluation. Sixteen

inches of weld were attached to structures determined by engineering to be unstable for seismic loading. Twenty-five inches of weld required rework to conform to design requirements.

Evaluation of the results of the reinspected items indicates a deficiency exists in instrument piping support welding in that two of the six supports reinspected were determined to be unsuitable for service for seismic loading.

The suitability for continued service of the instrument piping supports and associated welds has been proven adequate by some 65,000 hours of operating history for Unit 3 with approximately 56,000 for unit 2 and 60,000 for Unit 1. The adequacy of the instrumentation piping supports for seismic loading will be assured by TVA's program of "Small Bore Pipe Reconciliation Program," PI 87-40. The evaluation will include welding and weld attributes. Therefore additional investigations by the WP are not required.

2. Electrical - This category was further subdivided into four sub-categories:

   a. Electric Pull Box Supports - There were 86 inches of weld reinspected. None of the welds were accepted as reinspected. Fifty-eight inches of weld had no reportable indications and were accepted after determining that weld size was sufficient. Twenty-eight inches of weld were accepted after an engineering evaluation.

b. Electric Panel Supports - There were 82 inches of weld reinspected. Eighty-one inches of weld were accepted by the reinspection and one inch was accepted after an engineering evaluation.

c. Cable Tray Supports - There were 392 inches of weld reinspected with 345 inches accepted as reinspected. Thirty-seven inches of weld had indications that were found to be acceptable after an engineering evaluation to the original design requirements. Ten inches of weld were deemed acceptable for interim (start-up) service. The long term qualification of these structures will consider welding as part of the program. Therefore, additional investigations by the WP are not required.

d. Conduit Supports - There were 632 inches of weld reinspected with 598 inches accepted as reinspected. Thirty-four inches of weld had indications that were found to be acceptable after an engineering evaluation. Therefore, additional investigations by the Welding Project are not required.

3. Structural

a. Structural Steel - There were 529 inches of weld reinspected with all 529 inches of weld accepted as reinspected. Additional investigations by the WP are not required.

b. Miscellaneous - There were 1,813 inches of weld reinspected with 1210 inches of weld accepted as reinspected. There were 413 inches of weld that had no reportable indications and were accepted after determining that weld size was sufficient. There were 190 inches of weld that were accepted after an engineering evaluation.

c. Instrumentation Panel Supports - There were 367 inches of weld reinspected. Forty-eight inches of weld were accepted by the reinspection. There were 313 inches of weld that had no reportable indications and were accepted after determining that weld size was sufficient. Six inches of weld were accepted after an engineering evaluation.

4. HVAC Supports - There were 682 inches of weld reinspected with 464 inches accepted as reinspected. There were 206 inches of weld that had indications that were found to be acceptable after an engineering evaluation. Twelve inches of weld was attached to structures determined by engineering to be unstable for seismic loading.

Evaluation of the reinspection data shows that the HVAC supports meet design requirements with two exceptions. Items WP-C-BFN-25 and -26 were determined to be unstable under seismic lateral loading. In the period from 1970 to 1986 various reviews of HVAC supports were undertaken by TVA

including the WP reinspection. The conclusion reached by these reviews and reinspections is that a number of HVAC supports are not adequatoly designed and built for lateral seismic loading. Items 25 and 26 were found to be adequate to carry the vertical seismic and vertical deadloads. However, the portion of the support which was designed to resist the seismic lateral load was unstable and therefore, the welds associated with this portion of the support were not analyzed. TVA's planned Seismic Qualification Program for Browns Ferry implemented as the result of Significant Condition Report SCR BFNCEB8603 will include evaluation of structurally significant weld attributes. Therefore, additional investigations by the Welding Project are not required.

As noted previously, a weld attribute evaluation was performed. The results are shown below:

STRUCTURAL WELDS - ATTRIBUTE SUMMARY BASED ON REINSPECTION RESULTS

Attribute	Inches of Weld Reinspected	Weld Attribute Inches		Percent (%)	
		Acceptable	Rejectable	Acceptable	Rejectable
Size	8575	7635	940	89.03	10.97
Incomplete Fusion	8575	8549	26	99.69	0.31
Overlap	8575	8573	2	99.98	0.02
Craters	8575	8536	39	99.55	0.45
Undercut	8575	8547	28	99.67	0.33
Correct Filler Metal	8575	8575	0	100.00	0.00

Even though 11% (940 inches) of the welds reinspected were rejected for size, only 2. inches (for instrument piping supports) require rework (additional weld metal deposited).

The balance of the attribute inches reported i.e. incomplete fusion, overlap, craters, profile, and undercut amounted to 95 inches or 1.1% of the total.

Except for size, none of the attributes had a significant effect on the structure's ability to meet design requirements.

In addition to the attributes noted above, one characteristic "No Weld" was reported as part of the reinspection. This characteristic can be further subdivided into Underlength and Missing Welds.

Underlength is the length that a given weld is short of design requirements, i.e. weld length required minus weld length provided. Underlength welds constituted 4.4% of the weld reinspected. Underlength welds (326 inches) were randomly located in all structures. However, two structures accounted for the major amount (244 inches) of underlength. An electrical panel, item 43, required by drawing approximately 200 inches of continuous fillet weld. The "as-built" connection was made with an intermittent fillet which eliminated 170.5 inches of weld. The engineering evaluation shows that the "as-built" configuration provides a

connection that meets design requirements. The "as-built" condition of a HVAC support, Item 1, had 73.5 inches of weld underlength. The engineering evaluation shows that the "as-built" configuration, however, provided a structure that meets design requirements.

A weld is considered missing when the entire weld indicated by a weld symbol is absent. Missing welds constituted 0.78% of the welds reinspected. All affected joints with reported missing weld meet design requirements after engineering evaluation. The lack of adequate welding details on the drawings (when they existed) was a contributor to this problem.

During the reinspection of structural items, certain welds were reported as "inaccessible." Where the presence of the weld could not be verified, inacccessible welds were considered not to exist and credit was not taken in the design evaluation of the load carrying capabilities of the welded connection.

Considering the structurally significant attributes, 99.4% of the linear inches of reinspected structural weld is acceptable based on reinspection and engineering evaluation. The balance of 0.6% is composed of two categories:

- o Weld acceptable - Structure deemed unstable 0.3%
- o Rework required 0.3%

The Welding Project has determined that weld characteristics other than size, length, and location are not a significant problem with structural welding at BFN. <u>THE RESULTS OF THE REINSPECTION AND AN ENGINEERING EVALUATION OF THE REPORTABLE IMPERFECTIONS CONFIRM THAT A HIGH PERCENTAGE OF THE REINSPECTED WELD JOINTS MEET DESIGN REQUIREMENTS. IN THE INSTANCES WHERE THE WELD JOINTS DID NOT MEET SEISMIC DESIGN REQUIREMENTS, ENGINEERING QUALIFICATION PROGRAMS ARE PLANNED THAT WILL IDENTIFY AND CORRECT WELDING DISCREPANCIES. THEREFORE ADDITIONAL REINSPECTIONS ARE NOT REQUIRED.</u>

4.6.2 <u>Mechanical Welds</u> (Tables 4.3 and 4.4)

The analysis of the mechanical reinspection results show that of the [illegible] welds reinspected, 360 (87.4%) had no reportable indications and were accepted as reinspected.

The remaining 52 welds had indications which warranted further evaluation by Engineering. All were subsequently accepted. The welds carry the required loads within the design allowable stress and consequently, meet code requirements.

Engineering evaluated these 52 welds for the attributes shown in Appendix 4.1. All welds were accepted by calculation or engineering evaluation techniques. However, eight welds

required additional investigation by grinding or filing to characterize the identified indication for engineering evaluation. (A detailed account of these welds is given in Appendix 4.1.).

Eleven of the 52 welds had indications not covered by the attributes of Appendix 4.1 or code requirements. All 11 welds are acceptable by engineering evaluation. (A detailed account of these welds is given in Appendix 4.2.).

The review of the radiographs for 30 pipe welds identified that several original or repair radiographs were not readily available from the plant record system. The inspector identified and reported this as a rejectable condition. This condition was resolved when the records were located. The radiographs were determined to be acceptable.

The reinspection identified one weld (T-RHRS-3-18) with rejectable radiographic indication that was not noted on the original reader sheet. Engineering evaluation was performed by using RT and UT examination and excavation of part of the weld to characterize the indication. This weld has been determined to be acceptable. (A detailed account of this condition for weld T-RHRS-3-18 is included in Appendix 4.3.)

The weld attribute summary for mechanical welds is shown on the following page.

PIPING AND DUCT BUTT WELDS - WELD ATTRIBUTE SUMMARY

FROM REINSPECTION REPORTS

	Attribute	No. Welds Reinspected	No. of Attributes		% Weld Attributes	
			Acceptable	Rejectable	Acceptable	Rejectable
A.	Cracks	412	412	0	100.0	0.0
B.	Contour/Transition	412	410	2	99.5	0.5
C.	Offset/Alignment	412	412	0	100.0	0.0
D.	Undercut	412	404	8	98.1	1.9
E.	Reinforcement (Butt Welds)	234	226	8	96.6	3.4
F.	Spatter/Arc Strikes	412	412	0	100.0	0.0
H.	Fillet/Socket Weld Size	178	163	15	91.6	8.4
K.	Lack of Fusion	412	406	6	98.5	1.5
L.	Overlap	412	409	3	99.3	0.7
M.	Underfill	412	404	8	98.1	1.9
N.	Surface Porosity	412	407	5	98.8	1.2
O.	Slag	412	409	3	99.3	0.7
RK.	Radiographic-Lack of Fusion	30	29	1	96.7	3.3
Y.	Linear Indications (Weld Metal)	412	412	0	100.0	0.0
TOTAL ATTRIBUTES		4974	4915	59*	98.8	1.2

*All rejectable attributes were shown to be acceptable by engineering evaluation.

The table below shows additional attributes reported that do not adversely affect weld quality.

Indication	Welds Reinspected	Attributes Acceptable	Rejectable*
I. Base Metal Indications	412	406	6
T. Overheating	412	411	1
U. Improper prep for PT or MT	185	183	2
V. Base Metal/Weld Metal (Ferrite Readings of SS Welds)	39	39	0
W. Base Metal/Weld Metal	412	412	0
Z. Weld Covering Threads	2	0	2

*All rejectable attributes were shown to be acceptable by engineering evaluation.

In summary, the NDE indications and visual imperfections identified during the reinspection are not injurious or in any way detrimental to the function of the welds. All 391 piping welds and the 21 duct butt-welds are acceptable. **THE RESULTS OF THE REINSPECTION AND THE ENGINEERING EVALUATION AND DISPOSITION OF THE REPORTABLE CONDITIONS CONFIRM THAT THE REINSPECTED MECHANICAL WELDS MEET CODE REQUIREMENTS AND ARE ACCEPTABLE FOR USE; THEREFORE, ADDITIONAL REINSPECTIONS ARE NOT REQUIRED.**

4.8.3 Overall Assessment as Related to Employee Concerns

The Employee Concerns (as listed in Attachment 6.1) indicated potential problems related to various aspects of welding. The concerns have been addressed through the Phase I and Phase II Welding Project activities.

The reinspection results do not substantiate the specific or non-specific employee concerns with the exception of BFN-85-019-001. The percentage of weld size (size, length, and location), identified as rejectable in the structural weld attribute summary of Section 4.8, gives support to the question of adequacy of welds and hangers expressed in BFN-85-019-001. Engineering evaluations of 940 inches of weld rejected for size resulted in only 25 inches of weld requiring rework for seismic loading requirements. The requirements identified in the commitment section of 6.6 will address the concern and provide corrective action required.

The reinspection data indicated that:

- o Generic control of filler material was accomplished.
- o Overall weld quality is commensurate with the industry practices in effect at the time the work was performed.
- o No cracks were identified and porosity was minimal indicating that electrode moisture control was effective.
- o The equipment used was adequate.

4.8.4 Reinspection Overview by DNQA

A surveillance of the Welding Project reinspection efforts by the DNQA BFN Site Quality Manager's Staff resulted in a Corrective Action Report (CAR) (BF-CAR-87-0043) being issued. The CAR stated that WP personnel did not always adhere to the requirement for reinspection and that the reinspection personnel were not always accurate in identifying the discrepant conditions. The WP agreed that some of these conditions did occur. However, it has been concluded that the intent of the reinspection effort was accomplished and that no corrective action by WP was required. The surveillance report by the Quality Manager's Staff indicated that the inspectors were qualified and did an effective reinspection. Since welding inspection often involves a subjective evaluation, occassional difference of interpretation is to be expected and is not a matter for concern. Discrepancies were identified that were not reported in the reports of the WP reinspection. After additional investigations and evaluations, all of the discrepancies reported in the CAR were found to have no affect on the WP results or conclusions.

4.9 Root Cause Evaluation and Corrective Action

Analysis to determine the root cause and required corrective action of each significant variant has been performed. For the pipe and duct welds, there were no significant variants to be considered.

The significant variants in the structural reinspection data that required a root cause analysis are:

1. Weld Undersize
2. Weld Underlength
3. Weld Missing

Weld was reported as being undersize for 10.97% of the reinspected weld. Considering the circumstances of the reinspection and the time of original construction, this rejection rate is to be expected. The methods and tools for reinspection were not the same as those in use in the initial inspection. Typically, the original inspector did not perform detailed measurements of each weld but evaluated weld size on [illegible] basis. Corrective action for undersize welds is not [illegible] the engineering evaluation determined that all items with under size weld meet original design requirements but not necessarily the loads due to seismic upgrade.

To ensure that structural evaluations are based on as constructed data, 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.

Weld was reported underlength for 4.4% of the weld reinspected and less than 1% for weld missing. The root cause for underlength and weld missing lies in the manner in which information was presented on the drawings and the interpretation of the drawing and specification requirements by the construction engineers, craftsmen, and

inspectors. The drawing requirements were not always depicted in a clear manner as was noted in the Phase I review. The requirements for wrap around and starts and stops were not always interpreted in the same manner as today. Corrective action for underlength is not required since the engineering evaluation determined that all items with underlength or missing welds meet design requirements. As noted above, 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.

TABLE 4.1

Table 4.1 is a compilation of the reinspection data by structure type showing the total number of each type structure included in the reinspection effort. The table also shows the inches of weld reinspected for each type structure and the basis of acceptability of the weld.

TABLE 4.1

REINSPECTION SUMMARY FOR STRUCTURAL WELDING

BROWNSFERRY NUCLEAR PLANT

TYPE OF STRUCTURE	NUMBER REINSPECTED	INCHES OF WELD REINSPECTED	INCHES OF WELD ACCEPTABLE BY REINSPECT	INCHES OF WELD ACCEPTABLE W/NO DWG OR DET	INCHES OF WELD WITH REPORTABLE INDICATIONS ACCEPTABLE BY ENG EVALUATION	INCHES OF WELD ACCEPTABLE BUT STRUCT WAS UNSTABLE	INCHES OF WELD REQUIRING REWORK	INCHES OF ACCEPTABLE WELD
PIPE SUPPORT(*)	27	3842.90	2392.50	787.8	662.60	0.00	0.00	3842.90
INSTR PIP'G SUPPORT	6	149.39	0.00	87.3	20.90	16.15	25.00	124.39
CABLE TRAY SUPPORT	5	392.60	321.60	23.8	47.20	0.00	0.00	392.60
CONDUIT SUPPORT	7	631.70	464.00	134.2	33.50	0.00	0.00	631.70
PULL BOX SUPPORT	2	86.01	0.00	57.6	28.38	0.00	0.00	86.01
ELECT PANEL SUPPORT	2	81.50	80.87	0.00	0.63	0.00	0.00	81.50
STRUCT STEEL	2	529.00	529.00	0.00	0.00	0.00	0.00	529.00
MISC STEEL	7	1813.00	1210.00	413.40	189.60	0.00	0.00	1813.00
INSTR SUPPORT	3	367.30	48.30	313.00	6.00	0.00	0.00	367.30
HVAC SUPPORT	9	681.60	108.50	355.70	205.52	11.88	0.00	681.60
TOTALS	70	8575.00	5154.[illegible]7	2172.87	1194.33	28.03	25.00	8550.00

* NOTE : ITEM 16 HAS BEEN DROPPED FROM THE REINSPECTIN
IT WAS A TEMP SUPPORT FOR CONSTRUCTION USE ONLY

TABLE 4.2

Table 4.2 is a listing of the reinspection data for structural welding showing weld number, size, type, drawing number, organization performing the weld, and inspection/reinspection dates. The table also shows the unit, type of structure, item number, and the basis of acceptance of the weld.

TABLE 4.7

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) DSC C=C[illegible] N=NUCPR
** FOR NOTES SEE PAGE 63
***A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK NO	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	DSC (*)	ORIG INSP DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT **	EXAM BY	WELD RESULT-LINEAR INCH *** A1	A2	A3	A4	A5	R1	R2
1	PS	BFN-03	A1	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072795		WE	3.50						
1	PS	BFN-03	A2 & A3	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	6.50						
1	PS	BFN-03	A4		0.188		FILLET	47B454-5	N	060275	072786		WE			NW				
1	PS	BFN-03	B1	0.188	0.188	FILLET	FILLET	47B454-5		060275	072786		WE	3.50						
1	PS	BFN-03	B2 & B3	0.188	0.188	FILLET	FILLET	47B454-5		060275	072786		WE	6.50						
1	PS	BFN-03	B4	0.125	0.188	FILLET	FILLET	47B454-5		060275	072786		WE	0.87		2.63				
1	PS	BFN-03	C	0.250	0.188	FILLET	FILLET	47B454-5		060275	072795		WE	6.50						
1	PS	BFN-03	D1	0.188	0.188	FILLET	FILLET	47B454-5		060275	072786		WE	3.25						
1	PS	BFN-03	D2	0.063	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	0.44		3.06				
1	PS	BFN-03	D3	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	7.50						
1	PS	BFN-03	D4		0.188	FL BEV	FILLET	47B454-5	N	060275	072786	NOTE 2	WE	3.25						
1	PS	BFN-04	A1 & A4	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	7.00						
1	PS	BFN-04	A2 & A3	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	6.50						
1	PS	BFN-04	B1 & B4	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	7.00						
1	PS	BFN-04	B2 & B3	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	6.50						
1	PS	BFN-04	C	0.250	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	8.00						
1	PS	BFN-04	D1	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	3.25						
1	PS	BFN-04	D2		0.188	SQBUTT	FILLET	47B454-5	N	060275	072786	NOTE 2	WE	7.50						
1	PS	BFN-04	D3	0.188	0.188	FILLET	FILLET	47B454-5	N	060275	072786		WE	3.50						
1	PS	BFN-04	D4		0.188	FL BEV	FILLET	47B454-5	N	060275	072786	NOTE 2	WE	3.25						
2	PS	BFN-05	A1	0.188	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	3.50						
2	PS	BFN-05	A2	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	3.25						
2	PS	BFN-05	A3	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	3.50						
2	PS	BFN-05	A4	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	3.25						
2	PS	BFN-05	C1	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.25						
2	PS	BFN-05	C2	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.63						
2	PS	BFN-05	C3	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	D1	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.38						

TABLE 4.

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

*PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

* ORG: C=CONST, N=NUCPR
** FOR NOTES SEE PAGE 63
*** A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK NF-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE MMDDYY	REINSP DATE MMDDYY	COMMENT **	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	PS	BFN-05	D2	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	D3	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.63						
2	PS	BFN-05	D4	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	E1	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	E2	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	E3	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	E4	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.25						
2	PS	BFN-05	F1	0.188	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.50						
2	PS	BFN-05	F2	0.188	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.25						
2	PS	BFN-05	F3	0.188	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.50						
2	PS	BFN-05	H1		0.188	BUTT	FILLET	47B454-3	N	060275	080286		WWE	2.25						
2	PS	BFN-05	H2	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	2.25						
2	PS	BFN-05	H3		0.188	BUTT	FILLET	47B454-3	N	060275	080286		WWE	2.25						
2	PS	BFN-05	H4	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	2.50						
2	PS	BFN-05	H5	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.25						
2	PS	BFN-05	H6	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.75						
2	PS	BFN-05	J1		0.188	BUTT	FILLET	47B454-3	N	060275	080286		WWE	2.25						
2	PS	BFN-05	J2		0.188	BUTT	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	2.85						
2	PS	BFN-05	J3		0.188	BUTT	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	2.63						
2	PS	BFN-05	J4		0.188	BUTT	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	2.33						
2	PS	BFN-05	J5		0.188		FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	2.63						
2	PS	BFN-05	J6		0.188	GROOVE	FILLET	47B454-3	N	060275	080286		WWE				2.00			
2	PS	BFN-05	J7		0.188		FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	1.75						
2	PS	BFN-05	J8		0.188	GROOVE	FILLET	47B454-3	N	060275	080286		WWE				2.00			
2	PS	BFN-05	J9	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	1.75						
2	PS	BFN-05	J10	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.75						
2	PS	BFN-05	J11	0.125	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.75						
2	PS	BFN-05	J12		0.188		FILLET	47B454-3	N	060275	080286		WWE	2.00						
													WWE			NW				

T A B L E 4.2

S T R U C T U R A L W E L D

R E I N S P E C T I O N D A T A

BROWNS FERRY NUCLEAR PLANT

DES:
PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT
STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG: C=CONST N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WIT - NO DWG OR DET
A3=ACCEPT BY ENG
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD
R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES	INSPECT PACKAGE NO	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE (MMDDYY)	RE-INSP DATE (YYMMDD)	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	PS	BFN-05	J13		0.188		FILLET	47B454-3	N	060275	080286		WWE			NW				
2	PS	BFN-05	J14	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.75						
2	PS	BFN-05	J15	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.						
2	PS	BFN-05	J16	0.125	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	K1		0.188	BUTT	FILLET	47B454-3	N	060275	090286	NOTE 2	WWE	2.88						
2	PS	BFN-05	K2		0.188	BUTT	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	2.62						
2	PS	BFN-05	K3		0.188		FILLET	47B454-3	N	060275	080286		WWE				2.00			
2	PS	BFN-05	K4		0.188	GROOVE	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	2.00						
2	PS	BFN-05	K5 (EST)	0.188	0.188	FILLET	FILLET	47B454-3	N	060275	080296		WWE	3.50						
2	PS	BFN-05	K6		0.188	GROOVE	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	3.25						
2	PS	BFN-05	K7		0.189	BUTT	FILLET	47B454-3	N	060275	080296	NOTE 2	WWE	5.00						
2	PS	BFN-05	K8		0.188	BUTT	FILLET	47B454-3	N	060275	080286	NOTE 2	WWE	4.75						
2	PS	BFN-05	K9	0.313	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.75						
2	PS	BFN-05	K10	0.313	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.75						
2	PS	BFN-05	K11		0.188		FILLET	47B454-3	N	060275	090286		WWE			NW				
2	PS	BFN-05	K12	0.375	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	L1		0.188		FILLET	47B454-3	N	060275	080286		WWE			NW				
2	PS	BFN-05	L2	0.313	0.188	FILLET	FILLET	47B454-3	N	060275	090286		WWE	1.75						
2	PS	BFN-05	L3	0.313	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	1.75						
2	PS	BFN-05	L4	0.250	0.188	FILLET	FILLET	47B454-3	N	060275	080286		WWE	2.00						
2	PS	BFN-05	M1	0.313		FILLET		47B454-3	N	060275	080286		WWE		40.00					
2	PS	BFN-05	M2			BUTT		47B454-3	N	060275	080286		WWE		40.00					
2	PS	BFN-06	1	0.188		FILLET		47B454-252	C	060275	090186		WE		2.50					
2	PS	BFN-06	2	0.188		FILLET		47B454-252	C	060275	080186		WE		2.50					
2	PS	BFN-06	3	0.188		FILLET		47B454-252	C	060275	090186		WE		2.00					
2	PS	BFN-06	4			GROOVE		47B454-252	C	060275	080186		WE		6.00					
2	PS	BFN-06	5			GROOVE		47B454-252	C	060275	090186		WE		4.50					
2	PS	BFN-06	6	0.125		FILLET		47B454-252	C	060275	080186		WE		1.12	3.38				

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG: C=CONST, N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=UNACCEPT VERIFIED WELD
A5=UNACCEPT UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DW
NA=NOT APPLICABLE

UNIT	INSPEC DES (*)	PACK NO.	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	PS	BFN-06	7					47B454-252	C	060275	080186		WE				3.00			
2	PS	BFN-06	8					47B454-252	C	060275	080186	NR	WE							
2	PS	BFN-06	9			GROOVE		47B454-252	C	060275	080186		WE		3.50					
2	PS	BFN-06	10	0.188		FILLET		47B454-252	C	060275	080186		WE		2.00					
2	PS	BFN-06	11	0.250		FILLET		47B454-252	C	060275	090186		WE		2.00					
2	PS	BFN-06	12	0.188		FILLET		47B454-252	C	060275	080186		WE		2.25					
2	PS	BFN-06	13			GROOVE		47B454-252	C	060275	080186		WE		6.00					
2	PS	BFN-06	14	0.250		FILLET		47B454-252	C	060275	080186		WE		3.00					
2	PS	BFN-06	15			GROOVE		47B454-252	C	060275	080185		WE		4.00					
2	PS	BFN-06	16			GROOVE		47B454-252	C	060275	080186		WE		5.00					
2	PS	BFN-06	17					47B454-252	C	060275	080186		WE					4.50		
3	PS	BFN-07	AA-1	0.250		FILLET		30W615-3	C	NA	071386		SA		21.50					
3	PS	BFN-07	AA-2	0.125		FILLET		30W615-3	C	NA	071386		SA		2.31	6.94				
3	PS	BFN-07	AA-3	0.188		FILLET		30W615-3	C	NA	071386		SA		9.00					
2	PS	BFN-08	A1 THRU A7	0.250		FILLET		47B451-26	C	030974	072785		WE		14.00					
2	PS	BFN-08	A5					47B451-26	C	030974	072786	NR	WE							
2	PS	BFN-08	A8 THRU A13	0.250		FILLET		47B451-26	C	030974	072786		WE		14.00					
2	PS	BFN-08	A14 THRU A16	0.250		FILLET		47B451-26	C	030974	072786		WE		7.00					
2	PS	BFN-08	A17 THRU A19	0.250		FILLET		47B451-26	C	030974	072786		WE		7.00					
2	PS	BFN-08	A20 THRU A22	0.250		FILLET		47B451-26	C	030974	072786		WE		7.00					
2	PS	BFN-08	A23 THRU A25	0.250		FILLET		47B451-26	C	030974	072786		WE		7.00					
2	PS	BFN-08	A26 THRU A28	0.250		FILLET		47B451-26	C	030974	072786		WE		7.00					
2	PS	BFN-08	A29 THRU A31	0.250		FILLET		47B451-26	C	030974	072786		WE		7.00					
2	PS	BFN-08	A32 THRU A34	0.250		FILLET		47B451-26	C	030974	072786		WE		7.00					
2	PS	BFN-09	A35 THRU A37	0.250		FILLET		47B451-26	C	030974	072786		WE		7.00					
2	PS	BFN-08	A38 THRU A41	0.438	0.250	FILLET	FILLET	47B451-26	C	030974	072786		WE	12.00						
3	PS	BFN-09	A1 THRU A3	0.375	0.375	FILLET	FILLET	47B451-14	C	NA	071586		CF	24.00						
3	PS	BFN-09	A4		0.375		FILLET	47B451-14	C	NA	071586		CF			NW				

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IFS=INSTRUMENT FITTING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) DES: C=CONST; N=NUC PR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK EXP-D-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	DES (*)	ORIG INSP DATE MMDDYY	REINSP DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-09	B1 & B2			BUTT	GROOVE	47B451-14	C	NA	071586	NOTE 2	CF	22.00						
3	PS	BFN-09	C1			GROOVE		47B451-14	C	NA	071586		CF		7.25					
3	PS	BFN-09	C2	0.250		FILLET		47B451-14	C	NA	071586		CF		7.75					
3	PS	BFN-09	D1			GROOVE		47B451-14	C	NA	071586		CF		7.25					
3	PS	BFN-09	D2	0.250		FILLET		47B451-14	C	NA	071586		CF		7.75					
3	PS	BFN-09	E1 & E2			BUTT	GROOVE	47B451-14	C	NA	071586	NOTE 2	CF	22.00						
3	PS	BFN-09	F1 F3 F4	0.375	0.375	FILLET	FILLET	47B451-14	C	NA	071586		CF	24.00						
3	PS	BFN-09	F2		0.375		FILLET	47B451-14	C	NA	071586		CF			NW				
3	PS	BFN-09	G	0.500		FILLET		47B451-14	C	NA	071586		CF		11.88					
2	PS	BFN-10	A1	0.250		FILLET		47B451-16	C	052174	072486		WWE		17.00					
2	PS	BFN-10	A2	0.313		FILLET		47B451-16	C	052174	072486		WWE		4.56	13.69				
2	PS	BFN-10	A3	VARIES		FILLET		47B451-16	C	052174	072486	NOTE 2	WWE		2.00					
2	PS	BFN-10	A4	0.313		FILLET		47B451-16	C	052174	072486		WWE		0.63	1.87				
2	PS	BFN-10	A5			GROOVE		47B451-16	C	052174	072486	NOTE 2	WWE		4.00					
2	PS	BFN-10	A6	0.500		FILLET		47B451-16	C	052174	072486		WWE		4.75					
2	PS	BFN-10	A7	0.250		FILLET		47B451-16	C	052174	072486		WWE		0.50	3.50				
2	PS	BFN-10	A8			GROOVE		47B451-16	C	052174	072486	NOTE 2	WWE		6.00					
2	PS	BFN-10	B1	0.313		FILLET		47B451-16	C	052174	072486		WWE		4.00	12.00				
2	PS	BFN-10	B2	0.250		FILLET		47B451-16	C	052174	072486		WWE		2.00	14.00				
2	PS	BFN-10	B3			BUTT		47B451-16	C	052174	072486	SPLICE	WWE		1.50					
2	PS	BFN-10	B4			BUTT		47B451-16	C	052174	072486	SPLICE	WWE		1.50					
2	PS	BFN-10	B5	0.313		FILLET		47B451-16	C	052174	072486		WWE		1.00	1.00				
2	PS	BFN-10	B6	0.313		FILLET		47B451-16	C	052174	072486		WWE		2.00					
2	PS	BFN-10	B7	0.500	0.375	FILLET	FILLET	47B451-16	C	052174	072486		WWE	5.00						
2	PS	BFN-10	C1	0.313	0.375	FILLET	FILLET	47B451-16	C	052174	072486		WWE	0.56		1.69				
2	PS	BFN-10	C2	0.313	0.375	FILLET	FILLET	47B451-16	C	052174	072486		WWE	0.56		1.69				
2	PS	BFN-10	C3			GROOVE	GROOVE	47B451-16	C	052174	072486		WWE	4.50						
2	PS	BFN-10	C4			GROOVE	GROOVE	47B451-16	C	052174	072486		WWE	4.50						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(**) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG: C=CONST; N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (**)	INSPEC PACK INP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (##)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	PS	BFN-10	D1	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.59		4.16				
2	PS	BFN-10	D2	0.125	0.250	FILLET	FILLET	47B451-16	C	052[illegible]4	072486		WWE	0.59		4.16				
2	PS	BFN-10	D3	0.125	0.250	FILLET	FILLET	47B451-16	C	052[illegible]4	072486		WWE	0.59		4.16				
2	PS	BFN-10	D4	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.59		4.16				
2	PS	BFN-10	D5	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.50		3.50				
2	PS	BFN-10	D6	0.188	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	1.00		3.00				
2	PS	BFN-10	D7	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.25		2.25				
2	PS	BFN-10	D8	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.50		3.50				
2	PS	BFN-10	D9	0.188	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	1.00		3.00				
2	PS	BFN-10	E1	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.59		4.16				
2	PS	BFN-10	E2	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.59		4.16				
2	PS	BFN-10	E3	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.59		4.16				
2	PS	BFN-10	E4	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.59		4.16				
2	PS	BFN-10	E5	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.50		3.50				
2	PS	BFN-10	E6	0.188	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	1.00		3.00				
2	PS	BFN-10	E7	0.188	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.74		2.41				
2	PS	BFN-10	E8	0.125	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.50		3.50				
2	PS	BFN-10	E9	0.188	0.250	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	1.00		3.00				
2	PS	BFN-10	E10	0.188	0.375	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	[illegible]		3.67				
2	PS	BFN-10	E11		0.375	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE				4.00			
2	PS	BFN-10	E12	0.188	0.375	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.50		5.50				
2	PS	BFN-10	E13	0.313	0.375	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	[illegible]		[illegible].56				
2	PS	BFN-10	E14	0.250	0.375	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.94		6.56				
2	PS	BFN-10	E15	0.188	0.375	FILLET	FILLET	47B451-16	C	0521[illegible]4	072486		WWE	0.76		3.89				
2	PS	BFN-10	E16		0.375		FILLET	47B451-16	C	0521[illegible]4	072486		WWE			NW				
2	PS	BFN-10	E17		0.375	SK FIL	FILLET	47B451-16	C	0521[illegible]4	072486		WWE			3.38				
2	PS	BFN-10	F1	0.250			FILLET	47B451-16	C	0521[illegible]4	072486		WWE	5.00						
2	PS	BFN-10	F2 & F3	0.375			FILLET	47B451-16	C	0521[illegible]4	072486		WWE	8.00						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
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STRU=STRUCT STL
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IS=INSTRUMENT SPT
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(*) ORG: C=CONST; N=NUCPR
**) FOR NOTES SEE PAGE 63
(*** A1=ACCEPT BY INSP
A2=ACC W/ NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK TWP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT **	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
2	PS	BFN-11	A1	VARIES	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE			4.00				
2	PS	BFN-11	A2	VARIES	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE	0.44		1.31				
2	PS	BFN-11	A3	VARIES	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	6.25		0.63				
2	PS	BFN-11	A4		0.250		FILLET	47B450-20	C	040274	071486		WWE			NW				
2	PS	BFN-11	A5	VARIES	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE	1.00		3.00				
2	PS	BFN-11	A6	VARIES	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE			1.75				
2	PS	BFN-11	A7	VARIES	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	5.38		1.25				
2	PS	BFN-11	A8	VARIES	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE	0.44		1.31				
2	PS	BFN-11	B1	0.313	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	4.00						
2	PS	BFN-11	B2	0.313	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	1.75						
2	PS	BFN-11	B3	0.375	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	5.50						
2	PS	BFN-11	B4	0.313	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	1.75						
2	PS	BFN-11	B5	0.250	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	4.00						
2	PS	BFN-11	B6	0.313	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	1.75						
2	PS	BFN-11	B7	0.375	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	5.50						
2	PS	BFN-11	B8	0.313	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	1.75						
2	PS	BFN-11	B9	0.438	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	2.00						
2	PS	BFN-11	B10	0.438	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	2.00						
2	PS	BFN-11	B11	0.375	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	2.00						
2	PS	BFN-11	B12	0.500	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	2.00						
2	PS	BFN-11	C1	0.250	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE	4.00						
2	PS	BFN-11	C2	VARIES	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE	0.22		1.53				
2	PS	BFN-11	C3	0.313	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	8.00						
2	PS	BFN-11	C4		0.250		FILLET	47B450-20	C	040274	071486		WWE				1.75			
2	PS	BFN-11	C5	VARIES	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE	0.50		3.50				
2	PS	BFN-11	C6		0.250		FILLET	47B450-20	C	040274	071486		WWE				1.75			
2	PS	BFN-11	C7	0.313	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	8.00						
2	PS	BFN-11	C8	VARIES	0.250	SK FIL	FILLET	47B450-20	C	040274	071486		WWE	0.44		1.31				

(**)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

TABLE 4.2

STRUCTURAL WELDING REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1-ACCEPT BY INSP
A2-ACC WITH NO DWG OR DET
A3-ACCEPT BY CALC
A4-INACCESS VERIFIED WELD
A5-INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	SYS (**)	INSPEC PACKAGE NO	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INS DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT **	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	PS	BFN-11	C9		0.250		FILLET	47B450-20	C	040274	071486	APPR	WWE			NW				
2	PS	BFN-11	C10		0.250		FILLET	47B450-20	C	040274	071486	APPR	WWE			NW				
2	PS	BFN-11	C11	0.375	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	2.00						
2	PS	BFN-11	C12	0.313	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	2.00						
2	PS	BFN-11	D1	0.250	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	4.00						
2	PS	BFN-11	D2	0.125	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	0.22		1.53				
2	PS	BFN-11	D3	0.125	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	0.67		4.81				
2	PS	BFN-11	D4	0.125	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	0.22		1.53				
2	PS	BFN-11	D5	0.250	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	4.00						
2	PS	BFN-11	D6	0.125	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	0.22		1.53				
2	PS	BFN-11	D7	0.125	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	0.69		4.81				
2	PS	BFN-11	D8	0.125	0.250	FILLET	FILLET	47B450-20	C	040274	071486		WWE	0.22		1.53				
2	PS	BFN-12	B1 THRU B4	0.375	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	9.75						
2	PS	BFN-12	B5		0.188		FILLET	47B446-33R1	C	061474	080186		BB				2.00			
2	PS	BFN-12	B6	0.125	0.188	SK.FIL	FILLET	47B446-33R1	C	061474	080186		BB	0.73		2.34				
2	PS	BFN-12	B7		0.188		FILLET	47B446-33R1	C	061474	080186		BB				2.25			
2	PS	BFN-12	D1 & D2		0.188	BUTT	FILLET	47B446-33R1	C	061474	080186	NOTE 2	BB	3.99						
2	PS	BFN-12	D3	0.031	0.188	SK.FIL	FILLET	47B446-33R1	C	061474	080186		BB			3.00				
2	PS	BFN-12	F1 & F2			BUTT	BUTT	47B446-33R1	C	061474	080186		BB	5.00						
2	PS	BFN-12	H1, H2, H4 &H5	0.313	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	4.50						
2	PS	BFN-12	H3	0.250	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	2.00						
2	PS	BFN-12	H6					47B446-33R1	C	061474	080186	NR	BB							
2	PS	BFN-12	J1-1	0.250	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	1.75						
2	PS	BFN-12	J1-2 THRU J1-4	0.313	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	5.00						
2	PS	BFN-12	J1-5	0.188	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	1.50						
2	PS	BFN-12	J2-1 & J2-5	0.250	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	3.00						
2	PS	BFN-12	J2-3	0.250	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	2.00						
2	PS	BFN-12	J2-2 & J2-4	0.188	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	2.23						

TABLE 4.?

STRUCTURAL WELDS

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) DRG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK IWE-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	DRG (*)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	NOTE **	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
2	PS	BFN-12	J3-1	0.250	0.188	FILLET	FILLET	47B445-33R1	C	061474	080186		BB	1.25						
2	PS	BFN-12	J3-2 & J3-4	0.313	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	2.00						
2	PS	BFN-12	J3-3	0.375	0.188	FILLET	FILLET	47B445-33R1	C	061474	080186		BB	2.25						
2	PS	BFN-12	J3-5			BUTT		47B446-33R1	C	061474	080186		BB	1.25						
2	PS	BFN-12	J4-1			BUTT		47B445-33R1	C	061474	080186		BB	1.25						
2	PS	BFN-12	J4-2	0.250	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	1.00						
2	PS	BFN-12	J4-2	0.250	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186		BB	4.50						
2	PS	BFN-12	J4-2, 3, & 5	0.313	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186	# LEGS	BB	7.00		1.00				
2	PS	BFN-12	K1 THRU K5	VARIES	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186	NR	BB							
2	PS	BFN-12	K12					47B446-33R1	C	061474	080186	NR	BB							
2	PS	BFN-12	K6					47B446-33R1	C	061474	080186		BB	14.50						
2	PS	BFN-12	K7 THRU K11	VARIES	0.188	FILLET	FILLET	47B446-33R1	C	061474	080186	NOTE 2	BB	6.00						
2	PS	BFN-12	L1 & L2		0.188	BUTT	FILLET	47B446-33R1	C	061474	080186	NOTE 2	BB							
2	PS	BFN-12											SA	1.53		4.59				
3	PS	BFN-13	A1	0.185	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	2.00						
3	PS	BFN-13	A2	0.313	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	6.13						
3	PS	BFN-13	A3	0.313	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA			NW				
3	PS	BFN-13	A4		0.250		FILLET	47B450-26	C	NA	071886		SA	3.00		9.00				
3	PS	BFN-13	B1	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	4.50						
3	PS	BFN-13	B2	0.250	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	6.50						
3	PS	BFN-13	B3	0.313	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA			NW				
3	PS	BFN-13	B4		0.250		FILLET	47B450-26	C	NA	071886		SA			NW				
3	PS	BFN-13	B5		0.250		FILLET	47B450-26	C	NA	071886	NOTE 2	SA	1.99						
3	PS	BFN-13	C1			BUTT	GROOVE	47B450-26	C	NA	071886		SA	0.47		1.40				
3	PS	BFN-13	C2	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	4.19						
3	PS	BFN-13	C3	0.250	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	0.47		1.40				
3	PS	BFN-13	C4	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886	NOTE 2	SA	5.00						
3	PS	BFN-13	C5			BUTT	FLARE	47B450-26	C	NA	071886		SA	0.47		1.40				
3	PS	BFN-13	C6	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	1.68						
3	PS	BFN-13	D1	0.250	0.250	FILLET	FILLET	47B450-26	C	NA	071886									

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(##)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###)A1 ACCEPT BY INSP
A2 ACC WITH NO DWG OR DET
A3 ACCEPT BY CALC
A4 INACCEPT VERIFIED WELD
A5 INACCEPT UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (##)	INSPEC PACK NO-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSP DATE MMDDYY	RE INSP DATE MMDDYY	COMMENT (##)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
														WELD RESULT-LINEAR INCH (###)						
3	PS	BFN-13	D2	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	0.47		1.40				
3	PS	BFN-13	D3	0.250	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	4.50						
3	PS	BFN-13	D4	0.250	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	1.99						
3	PS	BFN-13	D5		0.250		FILLET	47B450-26	C	NA	071886		SA			NW				
3	PS	BFN-13	D6			BUTT	FLARE	47B450-26	C	NA	071886	NOTE 2	SA	5.00						
3	PS	BFN-13	E1			BUTT	FLARE	47B450-26	C	NA	071886	NOTE 2	SA	1.88						
3	PS	BFN-13	E2	0.250	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	1.89						
3	PS	BFN-13	E3	0.375	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	4.75						
3	PS	BFN-13	E4	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	0.47		1.40				
3	PS	BFN-13	E5	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	0.47		1.40				
3	PS	BFN-13	E6			BUTT	BEVEL	47B450-26	C	NA	071886	NOTE 2	SA	5.00						
3	PS	BFN-13	F1	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	0.47		1.40				
3	PS	BFN-13	F2	0.188	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	0.47		1.40				
3	PS	BFN-13	F3	0.313	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	4.50						
3	PS	BFN-13	F4	0.250	0.250	FILLET	FILLET	47B450-26	C	NA	071886		SA	1.88						
3	PS	BFN-13	F5		0.250		FILLET	47B450-26	C	NA	071886		SA			NW				
3	PS	BFN-13	F6			BUTT	BEVEL	47B450-26	C	NA	071886	NOTE 2	SA	5.00						
3	PS	BFN-13	P1			BUTT		47B450-26	C	NA	071886		SA		1.50					
3	PS	BFN-14	A1	0.250	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	7.75						
3	PS	BFN-14	A2		0.250	SK FIL	FILLET	47B450-23	C	NA	071486		SA	4.47		0.43				
3	PS	BFN-14	A3	0.250	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	2.00						
3	PS	BFN-14	A4	0.313	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	2.00						
3	PS	BFN-14	A5	0.313	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	1.75						
3	PS	BFN-14	A6	0.313	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	1.75						
3	PS	BFN-14	A7	0.313	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	1.75						
3	PS	BFN-14	A8	0.313	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	6.00						
3	PS	BFN-14	B1 THRU B3	0.500	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	6.00						
3	PS	BFN-14	B4	0.281	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	17.50						

TABLE 4 ?

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(\#) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DESC (*)	INSPEC PACK NO	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (\#)	ORIG INSP DATE MMDDYY	RE INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-14	C1	0.375	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	7.30						
3	PS	BFN-14	C2	0.250	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	8.50						
3	PS	BFN-14	C3		0.250	SK FIL	FILLET	47B450-23	C	NA	071486		SA	6.00						
3	PS	BFN-14	C4	0.250	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	5.50						
3	PS	BFN-14	D1	0.375	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	6.00						
3	PS	BFN-14	D2		0.250	SEAL	FILLET	47B450-23	C	NA	071486		SA			6.00				
3	PS	BFN-14	D3	0.313	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	6.00						
3	PS	BFN-14	D4	0.375	0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	6.00						
3	PS	BFN-14	F1 THRU F3			SEAL		47B450-23	C	NA	071486	NR	SA							
3	PS	BFN-14	G1		0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	4.50		1.50				
3	PS	BFN-14	G2		0.250	FILLET	FILLET	47B450-23	C	NA	071486		SA	4.50		1.50				
3	PS	BFN-15	A1, A4, & A5	0.250		FILLET		47W452-H-14	C	060475	073086		WE		12.00					
3	PS	BFN-15	A2 & A3	0.375		FILLET		47W452-H-14	C	060475	073086		WE		10.00					
3	PS	BFN-15	A6	0.188		FILLET		47W452-H-14	C	060475	073086		WE		4.25	0.75				
3	PS	BFN-15	A7 THRU A12	0.188		FILLET		47W452-H-14	C	060475	073086		WE		32.00					
3	PS	BFN-15	B1	0.188		FILLET		47W452-H-14	C	060475	073086		WE		7.00					
3	PS	BFN-15	B2 THRU B8	0.250		FILLET		47W452-H-14	C	060475	073086		WE		[illegible]					
3	PS	BFN-16	TEMPORARY SUPPORT-REMOVED FROM REINSPECTION																	
3	PS	BFN-17	A1	0.313		FILLET		SKETCHES	C	NA	073186		WWE		3.00					
3	PS	BFN-17	A2	0.188		FILLET		SKETCHES	C	NA	073186		WWE		2.63					
3	PS	BFN-17	A3 (VARIES)	0.188		FILLET		SKETCHES	C	NA	073186		WWE		2.63					
3	PS	BFN-17	A4			BUTT		SKETCHES	C	NA	073186		WWE		3.00					
3	PS	BFN-17	B1	0.188		FILLET		SKETCHES	C	NA	073186		WWE		2.63					
3	PS	BFN-17	B2	0.188				SKETCHES	C	NA	073186		WWE		2.63					
3	PS	BFN-17	B3					SKETCHES	C	NA	073186		WWE				3.00			
3	PS	BFN-17	B4			BUTT		SKETCHES	C	NA	073186		WWE		3.00					
3	PS	BFN-17	C1			BUTT		SKETCHES	C	NA	073186		WWE		3.50					
3	PS	BFN-17	C2			BUTT		SKETCHES	C	NA	073186		WWE		4.00					

TABLE 4.

STRUCTURAL WELDING REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(#)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
(##) SEE NOTES SEE PAGE 63
(###) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (#)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (##)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	PS	BFN-17	D1			BUTT		SKETCHES	C	NA	071186		WWE		3.50					
2	PS	BFN-17	D2			BUTT		SKETCHES	C	NA	071186		WWE		4.00					
2	PS	BFN-18	A1 THRU A4	0.188		FILLET		17W300-17	C	031574	071186		WWE		3.75	11.25				
2	PS	BFN-18	A5	0.250		FILLET		17W300-17	C	031574	071186		WWE		5.50					
2	PS	BFN-18	A6 & A7	0.188		FILLET		17W300-17	C	031574	071186		WWE		1.00	3.00				
2	PS	BFN-18	A8	0.250		FILLET		17W300-17	C	031574	071186		WWE		5.50					
2	PS	BFN-18	B1	0.375		FILLET		17W300-17	C	031574	071186		WWE		6.50					
2	PS	BFN-18	B2 & B3	0.188		FILLET		17W300-17	C	031574	071186		WWE		0.50	1.50				
2	PS	BFN-18	B4 & B5	0.313		FILLET		17W300-17	C	031574	071186		WWE		13.00					
2	PS	BFN-18	B6	0.188		FILLET		17W300-17	C	031574	071186		WWE		0.25	0.75				
2	PS	BFN-18	B7	0.250		FILLET		17W300-17	C	031574	071186		WWE		1.00					
2	PS	BFN-18	B8	0.375		FILLET		17W300-17	C	031574	071186		WWE		6.50					
2	PS	BFN-18	C1	0.375	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	1.75						
2	PS	BFN-18	C2	0.500	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	5.00						
2	PS	BFN-18	C3		0.375		FILLET	17W300-17	C	031574	071186		WWE			NW				
2	PS	BFN-18	C4 & C5	0.188	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	0.25		9.75				
2	PS	BFN-18	C6		0.375		FILLET	17W300-17	C	031574	071186		WWE			NW				
2	PS	BFN-18	C7 & C8	0.500	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	6.75						
2	PS	BFN-18	D1	0.438	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	2.50						
2	PS	BFN-18	D2	0.375	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	2.50						
2	PS	BFN-18	D3	0.313	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	0.63		1.87				
2	PS	BFN-18	D4 & D5	0.188	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	1.08		11.92				
2	PS	BFN-18	D6	0.500	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	2.50						
2	PS	BFN-18	D7 (VARIES)	0.500	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	2.50						
2	PS	BFN-18	D8	0.500	0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE	2.50						
2	PS	BFN-18	D9		0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE				5.00			
2	PS	BFN-18	D10		0.375	FILLET	FILLET	17W300-17	C	031574	071186		WWE				5.00			

TABLE 4

STRUCTURAL WELD REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

NOTES: PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EPS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

* ORG: C=CONST; N=NUCPR
** FOR NOTES SEE PAGE 6
*** A1=ACCEPT BY INSP
A2=ACC W/ NO DWG OR DET
A3=ACCEPT BY CALC
A4=[illegible] VERIFIED WELD
A5=[illegible] UNVERIFIED WELD

R1=STRUCTURE UNSTABLE
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	INSPECTED DES (WP-C-)	INSPECTED ROOM	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE (MMDDYY)	RE-INSP DATE (MMDDYY)	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-19	A-A-1	0.250		FILLET		17W300-17	N	081991	071286		WWE		1.50					
3	PS	BFN-19	A-A-2	0.188		FILLET		17W300-17	N	081991	071286		WWE		1.00	3.00				
3	PS	BFN-19	A-A-3	0.188		FILLET		17W300-17	N	081991	071286		WWE		1.00	3.00				
3	PS	BFN-19	A-A-4	0.188		FILLET		17W300-17	N	081991	071286		WWE		0.37	1.13				
3	PS	BFN-19	A-A-5	0.188		FILLET		17W300-17	N	081991	071286		WWE		0.37	1.13				
3	PS	BFN-19	A-A-6	0.188		FILLET		17W300-17	N	081991	071286		WWE		1.00	3.00				
3	PS	BFN-19	A-A-7	0.188		FILLET		17W300-17	N	081991	071286		WWE		1.00	3.00				
3	PS	BFN-19	A-A-8	0.188		FILLET		17W300-17	N	081991	071286		WWE		0.37	1.13				
3	PS	BFN-19	B-B-1	0.156		FILLET		17W300-17	N	081991	071286		WWE		0.25	1.25				
3	PS	BFN-19	B-B-2	0.156		FILLET		17W300-17	N	081991	071286		WWE		0.25	1.25				
3	PS	BFN-19	B-B-3	0.188		FILLET		17W300-17	N	081991	071286		WWE		0.37	1.13				
3	PS	BFN-19	B-B-4	0.188		FILLET		17W300-17	N	081991	071286		WWE		0.37	1.13				
3	PS	BFN-19	B-B-5	0.250		FILLET		17W300-17	N	081991	071286		WWE		1.50					
3	PS	BFN-19	B-B-6	0.188		FILLET		17W300-17	N	081991	071286		WWE		0.37	1.13				
3	PS	BFN-19	B-B-7	0.156		FILLET		17W300-17	N	081991	071286		WWE		0.25	1.25				
3	PS	BFN-19	B-B-8	0.188		FILLET		17W300-17	N	081991	071286		WWE		0.37	1.13				
3	PS	BFN-19	D-D-1	0.125		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	D-D-2	0.188		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	D-D-3	0.188		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	D-D-4	0.125		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	D-D-5	0.125		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	D-D-6	0.125		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	EE-1	0.125		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	F-F-1	0.125		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	G-G-1	0.188		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	G-G-2	0.188		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	H-H-1	0.125		FILLET		17W300-17	N	081991	071286		WWE		1.00					
3	PS	BFN-19	J-J-1	0.125		FILLET		17W300-17	N	081991	071286		WWE		1.00					

TABLE 4.2

STRUCTURAL WELDING REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG: C=CONST N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
( ) = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	ITEM (*)	INSPEC PACK / WKP-CH-DWG	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INST DATE MMDDYY	REINSP DATE MMDDYY	COMMENT (**)	EXAM BY	A	A2	A3	A4	A5	R1	R2
3	PS	BFN-19	K-K-1	0.188		FILLET		17W300-17	N	081881	071286		WWE		0.25	0.75				
3	PS	BFN-19	K-K-2	0.188		FILLET		17W300-17	N	081881	071286		WWE		1.63	4.87				
3	PS	BFN-19	K-K-3	0.250		FILLET		17W300-17	N	081881	071286		WWE		6.30					
3	PS	BFN-19	K-K-4	0.250		FILLET		17W300-17	N	081881	071286		WWE		1.00					
3	PS	BFN-19	K-K-5	0.188		FILLET		17W300-17	N	081891	071286		WWE		0.25	0.75				
3	PS	BFN-19	K-K-6	0.188		FILLET		17W300-17	N	081881	071286		WWE		1.63	4.87				
3	PS	BFN-19	K-K-7	0.250		FILLET		17W300-17	N	081881	071286		WWE		6.30					
3	PS	BFN-19	K-K-8	0.250		FILLET		17W300-17	N	081881	071286		WWE		1.00					
3	PS	BFN-19	L-L-1	0.125		FILLET		17W300-17	N	091891	071286		WWE		0.69	4.81				
3	PS	BFN-19	L-L-2	0.125		FILLET		17W300-17	N	081881	071286		WWE		0.75	1.75				
3	PS	BFN-19	L-L-3	0.125		FILLET		17W300-17	N	081881	071286		WWE		0.25	1.75				
3	PS	BFN-19	L-L-4	0.125		FILLET		17W300-17	N	081881	071286		WWE		0.69	4.81				
3	PS	BFN-19	L-L-5	0.188		FILLET		17W300-17	N	081881	071286		WWE		1.37	4.13				
3	PS	BFN-19	L-L-6	0.250		FILLET		17W300-17	N	081891	071286		WWE		2.00					
3	PS	BFN-19	L-L-7	0.250		FILLET		17W300-17	N	091891	071286		WWE		2.00					
3	PS	BFN-19	L-L-8	0.188		FILLET		17W300-17	N	081891	071286		WWE		1.37	4.13				
3	PS	BFN-19	M-1	0.188	0.188	FILLET	FILLET	17W300-17	N	081891	071286		WWE	4.00						
3	PS	BFN-19	M-2	0.188	0.188	FILLET	FILLET	17W300-17	N	081891	071286		WWE	4.00						
3	PS	BFN-19	M-3					17W300-17	N	081881	071286	NR	WWE							
3	PS	BFN-19	M-4	0.250	0.250	FILLET	FILLET	17W300-17	N	081881	071286		WWE	1.25						
3	PS	BFN-19	M-5	0.250	0.250	FILLET	FILLET	17W300-17	N	081881	071286		WWE	1.25						
3	PS	BFN-19	M-6	0.125		FILLET		17W300-17	N	081881	071286		WWE		1.00	3.00				
3	PS	BFN-19	M-7	0.188		FILLET		17W300-17	N	091891	071286		WWE		2.00	6.00				
3	PS	BFN-19	M-8	0.188		FILLET		17W300-17	N	081881	071286		WWE		2.00	6.00				
3	PS	BFN-19	M-9	0.188		FILLET		17W300-17	N	091891	071286		WWE		2.00	6.00				
3	PS	BFN-19	M-10	0.125		FILLET		17W300-17	N	091891	071286		WWE		2.00	6.00				
3	PS	BFN-19	M-11	0.125		FILLET		17W300-17	N	081881	071286		WWE		1.00	7.00				
3	PS	BFN-19	M-12	0.250	0.250	FILLET	FILLET	17W300-17	N	081881	071286		WWE	1.25						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EPB=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
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(#) ORG: C=CONST; N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTABLE
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-19	M-13	0.250	0.250	FILLET	FILLET	17W300-17	N	081[illegible]	07[illegible]84		WWE	1.25						
3	PS	BFN-19	M-14					17W300-17	N	081[illegible]	07[illegible]84	NR	WWE							
3	PS	BFN-19	M-15	0.188	0.188	FILLET	FILLET	17W300-17	N	081[illegible]	07[illegible]84		WWE	4.00						
3	PS	BFN-19	M-16	0.188	0.188	FILLET	FILLET	17W300-17	N	08[illegible]	07[illegible]84		WWE	4.00						
3	PS	BFN-19	N-1	0.188		FILLET		17W300-17	N	081[illegible]	07[illegible]84		WWE		1.63	4.87				
3	PS	BFN-19	N-2	0.188		FILLET		17W300-17	N	081[illegible]	07[illegible]84		WWE		1.63	4.87				
3	PS	BFN-19	N-3	0.188		FILLET		17W300-17	N	081[illegible]	07[illegible]84		WWE		1.63	4.87				
3	PS	BFN-19	N-4	0.188		FILLET		17W300-17	N	081[illegible]	07[illegible]84		WWE		1.63	4.87				
3	PS	BFN-20	A1	0.125		FILLET		17W300-5 & 17	C	031574	071[illegible]86		WWE		0.66	4.59				
3	PS	BFN-20	A2			BUTT		17W300-5 & 17	C	031574	07[illegible]86		WWE		2.25					
3	PS	BFN-20	A3	0.250		FILLET		17W300-5 & 17	C	031574	071186		WWE		5.25					
3	PS	BFN-20	A4	0.188		FILLET		17W300-5 & 17	C	031574	07[illegible]86		WWE		0.56	1.69				
3	PS	BFN-20	A5	0.188		FILLET		17W300-5 & 17	C	0315[illegible]	071186		WWE		0.56	1.69				
3	PS	BFN-20	A6	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.37	4.13				
3	PS	BFN-20	A7			BUTT		17W300-5 & 17	C	0315[illegible]	071186		WWE		2.50					
3	PS	BFN-20	A8	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.31	3.94				
3	PS	BFN-20	A9	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.31	3.94				
3	PS	BFN-20	A10			BUTT		17W300-5 & 17	C	031574	071186		WWE		2.50					
3	PS	BFN-20	A11	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.37	4.13				
3	PS	BFN-20	A12	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		0.56	1.69				
3	PS	BFN-20	A13	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		0.56	1.69				
3	PS	BFN-20	A14	0.250		FILLET		17W300-5 & 17	C	031574	071186		WWE		5.25					
3	PS	BFN-20	A15			BUTT		17W300-5 & 17	C	031574	071186		WWE		2.25					
3	PS	BFN-20	A16	0.375		FILLET		17W300-5 & 17	C	031574	071186		WWE		5.25					
3	PS	BFN-20	B1	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.69	5.06				
3	PS	BFN-20	B2	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		0.25	0.75				
3	PS	BFN-20	B3	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		0.25	0.75				
3	PS	BFN-20	B4	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.69	5.06				

TABLE 4.2

STRUCTURAL WELDI...

REINSPECTION DA...

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EPS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG: C=CONST; N=NUCPR
** FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTABLE
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK WP-C	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT **	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-20	B5	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.69	5.06				
3	PS	BFN-20	B6	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		0.25	0.75				
3	PS	BFN-20	B7	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		0.25	0.75				
3	PS	BFN-20	B8	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.69	5.06				
3	PS	BFN-20	C1			BUTT		17W300-5 & 17	C	031574	071186		WWE		7.75					
3	PS	BFN-20	C2	0.250		FILLET		17W300-5 & 17	C	031574	071186		WWE		6.75					
3	PS	BFN-20	C3	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.69	5.06				
3	PS	BFN-20	C4			BUTT		17W300-5 & 17	C	031574	071186		WWE		7.75					
3	PS	BFN-20	D1			BUTT		17W300-5 & 17	C	031574	071186		WWE		7.75					
3	PS	BFN-20	D2	0.188		FILLET		17W300-5 & 17	C	031574	071186		WWE		1.69	5.06				
3	PS	BFN-20	D3	0.250		FILLET		17W300-5 & 17	C	031574	071186		WWE		6.75					
3	PS	BFN-20	D4			BUTT		17W300-5 & 17	C	031574	071186		WWE		7.75					
1	PS	BFN-21	A1	0.125		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.69	4.81				
1	PS	BFN-21	A2	0.125		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.19	1.31				
1	PS	BFN-21	A3	0.125		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.19	1.31				
1	PS	BFN-21	A4	0.125		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.69	4.81				
1	PS	BFN-21	A5	0.125		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.69	4.81				
1	PS	BFN-21	A6	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.37	1.13				
1	PS	BFN-21	A7	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.37	1.13				
1	PS	BFN-21	A8	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		1.37	4.13				
1	PS	BFN-21	B1	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		1.50	4.50				
1	PS	BFN-21	B2	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.25	0.75				
1	PS	BFN-21	B3	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.25	0.75				
1	PS	BFN-21	B4	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		1.50	4.50				
1	PS	BFN-21	B5	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		1.50	4.50				
1	PS	BFN-21	B6	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		1.50	4.50				
1	PS	BFN-21	B7	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		0.25	0.75				
1	PS	BFN-21	B8	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		1.50	4.50				

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) DRAWING CONDITION N=NUCPR
** FOR NOTES SEE PAGE 67
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR RET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTABLE
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

DES ENTITY	INSPEC PKG NO	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	DFG (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	NOTE **	INSP BY	A1	A2	A3	A4	A5	R1	R2
1 PS	BFN-21	C1		0.375	BEVEL	FILLET	17W300-5 & 17	N	090381	071186	NOTE 2	SEA	8.00						
1 PS	BFN-21	C2	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		1.75	5.25				
1 PS	BFN-21	C3	0.188		FILLET		17W300-5 & 17	N	081881	071186		SEA		1.75	5.25				
1 PS	BFN-21	C4					17W300-5 & 17	N	081881	071186	NR	SEA							
1 PS	BFN-21	C5	0.625	0.375	FILLET	FILLET	17W300-5 & 17	N	081881	071186		SEA	5.00						
1 PS	BFN-21	C6	0.563	0.375	FILLET	FILLET	17W300-5 & 17	N	081881	071186		SEA	2.75						
1 PS	BFN-21	C7		0.375	FILLET	FILLET	17W300-5 & 17	N	081381	071186		SEA				5.00			
1 PS	BFN-21	D1	0.750	0.375	FILLET	FILLET	17W300-5 & 17	N	081881	071186		SEA	2.25						
1 PS	BFN-21	D2	0.750	0.375	FILLET	FILLET	17W300-5 & 17	N	081891	071186		SEA	5.00						
1 PS	BFN-21	D3	0.625	0.375	FILLET	FILLET	17W300-5 & 17	N	081881	071186		SEA	2.25						
1 PS	BFN-21	D4	0.188		FILLET		17W300-5 & 17	N	081381	071186		SEA		1.75	5.25				
1 PS	BFN-21	D5	0.250		FILLET		17W300-5 & 17	N	081681	071186		SEA		7.00					
3 PS	BFN-22	A	0.125	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	2.78		3.47				
3 PS	BFN-22	B	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	11.13		0.37				
3 PS	BFN-22	C	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	5.00						
3 PS	BFN-22	D	0.125	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	0.81		5.69				
3 PS	BFN-22	E	0.188	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB			6.00				
3 PS	BFN-22	F	0.313	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	11.50						
3 PS	BFN-22	G	0.188	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	.75		5.25				
3 PS	BFN-22	H		0.250	GROOVE	FILLET	47B588-3	C	042276	073086	NOTE 2	BB	15.00						
3 PS	BFN-22	J		0.250	GROOVE	FILLET	47B588-3	C	042276	073086	NOTE 2	BB	11.00						
3 PS	BFN-22	K	0.188	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB			1.50				
3 PS	BFN-22	L	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	17.00						
3 PS	BFN-22	M1	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	5.00						
3 PS	BFN-22	M2	0.188	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB			0.50				
3 PS	BFN-22	M3	0.375	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	1.50						
3 PS	BFN-22	M4	0.313	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	3.50						
3 PS	BFN-22	M5	0.438	0.250	FILLET	FILLET	47B588-3	C	042276	073086		BB	1.50						

TABLE 4.

STRUCTURAL WELDING REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(#) PS=PIPE SPT
IFS=INSTRUMENT FITTING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EBS=ELECT FULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
* = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (#)	INSPEC EACH TYP-C	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (##)	EXAM BY	WELD RESULT-LINEAR INCH (###) A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-22	M6	0.313	0.250	FILLET	FILLET	47B588-3	C	042276	071086		BB	1.50						
3	PS	BFN-22	N	0.125	0.250	FILLET	FILLET	47B588-3	C	042276	071086		BB			7.00				
3	PS	BFN-22	[illegible], 2, 3, 4	VARIES	0.250	FILLET	FILLET	47B588-3	C	042276	071086		BB			9.25				
3	PS	BFN-22	[illegible], 2, 3, 4			FLARE	FLARE	47B588-3	C	042276	071086	NOTE 2	BB	12.00						
3	PS	BFN-22	Q1		0.250	FILLET	FILLET	47B588-3	C	042276	071086		BB				1.50			
3	PS	BFN-22	Q2			FLARE	FLARE	47B588-3	C	042276	071086		BB			4.00				
3	PS	BFN-22	Q3		0.250	FILLET	FILLET	47B588-3	C	042276	071086		BB				2.00			
3	PS	BFN-22	Q4			FLARE	FLARE	47B588-3	C	042276	071086		BB			4.00				
3	PS	BFN-23	A1 & A2	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	13.00						
3	PS	BFN-23	A3 & A4		0.250		FILLET	47B588-3	C	042276	071486		EFH			NW				
3	PS	BFN-23	B	0.313	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	15.50						
3	PS	BFN-23	C	VARIES	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	3.60		3.40				
3	PS	BFN-23	D	0.188	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	3.25		9.75				
3	PS	BFN-23	E	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	11.50						
3	PS	BFN-23	F		0.250	BUTT	FILLET	47B588-3	C	042276	071486	NOTE 2	EFH	14.50						
3	PS	BFN-23	G		0.250	BUTT	FILLET	47B588-3	C	042276	071486	NOTE 2	EFH	14.50						
3	PS	BFN-23	H	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	11.50						
3	PS	BFN-23	J	VARIES	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	2.62		2.88				
3	PS	BFN-23	K	0.188	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	1.50		4.50				
3	PS	BFN-23	L1	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	1.75		0.25				
3	PS	BFN-23	L2	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	2.00						
3	PS	BFN-23	M	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	6.00						
3	PS	BFN-23	N	0.250	0.250	FILLET	FILLET	47B588-3	C	042276	071486		EFH	6.00						
3	PS	BFN-23	O			FL BEV	FL BEV	47B588-3	C	042276	071486	NOTE 2	EFH	9.50						
3	PS	BFN-23	P			FL FIL	FILLET	47B588-3	C	042276	071486	NOTE 2	EFH	11.00		1.00				
3	PS	BFN-23	Q			FL BEV	FL BEV	47B588-3	C	042276	071486	NOTE 2	EFH	10.00						
3	PS	BFN-24	A1 & A2	0.313		FILLET	FILLET	47W588-2	C	042276	071086		EH		5.00					
3	PS	BFN-24	A3 & A4	0.250		FILLET		47W588-2	C	042276	071086		EH		5.00					

TABLE 4.2

STRUCTURAL WELD REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

* PS=PIPE SPT
IFS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG=E:CONST; N=NUCPR
** FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NP=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	INSPEC DES (*)	PACK NO.	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE (MMDDYY)	RE-INSP DATE (MMDDYY)	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
1	PS	BFN-59	A	0.250	0.250	FILLET	FILLET	47B1349-2	N	081583	072886		EH	24.00						
1	PS	BFN-59	B	0.250	0.250	FILLET	FILLET	47B1349-2	N	081583	072886		EH	24.00						
1	PS	BFN-59	C	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	12.00						
1	PS	BFN-59	D	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	12.00						
1	PS	BFN-59	E	0.188	0.188	FILLET	FILLET	47B1349-2	N	081583	072886		EH	12.00						
1	PS	BFN-59	F	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	24.00						
1	PS	BFN-59	G			BUTT	BUTT	47B1349-2	N	081583	072886		EH	22.00						
1	PS	BFN-59	G	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	6.00						
1	PS	BFN-59	H1 & H2	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	24.00						
1	PS	BFN-59	J			FL BEV	FLBEV	47B1349-2	N	081583	072886		EH	12.00						
1	PS	BFN-59	J	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	12.00						
1	PS	BFN-59	K1	0.125	0.188	FILLET	FILLET	47B1349-2	N	081583	072886		EH	0.87		2.63				
1	PS	BFN-59	K2	0.188	0.188	FILLET	FILLET	47B1349-2	N	081583	072886		EH	3.50						
1	PS	BFN-59	L	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	3.50						
1	PS	BFN-59	M	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	3.50						
1	PS	BFN-59	N	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	3.50						
1	PS	BFN-59	O	0.125	0.125	FILLET	FILLET	47B1349-2	N	081583	072886		EH	3.50						
3	PS	BFN-60	A1	0.125	0.250	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	0.81		5.69				
3	PS	BFN-60	A2			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	5.50						
3	PS	BFN-60	A3	0.313	0.250	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	6.50						
3	PS	BFN-60	A4			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	5.50						
3	PS	BFN-60	B1	0.250	0.250	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	6.50						
3	PS	BFN-60	B2			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	B3	0.313	0.250	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	6.50						
3	PS	BFN-60	B4			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	B5	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	B6			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	6.50						
3	PS	BFN-60	B7	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	6.50						

T A B L E 4 . 2

S T R U C T U R A L W E L D I N G

R E I N S P E C T I O N D A T A

BROWNS FERRY NUCLEAR PLANT

(#) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
PTS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUC PR
** FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR EET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5 INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
( ) = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

INT	(#)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT **	EXAM BY	WELD RESULT LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-60	B8	0.250		FILLET		47B920-47,48,49	N	101384	080386		SA		2.75					
3	PS	BFN-60	B9			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA			3.00				
3	PS	BFN-60	C	0.125	0.125	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	20.00						
3	PS	BFN-60	D1	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	D2			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	3.00						
3	PS	BFN-60	D3	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	D4			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	3.00						
3	PS	BFN-60	E1	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	E2			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.25						
3	PS	BFN-60	E3	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	E4			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.25						
3	PS	BFN-60	F	0.125	0.125	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	20.00						
3	PS	BFN-60	G1			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	8.50						
3	PS	BFN-60	G2			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.25						
3	PS	BFN-60	G3			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	8.50						
3	PS	BFN-60	G4			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	2.75		NW				
3	PS	BFN-60	H1			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	H2	0.375	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.75						
3	PS	BFN-60	H3			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	H4	0.375	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.75						
3	PS	BFN-60	J			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	12.00						
3	PS	BFN-60	K1			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	K2	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.75						
3	PS	BFN-60	K3			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	K4	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.75						
3	PS	BFN-60	L1			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	L2	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.75						
3	PS	BFN-60	L3			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	5.00						

TABLE 4.7

STRUCTURAL WELDS

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING LINE SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(1) DRG: C=CONST; N=NUCPR
** FOR NOTES SEE PAGE 63
*** A1 ACCEPT BY INSP
A2 ACC WITH NO DWG OR DET
A3 ACCEPT BY CALC
A4 INACCESS VERIFIED WELD
A5 INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK NO	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	DRG (1)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT **	EXAM BY	WELD RESULT-LINEAR INCH *** A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-60	L4			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	3.25						
3	PS	BFN-60	M	0.125	0.125	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	20.00						
3	PS	BFN-60	N1			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	4.50						
3	PS	BFN-60	N2	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	N3			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	4.50						
3	PS	BFN-60	N4	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	O1			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	4.50						
3	PS	BFN-60	O2	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	O3			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	4.50						
3	PS	BFN-60	O4	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	P	0.125	0.125	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	20.00						
3	PS	BFN-60	Q THRU R					47B920-47,48,49	N	101784	080386		SA	NR						
3	PS	BFN-60	S1			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	S2			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	13.00						
3	PS	BFN-60	S3			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	S4			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	13.00						
3	PS	BFN-60	T1			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	T2			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	13.00						
3	PS	BFN-60	T3			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	T4			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	13.00						
3	PS	BFN-60	U1	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	U2			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	U3	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	U4			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	V1		0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	V2			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	V3		0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	V4			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	5.00						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(**)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 6[illegible]
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=[illegible] VERIFIED WELD
A5=[illegible] UNVERIFIED WELD

R1=STRUCTURE UN[illegible]
R2=REJECT WELD
NW=NO WELD
Y = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (**)	INSPEC PACK-C	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INS DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-60	W1			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	W2			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	12.00						
3	PS	BFN-60	W3			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	W4			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	12.00						
3	PS	BFN-60	X1			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	X2			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	12.00						
3	PS	BFN-60	X3			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	4.75						
3	PS	BFN-60	X4			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	12.00						
3	PS	BFN-60	Y	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	20.00						
3	PS	BFN-60	Z	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	20.00						
3	PS	BFN-60	AA1	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	AA2	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	AA3	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	AA4			FLARE	FLARE	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	BB	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	17.50						
3	PS	BFN-60	CC1	0.313		FILLET		47B920-47,48,49	N	101784	080386		SA		9.00					
3	PS	BFN-60	CC2	0.313		FILLET		47B920-47,48,49	N	101784	080386		SA		2.75					
3	PS	BFN-60	CC3	0.313		FILLET		47B920-47,48,49	N	101784	080386		SA		1.50					
3	PS	BFN-60	CC4	0.375	0.250	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	8.00						
3	PS	BFN-60	CC5					47B920-47,48,49	N	101784	080386	NR	SA							
3	PS	BFN-60	CC6					47B920-47,48,49	N	101784	080386	NR	SA							
3	PS	BFN-60	CC7					47B920-47,48,49	N	101784	080386	NR	SA							
3	PS	BFN-60	CC8					47B920-47,48,49	N	101784	080386	NR	SA							
3	PS	BFN-60	CC9	0.313	0.250	FILLET	FILLET	47B920-47,48,49	N	101784	080386		SA	10.00						
3	PS	BFN-60	CC10	0.313		FILLET		47B920-47,48,49	N	101784	080386		SA		2.75					
3	PS	BFN-60	DD1			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	5.00						
3	PS	BFN-60	DD2	0.250	0.188	FILLET	FILLET	47B920-47,49,49	N	101784	080386		SA	6.00						
3	PS	BFN-60	DD3			GROOVE	GROOVE	47B920-47,48,49	N	101784	080386		SA	5.00						

TABLE 4.7

STRUCTURAL WELDIN[G]

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG: C=CONST; N=NUCPR
(##) FOR NOTES SEE PAGE 67
(###) A1=ACCEPT BY INSP
A2=ACC WITH NO DWGS OR DET
A3=ACCEPT BY CALC
A4=INCORRECT VERIFIED WELD
A5=INCORRECT UNVERIFIED WELD
R1=STRUCTURE UNSTABLE
R2=REJECT WELD
X2=NO WELD
X = INACCESSIBLE
R=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	INSPECT PKG #	REF DWG	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (##)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-60	DD4	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	6.00						
3	PS	BFN-60	EE1	0.313		FILLET		47B920-47,48,49	N	101384	080386		SA		9.00					
3	PS	BFN-60	EE2	0.313		FILLET		47B920-47,48,49	N	101384	080386		SA		2.75					
3	PS	BFN-60	EE3	0.438	0.250	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	8.00						
3	PS	BFN-60	EE4					47B920-47,48,49	N	101384	080386	VR	SA							
3	PS	BFN-60	EE5					47B920-47,48,49	N	101384	080386	VR	SA							
3	PS	BFN-60	EE6					47B920-47,48,49	N	101384	080386	VR	SA							
3	PS	BFN-60	EE7					47B920-47,48,49	N	101384	080386	VR	SA							
3	PS	BFN-60	EE8	0.438	0.250	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	8.00						
3	PS	BFN-60	EE9	0.313		FILLET		47B920-47,48,49	N	101384	080386		SA		2.00					
3	PS	BFN-60	EE10	0.313		FILLET		47B920-47,48,49	N	101384	080386		SA		2.75					
3	PS	BFN-60	FF1			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	FF2	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	6.00						
3	PS	BFN-60	FF3			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	FF4	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	6.00						
3	PS	BFN-60	GG1	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	GG2	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	GG3	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	GG4	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	HH1	0.188	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	HH2			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	HH3	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	HH4			FLARE	FLARE	47B920-47,48,49	N	101384	080386		SA	5.00						
3	PS	BFN-60	JJ1	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.78						
3	PS	BFN-60	JJ2	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.25						
3	PS	BFN-60	KK1	0.438	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	5.75						
3	PS	BFN-60	KK2	0.375	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	5.75						
3	PS	BFN-60	LL1	0.438	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

***PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

* ORG: C=CONST, N=NUCPR
** FOR NOTES SEE PAGE 63
*** A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTABLE
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT***	DES	INSPECT PACK NO.	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-60	LL2	0.375	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	MM1	0.438	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	MM2	0.500	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.25						
3	PS	BFN-60	NN1	0.500	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.00						
3	PS	BFN-60	NN2	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.25						
3	PS	BFN-60	OO1	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.25						
3	PS	BFN-60	OO2	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.00						
3	PS	BFN-60	PP1	0.438	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	PP2	0.438	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	QQ1	0.375	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.25						
3	PS	BFN-60	QQ2	0.250	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	RR1	0.313	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	1.07		3.28				
3	PS	BFN-60	RR2	0.375	0.313	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	5.75						
3	PS	BFN-60	SS1	0.250	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	5.50						
3	PS	BFN-60	SS2	0.313	0.188	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.50						
3	PS	BFN-60	TT1	VARIES	0.375	SK FIL	SK FIL	47B920-47,48,49	N	101384	080386		SA	4.25						
3	PS	BFN-60	TT2	0.313	0.375	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	1.25		3.75				
3	PS	BFN-60	TT3			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	7.00						
3	PS	BFN-60	TT4	0.375	0.375	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.75						
3	PS	BFN-60	UU1	0.313	0.375	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	7.00						
3	PS	BFN-60	UU2	0.375	0.375	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	1.25		3.75				
3	PS	BFN-60	UU3			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	7.00						
3	PS	BFN-60	UU4	0.375	0.375	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.75						
3	PS	BFN-60	VV1	VARIES	0.375	SK FIL	FILLET	47B920-47,48,49	N	101384	080386		SA	7.00						
3	PS	BFN-60	VV2	0.375	0.375	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	1.25		3.75				
3	PS	BFN-60	VV3			GROOVE	GROOVE	47B920-47,48,49	N	101384	080386		SA	7.00						
3	PS	BFN-60	VV4	0.313	0.375	FILLET	FILLET	47B920-47,48,49	N	101384	080386		SA	4.75						
3	PS	BFN-60	WW1	VARIES	0.375	SK FIL	FILLET	47B920-47,48,49	N	101384	080386		SA	1.75		5.25				

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(**) ORG:C=CONST;N=NUCPR
(***) FOR NOTES SEE PAGE 67
(****) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	SUPP TYPE (*)	INSPEC PACK NO.	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (**)	ORIG INSP DATE MMDDYY	REINSP DATE MMDDYY	COMMENT (***)	EXAM BY	WELD RESULT-LINEAR INCH (****) A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-60	WW2	0.313	0.375	FILLET	FILLET	47B920-47,49,49	N	101?84	080384		SA	1.9?		5.44				
3	PS	BFN-60	WW3			GROOVE	GROOVE	47B920-47,48,49	N	101?84	080384		SA	5.50						
3	PS	BFN-60	WW4	0.375	0.375	FILLET	FILLET	47B920-47,49,49	N	101?84	080384		SA	[illegible].25						
3	PS	BFN-60	XX1	VARIES	0.375	SK FIL	FILLET	47B920-47,48,49	N	101?84	080384		SA	0.46		5.06				
3	PS	BFN-60	XX2	VARIES	0.375	SK FIL	FILLET	47B920-47,49,49	N	101?84	080384		SA	0.87		6.13				
3	PS	BFN-60	XX3			GROOVE	GROOVE	47B920-47,48,49	N	101?84	080384		SA	[illegible].50						
3	PS	BFN-60	XX4	VARIES	0.375	FILLET	FILLET	47B920-47,48,49	N	101?84	080386		SA	0.87		6.13				
3	PS	BFN-60	YY1	VARIES	0.375	SK FIL	FILLET	47B920-47,48,49	N	101?84	080386		SA	0.42		4.58				
3	PS	BFN-60	YY2	0.563	0.375	FILLET	FILLET	47B920-47,48,49	N	101?84	080386		SA	7.00						
3	PS	BFN-60	YY3			GROOVE	GROOVE	47B920-47,48,49	N	101?84	080386		SA	5.00						
3	PS	BFN-60	YY4	0.563	0.375	FILLET	FILLET	47B920-47,48,49	N	101?84	080386		SA	6.50						
3	PS	BFN-60	ZZ1	VARIES	0.375	SK FIL	FILLET	47B920-47,48,49	N	101?84	080386		SA	0.39		4.36				
3	PS	BFN-60	ZZ2	VARIES	0.375	FILLET	FILLET	47B920-47,48,49	N	101?84	080386		SA	1.63		4.87				
3	PS	BFN-60	ZZ3			GROOVE	GROOVE	47B920-47,48,49	N	101?84	080386		SA	5.00						
3	PS	BFN-60	ZZ4	VARIES	0.375	FILLET	FILLET	47B920-47,48,49	N	101?84	080386		SA	1.63		4.87				
3	PS	BFN-60	AAA1	VARIES	0.375	SK FIL	FILLET	47B920-47,48,49	N	101?84	080386		SA	0.63		4.37				
3	PS	BFN-60	AAA2	0.500	0.375	FILLET	FILLET	47B920-47,48,49	N	101?84	080386		SA	7.00						
3	PS	BFN-60	AAA3			GROOVE	GROOVE	47B920-47,48,49	N	101?84	080386		SA	5.00						
3	PS	BFN-60	AAA4	0.438	0.375	FILLET	FILLET	47B920-47,48,49	N	101?84	080386		SA	7.00						
1	PS	BFN-61	A	0.313		FILLET		30W615-3	C	NA	072886		CF		14.25					
1	PS	BFN-61	B	0.313		FILLET		30W615-3	C	NA	072886		CF		14.25					
1	PS	BFN-61	C	0.313		FILLET		30W615-3	C	NA	072886		CF		14.25					
1	PS	BFN-61	D	0.313		FILLET		30W615-3	C	NA	072886		CF		14.25					
1	PS	BFN-62	A	0.188	0.188	FILLET	FILLET	47A452-874	N	072183	072386		CF	32.00						
1	PS	BFN-62	B			FILLET	FILLET	47A452-874	N	072183	072386		CF	32.00						
1	PS	BFN-62	C	0.188	0.188	FILLET	FILLET	47A452-874	N	072183	072386		CF	4.50						
3	PS	BFN-64	A	0.250	0.250	FILLET	FILLET	48N1217-1 R1	N	061576	080286		EB	31.00						
3	PS	BFN-64	B	0.250	0.250	FILLET	FILLET	48N1217-1 R1	N	061576	080286		EB	31.00						

TABLE 4.7

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
\#\# FOR NOTES SEE PAGE 63
(##\#) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTABLE
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	SEE (*)	INSPEC PACK	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT \#\#	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	PS	BFN-64	C1-6	0.313		FILLET		48N1217-1 R1	N	061576	080286		EB		17.00					
3	PS	BFN-64	D1, 3, 4, 6&7	0.250	0.250	FILLET	FILLET	48N1217-1 R1	N	061576	080286		EP	31.50						
3	PS	BFN-64	D2 & D5					48N1217-1 R1	N	061576	080286	NR	EB							
3	PS	BFN-64	E1, 3, 4, 6&7	0.250	0.250	FILLET	FILLET	48N1217-1 R1	N	061576	080286		EP	31.50						
3	PS	BFN-64	E2 & E5					48N1217-1 R1	N	061576	080286	NR	EB							
3	PS	BFN-64	F1 & F2			GROOVE		48N1217-1 R1	N	061576	080286		EP	8.50						
3	PS	BFN-64	G1 &G2			GROOVE	GROOVE	48N1217-1 R1	N	061576	080286		EB	8.50						
3	PS	BFN-64	H1 & H2			GROOVE	GROOVE	48N1217-1 R1	N	061576	080286		EP	8.50						
3	PS	BFN-64	J1 & J2			GROOVE	GROOVE	48N1217-1 R1	N	061576	080286		EB	8.50						
3	PS	BFN-64	K	0.250	0.250	FILLET	FILLET	48N1217-1 R1	N	061576	080286		EB	10.00						
3	PS	BFN-64	L	0.250	0.250	FILLET	FILLET	48N1217-1 R1	N	061576	080286		EB	10.00						
3	PS	BFN-64	M	0.250	0.250	FILLET	FILLET	48N1217-1 R1	N	061576	080286		EP	10.00						
3	PS	BFN-64	N	0.250	0.250	FILLET	FILLET	48N1217-1 R1	N	061576	080286		EP	10.00						

T A B L E 4 . 2

S T R U C T U R A L W E L D I N G

R E I N S P E C T I O N D A T A

BROWNS FERRY NUCLEAR PLANT

(#) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (#)	INSPEC PACK AF-CH	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
2	IPS	BFN-47	A1	0.063		FILLET		SKETCHES	C	NA	071386		BP		0.44	1.31				
2	IPS	BFN-47	A2	0.063		FILLET		SKETCHES	C	NA	071386		BP		0.44	1.31				
2	IPS	BFN-47	A3	0.063		FILLET		SKETCHES	C	NA	071386		BP		0.41	1.22				
2	IPS	BFN-47	A4			FL BEV		SKETCHES	C	NA	071386		BP		1.75					
2	IPS	BFN-47	B1 & B3			BUTT		SKETCHES	C	NA	071386		BP		1.25					
2	IPS	BFN-47	B2					SKETCHES	C	NA	071386	NR	BP							
2	IPS	BFN-48	A1	0.188		FILLET		47B2650-327	C	NA	071386		CF		1.38	0.50				
2	IPS	BFN-48	A2	0.188		FILLET		47B2650-327	C	NA	071386		CF		1.50					
2	IPS	BFN-48	B1			FL BEV		47B2650-327	C	NA	071386		CF		5.38	0.75				
2	IPS	BFN-48	B2			FL BEV		47B2650-327	C	NA	071386		CF		4.94	1.69				
2	IPS	BFN-49	A1	0.063		FILLET		SKETCHES	C	NA	072186		CF		0.41	1.21				
2	IPS	BFN-49	A2	0.063		FILLET		SKETCHES	C	NA	072186		CF			1.63				
2	IPS	BFN-49	A3	0.063		FILLET		SKETCHES	C	NA	072186		CF		0.41	1.21				
2	IPS	BFN-49	B1	0.063		FILLET		SKETCHES	C	NA	072186		CF			1.63				
2	IPS	BFN-49	B2	0.063		FILLET		SKETCHES	C	NA	072186		CF		0.41	1.21				
2	IPS	BFN-49	B3	0.125		FILLET		SKETCHES	C	NA	072186		CF		0.41	1.21				
2	IPS	BFN-49	C1					SKETCHES	C	NA	072186	NR	CF							
2	IPS	BFN-49	C2			TACK		SKETCHES	C	NA	072186	NR	CF							
2	IPS	BFN-49	C3	0.063		FILLET		SKETCHES	C	NA	072186		CF		0.25	0.75				
2	IPS	BFN-49	D1					SKETCHES	C	NA	072186	NR	CF							
2	IPS	BFN-49	D2	0.125		FILLET		SKETCHES	C	NA	072186		CF		1.63					
2	IPS	BFN-49	D3	0.063		FILLET		SKETCHES	C	NA	072186	NONWAPPL	CF			1.62				
1	IPS	BFN-50	A			BUTT		SKETCHES	C	NA	080386		WWE		3.50					
1	IPS	BFN-50	B			BUTT		SKETCHES	C	NA	080386		WWE		4.00					
1	IPS	BFN-50	C			BUTT		SKETCHES	C	NA	080386		WWE		3.00					
1	IPS	BFN-50	D			BUTT		SKETCHES	C	NA	080386		WWE		2.63					
1	IPS	BFN-50	E			BUTT		SKETCHES	C	NA	080386		WWE						[illegible]	
1	IPS	BFN-50	F	0.250		FILLET		SKETCHES	C	NA	080386		WWE						[illegible].63	

TABLE 4.2

STRUCTURAL WELDING REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*) IPS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PSS=SELECT FULL PEN SPT
PPS=SELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG: C=CONST; N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###) A1 ACCEPT BY INSP
A2 ACC WITH NO DWG OR DET
A3 ACCEPT BY CALC
A4 UNACCESS VERIFIED WELD
A5 UNACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	INSPEC DES (*)	PACK NO WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG DWG DATE MMDDYY	REINSP DATE MMDDYY	COMMENT (##)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
1	IPS	BFN-50	G	0.313		FILLET		SKETCHES	C	NA	080386		WWE						2.63	
1	IPS	BFN-50	H			BUTT		SKETCHES	C	NA	080386		WWE						3.00	
1	IPS	BFN-50	J	0.188		FILLET		SKETCHES	C	NA	080386		WWE		2.63					
1	IPS	BFN-50	K			BUTT		SKETCHES	C	NA	080386		WWE		4.00					
1	IPS	BFN-50	L			BUTT		SKETCHES	C	NA	080386		WWE		4.00					
1	IPS	BFN-50	M			BUTT		SKETCHES	C	NA	080386		WWE		3.50					
1	IPS	BFN-50	N			BUTT		SKETCHES	C	NA	080386		WWE		3.63					
1	IPS	BFN-50	P			BUTT		SKETCHES	C	NA	080386		WWE		4.00					
1	IPS	BFN-50	Q	0.188		FILLET		SKETCHES	C	NA	080386		WWE		0.62	2.00				
1	IPS	BFN-50	R			BUTT		SKETCHES	C	NA	080386		WWE		[illegible]					
1	IPS	BFN-50	S	0.188		FILLET		SKETCHES	C	NA	080386		WWE		2.00	0.63				
1	IPS	BFN-50	T					SKETCHES	C	NA	080386		WWE				3.00			
1	IPS	BFN-50	U	0.125		FILLET		SKETCHES	C	NA	080386		WWE							1.63
1	IPS	BFN-50	V	0.125		FILLET		SKETCHES	C	NA	080386		WWE							1.63
3	IPS	BFN-51	A			BUTT		SKETCHES	C	NA	071586		SA		1.81					
3	IPS	BFN-51	B			BUTT		SKETCHES	C	NA	071586		SA		1.81					
3	IPS	BFN-51	C			BUTT		SKETCHES	C	NA	071586		SA							3.50
3	IPS	BFN-51	D			BUTT		SKETCHES	C	NA	071586		SA							3.25
3	IPS	BFN-51	E			BUTT		SKETCHES	C	NA	071586		SA							2.50
3	IPS	BFN-51	F			BUTT		SKETCHES	C	NA	071586		SA							3.25
3	IPS	BFN-51	A1			SEAL		SKETCHES	C	NA	071586		WWE							2.00
3	IPS	BFN-51	A2	0.063		FILLET		SKETCHES	C	NA	071586		WWE							1.75
3	IPS	BFN-51	B1	0.125		FILLET		SKETCHES	C	NA	071586		WWE						1.63	
3	IPS	BFN-51	B2	0.125		FILLET		SKETCHES	C	NA	071586		WWE						1.63	
3	IPS	BFN-51	B3	0.125		FILLET		SKETCHES	C	NA	071586		WWE						1.63	
3	IPS	BFN-51	C1			SEAL		SKETCHES	C	NA	071586		WWE							2.00
3	IPS	BFN-51	C2	0.063		FILLET		SKETCHES	C	NA	071586		WWE							1.75
3	IPS	BFN-51	D1					SKETCHES	C	NA	071586		WWE							NW

TABLE 4

STRUCTURAL WELDS

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

*IPS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG=O-CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT RECD PER DWG
NA=NOT APPLICABLE

UNIT	INSPEC DESC *	PACK INP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	IPS	BFN-51	D2					SKETCHES	C	NA	071584		WWE							NW
3	IPS	BFN-51	E1					SKETCHES	C	NA	071584		WWE							NW
3	IPS	BFN-51	E2			GROOVE		SKETCHES	C	NA	071584		WWE							0.38
3	IPS	BFN-52	A1	0.125		FILLET		SKETCHES	C	NA	080184		BB		1.50					
3	IPS	BFN-52	A2	0.125		FILLET		SKETCHES	C	NA	080184		BB		1.50					
3	IPS	BFN-52	B1	0.125		FILLET		SKETCHES	C	NA	080186		BB		1.50					
3	IPS	BFN-52	B2	0.125		FILLET		SKETCHES	C	NA	080186		BB		1.46	0.03				
3	IPS	BFN-52	C1			BUTT		SKETCHES	C	NA	080186		BB		1.50					
3	IPS	BFN-52	C2					SKETCHES	C	NA	080186		BB					1.50		
3	IPS	BFN-52	D1			BUTT		SKETCHES	C	NA	080186		BB		1.50					
3	IPS	BFN-52	D2			BUTT		SKETCHES	C	NA	080185		BB		1.50					
3	IPS	BFN-52	E1			BUTT		SKETCHES	C	NA	080186		BB		1.63					
3	IPS	BFN-52	E2	0.125		FILLET		SKETCHES	C	NA	080186		BB		1.63					
3	IPS	BFN-52	E3			BUTT		SKETCHES	C	NA	080186		BB		1.63					
3	IPS	BFN-52	F1			BUTT		SKETCHES	C	NA	080186		BB			0.50				
3	IPS	BFN-52	F2					SKETCHES	C	NA	080186	NR	BB							
3	IPS	BFN-52	F3			BUTT		SKETCHES	C	NA	080186		BB			0.50				
3	IPS	BFN-52	G1			BUTT		SKETCHES	C	NA	080186		BB		1.63					
3	IPS	BFN-52	G2	0.250		FILLET		SKETCHES	C	NA	080186		BB		1.63					
3	IPS	BFN-52	G3			BUTT		SKETCHES	C	NA	080184		BB		1.63					

TABLE 4.7

STRUCTURAL WELDING REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(#) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST; N=NUC PR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQ'D PER DWG
NA=NOT APPLICABLE

UNT	DES (#)	INSPEC PACK INP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	CTS	BFN-31	A1 & A2	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	20.00						
2	CTS	BFN-31	B1 THRU B8	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	36.00						
2	CTS	BFN-31	C1	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	0.63		1.97				
2	CTS	BFN-31	C2	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	1.00		1.25				
2	CTS	BFN-31	C3	0.189	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	2.25						
2	CTS	BFN-31	C4	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	0.63		1.87				
2	CTS	BFN-31	D1	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	2.50						
2	CTS	BFN-31	D2	0.250	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	0.43		1.31				
2	CTS	BFN-31	D3	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	2.25						
2	CTS	BFN-31	D4	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	2.50						
2	CTS	BFN-31	E1	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH			2.50				
2	CTS	BFN-31	E2	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH			1.50				
2	CTS	BFN-31	E3	0.188	0.163	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	1.75						
2	CTS	BFN-31	E4	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	0.63		1.87				
2	CTS	BFN-31	F1	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	2.50						
2	CTS	BFN-31	F2	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	2.25						
2	CTS	BFN-31	F3	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	1.81		0.44				
2	CTS	BFN-31	F4	0.188	0.188	FILLET	FILLET	48N1104-1105	C	NA	072286		EFH	2.50						
3	CTS	BFN-32	A1	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	10.00						
3	CTS	BFN-32	A2	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	10.00						
3	CTS	BFN-32	B1	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	5.30						
3	CTS	BFN-32	B2	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	3.00						
3	CTS	BFN-32	B3	0.375	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	5.69		0.31				
3	CTS	BFN-32	B4	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	3.00						
3	CTS	BFN-32	B5	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	5.50						
3	CTS	BFN-32	B6	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	3.00						
3	CTS	BFN-32	B7	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	6.00						
3	CTS	BFN-32	B8	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	3.00						

TABLE [illegible].2

STRUCTURAL WELDING REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG=ORIGINAL INSPECTION [illegible]
(**) FOR NOTES SEE PAGE 63
(***) [illegible] INSP
[illegible] NO DWG OR DET
[illegible] CALC
[illegible] VERIFIED WELD
[illegible] VERIFIED WELD

R1=STRUCTURE INSTR
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD FOR INS
NA=NOT APPLICABLE

UNIT	INSPEC DES	PACK	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORIG INSP RSLT	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENTS	RSLT	A1	A2	A3	A4	A5	R1	R2
3	CTS	BFN-32	C1	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.[illegible]						
3	CTS	BFN-32	C2	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.78						
3	CTS	BFN-32	C3	0.188	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.25						
3	CTS	BFN-32	C4	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.25						
3	CTS	BFN-32	D1 THRU D3	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	6.75						
3	CTS	BFN-32	D4	0.188	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.25						
3	CTS	BFN-32	E1 & E2	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	5.00						
3	CTS	BFN-32	E3 & E4	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	4.50						
3	CTS	BFN-32	F1	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.38						
3	CTS	BFN-32	F2	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.50						
3	CTS	BFN-32	F3 & F4	0.188	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	4.50						
3	CTS	BFN-32	G1	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.50						
3	CTS	BFN-32	G2	0.313	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.50						
3	CTS	BFN-32	G3 & G4	0.188	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	4.38						
3	CTS	BFN-32	H1, H2, & H4	0.250	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	4.00		2.50				
3	CTS	BFN-32	H3	0.188	0.188	FILLET	FILLET	48N1105	C	NA	080186		BB	2.13						
3	CTS	BFN-32	J1 THRU J12			BUTT		SKETCH	C	NA	080186		BB		23.75	7.75				
2	CTS	BFN-33	A1	0.125		FILLET	FILLET	48N1040 &1041	C	NA	072986	NOTE 4	BB	0.66		1.97				
2	CTS	BFN-33	A2	0.063		FILLET	FILLET	48N1040 &1041	C	NA	072986	NOTE 4	BB	0.37		2.74				
2	CTS	BFN-33	A3	0.063		FILLET	FILLET	48N1040 &1041	C	NA	072986	NOTE 4	BB	0.39		2.74				
2	CTS	BFN-33	A4	0.063		FILLET	FILLET	48N1040 &1041	C	NA	072986	NOTE 4	BB	0.37		2.74				
2	CTS	BFN-33	B1			FL BEV	FILLET	48N1040 &1041	C	NA	072986	NOTE 2	BB	2.78						
2	CTS	BFN-33	B2	0.188		FILLET	FILLET	48N1040 &1041	C	NA	072986		BB	2.[illegible]						
2	CTS	BFN-33	B3 & B4				FILLET	48N1040 &1041	C	NA	072986	NR	BB							
2	CTS	BFN-33	C1			FL BEV	FILLET	48N1040 &1041	C	NA	072986	NOTE 2	BB	2.[illegible]						
2	CTS	BFN-33	C2	0.188		FILLET	FILLET	48N1040 &1041	C	NA	072986		BB	2.50						
2	CTS	BFN-33	C3 & C4				FILLET	48N1040 &1041	C	NA	072986	NR	BB							
2	CTS	BFN-33	D1			FL BEV	FILLET	48N1040 &1041	C	NA	072986		BB	2.75						

TABLE 4.2

STRUCTURAL WELDING REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(##)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
EBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 57
(***) ...
A1-ACC ... BY INSP
A2-ACC ... DWG OR EFT
A3-ACC ... BY ...
A4-INADEQ ... WELD
A5-INADEQ ... VERIFIED WELD

R1-STRUCTURE UNSTAB
R2-REJECT WELD
NW-NO WELD
X - INACCESSIBLE
NR-NOT REQD FOR ...
NA-NOT APPLICABLE

UNIT	DES ##	INSPECT PACK. INP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT **	EXAM	A1	A2	A3	A4	A5	R1	R2
2	CTS	BFN-33	D2	0.188		FILLET	FILLET	48N1040 &1041	C	NA	072986		BB	2.[illegible]						
2	CTS	BFN-33	D3 & D4				FILLET	48N1040 &1041	C	NA	072986	NR	BB							
2	CTS	BFN-33	E1			FL BEV	FL BEV	48N1040 &1041	C	NA	072986		BB	2.50						
2	CTS	BFN-33	E2	0.188		FILLET	FILLET	48N1040 &1041	C	NA	072986		BB	2.50						
2	CTS	BFN-33	E3 & E4				FILLET	48N1040 &1041	C	NA	072986	NR	BB							
2	CTS	BFN-34	A1	0.188		FILLET	FILLET	48N1040 &1041	C	NA	080186	NOTE 3	BB	3.13						
2	CTS	BFN-34	A2	0.125		FILLET	FILLET	48N1040 &1041	C	NA	080186	NOTE 3	BB	0.79		2.74				
2	CTS	BFN-34	A3	0.125		FILLET	FILLET	48N1040 &1041	C	NA	080186	NOTE 3	BB	0.78		2.74				
2	CTS	BFN-34	A4					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	A5	0.188		FILLET	FILLET	48N1040 &1041	C	NA	080186	NOTE 3	BB	2.50						
2	CTS	BFN-34	A1-1	0.188		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	3.25						
2	CTS	BFN-34	A1-2	0.313		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	1.89						
2	CTS	BFN-34	A1-3	0.313		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	0.[illegible]						
2	CTS	BFN-34	A1-4	0.313		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	1.25						
2	CTS	BFN-34	A1-5	0.313		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	3.75						
2	CTS	BFN-34	A2-1	0.375		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	3.00						
2	CTS	BFN-34	A2-2	0.125		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	0.75		2.25				
2	CTS	BFN-34	A3-1	0.125		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	0.75		2.25				
2	CTS	BFN-34	B1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	C1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	D1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	E1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	F1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	G1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	H1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	L1			FL BEV	FL BEV	48N1040 &1041	C	NA	080186		BB	2.75						
2	CTS	BFN-34	L2	0.125		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	0.17		0.8[illegible]				
2	CTS	BFN-34	L3	0.188		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	1.25						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG: C=CONST; N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1 ACCEPT BY INSP
A2 ACC WITH NO DWG OR DET
A3 ACCEPT BY CALC
A4 INACCESS VERIFIED WELD
A5 INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I - INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	INSPECT DES	POR	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT **	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	CTS	BFN-34	L4	0.125		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	0.56						
2	CTS	BFN-34	M1			FL BEV	FL BEV	48N1040 &1041	C	NA	080186		BB	0.78						
2	CTS	BFN-34	M2			FL BEV	FL BEV	48N1040 &1041	C	NA	080186		BB	3.63						
2	CTS	BFN-34	N1			FL BEV	FL BEV	48N1040 &1041	C	NA	080186		BB	2.78						
2	CTS	BFN-34	N2	0.188		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	[illegible]						
2	CTS	BFN-34	F1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	Q1			FL BEV	FL BEV	48N1040 &1041	C	NA	080186		BB	2.50						
2	CTS	BFN-34	Q2	0.125		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	0.63		1.81				
2	CTS	BFN-34	R1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	S1			FL BEV	FL BEV	48N1040 &1041	C	NA	080186		BB	2.78						
2	CTS	BFN-34	S2	0.188		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	2.33						
2	CTS	BFN-34	T1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	U1			FL BEV	FL BEV	48N1040 &1041	C	NA	080186		BB	2.50						
2	CTS	BFN-34	U2	0.125		FILLET	FILLET	48N1040 &1041	C	NA	080186		BB	0.44		1.31				
2	CTS	BFN-34	U3					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	V1					48N1040 &1041	C	NA	080186	NR	P9							
2	CTS	BFN-34	W1			FL BEV	FL BEV	48N1040 &1041	C	NA	080186	NOTE 3	BB	2.25						
2	CTS	BFN-34	W2	0.188		FILLET	FILLET	48N1040 &1041	C	NA	080186	NOTE 3	BB	2.25						
2	CTS	BFN-34	X1					48N1040 &1041	C	NA	080186	NR	BB							
2	CTS	BFN-34	Y1			FL BEV	FL BEV	48N1040 &1041	C	NA	080186	NOTE 3	BB	2.50						
2	CTS	BFN-34	Y2	0.188		FILLET	FILLET	48N1040 &1041	C	NA	080186	NOTE 3	BB	2.50						
2	CTS	BFN-34	Z1					48N1040 &1041	C	NA	080186	NR	BB							
3	CTS	BFN-35	A	0.375		FILLET	GROOVE	49N897-12	C	031474	071586	NOTE 3	EFH	20.00						
3	CTS	BFN-35	B	0.188	0.188	FILLET	FILLET	48N897-12	C	031474	071586		EFH	8.00						
3	CTS	BFN-35	C	0.188	0.188	FILLET	FILLET	48N897-12	C	031474	071586		EFH	8.00						
3	CTS	BFN-35	D	0.188	0.188	FILLET	FILLET	48N897-12	C	031474	071586		EFH	8.00						
3	CTS	BFN-35	E	0.188	0.188	FILLET	FILLET	48N897-12	C	031474	071586		EFH	8.00						
3	CTS	BFN-35	F	0.188	0.188	FILLET	FILLET	48N897-12	C	031474	071586		EFH	7.31		0.49				

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCEN
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD FOR DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK INP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
2	CS	BFN-36	A	0.250	0.250	FILLET	FILLET	45A800-139	N	072485	071386		EH	16.00						
2	CS	BFN-36	B	0.186	0.188	FILLET	FILLET	45A800-139	N	072485	071386		EH	16.00						
2	CS	BFN-36	C1 THRU C3	0.188	0.188	FILLET	FILLET	45A800-139	N	072485	071386		EH	12.00						
2	CS	BFN-36	C4	0.188	0.188	FILLET	FILLET	45A800-139	N	072485	071386		EH	4.00						
2	CS	BFN-36	D	0.125	0.125	FILLET	FILLET	45A800-139	N	072485	071386		EH	26.00						
2	CS	BFN-36	E	0.125	0.125	FILLET	FILLET	45A800-139	N	072485	071386		EH	26.00						
2	CS	BFN-36	F			FL BEV	FL BEV	45A800-139	N	072485	071386		EH	26.00						
2	CS	BFN-36	G			FL BEV	FL BEV	45A800-139	N	072485	071386		EH	26.00						
2	CS	BFN-36	H	0.250	0.250	FILLET	FILLET	45A800-139	N	072485	071386		EH	26.00						
2	CS	BFN-36	J	0.188	0.188	FILLET	FILLET	45A800-139	N	072485	071386		EH	16.00						
2	CS	BFN-36	K	0.188	0.188	FILLET	FILLET	45A800-139	N	072485	071386		EH	16.00						
1	CS	BFN-37	A1	0.188		FILLET		SKETCHES	C	NA	072086		EFH		3.50					
1	CS	BFN-37	A2					SKETCHES	C	NA	072086	NR	EFH							
1	CS	BFN-37	A3					SKETCHES	C	NA	072086	NR	EFH							
1	CS	BFN-37	A4	0.188		FILLET		SKETCHES	C	NA	072086		EFH		3.50					
1	CS	BFN-37	B1	0.188		FILLET		SKETCHES	C	NA	072086		EFH			3.88				
1	CS	BFN-37	B2					SKETCHES	C	NA	072086	NR	EFH							
1	CS	BFN-37	B3					SKETCHES	C	NA	072086	NR	EFH							
1	CS	BFN-37	B4	0.125		FILLET		SKETCHES	C	NA	072086		EFH			3.37				
1	CS	BFN-37	C1	0.125		FILLET		SKETCHES	C	NA	072086		EFH		1.63					
1	CS	BFN-37	C2	0.125		FILLET		SKETCHES	C	NA	072086		EFH		1.63					
1	CS	BFN-37	C3	0.125		FILLET		SKETCHES	C	NA	072086		EFH		1.63					
1	CS	BFN-37	D1	0.125		FILLET		SKETCHES	C	NA	072086		EFH		1.63					
1	CS	BFN-37	D2	0.125		FILLET		SKETCHES	C	NA	072086		EFH		1.63					
1	CS	BFN-37	D3	0.125		FILLET		SKETCHES	C	NA	072086		EFH		1.38					
1	CS	BFN-37	E1	0.063		FILLET		SKETCHES	C	NA	072086		EFH		0.25	0.75				
1	CS	BFN-37	E2	0.063		SEAL		SKETCHES	C	NA	072086		EFH			1.00				
1	CS	BFN-37	E3	0.125		FILLET		SKETCHES	C	NA	072086		EFH		1.88					

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG: C=CONST; N=NUCPR
(**) FOR NOTES SEE PAGE 67
(***) A1=ACCEPT BY VWGP
A2=ACC WITH [illegible] DWG OR DET
A3=ACCEPT BY [illegible]
A4=INACCESS [illegible] D WELD
A5=INC [illegible] IED WELD

R1=STRUCTURE UNST[illegible]
R2 REJECT WELD
NW NO WELD
X INACCESSIBLE
NR NOT R[illegible] FOR [illegible]
NA NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK NO	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
1	CS	BFN-37	F1			BUTT		SKETCHES	C	NA	072086		EFH		1.63					
1	CS	BFN-37	F2			BUTT		SKETCHES	C	NA	072086		EFH		1.63					
1	CS	BFN-37	F3			BUTT		SKETCHES	C	NA	072086		EFH		1.63					
1	CS	BFN-38	A1	0.125		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH			1.75				
1	CS	BFN-38	A2					SKETCHES	C	NA	071986		EFH			NW				
1	CS	BFN-38	A3	0.125		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH			1.00				
1	CS	BFN-38	A4					SKETCHES	C	NA	071986		EFH			NW				
1	CS	BFN-38	B1					SKETCHES	C	NA	071986	NOTE 1	EFH		2.00					
1	CS	BFN-38	B2	0.188		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH		2.00					
1	CS	BFN-38	B3			SEAL		SKETCHES	C	NA	071986	NOTE 1	EFH			2.00				
1	CS	BFN-38	B4	0.125		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH		0.50	1.50				
1	CS	BFN-38	C1					SKETCHES	C	NA	071986	NOTE 1	EFH		1.50					
1	CS	BFN-39	C2	0.188		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH			2.00				
1	CS	BFN-38	C3			SEAL		SKETCHES	C	NA	071986	NOTE 1	EFH			1.50				
1	CS	BFN-38	C4	0.188		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH		2.00					
1	CS	BFN-38	D1	0.188		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH		1.00					
1	CS	BFN-38	D2					SKETCHES	C	NA	071986		EFH			NW				
1	CS	BFN-38	D3					SKETCHES	C	NA	071986	NOTE 1	EFH			1.00				
1	CS	BFN-38	D4					SKETCHES	C	NA	071986		EFH			NW				
1	CS	BFN-38	E1			FL BEV		SKETCHES	C	NA	071986	NOTE 1	EFH		0.81					
1	CS	BFN-38	E2			FL BEV		SKETCHES	C	NA	071986	NOTE 1	EFH		0.81					
1	CS	BFN-38	F1			FL BEV		SKETCHES	C	NA	071986	NOTE 1	EFH		0.81					
1	CS	BFN-38	F2			FL BEV		SKETCHES	C	NA	071986	NOTE 1	EFH		0.81					
1	CS	BFN-38	G1	0.125		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH		0.81					
1	CS	BFN-38	G2	0.125		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH		0.81					
1	CS	BFN-38	H1	0.125		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH		0.81					
1	CS	BFN-38	H2	0.125		FILLET		SKETCHES	C	NA	071986	NOTE 1	EFH		0.81					
1	CS	BFN-39	A1			GROVE		SKETCHES	C	NA	072386		BB		1.63					

TABLE 4.?

STRUCTURAL WELDING REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER D&S
NA=NOT APPLICABLE

UNIT	INSPEC DES (*)	LOCA MF-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	TOPI6 INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
1	CS	BFN-39	A2	0.125		FILLET		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	A3	0.125		FILLET		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	B1			GROVE		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	B2	0.125		FILLET		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	B3	0.125		FILLET		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	C1			FL BEV		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	C2			FL BEV		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	C3					SKETCHES	C	NA	072386	NR	BB							
1	CS	BFN-39	D1			FL BEV		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	D2			FL BEV		SKETCHES	C	NA	072386		BB		1.63					
1	CS	BFN-39	D3					SKETCHES	C	NA	072386	NR	BB							
1	CS	BFN-40	A-A-1	0.125		FILLET		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-2	0.125		FILLET		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-3	0.125		FILLET		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-4			BUTT		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-5			FL BEV		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-6			FL BEV		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-7			FL BEV		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-8			FL BEV		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-9			BUTT		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-10	0.125		FILLET		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-11	0.125		FILLET		SKETCHES	C	NA	071286		SA		1.63					
1	CS	BFN-40	A-A-12	0.125		FILLET		SKETCHES	C	NA	071286		SA		1.63					
2	CS	BFN-63	A	0.250	0.250	FILLET	FILLET	45A800-128 RS	N	092385	072986		CF	24.00						
2	CS	BFN-63	B	0.250	0.250	FILLET	FILLET	45A800-128 RS	N	092385	072986		CF	8.00						
2	CS	BFN-63	C	0.250	0.250	FILLET	FILLET	45A800-128 RS	N	092385	072986		CF	16.00						
2	CS	BFN-63	D	0.125	0.125	FILLET	FILLET	45A800-128 RS	N	092385	072986		CF	24.00						
2	CS	BFN-63	E	0.125	0.125	FILLET	FILLET	45A800-128 RS	N	092385	072986		CF	48.00						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(#)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORS:C=CONST;N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###)A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NP=NOT REQD PER EXS
NA=NOT APPLICABLE

UNIT	DES (#)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORS (#)	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT ##	EXAM BY	WELD RESULT-LINEAR INCH (###) A1	A2	A3	A4	A5	R1	R2
2	CS	BFN-63	F			FL BEV	FL BEV	450900-128 R5	N	092385	072986		CF	48.00						
2	CS	BFN-63	G			FL BEV	FL BEV	45A800-128 R5	N	092385	072986		CF	48.00						
2	CS	BFN-63	H			FILLET	FILLET	450900-128 R5	N	092385	072986		CF	48.00						
2	CS	BFN-67	A			SEAL		SKETCHES	C	NA	080186		WWE			6.00				
2	CS	BFN-67	B			FL BEV		SKETCHES	C	NA	080186		WWE		6.00					
2	CS	BFN-67	C			FL BEV		SKETCHES	C	NA	080186		WWE		6.00					
2	CS	BFN-67	D			FL BEV		SKETCHES	C	NA	080186		WWE		6.00					
2	CS	BFN-67	E			BUTT		SKETCHES	C	NA	080186		WWE		3.00					
2	CS	BFN-67	G					SKETCHES	C	NA	080186	NR	WWE							
2	CS	BFN-67	H			BUTT		SKETCHES	C	NA	080186		WWE		3.00					
2	CS	BFN-67	I	0.250		FILLET		SKETCHES	C	NA	080186		WWE		3.00					
2	CS	BFN-67	J			BUTT		SKETCHES	C	NA	080186		WWE		6.00					
2	CS	BFN-67	K	0.188		FILLET		SKETCHES	C	NA	080186		WWE		3.00					
2	CS	BFN-67	L					SKETCHES	C	NA	080186	NR	WWE							
2	CS	BFN-67	M					SKETCHES	C	NA	080186	NR	WWE							
2	CS	BFN-67	N					SKETCHES	C	NA	080186	NR	WWE							
2	CS	BFN-67	O	0.188		FILLET		SKETCHES	C	NA	080186		WWE		2.13					
2	CS	BFN-67	P			BUTT		SKETCHES	C	NA	080186		WWE		6.00					
2	CS	BFN-67	Q	0.125		FILLET		SKETCHES	C	NA	080186		WWE		0.53	1.59				
2	CS	BFN-67	R	0.125		FILLET		SKETCHES	C	NA	080186		WWE		0.40	1.22				
2	CS	BFN-67	S	0.125		FILLET		SKETCHES	C	NA	080186		WWE		1.22	3.66				
2	CS	BFN-67	T	0.125		FILLET		SKETCHES	C	NA	080186		WWE		0.40	1.22				
2	CS	BFN-67	U			FL BEV		SKETCHES	C	NA	080186		WWE		2.75					
2	CS	BFN-67	V			FL BEV		SKETCHES	C	NA	080186		WWE		2.00					
2	CS	BFN-67	W			FL BEV		SKETCHES	C	NA	080186		WWE		2.00					
2	CS	BFN-67	X			FL BEV		SKETCHES	C	NA	080186		WWE		2.50					
2	CS	BFN-67	Y			FL BEV		SKETCHES	C	NA	080186		WWE		1.50					
2	CS	BFN-67	Z			FL BEV		SKETCHES	C	NA	080186		WWE		2.00					

TABLE 4.2

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNST43
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER 245
NA=NOT APPLICABLE

UNT	ISEE (*)	INSPEC PACK NO-D-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
3	PBS	BFN-41	AA1					SKETCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	AA2	0.063		FILLET		SKETCHES	C	NA	072086		CF		3.00	9.00				
3	PBS	BFN-41	AA3			SEAL		SKETCHES	C	NA	072086		CF			1.63				
3	PBS	BFN-41	BB1			SEAL		SKETCHES	C	NA	072086		CF			1.63				
3	PBS	BFN-41	BB2	0.063		FILLET		SKETCHES	C	NA	072086		CF		2.88	8.62				
3	PBS	BFN-41	BB3					SKETCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	PA1	0.156		FILLET		SKETCHES	C	NA	072086		CF		1.50					
3	PBS	BFN-41	PA2	0.188		FILLET		SKETCHES	C	NA	072086		CF		3.50					
3	PBS	BFN-41	PA3					SKETCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	PA4	0.188		FILLET		SKETCHES	C	NA	072086		CF		3.75					
3	PBS	BFN-41	PB1					SKETCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	PB2	0.188		FILLET		SKETCHES	C	NA	072086		CF		3.00					
3	PBS	BFN-41	PB3					SKETCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	PB4	0.188		FILLET		SKETCHES	C	NA	072086		CF		3.00					
3	PBS	BFN-41	PC1					-TCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	PC2	0.125		FILLET		SK CHES	C	NA	072086		CF		1.25	3.75				
3	PBS	BFN-41	PC3					SKETCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	PC4	0.125		FILLET		SKETCHES	C	NA	072086		CF		1.25	3.75				
3	PBS	BFN-41	PD1					SKETCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	PD2	0.188		FILLET		SKETCHES	C	NA	072086		CF		5.00					
3	PBS	BFN-41	PD3					SKETCHES	C	NA	072086	NR	CF							
3	PBS	BFN-41	PD4	0.188		FILLET		SKETCHES	C	NA	072086		CF		5.00					
1	PBS	BFN-42	A1					SKETCHES	C	NA	072586		BB					1.63		
1	PBS	BFN-42	A2 THRU A7	0.250		FL BEV		SKETCHES	C	NA	072586		BB		12.25					
1	PBS	BFN-42	B1					SKETCHES	C	NA	072586		BB					1.63		
1	PBS	BFN-42	B2 THRU B7	0.250		FL BEV		SKETCHES	C	NA	072586		BB		12.25					
1	EPS	BFN-43	1	0.063	0.063	FILLET	FILLET	48N1124	N	030576	072386		CF	1.63						
1	EPS	BFN-43	10	0.625	0.063	FILLET	FILLET	48N1124	N	030576	072386		CF	3.00						

TABLE 4.2

(#)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(#) ORG:C=CONST;N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (#)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (##)	EXAM BY	WELD RESULT-LINEAR INCH (###) A1	A2	A3	A4	A5	R1	R2
1	EPS	BFN-43	11 & 12	0.125	0.063	FILLET	FILLET	48N1124	N	030576	072386		CF	3.75						
1	EPS	BFN-43	13	0.188	0.063	FILLET	FILLET	48N1124	N	030576	072386		CF	1.50		0.50				
1	EPS	BFN-43	14	0.188	0.063	FILLET	FILLET	48N1124	N	030576	072386		CF	1.12		0.13				
1	EPS	BFN-43	2 & 3	0.188	0.063	FILLET	FILLET	48N1124	N	030576	072386		CF	2.50						
1	EPS	BFN-43	4 THRU 9	0.125	0.063	FILLET	FILLET	48N1124	N	030576	072386		CF	12.38						
2	EPS	BFN-69	A	0.250	0.250	FILLET	FILLET	48N1244-3 R6	N	122283	080186		EB	13.75						
2	EPS	BFN-69	B	0.250	0.250	FILLET	FILLET	48N1244-3 R6	N	122283	080186		EB	13.75						
2	EPS	BFN-69	C	0.250	0.250	FILLET	FILLET	48N1244-3 R6	N	122283	080186		EB	13.75						
2	EPS	BFN-69	D	0.250	0.250	FILLET	FILLET	48N1244-3 R6	N	122283	080186		EB	13.75						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###)A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT ##	EXAM BY	WELD RESULT-LINEAR INCH (###) A1	A2	A3	A4	A5	R1	R2
3	IS	BFN-44	A1 THRU A6	0.188		FILLET		SKETCHES	C	NA	071286		CF		12.00					
3	IS	BFN-44	B	0.188		FILLET		SKETCHES	C	NA	071286		CF		12.00					
3	IS	BFN-44	C1 THRU C5	0.188		FILLET		SKETCHES	C	NA	071286		CF		9.00					
3	IS	BFN-44	C6			BUTT		SKETCHES	C	NA	071286		CF		3.00					
3	IS	BFN-44	D1			BUTT		SKETCHES	C	NA	071286		CF		1.50					
3	IS	BFN-44	D2			SEAL		SKETCHES	C	NA	071286		CF			1.50				
3	IS	BFN-44	D3	0.188		FILLET		SKETCHES	C	NA	071286		CF		6.25					
3	IS	BFN-44	D4					SKETCHES	C	NA	071286	NR	CF							
3	IS	BFN-44	D5			BUTT		SKETCHES	C	NA	071286		CF		1.50					
3	IS	BFN-44	D6			SEAL		SKETCHES	C	NA	071286		CF			1.50				
3	IS	BFN-44	D7	1.875		FILLET		SKETCHES	C	NA	071286		CF		3.75					
3	IS	BFN-44	E1			BUTT		SKETCHES	C	NA	071286		CF		1.50					
3	IS	BFN-44	E2 THRU E5	0.188		FILLET		SKETCHES	C	NA	071286		CF		7.50					
3	IS	BFN-44	E6			BUTT		SKETCHES	C	NA	071286		CF		3.00					
3	IS	BFN-44	F1			BUTT		SKETCHES	C	NA	071286		CF		1.50					
3	IS	BFN-44	F2 THRU F5	0.188		FILLET		SKETCHES	C	NA	071286		CF		7.50					
3	IS	BFN-44	F6			BUTT		SKETCHES	C	NA	071286		CF		3.00					
3	IS	BFN-44	G1			BUTT		SKETCHES	C	NA	071286		CF		1.50					
3	IS	BFN-44	G2			SEAL		SKETCHES	C	NA	071286		CF			1.50				
3	IS	BFN-44	G3	0.188		FILLET		SKETCHES	C	NA	071286		CF		6.25					
3	IS	BFN-44	G4					SKETCHES	C	NA	071286	NR	CF							
3	IS	BFN-44	G5			BUTT		SKETCHES	C	NA	071286		CF		1.50					
3	IS	BFN-44	G6			SEAL		SKETCHES	C	NA	071286		CF			1.50				
3	IS	BFN-44	G7	0.188		FILLET		SKETCHES	C	NA	071286		CF		3.75					
3	IS	BFN-44	H1 THRU H5	0.188		FILLET		SKETCHES	C	NA	071286		CF		9.00					
3	IS	BFN-44	H6			BUTT		SKETCHES	C	NA	071286		CF		3.00					
3	IS	BFN-44	J	0.188		FILLET		SKETCHES	C	NA	071286		CF		12.00					
3	IS	BFN-44	K	0.188		FILLET		SKETCHES	C	NA	071286		CF		12.00					

TABLE 4.2

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	IDEE (*)	INSPEC PACK IWP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH *** A1	A2	A3	A4	A5	R1	R2
1	IS	BFN-45	1 THRU 18	0.188		FILLET		48N1244-2	N	05148	071886		SA	48.25						
1,2	IS	BFN-46	A (VARIES)	0.125		FILLET		SKETCHES	C	NA	072486		BB		95.50					
1,2	IS	BFN-46	B					SKETCHES	C	NA	072486	NR	BB							
1,2	IS	BFN-46	C (VARIES)	0.125		FILLET		SKETCHES	C	NA	072486		BB		95.50					
1,2	IS	BFN-46	D					SKETCHES	C	NA	072486	NR	BB							
2	MISC	BFN-53	A1	0.250		FILLET	FILLET	48N921 R7	C	NA	072086		EH	3.50						
2	MISC	BFN-53	A2	0.250		FILLET	FILLET	48N921 R7	C	NA	072086		EH	3.00						
2	MISC	BFN-53	A3	0.250		FILLET	FILLET	48N921 R7	C	NA	072086		EH	3.50						
2	MISC	BFN-53	B1	0.313	0.188	SQ BUT	FILLET	48N921 R7	C	NA	072086	NOTE 2	EH	3.50						
2	MISC	BFN-53	B2		0.188		FILLET	48N921 R7	C	NA	072086		EH			NW				
2	MISC	BFN-53	C1	0.188	0.188	FILLET	FILLET	48N921 R7	C	NA	072086		EH	3.13						
2	MISC	BFN-53	C2		0.188		FILLET	48N921 R7	C	NA	072086		EH			NW				
2	MISC	BFN-53	D1		0.188		FILLET	48N921 R7	C	NA	072086		EH			NW				
2	MISC	BFN-53	D2	0.313	0.188	SQ BUT	FILLET	48N921 R7	C	NA	072086	NOTE 2	EH	3.50						
2	MISC	BFN-53	E1	0.375	0.250	FILLET	FILLET	48N921 R7	C	NA	072086		EH			5.00				
2	MISC	BFN-53	E2		0.188		FILLET	48N921 R7	C	NA	072086		EH			NW				
2	MISC	BFN-53	F1	0.188	0.188	FILLET	FILLET	48N921 R7	C	NA	072086		EH	4.63						
2	MISC	BFN-53	F2		0.188		FILLET	48N921 R7	C	NA	072086		EH			NW				
2	MISC	BFN-53	G1		0.188		FILLET	48N921 R7	C	NA	072086		EH			NW				
2	MISC	BFN-53	G2	0.500	0.250	FILLET	FILLET	48N921 R7	C	NA	072086		EH			5.00				
2	MISC	BFN-53	H1	0.375		FILLET		48N921 R7	C	NA	072086		EH		3.00					
3	MISC	BFN-54	A1 & A2	0.250	0.250	FILLET	FILLET	48N944-24	C	NA	080386		WE	9.50						
3	MISC	BFN-54	A3 THRU A8	0.188	0.250	FILLET	FILLET	48N944-24	C	NA	080386		WE	7.25		21.74				
3	MISC	BFN-54	B1 THRU B4	0.188	0.250	FILLET	FILLET	48N944-24	C	NA	080386		WE	4.82		14.43				
3	MISC	BFN-54	B5	0.250	0.250	FILLET	FILLET	48N944-24	C	NA	080386		WE	6.50						
3	MISC	BFN-54	B6 THRU B8	0.188	0.250	FILLET	FILLET	48N944-24	C	NA	080386		WE	3.19		9.56				
3	MISC	BFN-54	C1		0.188		FILLET	48N944-24	C	NA	080386		WE					2.75		
3	MISC	BFN-54	C2, C3, C6		0.188		FILLET	48N944-24	C	NA	080386		WE			NW				

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(#)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
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(#) ORG:C=CONST;N=NUCPR
(##) FOR NOTES SEE PAGE 63
(### A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (#)	SPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (##)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	MISC	BFN-54	C4	0.188	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	2.25						
3	MISC	BFN-54	C5	0.250	0.188	BEVEL	FILLET	48N944-24	C	NA	080386		WE	2.00						
3	MISC	BFN-54	C7	0.250	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	2.13						
3	MISC	BFN-54	C8	0.125	0.188	SK FIL	FILLET	48N944-24	C	NA	080386		WE	0.43		1.3[illegible]				
3	MISC	BFN-54	D1 & D2	0.188		FILLET		48N944-24	C	NA	080386		WE		4.25					
3	MISC	BFN-54	D3 & D4					48N944-24	C	NA	080386	NR	WE							
3	MISC	BFN-54	E1	0.125	0.188	SK FIL	FILLET	48N944-24	C	NA	080386		WE	0.25		1.75				
3	MISC	BFN-54	E2		0.188		FILLET	48N944-24	C	NA	080386		WE			NW				
3	MISC	BFN-54	E3	UNEVEN	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE			2.13				
3	MISC	BFN-54	E4		0.188		FILLET	48N944-24	C	NA	080386		WE			NW				
3	MISC	BFN-54	E5	0.125	0.188	BEVEL	FILLET	48N944-24	C	NA	080386	NOTE 2	WE	2.00						
3	MISC	BFN-54	E6	0.250	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	2.25						
3	MISC	BFN-54	E7 & E8		0.188		FILLET	48N944-24	C	NA	080386		WE			NW				
3	MISC	BFN-54	F11 & F12		0.188		FILLET	48N944-24	C	NA	080386		WE					5.25		
3	MISC	BFN-54	F1,4,7,8,9,10	0.188	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	21.38						
3	MISC	BFN-54	F2	0.188	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	2.63						
3	MISC	BFN-54	F3 & F6	0.125	0.188	BUTT	FILLET	48N944-24	C	NA	080386	NOTE 2	WE	14.00						
3	MISC	BFN-54	F5	0.188	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	8.25		0.75				
3	MISC	BFN-54	G1 THRU G6	0.250	0.250	FILLET	FILLET	48N944-24	C	NA	080386		WE	25.50						
3	MISC	BFN-54	H1 & H2	0.188	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	9.75						
3	MISC	BFN-54	H3	0.125	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	[illegible]		0.57				
3	MISC	BFN-54	H4 THRU H6		0.188		FILLET	48N944-24	C	NA	080386		WE					12.75		
3	MISC	BFN-54	J1 & J3	0.188	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	6.00						
3	MISC	BFN-54	J2,4,5,6	0.250	0.188	FILLET	FILLET	48N944-24	C	NA	080386		WE	19.50						
3	MISC	BFN-54	K1 THRU K3	0.250	0.250	FILLET	FILLET	48N944-24	C	NA	080386		WE	12.75						
3	MISC	BFN-54	K4 THRU K6		0.250		FILLET	48N944-24	C	NA	080386		WE					12.75		
3	MISC	BFN-54	PD1 THRU PD3	0.250	0.250	FILLET	FILLET	48N944-24	C	NA	080386		WE	4.50						
3	MISC	BFN-55	A7-1			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	10.50						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
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STRU=STRUCT STL
MISC=MISC STL
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(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD FER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK IMP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
3	MISC	BFN-55	A7-2			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.63						
3	MISC	BFN-55	A7-3			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.13						
3	MISC	BFN-55	A7-4			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	8.85						
3	MISC	BFN-55	A7-5			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.13						
3	MISC	BFN-55	A7-6			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.63						
3	MISC	BFN-55	A8-1			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	10.13						
3	MISC	BFN-55	A8-2			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.63						
3	MISC	BFN-55	A8-3			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.13						
3	MISC	BFN-55	A8-4			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	8.85						
3	MISC	BFN-55	A8-5			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.13						
3	MISC	BFN-55	A8-6			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB				2.63			
3	MISC	BFN-55	A1	0.250	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	6.00						
3	MISC	BFN-55	A2	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.50						
3	MISC	BFN-55	A3	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.00						
3	MISC	BFN-55	A4	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	6.00						
3	MISC	BFN-55	A5	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.00						
3	MISC	BFN-55	A6	0.188	0.188	FILLET	BUTT	48N897-1,2&13	C	NA	072686		BB	3.50						
3	MISC	BFN-55	B7-1			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	10.00						
3	MISC	BFN-55	B7-2		0.188	BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	1.75						
3	MISC	BFN-55	B7-3			FILLET	BUTT	48N897-1,2&13	C	NA	072686		BB	4.00						
3	MISC	BFN-55	B7-4			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	1.75						
3	MISC	BFN-55	B7-5			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	10.00						
3	MISC	BFN-55	B7-6			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	1.75						
3	MISC	BFN-55	B7-7			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	4.00						
3	MISC	BFN-55	B7-8			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	1.75						
3	MISC	BFN-55	B1	0.250	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB			6.00				
3	MISC	BFN-55	B2	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.50						
3	MISC	BFN-55	B3	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.00						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
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STRU=STRUCT STL
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(#) DWG:C=CONST;V=NUCPR
(##) FOR NOTES SEE PAGE 63
(###) A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
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R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK IWP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	DWG (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (##)	EXAM BY	WELD RESULT-LINEAR INCH (###) A1	A2	A3	A4	A5	R1	R2
3	MISC	BFN-55	B4	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	6.00						
3	MISC	BFN-55	B5	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.00						
3	MISC	BFN-55	B6	0.250	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.50						
3	MISC	BFN-55	C7-1			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	9.50						
3	MISC	BFN-55	C7-2			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	1.75						
3	MISC	BFN-55	C7-3			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	4.00						
3	MISC	BFN-55	C7-4			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	1.75						
3	MISC	BFN-55	C7-5			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	9.50						
3	MISC	BFN-55	C7-6			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	1.75						
3	MISC	BFN-55	C7-7			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	4.00						
3	MISC	BFN-55	C7-8			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	1.75						
3	MISC	BFN-55	C1	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	6.00						
3	MISC	BFN-55	C2	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.50						
3	MISC	BFN-55	C3	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	2.50						
3	MISC	BFN-55	C4	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	6.00						
3	MISC	BFN-55	C5	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	2.50						
3	MISC	BFN-55	C6	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.50						
3	MISC	BFN-55	D1	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	6.00						
3	MISC	BFN-55	D2	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.50						
3	MISC	BFN-55	D3	0.250	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.00						
3	MISC	BFN-55	D4	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB			6.00				
3	MISC	BFN-55	D5	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.00						
3	MISC	BFN-55	D6	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.50						
3	MISC	BFN-55	D7-1			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	9.00						
3	MISC	BFN-55	D7-2			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.00						
3	MISC	BFN-55	D7-3			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.50						
3	MISC	BFN-55	D7-4			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	9.50						
3	MISC	BFN-55	D7-5			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.50						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(#) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
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MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
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A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (#)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
3	MISC	BFN-55	D7-6			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	2.38						
3	MISC	BFN-55	E	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	40.00						
3	MISC	BFN-55	F	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	39.00						
3	MISC	BFN-55	G1	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	2.75						
3	MISC	BFN-55	G2	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	8.00						
3	MISC	BFN-55	G3		0.188		FILLET	48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	H1	0.125		FILLET		48N897-1,2&13	C	NA	072686		BB			2.38				
3	MISC	BFN-55	H2	0.250		FILLET		48N897-1,2&13	C	NA	072686		BB		5.37	31.38				
3	MISC	BFN-55	H3					48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	J2	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	8.00						
3	MISC	BFN-55	J1	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	2.98						
3	MISC	BFN-55	J3		0.188		FILLET	48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	K1	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	2.88						
3	MISC	BFN-55	K2	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	8.00						
3	MISC	BFN-55	K3		0.188		FILLET	48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	L3					48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	L1	0.188		FILLET		48N897-1,2&13	C	NA	072686		BB		2.25					
3	MISC	BFN-55	L2	0.188		FILLET		48N897-1,2&13	C	NA	072686		BB		40.75					
3	MISC	BFN-55	M1		0.188		FILLET	48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	M2	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	8.00						
3	MISC	BFN-55	M3	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	2.75						
3	MISC	BFN-55	N1	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	3.00						
3	MISC	BFN-55	N2	0.313	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	8.00						
3	MISC	BFN-55	N3		0.188		FILLET	48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	O2	0.188		FILLET		48N897-1,2&13	C	NA	072686		BB		37.50					
3	MISC	BFN-55	O3	0.125		FILLET		48N897-1,2&13	C	NA	072686		BB		0.56	1.69				
3	MISC	BFN-55	O1					48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	P3	0.125	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	0.75		2.25				

TABLE 4.2

STRUCTURAL WELDING REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER INS
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK INF-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
3	MISC	BFN-55	P1		0.188		FILLET	48N897-1,2&13	C	NA	072686		BB			NW				
3	MISC	BFN-55	P2	0.188	0.188	FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	8.00						
3	MISC	BFN-55	Q	0.188		FILLET		48N897-1,2&13	C	NA	072686		BB		40.00					
3	MISC	BFN-55	R	0.313		FILLET	FILLET	48N897-1,2&13	C	NA	072686		BB	38.50						
3	MISC	BFN-55	S	0.125		FILLET		48N897-1,2&13	C	NA	072686		BB		1.00	3.00				
3	MISC	BFN-55	T			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	4.00						
3	MISC	BFN-55	U			BUTT	BUTT	48N897-1,2&13	C	NA	072686		BB	4.00						
1	MISC	BFN-57	A1	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	8.00						
1	MISC	BFN-57	A2	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	A3	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	A4	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	8.00						
1	MISC	BFN-57	A5	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	A6	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	A7-1			BUTT	BUTT	48N893 R2	C	NA	072886		BB				10.00			
1	MISC	BFN-57	A7-2			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.50						
1	MISC	BFN-57	A7-3			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.13						
1	MISC	BFN-57	A7-4			BUTT	BUTT	48N893 R2	C	NA	072886		BB				9.00			
1	MISC	BFN-57	A7-5			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.13						
1	MISC	BFN-57	A7-6			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.13						
1	MISC	BFN-57	A8-1			BUTT	BUTT	48N893 R2	C	NA	072886		BB	10.00						
1	MISC	BFN-57	A8-2			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.50						
1	MISC	BFN-57	A8-3			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.13						
1	MISC	BFN-57	A8-4			BUTT	BUTT	48N893 R2	C	NA	072886		BB	9.00						
1	MISC	BFN-57	A8-5			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.13						
1	MISC	BFN-57	A8-6			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.50						
1	MISC	BFN-57	B1	0.250	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	3.00						
1	MISC	BFN-57	B2	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	8.00						
1	MISC	BFN-57	B3	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.75						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(#)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
TBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###) A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR GET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER D&G
NA=NOT APPLICABLE

UNT	DES (#)	INSPEC PACK INP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (##)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
1	MISC	BFN-57	B4	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	3.00						
1	MISC	BFN-57	B5	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	8.25						
1	MISC	BFN-57	B6	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	3.00						
1	MISC	BFN-57	B7-1			BUTT	BUTT	48N893 R2	C	NA	072886		BB	4.00						
1	MISC	BFN-57	B7-2			BUTT	BUTT	48N893 R2	C	NA	072886		BB	1.75						
1	MISC	BFN-57	B7-3			BUTT	BUTT	48N893 R2	C	NA	072886		BB	9.50						
1	MISC	BFN-57	B7-4			BUTT	BUTT	48N893 R2	C	NA	072886		BB	1.75						
1	MISC	BFN-57	B7-5			BUTT	BUTT	48N893 R2	C	NA	072886		BB	4.00						
1	MISC	BFN-57	B7-6			BUTT	BUTT	48N893 R2	C	NA	072886		BB	1.75						
1	MISC	BFN-57	B7-7			BUTT	BUTT	48N893 R2	C	NA	072886		BB	9.75						
1	MISC	BFN-57	B7-8			BUTT	BUTT	48N893 R2	C	NA	072886		BB	1.75						
1	MISC	BFN-57	C7-1			BUTT	BUTT	48N893 R2	C	NA	072886		BB	4.00						
1	MISC	BFN-57	C7-2			BUTT	BUTT	48N893 R2	C	NA	072886		BB	1.75						
1	MISC	BFN-57	C7-3			BUTT	BUTT	48N893 R2	C	NA	072886		BB	9.75						
1	MISC	BFN-57	C7-4			BUTT	BUTT	48N893 R2	C	NA	072886		BB	1.75						
1	MISC	BFN-57	C7-5			BUTT	BUTT	48N893 R2	C	NA	072886		BB	4.00						
1	MISC	BFN-57	C7-6			BUTT	BUTT	48N893 R2	C	NA	072886		BB	1.75						
1	MISC	BFN-57	C7-7			BUTT	BUTT	48N893 R2	C	NA	072886		BB	9.50						
1	MISC	BFN-57	C7-8			BUTT	BUTT	48N893 R2	C	NA	072886		BB	1.75						
1	MISC	BFN-57	C1	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	3.00						
1	MISC	BFN-57	C2	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	8.25						
1	MISC	BFN-57	C3	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	3.00						
1	MISC	BFN-57	C4	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.75						
1	MISC	BFN-57	C5	0.168	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	4.00						
1	MISC	BFN-57	C5	0.250	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	4.00						
1	MISC	BFN-57	C6	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.50						
1	MISC	BFN-57	D1	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	8.00						
1	MISC	BFN-57	D2	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.13						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	INSPEC DES (*)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
1	MISC	BFN-57	D3	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	D4	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	8.00						
1	MISC	BFN-57	D5	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.[illegible]						
1	MISC	BFN-57	D6	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	D7-1			BUTT	BUTT	48N893 R2	C	NA	072886		BB	9.00						
1	MISC	BFN-57	D7-2			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	D7-3			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.50						
1	MISC	BFN-57	D7-4			BUTT	BUTT	48N893 R2	C	NA	072886		BB	10.00						
1	MISC	BFN-57	D7-5			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.50						
1	MISC	BFN-57	D7-6			BUTT	BUTT	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	E	0.188		FILLET		48N893 R2	C	NA	072886		BB		10.00					
1	MISC	BFN-57	F	0.313	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	30.00						
1	MISC	BFN-57	G1	0.125	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			3.00				
1	MISC	BFN-57	G2	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			8.00				
1	MISC	BFN-57	G3		0.188		FILLET	48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-57	H1					48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-57	H2	0.188		FILLET		48N893 R2	C	NA	072886		BB	37.75						
1	MISC	BFN-57	H3					48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-57	J1	0.125	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			3.00				
1	MISC	BFN-57	J2	0.250	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			8.50				
1	MISC	BFN-57	J3		0.188		FILLET	48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-57	K1	0.125	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			3.00				
1	MISC	BFN-57	K2		0.188	BUTT	FILLET	48N893 R2	C	NA	072886		BB			2.00				
1	MISC	BFN-57	K2	0.250	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			6.50				
1	MISC	BFN-57	K3		0.188		FILLET	48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-57	L1			BUTT		48N893 R2	C	NA	072886		BB		2.00					
1	MISC	BFN-57	L2	0.188		FILLET		48N893 R2	C	NA	072886		BB		41.25					
1	MISC	BFN-57	L3					48N893 R2	C	NA	072886		BB			NW				

TABLE 4.2

STRUCTURAL WELDING REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK NP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
1	MISC	BFN-57	M1	0.125	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			2.75				
1	MISC	BFN-57	M2	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	8.50						
1	MISC	BFN-57	M3		0.188		FILLET	48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-57	N1	0.125	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			3.00				
1	MISC	BFN-57	N2	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	6.25						
1	MISC	BFN-57	N2		0.188	GROOVE	FILLET	48N893 R2	C	NA	072886		BB	2.25						
1	MISC	BFN-57	N3		0.188		FILLET	48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-57	O1			BUTT		[illegible]N893 R2	C	NA	072886		BB		2.00					
1	MISC	BFN-57	O2	0.188		FILLET		48N893 R2	C	NA	072886		BB		32.00					
1	MISC	BFN-57	O3					48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-57	P1	0.188	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB		3.00					
1	MISC	BFN-57	P2	0.125	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB			8.00				
1	MISC	BFN-57	P3		0.188		FILLET	48N893 R2	C	NA	072886		BB					3.00		
1	MISC	BFN-57	Q	0.188		FILLET		48N893 R2	C	NA	072886		BB		4.00					
1	MISC	BFN-57	R	0.313	0.188	FILLET	FILLET	48N893 R2	C	NA	072886		BB	39.00						
1	MISC	BFN-57	S1	0.250		FILLET		48N893 R2	C	NA	072886		BB		18.00					
1	MISC	BFN-57	S10	0.063		SEAL		48N893 R2	C	NA	072886		BB			2.00				
1	MISC	BFN-57	S11			SEAL		48N893 R2	C	NA	072886		BB			11.00				
1	MISC	BFN-57	S12			SEAL		48N893 R2	C	NA	072886		BB			1.25				
1	MISC	BFN-57	S13			BUTT		48N893 R2	C	NA	072886		BB		20.00					
1	MISC	BFN-57	S2			SK FIL		48N893 R2	C	NA	072886		BB		1.50					
1	MISC	BFN-57	S3	0.125		FILLET		48N893 R2	C	NA	072886		BB		1.44	10.06				
1	MISC	BFN-57	S4	0.250		FILLET		48N893 R2	C	NA	072886		BB		7.75					
1	MISC	BFN-57	S5	0.250		FILLET		48N893 R2	C	NA	072886		BB		16.75					
1	MISC	BFN-57	S5	0.188		FILLET		48N893 R2	C	NA	072886		BB		1.00					
1	MISC	BFN-57	S6	0.250		FILLET		48N893 R2	C	NA	072886		BB		6.75					
1	MISC	BFN-57	S7	0.188		FILLET		48N893 R2	C	NA	072886		BB		10.50					
1	MISC	BFN-57	S8	0.125		SK FIL		48N893 R2	C	NA	072886		BB		18.00					

TABLE 4.2

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
1	MISC	BFN-57	S9					48N893 R2	C	NA	072886		BB			NW				
1	MISC	BFN-65	A1-5 & A1-7	0.313	0.188	FILLET	FILLET	48N990-R5	C	NA	073086		EB	20.00						
1	MISC	BFN-65	A6	0.313	0.188	FILLET	FILLET	48N990-R5	C	NA	073086		EB	8.00						
1	MISC	BFN-65	A8		0.188	BUTT	FILLET	48N990-R5	C	NA	073086	NOTE 2	EB	4.00						
1	MISC	BFN-65	B1 THRU B8	0.250	0.188	FILLET	FILLET	48N990-R5	C	NA	073086		EB	32.00						
1	MISC	BFN-65	C1 THRU C3	0.250	0.188	FILLET		48N990-R5	C	NA	073086		EB		9.50					
1	MISC	BFN-65	C4	0.313		FILLET		48N990-R5	C	NA	[illegible]86		EB		3.50					
1	MISC	BFN-65	D1 THRU D4	0.250		FILLET		48N990-R5	C	NA	[illegible]		EB		12.00					
2	MISC	BFN-66	A1	0.250	0.250	FILLET	FILLET	44N1244-1	N	072187	073086		WE	4.75						
2	MISC	BFN-66	A2 THRU A12	0.250	0.250	FILLET	FILLET	44N1244-1	N	072187	073086		WE	46.50						
2	MISC	BFN-66	B		0.250		FILLET	44N1244-1	N	072187	073086		WE				51.00			
2	MISC	BFN-66	C		0.250		FILLET	48N1244-1	N	072187	073086		WE				51.00			
2	MISC	BFN-66	D13 THRU D23	0.250	0.250	FILLET	FILLET	48N1244-1	N	072187	073086		WE	46.50						
2	MISC	BFN-66	D24	0.250	0.250	FILLET	FILLET	48N1244-1	N	072187	073086		WE	4.75						
3	MISC	BFN-70	A1	0.375	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	5.00						
3	MISC	BFN-70	A2	0.500	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	2.50						
3	MISC	BFN-70	A3	0.250	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	4.00						
3	MISC	BFN-70	A4	0.313	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	2.50						
3	MISC	BFN-70	A5	0.375	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	5.00						
3	MISC	BFN-70	A6	0.375	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	2.00						
3	MISC	BFN-70	A7	0.313	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	4.00						
3	MISC	BFN-70	A8	0.313	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	2.00						
3	MISC	BFN-70	B1	0.313	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	5.25						
3	MISC	BFN-70	B2	0.313	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	1.75						
3	MISC	BFN-70	B3	0.313	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	4.25						
3	MISC	BFN-70	B4	0.313	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	1.75						
3	MISC	BFN-70	B5	0.250	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	5.25						
3	MISC	BFN-70	B6	0.250	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	1.75						

TABLE 4.2

STRUCTURAL WELDING REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(#)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (#)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	MISC	BFN-70	B7	0.250	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	4.25						
3	MISC	BFN-70	B8		0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB				1.75			
3	MISC	BFN-70	C1			SEAL		48N897-6	C	42276	080386		BB	2.00						
3	MISC	BFN-70	C2					48N897-6	C	42276	080386		BB				1.50			
3	MISC	BFN-70	C3	0.313		FILLET		48N897-6	C	42276	080386		BB		1.50					
3	MISC	BFN-70	C4	0.375	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	1.50						
3	MISC	BFN-70	C5	0.375		FILLET		48N897-6	C	42276	080386		BB		2.00					
3	MISC	BFN-70	C6		0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB				2.00			
3	MISC	BFN-70	D1	0.188		FILLET		48N897-6	C	42276	080386		BB		2.00					
3	MISC	BFN-70	D2	0.125	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	0.44		1.31				
3	MISC	BFN-70	D3	0.188		FILLET		48N897-6	C	42276	080386		BB		2.00					
3	MISC	BFN-70	D4	0.250	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	2.00						
3	MISC	BFN-70	D5	0.313		FILLET		48N897-6	C	42276	080386		BB		1.75					
3	MISC	BFN-70	D6					48N897-6	C	42276	080386	NR	BB							
3	MISC	BFN-70	E1			FILLET		48N897-6	C	42276	080386		BB				2.00			
3	MISC	BFN-70	E2	0.188	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	1.63						
3	MISC	BFN-70	E3	0.250		FILLET		48N897-6	C	42276	080386		BB		2.00					
3	MISC	BFN-70	E4	0.125	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	0.44		1.31				
3	MISC	BFN-70	E5	0.313		FILLET		48N897-6	C	42276	080386		BB		1.75					
3	MISC	BFN-70	E6	0.188		FILLET		48N897-6	C	42276	080386		BB		1.50					
3	MISC	BFN-70	F1			FILLET		48N897-6	C	42276	080386		BB				2.00			
3	MISC	BFN-70	F2	0.250		FILLET		48N897-6	C	42276	080386	NR	BB							
3	MISC	BFN-70	F3	0.188		FILLET		48N897-6	C	42276	080386		BB		1.50					
3	MISC	BFN-70	F4	0.188	0.188	FILLET	FILLET	48N897-6	C	42276	080386		BB	2.00						
3	MISC	BFN-70	F5	0.250		FILLET		48N897-6	C	42276	080386		BB		2.00					
3	MISC	BFN-70	F6		0.875	FILLET	FILLET	48N897-6	C	42276	080386		BB				1.75			
3	MISC	BFN-70	G1	0.250		FILLET		48N897-6	C	42276	080386		BB		1.88					
3	MISC	BFN-70	G2	0.250		FILLET		48N897-6	C	42276	080386		BB		5.00					

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(#) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) ORG:C=CONST;N=NUCPR
(##) FOR NOTES SEE PAGE 63
(###) A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (#)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (##)	EXAM BY	WELD RESULT-LINEAR INCH (###) A1	A2	A3	A4	A5	R1	R2
3	MISC	BFN-70	G3	0.250		FILLET		48N897-6	C	42276	080386		BB		1.88					
3	MISC	BFN-70	H1	0.188		FILLET		48N897-6	C	42276	080386		BB		1.75					
3	MISC	BFN-70	H2	0.188		FILLET		48N897-6	C	42276	080386		BB		5.00					
3	MISC	BFN-70	H3	0.250		FILLET		48N897-6	C	42276	080386		BB		1.75					
3	MISC	BFN-70	J1	0.250		FILLET		48N897-6	C	42276	080386		BB		1.75					
3	MISC	BFN-70	J2	0.188		FILLET		48N897-6	C	42276	080386		BB		5.25					
3	MISC	BFN-70	J3	0.188		FILLET		48N897-6	C	42276	080386		BB		1.75					
3	MISC	BFN-70	K1	0.250		FILLET		48N897-6	C	42276	080386		BB		1.75					
3	MISC	BFN-70	K2	0.250		FILLET		48N897-6	C	42276	080386		BB		5.25					
3	MISC	BFN-70	K3	0.250		FILLET		48N897-6	C	42276	080386		BB		1.75					
3	STRU	BFN-56	A	0.250		FILLET		48N451 R3	C	NA	072386		CF	140.0						
3	STRU	BFN-58	A	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	56.00						
3	STRU	BFN-58	B	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	56.00						
3	STRU	BFN-58	C	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	18.00						
3	STRU	BFN-58	D	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	18.00						
3	STRU	BFN-58	E	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	18.00						
3	STRU	BFN-58	F	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	18.00						
3	STRU	BFN-58	G	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	25.00						
3	STRU	BFN-58	H	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	25.00						
3	STRU	BFN-58	J	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	25.00						
3	STRU	BFN-58	K	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	25.00						
3	STRU	BFN-58	L	0.375	0.375	FILLET	FILLET	48W1246-3	N	012282	080286		BB	22.25						
3	STRU	BFN-58	M	0.375	0.375	FILLET	FILLET	48W1246-3	N	012282	080286		BB	22.25						
3	STRU	BFN-58	N	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	22.25						
3	STRU	BFN-58	P	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	22.25						
3	STRU	BFN-58	R	0.375	0.375	FILLET	FILLET	48W1246-3	N	012282	080286		BB	4.00						
3	STRU	BFN-58	S	0.375	0.375	FILLET	FILLET	48W1246-3	N	012282	080286		BB	4.00						
3	STRU	BFN-58	T	0.375	0.375	FILLET	FILLET	48W1246-3	N	012282	080286		BB	0.75						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

#)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
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(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC BY INSP NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
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R1=STRUCTURE UNSTAB
R2=REJECT WELD
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UNT	DES (*)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	STRU	BFN-58	U	0.375	0.375	FILLET	FILLET	48W1246-3	N	012282	080286		BB	0.75						
3	STRU	BFN-58	V	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	3.00						
3	STRU	BFN-58	W	0.313	0.313	FILLET	FILLET	48W1246-3	N	012282	080286		BB	3.00						

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
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(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
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R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
I = INACCESSIBLE
NR=NOT REQD PER DWG
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UNT	DES (*)	INSPEC PACK NO-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
1	DS	BFN-01	A1	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB		1.50	4.50				
1	DS	BFN-01	A2				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	A3				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	A4	0.031		SK FIL	FILLET	47A900-50	C	NA	071286		BB			4.00				
1	DS	BFN-01	B1	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB		1.00	3.00				
1	DS	BFN-01	B2				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	B3	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB		0.87	2.63				
1	DS	BFN-01	B4	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB		0.87	2.63				
1	DS	BFN-01	C1			BUTT	FILLET	47A900-50	C	NA	071286		BB			4.00				
1	DS	BFN-01	C2	0.125		FILLET	FILLET	47A900-50	C	NA	071286		BB		0.50	1.50				
1	DS	BFN-01	C3	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB	3.50						
1	DS	BFN-01	C4				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	D1			BUTT	FILLET	47A900-50	C	NA	071286		BB		6.00					
1	DS	BFN-01	D2				FILLET	47A900-50	C	NA	071286		BB				4.00			
1	DS	BFN-01	D3				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	D4				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	E1			BUTT	FILLET	47A900-50	C	NA	071286		BB		2.00	2.00				
1	DS	BFN-01	E2	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB		3.00					
1	DS	BFN-01	E3	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB			3.50				
1	DS	BFN-01	E4				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	E5	0.125		FILLET	FILLET	47A900-50	C	NA	071286		BB		0.44	3.06				
1	DS	BFN-01	E6	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB		0.87	2.63				
1	DS	BFN-01	E7				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	F1			BUTT	FILLET	47A900-50	C	NA	071286		BB		4.81	0.94				
1	DS	BFN-01	F2			GROVE	FILLET	47A900-50	C	NA	071286		BB			4.00				
1	DS	BFN-01	F3				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	F4				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	G1			BUTT	FILLET	47A900-50	C	NA	071286		BB		6.00					

TABLE 4.2

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
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STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
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UNT	DES (*)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
1	DS	BFN-01	G2			SK FIL	FILLET	47A900-50	C	NA	071286		BB				4.00			
1	DS	BFN-01	G3				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	G4				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	H1			BUTT	FILLET	47A900-50	C	NA	071286		BB		6.00					
1	DS	BFN-01	H2			SK FIL	FILLET	47A900-50	C	NA	071286		BB				4.00			
1	DS	BFN-01	H3				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	H4				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	J1			BUTT	FILLET	47A900-50	C	NA	071286		BB		4.00					
1	DS	BFN-01	J2	0.125		FILLET	FILLET	47A900-50	C	NA	071286		BB		1.00	3.00				
1	DS	BFN-01	J3	0.125		FILLET	FILLET	47A900-50	C	NA	071286		BB		0.87	2.63				
1	DS	BFN-01	J4	0.125		FILLET	FILLET	47A900-50	C	NA	071286		BB			3.50				
1	DS	BFN-01	K1			BUTT	FILLET	47A900-50	C	NA	071286		BB		6.00					
1	DS	BFN-01	K2			SK FIL	FILLET	47A900-50	C	NA	071286		BB				4.00			
1	DS	BFN-01	K3				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	K4				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	L1			BUTT	FILLET	47A900-50	C	NA	071286		BB		3.00	1.00				
1	DS	BFN-01	L2				FILLET	47A900-50	C	NA	071286		BB			NW				
1	DS	BFN-01	L3	0.125		FILLET	FILLET	47A900-50	C	NA	071286		BB			3.50				
1	DS	BFN-01	L4	0.094		FILLET	FILLET	47A900-50	C	NA	071286		BB			2.50				
1	DS	BFN-01	M1	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB		1.00	3.00				
1	DS	BFN-01	M2	0.188		FILLET	FILLET	47A900-50	C	NA	071286		BB			3.50				
1	DS	BFN-01	M3	0.375		FILLET	FILLET	47A900-50	C	NA	071286		BB			3.50				
1	DS	BFN-01	M4				FILLET	47A900-50	C	NA	071286		BB			NW				
2	DS	BFN-02	A1			BUTT	FILLET	47A900-50	N	020577	071186		EFH		4.00					
2	DS	BFN-02	A2	0.250		FILLET	FILLET	47A900-50	N	020577	071186		EFH		3.50					
2	DS	BFN-02	A3	0.250		FILLET	FILLET	47A900-50	N	020577	071186		EFH		3.50					
2	DS	BFN-02	A4	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.87	2.63				
2	DS	BFN-02	B1	0.250		FILLET	FILLET	47A900-50	N	020577	071186		EFH		4.00					

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

CNT	DES (*)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
2	DS	BFN-02	B2	0.156		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.58	2.92				
2	DS	BFN-02	B3	0.219		FILLET	FILLET	47A900-50	N	020577	071186		EFH		3.50					
2	DS	BFN-02	B4			BUTT	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		4.00					
2	DS	BFN-02	C1	0.250		FILLET	FILLET	47A900-50	N	020577	071186		EFH		6.00					
2	DS	BFN-02	C2	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		1.25	3.75				
2	DS	BFN-02	C3	0.063		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.29	3.21				
2	DS	BFN-02	C4	0.250		FILLET	FILLET	47A900-50	N	020577	071186		EFH		4.00					
2	DS	BFN-02	D1			BUTT	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		4.00					
2	DS	BFN-02	D2	0.125		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.87	2.63				
2	DS	BFN-02	D3	0.125		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.87	2.63				
2	DS	BFN-02	D4 (VARIES)	0.250		FILLET	FILLET	47A900-50	N	020577	071186		EFH		4.00					
2	DS	BFN-02	E1				FILLET	47A900-50	N	020577	071186	NR	EFH							
2	DS	BFN-02	E2			FILLET	FILLET	47A900-50	N	020577	071186		EFH				3.00			
2	DS	BFN-02	E3	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		4.50					
2	DS	BFN-02	E4			BUTT	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		5.75					
2	DS	BFN-02	E5	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		4.50					
2	DS	BFN-02	E6			BUTT	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		6.00					
2	DS	BFN-02	E7			FILLET	FILLET	47A900-50	N	020577	071186		EFH				3.00			
2	DS	BFN-02	E8				FILLET	47A900-50	N	020577	071186	NR	EFH							
2	DS	BFN-02	F1			SEAL	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		4.00					
2	DS	BFN-02	F2			VGROVE	FILLET	47A900-50	N	020577	071186		EFH				3.50			
2	DS	BFN-02	F3	0.094		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.75	3.75				
2	DS	BFN-02	F4			BUTT	FILLET	47A900-50	N	020577	071186		EFH		5.75					
2	DS	BFN-02	F5	0.094		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.75	3.75				
2	DS	BFN-02	F6			BUTT	FILLET	47A900-50	N	020577	071186		EFH		5.88					
2	DS	BFN-02	F7			SEAL	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		3.50					
2	DS	BFN-02	F8			FILLET	FILLET	47A900-50	N	020577	071186		EFH				4.00			
2	DS	BFN-02	G1	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		4.00					

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*)PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT
STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***)A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTA?
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	DES (*)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
2	DS	BFN-02	G2	0.125		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.87	2.63				
2	DS	BFN-02	G3	0.125		FILLET	FILLET	47A900-50	N	020577	071186		EFH		0.87	2.63				
2	DS	BFN-02	G4			BUTT	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		4.00					
2	DS	BFN-02	H1			BUTT	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		5.50	0.50				
2	DS	BFN-02	H2			BUTT	FILLET	47A900-50	N	020577	071186	NOTE 2	EFH		5.63					
2	DS	BFN-02	H3	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		3.50					
2	DS	BFN-02	H4			BUTT	FILLET	47A900-50	N	020577	071186		EFH		4.00					
2	DS	BFN-02	H5	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		3.50					
2	DS	BFN-02	H6	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		4.00					
2	DS	BFN-02	J1			BUTT	FILLET	47A900-50	N	020577	071186		EFH		4.00					
2	DS	BFN-02	J2	0.188		FILLET	FILLET	47A900-50	N	020577	071186		EFH		3.50					
2	DS	BFN-02	J3	0.250		FILLET	FILLET	47A900-50	N	020577	071186		EFH		3.50					
2	DS	BFN-02	J4				FILLET	47A900-50	N	020577	071186	NR	EFH							
1	DS	BFN-25	A1	0.125		FILLET		47A900-8	N	30176	071886		EB		0.75	2.25				
1	DS	BFN-25	A2					47A900-8	N	30176	071886	NR	EB							
1	DS	BFN-25	A3					47A900-8	N	30176	071886	NR	EB							
1	DS	BFN-25	A4					47A900-6	N	30176	071886	NR	EB							
1	DS	BFN-25	B1	0.125		FILLET		47A900-8	N	30176	071886		EB						1.12	
1	DS	BFN-25	B2			BUTT		47A900-8	N	30176	071886		EB						0.75	
1	DS	BFN-25	C1	0.375		FILLET		47A900-8	N	30176	071886		EB						1.50	
1	DS	BFN-25	D1	0.063		FILLET		47A900-8	N	30176	071886		EB		0.33	2.29				
1	DS	BFN-25	D2	0.063		FILLET		47A900-8	N	30176	071886		EB		0.63	1.87				
1	DS	BFN-25	E1					47A900-8	N	30176	071886		EB					3.00		
1	DS	BFN-25	E2					47A900-8	N	30176	071886	NR	EB							
1	DS	BFN-25	E3					47A900-8	N	30176	071886	NR	EB							
1	DS	BFN-25	E4					47A900-8	N	30176	071886	NR	EB							
3	DS	BFN-26	A1					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	A2					SKETCHES	C	NA	072386	NR	CF							

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	WELD RESULT-LINEAR INCH (***) A1	A2	A3	A4	A5	R1	R2
3	DS	BFN-26	A3	0.188		FILLET		SKETCHES	C	NA	072386		CF		2.50	0.50				
3	DS	BFN-26	A4	0.250		FILLET		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	B1					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	B2					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	B3	0.188		FILLET		SKETCHES	C	NA	072386		CF		0.75	2.25				
3	DS	BFN-26	B4	0.250		FILLET		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	C1	0.313		FILLET		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	C2					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	C3					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	C4			BUTT		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	D1	0.250		FILLET		SKETCHES	C	NA	072386		CF						2.00	
3	DS	BFN-26	D2	0.250		FILLET		SKETCHES	C	NA	072386		CF						2.00	
3	DS	BFN-26	D3					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	D4					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	D5					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	E1					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	E2			FILLET		SKETCHES	C	NA	072386		CF						2.00	
3	DS	BFN-26	E3	0.188		FILLET		SKETCHES	C	NA	072386		CF						2.00	
3	DS	BFN-26	E4			FILLET		SKETCHES	C	NA	072386		CF						0.50	
3	DS	BFN-26	F1					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	F2			BUTT		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	F3	0.188		FILLET		SKETCHES	C	NA	072386		CF			3.00				
3	DS	BFN-26	F4					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	G1					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	G2			BUTT		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	G3					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	G4	0.250		FILLET		SKETCHES	C	NA	072386		CF		2.50					
3	DS	BFN-26	H1					SKETCHES	C	NA	072386	NR	CF							

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
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CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(#) CRS:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NP=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK WP-CH	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	CRS (#)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	DS	BFN-26	H2	0.193		FILLET		SKETCHES	C	NA	072386		CF		1.75	1.25				
3	DS	BFN-26	H3					SKETCHES	C	NA	072386	NF	CF							
3	DS	BFN-26	H4			BUTT		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	J1					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	J2					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	J3	0.313		FILLET		SKETCHES	C	NA	072386		CF			3.00				
3	DS	BFN-26	J4	0.250		FILLET		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	K1					SKETCHES	C	NA	072386	NF	CF							
3	DS	BFN-26	K2					SKETCHES	C	NA	072386	NR	CF							
3	DS	BFN-26	K3	0.188		FILLET		SKETCHES	C	NA	072386		CF		3.00					
3	DS	BFN-26	K4	0.199		FILLET		SKETCHES	C	NA	072386		CF		3.00					
2	DS	BFN-27	A1					47W930-1	C	NA	071786	NF	EH							
2	DS	BFN-27	A2					47W930-1	C	NA	071786	NF	EH							
2	DS	BFN-27	A3					47W930-1	C	NA	071786	NR	EH							
2	DS	BFN-27	A4	0.250		FILLET		47W930-1	C	NA	071786		EH		2.00					
2	DS	BFN-27	B1	0.188		FILLET		47W930-1	C	NA	071786		EH		2.00					
2	DS	BFN-27	B2					47W930-1	C	NA	071786	NR	EH							
2	DS	BFN-27	B3					47W930-1	C	NA	071786	NR	EH							
2	DS	BFN-27	B4	0.158		FILLET		47W930-1	C	NA	071786				2.50					
2	DS	BFN-27	C1			SEAL		47W930-1	C	NA	071786		EH			1.63				
2	DS	BFN-27	C2					47W930-1	C	NA	071786	NR	EH							
2	DS	BFN-27	D1			CORNER		47W930-1	C	NA	071786	NR	EH							
2	DS	BFN-27	D2					47W930-1	C	NA	071786	NR	EH							
2	DS	BFN-28	A1	0.188		FILLET		47W930-1	C	NA	071786		EH		3.00					
2	DS	BFN-28	A2					47W930-1	C	NA	071786	NR	EH							
2	DS	BFN-28	A3					47W930-1	C	NA	071786	NF	EH							
2	DS	BFN-28	A4	0.313		FILLET		47W930-1	C	NA	071786		EH		2.00					
2	DS	BFN-28	B1			FLARE		47W930-1	C	NA	071786		EH			2.00				

TABLE 4.2

# PS=PIPE SPT IPS=INSTRUMENT PIPING SPT CTS=CABLE TRAY SPT CS=CONDUIT SPT PBS=ELECT PULL BOX SPT PS=ELECT PANEL SPT	STL=STRUCT STL MISC=MISC STL IS=INSTRUMENT SPT DS=DUCT SPT	STRUCTURAL WELDING REINSPECTION DATA BROWNS FERRY NUCLEAR PLANT	* ORG: C=CONST, N=NUC ** FOR NOTES SEE PAGE 60 *** A1=ACCEPT BY INSP A2=ACC WITH NO DAS OR DET A3=ACCEPT BY CALC A4=INACCESS VERIFIED WELD A5=INACCESS UNVERIFIED WELD	R=STRUCTURE LOSING R=REJECT WELD NW=NO WELD X = INACCESSIBLE NR=NOT REQD PER DWG NA=NOT APPLICABLE

UNIT	SEG #	NUMBER	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT **	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	DS	BFN-29	B2					47W930-1	C	NA	071785	NR	EH							
3	DS	BFN-29	C1					47W930-1	C	NA	071786	NR	EH							
3	DS	BFN-29	C2			FLARE		47W930-1	C	NA	071785		EH			2.00				
3	DS	BFN-29	C3	0.125		FILLET		47W930-1	C	NA	071786		EH			2.00				
3	DS	BFN-29	A1	0.125		BV FIL		SKETCHES		NA	071085		EFH		2.00					
3	DS	BFN-29	A2	0.125		FILLET		SKETCHES		NA	071086		EFH		2.00					
3	DS	BFN-29	A3	0.125		FILLET		SKETCHES		NA	071085		EFH		2.00					
3	DS	BFN-29	A4			BUTT		SKETCHES		NA	071086		EFH		2.13					
3	DS	BFN-29	A5			BUTT		SKETCHES		NA	071096		EFH		2.13					
3	DS	BFN-29	A6					SKETCHES		NA	071086	NR	EFH							
3	DS	BFN-29	B1	0.188		FILLET		SKETCHES		NA	071095		EFH		2.00					
3	DS	BFN-29	B2	0.125		FILLET		SKETCHES		NA	071086		EFH		2.00					
3	DS	BFN-29	B3			BUTT		SKETCHES		NA	071095		EFH		2.00					
3	DS	BFN-29	B4			BUTT		SKETCHES		NA	071086		EFH		2.00					
3	DS	BFN-29	C1			BUTT		SKETCHES		NA	071095		EFH		4.00					
3	DS	BFN-29	C2			BUTT		SKETCHES		NA	071095		EFH		4.00					
3	DS	BFN-29	C3	0.125		FILLET		SKETCHES		NA	071086		EFH		3.00					
3	DS	BFN-29	C4	0.189		FILLET		SKETCHES		NA	071086		EFH		2.00					
3	DS	BFN-29	C5	0.125		FILLET		SKETCHES		NA	071085		EFH		3.00					
3	DS	BFN-29	C6					SKETCHES		NA	071086	NR	EFH							
3	DS	BFN-29	D1			BUTT		SKETCHES		NA	071085		EFH		2.00					
3	DS	BFN-29	D2	0.188		FILLET		SKETCHES		NA	071086		EFH		2.00					
3	DS	BFN-29	D3	0.188		FILLET		SKETCHES		NA	071096		EFH		2.00					
3	DS	BFN-29	D4	0.188		FILLET		SKETCHES		NA	071086		EFH		2.00					
3	DS	BFN-29	E1			BUTT		SKETCHES		NA	071085		EFH		2.00					
3	DS	BFN-29	E2	0.188		FILLET		SKETCHES		NA	071086		EFH		2.00					
3	DS	BFN-29	E3	0.188		FILLET		SKETCHES		NA	071085		EFH		2.00					
3	DS	BFN-29	E4	0.125		FILLET		SKETCHES		NA	071086		EFH		2.00					

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNS FERRY NUCLEAR PLANT

(# PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRU=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) ORG:C=CONST;N=NUCPR
(**) FOR NOTES SEE PAGE A3
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NA=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (#)	INSPEC PACK WP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	ORG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	DS	BFN-30	A1 A2 A4	0.188	0.189	FILLET	FILLET	17A925-101	N	71783	071086		EFH	12.00						
3	DS	BFN-30	A3		0.188		FILLET	17A925-101	N	71783	071086		EFH				4.00			
3	DS	BFN-30	B	0.188	0.188	FILLET	FILLET	17A925-101	N	71783	071086		EFH	22.00						
3	DS	BFN-30	C1 & C2			GROOVE	GROOVE	17A925-101	N	71783	071086		EFH	6.50						
3	DS	BFN-30	D1 & D2			GROOVE	GROOVE	17A925-101	N	71783	071086		EFH	6.50						
3	DS	BFN-30	E	0.188	0.189	FILLET	FILLET	17A925-101	N	71783	071086		EFH	22.00						
3	DS	BFN-30	F1	0.188	0.189	FILLET	FILLET	17A925-101	N	71783	071086		EFH				4.00			
3	DS	BFN-30	F2 THRU F4	0.188	0.188	FILLET	FILLET	17A925-101	N	71783	071086		EFH	12.00						
3	DS	BFN-30	G1 THRU G4	0.188	0.188	FILLET	FILLET	17A925-101	N	71783	071086		EFH	24.00						
3	DS	BFN-68	A1	0.313		FILLET	FILLET	47A900-50	C	NA	080286		CF		6.25					
3	DS	BFN-68	A2	0.188		BK FIL	FILLET	47A900-50	C	NA	080286		CF		1.00	3.00				
3	DS	BFN-68	A3				FILLET	47A900-50	C	NA	080286	NR	CF							
3	DS	BFN-68	A4	0.125		FILLET	FILLET	47A900-50	C	NA	080286		CF		0.44	3.06				
3	DS	BFN-68	A5			GROOVE	FILLET	47A900-50	C	NA	080286		CF			9.00				
3	DS	BFN-68	A6			GROOVE	FILLET	47A900-50	C	NA	080286		CF			9.00				
3	DS	BFN-68	B1	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF			4.00				
3	DS	BFN-68	B2	0.125		FILLET	FILLET	47A900-50	C	NA	080286		CF		0.41	3.84				
3	DS	BFN-68	B3	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		0.75	2.25				
3	DS	BFN-68	B4	0.125		FILLET	FILLET	47A900-50	C	NA	080286		CF		0.50	3.50				
3	DS	BFN-68	B5			GROOVE	FILLET	47A900-50	C	NA	080286		CF			6.00				
3	DS	BFN-68	B6			GROOVE	FILLET	47A900-50	C	NA	080286		CF			6.00				
3	DS	BFN-68	C1	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		1.00	3.00				
3	DS	BFN-68	C2	0.125		FILLET	FILLET	47A900-50	C	NA	080286		CF		0.47	3.23				
3	DS	BFN-68	C3	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		0.94	2.81				
3	DS	BFN-68	C4	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		1.00	3.00				
3	DS	BFN-68	C5			GROOVE	FILLET	47A900-50	C	NA	080286		CF			6.00				
3	DS	BFN-68	C6			GROOVE	FILLET	47A900-50	C	NA	080286		CF			6.00				
3	DS	BFN-68	C7	0.125		FILLET	FILLET	47A900-50	C	NA	080286		CF		1.00	3.00				

TABLE [illegible]

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

* HS=HOSE SPT
IS=INSTRUMENT TUBING SPT   ST=STRUCT STL
CT=CABLE TRAY SPT   MS=MISC STL
CS=CONDUIT SPT   IS=INSTRUMENT SPT
ES=ELECT PULL BOX SPT   DS=DUCT SPT
EP=ELECT PANEL SPT

*, DRG:C=CONST;V=VENDOR
** FOR NOTES SEE PAGE 67
*** A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNIT	CAT *	INSPEC PACK #	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	DRG *	ORIG INSP DATE MMDDYY	RE-INSP DATE MMDDYY	COMMENT **	EXAM BY	A1	A2	A3	A4	A5	R1	R2
3	DS	BFN-68	D2				FILLET	47A900-50	C	NA	090286	NR	CF							
3	DS	BFN-68	D3	0.125		FILLET	FILLET	47A900-50	C	NA	080286		CF		0.87	2.63				
3	DS	BFN-68	D4	0.125		FILLET	FILLET	47A900-50	C	NA	090286		CF		0.87	2.63				
3	DS	BFN-68	E1			BUTT	FILLET	47A900-50	C	NA	080286		CF		4.00					
3	DS	BFN-68	E2	0.313		FILLET	FILLET	47A900-50	C	NA	090286		CF		4.00					
3	DS	BFN-68	E3	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		3.75					
3	DS	BFN-68	E4	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		3.75					
3	DS	BFN-68	F1	0.125		FILLET	FILLET	47A900-50	C	NA	080286		CF		1.00	3.00				
3	DS	BFN-68	F2			BUTT	FILLET	47A900-50	C	NA	080286		CF		4.00					
3	DS	BFN-68	F3	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		2.75					
3	DS	BFN-68	F4	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		2.75					
3	DS	BFN-68	G1	0.313		FILLET	FILLET	47A900-50	C	NA	080286		CF		4.00					
3	DS	BFN-68	G2				FILLET	47A900-50	C	NA	090286		CF					4.00		
3	DS	BFN-68	G3	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF		3.75					
3	DS	BFN-68	G4	0.188			FILLET	47A900-50	C	NA	080286		CF		3.75					
3	DS	BFN-68	G5			SC GRV	FILLET	47A900-50	C	NA	080285		CF			5.50				
3	DS	BFN-68	G6	0.250		FILLET	FILLET	47A900-50	C	NA	090286		CF		4.00					
3	DS	BFN-68	G6a			BUTT	FILLET	47A900-50	C	NA	080286		CF		1.50					
3	DS	BFN-68	G7	0.188		FILLET	FILLET	47A900-50	C	NA	080286		CF			4.50				
3	DS	BFN-68	G8			BUTT	FILLET	47A900-50	C	NA	080286		CF		5.00					

TABLE 4.2

STRUCTURAL WELDING

REINSPECTION DATA

BROWNSFERRY NUCLEAR PLANT

(*) PS=PIPE SPT
IPS=INSTRUMENT PIPING SPT
CTS=CABLE TRAY SPT
CS=CONDUIT SPT
PBS=ELECT PULL BOX SPT
EPS=ELECT PANEL SPT

STRL=STRUCT STL
MISC=MISC STL
IS=INSTRUMENT SPT
DS=DUCT SPT

(*) DRG:C=CONST;N=NUCPP
(**) FOR NOTES SEE PAGE 63
(***) A1=ACCEPT BY INSP
A2=ACC WITH NO DWG OR DET
A3=ACCEPT BY CALC
A4=INACCESS VERIFIED WELD
A5=INACCESS UNVERIFIED WELD

R1=STRUCTURE UNSTAB
R2=REJECT WELD
NW=NO WELD
X = INACCESSIBLE
NR=NOT REQD PER DWG
NA=NOT APPLICABLE

UNT	DES (*)	INSPEC PACK AP-C-	WELD NUMBER	ACT WELD SIZE (IN)	DWG WELD SIZE (IN)	ACT WELD TYPE	DWG WELD TYPE	DRAWING NO	DRG (*)	ORIG INSPT DATE MMDDYY	RE-INSPT DATE MMDDYY	COMMENT (**)	EXAM BY	A1	A2	A3	A4	A5	R1	R2

NOTE 1:ORIGINAL CONFIGURATION AS SHOWN ON WELD INSPECTION WAS ADEQUATE PER DESIGN CALC. BFEPC80052.
THE SAME CALC. PROVIDES FOR MODIFICATION TO QUALIFY SUPPORT PER ECN P0862 THE MODIFICATION HAS BEEN MADE

2:WELD TYPE NOT AS SPECIFIED ON DWG. ACTUAL WELD USED WAS A MORE APPROPRIATE WELD.

3:WELD ACCEPTED BASED ON TEST RESULTS FROM WBN

4:WELD ACCEPPTED BASED ON INTERM QUALIFICATION BY UE&C AND TVA

TABLE 4.3

Table 4.3 is a summary of reinspection data of mechanical welds tabulated in Table 4.4. The data is a listing, by systems, of the results of the visual and nondestructive examination reinspection and categorizes the resolution of the inspection data.

TABLE 4.3

REINSPECTION SUMMARY FOR MECHANICAL WELDS

BROWNS FERRY NUCLEAR PLANT

SYSTEM	NUMB WELDS IDENT	NUMB WELDS REINSP	VISUAL SATIS-FACTN	JUDGE EVAL 1	JUDGE EVAL 2	JUDGE EVAL 3	RESULTS ACC	RESULTS NCI	LN IN WELD INSPT	FINAL RESOLUTION A1*	A2*	A3	A4	A5	A6	A7	A8	A9	A10*
DGA	20	20	16	0	15	5	16	4	108	16	0	2	1	1	0	0	0	0	0
DGFO	12	12	9	0	9	3	9	3	77	9	0	3	0	0	0	0	0	0	0
DGEECW	116	116	112	9	103	4	109	7	1807	87	22	2	2	1	2	0	0	0	0
RBEECW	31	31	28	0	30	1	28	3	271	18	10	0	0	0	0	1	2	0	0
FPC	50	50	37	0	45	5	37	13	1067	37	0	5	4	4	0	0	0	0	0
ISL	66	66	62	0	63	3	62	4	198	61	1	0	2	1	0	0	1	0	0
RHR	25	25	20	0	21	3	20	5	372	20	0	3	0	2	0	0	0	0	0
RHRS	54	54	47	8	44	2	45	9	2028	41	0	3	4	0	0	0	0	2	4
RW	10	10	8	0	10	0	8	2	103	8	0	0	2	0	0	0	0	0	0
SBLC	7	7	7	0	7	0	6	1	28	6	0	1	0	0	0	0	0	0	0
SUBTOT	391	391	346	17	347	26	340	51	6059	303	33	19	15	9	2	1	3	2	4
SBGT	21	21	20	0	21	0	20	1	1848	20	0	1	0	0	0	0	0	0	0
TOTAL	412	412	366	17	368	26	360	52	7907	323	33	20	15	9	2	1	3	2	4

* A1, A2 & A10 ARE ACCEPTABLE BY REINSPECTION RESOLUTIONS

NOTE: FOR LEGEND, SEE TABLE 4.4

TABLE 4.4

Table 4.4 is a tabulation of each weld of the reinspection data summarized from the reinspection reports. The results and resolution of the reinspection for each weld is tabulated.

TABLE 4.4

BROWNS FERRY NUCLEAR PLANT

MECHANICAL PIPING SYSTEMS

WELD INSPECTION DATA

LEGEND

MAT (MATERIAL)

- A = ALUMINUM
- C = CARBON STEEL
- D = CARBON TO STAINLESS JOINT
- S = STAINLESS STEEL
- CSM = CARBON STEEL SHEET METAL

OC (ORGANIZATION)

- C = CONSTRUCTION
- N = NUCLEAR POWER

WELD (METL) METAL

- NM = NON-MAGNETIC
- SM = STRONGLY MAGNETIC
- WM = WEAKLY MAGNETIC

WELD TYPE

- B = BUTT WELD
- F = FILLET WELD
- S = SOCKET WELD
- SO = SOCK-O-LET
- W = WELD-O-LET

COMP (COMPONENTS)

- PP = PIPE TO PIPE
- PF = PIPE TO FITTING
- PV = PIPE TO VALVE
- FF = FITTING TO FITTING
- FV = FITTING TO VALVE
- AP = ATTACHMENT TO PIPE
- VV = VALVE TO VALVE

JE (JUDGEMENTAL EVALUATION QUALITY OF WORKMANSHIP)

- 1 = GREATER THAN AVERAGE
- 2 = AVERAGE
- 3 = UNACCEPTABLE
- 8 = UNABLE TO DETERMINE

RESULT

- ACC = ACCEPTABLE
- NOI = NOTICE OF INDICATION

REINSPECTION RESULTS

CRITERIA FOR NOI:

- S = SATISFACTORY
- A = CRACK
- B = CONTOUR/TRANSITION
- C = OFFSET/ALIGNMENT
- D = UNDERCUT
- E = REINFORCEMENT
- F = WELD SPATTER/ARC STRIKE
- G = WELD LOCATION
- H = FILLET WELD SIZE
- I = BASE METAL INDICATIONS
- J = WELD CONVEXITY
- K = INCOMPLETE FUSION
- L = WELD OVERLAP
- M = UNDERFILLED
- N = SURFACE POROSITY
- O = SLAG INCLUSION
- P = MISSING WELD
- RK = INCOMPLETE FUSION (RADIOGRAPHIC)
- T = OVERHEATING
- U = IMPROPER PREP. FOR PT OR MT
- Y = LINEAR INDICATION
- - = NOT APPLICABLE

- Q = SEE NOTE 2
- RF = FILM NOT LOCATED
- RG = UNABLE TO LOCATE REPAIR RADIOGRAPHS
- V = WELD METAL/BASE METAL (FERRITE)
- W = WELD METAL/BASE METAL
- Z = WELD OVER THREADS

SYSTEM - WELD REINSPECTION

- ISL - INSTRUMENT SENSING LINES
- RHRS - RHR SERVICE WATER SYSTEM
  - REACTOR BUILDING AND YARD
  - SERVICE WATER TUNNEL
- SBGT - STANDBY GAS TREATMENT SYSTEM
- SBLC - STANDBY LIQUID CONTROL
- FPC - FUEL POOL COOLING
- DGA - DIESEL GENERATOR STARTING AIR
- DGFO - DIESEL GENERATOR FUEL OIL
- EECW - EMERGENCY EQUIPMENT COOLING WATER
  - DG - DIESEL GENERATOR
  - RB - REACTOR BUILDING
- RHR - RESIDUAL HEAT REMOVAL SYSTEM DRAIN PUMPS
- RW - RADWASTE SUMP PUMP DISCHARGE REACTOR BUILDING

TYPE OF INSPECTIONS

- VT = VISUAL TEST
- PT = DYE PENETRANT TEST
- MT = MAGNETIC PARTICLE TEST
- RT = RADIOGRAPHIC EXAM

FINAL RESOLUTION

- A1-ACCEPTED BY INSPECTION
- A2-ACCEPTED BY INSPECTION & FERRITE EVALUATION
- A3-ACCEPTED BY EVALUATION (NEBCSM)
- A4-ACCEPTED BY EVALUATION (CEBMA2)
- A5-ACCEPTED BY EVALUATION (NEBCSM & CEBMA2)
- A6-ACCEPTED BY EVALUATION (CEBMA2) & FERRITE EVALUATION
- A7-ACCEPTED BY EVALUATION (NEBCSM & CEBMA2) & FERRITE EVALUATION
- A8-ACCEPTED BY EVALUATION (NEBCSM) & FERRITE EVALUATION
- A9-ACCEPTED BY EVALUATION (BFEP Co, CEBMA2, NEBCSM)
- A10-ACCEPTED BY INSPECTION (DOCUMENT ACC. BY NEBCSM)

NOTES

1. NDF - NO DOCUMENT FOUND
2. TEST WAS NOT REQUIRED BY G-36 CONSTRUCTION SPECIFICATION AND WAS NOT REPEATED BY THIS REINSPECTION OF SOME WELDS EVEN THOUGH THE ORIGINAL CONSTRUCTION MAY HAVE PERFORMED THE TEST AT THEIR DISCRETION

DATE: 11/10/86
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TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

INSPECTION SUMMARY

UNT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE PT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY
3	DGA	DGA-3A-10A	F	.75x1.5	.145	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3A-12	P	1.5	.145	47N2756	X	X			C	C	5Z91	JWT	05/75
3	DGA	DGA-3A-27	F	.75	.113	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3A-73	F	1.5	.145	47N2756	X	X			C	C	5Z91	JWT	05/75
3	DGA	DGA-3A-107	F	1.5	.145	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3A-112	F	1.5	.145	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3B-48	P	1.5	.145	47N2756	X	X			C	C	6D1	JWT	05/75
3	DGA	DGA-3B-81	F	1.5	.145	47N2756	X	X			C	C	6D1	JWT	05/75
3	DGA	DGA-3B-107	P	1.5	.145	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3B-119	F	.75	.113	47N2752	X	X			C	C	MDF	NDF	NDF
3	DGA	DGA-3C-10A	F	.75x1.5	.145	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3C-12	F	1.5	.145	47N2756	X	X			C	C	6W98	KCN	03/75
3	DGA	DGA-3C-27	F	.75	.113	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3C-33	F	1.5	.145	47N2756	X	X			C	C	6B2	KCN	03/75
3	DGA	DGA-3C-107	F	1.5	.145	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3D-27	F	.75	.113	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3D-48	P	1.5	.145	47N2756	X	X			C	C	6W98	KCN	03/75
3	DGA	DGA-3D-74	F	1.5	.145	47N2756	X	X			C	C	6B2	KCN	02/75
3	DGA	DGA-3D-107	F	1.5	.145	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGA	DGA-3D-174	F	1.5	.145	47N2752	X	X			C	C	NDF	NDF	NDF
3	DGFO	FODG-3A-13	P	2	.154	SK70186 RM03	X				C	C	6R94	CRE	02/75
3	DGFO	FODG-3A-19	F	1.25	.140	SK70186 RM03	X				C	C	6R94	CFE	02/75
3	DGFO	FODG-3A-27	P	2	.154	SK70186 RM03	X				C	C	6R94	CRE	02/75
3	DGFO	FODG-3B-29	F	1.25	.140	SK70186 RM04	X				C	C	6R94	CFE	02/75
3	DGFO	FODG-3B-38	P	2	.154	SK70186 RM04	X				C	C	6R94	CRE	02/75
3	DGFO	FODG-3B-42	F	1.25	.140	SK70186 RM04	X				C	C	6R94	CRE	02/75
3	DGFO	FODG-3C-35	P	1.5	.145	SK70186 RM04	X				C	C	6R92	CRE	02/75
3	DGFO	FODG-3C-42	F	1.25	.140	SK70186 RM04	X				C	C	6R94	CRE	02/75
3	DGFO	FODG-3C-46	P	2	.154	SK70186 RM04	X				C	C	6R94	CRE	02/75
3	DGFO	FODG-3D-35	P	1.25	.140	SK70186 RM04	X				C	C	6R94	CRE	02/75
3	DGFO	FODG-3D-38	P	2	.154	SK70186 RM04	X				C	C	6R94	CRE	02/75
3	DGFO	FODG-3D-42	F	1.5	.145	SK70186 RM04	X				C	C	6R94	CRE	02/75
1	EECW	DG-1-EECW-1A-101	P	4	.237	SK70186 RM09	X	X			S	N	BF0242	S.T.	01/84
1	EECW	DG-1-EECW-1A-102	F	4	.237	SK70186 RM09	X	X			S	N	212	S.T.	01/84
1	EECW	DG-1-EECW-1A-104	P	4	.237	SK70186 RM09	X	X			S	N	212	S.T.	01/84
1	EECW	DG-1-EECW-1A-110	F	4	.237	SK70186 RM09	X	X			S	N	BF0260	J.M.	03/84
1	EECW	DG-1-EECW-1A-112	F	4	.237	SK70186 RM09	X	X			S	N	BF0260	J.M.	03/84
1	EECW	DG-1-EECW-1A-147	F	4	.237	SK70186 RM09	X	X			S	N	FAF489	DOP	04/83
1	EECW	DG-1-EECW-1A-146	P	4	.237	SK70186 RM09	X	X			S	N	FAF489	DOP	04/83
1	EECW	DG-1-EECW-1A-150	F	4	.237	SK70186 RM09	X	X			S	N	BF0019	DOP	04/83
1	EECW	DG-1-EECW-1A-150A	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF
1	EECW	DG-1-EECW-1A-152	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF
1	EECW	DG-1-EECW-1A-154	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF
1	EECW	DG-1-EECW-1B-101	F	4	.237	SK70186 RM09	X	X			S	N	212	S.T.	01/84
1	EECW	DG-1-EECW-1B-102	P	4	.237	SK70186 RM09	X	X			S	N	212	S.T.	01/64
1	EECW	DG-1-EECW-1B-103	P	4	.237	SK70186 RM09	X	X			S	N	212	S.T.	01/84

REINSPECTION SUMMARY

WELD NUMBER	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY PT MT RT	NDE VT	NDE PT	NDE MT	NDE RT	JE	AC	NCI	FINAL RESOLUTION
DGA-3A-10A	08/86	6	SM	SO	PF	DLA		S	G	--	--	2	X		A1
DGA-3A-12	07/86	6	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3A-27	08/86	3	SM	S	PF	DLA		LN	Q	--	--	3		X	A3
DGA-3A-73	07/86	6	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3A-107	07/86	6	SM	S	PF	DLA		S	G	--	--	2	X		A1
DGA-3A-112	07/86	6	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3B-48	07/86	6	SM	S	PF	DLA		S	G	--	--	2	X		A1
DGA-3B-81	07/86	6	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3B-107	07/86	6	SM	S	PF	DLA		K	Q	--	--	3		X	A3
DGA-3B-119	07/86	3	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3C-10A	08/86	6	SM	SO	FF	DLA		LM	Q	--	--	3		X	A5
DGA-3C-12	07/86	6	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3C-27	08/86	3	SM	S	PF	DLA		D	G	--	--	3		X	A4
DGA-3C-33	07/86	6	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3C-107	07/86	6	SM	S	PF	DLA		S	Q	--	--	2	X		A1
DGA-3D-27	07/86	3	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3D-48	07/86	6	SM	S	PF	DLA		S	G	--	--	2	X		A1
DGA-3D-74	07/86	6	SM	S	FF	DLA		S	Q	--	--	2	X		A1
DGA-3D-107	07/86	6	SM	S	PF	DLA		S	G	--	--	2	X		A1
DGA-3D-174	07/86	6	SM	S	FF	DLA		S	Q	--	--	3	X		A1
FODG-3A-13	07/86	8	SM	S	PF	DLA		S	--	--	--	2	X		A1
FODG-3A-19	07/86	5	SM	S	FF	DLA		S	--	--	--	2	X		A1
FODG-3A-27	07/86	8	SM	S	PF	DLA		K	--	--	--	3		X	A3
FODG-3B-29	07/86	5	SM	F	FF	DLA		I	--	--	--	3		X	A3
FODG-3B-38	07/86	8	SM	S	PF	DLA		S	--	--	--	2	X		A1
FODG-3B-42	07/86	5	SM	F	FF	DLA		I	--	--	--	2		X	A3
FODG-3C-35	07/86	6	SM	S	PF	DLA		S	--	--	--	2	X		A1
FODG-3C-42	08/86	5	SM	S	FF	DLA		S	--	--	--	3	X		A1
FODG-3C-46	07/86	8	SM	S	PF	DLA		S	--	--	--	2	X		A1
FODG-3D-35	07/86	5	SM	S	FF	DLA		S	--	--	--	2	X		A1
FODG-3D-38	07/86	8	SM	S	PF	DLA		S	--	--	--	2	X		A1
FODG-3D-42	07/86	6	SM	S	FF	DLA		S	--	--	--	2	X		A1
DG-1-EECW-1A-101	07/86	14	WM	B	PF	RM	RWY	S	S	--	--	2	X		A1
DG-1-EECW-1A-102	07/86	14	WM	B	FV	RM	WP	S	S	--	--	2	X		A1
DG-1-EECW-1A-104	07/86	14	WM	B	PF	RM	WP	S	S	--	--	2	X		A1
DG-1-EECW-1A-110	07/86	14	WM	B	FF	RM	WF	S	S	--	--	2	X		A1
DG-1-EECW-1A-112	07/86	14	WM	B	FF	RM	WP	S	S	--	--	2	X		A1
DG-1-EECW-1A-147	07/86	14	WM	S	FF	RM	WF	S	S	--	--	2	X		A1
DG-1-EECW-1A-146	07/86	14	WM	B	FF	RM	WF	S	S	--	--	2	X		A1
DG-1-EECW-1A-150	07/86	14	WM	S	FF	RM	WP	S	S	--	--	2	X		A1
DG-1-EECW-1A-150A	07/86	14	SM	B	FF	RWY		S	--	--	--	2	X		A1
DG-1-EECW-1A-152	07/86	14	SM	B	FV	RWY		S	--	--	--	2	X		A1
DG-1-EECW-1A-154	07/86	14	SM	B	PV	RWY		S	--	--	--	2	X		A1
DG-1-EECW-1B-101	07/86	14	WM	B	FF	RM	SEV	S	S	--	--	2	X		A1
DG-1-EECW-1B-102	07/86	14	WM	B	PV	RM	SEV	S	S	--	--	2	X		A1
DG-1-EECW-1B-103	07/86	14	WM	B	FV	RM	SEV	S	S	--	--	2	X		A1

TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

INSPECTION SUMMARY :: REINSPECTION SUMMARY

UNIT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE PT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY	::	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY PT-MT-RT	NDE VT	NDE PT	NDE MT	NDE RT	JE	ACC	NCI	FINAL RESOLUTION
1	EECW	DG-1-EECW-1B-104	F	4	.237	SK70186 RM09	X	X			S	N	212	S.T.	01/84	::	07/86	14	WM	B	PF	RM	SEV	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1B-147	F	4	.237	SK70186 RM09	X	X			S	N	BF0139	DOF	03/83	::	07/86	14	WM	S	FF	FM	SEV	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1B-148	P	4	.237	SK70186 RM09	X	X			S	N	BF0139	J.H.	03/83	::	07/86	14	WM	B	PF	RM	SEV	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1B-149	F	4	.237	SK70186 RM09	X	X			S	N	380	F.J.	04/83	::	07/86	14	WM	B	FF	FM	SEV	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1B-150	F	4	.237	SK70186 RM09	X	X			S	N	BF0019	DOF	04/83	::	07/86	14	WM	S	FF	RM	SEV	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1B-150A	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF	::	07/86	14	SM	B	FF	RWY		S	--	--	--	2	X		A1
1	EECW	DG-1-EECW-1B-153	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF	::	07/86	14	SM	B	PV	RWY		S	--	--	--	2	X		A1
1	EECW	DG-1-EECW-1B-154	M	4	.237	SK70186 FM09	X				C	C	NDF	NDF	NDF	::	07/86	14	SM	B	PV	RWY		S	--	--	--	2	X		A1
1	EECW	DG-1-EECW-1C-101	P	4	.237	SK70186 RM09	X	X			S	N	BF0100	S.T.	01/84	::	07/86	14	SM	B	PF	RMB	WF	SV	S	--	--	2	X		A2
1	EECW	DG-1-EECW-1C-102	F	4	.237	SK70186 RM09	X	X			S	N	BF0100	S.T.	01/84	::	07/86	14	SM	B	FV	RMB	WF	SV	S	--	--	2	X		A2
1	EECW	DG-1-EECW-1C-103	P	4	.237	SK70186 RM09	X	X			S	N	BF0100	S.T.	01/84	::	07/86	14	SM	B	PV	RMB	WF	SV	S	--	--	2	X		A2
1	EECW	DG-1-EECW-1C-104	F	4	.237	SK70186 RM09	X	X			S	N	BF0100	S.T.	01/84	::	07/86	14	SM	B	FF	FMB	WF	SV	S	--	--	2	X		A2
1	EECW	DG-1-EECW-1C-147	P	4	.237	SK70186 RM09	X	X			S	N	FATV	RFK	04/83	::	07/86	14	SM	F	PF	RMB	RMB	HV	S	--	--	2		X	A6
1	EECW	DG-1-EECW-1C-148	P	4	.237	SK70186 FM09	X	X			S	N	FATV	RFK	04/83	::	07/86	14	SM	B	FF	RMB	RMB	SV	S	--	--	2	X		A2
1	EECW	DG-1-EECW-1C-149	P	4	.237	SK70186 RM09	X	X			S	N	FATV	RFK	04/83	::	07/86	14	SM	E	PF	RMB	RMB	SV	S	--	--	2	X		A2
1	EECW	DG-1-EECW-1C-150	F	4	.237	SK70186 RM09	X	X			S	N	FATV	RFK	04/83	::	07/86	14	SM	F	FF	RMB	FMB	HV	S	--	--	2		X	A6
1	EECW	DG-1-EECW-1C-150A	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF	::	07/86	14	SM	B	PF	RWY		S	--	--	--	2	X		A1
1	EECW	DG-1-EECW-1C-153	M	4	.237	SK70186 FM09	X				C	C	NDF	NDF	NDF	::	07/86	14	SM	B	FV	RWY		S	--	--	--	2	X		A1
1	EECW	DG-1-EECW-1C-154	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF	::	07/86	14	SM	B	FV	RWY		S	--	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-93	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	WM	B	FF	FM	FM	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-94	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	WM	B	PF	FM	FM	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-95	P	4	.237	SK70186 RM09	X	X			S	N	BF0100	RFK	06/84	::	07/86	14	WM	B	FF	FM	FM	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-101	P	4	.237	SK70186 RM09	X	X			S	N	235	S.T.	01/84	::	07/86	14	WM	B	PF	RM	WF	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-102	F	4	.237	SK70186 FM09	X	X			S	N	235	S.T.	01/84	::	07/86	14	WM	B	FV	FM	WF	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-103	F	4	.237	SK70186 RM09	X	X			S	N	235	S.T.	01/84	::	07/86	14	WM	B	PV	FM	WF	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-104	P	4	.237	SK70186 RM09	X	X			S	N	235	S.T.	01/84	::	07/86	14	WM	B	FF	FM	WF	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-147	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	RFK	04/83	::	07/86	14	WM	S	PF	RM	SEV	H	S	--	--	2		X	A4
1	EECW	DG-1-EECW-1D-148	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	RFK	04/83	::	07/86	14	WM	B	FF	RM	SEV	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-149	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	RFK	04/83	::	07/86	14	WM	B	PF	RM	SEV	S	S	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-150	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	RFK	04/83	::	07/86	14	WM	S	PF	RM	SEV	H	S	--	--	2		X	A4
1	EECW	DG-1-EECW-1D-150A	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF	::	07/86	14	SM	B	PF	RWY		S	--	--	--	2	X		A1
1	EECW	DG-1-EECW-1D-153	M	4	.237	SK70186 RM09	X				C	C	NDF	NDF	NDF	::	07/86	14	SM	B	FV	RWY		S	--	--	--	2	X		A1
3	EECW	DG-3-67-08	P	6	.280	SK70186 RM07	X	X			C	C	6H99	GWF	09/74	::	07/86	21	SM	B	FP	RWY		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-10	F	6	.280	SK70186 RM07	X	X			C	C	6H99	GWF	09/74	::	08/86	21	SM	B	FF	RWY		S	Q	--	--	1	X		A1
3	EECW	DG-3-67-11	F	8	.322	SK70186 RM07	X	X			C	C	6H99	GWF	09/74	::	07/86	27	SM	B	PP	RWY		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-13	F	8x6	.322	SK70186 RM07	X	X			C	C	6H99	GWF	09/74	::	08/86	30	SM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-14	P	8	.322	SK70186 RD07	X	X			C	C	6H99	GWF	09/74	::	08/86	27	SM	B	PF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-15	F	10	.365	SK70186 RM07	X	X			C	C	6Z91	GWF	09/74	::	08/86	34	SM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-20	F	10x6	.365	SK70186 RM07	X	X			C	C	6Z91	GWF	09/74	::	08/86	34	SM	W	FF	RMB		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-23	F	10	.365	SK70186 RM07	X	X			C	C	5Z91	GWF	09/74	::	08/86	34	SM	B	FF	FMB		EL	Q	--	--	2		X	A5
3	EECW	DG-3-67-25	F	6	.290	SK70186 RM07	X	X			C	C	6H99	GWF	09/74	::	08/86	21	SM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-33	F	6	.280	SK70186 RM07	X	X			C	C	6Z91	GWF	09/74	::	07/86	21	SM	B	FV	RWY		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-37	P	6	.280	SK70186 RM07	X	X			C	C	6Z91	GWF	09/74	::	08/86	21	SM	E	FF	FMB		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-40	F	6	.280	SK70186 RM07	X	X			C	C	6Z91	GWF	09/74	::	08/86	21	SM	B	FF	FMB		M	Q	--	--	2		X	A?
3	EECW	DG-3-67-57	F	6	.280	SK70186 RM08	X	X			C	C	6R94	GWF	09/74	::	07/86	21	SM	E	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-60	F	8x6	.322	SK70186 FM08	X	X			C	C	5R94	GWF	09/74	::	07/86	30	SM	W	FF	DLA		S	Q	--	--	2	X		A1

TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

INSPECTION SUMMARY :: REINSPECTION SUMMARY

UNT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE PT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY	::	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY PT MT RT	NDE VT	NDE PT	NDE MT	NDE RT	JE	A C C	N O I	FINAL RESOLUTION
3	EECW	DG-3-67-63	P	10x1	.365	SK70186 RM08	X	X			C	C	6D1	GWF	09/74	::	07/86	4	SM	SO	PF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-64	P	10x6	.365	SK70186 RM08	X	X			C	C	6D1	GWF	09/74	::	07/86	40	SM	W	PF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-70	P	REF PLT	.365	SK70186 RM08	X	X			C	C	6D1	GWF	09/74	::	08/86	40	SM	F	PF	RWY		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-71	P	6	.280	SK70186 RM08	X	X			C	C	6R94	GWF	09/74	::	07/86	21	SM	B	FS	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-72	P	6	.280	SK70186 RM08	X	X			C	C	6R94	GWF	09/74	::	07/86	21	SM	B	FF	DLA		S	G	--	--	2	X		A1
3	EECW	DG-3-67-75	P	1	.179	SK70186 RM08	X	X			C	C	6D1	GWF	09/74	::	07/86	4	SM	S	FF	DLA		S	Q	--	--	3	X		A1
3	EECW	DG-3-67-76	P	1	.179	SK70186 RM08	X	X			C	C	6D1	GWF	09/74	::	07/86	4	SM	S	PF	DLA		S	Q	--	--	3	X		A1
3	EECW	DG-3-67-80	P	6	.281	SK70186 RM08	X	X			C	C	6D1	GWF	09/74	::	07/86	21	SM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-3-67-83	P	6	.281	SK70186 RM08	X	X			C	C	6D1	GWF	09/74	::	07/86	21	SM	B	PF	DLA		S	G	--	--	2	X		A1
3	EECW	DG-3-67-86	P	6	.281	SK70186 RM08	X	X			C	C	5D1	GWF	09/74	::	08/86	21	SM	F	FF	RWY		S	Q	--	--	2	X		A1
3	EECW	DG-EECW-3A-102	P	4	.237	SK70186 RM09	X	X			S	N	BF0053	J.M.	02/84	::	07/86	14	WM	B	FV	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-103	P	4	.237	SK70186 RM09	X	X			S	N	BF0053	RFK	02/84	::	07/86	14	WM	B	FV	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-110	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	WM	B	FF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-112	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	WM	B	FP	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-114	P	4x1	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	WM	SO	FF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-118	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	BLF	06/84	::	07/86	14	WM	B	FV	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-128	P	4	.237	SK70186 RM09	X	X			S	N	BF0055	BLF	06/84	::	07/86	14	WM	B	VV	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-131	P	4	.237	SK70186 RM09	X	X			S/C	N	BF0260	RFK	06/84	::	08/86	14	WM	B	FF	LEW		S	Q	--	--	2	X		A1
3	EECW	DG-EECW-3A-135	P	1	.179	SK70186 RM09	X	X			S	N	BF0055	RFK	06/84	::	07/86	4	WM	S	PF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-140	P	4	.237	SK70186 RM09	X	X			S	N	BF0262	WLG	04/83	::	07/86	14	WM	B	FF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-142	P	4	.237	SK70186 RM09	X	X			S	N	FATV	N/L	04/83	::	07/86	14	WM	B	PF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3A-143	P	4	.237	SK70186 RM09	X	X			S	N	BF0262	WLG	04/83	::	07/86	14	WM	B	PF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3B-103	P	4	.237	SK70186 RM09	X	X			S	N	BF0053	RFK	02/84	::	07/86	14	WM	B	FF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3B-110	P	4	.237	SK70186 RM09	X	X			S	N	BF0100	BLF	05/84	::	07/86	14	WM	B	FF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3B-112	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	BLF	05/84	::	07/86	14	WM	B	PF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3B-114	P	4x1	.237	SK70186 RM09	X	X			S	N	BF0260	BLF	05/84	::	07/86	14	WM	SO	PF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3B-118	P	4	.237	SK70186 RM09	X	X			S	N	BF0100	BLF	05/84	::	07/86	14	WM	B	FF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3B-119	P	4	.237	SK70186 RM09	X	X			S/C	N	BF0055	RFK	06/84	::	07/86	14	WM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-EECW-3B-128	P	4	.237	SK70186 RM09	X	X			S	N	BF0055	BLF	05/84	::	07/86	14	WM	B	VV	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3B-131	P	4	.237	SK70186 RM09	X	X			S/C	N	BF0055	RFK	06/84	::	07/86	14	WM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-EECW-3B-135	P	1	.179	SK70186 RM09	X	X			S	N	BF0100	BLF	05/84	::	07/86	4	WM	S	PF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3B-140	P	4	.237	SK70186 RM09	X	X			S	N	BF0166	J.S.	03/83	::	07/86	14	WM	B	FF	DLA	RFH	S	U	--	--	3		X	A3
3	EECW	DG-EECW-3B-143	P	4	.237	SK70186 RM09	X	X			S	N	BF0166	J.S.	03/83	::	07/86	14	WM	B	PF	DLA	RFH	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3C-93	P	4	.237	SK70186 RM09	X	X			S	N	BF0100	PRS	05/84	::	07/86	14	SM	B	FF	RMB	WP	SV	S	--	--	2	X		A2
3	EECW	DG-EECW-3C-103	P	4	.237	SK70186 RM09	X	X			S	N	643	J.M.	02/84	::	07/86	14	SM	B	PV	RMB	WP	SV	S	--	--	2	X		A2
3	EECW	DG-EECW-3C-111	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	SM	B	FF	RMB	WP	SV	S	--	--	2	X		A2
3	EECW	DG-EECW-3C-112	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	SM	B	FF	RMB	RMB	SV	S	--	--	2	X		A2
3	EECW	DG-EECW-3C-114	P	4x1	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	SM	SO	FF	RMB	RMB	SV	S	--	--	2	X		A2
3	EECW	DG-EECW-3C-118	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	RFK	05/84	::	07/86	14	SM	B	FF	RMB	RMB	SV	S	--	--	2	X		A2
3	EECW	DG-EECW-3C-126	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	::	07/86	14	SM	B	FF	RMB	WP	SV	S	--	--	2	X		A2
3	EECW	DG-EECW-3C-128	P	4	.237	SK70186 RM09	X	X			S	N	BF0055	RFK	05/84	::	07/86	14	SM	B	FF	RMB	RMB	SV	S	--	--	2	X		A2
3	EECW	DG-EECW-3C-131	P	4	.237	SK70186 RM09	X	X			S/C	N	BF0260	PRS	05/84	::	07/86	14	WM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-EECW-3C-135	P	1	.179	SK70186 RM09	X	X			S	N	BF0055	RFK	05/84	::	07/86	4	WM	S	FF	RMB	RMB	S	S	--	--	2	X		A1
3	EECW	DG-EECW-3C-143	P	4	.237	SK70186 RM09	X	X			S	N	335	RFK	04/83	::	07/86	14	WM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-EECW-3C-152	P	4	.237	SK70186 RM09	X	X			C	N	NDF	NDF	NDF	::	07/86	14	SM	B	FF	DLA		S	Q	--	--	3	X		A1
3	EECW	DG-EECW-3D-93	P	4	.237	SK70186 RM09	X	X			S	N	BF0100	RFK	05/84	::	07/86	14	SM	B	FF	RWY	SEV	SV	S	--	--	1	X		A2

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TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

UNT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE PT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY FT-MT-RT	NDE VT	NDE PT	NDE MT	NDE RT	JE	AC	NCI	FIN RESLUT
		INSPECTION SUMMARY														REINSPECTION SUMMARY														
3	EECW	DG-EECW-3D-102	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	WCJ	05/84	07/86	14	SM	B	PV	RWY	SEV	SV	S	--	--	1	X		A2
3	EECW	DG-EECW-3D-103	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	WCJ	05/84	07/86	14	SM	B	PV	RWY	SEV	SV	S	--	--	1	X		A2
3	EECW	DG-EECW-3D-112	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	07/86	14	SM	B	FF	RWY	SEV	SV	S	--	--	1	X		A2
3	EECW	DG-EECW-3D-114	P	4x1	.237	SK70186 RM09	X	X			S	N	BF0100	RFK	04/84	07/86	14	SM	F	FF	RWY	SEV	SV	S	--	--	1	X		A2
3	EECW	DG-EECW-3D-119	P	4	.237	SK70186 RM09	X	X			S/C	N	BF0055	RFK	05/84	07/86	14	WM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-EECW-3D-126	P	4	.237	SK70186 RM09	X	X			S	N	BF0260	RFK	04/84	07/86	14	SM	B	FF	RWY	SEV	SV	S	--	--	1	X		A2
3	EECW	DG-EECW-3D-128	P	4	.237	SK70186 RM09	X	X			S	N	BF0055	RFK	04/84	07/86	14	SM	B	FF	RWY	SEV	SV	S	--	--	1	X		A2
3	EECW	DG-EECW-3D-135	P	1	.179	SK70186 RM09	X	X			S	N	BF0100	RFK	04/84	07/86	4	SM	S	FF	RWY	SEV	SV	S	--	--	1	X		A2
3	EECW	DG-EECW-3D-143	P	4	.237	SK70186 RM09	X	X			S	N	NDF	NDF	NDF	07/86	14	WM	B	FF	DLA		S	Q	--	--	2	X		A1
3	EECW	DG-EECW-3D-152	P	4	.237	SK70186 RM09	X	X			C	N	225	G.H.	04/83	07/86	14	SM	B	PF	DLA		S	Q	--	--	2	X		A1
2	EECW	RBEECW-2-02	P	2		SK70186 RM10	X	X			S	N	1	GEH	05/78	07/86	8	SM	S	PF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-03	P	2x1		SK70186 RM10	X	X			S	N	1	JAP	06/78	08/86	8	NM	S	FF	RMB		S	Q	--	--	2	X		A1
2	EECW	RBEECW-2-04	P	1		SK70186 RM10	X	X			S	N	1	JAP	06/78	08/86	4	NM	S	FF	RMB		S	Q	--	--	2	X		A1
2	EECW	RBEECW-2-07	P	2		SK70186 RM10	X	X			S	N	1	JAP	06/78	08/86	8	NM	S	FF	RMB		S	Q	--	--	2	X		A1
2	EECW	RBEECW-2-08	P	2		SK70186 RM10	X	X			S	N	1	GEH	06/78	07/86	8	SM	S	PF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-10	P	2		SK70186 RM10	X	X			S	N	BF0518	RFK	10/85	07/86	8	SM	S	PV	RMB	RMB	SV	I	--	--	2		X	A8
2	EECW	RBEECW-2-13	P	3		SK70186 RM10	X	X			S	N	1	GEH	05/78	07/86	11	SM	B	FF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-14	P	3		SK70186 RM10	X	X			S	N	1	GEH	05/78	07/86	11	SM	B	FF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-17	P	2		SK70186 RM10	X	X			S	N	BF0260	RFK	12/85	07/86	8	SM	S	PV	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-20	P	2		SK70186 RM10	X	X			S	N	1	GEH	05/78	08/86	8	NM	S	FF	RMB		S	Q	--	--	2	X		A1
2	EECW	RBEECW-2-21	P	2		SK70186 RM10	X	X			S	N	1	GEH	05/78	07/86	8	SM	S	PF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-22	P	2x1		SK70186 RM10	X	X			S	N	1	GEH	05/78	08/86	8	NM	S	FF	RMB		S	Q	--	--	2	X		A1
2	EECW	RBEECW-2-25	P	1		SK70186 RM10	X	X			S	N	NDF	NDF	NDF	07/86	4	SM	S	PV	RMB	RMB	DHVU		--	--	2		X	A7
2	EECW	RBEECW-2-29	P	2		SK70186 RM11	X	X			S	N	BF0518	RFK	11/85	07/86	8	SM	B	PF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-31	P	2		SK70186 RM11	X	X			S	N	NDF	NDF	NDF	07/86	8	SM	S	PF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-33	P	2		SK70186 RM11	X	X			S	N	BF0518	WLP	11/85	07/86	8	SM	S	PV	RMB	RMB	SV	I	--	--	2		X	A8
2	EECW	RBEECW-2-34	P	2		SK70186 RM11	X	X			S	N	NDF	NDF	NDF	07/86	8	SM	B	FF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-35	P	3		SK70186 RM11	X	X			S	N	NDF	NDF	NDF	07/86	11	SM	B	FF	RMB	RMB	SV	S	--	--	2	X		A2
2	EECW	RBEECW-2-44	P	2		SK70186 RM11	X	X			S	N	NDF	NDF	NDF	08/86	8	NM	S	PF	RMB		S	Q	--	--	2	X		A1
2	EECW	RBEECW-2-50	P	4		SK70186 RM12	X	X			S	N	NDF	NDF	NDF	07/86	14	WM	B	PF	RM	SEV	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-51	P	4		SK70186 RM12	X	X			S	N	1	GEH	05/79	07/86	14	WM	B	PF	RM	SEV	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-52	P	4x2		SK70186 RM12	X	X			S	N	NDF	NDF	NDF	07/86	14	NM	F	PF	LEW		S	Q	--	--	2	X		A1
2	EECW	RBEECW-2-53	P	4		SK70186 RM12	X	X			S	N	NDF	NDF	NDF	07/86	14	WM	B	FF	RM	SEV	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-54	F	4		SK70186 RM12	X	X			S	N	1	GEH	05/78	07/86	14	WM	B	FF	RM	SEV	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-55	F	2		SK70186 RM12	X	X			S	N	BF0260	WLP	12/85	07/86	8	WM	S	FF	RM	SEV	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-56	F	2		SK70186 RM12	X	X			S	N	BF0260	WLG	05/86	07/86	6	WM	B	FF	RM	WF	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-57	F	2		SK70186 RM12	X	X			S	N	BF0455	WLP	01/86	07/86	8	WM	B	PF	RM	WF	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-58	F	2		SK70186 RM12	X	X			S	N	NDF	WLP	01/86	07/86	8	WM	S	PF	RM	WF	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-59	F	2		SK70186 RM12	X	X			S	N	BF0260	BLF	12/85	07/86	8	WM	S	FF	RM	WF	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-60	F	2		SK70186 RM12	X	X			S	N	BF0260	BLF	12/85	07/86	8	WM	S	FF	RM	WF	S	S	--	--	2	X		A1
2	EECW	RBEECW-2-61	F	2		SK70186 RM12	X	X			S	N	BF0260	BLF	12/85	07/86	8	WM	S	FF	RM	WF	S	S	--	--	2	X		A1
1	FFC	TFFC-1-48	F	8	.322	47W2303-U1	X				A	C	NDF	NDF	NDF	07/86	27	NM	B	FF	DLA		E	--	--	--	2		X	A4
1	FFC	TFFC-1-49	F	8	.322	47W2303-U1	X				A	C	NDF	NDF	NDF	07/86	27	NM	B	FF	DLA		D	--	--	--	2		X	A4
1	FFC	TFFC-1-53	F	6	.280	47W2303-U1	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	FF	DLA		S	--	--	--	2	X		A1
1	FFC	TFFC-1-57	F	6	.280	47W2303-U1	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	FF	DLA		M	--	--	--	2		X	A3
1	FFC	TFFC-1-68	F	4	.237	47W2303-U1	X				A	C	NDF	NDF	NDF	07/86	14	NM	B	FF	DLA		S	--	--	--	2	X		A1

TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

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INSPECTION SUMMARY :: REINSPECTION SUMMARY

UNT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE FT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY FT MT RT	NDE VT	NDE FT	NDE MT	NDE RT	JE	AC C	NO CI	FINAL RESOLUTION
1	FFC	TFPC-1-70	F	4	.[illegible]	47W2303-U1	X				A	C	NDF	NDF	NDF	07/86	14	NM	B	FF	DLA		M	--	--	--	3		X	A3
1	FFC	TFFC-1-129	F	6	.[illegible]	47W2303-U1	X				C	C	NDF	NDF	NDF	07/86	21	SM	B	FF	RWY		S	--	--	--	2	X		A1
1	FPC	TFPC-1-130	F	6	.280	47W2303-U1	X				C	C	NDF	NDF	NDF	07/86	21	SM	B	PF	RWY		S	--	--	--	2	X		A1
1	FFC	TFFC-1-135	F	6	.280	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FF	DLA		NO	--	--	--	3		X	A3
1	FPC	TFFC-1-142	F	6	.280	47W2303-U1	X				C	C	NDF	NDF	NDF	07/86	21	SM	B	FF	RWY		S	--	--	--	2	X		A1
1	FPC	TFFC-1-147	F	10	.365	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FV	DLA		M	--	--	--	2		X	A4
1	FFC	TFFC-1-157	F	6	.280	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FF	DLA		S	--	--	--	2	X		A1
1	FFC	TFFC-1-161	F	6	.290	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FF	DLA		S	--	--	--	2	X		A1
1	FFC	TFFC-1-162	F	6	.280	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FF	DLA		S	--	--	--	2	X		A1
1	FFC	TFFC-1-164	F	6	.280	47W2303-U1	X				C	C	NDF	NDF	NDF	07/86	21	SM	B	FP	RWY		S	--	--	--	2	X		A1
1	FFC	TFFC-1-183	F	6	.280	47W2303-U1	X				C	C	NDF	NSD	NDF	08/86	21	SM	B	FV	DLA		M	--	--	--	2		X	A3
1	FFC	TFFC-1-189	F	10	.365	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	34	SM	B	FV	DLA		KM	--	--	--	3		X	A5
1	FFC	TFPC-1-190	F	10	.365	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	34	SM	B	PV	DLA		S	--	--	--	3	X		A1
1	FFC	TFFC-1-204	F	8	.322	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	27	SM	B	FF	RMB		S	--	--	--	2	X		A1
1	FPC	TFFC-1-205	F	8	.322	47W2303-U1	X				C	C	NDF	NDF	NDF	08/86	27	SM	B	FV	RMB		S	--	--	--	2	X		A1
2	FFC	TFFC-2-49	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	FV	RWY		S	--	--	--	2	X		A1
2	FPC	TFPC-2-50	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	PV	RWY		S	--	--	--	2	X		A1
2	FFC	TFFC-2-50A	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	FP	RWY		S	--	--	--	2	X		A1
2	FPC	TFFC-2-53	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	PF	RWY		S	--	--	--	2	X		A1
2	FFC	TFFC-2-54	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	FF	RW'		S	--	--	--	2	X		A1
2	FFC	TFPC-2-57	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	WDF	07/86	21	NM	B	PF	RWY		S	--	--	--	2	X		A1
2	FFC	TFFC-2-58	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	FF	RWY		S	--	--	--	2	X		A1
2	FPC	TFPC-2-59	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	PF	RMB		S	--	--	--	2	X		A1
2	FFC	TFFC-2-60	F	6	.280	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	21	NM	B	FF	RWY		S	--	--	--	2	X		A1
2	FPC	TFPC-2-68	F	4	.237	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	14	NM	B	PF	RMB		S	--	-	--	2	X		A1
2	FFC	TFPC-2-70A	F	4	.237	47W2303-U2	X				A	C	NDF	NDF	NDF	07/86	14	NM	B	FP	FMB		S	--	--	--	2	X		A1
2	FFC	TFPC-2-261	F	6	.280	47W2303-U2	X				A	C	6K5	GKA	08/73	08/86	27	NM	B	FF	RMB		S	--	--	--	2	X		A1
3	FFC	TFPC-3-24M	F	6	.280	47W2303-U3	X				C	C	NDF	NDF	NDF	07/86	21	SM	B	FF	FMB		BE	--	--	--	2		X	A5
3	FFC	TFPC-3-24N	F	6	.280	47W2303-U3	X				C	C	NDF	NDF	NDF	07/86	21	SM	B	FF	RMB		S	--	--	--	2	X		A1
3	FFC	TFFC-3-48	F	4	.237	47W2303-U3	X				A	C	NDF	NDF	NDF	07/86	14	NM	B	FF	DLA		S	--	--	--	2	X		A1
3	FPC	TFPC-3-50	F	4	.237	47W2303-U3	X				A	C	6K5	GKA	04/74	07/86	14	NM	B	FF	DLA		S	--	--	--	2	X		A1
3	FFC	TFFC-3-54	F	4	.237	47W2303-U3	X				A	C	NDF	NDF	NDF	07/86	14	NM	B	FF	DLA		ET	--	--	--	3		X	A5
3	FFC	TFPC-3-59	F	4	.237	47W2303-U3	X				A	C	NDF	NDF	NDF	07/86	14	NM	B	PF	DLA		S	--	--	--	2	X		A1
3	FFC	TFFC-3-134	F	6	.280	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FF	RMB		S	--	--	--	2	X		A1
3	FFC	TFPC-3-136	F	6	.280	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FV	RMB		S	--	--	--	2	X		A1
3	FFC	TFFC-3-142	F	6	.280	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FV	RMB		O	--	--	--	2		X	A3
3	FFC	TFPC-3-146	F	6	.280	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FF	RMB		S	--	--	--	2	X		A1
3	FFC	TFFC-3-163A	F	6	.280	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	21	SM	B	FF	FMB		EK	--	--	--	2		X	A5
3	FFC	TFFC-3-168	F	4	.237	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	14	SM	B	FF	RMB		S	--	--	--	2	X		A1
3	FFC	TFFC-3-171	F	4	.237	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	14	SM	B	FF	RMB		S	--	--	--	2	X		A1
3	FFC	TFFC-3-172	F	4	.237	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	14	SM	B	FF	RMB		E	--	--	--	2		X	A4
3	FFC	TFFC-3-189	F	10	.365	47W2303-U3	X				C	C	NDF	NDF	NDF	08/86	34	SM	B	PV	RMB		S	--	--	--	2	X		A1
3	FFC	TFFC-3-190	F	10	.365	47W2303-U3	X				C	C	6K5	GKA	02/73	08/86	34	SM	B	PV	RMB		S	--	--	--	2	X		A1
3	FFC	TFFC-3-204	F	8	.322	47W2303-U3	X				C	C	NDF	NDF	NDF	07/86	27	SM	B	FF	FMB		S	--	--	--	2	X		A1
3	F--	TFPC-3-205	F	8	.322	47W2303-U3	X				C	C	6K5	GKA	02/73	07/86	27	SM	B	FV	RMB		S	--	--	--	2	X		A1
.		ISL-1-25-540-001	D	.5	.147	SK70186 RM14	X	X			S	N	BFD111	FRS	08/81	07/86	3	WM	S	FF	DLA	FFH	S	S	--	--	2	X		A1

TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

UNIT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE PT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY	::	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY PT MT RT	NDE VT	NDE PT	NDE MT	NDE RT	JE	AC	NOI	FIN RESULT
		INSPECTION SUMMARY														::	REINSPECTION SUMMARY														
1	ISL	ISL-1-25-340-002	D	.5	.147	SK70186 RM14	X	X			S	N	BF0111	FRS	08/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-340-003	D	.5	.147	SK70186 RM14	X	X			S	N	NDF	NDF	NDF	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-340-004	D	.5	.147	SK70186 RM14	X	X			S	N	FAMF	FRS	08/81	::	07/86	3	SM	S	FF	DLA	RFH	SV	S	--	--	2	X		A2
1	ISL	ISL-1-25-340-005	D	.5	.147	SK70186 RM14	X	X			S	N	BF0111	FRS	08/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-340-006	D	.5	.147	SK70186 RM14	X	X			S	N	FAMF	FRS	08/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-340-007	D	.5	.147	SK70186 RM14	X	X			S	N	BF0111	FRS	08/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-340-008	D	.5	.147	SK70186 RM14	X	X			S	N	BF0143	FRS	08/81	::	07/86	3	SM	S	FF	DLA	RFH	KV	I	--	--	2		X	A8
1	ISL	ISL-1-25-341-019	D	.5	.147	SK70186 RM15	X	X			S	N	BF0149	FRS	06/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-341-020	D	.5	.147	SK70186 RM15	X	X			S	N	BF0149	FRS	06/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-341-021	D	.5	.147	SK70186 RM15	X	X			S	N	BF0149	FRS	06/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-341-022	D	.5	.147	SK70186 RM15	X	X			S	N	SS254	HEQ	06/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-341-023	D	.5	.147	SK70186 RM15	X	X			S	N	SS254	HEQ	06/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-341-024	D	.5	.147	SK70186 RM15	X	X			S	N	SS254	HEQ	06/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-341-025	D	.5	.147	SK70186 RM15	X	X			S	N	NDF	NDF	NDF	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
1	ISL	ISL-1-25-341-026	D	.5	.147	SK70186 RM15	X	X			S	N	SS254	NDF	07/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-340-001	D	.5	.147	SK70196 RM14	X	X			S	N	084	MDR	11/80	::	07/86	3	WM	S	FF	DLA	RFH	H	I	--	--	3		X	A5
2	ISL	ISL-2-25-340-002	D	.5	.147	SK70186 RM14	X	X			S	N	084	MDR	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-340-003	D	.5	.147	SK70186 RM14	X	X			S	N	147	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-340-004	D	.5	.147	SK70186 RM14	X	X			S	N	147	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-340-005	D	.5	.147	SK70186 RM14	X	X			S	N	147	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-340-006	D	.5	.147	SK70186 RM14	X	X			S	N	147	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-340-009	D	.5	.147	SK70186 RM14	X	X			S	N	147	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-340-010	D	.5	.147	SK70186 RM14	X	X			S	N	147	MDR	11/80	::	07/86	3	NM	S	FF	DLA	RFH	H	S	--	--	2		X	A4
2	ISL	ISL-2-25-341-019	D	.5	.147	SK70186 RM15	X	X			S	N	BF061	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-341-020	D	.5	.147	SK70186 RM15	X	X			S	N	BF061	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-341-021	D	.5	.147	SK70186 RM15	X	X			S	N	BF062	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-341-022	D	.5	.147	SK70186 RM15	X	X			S	N	BF061	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-341-023	D	.5	.147	SK70186 RM15	X	X			S	N	BF061	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	H	S	--	--	2		X	A4
2	ISL	ISL-2-25-341-024	D	.5	.147	SK70186 RM15	X	X			S	N	BF062	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-341-025	D	.5	.147	SK70186 RM15	X	X			S	N	BF061	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-341-026	D	.5	.147	SK70186 RM15	X	X			S	N	BF061	GEH	11/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
2	ISL	ISL-2-25-6-52	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-54	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-55	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-56	B31.1	.5	.147	SK70196 RM13	X				S	C	NDF	NDF	NDF	::	08/86	3	NM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-57	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-58	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-59	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-60	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-61	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-62	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-63	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-64	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-65	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-66	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-67	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1

TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

INSPECTION SUMMARY :: REINSPECTION SUMMARY

UNIT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE PT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY	::	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY PT-MT-RT	NDE VT	NDE PT	NDE MT	NDE RT	JE	AC C	NO I	FINAL RESOLUTION
2	ISL	ISL-2-25-6-68	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	PF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-69	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
2	ISL	ISL-2-25-6-70	B31.1	.5	.147	SK70186 RM13	X				S	C	NDF	NDF	NDF	::	07/86	3	WM	S	FF	RMB		S	--	--	--	2	X		A1
3	ISL	ISL-3-25-340-001	D	.5	.147	SK70186 RM14	X	X			S	N	BF044	C.B.	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-340-002	D	.5	.147	SK70186 RM14	X	X			S	N	BF044	C.B.	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-340-003	D	.5	.147	SK70186 RM14	X	X			S	N	465	MRH	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-340-004	D	.5	.147	SK70186 RM14	X	X			S	N	465	MRH	12/80	::	07/86	3	WM	S	PF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-340-005	D	.5	.147	SK70186 RM14	X	X			S	N	465	MRH	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-340-006	D	.5	.147	SK70186 RM14	X	X			S	N	465	MRH	12/80	::	07/86	3	WM	S	PF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-340-007	D	.5	.147	SK70186 RM14	X	X			S	N	BF044	MRH	12/80	::	07/86	3	WM	S	PF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-340-008	D	.5	.147	SK70186 RM14	X	X			S	N	BF044	MRH	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-341-019	D	.5	.147	SK70186 RM15	X	X			S	N	266	N/L	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-341-020	D	.5	.147	SK70186 RM15	X	X			S	N	266	N/L	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-341-021	D	.5	.147	SK70186 RM15	X	X			S	N	BF056	N/L	01/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-341-022	D	.5	.147	SK70186 RM15	X	X			S	N	BF056	N/L	12/80	::	07/86	3	WM	S	PF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-341-023	D	.5	.147	SK70186 RM15	X	X			S	N	BF056	N/L	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-341-024	D	.5	.147	SK70186 RM15	X	X			S	N	BF056	LJC	01/81	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	ISL	ISL-3-25-341-025	D	.5	.147	SK70186 RM15	X	X			S	N	161	LJC	12/80	::	07/86	3	WM	S	FF	DLA	RFH	S	S	--	--	3	X		A1
3	ISL	ISL-3-25-341-026	D	.5	.147	SK70186 RM15	X	X			S	N	161	LJC	12/80	::	07/86	3	WM	S	PF	DLA	RFH	S	S	--	--	3	X		A1
1	RHR	RHR-1-74-002	F	1x6	.280	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	SO	PF	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-004	F	6	.280	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	PF	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-005	F	6	.280	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	FP	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-007	F	6	.280	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	PP	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-008	F	6	.280	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	FF	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-009	F	6	.280	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	PP	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-011	F	6	.280	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	PF	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-013	F	6	.280	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	FV	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-015	F	1	.179	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	FF	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-021	F	1	.179	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	PV	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-023	F	1	.179	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	PF	RWY		S	--	--	--	2	X		A1
1	RHR	RHR-1-74-025	F	1	.179	SK72386 RM01	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	PF	RWY		S	--	--	--	2	X		A1
3	RHR	RHR-3-74-003	F	1x6	.280	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	SO	FF	DLA		S	--	--	--	2	X		A1
3	RHR	RHR-3-74-004	F	6	.280	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	PF	DLA		DN	--	--	--	3		X	A5
3	RHR	RHR-3-74-005	F	6	.280	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	PF	DLA		S	--	--	--	2	X		A1
3	RHR	RHR-3-74-007	F	6	.280	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	FF	DLA		B	--	--	--	[illegible]		X	A3
3	RHR	RHR-3-74-008	F	6	.280	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	FF	DLA		NO	--	--	--	2		X	A3
3	RHR	RHR-3-74-009	F	6	.280	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	PF	DLA		K	--	--	--	3		X	A3
3	RHR	RHR-3-74-011	F	6	.280	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	FF	DLA		S	--	--	--	2	X		A1
3	RHR	RHR-3-74-013	F	6	.280	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	21	SM	B	PV	DLA		DN	--	--	--	3		X	A5
3	RHR	RHR-3-74-015	F	1	.179	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	FF	DLA		S	--	--	--	2	X		A1
3	RHR	RHR-3-74-016	F	1	.179	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	PV	RWY		S	--	--	--	2	X		A1
3	RHR	RHR-3-74-018	F	1	.179	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	PF	DLA		S	--	--	--	2	X		A1
3	RHR	RHR-3-74-024	F	1	.179	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	PF	DLA		S	--	--	--	2	X		A1
3	RHR	RHR-3-74-026	F	1	.179	SK70186 RM06	X				C	C	NDF	NDF	NDF	::	07/86	4	SM	S	FF	DLA		S	--	--	--	2	X		A1
1	RHRS	86T-RHRS-1-1	E	16x1	.375	SK70186 RM18	X	X			C	C	NDF	NDF	NDF	::	07/86	50	SM	F	PF	RWY	SEV	S	--	S	--	1	X		A1
1	RHRS	86T-RHRS-1-12	E	1	.179	SK70186 RM16	X	X			C	N	NDF	NDF	NDF	::	08/86	4	SM	S	PF	DLA	RFH	H	S	--	--	2		X	A4

TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

INSPECTION SUMMARY :: REINSPECTION SUMMARY

UNT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE PT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY PT MT RT	NDE VT	NDE PT	NDE MT	NDE RT	JE	AC	NOI	FINAL RESULT
1	RHRS	86T-RHRS-1-13	E	1	.179	SK70186 RM16	X	X			C	N	NDF	NDF	NDF	08/86	4	SM	S	PF	DLA	DLA	H	S	--	--	2		X	A4
2	RHRS	86T-RHRS-2-1	E	16x1.5	.375	SK70186 RM23	X	X			C	C	NDF	NDF	NDF	07/86	10	SM	W	FF	RWY	SEV	S	S	--	--	2	X		A1
2	RHRS	86T-RHRS-2-2	E	1.5	.200	SK70186 RM23	X	X			C	C	NDF	NDF	NDF	07/86	6	SM	S	PF	RWY	SEV	S	S	--	--	1	X		A1
3	RHRS	86T-RHRS-3-2	E	16x1.5	.375	SK70186 RM26	X	X			C	C	6W64	JWT	01/75	07/86	10	SM	SO	FF	DLA	RFH	S	I	--	--	2		X	A3
3	RHRS	86T-RHRS-3-3	E	1.5	.200	SK70186 RM26	X	X			C	C	6W64	JWT	01/75	07/86	6	SM	F	PF	DLA	RFH	S	S	--	--	2	X		A1
3	RHRS	86T-RHRS-3-10	E	RTPLUG	.406	SK70186 RM26	X	X			C	C	NDF	NDF	NDF	07/86	10	SM	F	FF	DLA	RFH	S	S	--	--	2	X		A1
3	RHRS	86T-RHRS-3-13	P	14	.375	SK70186 RM25	X	X			C	C	NDF	NDF	NDF	07/86	44	SM	B	PP	RWY		S	Q	--	--	2	X		A1
3	RHRS	86T-RHRS-3-24	E	1	.179	SK70186 RM27	X	X			C	N	NDF	NDF	NDF	08/86	4	SM	S	PV	RWY	RWY	S	S	--	--	2	X		A1
3	RHRS	86T-RHRS-3-25	E	1	.179	SK70186 RM27	X	X			C	N	NDF	NDF	NDF	08/86	4	SM	S	PV	RWY	SEV	S	S	--	--	2	X		A1
1	RHRS	1-RHRH-H14	E	8	.322	SK70186 RM20	X	X			C	C	NDF	NDF	NDF	08/86	35	SM	F	FF	DLA	DLA	DH	--	S	--	3		X	A9
1	RHRS	1-RHRH-R4	E	8	.322	SK70186 RM21	X	X			C	C	NDF	NDF	NDF	08/86	35	SM	F	PF	DLA	DLA	DH	--	S	--	2		X	A9
1	RHRS	T-RHRS-1-3A	E	16	.375	SK70186 RM19	X	X		X	C	N	NDF	JEH	11/77	07/86	50	SM	B	FF	RWY	WG	S	Q	--	S	1	X		A1
1	RHRS	T-RHRS-1-3B	E	16	.375	SK70186 RM19	X	X		X	C	N	NDF	JEH	11/77	07/86	50	SM	B	FF	RWY	WG	S	Q	--	S	1	X		A1
1	RHRS	T-RHRS-1-16	E	12	.406	SK70186 RM19	X	X		X	C	C	6C3	RLB	09/70	07/86	40	SM	B	PP	RWY	WG	S	Q	--	S	1	X		A1
1	RHRS	T-RHRS-1-18A	E	12	.406	SK70186 RM19	X	X		X	C	N	NDF	JEH	11/77	07/86	40	SM	B	PF	RWY	WG	S	Q	--	S	1	X		A1
1	RHRS	T-RHRS-1-18B	E	12	.406	SK70186 RM19	X	X		X	C	N	NDF	JEH	11/77	07/86	40	SM	B	FF	RWY	WG	S	Q	--	S	1	X		A1
1	RHRS	T-RHRS-1-81	E	16	.375	SK70186 RM18	X	X		X	C	C	6DD9	KCN	02/71	07/86	50	SM	B	FF	RWY	WG	S	Q	--	S	2	X		A1
1	RHRS	T-RHRS-1-82	E	16	.375	SK70186 RM18	X	X		X	C	C	6B6	R.B.	03/71	07/86	50	SM	B	PV	RWY	WG	S	Q	--	S	2	X		A1
1	RHRS	T-RHRS-1-100	M	16	.375	17W300-8	X				C	C	NDF	NDF	NDF	07/86	50	SM	B	FP	DLA		S	--	--	--	2	X		A1
1	RHRS	T-RHRS-1-120	E	16	.375	SK70186 RM18	X	X		X	C	C	6DD9	RRB	06/71	07/86	50	SM	B	PV	RWY	WG	S	Q	--	S	2	X		A1
1	RHRS	T-RHRS-1-128	M	14	.375	17W300-8	X				C	C	NDF	NDF	NDF	07/86	44	SM	B	PP	DLA		S	Q	--	--	2	X		A1
2	RHRS	T-RHRS-2-9	E	16	.375	SK70186 RM22	X	X		X	C	C	6VV1	GKA	07/71	07/86	50	SM	B	FP	RWY	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-11	E	16	.375	SK70186 RM22	X	X		X	C	C	6VV1	GKA	08/72	08/86	50	SM	B	FF	RFH	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-12	E	16	.375	SK70186 RM22	X	X		X	C	C	6A3	RLB	04/71	07/86	50	SM	B	FP	RWY	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-13	E	16	.375	SK70186 RM22	X	X		X	C	C	6A3	RLB	05/71	07/86	50	SM	B	PP	RWY		S	Q	--	RF	2	X		A10
2	RHRS	T-RHRS-2-28	E	12	.406	SK70186 RM23	X	X		X	C	C	6C5	RLB	09/71	07/86	40	SM	B	PP	RWY	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-61	E	16	.375	SK70186 RM23	X	X		X	C	C	6A3	RRB	07/71	07/86	50	SM	B	FP	RWY	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-62	E	16	.375	SK70186 RM23	X	X		X	C	C	6B6	GKA	04/72	07/86	50	SM	B	FV	RWY	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-75	E	16	.375	SK70186 RM24	X	X		X	C	C	6C5	WAB	10/71	07/86	50	SM	B	PF	DLA	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-75A	E	16	.375	SK70186 RM24	X	X		X	C	C	6N1	SEL	06/72	07/86	50	SM	B	FF	DLA	WG	S	Q	--	S	2	X		A.
2	RHRS	T-RHRS-2-107	E	12	.406	SK70186 RM24	X	X		X	C	C	6C5	RLB	06/71	07/86	40	SM	B	PF	DLA	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-117	E	16	.375	SK70186 RM24	X	X		X	C	C	6C5	RLB	10/71	07/86	50	SM	B	FF	DLA	WG	S	Q	--	RG	2	X		A10
2	RHRS	T-RHRS-2-120	E	12	.406	SK70186 RM24	X	X		X	C	C	6BB2	SEL	06/72	07/86	40	SM	B	PF	DLA	WG	S	Q	--	S	2	X		A1
2	RHRS	T-RHRS-2-134	P	16	.375	17W300-8	X	X			C	C	NDF	NDF	NDF	07/86	50	SM	B	FP	DLA		S	Q	--	--	2	X		A1
2	RHRS	T-RHRS-2-139A	P	14	.375	17W300-8	X	X			C	C	NDF	NDF	NDF	07/86	44	SM	B	PP	DLA		S	Q	--	--	2	X		A1
2	RHRS	T-RHRS-2-153	P	14	.375	17W300-8	X	X			C	C	NDF	NDF	NDF	07/86	44	SM	B	FF	DLA		S	Q	--	--	2	X		A1
2	RHRS	T-RHRS-2-156	P	16	.375	17W300-8	X	X			C	C	NDF	NDF	NDF	07/86	50	SM	B	FP	DLA		S	Q	--	--	2	X		A1
2	RHRS	T-RHRS-2-NR-20	E	1.5	.200	SK70186 RM24	X	X			C	C	6C5	WAB	10/71	07/86	10	SM	F	FF	DLA	DLA	DH	S	--	--	3		X	A3
2	RHRS	T-RHRS-2-NR-21	E	1.5	.200	SK70186 RM24	X	X			C	C	6C5	WAB	10/71	08/86	6	SM	S	FF	DLA	RFH	S	S	--	--	2	X		A1
3	RHRS	T-RHRS-3-19	E	16	.375	SK70186 RM25	X	X		X	C	N	6A1	BKB	01/74	08/86	50	SM	B	FF	LW	WG	S	Q	--	RF	2		X	A3
3	RHRS	T-RHRS-3-37	E	12	.406	SK70186 RM25	X	X		X	C	C	6A3	RFW	07/73	07/86	40	SM	B	PF	DLA	WG	S	Q	--	S	2	X		A1
3	RHRS	T-RHRS-3-53	E	12	.406	SK70186 RM25	X	X		X	C	C	6D3	RFW	09/73	08/86	40	SM	B	FF	RWY	WG	S	Q	--	S	2	X		A1
3	RHRS	T-RHRS-3-55	E	12	.406	SK70186 RM25	X	X		X	C	C	6EE9	GWF	09/74	08/86	40	SM	B	FF	RWY	WG	S	S	--	S	2	X		A1
3	RHRS	T-RHRS-3-69A	E	16	.375	SK70186 RM26	X	X		X	C	C	6W64	GKA	11/74	07/86	50	SM	B	FF	DLA	WG	S	Q	--	S	2	X		A1
3	RHRS	T-RHRS-3-107	E	12	.406	SK70186 RM26	X	X		X	C	C	6D4	RFW	08/73	07/86	40	SM	B	FP	RWY	WG	S	Q	--	S	1	X		A1
3	RHRS	T-RHRS-3-110A	E	12	.406	47W450-7	X	X		X	C	N	RTE	W.G.	10/79	08/86	40	SM	B	PV	RWY	WG	S	Q	--	RG	2	X		A10

DATE: 11/10/87

TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

INSPECTION SUMMARY :: REINSPECTION SUMMARY

UNIT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	NDE VT	NDE PT	NDE MT	NDE RT	MAT	OG	WELD BY	INSP BY	INITL INSP MM/YY	RE-INSP MM/YY	LN IN WELD INSP	WELD METL	WELD TYPE	COMP	INSP BY VT	INSP BY PT MT RT	NDE VT	NDE PT	NDE MT	NDE RT	JE	AC C	NC I	FINAL RESOLUTION
3	RHRS	T-RHRS-3-110B	E	12	.406	47W450-7	X	X		X	C	N	RTE	W.G.	10/79	08/86	40	SM	B	FF	RWY	WG	S	O	--	RG	2	X		A10
3	RHRS	T-RHRS-3-123	E	12	.406	SK70186 RM26	X	X		X	C	C	6D3	BKB	02/74	07/86	40	SM	B	FF	DLA	WG	S	O	--	S	2	X		A1
3	RHRS	T-RHRS-3-134	E	16	.375	SK70186 RM26	X	X		X	C	C	6DE	BKB	01/74	07/86	50	SM	B	FF	DLA	WG	S	O	--	S	2	X		A1
3	RHRS	T-RHRS-3-144	P	14	.375	17W300-8	X	X			C	C	NDF	NDF	NDF	07/86	44	SM	B	FF	DLA		S	O	--	--	2	X		A1
3	RHRS	T-RHRS-3-202	M	14	.375	17W300-8	X				C	C	NDF	NDF	NDF	07/86	44	SM	B	FF	DLA		E	--	--	--	2		X	A4
3	RHRS	T-RHRS-3-204	M	16	.375	17W300-8	X				C	C	NDF	NDF	NDF	08/86	50	SM	B	FF	DLA		E	--	--	--	2		X	A4
1	RW	RW-1-02	F	4	[illegible]	SK70186 RM01	X				C	C	NDF	NDF	NDF	07/86	14	SM	B	FF	DLA		S	--	--	--	2	X		A1
1	RW	RW-1-05	F	4x.75	.237	SK70186 RM01	X				C	C	NDF	NDF	NDF	07/86	14	SM	SO	FF	DLA		S	--	--	--	2	X		A1
2	RW	RW-2-04	F	3	.216	SK70186 RM02	X				C	C	NDF	NDF	NDF	07/86	11	SM	B	FF	RM		S	--	--	--	2	X		A1
2	RW	RW-2-08	F	3	.216	SK70186 RM02	X				C	C	NDF	NDF	NDF	07/86	11	SM	B	PV	RWY		S	--	--	--	2	X		A1
2	RW	RW-2-10	F	.75x3	.216	SK70186 RM02	X				C	C	NDF	NDF	NDF	07/86	11	SM	SO	FF	RM		H	--	--	--	2		X	A4
2	RW	RW-2-11	F	.75	.219	SK70186 RM02	X				C	C	NDF	NDF	NDF	07/86	3	SM	S	FF	RM		H	--	--	--	2		X	A4
2	RW	RW-2-15	F	3	.216	SK70186 RM02	X				C	C	NDF	NDF	NDF	07/86	11	SM	B	PF	RWY		S	--	--	--	2	X		A1
2	RW	RW-2-28	F	3	.216	SK70186 RM02	X				C	C	NDF	NDF	NDF	07/86	11	SM	B	FV	RWY		S	--	--	--	2	X		A1
3	RW	RW-3-04	F	4	.237	SK70186 RM01	X				C	C	NDF	NDF	NDF	08/86	14	SM	B	FF	RWY		S	--	--	--	2	X		A1
3	RW	RW-3-06	F	.75	.113	SK70186 RM01	X				C	C	NDF	NDF	NDF	08/86	3	SM	S	FF	RWY		S	--	--	--	2	X		A1
1	SBLC	TSBL-1-207	E	1	.133	47N1972-U1	X	X			S	C	6U6	KCN	03/71	07/85	4	WM	S	FF	RMB	RFH	S	S	--	--	2	X		A1
1	SBLC	TSBL-1-208	E	1	.133	47N1972-U1	X	X			S	C	6U6	KCN	03/71	07/86	4	WM	S	FF	RMB	RFH	S	S	--	--	2	X		A1
2	SBLC	TSBL-2-170	E	1	.133	47N1972-U2	X	X			S	C	6N3	KCN	08/73	07/86	4	WM	S	PV	RMB	DLA	S	S	--	--	2	X		A1
2	SBLC	TSBL-2-207	E	1	.133	47N1972-U2	X	X			S	C	6F4	KCN	08/73	07/86	4	WM	S	FF	RMB	RFH	S	S	--	--	2	X		A1
2	SBLC	TSBL-2-208	E	1	.133	47N1972-U2	X	X			S	C	6F4	KCN	08/73	07/85	4	WM	S	PV	RMB	DLA	S	I	--	--	2		X	A3
3	SBLC	TSBL-3-207	E	1	.133	47N1972-U3	X	X-			S	C	6W69	CRE	06/75	07/86	4	WM	S	FF	DLA	DLA	S	S	--	--	2	X		A1
3	SBLC	TSBL-3-208	E	1	.133	47N1972-U3	X	X			S	C	6W69	CRE	06/75	07/86	4	WM	S	PF	DLA	DLA	S	S	--	--	2	X		A1

TABLE 4.4
BROWNS FERRY NUCLEAR PLANT

DATE: 11/10/87

							INSPECTION SUMMARY									::	REINSPECTION SUMMARY															
							NDE								INITL	::	RE-	LN IN				INSP BY PT-		NDE					A	N	FINAL
UNT	SYS	WELD NUMBER	CLS	SIZE (IN)	THICK (IN)	WELD MAP	VT	PT	MT	ST	MAT	OG	WELD BY	INSP BY	INSP MM/YY	::	INSP MM/YY	WELD INSP	WELD METL	WELD TYPE	COMP	VT	MT RT	VT	PT	MT	RT	JE	C C	O I	RESO- LUTION
1	SBGT	SBGT-1-01	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
1	SBGT	SBGT-1-02	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
1	SBGT	SBGT-1-03	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
1	SBGT	SBGT-1-04	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
1	SBGT	SBGT-1-05	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
1	SBGT	SBGT-1-06	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		M	--	--	--	2		X	A3
1	SBGT	SBGT-1-07	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
2	SBGT	SBGT-2-01	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	BB		S	--	--	--	2	X		A1
2	SBGT	SBGT-2-02	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	BB		S	--	--	--	2	X		A1
2	SBGT	SBGT-2-03	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	BB		S	--	--	--	2	X		A1
2	SBGT	SBGT-2-04	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	BB		S	--	--	--	2	X		A1
2	SBGT	SBGT-2-05	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	BB		S	--	--	--	2	X		A1
2	SBGT	SBGT-2-06	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	BB		S	--	--	--	2	X		A1
2	SBGT	SBGT-2-07	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	BB		S	--	--	--	2	X		A1
3	SBGT	SBGT-3-01	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
3	SBGT	SBGT-3-02	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
3	SBGT	SBGT-3-03	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
3	SBGT	SBGT-3-04	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
3	SBGT	SBGT-3-05	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
3	SBGT	SBGT-3-06	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1
3	SBGT	SBGT-3-07	NA	28	3/16	SK70186 RM05	X				C	C	NDF	NDF	NDF	::	07/86	88	SM	B	PP	CF		S	--	--	--	2	X		A1

*** TOTAL ***

7916

ATTACHMENT 4.1

BROWNS FERRY NUCLEAR PLANT

WELDING PROJECT REINSPECTION PLAN

WELDING PROJECT
PHASE 2, PART 2
BROWNS FERRY REINSPECTION OF SELECTED WELDS
REINSPECTION PLAN

OBJECTIVE

The objective of the program described in this reinspection plan is to provide additional data addressing the adequacy of the Browns Ferry weld program and to provide indicators regarding the suitability of welding in relation to restarting the BFN units and address nonspecific employee concerns related to welding.

BACKGROUND

Employee concerns from Watts Bar have possible generic implications to the Browns Ferry plant. Some of these concerns relate to: quality of weld filler materials, control of weld filler materials, welder qualifications, inadequate training of welders, inspector qualifications, falsification of records, weld adequacy, and record keeping. A reinspection of hardware to design requirements and comparison to the records package cuts across these and other issues to address the concerns, the welding program adequacy, and provides additional data regarding the suitability for restart of BFN units.

Nonspecific employee concerns are best addressed by reestablishing confidence in the original programs. Inadequacies in the welding program in the areas of these concerns would be reflected in the hardware quality and the relevant records. While the concerns have generic implications, this reinspection will address them by focusing on safety-related portions of the plant where there have been fewer previous inspections and, therefore, fewer opportunities for weld defects to have been identified. For this reason, piping system welds which receive Inservice Inspection are excluded. This is a conservative approach and biases the reinspection toward items which have had only one required inspection, and, therefore, have the most likelihood of having previously unreported defects.

Due to an employee concern about the quality of TVA butt welds in duct work made from spiral welded pipe at Watts Bar Nuclear Plant and its subsequent investigation, TVA will reexamine a portion of a like system at BFN to verify that field welded joints meet the design requirements.

Due to normal construction sequence at a job site, the selection of different systems at various elevations and various units of the plant will cut across different timeframes of plant construction. The reinspection effort also includes some modifications performed by Nuclear Operations.

SCOPE

The reinspection of the safety-related features described in the groups below addresses the concerns described above for various installation crafts and various timeframes.

1. Selected piping and attachment welds in Class E, F, & P systems at various units and elevations in the Reactor and Diesel Generator Buildings. The sample will include carbon, aluminum, and stainless steel piping components.
2. Welds of supports for piping (related to above piping components).
3. Welds of cable tray supports and conduit supports.
4. Structurally significant welds on miscellaneous structural steel in the Reactor and Control Building.
5. HVAC support welds in the reactor Building.
6. Spiral weld pipe used as ductwork in the Reactor Building.

The scope of this reinspection is limited to visual, surface (magnetic particle or liquid penetrant), and radiographic methods which are required by TVA General Construction Specification G-28 for the piping classification and weld types involved. It is not the intent of this work plan to cause reinspection of welds by any method not explicitly required by G-28.

Piping welds to be reinspected will be as designated by the Welding Project (WP) from Class E, F, and P systems as defined in G-28. When welds which received radiography at installation are included in systems or portions of systems designated for reinspection a review of radiographic film for conformance to applicable requirements will constitute the reinspection.

Approximately 300+ piping and spiral weld pipe welds and approximately 58+ structures will be reinspected in the above groups. The items to be reinspected will be selected to provide a representative look at each of the above classes and to cover work that was performed during the construction phase and during the operating phase. The reinspection is to be in areas which will minimize inspector exposure to radiation. Welds which are inaccessible due to wall or floor penetrations, or fireproofing will be excluded.

For all welds, the generic type, carbon steel as opposed to stainless steel or aluminum, will be checked by magnetic means.

For the structural steel and support welds, the weld attributes to be addressed are presence, size, length, and location. Existing coatings will not affect this inspection. However, coating thickness as measured by a dry film thickness indicator will be reported for information. The generic type of filler metal is also to be reported.

CRITERIA

All inspections will be conducted in accordance with established inspection procedures and this work plan. In case of conflicts, this work plan shall govern.

For purposes of this reinspection, the examination methods and acceptance criteria shall be as follows:

A. Class E Pipe Welds

1. Complete penetration butt welds and welds attaching branch connection larger than 4" nominal pipe size

   method - re-interpretation of radiographic film to N-RT-1(R4) of DPM N80E3

   criteria - welds meeting the acceptance criteria of N-RT-1(R4) as amended by Attachment 1 or ASME Section XI are acceptable. The reporting form shall be the standard form RT interpretation used at BFN.

2. All other welds in or to Class E Systems

   method - perform PT or MT examination using the methods as required by N-PT-1(R6) or N-MT-1(R5) of DPM N80E3 respectively. The method used should be that used originally.

   criteria - welds meeting the acceptance criteria of N-MT-1(R5) or N-PT-1(R6), as applicable, are acceptable. Welds not meeting these criteria but meeting those of ASME Section XI are acceptable. The reporting form shall be the standard form for the particular methods at BFN.

B. Class F and Class P Welds

   method - perform visual examination to the requirements of N-VT-3(R5) of DPM N80E3.

criteria - welds which meet the criteria of N-VT-3(R5) and attachment 2 or ASME Section XI are acceptable. The reporting form is included in Attachment 2.

C. Structural Welds

Method - Structural steel and support welds which were designed based upon the AISC specification will be reinspected visually to drawing requirements in accordance with N-VT-6(R0) of DPM N80E3. Coatings will not be removed unless authorized by the WP.

Criteria - Welds meeting the criteria of N-VT-6(R0) and attachment 3 are acceptable. The reporting form is included in attachment 3.

D. Spiral Duct Butt Welds

Method - Perform visual examination

Criteria - The acceptance criteria for spiral duct butt welds will be the presence of weld supplemented by the special data section.

E. All Welds

The generic filler metal type for all welds will be checked by the use of magnets. The acceptability will be based upon the weld metal being of the correct type; carbon steel (magnetic), stainless steel (not magnetic or slightly magnetic), or aluminum (not magnetic) as appropriate for the materials being joined. The confirmation of generic filler material type does not require a special procedure, as it is an accept/reject test. The results of filler metal type shall be recorded on the respective visual examination records.

REINSPECTION PERSONNEL

All structural and support inspection personnel shall be qualified AWS-Certified Welding Inspectors (CWIs). The CWIs will be from TVA's Procurement Quality Assurance Branch (Vendor Surveillance). For piping, inspection personnel shall be qualified in accordance with SNT-TC-1A or equivalent (certification program for visual patterned after the format for NDE established in SNT-TC-1A) Level II or III.

QUALITY ASSURANCE

Overview of this reinspection effort will be provided by a person or persons independent of TVA who have current certification as AWS Certified Welding Inspectors (CWIs) for structural steel, supports, and duct and SNT-TC-1A Level III for piping. The independent inspector(s) will provide a written report to the Welding Project Engineer summarizing the overview activity and their concurrence or reason for disagreement with the results.

SPECIAL DATA

In addition to accepting or rejecting a weld, the inspectors will note their own opinion regarding the workmanship of the welders work: better than average, average, or does not meet requirements. In making the judgement, the inspectors will consider undercut, porosity, convexity, spatter, overlap, or rollover and/or other specific indicators which they observe. This opinion is to be recorded on the inspection record. The inspector will note if the weld has been coated.

RECORDS

For each weld there will be a record of acceptability as to presence, size, length, location of defects, the generic type of filler metal, and the inspectors opinion of the welder workmanship as shown in attachments 2 and 3.

PLANT SAFETY & SECURITY

Plant safety and security procedures shall apply.

DISPOSITION OF DISCREPANT CONDITION

Discrepancies will be documented on attached forms in accordance with TVA quality assurance program and dispositioned by the design organization using engineering justification to use as-is or to provide corrective action. Determination of generic importance of discrepancies to the welding program will be performed by the Welding Project. All defects which require design disposition will be reported along with the ultimate disposition. The NRC will be notified immediately if significant discrepancies are identified during the reinspection. Root causes will be investigated. All this will be included in the Phase 2 Final Report.

INSPECTION REPORT

The Inspection Report on this reinspection will be forwarded to TVA Management and NRC and will subsequently be included in the overall report on the Welding Project activities on BFN.

Exceptions to N-RT-1(R4) for reinterpretation of radiographs are tabulated below:

Paragraph From N-RT-1	Exception To Be Taken
4.6	Penetrameters will be per Table UW-51. The 5, 7, and 10 penetrameters will also contain a 1/4" long slit parallel to its long axis.
5.2	There are no restrictions on the double-wall technique
5.3	There are no restrictions on geometrical unsharpness.
5.6	The 2T hole shall be visible on all radiographs; except that for penetramenters 5, 7, and 10 the slit shall appear clearly and the hole need not appear. For each sector not meeting these requirements, record the minimum hole size visible.
5.9	There are no restrictions on maximum density.
6.1, 6.2, 6.3.4	These paragraphs do not apply.
8.1.5	Porosity should be evaluated to Page 2 of this attachment entitled "Appendix IV".

TABLE UW-51
STANDARD PENETRAMETER SIZES

Weld Thickness Range (in.)	Thickness of Penetrameter on Source Side (in.)	Designation on Penetrameter	Thickness of Penetrameter on Film Side (in.)	Designation on Penetrameter
Up to 1/4 incl.	0.005	5	0.005	5
Over 1/4 thru 3/8	0.0075	7	0.0075	7
Over 3/8 thru 1/2	0.010	10	0.010	10
Over 1/2 thru 5/8	0.0125	12	0.010	10
Over 5/8 thru 3/4	0.015	15	0.012	12
Over 3/4 thru 7/8	0.0175	17	0.015	15
Over 7/8 thru 1	0.020	20	0.017	17
Over 1 thru 1 1/4	0.025	25	0.020	20
Over 1 1/4 thru 1 1/2	0.030	30	0.025	25
Over 1 1/2 thru 2	0.035	35	0.030	30
Over 2 thru 2 1/2	0.040	40	0.030	30
Over 2 1/2 thru 3	0.045	45	0.035	35
Over 3 thru 4	0.050	50	0.040	40
Over 4 thru 6	0.060	60	0.050	50
Over 6 thru 8	0.080	80	0.060	60
Over 8 thru 10	0.100	100	0.080	80
Over 10 thru 12	0.120	120	0.100	100
Over 12 thru 16	0.160	160	0.120	120
Over 16 thru 20	0.200	200	0.160	160

APPENDIX IV
Porosity Charts

UA-65 Acceptance Standards for Radiographically Determined Porosity In Welds

(a) These standards are applicable to ferritic, austenitic, and nonferrous materials.

(b) The total area of porosity as determined from the radiographic film shall not exceed $0.060T$ square inches in any six inch length of weld, where T is the thickness of the weld. If the weld is less than six inches long, the total area of porosity will be reduced in proportion.

(1) The maximum pore dimension shall be 20 per cent of T, or ⅛ in., whichever is smaller except that an isolated pore separated from an adjacent pore by one inch or more may be 30 per cent of T, or ¼ in., whichever is less.

(2) Dark images of a generally circular or oval shape shall be interpreted as porosity for the purposes of this standard.

(c) The porosity charts in this Appendix illustrate various types of assorted and uniform, randomly dispersed porosity indications. These charts for each thickness represent the maximum acceptable porosity. The charts represent full scale six inch radiographs, and shall not be enlarged or reduced. The porosity distributions shown are not necessarily the patterns that may appear on the radiograph, but are typical of the number and size of indications permitted. When porosity indications differ significantly from the porosity charts, the actual numbers and sizes of the pores may be measured and the total area of porosity calculated.

(d) In any one inch length of weld or $2T$, whichever is smaller, porosity may be clustered to a concentration four times that permitted by $0.06T$. Such clustered porosity shall be included in the porosity in any six inch length of weld which includes the cluster.

(e) Aligned porosity shall be acceptable providing the summation of the diameters of the pores is no more than T in a length $12T$, or 6 inches, whichever is less, providing each pore is separated by a distance at least six times the diameter of the largest adjacent pore. Aligned porosity indications shall be counted in the total area of permissible indications in any six inch length of weld.

(f) Permissible porosity indications for weld thicknesses intermediate to those illustrated may be evaluated either by comparison with the next thinner material or by calculation as shown in Table UA-65.

Maximum permissible porosity = $0.060T$ square inches in any 6 in. length of weld.

TABLE UA-65
MAXIMUM PERMISSIBLE POROSITY INDICATIONS IN RADIOGRAPHS PER 6 IN. LENGTH OF WELD

Weld Thickness (Inches)	Total Area of Permitted Porosity (Square Inches)	LARGE Pore Size (In.) Approx. Fraction	Decimal Value (1)	No.	MEDIUM Pore Size (In.) Approx. Fraction	Decimal Value (1)	No.	FINE Pore Size (In.) Approx. Fraction	Decimal Value (1)	No.
1/8	.0075	....	....	....	....	....	....	1/64	.014	49
1/4	.015	....	....	....	3/128	.025	31	1/64	.0138	100
1/2	.030	3/32	.10	4	1/32	.031	40	5/256	.0195	101
3/4	.045	1/8	.125	4	1/32	.034	50	3/128	.024	99
1	.060	1/8	.125	5	5/128	.039	50	1/32	.0275	101
1½	.090	1/8	.125	7	3/64	.048	50	1/32	.034	99
2	.120	1/8	.125	10	7/128	.055	51	5/128	.039	100
2½	.150	1/8	.125	12	1/16	.061	51	3/64	.044	99
3	.180	1/8	.125	15	1/16	.068	50	3/64	.048	99
3½	.210	1/8	.125	17	5/64	.073	50	7/128	.052	99
4	.240	1/8	.125	20	5/64	.078	50	7/128	.055	101

(1) These values used for calculating total area of permissible porosity given in second column.

Exceptions to N-VT-3(R5) for reinspection of piping welds are tabulated below:

Paragraph From N-VT-3	Exception To Be Taken
5.0	Examination prior to welding does not apply.
6.2.1.1	Overlap - Overlap for which the fusion zone can be seen is acceptable. If surface examination is performed and is acceptable, the overlap is acceptable.
	Porosity - Visually detected porosity is acceptable if surface examination is performed and the surface examination is acceptable. If surface examination is not performed, porosity and slag inclusions shall be evaluated to the RT porosity chart in Attachment 1 to this reinspection plan.
	Arc Strikes - Report the number of arc strikes on the report form. Arc strikes are acceptable on ASTM A105, A106, A234 carbon steel materials and on type 304 and 316 stainless steel if no cracking is apparent and they do not reduce the base material thickness. Report the depth of material reduction, to the nearest 1/32 inch, for rejectable arc strikes.
	Weld Spatter - Weld spatter is acceptable.

Paragraph From N-VT-3	Exception To Be Taken
6.2.3	The maximum offset does not apply.
6.2.7.2	Figure 5 (c) applies to all socket weld joints, including flanges.

Documentation of examinations shall be on the form attached.

The magnetic check is to be performed by touching a small permanent magnet to the weld deposit and noting whether the weld deposit is strongly magnetic, weakly magnetic, or non-magnetic.

The judgmental evaluation will consider undercut, porosity, convexity, spatter, overlap, or rollover and/or other specific indicators which are observed.

NONDESTRUCTIVE EXAMINATION PROCEDURE TVA - DIVISION OF NUCLEAR POWER	Procedure No. Revision Page of

ATTACHMENT 9

RECORD OF VISUAL WELD EXAMINATION

PROCEDURE NO. N-VT-3, REV.____ WR/WP NO.__________

REF. DRAWING____________ COM/SYS. DESCRIP.__________

CRITERIA	WELD NO.	WELD NO.	WELD NO.	WELD NO.
	«ACC»REJ»	«ACC»REJ»	«ACC»REJ»	«ACC»REJ»
WELD DEFECTS				
CONTOUR/TRANSITION				
OFFSET/ALIGNMENT				
UNDERCUT				
REINFORCEMENT				
ARCSTRIKES				
WELD LOCATION				
Fillet Weld Size				
WELD METAL	NON-MAGNETIC ☐ STRONGLY MAGNETIC ☐ WEEKLY MAGNETIC ☐	NON-MAGNETIC ☐ STRONGLY MAGNETIC ☐ WEEKLY MAGNETIC ☐	NON-MAGNETIC ☐ STRONGLY MAGNETIC ☐ WEEKLY MAGNETIC ☐	NON-MAGNETIC ☐ STRONGLY MAGNETIC ☐ WEEKLY MAGNETIC ☐
BASE METAL	STAINLESS ☐ CARBON ☐ ALUM. ☐	STAINLESS ☐ CARBON ☐ ALUM. ☐	STAINLESS ☐ CARBON ☐ ALUM. ☐	STAINLESS ☐ CARBON ☐ ALUM ☐
JUDGEMENTAL EVALUATION	>AVERAGE ☐ AVERAGE ☐ UNACCEPTABLE ☐	>AVERAGE ☐ AVERAGE ☐ UNACCEPTABLE ☐	>AVERAGE ☐ AVERAGE ☐ UNACCEPTABLE ☐	>AVERAGE ☐ AVERAGE ☐ UNACCEPTABLE ☐
WELD TYPE	BUTT ☐ SOCKET ☐ FILLET ☐	BUTT ☐ SOCKET ☐ FILLET ☐	BUTT ☐ SOCKET ☐ FILLET ☐	BUTT ☐ SOCKET ☐ FILLET ☐
COMPONENT	PIPE TO PIPE ☐ PIPE TO FTG. ☐ PIPE TO VLV. ☐ FTG. TO FTG. ☐ FTG. TO VLV. ☐ ATT. TO PIPE ☐	PIPE TO PIPE ☐ PIPE TO FTG. ☐ PIPE TO VLV. ☐ FTG. TO FTG. ☐ FTG TO VLV. ☐ ATT TO PIPE ☐	PIPE TO PIPE ☐ PIPE TO FTG. ☐ PIPE TO VLV. ☐ FTG TO FTG ☐ FTG. TO VLV ☐ ATT. TO PIPE ☐	PIPE TO PIPE ☐ PIPE TO FTG ☐ PIPE TO VLV ☐ FTG TO FTG ☐ FTG TO VLV ☐ ATT TO PIPE ☐

NOTE 1: Under the criteria (weld metal) the examiner shall determine the correct weld metal adjoining stainless to carbon steel or carbon to stainless steel will be non-magnetic or weakly magnetic. Welds joining carbon steels will be strongly magnetic.

NOTE 2: Under the criteria (base metal) the examiner shall note the base material adjoining each side of the weld using the aid of a magnet.

NOTE 3: Under the criteria (judgemental evaluation) the inspector shall make a judgemental evaluation (better than average, average, or unacceptable) of the general workmanship represented by each weld inspected.

NOTE 4: Describe detailed unsatisfactory conditions on reverse side.

EXAMINED BY:________________ LEVEL______ DATE__________

Exceptions to N-VT-6(RO) for reinspection of structural welds are tabulated below:

It is permissible to examine the welds through the coating.

Inspect and accept/reject for all attributes on the documentation form included in this attachment. Your judgement will be based only on your ability to see the attribute through paint.

The inspector should attempt to remove or have removed surface slag prior to rejecting a weld for slag.

The magnetic check is to be performed by touching a small permanent magnet to the weld deposit and noting whether it is strongly magnetic, weakly magnetic, or non-magnetic.

The judgemental evaluation will consider undercut, porosity, convexity, spatter, overlap, or rollover and/or other specific indicators which are observed.

Record the paint thickness using a paint thickness gage.

NONDESTRUCTIVE EXAMINATION PROCEDURE TVA - DIVISION OF NUCLEAR POWER	Procedure No.
	Revision
	Page of

ATTACHMENT 3

RECORD OF VISUAL WELD EXAMINATION

PROCEDURE NO. N-VT-6 REV.____ WR/WP NO.________

REF. DRAWING________ ITEM/SYS. DESCRIP.________

CRITERIA	WELD NO.	WELD NO.	WELD NO.	WELD NO.
	ACC/REJ/N/A	ACC/REJ/N/A	ACC/REJ/N/A	ACC/REJ/N/A
Weld Cracks				
Fillet weld Size				
Incomplete Fusion				
Weld Overlap				
Underfilled Craters				
Weld Profiles				
Undercut				
Surface Porosity				
Weld Length				
Arc Strikes				
Surface Slag				
Weld Spatter				
WELD METAL	NON-MAGNETIC ☐ STRONGLY MAGNETIC ☐ WEAKLY MAGNETIC ☐	NON-MAGNETIC ☐ STRONGLY MAGNETIC ☐ WEAKLY MAGNETIC ☐	NON-MAGNETIC ☐ STRONGLY MAGNETIC ☐ WEAKLY MAGNETIC ☐	NON-MAGNETIC ☐ STRONGLY MAGNETIC WEAKLY MAGNETIC ☐
BASE METAL	STAINLESS ☐ CARBON ☐	STAINLESS ☐ CARBON ☐	STAINLESS ☐ CARBON ☐	STAINLESS ☐ CARBON ☐
JUDGEMENTAL EVALUATION	>AVERAGE ☐ AVERAGE ☐ UNACCEPTABLE ☐	>AVERAGE ☐ AVERAGE ☐ UNACCEPTABLE ☐	>AVERAGE ☐ AVERAGE ☐ UNACCEPTABLE ☐	>AVERAGE ☐ AVERAGE ☐ UNACCEPTABLE ☐
Surface Painted	yes ☐ NO ☐	yes ☐ NO ☐	yes ☐ NO ☐	yes ☐ NO ☐
Paint (Record) THICKNESS				
Instrument used (Record)				

NOTE 1: Under the criteria (weld metal) the examiner shall determine the correct weld metal adjoining stainless to carbon steel or carbon to stainless steel will be non-magnetic or weakly magnetic. Welds joining carbon [illegible] will be strongly magnetic.

NOTE 2: Under the criteria (base metal) the examiner shall note the base material adjoining each side of the weld [illegible] the aid of a magnet.

NOTE 3: Under the criteria (judgemental evaluation) the inspector shall make a judgemental evaluation (better than av[illegible] average, or unacceptable) of the general workmanship represented by each weld inspected.

NOTE 4: Describe detailed unsatisfactory conditions on reverse side.

EXAMINED BY____________ LEVEL______ DATE________

WELD DISCREPANCY REPORT

DWG/SKETCH NO.____________________ WELD NO.____________________

I. Description of Discrepancy (Attach Sketch/Photograph).

____

____

____

____

Reported by________________________ __________
Inspector Date

II. Disposition

____

____

____

____

OE Representative____________________ __________
Date

III. Corrective Action Taken

____

____

____

SQN Personnel________________________ __________
Date

ATTACHMENT 4.2

BROWNS FERRY NUCLEAR PLANT

DNE PLAN FOR THE EVALUATION OF REINSPECTION RESULTS

DNE PLAN FOR THE EVALUATION OF REINSPECTION RESULTS
BROWNS FERRY NUCLEAR PLANT

1.0 OBJECTIVE AND SCOPE

This procedure describes how DNE evaluates the results of the reinspection of welds at the Browns Ferry Nuclear Plant.

2.0 PROCEDURE

2.1 The results of reinspection work performed in accordance with the Welding Project Browns Ferry Reinspection Plan and implemented in Nuclear Operations Specification MMI-168 by the Welding Project will be evaluated by the appropriate discipline as described below. R1

2.2 The disciplines will:

2.2.1 Perform an engineering evaluation of the results and request additional weld inspections if necessary to perform the evaluation. Additional structural and loading information if needed will be furnished by BFEP personnel. The engineering evaluation will be as defined in Attachment A. R1

2.2.2 Inform the Welding Project on a regular basis of status of evaluation.

2.2.3 Retain the results of the discrepant reinspections and the calculations of the engineering evaluation as permanent plant records.

2.2.4 Initiate an SCR for conditions adverse to quality.

2.3 The discipline(s) will transmit the results of their evaluation to the WP Project Engineer. When a determination of need for rework has been made, the discipline(s) shall notify the Welding Project Engineer immediately. The Welding Project Engineer will make the final decision on rework. The Welding Project Engineer will notify the Site Director of any necessary rework.

2.4 The WP Engineer will transmit all results of the evaluation and corrective action determinations to the BFN Site Director for inclusion in the MMI as part of the plant records.

2.5 The Welding Project and the Browns Ferry Engineering Project will address weld size and quality discrepant results.

ATTACHMENT A

Evaluation of BFN Reinspection Results

I. Evaluation of BFN Structural Reinspection Results

A. References

1. NCIG-01 -- Nuclear Construction Issues Group, "Visual Weld Acceptance Criteria for Structural Welding at Nuclear Power Plants." (Implemented by TVA Procedure N-VT-6 Rev. 0 of DPM N80K3.)

2. NCIG-02 -- Nuclear Construction Issues Group, "Sampling Plan for Visual Reinspection of Welds."

3. Welding Project -- Phase 2, Part 2 - Browns Ferry Reinspection of Selected Welds - Reinspection Plan.

B. Bases for Evaluation

1. NCIG-01 is an appropriate acceptance criteria.

2. All materials and loading conditions in the structures are appropriate for use of NCIG-01.

3. The discrepant reinspection reports to NCIG-01 acceptance criteria will be evaluated in accordance with NCIG-02 analytical methodology.

4. Inaccessible welds are assumed to be in accordance with the drawing unless noted by the inspector as not being present.

C. Evaluation

The engineering evaluation shall be divided into two types of evaluations; structural and attribute. The structural evaluation will demonstrate the structures suitability for service. The attribute evaluation will tabulate the structurally significant discrepancies. The attribute evaluation will be performed independently of the structural evaluation and should not be used to qualify any structure for suitability for service. R1

1. The scope of the structural evaluation will vary depending on the nature of the discontinuity. The evaluation will determine the adequacy of the welds to carry the loads within design allowable stresses. Weld-related discontinuities will be evaluated. Discontinuities will be accounted for in the evaluation by use of the following criteria.

I.C. Evaluation (Continued)

DISCONTINUITY	CRITERIA
cracks	unacceptable without further details
size	evaluate for actual size present
incomplete fusion	evaluate assuming length of incomplete fusion is a missing portion of weld
overlap	same as incomplete fusion
underfilled craters	evaluate assuming the weld is undersize by the amount and for the length shown
weld profile	fillet welds - no effect groove welds - same as underfilled craters
undercut	evaluate the missing base metal at the weld toe
porosity	evaluate assuming weld is missing for reported pore size
length	evaluate for reported length
location	evaluate for reported location
arc strikes	no structural effect
surface slag	evaluate assuming weld is missing for reported length
spatter	no structural effect
weld metal	no effect if strongly magnetic on plain steel or non or weakly magnetic on stainless steel. Contact WP if the weld metal does not meet this criteria. R1
base metal	no effect
judgemental	no effect
surface painted	no effect
paint thickness	no effect
instrument used	no effect

Only discontinuities in excess of that permitted by NCIG-01 need be considered in calculations using NCIG-02 methodology.

I.G. Evaluation (Continued)

2. The scope of the attribute evaluation will be to determine the amount of weld discontinuity for each attribute as recorded on the reinspection results. The attribute discontinuity will be recorded in inches in accordance with the following criteria. The evaluation of weld attribute will be by equivalency as noted in Attachment B.

Discontinuity	Criteria
Cracks	Welds containing cracks will be treated on a case by case basis.
Size	Record the length of undersized fillet weld in excess of that permitted by NCIG-01. Weld size shall be as required by the design drawing. In lieu of the drawing, the AISC minimum shall govern.
Incomplete Fusion	Record the length of incomplete fusion in excess of that permitted by NCIG-01.
Overlap	Overlap is acceptable provided the criteria for weld size and fusion can be satisfied. When fusion in the overlap length cannot be verified, record length in excess of that permitted by NCIG-01.
Craters	Underfilled craters are acceptable provided the criteria for weld size is satisfied. Record the length of crater in excess of that permitted by NCIG-01. R1
Weld Profile	Record the length of the weld profile that is discrepant in excess of that permitted by NCIG-01. If different weld has been placed i.e., the drawing indicated fillet weld and the joint shows a partial penetration, then record the length of weld as noted above. Keep two separate records; "weld profile" and "weld type not as shown on drawing".
Undercut	Record the length of the weld undercut in excess of that permitted by NCIG-01.
Weld Metal	A measure of correct filler metal that is strongly magnetic. Record any length that does not follow this criteria. (All structural welds are to carbon steel.)
Missing Weld	The engineer will evaluate the reinspection record of the missing weld. Record the length of weld missing as required by the drawing. Provide an explanation and probable justification for the missing weld.

II. Evaluation of BFN Mechanical Reinspection Results

A. References

1. Welding Project Phase 2, Part 2 - Browns Ferry Reinspection of Selected Welds - Reinspection Plan.

2. TVA General Construction Specification G-28.

B. Bases For Evaluation

Pipe Welds -

1. a. The acceptance criteria is as stated in reference 1 above.

   b. All welds inspected are classed as defined in reference 2 above.

2. Accept welds which meet the requirements for original construction or for an operating nuclear plant.

3. Evaluate only welds, except as noted in 4 below.

4. Base metal indications will be evaluated to Construction Code base material requirements.

C. Evaluation of Reinspection Results

1. Check for compliance with the criteria stated, reference 1 above.

2. If an attribute does not meet the acceptance criteria in step 1, then check this attribute and only this attribute against the acceptance criteria of ASME Section XI. The edition and addenda applicable to the particular unit at BFN or the latest addenda approved by NRC may be used.

3. One weld may be accepted by a combination of acceptance to any of the two steps above, i.e., a weld may be accepted for all attributes except cracks (step 1) and accepted for linear surface indications in accordance with Section XI.

II.C. Evaluation of Reinspection Results (Continued)

4. Imperfections, such as porosity, overlap, lack of fusion, and contour/transition noted on report of visual examination of a weld which are not noted on reports of magnetic particle or liquid penetrant examination of the same weld are acceptable without further evaluation.

D. Spiral And Rolled And Welded Plate Duct Weld Evaluation

Review for compliance with the criteria of reference 1, above. Weld-related discontinuities will be evaluated to demonstrate system function and structural integrity (seismic design).

ATTACHMENT B

Evaluation of Weld Attributes by Equivalency

NCIG-01 Paragraph 3.7

The designer should evaluate any particular weld or component by "equivalency" whenever the actual as-built size of the entire weld is provided. This does not necessarily involve taking credit for oversize weld; but does require knowing how the actual weld size relates to drawing requirements as opposed to knowing only the portion that the inspector reports as not meeting NCIG-01. "Equivalency" allows the engineer to equate the effect of the reported condition on loss of cross section (weld or base metal) to what is permitted by NCIG-01. The "equivalency" method should not be used in the structural evaluation.

Example 1.:

TS 6x6 attached to embed with a 5/16-inch fillet all around required by drawing.

Acceptable amount per NCIG-01, paragraph 3.5.2.2, 1/16-inch undersize for 25 percent of length.

Area of Weld Reqd. (A_1) R1

Total length of weld Lw = 24-inches

A_1 = 24-inches (5/16-inch) = 7.5-inch^2

Area of Weld Acceptable (A_2)

25 percent of Lw = 6-inches
Undersize = (5/16-inch) - (1/16-inch) = 1/4-inch
A_2 = (6 inch) (1/4-inch) + (18-inch) (5/16-inch) = 7.125-inch^2

A_1-A_2= .375-inch^2

Permissible Reduction = $\frac{.375}{7.5}$ = 0.05

This would amount to a permissible 5 percent reduction in weld.

The reinspection found weld to actually be 3/16-inch for 2-inch length and 5/16-inch for 22-inch length. This condition might be rejected by the inspection but would be permissible if equivalency provisions of NCIG-01 are used.

Actual weld area (A_3)

$$A_3 = (3/16\text{-inch})(2\text{-inch}) + (5/16\text{-inch})(22\text{-inch}) = 7.25\text{-inch}^2$$

$$A_1 - A_3 = .25 \qquad \frac{.25}{7.5} = 0.033$$

This would amount to an actual reduction of 3 percent.

$7.25\text{-inch}^2 > 7.125\text{-inch}^2$

Therefore weld is <u>acceptable</u> by equivalency.

Example 2.:

The "equivalent length" of a weld will be found to determine the length of weld that is considered discrepant.

The reinspection found that a weld specified to be 5/16 inch for a 6 inch length actually measured 3/16 inch for 1 inch and 5/16 inch for the remainder. R1

$$\text{Allowable equivalent length} = \frac{(1/16)\ (0.25)\ L}{(5/16 - 3/16)} = (0.125)\ L$$

$$= (0.125)\ 6$$

$$= 0.75" < 1.0" \quad \text{Actual}$$

Length of undersized weld in excess of that permitted by NCIG-01, by equivancy

L=1" - 0.75" = 0.25" To be recorded

II. Evaluation of BFN Mechanical Reinspection Results

A. References

1. Welding Project Phase 2, Part 2 - Browns Ferry Reinspection of Selected Welds - Reinspection Plan.

2. TVA General Construction Specification G-28.

B. Bases For Evaluation

Pipe Welds -

1. a. The acceptance criteria is as stated in reference 1 above.

   b. All welds inspected are classed as defined in reference 2 above.

2. Accept welds which meet the requirements for original construction or for an operating nuclear plant.

3. Evaluate only welds, except as noted in 4 below.

4. Base metal indications will be evaluated to Construction Code base material requirements.

C. Evaluation of Reinspection Results

1. Check for compliance with the criteria stated, reference 1 above.

2. If an attribute does not meet the acceptance criteria in step 1, then check this attribute and only this attribute against the acceptance criteria of ASME Section XI. The edition and addenda applicable to the particular unit at BFN or the latest addenda approved by NRC may be used.

3. One weld may be accepted by a combination of acceptance to any of the two steps above, i.e., a weld may be accepted for all attributes except cracks (step 1) and accepted for linear surface indications in accordance with Section XI.

ATTACHMENT 4.3

STRUCTURAL INDEPENDENT OVERVIEW

BROWNS FERRY NUCLEAR PLANT WELD REINSPECTION

OVERSIGHT INSPECTOR'S REPORT - STRUCTURAL

August 4, 1986

In summarizing the overview of the re-inspection activity at Browns Ferry Nuclear Plant, the results are as follows:

The re-inspection activity was thorough and provided detailed information and documentation as to the overall quality of the designated structural component welds. The components included but were not limited to pipe supports and restraints, cable tray and conduit supports, and spiral welded duct pipe.

The inspections were carried out by CWI's from TVA's quality assurance branch. Inspections were performed per the requirements stated in "Browns Ferry Re-inspection of Selected Welds Re-inspection Plan", and NCIG-01, Revision 2, "Visual Weld Acceptance Criteria for Structural Welding at Nuclear Power Plants".

Inspections were accomplished using industry standard weld gages, pit and depth gages, dry film thickness indicators for coated welds, and steel rules or tape measures. Flashlights and/or existing lighting were utilized for adequately illuminating the weld surfaces to be inspected.

Designated items to be re-inspected where readily available and flagged. For items located at higher elevations, scaffolding and/or ladders were provided.

Inspections of coated or painted welds were performed as in depth as was possible to determine weld size, length and location. As to the presence of defects such as porosity, slag, undercut, overlap and lack of fusion, the coatings were removed to a degree suitable enough for the inspector to make a sound judgemental evaluation of the welds.

Availability of detailed drawings was generally poor. In reviewing sixty packages, approximately 15% contained drawings of the item to be inspected.

When drawings were not available, "as-built" welding sketches and details were drawn with the aid of drafting personnel.

The acceptability of approximately 80% of the inspected welds could not be determined due to the lack of detailed drawings. In these instances, the data provided by the "as-built" sketches was submitted to engineering for analysis as to the usability of the welds.

The remaining 20% of the welds were generally less than average to poor in appearance, workmanship and quality.

In conclusion, the re-inspection activity proved effective in that it provided substantial data which indicates a problem in the Browns Ferry Welding Program, Welder Qualification Program, and lack of inspections at the time of installation existed, PRIMARILY IN HVAC AND ELECTRICAL COMPONENT SUPPORT WELDING. ~~and~~ 1-4-76

When considering the "visual" acceptance criteria of NCIG-01 and the Browns Ferry Re-inspection Plan, ~~and~~ lack of detail drawings, the percentage of visually rejectable structural component welds, as compared to acceptable welds, is considerably more.

Walter J. Tuttle

Walter J. Tuttle
Bechtel Power Corporation
CWI #80090541

ATTACHMENT 4.4

MECHANICAL INDEPENDENT OVERVIEW

To:	Horace Beckner, Manager TVA Welding Project	File No. GRH-017-06	
Subject:	Welding Project Phase 2, Part 2 Browns Ferry Reinspection of Selected Welds	Date:	January 30, 1987
		From:	G. R. Henke
		Of:	R&D/Materials and Quality Services Department
Copies:	R. A. Montgomery B. D. Hackney/W. C. Plumstead	At:	50/15/A49 Ext. 8-1466

INDEPENDENT SURVEILLANCE

An additional independent surveillance of the TVA welding project reinspection program being conducted at the Brown's Ferry nuclear power plant was undertaken January 26 through 29, 1987.

This portion of my reinspection overview included only the radiographic film discrepancies left unresolved from the independent surveillance of July 7 through August 22, 1986. (Reference: Letter, GRH 106-06 dated October 14, 1986, page 3)

Radiographic film for weld TRHRS-3-110B has been located and found acceptable. The reinterpretation by the TVA Level II is consistent with the original and with my evaluation.

Radiographic film for weld TRHRS-2-117 repairs has been located and reradiography of the weld was not undertaken as planned.

The repair radiography was misidentified as that of another weld (TRHRS-2-42-R1). The original and repair (R1) radiographs have been compared for weld profile "signatures" and were found to be of the same weld. The repair film station markers were out of position by about 9 inches and a notation was made (January 25, 1987) on the R1 film to indicate this difference. The location of the weld repair was reinspected by the TVA Level II and found acceptable.

I concur that weld TRHRS-2-117 quality complies with the Code.

The radiographic film on weld TRHRS-2-24 (and TRHRS-2-117 R1) were compared and this weld also has weld quality that complies with the Code.

Welds TRHRS-3-110A and TRHRS-2-13 were originally considered acceptable based on the original construction records. The film has been located and reinterpreted by the TVA Level II, verifying that the welds are acceptable.

Weld TRHRS-3-18 was originally interpreted as being acceptable; during the weld reinspection program, the TVA Level II evaluation found it unacceptable.

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

To further evaluate the questionable indication, reradiography was undertaken per the original procedure and at a 15-degree angle offset to the weld centerline.

The films used were GAF HD for the original radiography and Kodak M for the reradiography. Both are listed as fine-grain and are not considered to be a major contributor to the radiograhic image size or image sharpness differences.

The reradiography images appear grossly different from those in the original radiographs. This difference could be the result of the more than 12 years of service, which caused other surface-condition changes. Mathematic triangulation of the 15-degree shift in image location indicated an inside-surface-based position.

Ultrasonic evaluation of the weld areas in question was undertaken using TVA ONP Procedure BF-UT-17, Rev. 5. Preliminary results at the time of my departure revealed that only two indications were just reportable at 50 percent of DAC, and several indications were undetectable (or signals were lost in the far surface noise or "grass"), indicating that no major volumetric discontinuities exist in this weld.

Further ultrasonic evaluation is to be performed related to the Code-acceptable and actual indication location, length, depth, thickness, and width. This information will be used in the final evaluation of this weld (TRHRS-3-18).

George R. Henke

ATTACHMENT 4.5

BROWNS FERRY NUCLEAR PLANT

GENERAL CONSTRUCTION SPECIFICATION NO. G-28

TABLE OF CONTENTS

1.0 GENERAL

1.1 Purpose

This general construction specification defines general requirements for construction, testing, and inspection of piping systems for a boiling water reactor (BWR) nuclear power plant.

1.2 Scope

1.2.1 The requirements of this construction specification shall apply to the pressure-containing parts of piping systems of a BWR nuclear plant, i.e., Browns Ferry.

1.2.2 This construction specification covers materials control, fabrication and erection, testing and inspection, and cleaning of the specified piping system parts. It supplements applicable codes, standards, specifications, and drawings. Where conflicts exist between this construction specification and applicable codes, the requirements of the applicable code shall apply, as a minimum. Where conflicts exist between this specification and General Electric (GE) Specification 22A1406, "Design Specification for Pressure Integrity of Piping and Equipment Pressure Parts", the GE specification shall apply for systems and components furnished by GE.

1.2.3 Amendment 31 to the Browns Ferry Nuclear Plant FSAR added the requirements of 10CFR50 Appendix B to many items, including piping systems, and stated that work on these items would be documented after July 1, 1972. Appendix A to this construction specification lists piping systems or portions of systems which require quality assurance documentation for all construction work performed on them after July 1, 1972. This specification and TVA General Construction Specification G-27, "Quality Control for Construction of Piping Systems for Boiling Water Reactor Nuclear Power Plants," establish the additional documentation required. The methods and procedures to be used to obtain quality assurance and control are covered in G-27.

1.2.4 This construction specification does not cover material requirements or procurement requirements for piping and equipment pressure parts. Field-procured material or parts shall be in accordance with applicable codes and design specifications.

1.2.5 When used in this specification, the term "the Engineer" means the Construction Engineer or his designated representative.

1.0 GENERAL (Continued)

1.3 Classification of Piping Systems

1.3.1 Piping systems shall be classified as follows:

Class A - Piping and equipment pressure parts which cannot be isolated from the reactor vessel.

Class B - Piping and equipment pressure parts which can be isolated from the reactor vessel by only a single isolation valve.

Class C - Piping and equipment pressure parts other than those included in Class A and B for a high-integrity system fabricated to Fabrication Schedule F1 and inspected to Inspection and Testing Schedule T2. (See Appendix B.)

Class D - Piping and equipment pressure parts which serve as: (a) an extension of containment regardless of operating pressure and temperature; and (b) engineered safeguards systems which must operate to reduce consequences of an accident and which operate at either pressures greater than 150 psig or temperatures greater than 212°F.

Class E - Piping and equipment pressure parts of engineered safeguards systems which must operate to reduce consequences of an accident and which operate at pressures equal to or less than 150 psig and temperatures equal to or less than 212°F, except for the off-gas system which may reach temperatures of approximately 900°F.

Class F - Piping and equipment pressure parts which transport fibrous or particulate materials, such as resins or filter aids, and other systems which: (a) transport radioactive fluids; and (b) operate at pressures equal to or less than 150 psig and temperatures equal to or less than 212°F.

Class G - Piping and equipment pressure parts used for acids in concentrations of 60 to 100 percent at ambient temperature, or caustics in concentrations of 50 percent or less at temperatures of less than 150°F.

Class H - Piping and equipment pressure parts used for acids in concentrations of 10 percent or less.

Class L - Piping and equipment pressure parts which require material considerations to maintain deionized water purity.

1.0 GENERAL (Continued)

1.3 Classification of Piping Systems (Continued)

Class M - Power piping and equipment pressure parts not otherwise classified and which are considered within the scope of USAS B31.1.0-1967. 8

Class N - Miscellaneous piping and equipment not otherwise classified and not considered within the scope of USAS B31.1.0-1967. 8

Class P - Piping and equipment pressure parts which are important to safety and which require quality assurance documentation as specified in 10CFR50 Appendix B for work performed after July 1, 1972.

1.3.2 Appendix A lists the Browns Ferry Nuclear Plant piping systems classified in accordance with section 1.3.1.

1.4 Definitions

Assembly. The joining together of two or more piping components by bolting, welding, caulking, or threading the components into their installed location as specified by the engineering design.

Erection. The complete installation of a piping system, including any field assembly, fabrication, testing, and examination of the system.

Examination. The critical investigation of a material, component, or system by visual or other nondestructive methods.

Fabrication. The forming and joining of piping components into integral pieces ready for assembly. Fabrication includes bending, forming, threading, welding, and other operations upon the piping components that are not part of the assembly process. Fabrication may be done in a shop or in the field.

Nondestructive Examination or Test. Examining or testing by methods that do not destroy the part to determine the suitability of the part for use.

1.0 GENERAL (Continued)

1.4 Difinitions (Continued)

Pipe Supporting Elements. Pipe supporting elements consist of hangers, supports, and structural attachments as follows:

a. Hangers and Supports - Hanging-type fixtures (such as hanger rods, spring hangers, sway braces, counterweights, turnbuckles, struts, chains, guides, and anchors) and bearing-type fixtures (such as saddles, bases, rollers, brackets, and sliding supports) that transfer the load from the pipe or structural attachment to the supporting structure or equipment.

b. Structural Attachments - Elements (such as clips, lugs, rings, clamps, clevises, straps, and skirts) that are welded, bolted, or clamped to the pipe.

c. Restraints - Elements that transfer dynamic load from the pipe or structural attachment to the supporting structure or equipment.

Piping System. Pipe, pipe fittings, flanges, bolting, gaskets, relief devices, and the pressure-retaining parts of other components normally considered a part of the piping system and included in the system stress analysis. The term "piping system" also includes hangers, supports, restraints, and other equipment items necessary to prevent the overstressing of the pressure-retaining parts. The term "piping system" does not include structures and equipment (such as towers, building frames, valves, pumps, pressure vessels, mechanical equipment, and foundations) except as they may affect the system stress analysis.

2.0 MATERIALS CONTROL AND MARKING

2.1 Applicable Classifications

2.1.1 The materials control and marking requirements of this construction specification apply to Class A, B, C, D, E, and P piping systems only.

2.1.2 Materials control and marking requirements for Class F, G, H, L, M, and N piping systems shall be as defined by applicable codes, standards, and material specifications.

2.2 Materials Control

2.2.1 General

Materials control provides assurance that all materials for pressure-containing parts of Class A, B, C, D, E, and P systems are as specified and, to the extent specified herein, can be traced to applicable records required by the specifications for each part.

2.2.2 Marking

Each part of the fabricated piping assembly, fitting, or equipment shall be marked as required by applicable codes and standards. Parts over 2-inch nominal pipe size for Class A and B systems and parts over 4-inch nominal pipe size for Class C, D, E, and P systems shall include additional marking as necessary to identify the part with materials certifications, material tests, and reports of all tests and examinations performed on the part and its components. Marking shall be adequate to identify the part when completely installed in the final erected assembly.

2.2.3 Identification of Materials

2.2.3.1 Properly identified materials certifications, mill test reports, chemical analysis, and mechanical property reports shall be maintained for all pressure-containing parts and welded attachments. Minor attachments, such as insulation supports, nameplates, and locating lugs, may be noncertified material and may be welded directly to pressure parts provided: (1) the material is identified and is suitable for welding; (2) the material is compatible with the material to which it is attached; (3) the weld material is certified; and (4) post-weld heat treatment is performed if required by USAS B31.1.0-1967. 8

2.2.3.2 Bolt studs and nuts that are 1-inch nominal size and over shall be clearly identified with only the material specification by legible marking on the part. Fasteners of smaller size do not require marking on the individual part.

2.0 MATERIALS CONTROL AND MARKING (Continued)

2.2.3 Identification of Materials (Continued)

2.2.3.3 Permanent marking on piping or equipment pressure parts or permanent marking for weld identification purposes shall not be injurious to the component. Low stress or interrupted-dot die stamping, banding, or vibratory pencils may be used. Tack welding of identification tabs directly to the component is not allowed.

2.3 Receipt of Materials

2.3.1 Records

Materials records will normally be checked and filed by the organization which procures the finished part. In some instances, the field may procure material or material may be procured for field inspection when received. In such cases, when the material is received, the associated records shall be checked to see that specified records are received and properly identified. Such records shall include but not be limited to:

a. A certified materials test report by the manufacturer of the material or component

b. Specified fabrication, heat treatment, welding, and repair records

c. A certificate of compliance by the supplier of the completed part

d. Certified test and inspection reports

e. Code certificates

f. Installation, operation, and maintenance manuals

2.3.2 Marking

Each separate pressure-containing part shall be checked for proper marking and stamping as required in section 2.1, including code stamps where required.

2.3.3 Inspection

2.3.3.1 Upon receipt, each part shall be inspected for damage during shipment.

2.0 MATERIALS CONTROL AND MARKING (Continued)

2.3.3 Inspection (Continued)

2.3.3.2 If the part was not inspected by TVA inspectors before shipment, the Procurement Quality Assurance Branch (PQAB), Division of Nuclear Quality Assurance, may request that the part be inspected at the site for cleanliness, corrosion protection, dimensional requirements, surface finish, and packaging. 8

2.3.4 Storage

Each part shall be properly packaged and protected for storage and shall be properly marked and stored until ready for use. This protection should be provided at the vendor's plant but shall be checked for adequacy when received. The storage protection required shall be as defined in the purchase specification and approved manufacturer's procedures, but particular care shall be given to protection against moisture, corrosion, dirt, and debris collecting on internal parts.

2.4 Erection and Construction

2.4.1 Marking

Each part shall be checked before and after installation for proper marking in accordance with section 2.2 and to verify that the part is of the correct material for the system.

2.4.2 Attachments

2.4.2.1 General

Requirements for attachments shall be as required by the applicable fabrication schedule. Where requirements are not specified in the fabrication schedule, material for an attachment (permanent and temporary) shall conform to the requirements of USAS B31.1.0-1967 and shall be compatible with the material to which it is attached. 8

2.4.2.2 Temporary Attachments

If welded to pressure-containing parts, temporary attachments shall be completely removed and the area ground smooth and inspected by liquid penetrant or magnetic particle method.

2.0 MATERIALS CONTROL AND MARKING (Continued)

2.4.3 Weld Material

2.4.3.1 Marking

Welding filler materials shall be clearly identified by legible marking on the package or container to ensure positive identification of the material, and the identification markings shall remain legible until the material is actually consumed in the process. The identification shall include such information as the specification, grade, and classification number; the supplier's name and trade designation; and the control or heat number. Procedures for controlling weld materials shall provide assurance that all weld material is properly identified and that correct materials are used in the fabrication of all weld joints.

2.4.3.2 Construction

Filler metal, including consumable inserts used for austenitic stainless steel welds, shall be selected and controlled to produce welds that contain a minimum of 3-percent ferrite based upon chemical analysis of weld metal compared to the Shaeffler Diagram for stainless steel weld metal. For coated electrodes or for submerged arc wire flux combinations, a chemical analysis of as-deposited weld material is required. Production welds will be selectively checked and some indication of magnetism shall be considered acceptable.

3.0 FABRICATION AND ERECTION - GENERAL REQUIREMENTS

3.1 General

The fabrication and erection of piping systems shall be in accordance with the requirements of sections 3.2 through 3.7.

3.2 Codes

The fabrication of piping and equipment pressure parts shall be in accordance with USAS B31.1.0-1967 (except for class N) and specific portions of the ASME Boiler and Pressure Vessel Code, 1965 Edition up to and including the Summer 1967 Addenda (Sections I, III, VIII, and IX as specified). 8

3.3 Applicable Classifications

Fabrication and erection of piping systems (as classified in section 1.3) shall meet the supplementary requirements of the fabrication schedules listed in Appendix B as follows:

Classification	Fabrication Schedule
A, B, and C	F1
D and E	F2
F, G, and H	F3
L and M	F4
N	None specified
P	F4

3.4 Fitup and Alignment

3.4.1 Fitup and alignment of pipe ends for welding shall be strictly in accordance with USAS B31.1.0-1967 and the weld procedures. 8

3.4.2 End preparation, alignment, and root gap for Classes A through E shall be checked by the Engineer before welding for conformance to USAS B31.1.0-1967 and to applicable procedures. 8

3.5 Welding

3.5.1 General

All welding shall be done in accordance with applicable codes, specifications, additional requirements specified in this construction specification, and additional requirements of the applicable fabrication schedule (see Appendix B). No welding shall be done if there is impingement of rain, sleet, or high wind upon the area or if the metal temperature is less than 60°F.

3.0 FABRICATION AND ERECTION - GENERAL REQUIREMENTS (Continued)

3.5.2 Qualification

3.5.2.1 Procedures

All welding, including fillet, seal, repair, and attachment welds, shall be performed in accordance with written welding procedures. Procedure qualification and welder performance qualification shall be in accordance with Section IX of the 1965 Edition of the ASME Boiler and Pressure Vessel Code, up to and including the Summer 1967 Addenda. Any requalifications or new qualifications shall be made in accordance with the test requirements of the current edition of Section IX. 8

3.5.2.2 Impact Testing

For welds which require brittle fracture control and which are within the bounds (as identified by DNE) of Class A and B systems, the welding procedures used shall be qualified by impact testing in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Paragraph N-541, 1968 Edition up to and including the Summer 1968 Addenda. Impact tests shall be conducted at a test temperature of minus 20°F. All welding material shall be tested in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Paragraph N-511.3, 1968 Edition up to and including the Summer 1968 Addenda. 8 8 8

3.5.2.3 Base Material

For welds which require brittle fracture control and which are within the bounds (as identified by DNE) of Class A and B systems of Browns Ferry Units 1, 2, and 3, the requirements of section 3.5.2.2 shall apply except that the base material for the production welds need not be the same as the base material used to qualify the procedure. 8

3.5.2.4 Penetration Assembly Welds

The requirements of section 3.5.2.2 apply to penetration assembly welds made in the field, for example, flued head-to-bellows, bellows assembly-to-containment nozzle, and anchor-to-flued head fittings.

3.5.3 Qualification Records

Procedure and performance qualification records shall be maintained in accordance with Section IX of the ASME Boiler and Pressure Vessel Code, 1965 Edition up to and including the Summer 1967 Addenda. Application of welder's identification symbols shall be within the limitations on marking as specified in this construction specification. 8

3.0 FABRICATION AND ERECTION - GENERAL REQUIREMENTS (Continued)

3.5.4 Seal Welds

Where seal welding of threaded joints is permitted, threads shall be entirely covered by the seal weld. Seal welding shall be done by qualified welders.

3.6 Lubricants for Assembly of Stainless Steel Parts

"Neolube" (as manufactured by Huron Industries, Port Huron, Michigan) containing no more than 200 ppm fluorides and 10 ppm sulfide, or a DNE approved equivalent, shall be the only lubricant used for the assembly of stainless steel parts. |8

3.7 Deviations and Substitutions

Fabrication and erection procedures, methods, or processes which are not in accordance with the applicable codes and requirements of the specified schedules (see Appendix B) shall not be used without the concurrence of DNE. Proposals for deviations, substitutions, or relaxation of specified requirements shall be documented. Final disposition of any deviation, substitution, or relaxation shall also be documented. |8

4.0 INSPECTION AND TESTING - GENERAL REQUIREMENTS

4.1 General

The inspection and testing of piping systems shall be in accordance with the requirements of sections 4.2 through 4.5.

4.2 Codes

The inspection and testing of piping systems shall be in accordance with the following:

a. USAS B31.1.0-1967 (except class N); 8

b. Specific portions of the ASME Boiler and Pressure Vessel Code, 1965 Edition up to and including the Summer 1967 Addenda (Sections I and III as specified); and 8

c. ASTM specifications, as specified.

4.3 Methods, Techniques, and Acceptance Standards

Inspection and testing as required by the applicable codes, specifications, and schedules shall employ the methods and techniques required by this construction specification and shall meet the specified acceptance standards.

4.3.1 Radiography of Welds

The radiography of welds, including acceptability standards, shall be in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Paragraph N-624, Summer 1967 Addenda.

4.3.2 Ultrasonic Inspection

Ultrasonic inspection of welds is not required by this specification but may be used for interpretation or as an added assurance of integrity. When welds are inspected ultrasonically, the methods and acceptance standards given in the ASME Boiler and Pressure Vessel Code, Section III, Paragraph N-625, Summer 1967 Addenda, may be used as a guide.

4.3.3 Liquid Penetrant Inspection

Methods, techniques, and acceptance standards for liquid penetrant inspection shall be in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Paragraph N-627, Summer 1967 Addenda.

4.0 INSPECTION AND TESTING - GENERAL REQUIREMENTS (Continued)

4.3.4 Magnetic Particle Inspection

Methods, techniques, and acceptance standards for magnetic particle inspection shall be in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Paragraph N-626, 1965 Edition, Summer 1967 Addenda. 8

4.3.5 Hydrostatic Testing

4.3.5.1 Hydrostatic testing of piping and equipment pressure parts shall be conducted in accordance with USAS B31.1.0-1967. Waiving of 8
hydrostatic tests or substitution of other tests as permitted by USAS B31.1.0-1967 shall require approval by the Engineer. 8

4.3.5.2 Following the application of the hydrostatic test pressure for a minimum of 10 minutes, the pressure may be reduced to the design pressure at which time the pressure-retaining components shall be examined for leaks. The pressure-retaining components are unacceptable if any leaks are detected.

4.4 Applicable Classifications

Inspection and testing of piping systems as classified in section 1.3 shall meet the supplementary requirements of the inspection and testing schedules in Appendix C as follows:

Classification	Inspection and Testing Schedule
A and B	T1
C and D	T2
E	T3
F, G, and H	T4
L and M	T5
N	None specified
P	T4

4.5 Procedures

Written procedures shall be prepared for all inspections and tests. These procedures may refer to appropriate codes and shall not conflict with the codes. The procedures shall provide additional requirements or instructions or emphasize critical requirements. For example, these procedures shall give additional requirements (as required by manufacturers) of nondestructive inspection equipment and supplied and shall include specific instructions and information to ensure that inspections conform to all requirements of the applicable codes. The following inspection and test methods, if used, shall require written procedures approved by the Engineer:

4.0 INSPECTION AND TESTING - GENERAL REQUIREMENTS (Continued)

4.5 Procedures (Continued)

a. Radiography

b. Liquid penetrant inspection

c. Ultrasonic inspection

d. Magnetic particle inspection

e. Leak testing

5.0 CLEANING

Cleaning of TVA-furnished piping systems shall be conducted in accordance with detailed specifications issued by DNE. These specifications conform in general to General Electric Company Specification No. 22A2226. (These specifications, including any deviations from the GE specification, are approved by GE before issuance.) 8

Cleaning of GE-supplied piping systems in the drywell to outer isolation valves shall be conducted in accordance with General Electric Company Specification No. 22A2226.

6.0 REFERENCES

6.1 General Electric Specification 22A1406, "Design Specification for Pressure Integrity of Piping and Equipment Pressure Parts" (R2)

6.2 10CFR50 Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants"

6.3 TVA General Construction Specification No. G-27, "Quality Control for Construction of Piping Systems for Boiling Water Reactor Nuclear Power Plants" (R0 and Addendum No. 1)

6.4 USAS B31.1.0-1967, "Power Piping Code"

6.5 ASME Boiler and Pressure Vessel Code, 1965 Edition with addenda up to and including the Summer 1967 Addenda (Sections I, III, VIII, and IX), 1968 Edition up to and including the Summer 1968 Addenda (Section III) 8

6.6 General Electric Company Specification No. 22A2226, "Field Cleaning of Nuclear Power Plant Components" (R1)

6.7 TVA General Construction Specification No. G-29M, "Process Specifications for Welding, Heat Treatment, Nondestructive Examination, and Allied Field Fabrication Operations" 8

7.0 APPENDICES

Appendix A - Classification of Piping Systems for a Boiling Water Reactor Nuclear Plant

Appendix B - Fabrication Schedules F1, F2, F3, and F4

Appendix C - Inspection and Testing Schedules

Appendix D - Piping Classification Correlations

Appendix A

CLASSIFICATION OF PIPING SYSTEMS FOR A BOILING WATER REACTOR NUCLEAR PLANT

This list is a GUIDE to the classification of piping systems and does not define specifically the limits of all systems. Design drawings and specifications shall be referred to for exact limits of system classifications.

Class A

1. Reactor recirculation system (except for Class B)
2. Main steam through first isolation valve
3. Feedwater through first check valve
4. Reactor core isolation cooling (RCIC) steam through first isolation valve
5. High-pressure coolant injection (HPCI) steam through first isolation valve
6. Residual heat removal (RHR) head spray: from reactor pressure vessel through first valve
7. Reactor cleanup: recirculation line through inner isolation valve
8. Standby liquid control system from reactor through inner check valve
9. Core spray from reactor vessel through first isolation valve outside containment
10. Steam line drains from steam line through inner isolation valve
11. Control rod drive (CRD) hydraulic insert and withdraw lines from reactor vessel through first check valve
12. Reactor instrumentation or instrumentation connected to Class A or B piping for dead-end service through the second isolation (flow check) valve
13. Residual heat removal (RHR) shutdown cooling supply from recirculation system through inner isolation valve
14. Residual [illegible] shutdown cooling return from recirculation system t[illegible] valve

Appendix A (Continued)

Class B

1. Piping from inner isolation valve through first outer isolation valve of the following systems unless otherwise noted:

   a. Main steam lines

   b. High-pressure coolant injection (HPCI) steam

   c. Reactor core isolation cooling (RCIC) steam

   d. Feedwater lines (check valves)

   e. Residual heat removal (RHR) shutdown cooling supply (from inner isolation valve through outer isolation valve)

   f. Residual heat removal (RHR) shutdown cooling return (from inner check valve through two outer isolation valves)

   g. Control rod drive hydraulic system from first check valve through second check valve

   h. Core spray line from first outer isolation valve through second outer isolation valve

   i. Reactor cleanup supply from feedwater line through check valve

   j. Head spray from inner motor-operated isolation valve through outer motor-operated isolation valve

   k. Steam line drains

   l. Standby liquid control (through locked open valves)

2. Piping between recirculation pump suction and discharge valves

3. Reactor core isolation cooling (RCIC) supply from feedwater connection through testable check

4. High-pressure coolant injection (HPCI) supply from feedwater connection through testable check

5. Reactor cleanup: feedwater line through check valve

Appendix A (Continued)

Class C

1. Main steam: outer isolation valve to turbine stop valve

2. Feedwater: feedwater pump discharge nonreturn valve to outer isolation check valves

3. High-pressure coolant injection (HPCI) steam: outer isolation valve to turbine stop

4. Reactor core isolation cooling (RCIC) steam: outer isolation valve to turbine stop

5. Reactor cleanup: all main lines to Class B connections of reactor primary system including drain to main condenser and drain to waste from demineralizer discharge through normally closed valves

6. Feedwater turbine supply steam: main steam to feedwater turbine stop valves

7. Bypass steam: main steam through bypass valve and on through pressure reducer

8. Gland seal: steam seal supply from main steam to steam seal regulator

9. Control rod drive hydraulic system from second check valve through motor-operated valve

Class D

1. Core spray system: second outer isolation valve to suppression chamber header

2. Residual heat removal (RHR) system: suppression chamber connections to normally closed valve outside containment (supply) and to second outer isolation valve outside containment (return)

3. High-pressure coolant injection (HPCI) system: turbine exhaust from turbine to suppression chamber; suppression chamber through pump to testable check; test line from pump discharge line through second isolation valve; minimum flow line; condensate from pump through valve

4. Reactor core isolation cooling (RCIC) system: turbine exhaust from turbine to suppression chamber; suppression chamber through pump to testable check; test line from pump discharge line through second isolation valve; minimum flow line; condensate from pump suction through valve

Appendix A (Continued)

Class D (Continued)

5. Head spray: from containment spray supply line to valve outside containment

6. Containment vent and purge: from containment through outer isolation valve

7. Containment sump drain discharge: from containment through outer isolation valve

8. Atmospheric control system: from containment through second isolation valve

9. Standby liquid control system from pump discharge through explosive valves up to injection valves and through normally closed valves on branch lines of pump discharge

10. Reactor Building closed cooling water system: from drywell penetration through first valve (2 locations)

11. Drywell control air system: piping from drywell penetration through second valve outside of drywell for suction and discharge

12. Torus and containment spray system: extensions of containment up to residual heat removal (RHR) isolation valves

13. Containment instrumentation (dead-end service) from containment through first manual valve

14. Discharge piping of power-operated relief valves: from valve to connection at jet deflector

15. Service air: from drywell penetration through second isolation valve

16. Plant control air: from drywell penetration through second isolation valve

17. Demineralized water: from drywell penetration through second isolation valve

18. Containment atmosphere monitoring system: except instrument package

Appendix A (Continued)

Class E

1. Residual heat removal (RHR) raw cooling water system from the residual heat removal (RHR) heat exchangers through check valves in supply lines and through isolation valves in discharge lines

2. Standby liquid control system on suction side of pumps

3. Pressure regulating valves (PCV-1-175A and B) for the nuclear steam supply to the off-gas preheaters

4. Off-gas system

Class F

1. Fuel pool cooling (carbon steel portion) (add requirements of Class P)

2. Radioactive waste

3. Resin transfer

4. Containment sump drain discharge

5. Reactor cleanup from normally closed valve to waste

6. Residual heat removal (RHR) flush pump: from residual heat removal (RHR) valve connections to radwaste connection and through valve in line to condenser

Class G

Radwaste system: chemical waste stainless steel piping

Class H

Drains from small tools decontamination room and decontamination stations in reactor and turbine buildings to chemical waste tank

Class L

1. Demineralized water system

2. Low conductivity waste system for waste demineralizer to connection with condensate headers

Appendix A (Continued)

Class L (Continued)

3. Condensate storage and supply system piping (aluminum portion)

4. Condensate ring header and attached seismic Class I supply piping (add requirements of Class P)

Class M

1. Condensate system: hotwell through feedwater pumps

2. Condensate storage and supply system

3. Main steam: cross-around piping

4. Feedwater system: feedwater pump discharge to nonreturn valve

5. Extraction steam

6. Condenser circulating water

7. Raw cooling water (except residual heat removal (RHR) and emergency equipment)

8. Reactor cleanup from normally closed valve to condenser

9. Off-gas system (has special requirements under USAS B31.1.0-1967, Nuclear Case N-12) 8

10. Control rod drive hydraulic system from first motor-operated valve outside containment to condensate supply

Class N

Not listed herein: See design documents

Class P (Effective for work performed after July 1, 1972)

1. Residual heat removal (RHR) service water system: those portions other than Class E

2. Emergency equipment cooling water system (carbon steel portion)

3. Reactor building closed cooling water (RBCCW) system: all of RBCCW system beyond first Class D valve

Appendix A (Continued)

Class P (Continued)

4. Drywell control air system: all piping beyond second Class D valve outside drywell including discharge piping inside drywell

5. Torus and containment spray system: inside containment and torus (nozzles and headers)

6. Fuel storage cooling system: aluminum portion including return piping

7. Standby auxiliary power system and critical power systems:

   a. CO_2 fire protection system in diesel-generator building

   b. Diesel generator air starting system

   c. Fuel oil transfer system (7-day tanks to 1-day tanks)

8. Control rod drive system: piping from scram accumulators to the control rod drive units

9. Instrument lines within the containment boundary

10. Off-gas stack: including dilution fan butterfly valves and ducts to vent pipe

Unclassified

Standby gas treatment (SGT) system discharge to stack: Class 1 seismic, 50 psig design, 1/4-inch corrosion allowance

FABRICATION SCHEDULE F1

1.0 WELDING

1.1 General

Piping systems assembled or erected by welding shall be in accordance with applicable codes, specifications, the general requirements of this construction specification, and Fabrication Schedule F1.

1.2 Qualifications Records

In addition to qualification records required by the USAS B31.1.0-1967, a qualification record of all joints and of the welder making the joint shall be kept. 8

1.3 Butt Joints

1.3.1 Joint Design

Joint design and welding procedures for longitudinal and girth butt joints larger than 2 inches in pipe size shall be for complete penetration groove welds.

1.3.2 Backing Rings

Backing rings shall not be used unless they are removed after welding and the root area is inspected as required for the applicable classification of piping.

1.3.3 Weld End Preparation

The preparation of weld ends for matching ends of pipe for correction of out-of-roundness shall not result in a wall thickness less than the specified minimum thickness.

1.3.4 Tack Welds

All tack welds shall be made by a qualified welder. Tack welds that are to be incorporated into the final weld shall be made with an electrode that is the same as or equivalent to the electrode to be used for the first pass. Tack welds that have cracked shall be completely removed to sound metal.

FABRICATION SCHEDULE F1 (Continued)

1.0 WELDING (Continued)

1.4 Branch Connections

1.4.1 Branches larger than 4 inches in pipe size shall use welding tees, sweepolets, or extruded outlets of equivalent reinforcement attached with complete penetration butt welds. Gamma ports shall not be used on Class A and B systems.

1.4.2 Branches 4 inches and smaller in pipe size shall use weldolets, sockolets, or similar fittings attached with complete penetration groove welds.

1.4.3 Instrument and instrument line branches 2 inches and smaller in pipe size may use couplings or half-couplings attached with complete penetration welds.

1.5 Socket Welds

1.5.1 Socket welds may be used for pipe size 2 inches and smaller.

1.5.2 Socket welds shall have a gap of approximately 1/16-inch between the bottom of the socket and the end of the pipe before welding. Scribe lines or other markings shall be used to determine the spacing. The pipe shall be engaged in the fitting for 360° (3/16-inch minimum engagement is recommended).

1.5.3 Socket welds shall have a minimum of two layers for a nominal wall thickness of 3/16-inch and larger in addition to meeting the dimensional requirements of TVA General Construction Specification No. G-29M, "Process Specifications for Welding, Heat Treatment, Nondestructive Examination, and Allied Field Fabrication Operations" (latest revision). 8

1.6 Attachment Welds

1.6.1 Attachment of nonpressure containing parts (such as supports, hangers, and restraints) to pressure-containing components shall be by complete penetration groove welds, where possible, but in all cases welds shall be made which meet or exceed the minimum requirements of the applicable codes.

1.6.2 Attachment welds shall be subject to all of the requirements and limitations imposed for fabrication of the piping or equipment to which they are attached.

FABRICATION SCHEDULE F1 (Continued)

1.0 WELDING (Continued)

1.6 Attachment Welds (Continued)

1.6.3 If welded to pressure-containing parts, temporary attachments shall be completely removed and the area ground smooth and inspected by liquid penetrant methods.

1.7 Weld Reinforcement

Material Thickness	Maximum Reinforcement
To 3/16" Inclusive	3/32"
Over 3/16" to 1/2" Inclusive	1/8"
Over 1/2"	5/32"

1.8 Welding Procedures and Processes

1.8.1 General

Welding procedures and processes shall be used to produce welds of complete penetration, complete fusion, and free of unacceptable defects. The finished surfaces of the weld (both root and crown) shall merge smoothly into the adjacent component surfaces. Weld layers shall be built up uniformly around the circumference and across the width of the joint. Weld starts and stops shall be staggered. Block welding or peening of welds is not allowed without the concurrence of the Engineer. The maximum interpass temperature for all austenitic stainless steel and dissimilar metal welds shall be 350°F.

1.8.2 Pressure Containing and Attachment Welds

Pressure containing and attachment welds, as specified in this fabrication schedule, shall use the following processes within the limitations of this specification. Other processes or procedures are not allowed without the concurrence of DNE. 8

a. Gas Tungsten Arc Welding (GTAW)

b. Gas Metal Arc Welding (GMAW)

NOTE

GMAW utilizing the short circuiting or globular mode of transfer shall not be used for austenitic stainless steel welds.

FABRICATION SCHEDULE F1 (Continued)

1.0 WELDING (Continued)

1.8.2 Pressure Containing and Attachment Welds (Continued)

c. Shielded Metal Arc Welding (SMAW)

d. Submerged Arc Welding (SAW)

1.8.3 Austenitic Stainless Steel Welds

1.8.3.1 Groove Butt Welds

Austenitic stainless steel groove butt welds shall be made by one of the following methods:

a. Double welded (welded from both sides) by any acceptable processes. Double-welded joints shall be inspected on the back of the first side welded before welding the second side.

b. Single welded (welded from one side) using the GTAW process with filler metal added and a protective gas back purge until a minimum of 3/16-inch of weld thickness is completed. Completion of the weld may be by other acceptable welding processes.

Consumable inserts, if used, shall be of rectangular cross section (Grinnell type). Other types of consumable inserts shall be used only if approved by DME. | 8

1.8.3.2 Socket Welds

Austenitic stainless steel socket welds shall use the GTAW process with filler metal added for at least the root layer. Protective gas back purging is not required.

1.8.4 Carbon Steel Welds

Within the limits of this construction specification, carbon steel groove welds shall be double welded (welded from one side) using the GTAW process with filler metal added for the root and second layer. Completion of the weld may be by other acceptable processes.

1.8.5 Dissimilar Metal Welds

Welded connections between austenitic stainless steel and carbon/low-alloy steel are considered to be dissimilar metal welds.

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FABRICATION SCHEDULE F1 (Continued)

1.0 WELDING (Continued)

1.8.5.1 Groove Welds

Dissimilar metal groove welds shall be in accordance with the following requirements:

a. When the carbon/low-alloy steel component is over 3/4-inch thick, it shall be "buttered" with type 309 filler metal and heat treated in accordance with the requirements of USAS B31.1.0-1967. Completion of the weld joint can then be accomplished with either type 308 or type 309 filler metal in accordance with section 1.8.3.1. The completed weld joint shall not be heat treated. 8

b. When the carbon/low-alloy steel component is 3/4-inch or less in thickness, one of the following methods applies: (1) it shall be welded using the SMAW process with type 309 filler metal, or (2) it shall be "buttered" with type 309 filler metal when using GTAW or SAW for additional welding of the joint. Type 308 or 309 filler metal may be used for completion of the weld in accordance with section 1.8.3.1. The completed weld joint shall not be heat treated.

c. The minimum thickness of the "buttered" area after end preparation shall be 3/16-inch.

1.8.5.2 Socket Welds

Dissimilar metal socket welds shall be in accordance with the following requirements:

a. The socket fitting shall be carbon/low-alloy steel.

b. Dissimilar metal socket welds shall use the GTAW process with type 309 filler metal added for at least the root layer. Protective gas back purging is not required.

1.9 Brittle Fracture Control for Ferritic Steels - Welds

Welds within the bounds (as specified by DNE) of systems requiring brittle fracture control shall be qualified by impact testing as required in section 3.4.2.2 of this construction specification. 8

FABRICATION SCHEDULE F1 (Continued)

1.0 WELDING (Continued)

1.10 Marking

Each welder shall identify each weld with his identification number or mark. Weld identification shall not be injurious to the component. Low stress or interrupted-dot die stamping, banding, or vibratory pencils may be used. Tack welding of identification tabs directly to the component is not allowed.

2.0 BENDING AND FORMING

2.1 General

Bending and forming shall be in accordance with USAS B31.1.0-1967 and the supplemental requirements specified in this section of Fabrication Schedule F1. |8

2.2 Austenitic Stainless Steel Piping

Austenitic stainless steel piping may be hot or cold bent within the following limitations.

2.2.1 Cold bent to any radius within the limitations of USAS B31.1.0-1967 provided the maximum operating temperature does not exceed 200°F for more than 1 percent of the design life and the base material, before bending, is in the fully annealed condition. |8

2.2.2 Cold bent to a minimum radius equal to 20 nominal pipe diameters regardless of service temperature. Cold bending to less than 20 nominal pipe diameters is acceptable for piping which has a normal operating temperature above 200°F provided the bending operation is followed by solution heat treatment.

2.2.3 Hot bent to a minimum radius equal to 5 nominal pipe diameters regardless of service temperature. Hot bending shall be followed by solution heat treatment.

2.2.4 Bending of austenitic stainless steel piping at temperatures below 800°F shall be considered cold bending.

3.0 HEAT TREATMENT

3.1 Procedures and Records

3.1.1 Written procedures for heat treatment shall be prepared.

3.1.2 Records of heat treatment performed shall be kept. Temperatures of heat treatment need not be recorded although total temperature and time-at-temperature shall comply with written procedures.

FABRICATION SCHEDULE F1 (Continued)

3.0 HEAT TREATMENT (Continued)

3.2 Austenitic Stainless Steel

Austenitic stainless steel piping components and equipment pressure parts shall have been solution heat treated at least once before shipment to the site.

3.2.1 The time-at-temperature for stainless steel welds shall be minimized.

3.2.2 Stainless steel welds shall not be postheat treated.

3.2.3 Temperature indicating crayons (tempilsticks) which are used on austenitic stainless steels and/or Ni-Cr-Fe shall be of the special low-sulphur, low-halogen type, and shall be packaged in lead-free wrappers.

3.3 Welds

Preheat and postheat treatment of welds shall be in accordance with the requirements and recommendations of USAS B31.1.0-1967. 8

4.0 DEFECT REPAIR

4.1 General

Repair of base metal or weld metal defects shall be in accordance with the requirements listed in sections 4.2 through 4.8 of Fabrication Schedule F1.

4.2 Surface Defects

Surface defects, such as laps, scabs, slivers, seams, or tears, which do not encroach on minimum wall thickness shall be removed by machining or grinding and shall be blended into the adjacent metal surfaces.

4.3 Minimum Wall Thickness

When defects or defect removal encroaches on minimum wall thickness, repairs may be made by welding.

FABRICATION SCHEDULE F1 (Continued)

4.0 DEFECT REPAIR (Continued)

4.4 Repair Welding

Repair welding shall be performed using welding procedures and welders qualified in accordance with Section IX of the ASME Boiler and Pressure Vessel Code, Summer 1967 Addenda. Any requalifications or new qualifications shall be made in accordance with the test requirements of the current edition of Section IX.

4.5 Major Repairs

4.5.1 Major repairs, as defined in this section, shall require the concurrence of the Engineer and the GE site representative (when applicable) before proceeding with repair. The Engineer and the GE site representative (when applicable) shall be notified of all major repairs. Records shall be kept to indicate the nature of the defect removed, the location of the defect, subsequent heat treatment, and other pertinent data.

4.5.2 Major repair of base materials, such as plates, forgings, extruded pipes, or castings, is defined as: (a) repair which requires excavation of material to a depth greater than 20 percent of the wall thickness or when the extent of the cavity is greater than 10 square inches; (b) the repair of any crack; and (c) the repair of defects which are indicative of fundamental materials problems.

4.5.3 Major repair of welds is defined as: (a) the repair of any crack other than crater cracks; or (b) the repair of defects which are indicative of either a fundamental materials problem or of a process out of control.

4.6 Defect Removal

Defects in welds requiring repair shall be removed by grinding, chipping, arc or flame gouging, or machining. All slag deposited while arc or flame gouging shall be removed. The cut surfaces shall be examined for defects using the liquid penetrant method.

4.7 Inspection of Repair Welds

Repair welds of a depth greater than 10 percent of the wall thickness shall meet inspection requirements for welds specified for the applicable classification of piping. Alternate inspection methods shall not be used without the concurrence of the Engineer.

FABRICATION SCHEDULE F1 (Continued)

4.0 DEFECT REPAIR (Continued)

4.8 Heat Treatment After Repair by Welding

4.8.1 Base material repair welds shall be heat treated as required by the applicable materials specifications. The Engineer shall determine whether heat treatment shall be performed after repair welding of base material.

4.8.2 Weld repairs shall be heat treated as required by USAS B31.1.0-1967. |c

5.0 SURFACE FINISH

The surface finish of materials, welds, piping, or equipment pressure parts shall be suitable for the method of inspection and testing required by the applicable test schedule. Surface discontinuities which are markedly different from the overall finish shall be removed or blended into the adjacent surfaces.

6.0 INSPECTION AND TESTING

Inspection and testing of piping and equipment pressure parts, including completed welds, assemblies, and subassemblies, shall be in accordance with the specified inspection and testing schedule.

FABRICATION SCHEDULE F2

1.0 WELDING

1.1 General

Piping systems assembled or erected by welding shall be in accordance with the applicable codes, specifications, the general requirements of this specification, and the requirements specified in Fabrication Schedule F2.

1.2 Qualification Records

In addition to qualification records required by USAS B31.1.0-1967, a qualification record of all joints and of the welder making the joint shall be kept. 8

1.3 Butt Joints

1.3.1 Joint Design and Welding Procedures

Joint design and welding procedures for longitudinal and girth butt joints larger than 2 inches in pipe size shall be for complete penetration groove welds.

1.3.2 Backing Rings

Backing rings shall not be used unless the backing rings are removed after welding and the root area is inspected as required for the applicable classification of piping.

1.3.3 Weld End Preparation

The preparation of weld ends for matching ends of pipe for correction of out-of-roundness shall not result in a wall thickness less than the specified minimum thickness.

1.3.4 Tack Welds

All tack welds shall be made by a qualified welder. Tack welds that are to be incorporated into the final weld shall be made with an electrode that is the same as or equivalent to the electrode to be used for the first pass. Tack welds that have cracked shall be completely removed to sound metal.

1.4 Branch Connections

Branch connections shall be in accordance with the requirements of USAS B31.1.0-1967 except that branch connections larger than 4 inches must be capable of being inspected by radiography. 8

FABRICATION SCHEDULE F2 (Continued)

1.0 WELDING (Continued)

1.5 Socket Welds

1.5.1 Socket welds may be used for pipe size 2 inches and smaller.

1.5.2 Socket welds shall have a gap of approximately 1/16-inch between the bottom of the socket and the end of the pipe before welding. Scribe lines or other markings shall be used to determine the spacing. The pipe shall be engaged in the fitting 360° (3/16-inch minimum engagement is recommended).

1.5.3 Socket welds shall have a minimum of two weld layers for a nominal wall thickness of 3/16-inch and larger in addition to meeting dimensional requirements of TVA General Construction Specification No. G-29M, "Process Specifications for Welding, Heat Treatment, Nondestructive Examination, and Allied Field Fabrication Operations" (latest revision). 8

1.6 Attachment Welds

1.6.1 Attachment of nonpressure containing parts (such as supports, hangers, and restraints) to pressure-containing components shall be by complete penetration groove welds, where possible, but in all cases welds shall be made which meet or exceed the minimum requirements of the applicable codes. Attachment welds shall be subject to all the requirements and limitations imposed for fabrication of the piping or equipment to which they are attached.

1.6.2 Temporary attachments, if welded to pressure containing parts, shall be completely removed and the area ground smooth and inspected by liquid penetrant methods.

1.7 Weld Reinforcement

Material Thickness	Maximum Reinforcement
To 3/16" Inclusive	3/32"
Over 3/16" to 1/2" Inclusive	1/8"
Over 1/2"	5/32"

1.8 Welding Procedures and Processes

1.8.1 Welding procedures and processes shall be used to produce welds of complete penetration, complete fusion, and free of unacceptable defects. The finished surfaces of the weld (both root and crown) shall merge smoothly into the adjacent component surfaces. Weld layers shall be built up uniformly around the circumference and

FABRICATION SCHEDULE F2 (Continued)

1.0 WELDING (Continued)

1.8 Welding Procedures and Processes (Continued)

across the width of the joint. Weld starts and stops shall be staggered. Block welding or peening of welds is not allowed without the concurrence of the Engineer. The maximum interpass temperature for all austenitic stainless steel and dissimilar metal welds shall be 350°F.

1.8.2 Pressure containing and attachment welds shall use the following processes within the limitations of this specification. Other processes or procedures are not allowed without the concurrence of DNE. 8

a. Gas Tungsten Arc Welding (GTAW)

b. Gas Metal Arc Welding (GMAW)

NOTE

GMAW using the short circuiting or globular mode of transfer shall not be used for austentic stainless steel welds.

c. Shielded Metal Arc Welding (SMAW)

d. Submerged Arc Welding (SAW)

1.8.3 Austentic Stainless Steel Welds

1.8.3.1 Groove Butt Welds

Austentic stainless steel groove butt welds shall be made by one of the following methods within the limitations of this construction specification:

a. Double welded (welded from both sides) by any acceptable processes. Double welded joints shall be inspected on the back of the first side welded before welding the second side.

b. Single welded (welded from one side) using the GTAW process with filler metal added and a protective gas back purge until a minimum of 3/16-inch of weld thickness is completed. Completion of the weld may be by other acceptable welding processes.

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FABRICATION SCHEDULE F2 (Continued)

1.0 WELDING (Continued)

1.8.3.2 Socket Welds

Austenitic stainless steel socket welds shall use the GTAW process with filler metal added for at least the root layer. Protective gas back purging is not required.

1.8.4 Carbon Steel Welds

Carbon steel groove welds shall be made by one of the following methods within the limitations of this construction specification:

a. Double welded (welded from both sides) by any acceptable processes. Double welded joints shall be inspected on the back of the first side welded before welding the second side.

b. Single welded (welded from one side) using the GTAW process with filler metal added for the root and second layer. Completion of the weld may be by other acceptable processes.

1.8.5 Dissimilar Metal Welds

Welded connections between austenitic stainless steel and carbon/low-alloy steel are considered to be dissimilar metal welds.

1.8.5.1 Groove Welds

Dissimilar metal groove welds shall be in accordance with the following requirements:

a. When the carbon/low-alloy steel component is over 3/4-inch thick, it shall be "buttered" with type 309 filler metal and heat treated in accordance with the requirements of USAS B31.1.0-1967. Completion of the weld joint can then be | 8 accomplished with either type 308 or 309 filler metal. The completed weld joint shall not be heat treated.

b. When the carbon/low-alloy steel component is 3/4-inch or less in thickness, one of the following applies: (1) it shall be welded using the SMAW process with type 309 filler metal, or (2) it shall be "buttered" with type 309 filler metal when using GTAW or SAW for additional welding

FABRICATION SCHEDULE F2 (Continued)

1.0 WELDING (Continued)

1.8.5.1 Groove Welds (Continued)

of the joint. Type 308 or 309 filler metal may be used for completion of the weld. The completed weld joint shall not be heat treated.

c. The minimum thickness of the "buttered" area after end preparation shall be 3/16-inch.

1.8.5.2 Socket Welds

Dissimilar metal socket welds shall be in accordance with the following requirements:

a. The socket fitting shall be carbon/low-alloy steel.

b. Dissimilar metal socket welds shall use the GTAW process with type 309 filler metal added for at least the root layer. Protective gas back purging is not required.

1.9 Marking

Each welder shall identify each weld with his identification number or mark. Weld identification shall not be injurious to the component. Low stress or interrupted-dot die stamping, banding, or vibratory pencils may be used. Tack welding of identification tabs directly to the component is not allowed.

2.0 BENDING AND FORMING

2.1 General

Bending and forming shall be in accordance with USAS B31.1.0-1967 and the supplemental requirements specified in section 2.2. 8

2.2 Austenitic Stainless Steel

Austentic stainless steel piping may be hot or cold bent within the following limitations:

2.2.1 Cold bent to any radius within the limitations of USAS B31.1.0-1967 provided the maximum operating temperature dows not exceed 200°F for more than 1 percent of the design life and the base material, prior to bending, is in the fully annealed condition. 8

FABRICATION SCHEDULE F2 (Continued)

2.0 BENDING AND FORMING (Continued)

2.2 Austenitic Stainless Steel (Continued)

2.2.2 Cold bent to a minimum radius equal to 20 nominal pipe diameters regardless of service temperature. Cold bending to less than 20 nominal pipe diameters is acceptable for piping which has a normal operating temperature above 200°F provided the bending operation if followed by solution heat treatment.

2.2.3 Hot bent to a minimum radius equal to 5 nominal pipe diameters regardless of service temperature. Hot bending shall be followed by solution heat treatment.

2.2.4 Bending of austenitic stainless steel piping at temperatures below 800°F shall be considered cold bending.

3.0 HEAT TREATMENT

3.1 Procedures and Records

3.1.1 Written procedures for heat treatment shall be prepared.

3.1.2 Records of heat treatment performed shall be kept. Temperature of heat treatment need not be recorded although total temperature and time-at-temperature shall comply with written procedures.

3.2 Austenitic Stainless Steel

Austenitic stainless steel piping components and equipment pressure parts shall have been solution heat treated at least once before shipment to the site.

3.2.1 The time-at-temperature for stainless steel welds shall be minimized.

3.2.2 Stainless steel welds shall not be heat treated.

3.2.3 Temperature indicating crayons (tempilsticks) which are used on austenitic stainless steels and/or Ni-Cr-Fe shall be of the special low-sulphur, low-halogen type, and shall be packaged in lead-free wrappers.

3.3 Carbon and Low-Alloy Steel

Carbon and low-alloy steel piping components and equipment pressure parts shall be heat treated in accordance with the requirements of the applicable ASTM materials specifications.

FABRICATION SCHEDULE F2 (Continued)

3.0 HEAT TREATMENT (Continued)

3.4 Welds

Preheat and postheat treatment of welds shall be in accordance with the requirements and recommendations of ANS B31.1.0-1967.

4.0 DEFECT REPAIR

4.1 General

Repair of base metal or weld metal defects shall be in accordance with the requirements listed in sections 4.2 through 4.8 of Fabrication Schedule F2.

4.2 Surface Defects

Surface defects, such as laps, scabs, slivers, seams, or tears, which do not encroach on minimum wall thickness shall be removed by machining or grinding and shall be blended into the adjacent metal surfaces.

4.3 Minimum Wall Thickness

When defects or defect removal encroaches on minimum wall thickness, repairs may be made by welding.

4.4 Repair Welding

Repair welding shall be performed using welding procedures and welders qualified in accordance with Section IX of the ASME Boiler and Pressure Vessel Code, 1965 Edition up to and including the Summer 1967 Addenda. Any requalification or new qualifications shall be made in accordance with the test requirements of the current edition of Section IX. | 8

4.5 Major Repairs

4.5.1 Major repairs, as defined in this section, shall require the concurrence of the Engineer and the GE site representative (when applicable) before proceeding with repair. The Engineer and the GE site representative (when applicable) shall be notified of all major repairs. Records shall be kept to indicate the nature of the defect removed, the location of the defect, subsequent heat treatment, or other pertinent data.

FABRICATION SCHEDULE F2 (Continued)

4.0 DEFECT REPAIR (Continued)

4.5 Major Repairs (Continued)

4.5.2 Major repairs of base materials, such as plates, forgings, extruded pipes, or castings, are defined as: (a) a repair which requires excavation of material to a depth greater than 20 percent of the wall thickness or when the extent of the cavity is greater than 10 square inches; (b) the repair of any crack; and (c) the repair of defects which are indicative of fundamental materials problems.

4.5.3 Major repairs in welds are defined as: (a) the repair of any crack other than crater cracks; or (b) the repair of defects which are indicative of either a fundamental materials problem or of a process out of control.

4.6 Defect Removal

Defects in welds requiring repair shall be removed by grinding, chipping, arc or flame gouging, or machining. All slag deposited while arc or flame gouging shall be removed. The cut surfaces shall be examined for defects using the liquid penetrant method.

4.7 Inspection of Repair Welds

Repair welds of a depth greater than 10 percent of the wall thickness shall meet the inspection requirements for welds specified for the applicable classification of piping. Other inspection methods shall not be used without the concurrence of the Engineer.

4.8 Heat Treatment After Repair by Welding

4.8.1 Base material repair welds shall be heat treated as required by the applicable materials specifications. The Engineer shall determine whether heat treatment shall be performed after repair welding.

4.8.2 Weld repairs shall be heat treated as required by USAS B31.1.0-1967. 8

5.0 SURFACE FINISH

The surface finish of materials, welds, piping, or equipment pressure parts shall be suitable for the method of inspection and testing required by the applicable test schedule. Surface discontinuities which are markedly different from the overall finish shall be removed or blended into the adjacent surfaces.

FABRICATION SCHEDULE F2 (Continued)

6.0 INSPECTION AND TESTING

Inspection and testing of piping, including completed welds, assemblies, and subassemblies, shall be in accordance with the specified inspection and testing schedule.

FABRICATION SCHEDULE F3

1.0 JOINT SELECTION AND LIMITATIONS

Welded construction is preferred. The use of socket welds, expanded or rolled joints, screwed joints, and caulked joints shall be limited to piping or equipment pressure parts where erosion, crevice corrosion (particularly chemical service), entrapment of large particulate or fibrous materials, and chemical reaction considerations have been adequately investigated.

2.0 WELDING

2.1 General

Welding shall be in accordance with USAS B31.1.0-1967 and the general requirements of this construction specification. 8

2.2 Backing Rings

Backing rings shall not be used unless the backing rings are removed after welding and the root area is inspected as required for the applicable piping classification.

3.0 FABRICATION, ASSEMBLY, AND ERECTION

3.1 Requirements

The requirements for fabrication, assembly, and erection shall be in accordance with USAS B31.1.0-1967 and the general requirements of this construction specification. 8

3.2 Exception

Maximum weld reinforcement shall be in accordance with Table 1 below.

Table 1

Material Thickness	Maximum Reinforcement
To 3/16" Inclusive	3/32"
Over 3/16" to 1/2" Inclusive	1/8"
Over 1/2"	5/32"

FABRICATION SCHEDULE F3 (Continued)

4.0 INSPECTION AND TESTING

Inspection and testing of piping and equipment pressure parts, including completed welds, assemblies, and subassemblies, shall be in accordance with the specified inspection and testing schedule.

FABRICATION SCHEDULE F4

1.0 FABRICATION, ASSEMBLY, AND ERECTION

Requirements for fabrication, assembly, and erection shall be in accordance with USAS B31.1.0-1967 and the general requirements of this construction specification. 8

2.0 EXCEPTIONS

2.1 Maximum Weld Reinforcement

Maximum weld reinforcement shall be in accordance with Table 1 below:

Table 1

Material Thickness	Maximum Reinforcement
To 3/16" Inclusive	3/32"
Over 3/16" to 1/2" Inclusive	1/8"
Over 1/2"	5/32"

2.2 Attachment Welds to Class P Systems

Attachment welds to Class P systems shall be as stated below:

2.2.1 Attachment of nonpressure-containing parts (such as supports, hangers, and restraints) to pressure-containing components shall be by complete penetration groove welds, where possible, but in all cases welds shall be made which meet the minimum requirements of the applicable codes. Attachment welds shall be subject to all the requirements and limitations imposed for fabrication of the piping or equipment to which they are attached.

2.2.2 Temporary attachments, if welded to pressure-containing parts, shall be completely removed and the area ground smooth and inspected by liquid penetrant methods.

INSPECTION AND TESTING SCHEDULES

INSPECTION AND TESTING SCHEDULE T1

1.0 GENERAL

Reference should be made to the general requirements of this construction specification for inspection and test methods, techniques, and acceptance standards.

2.0 HYDROSTATIC TESTING

Piping and equipment pressure parts shall be hydrostatically tested. Retesting is required after the repair of leaks detected during testing. Omissions or modifications of this test requirement shall have prior concurrence of the Engineer.

3.0 NONDESTRUCTIVE TESTING OF WELDS

3.1 General

3.1.1 All pressure-containing complete penetration butt welds shall be 100 percent examined by radiography, and accessible surfaces of the weld and adjacent base material shall be examined by either liquid penetrant or magnetic particle methods.

3.1.2 Fillet welds, socket welds, and nonpressure-containing attachment welds, such as supports, lugs, anchors, and guides, shall be examined on all accessible surfaces by either liquid penetrant or magnetic particle methods. Radiography is not required.

3.1.3 Welds attaching branch connections larger than 4 inches in pipe size shall be 100 percent examined by radiography and have accessible surfaces of the weld and adjacent base metal examined by either liquid penetrant or magnetic particle methods. Branch connections 4 inches and smaller in pipe size shall have accessible surfaces of the weld and adjacent base metal examined by either liquid penetrant or magnetic particle methods.

3.2 Double Welded Joints

The back of the first side welded shall be examined by either liquid penetrant or magnetic particle testing after back chipping and before welding the second side.

INSPECTION AND TESTING SCHEDULE T1 (Continued)

3.0 NONDESTRUCTIVE TESTING OF WELDS (Continued)

3.3 Backing Ring-Type Welded Joints

Welded joints using backing rings which are subsequently removed shall be examined by either liquid penetrant or magnetic particle testing on the back side of the joint after removal of the backing ring.

4.0 RECORDS AND REPORTS

4.1 Records shall be made and kept of all tests and inspections. The records shall contain the date of inspection, inspector's identification, inspection procedure identification, results, disposition, and date of repair, if any.

4.2 Reports of all tests and inspections shall be made and kept and shall include information necessary to interpret results and duplicate the inspection or test.

INSPECTION AND TESTING SCHEDULE T2

The schedule T2 inspection and testing requirements for construction of piping systems are identical to the requirements of schedule T3.

INSPECTION AND TESTING SCHEDULE T3

1.0 GENERAL

Refer to the general requirements of this construction specification for inspection and test methods, techniques, and acceptance standards.

2.0 HYDROSTATIC TESTING

Piping and equipment pressure parts shall be hydrostatically tested. Retesting is required after the repair of leaks detected during testing. Omissions or modifications of this test requirement shall have prior concurrence of the Engineer.

3.0 NONDESTRUCTIVE TESTING

3.1 Welds

3.1.1 All pressure-containing complete penetration butt welds shall be 100 percent examined by radiography.

INSPECTION AND TESTING SCHEDULE T3 (Continued)

3.0 NONDESTRUCTIVE TESTING (Continued)

3.1 Welds (Continued)

3.1.2 Fillet welds, socket welds, and nonpressure-containing attachment welds, such as supports, lugs, anchors, and guides, shall be examined on all accessible surfaces by either liquid penetrant or magnetic particle testing. Radiography is not required.

3.1.3 Welds attaching branch connections larger than 4 inches in pipe size shall be 100 percent examined by radiography. Branch connections 4 inches and smaller in pipe size shall have accessible surfaces of the weld and adjacent base metal examined by either liquid penetrant or magnetic particle methods.

3.2 Double Welded Joints

The back of the first side welded shall be examined by either liquid penetrant or magnetic particle testing after back chipping and before welding the second side.

3.3 Backing Ring-Type Welded Joints

Welded joints using backing rings which are subsequently removed shall be examined by either liquid penetrant or magnetic particle testing on the back side of the joint after removal of the backing ring.

4.0 RECORDS

4.1 Records shall be made and kept of all inspections and tests. The records shall contain the date of inspection, inspector's identification, inspection procedure identification, results, disposition, and date of repair, if any.

4.2 Reports of all inspections and tests shall be made and kept and shall include information necessary to interpret results and duplicate the inspection or test.

INSPECTION AND TESTING SCHEDULE T4

1.0 GENERAL

Refer to the general requirements of this construction specification for inspection and test methods, techniques, and acceptance standards.

INSPECTION AND TESTING SCHEDULE T4 (Continued)

2.0 HYDROSTATIC TESTS

Piping and equipment pressure parts shall be hydrostatically tested. Retesting is required after repair of leaks detected during testing. Omissions or modifications of this test requirement shall have prior concurrence of the Engineer. Welded joints in systems operating above 150 psig or above 212°F which cannot be tested at full hydrostatic pressure shall be examined by radiography.

3.0 NONDESTRUCTIVE TESTING

Inspection and testing of piping and equipment pressure parts shall be in accordance with USAS B31.1.0-1967 and the applicable portions of ASTM materials specifications. 8

INSPECTION AND TESTING SCHEDULE T5

Refer to the general requirements of this construction specification for inspection and test methods, techniques, and acceptance standards. The inspection and testing of piping and equipment pressure parts shall be in accordance with USAS B31.1.0-1967 and the applicable material specifications. 8

PIPING CLASSIFICATION CORRELATIONS

The use of this appendix is optional. Its intent is to assist in ensuring that piping and equipment pressure parts being installed at Browns Ferry Nuclear Plant have the required documentation. Since ASME Code classifications do not correspond to the piping classifications in this construction specification, the requirements of this appendix are conservative.

G-28	Code
A and B	ASME Code Section III Class 1*
C and D	ASME Code Section III Class 2*
E, F, and P	ASME Code Section III Class 3*
H and N	USAS B31.1.0

8

*All pipe over 3/4-inch diameter nominal pipe size requires a Certified Material Test Report. All bolting over 1-inch diameter and bar over 1 square inch in cross-sectional area require Certified Material Test Reports. Materials of smaller diameter require only a Certificate of Compliance.

Other piping classes shall meet the requirements of the material specifications.

These requirements are to be regarded as minimum. Other requirements shall be added where it is deemed necessary for sound and prudent engineering practice.

APPENDIX 4.1

DNE'S EVALUATION OF DISCREPANT CONDITIONS FOR MECHANICAL REINSPECTION

APPENDIX 4.1

Appendix 4.1 is DNE's evaluation of discrepant conditions identified by NDE inspection of 52 piping and duct butt welds.

The following weld attribute conditions were evaluated for the 52 welds with discrepant conditions:.

A. Crack
B. Contour/Transition
C. Offset/Alignment
D. Undercut
E. Reinforcement
F. Arc Strike
F. Weld Spatter
H. Undersize Fillet Weld
K. Lack of Fusion
L. Weld Overlap
M. Underfill
N. Surface Porosity
O. Slag Inclusions
RK. Lack of Fusion (Radiographic)
Y. Linear Indications

EVALUATION OF PIPE WELD REINSPECTION RESULTS

BROWNS FERRY WELD REINSPECTION PLAN

References: (1) Welding Project - Phase 2, Part 2, Browns Ferry Reinspection of Selected Welds - Reinspection

(2) DNE Plan for Evaluation of Reinspection Results - Browns Ferry Nuclear Plant

At the request of the Welding Project (WP), the Codes, Standards, Welding and NDE Section reviewed and evaluated results of the reinspection of 52 pipe welds. This group of welds was rejected during the reinspection program conducted in accordance with reference 1. Results of the reinspection and details of the cause for rejection are contained in inspection reports prepared for each weld by the site inspectors. Inspection reports are on file with the Welding Project.

Evaluation of the welds was conducted in accordance with the provisions and requirements of reference 2. It should be noted that the criteria of reference 2 were developed solely for use in evaluation of the subject reinspection results. The TVA position on what is desirable or achievable weld workmanship is more accurately documented in the fabrication and examination procedures currently being used.

A summary of the treatment of reported rejectable conditions for evaluation purposes is given below.

CONDITION	LEGEND (See Table 4.4)	EVALUATION TREATMENT
Cracks (Detected Visually) No welds identified	A	Unacceptable without further evaluation per reference 1.
Contour & Transition 2 welds identified Both welds are carbon steel	B	Visual examination for contour and transition is not an explicit requirement of the applicable code for the piping welds involved in this reinspection. These characteristics are, however, addressed by this code in the context of fabrication/workmanship requirements. The requirements are that welds "merge smoothly" and have a "gradual transition" with regard to adjacent material surfaces. The inspectors reported those instances where, in their judgement, welds did not meet these subjective requirements. Review of the inspection reports and macro-photos of the affected welds indicates the conditions exist primarily in small, localized areas of as-welded surfaces made by the shielded metal-arc process. It was concluded that the observed conditions would have no effect on the function or performance of the weld if the condition did not preclude performance of an acceptance by MT or PT examination. All welds with reported contour/transition conditions were examined by MT or PT and were accepted on this basis. Therefore these welds comply with the Code.
Offset/Alignment No welds identified	C	Acceptable when the maximum offset of the finished weld does not exceed the applicable amount in N-VT-3; otherwise rejectable unless further evaluated.
Undercut 8 welds identified 1 stainless steel, 1 aluminum, and 6 carbon steel welds.	D	Acceptable if 1/32" or less; otherwise rejectable unless further evaluated. One weld was acceptable because the undercut did not exceed 1/32 inch. The other 7 undercut descripancies occurred in the weld toe. For 5 welds, the undercut listed was evaluated by DNE and found to have less than a 1% reduction in section modulus and was therefore found to be acceptable for the design

Undercut 8 welds identified 1 stainless steel, 1 aluminum, and 6 carbon steel welds. (Continued)	D	requirements. The other 2 welds with undercut were evaluated and found to have less than a 5% reduction in section modulus. The length of the undercut is less than 5% of the total length of the weld and therefore the increase in stress intensification due to the undercut will have negligible effect on the stress intensification factor of the weld. In all cases the minimum thickness of the weld and base metal exceeds the minimum thickness required by equation 3 of section 104.1.2 of ANSI B31.1. All welds meet design requirements.
Reinforcement 8 welds identified 2 aluminum and 6 carbon steel welds	E	Acceptable when the reinforcement does not exceed the requirement of ANSI B31.1 of 3/16 inch. Three welds were acceptable. The remaining 5 welds exceeded the maximum allowed by code. Four of the welds exceeded code requirement by only 1/32" for a maximum of 5% of the total weld length and was judged acceptable. The remaining one weld exceeded the code requirement by a maximum of 3/32" for a length less than 1/2" or less than 2% of the weld length. The stress concentration was evaluated by DNE and found to be acceptable. Therefore all excess reinforcement was found to be acceptable and meet design requirements.
Arc Strike No welds identified as having unacceptable arc strike	F	Acceptable. Arc strikes are a welding-related base material condition. They are not addressed by codes applicable to the fabrication and examination of this piping. The presence of arc strikes for the non-air hardenable austenetic stainless steel, plain carbon steel, and aluminum materials involved in this reinspection is not considered to represent a condition impairing safe operation of the affected systems unless they penetrate the minimum wall thickness. All welds meet code requirements.
Spatter No welds identified as having spatter	F	Acceptable. Spatter is not addressed by applicable codes, is outside the scope of this evaluation and has no metallurgical significance. Therefore, all welds meet code requirements.

Undersize Fillet Welds 15 welds identified, 7 carbon steel and 8 stainless steel welds	H	Rejectable unless the affected weld is further evaluated. Undersize fillet welds were evaluated by DNE and in all cases exceeded the minimum criteria required by equation 3 of Section 104-1-2 of ANSI B31.1. Also, where applicable, the fillet welds were evaluated for stress allowables and were found to exceed the required criteria. Therefore, all undersize fillet welds were acceptable.
Lack of Fusion 6 welds identified, 1 stainless steel and 5 carbon steel welds	K	This condition is explicitly addressed as an unacceptable condition in the visual examination criteria of the applicable code. The codes rely on MT or PT for evaluation when these examinations are required. When only visual examination is required, the condition must be considered rejectable unless the affected weld is additionally examined and accepted by MT or PT examination. One weld with identified lack of fusion was subsequently accepted by additional PT exam in accordance with N-PT-4 Revision 2. The remaining five identified lack of fusion cases were subjected to further evaluations, accepted by MT or PT examinations, and met design requirements. For further discussion of lack of fusion, see appendix 4.3.
Overlap 3 welds identified all welds are carbon steel	L	This condition is of concern only when it results in lack of fusion or interferes with subsequent NDE. The fabrication codes only address lack of fusion. Overlap is rejectable unless the affected weld is additionally examined. Three welds which identified overlap were accepted by DNE evaluation based on the exception to N-VT-3 noted in the WP Procedure, Reference 1, which states "Overlap for which the fusion zone can be seen is acceptable ..." The fourth identified overlap was subjected to further evaluation, accepted by MT examination and met code requirements. For further discussion of this identified overlap, see appendix 4.3.
Underfilled 8 welds identified 2 aluminum and 6 carbon steel welds	M	Acceptable if the underfilled weld thickness is greater than or equal to the minimum required by equation 3 of section 104.1.2 of ANSI B31.1 and less than 1% reduction in the section modulus. Five

Underfilled (Continued)		welds were evaluated by DNE and found to be acceptable. One weld met the required minimum thickness but exceeded the 1% reduction in section modulus. This weld was accepted because the stress allowables were not exceeded. The final weld was found to be acceptable because the criteria for acceptance is presence of weld as stated in the Welding Project Procedure WP-08. All welds were found to meet design requirements and therefore acceptable.
Porosity 5 welds identified, all welds are carbon steel	N	Rejectable unless the affected weld is further evaluated. Since porosity is not addressed in applicable codes as an attribute of visual examination, all welds containing visually reported porosity were evaluated in accordance with the requirements of reference 1 and accepted.
Slag inclusions 3 welds identified all welds are carbon steel	O	Rejectable unless the affected weld is further evaluated. One slag inclusion was examined and found not to be in the cavity. The identified slag did not go below the wall surface. The remaining two identified slag cases were evaluated, accepted by MT or PT and met code requirements. For a detailed investigation of the remaining two slag inclusions, see appendix 4.3. All welds were accepted.
Lack of Fusion (Radiographic) 1 weld identified carbon steel	RK	As stated above in "lack of fusion," this condition is an unacceptable condition unless further evaluated. This condition was accepted after further evaluation. See appendix 4.3 for detail explanation.
Linear Indications (Detected by MT or PT) No welds identified	Y	Unacceptable unless further evaluated. These are indications that appear in the weld metal.

Reported deficiencies with respect to base metal indications, overheating, improper prep for PT or MT, ferrite readings, base metal to weld metal and weld over threads were evaluated and are addressed in Appendix 4.2.

Attachment A is a list of those welds which have been evaluated and accepted to the various criteria.

ATTACHMENT A
MECHANICAL WELDING-ACCEPTANCE SUMMARY
BROWNS FERRY NUCLEAR PLANT

WELD NUMBER	DEFICIENCY(*) VT	PT	MT	RT	DISPOSITION	JUSTIFICATION (***)
33 WELDS IDENTIFIED (SEE TABLE 4.4)	V				ACCEPTABLE	A2
DGA-3A-27	L/N				ACCEPTABLE	A3
DGA-3B-107	K				ACCEPTABLE	A3
FODG-3A-27	K				ACCEPTABLE	A3
FODG-3B-29	Z				ACCEPTABLE	A3
FODG-3B-42	Z				ACCEPTABLE	A3
DG-3-67-40	M				ACCEPTABLE	A3
DG-EECW-3B-140		U			ACCEPTABLE	A3
TFPC-1-57	M				ACCEPTABLE	A3
TFPC-1-70	M				ACCEPTABLE	A3
TFPC-1-135	N/O				ACCEPTABLE	A3
TFPC-1-183	M				ACCEPTABLE	A3
TFPC-3-142	O				ACCEPTABLE	A3
RHR-3-74-007	B				ACCEPTABLE	A3
RHR-3-74 008	N/O				ACCEPTABLE	A3
RHR-3-74-009	K				ACCEPTABLE	A3
86T-RHRS-3-2		I			ACCEPTABLE	A3
T-RHRS-2-NR-20	D/H				ACCEPTABLE	A3
T-RHRS-3-18				RK	ACCEPTABLE	A3
TSBL-2-208		I			ACCEPTABLE	A3
SBGT-1-06	M				ACCEPTABLE	A3
DGA-3C-27	D				ACCEPTABLE	A4
DG-1-EECW-1D-147	H				ACCEPTABLE	A4
DG-1-EECW-1D-150	H				ACCEPTABLE	A4
TFPC-1-48	E				ACCEPTABLE	A4
TFPC-1-49	D				ACCEPTABLE	A4
TFPC-1-147	M				ACCEPTABLE	A4
TFPC-3-172	E				ACCEPTABLE	A4
ISL-2-25-340-010	H				ACCEPTABLE	A4
ISL-2-25-341-023	H				ACCEPTABLE	A4
86T-RHRS-1-12	H				ACCEPTABLE	A4
86T-RHRS-1-13	H				ACCEPTABLE	A4
T-RHRS-3-202	E				ACCEPTABLE	A4
T-RHRS-3-204	E				ACCEPTABLE	A4
RW-2-10	H				ACCEPTABLE	A4
RW 2-11	H				ACCEPTABLE	A4
DGA-3C-10A	L/M				ACCEPTABLE	A5
DG-3-67-23	E/L				ACCEPTABLE	A5
TFPC-1-189	K/M				ACCEPTABLE	A5
TFPC-3-24M	B/E				ACCEPTABLE	A5
TFPC-3-54	E/T				ACCEPTABLE	A5
TFPC-3-163A	E/K				ACCEPTABLE	A5
ISL-2-25-340-001	H				ACCEPTABLE	A5
RHR-3-74-004	D/N				ACCEPTABLE	A5

ATTACHMENT A
MECHANICAL WELDING-ACCEPTANCE SUMMARY
BROWNS FERRY NUCLEAR PLANT

WELD NUMBER	DEFICIENCY(*) VT	PT	MT	RT	DISPOSITION	JUSTIFICATION (***)
RHR-3-74-013	D/N				ACCEPTABLE	A5
DG-1-EECW-1C-147	H/V				ACCEPTABLE	A6
DG-1-EECW-1C-150	H/V				ACCEPTABLE	A6
RBEECW-2-25	D/H/V	U			ACCEPTABLE	A7
RBEECW-2-10	V	I			ACCEPTABLE	A8
RBEECW-2-33	V	I			ACCEPTABLE	A8
ISL-1-25-340-008	K/V	I			ACCEPTABLE	A8
1-RHRH-H14	D/H				ACCEPTABLE	A9
1-RHRH-R4	D/H				ACCEPTABLE	A9
T-RHRS-2-13				RF	ACCEPTABLE	A10
T-RHRS-3-110A				RG	ACCEPTABLE	A10
T-RHRS-3-110B				RG	ACCEPTABLE	A10
T-RHRS-3-117				RG	ACCEPTABLE	A10

* LEGEND

	A-CRACK	= 0
	B-CONTOUR/TRANSITION	= 2
	C=OFFSET/ALIGNMENT	= 0
	D-UNDERCUT	= 8
	E-REINFORCEMENT	= 8
	F-SPATTER/ARC STRIKE	= 0
	G=LOCATION	= 0
	H-FILLET WELD SIZE	= 15
**	I=BASE MET INDICATION	= 6
	J=CONVEXITY	= 0
	K=LACK OF FUSION	= 6
	L-WELD OVERLAP	= 3
	M=UNDERFILLED	= 8
	N-SURFACE POROSITY	= 5
	O-SLAG INCLUSION	= 3
	P-MISSING WELD	= 0
	Q NOT REQD G28	= 0
**	RF FILM NOT LOCATED	= 1
**	RG=R FILM NOT LOCATED	= 3
	RK=LACK OF FUSION	= 1
**	T=OVER HEATING	= 1
**	U-IMPROPER PREP PT/MT	= 2
**	V=FERRITE	= 39
**	W BASE MET/WELD MET	= 0
	Y LINEAR INDICATION	= 0
**	Z WELD OVER THREADS	= 2

** SEE APPENDIX 4.2

*** JUSTIFICATION CORRESPONDS TO TABLE 4.4

APPENDIX 4.2

DNE'S EVALUATION OF INDICATIONS OUTSIDE WELD ATTRIBUTE LISTING

Appendix 4.2

Appendix 4.2 is DNE's evaluation of indications outside of the weld attribute listing reported by the reinspection. The following conditions that are outside the weld attribute examination have been evaluated.

I. Base Metal Indications
T. Overheating
U. Improper Prep for PT or MT
V. Base Metal/Weld Metal (Ferrite)
Z. Weld Covering Threads
RF. Mislocated RT Film
RG. Mislocated or Misidentified RT Film (Repair)

CONDITION	LEGEND	EVALUATION TREATMENT
Base Metal Indications (Detected by MT or PT) 6 welds identified, 5 stainless steel and 1 carbon steel weld	I	Base material conditions noted during this weld reinspection were evaluated to the code requirements applicable to base materials. For materials used in the code classification of the systems affected by this reinspection, there is no requirement for surface examination (MT or PT) at the time of manufacture or prior to use. Not unexpectedly, during surface examination of welds, a number of indications in adjacent base material were revealed. Those that were separated from the weld were evaluated and accepted as typical of surface conditions found on as-manufactured piping products. Those that extended to the weld were subsequently accepted by additional PT exam in accordance with N-PT-4 Revision 2. All reported base materials conditions were, therefore, considered acceptable.
Overheating 1 weld identified, weld is aluminum	T	The condition is normal for welds in aluminum made by the gas tungsten arc welding process using alternating current (AC). During the reverse polarity (electrode positive) portion of the AC cycle surface oxides are broken up and removed by the flow of electrons from the work to the electrode. This phenomenon, sometimes called cathodic cleaning, occurs on those portions of the weld metal and base metal which have come under the thermal and electrical effects of the arc column. The cleaning action is beneficial to the welding process and does not represent an undesirable condition and therefore considered acceptable.
Improper Prep for PT or MT 2 welds identified, both stainless steel welds	U	Acceptable, neither USAS-B31.1.0 or TVA G-28 Construction Specification require PT of EECW welds. Both were EECW welds and therefore excluded from reinspection because the surface condition existing was too rough for adequate results.
Base Metal/Weld Metal Ferrite supplement 39 welds identified, all stainless steel welds	V	Ferrite reading of stainless steel welds was used as a supplement for magnetic exam for base metal/weld metal evaluation which were identified strongly magnetic. All exams were acceptable.

Weld Covering Threads 2 welds identified, both carbon steel welds	Z	Acceptable, neither USAS-B31.1.0 - 1967 or TVA Construction Specification G-28 prohibit threads in strength welds.
Radiographic Film Not Located 1 weld identified	RF	After detail review of files and records the mislocated film was located and reread was acceptable.
Repair Radiographic Film Not Located 3 welds identified	RG	After detail review of files and records the misidentified or mislocated film was located, verified, and reread was acceptable.

APPENDIX 4.3

DISCUSSION OF PROCEDURE FOR RESOLUTION AND ACCEPTANCE OF EIGHT PIPING WELDS

APPENDIX 4.3

Appendix 4.3 is a discussion of the procedures followed for resolution and acceptance of eight piping welds identified with lack of fusion, overlap, and slag inclusions and radiographic lack of fusion.

Lack of Fusion

Background Description

Reinspection identified five (5) carbon steel welds that contained lack of fusion. These are:

TFPC-1-189
TFPC-3-163A
FODG-3A-27
DGA-3B-107
RHR-3-74-009

Two of which were socket welds and three (3) were butt welds. The size of lack of fusion varied from 1/16 inch to a maximum of 5/32 inch in length with the exception of one butt weld that had a lack of fusion indication 1-1/2 inches long between stringer passes.

Events

The lack of fusion was removed from the socket welds by craftsmen using hand files and the welds were reinspected by certified Level II-VT and MT inspectors who verified that the lack of fusion indications had been excavated and the fillet weld size was acceptable.

The lack of fusion was removed from the butt welds by grinding. These welds were reinspected by certified Level II-VT, -MT, and -UT inspectors who verified that the lack of fusion indications had been excavated and the excavations did not violate the design minimum pipe wall thickness.

Findings

The excavation of the lack of fusion from the five welds did not violate the minimum fillet weld size or the design minimum pipe wall thickness as verified by certified VT, MT, and UT inspectors.

Conclusion

The five welds are adequate for continued service and meet code requirements.

Overlap

Background/Description

Reinspection identified that socket weld DGA-3A-27 contain overlap approximately 1/10 inch in length.

Event

The overlap was removed from the socket weld by grinding and the weld was reinspected by certified Level II-VT and -MT inspectors who verified that the overlap had been excavated and the fillet weld size was acceptable.

Findings

The excavation of the overlap from the socket weld did not violate the minimum fillet weld size.

Conclusion

The socket weld is adequate for continued service and meets code requirements.

Slag Inclusion

Background/Description

Reinspection identified two (2)butt welds that contained slag inclusion.

TFPC-1-135
TFPC-3-142

The length of the slag inclusions were 1/8 and 5/32 inch in length in the center of the weld head.

Event

The slag inclusions were removed from the butt welds by grinding. These welds were reinspected by certified Level II-VT, -MT, and -UT who verified that the slag inclusions had been excavated and the excavation did not violate the design minimum pipe wall thickness.

Findings

The excavation of the slag inclusions from the two butt welds did not violate the design minimum pipe wall thickness.

Conclusion

The two butt welds are adequate for continued service and meet code requirements.

Radiographic Lack of Fusion

WELD T-RHRS-3-18

Background/Description

The weld in question is a 16-inch diameter, carbon steel, 0.375 wall butt weld between an elbow and straight pipe in the RHR Service Water System (RHRS), Class E. General Construction Specification G-28 requires Class E welds to be examined by radiography. The weld was made using the Gas Tungsten Arc Welding (GTAW) process for the root and second pass and the Gas Metal Arc Welding process (GMAW) for the fill and cover passes.

Chronology of Events

The initial radiograph, taken in January 1974, contained indications which in the judgement of the film interpreter were acceptable. As part of the reinspection, the film was re-read and determined by the inspector to be unacceptable. The indications were classified as being lack of fusion circumferentially around the joint on the fitting side of the weld. A third party Level III interpreter, without knowledge of the previous determination, concluded that the interpretation of the indications in this instance was marginal and strictly a judgement call, and in his judgement was acceptable. A number of reshots did not conclusively characterize the defect. In an effort to verify the presence or absence of the indications, UT was used. The UT did not reveal any reportable indications.

One linear indication reported by the RT was selected to be examined by excavation of the weld metal and visual observation. No indication was found other than small pores of porosity that were not visible on the radiographs and, therefore, not a cause for rejection of the weld. The weld cap was ground flush with the pipe wall in the areas that the original radiographs

revealed linear indications and again ultrasonic examined in these areas in accordance with an EPRI-approved ultrasonic sizing technique and none of the indication exceeded 0.100 inch as measured from the inside of the pipe. These measured indications did not align precisely with the linear indications on the original radiographs. The excavated area was ground, filed, polished, and etched. This confirmed that all of the weld deposit had been removed from the elbow side of the weld where the indication was located on the radiograph.

There was no upper or midwall indication detected by either ultrasonic or visual examination that would indicate a lack of fusion; therefore, the conclusion based on the data of the ultrasonic examination and visual observations during the grinding operation is that the indications revealed in the original radiographs were not in the weld deposit but were base metal indications. Considering the service life of the plant, approximately seven years, there is no reason to believe the indications will propagate and initiate failure. This is substantiated by the fact that no abrupt density changes were evident on any of the radiographic film indicating notches or sharp discontinuities.

The excavated area was welded, inspected, and accepted. The weld is suitable for service and meets code requirements.

The RT film for six other welds read by this inspector were reread as a part of the reinspection. None of the six had any questionable evaluations. Therefore, this condition is considered to be an isolated event contributed to by a more conservative reevaluation caused by the reinspection effort and expansion of reinspection of RT film is not required. The evaluation of the film by the original inspector is considered acceptable and adequate.

5.0 RESPONSE TO NRC EVALUATION OF PHASE I REPORT

NRC's review of the TVA Phase I Report noted no significant deviations and found the report to contain the necessary elements needed to determine whether the TVA licensing commitments have been properly translated into the governing specifications and drawings. The NRC inspectors identified inadequacies which needed to be addressed in the Phase II Report. The inadequacies are listed and addressed as follows:

(1) NRC Comment

TVA had performed very few reviews to determine how licensing commitments were translated into the design documents before 1981. The sample selection for TVA's Phase II inspection effort must include an adequate number of pre-1981 fabricated welds to provide the basis required to make those determinations.

TVA Response

The reinspection effort and results contained in Section 4.0 addresses welding performed both within the construction (1966 to 1977) and operations (1974 to 1985) timeframe for BFN. Industrial standard practices, simplistic and/or detailed construction specifications and from none to very detailed design drawing specifications have all been used during the timeframe of Browns Ferry's existence. The level of detailed design varied with feature to be constructed and the time of construction. The results of the WP Phase II effort shows that BFN is in compliance with licensing commitments.

(2) NRC Comment

The NRC team found it hard to trace the origin of the allowable values used for the structural component welding calculations. The engineering calculations must show clearly the origin of the allowable stress values used in the individual calculations.

TVA Response

The allowable stresses for miscellaneous steel has as its origin the allowables stated for main steel listed in the Final Safety Analysis Report (FSAR). As with most nuclear plants of the era of Browns Ferry, the FSAR dealt with main structures and is silent on minor structures. The allowables listed in the FSAR are American Institute of Steel Construction (AISC) allowables except no increase is allowed for the Operation Basis Earthquake (OBE) seismic loading case. The allowables for Safe Shutdown Earthquake (SSE) are increased by a factor of 1.5 not to exceed 90% of yield.

The use of AISC allowables for steel analysis is the standard practice for design of nuclear power plant structures. The only variation is the use of increased allowables for seismic design. The allowables permitted for Browns Ferry are normal AISC allowables for OBE and 90% of yield for SSE with the usual variation for slenderness ratio of compression members. However, much of the design at Browns Ferry used only a one-third increase in AISC allowables for SSE. The WP calculations for the weld evaluation used AISC allowables for OBE and a one-third increase for SSE. Note that while most BFN

design criteria show the 90% of yield for SSE loadings, the conduit support design criteria calls for only 1.33 AISC allowables for SSE which is a hold over from some of the original practices. While the existing design criteria are of recent issue, the preparers attempted to envelope informal criteria already in use. This enveloping was required in an effort to eliminate rework so that no existing items would be outside the criteria, therefore, while no early written criteria exists for steel allowables, other than main steel, the various calculations are in themselves documentation of the use of AISC allowables with an appropriate increase for SSE. The BFN engineering evaluation of welds has reflected the above information about the design allowable in its calculations.

(3) NRC Comment

The NRC team identified instances in which the drawings did not provide a traceable path to verify that the design output documents accurately reflect the commitments TVA made in the plants FSAR to meet the applicable construction codes. TVA's Phase II Report must identify those items and provide adequate discussions about whether or not the installed hardware meets the requirements of the applicable construction codes.

TVA Response

The purpose of the WP Phase II effort is to review BFN welding program. As part of this review, the Phase II effort verified that weldments met applicable construction code requirements and are suitable for service with exceptions as noted in Section 4.0. The reinspection effort confirmed the drawings did not always reflect commitments as to applicable codes, but the effect of this inadequacy did not have any adverse effect on weld quality.

(4) NRC Comment

The NRC team identified several instances in which the FSAR commitments were not reflected in the actual application. TVA's Phase II Report must identify those cases and indicate clearly whether the hardware is deficient or whether the FSAR must be revised to reflect actual field conditions.

TVA Response

The Phase II reinspection confirmed that failure to reflect commitments on the design drawings had no adverse impact on the weld quality of the installed weldments. However, the FSAR will be updated to reflect the requirements and future design output documents will provide welding, NDE, and code requirements.

(5) NRC Comment

The NRC team found that the Phase I Report included very few or no examples for certain welding activities, such as welding on 1/2-inch instrument pipe and welding on heating, ventilation, and air-conditioning supports. The sample selection for TVA's Phase II inspection effort must include an adequate number of 1/2 inch pipe and HVAC support welds to provide the required basis to assess these two areas.

TVA Response

The sample selection included in the reinspection effort contains varied piping sizes including 1/2 inch. See Section 4.0 "Mechanical Piping System Weld Inspection Data for the complete listing of pipe sizes. Nine HVAC supports were included in the reinspection sample.

(6) NRC Comment

Radiographic procedure BF-15 does not meet the requirements of the applicable construction codes for film interpretation.

TVA Response

The design and construction of piping systems (except General Electric (GE) supplied piping and TVA Class N systems) was in accordance with United States of America Standards (USAS) B31.1.0-1967 and the radiography including acceptability standards was to be in accordance with ASME Section III, 1965 Edition, paragraph N-624, Summer 1967 addenda. These requirements were specified in TVA General Construction

Specification G-28. The WP review has shown that BF-15 does meet the requirements of the applicable edition and addenda of Section III of the Code for film interpretation.

(7) NRC Comment

The exceptions taken to radiographic procedure N-RT-1 which was used during the TVA's Phase II reinspection effort do not meet the requirements of the applicable standards for penetrameter requirements, geometric unsharpness, density requirements and double wall technique.

TVA Response

TVA Welding Project selected Nondestructive Examination Procedure N-RT-1, Revision 5, for the reinspection of welds because the personnel selected to do the weld reinspection were certified Level II-RT inspectors assigned to the Inservice Inspection Section and they were trained in the implementation of this procedure and were qualified in accordance with its requirements. The exceptions taken to N-RT-1 were to make the requirements for reinspection comparable to the acceptance criteria of BF-15 which was used by the original film reviewers.

The specific exceptions are addressed in the following five paragraphs:

(a) N-RT-1, Revision 5, states in paragraph 1.2 that it complies with the requirements for the radiographic examination techniques of both the 1974 Edition, Summer 1975 Addenda, and the 1977 Edition, Summer 1978 Addenda of ASME Section V, Article 2.2. TVA General Construction Specification G-28 states in paragraph 4.3.1 that the radiographs of welds, including acceptability standards, were to be in accordance with Section III, Paragraph N-624, Summer 1967 Addenda of the Code. Therefore, the exceptions were necessary to assure that the acceptance criteria used by the inservice inspection certified Level II-RT inspectors was comparable to the acceptance criteria used for the original film review of the construction radiographs.

(b) An exception was taken to paragraphs 4.6 and 5.6 of N-RT-1 because they do not address the slit requirement for the 5, 7, and 10 penetrameters and on certain penetrameter sizes they permit the acceptance of the radiographic film for evaluation based on the 4T hole in the penetrameter. The 1965 Edition, Summer 1967 Addenda require acceptance of radiographic film to be based on the 2T hole in the penetrameter and/or slit for the 5, 7, and 10 penetrameters.

(c) An exception was taken to the geometrical unsharpness requirement of paragraph 5.3 of N-RT-1 because geometrical unsharpness was not addressed in the Winter 67 Addendum to Section III of the Code and was not a requirement for BFN construction radiographs.

(d) An exception was taken to the maximum density of paragraph 5.9 of N-RT-1 because the 1965 Edition, Summer 1967 Addenda of the Code did not specify a maximum density.

(e) An exception was taken to the restriction on the double wall radiographic technique of paragraph 5.2 of N-RT-1 because the 1965 Edition, Summer 1967 Addenda was for nuclear vessels and did not address double wall radiography and the technique used in the original construction radiographs may not meet N-RT-1 requirements.

6.0 BROWNS FERRY PROGRAM RESULTS

6.1 Evaluation of the Phase I Recommendations

The recommendations resulting from the Phase I work (Volume IV, Section 2.3) have been evaluated as part of the Phase II work. The recommendations are programmatic in nature and are improvements to the existing program. These recommendations and the Phase II evaluation are as follows:

1. Indoctrinate and provide ongoing training/orientation to engineers, designers, technical supervisors, and engineering managers in the following areas:
   a. code applicability
   b. requirements for constructability of welded designs
   c. contents and use of G-28 and G-29
   d. logical presentation of information in output documents
   e. design requirements embodied in welding codes
   f. responsibility of DNE to provide fabrication, erection, and examination requirements

   The Phase II work reinforces this recommendation. The WP recommends implementation of this recommendation.
2. Establish site specific communication link to obtain feedback from the user on DNE output documents. Prepare additional drawings/specifications/instructions or revise existing documents as necessary to meet user organization needs in the area of welding and Nondestructive Examination (NDE).
   This recommendation has been implemented. DNE representatives for all disciplines are now stationed at BFN and feedback is occurring in the area of welding and NDE.

3. When BFN safety-related physical drawings are revised, specify the related weld and NDE and code requirements in a precise and well defined manner.

4. Revise the BFN FSAR to consistently identify the fabrication, inspection, and testing codes for all BFN safety-related systems and structures.

   The need for both of these recommendations (Items 3 and 4) has been substantiated by the Phase II work. The WP recommends implementation of these two recommendations.

5. Upon completion of Phase II, evaluate the need for DNE to review and approve user organization implementing documents to determine that the design intent is correctly delineated in user documents.

   The need for this review and approval has been substantiated by the Phase II work. The WP recommends that BFN site procedures incorporate the requirement for DNE to review and determine that user organization implementing documents correctly delineate the design intent for welding and NDE.

6. Establish a formal training program which emphasizes:

   a. Maintaining welder qualification records.

   b. Preparation of work instructions.

   c. Selection of proper welding and NDE procedures.

   d. Preparation of NOI forms.

   The WP Phase II work has substantiated the need for training. The WP recommends that instruction in the above areas be required for engineering, craft, and Quality Assurance (QA) personnel involved in welding and NDE.

7. Recordkkeeping - Welder qualification/continuity and weld data sheets should be computerized to provide quicker and more complete access to data.

   The need for computerized welder qualification/continuity records was acknowledged by the BFN site and implemented through Site Director's Standard Practice (SDSP) 13.4 "Welder, Brazer, and Solder Qualification and Continuity at BFN Plant." This portion of the recommendation is no longer a concern. The need for quicker and more complete access to weld data has been substantiated by Phase II and the WP recommends that site procedures incorporate this requirement.

6.2 Employee Concerns Conclusions

As a continuation of the work performed in evaluating welding-related employee concerns for the Phase I report, the Welding Project has performed a detailed review of 63 employee concerns applicable to BFN received as of September 1, 1987. The individual employee concerns have been analyzed as well as supporting investigative documents, such as Employee Response Team (ERT)/ Quality Technology Corporation (QTC) investigations and the Nuclear Safety Review Staff (NSRS) Reports. Fifty-five of these concerns were originated at other plants, and evaluated for generic applicability to BFN. Seven concerns were specific to BFN, and one concern was specific to all TVA nuclear plants.

To aid in the evaluation effort, the WP assembled the sixty-three concerns into thirteen categories. A summary of the issues raised by the concerns is presented in Attachment 6-1. Sixty-two of the

sixty-three concerns evaluated were either not factual or were found to have no adverse effect on weldments or the welding program at Browns Ferry Nuclear Plant.

The final employee concern, BFN-85-019-001, as discussed in Section 4.8.3, questions the adequacy of welds on hangers. This issue has been evaluated and addressed by Welding Project Report WP-32-BFN. The proposed corrective action plan for this concern has been addressed in Corrective Action Tracking Document (CATD) 50132-BFN-01.

Attachment 6.1 shows a brief summary of the findings for each issue, and identifies the Weld Project Report by which each issue was evaluated.

Twelve of the concerns originally addressed in the BFN Phase I Report as welding related have been reassigned to other areas for evaluation or have been determined to not be applicable to BFN. These concerns are listed in Attachment 6.2.

6.3 Bechtel Audit Conclusions

An independent audit team from Bechtel Power Corporation conducted a formal quality audit, in accordance with the Audit Plan in Section 2.4 of the welding programs as implemented during construction by Office of Construction and the current programs implemented by Nuclear Operations.

The Bechtel audit confirmed TVA had an adequate welding program in place during construction and operation of BFN. However, five audit findings and seven observations resulted from the audit. Each of these findings and observations has been evaluated by the WP and determined to have no adverse effect on weld quality.

The audit confirmed that QA was in effect at BFN from the beginning of construction. The audit also confirmed that TVA's program and procedures for control of welding, although cumbersome, proved adequate for the intended application. It also confirmed that TVA had an adequate welding program during the operation of the plant. The audit team was unable to substantiate any of the employee concerns as being valid or with merit.

6.4 Aptech Report Conclusions

Aptech has performed a review of the welding program at Browns Ferry Nuclear Plant and has evaluated the quality of welds through a review of the preservice and inservice inspection results and Licensee Event Reports related to welding. A review of the report provides the following:

- The welding and quality programs were evaluated by a quality audit performed by Bechtel Power Corporation (see Section 3.0).
- The results of PSI and ISI inspection through five cycles of operation showed that piping welds made by TVA meet a 95% reliability/95% confidence limit and are comparable to industry standards in quality.

- o Although the indication rate for all types of supports, especially integrally welded attachments exceeds the industry standard acceptance level, it is not significantly above the industry average and does not indicate any deficiency exists in the ISI program or hardware. However, to improve the confidence level, it is recommended that the rate of inspection of supports and attachments be increased.
- o No LER's relating to initial weld quality have been generated.
- o Aptech recommends that the hangers and supports within the ISI programs should be baseline examined for such attributes as support and weld configuration. Once configuration for an item has been verified and documented, this requirement could be dropped from the ISI program.

Based upon these conclusions, the quality of welds within the ISI program at Browns Ferry Nuclear Plant is suitable for the intended service.

6.5 Reinspection Conclusions

The results of the reinspection and an engineering evaluation of the reportable imperfections for structural items confirm that a high percentage of the reinspected weld joints meet design requirements. In the instances where the weld joints did not meet seismic design requirements, engineering qualification programs are planned that will identify and correct welding discrepancies. Therefore, additional reinspections are not required.

All of the butt welds on spiral weld duct that were reinspected meet design requirements. All of the reinspected piping welds meet Code requirements and are suitable for service. Additional reinspection of welds in these areas is not required and the installed hardware is suitable for service.

6.6 Recommendations

The following enumerated recommendations will be listed in a revision of BFN Nuclear Performance Plan Volume 3, Section III.

1. Include in existing orientation programs or develop additional orientation programs for DNE which will indoctrinate engineers, designers, technical supervisors, and engineering managers in the following areas:
   a. code applicability
   b. requirements for constructability of welded designs
   c. contents and use of G-28 and G-29
   d. logical presentation of information in output documents
   e. design requirements embodied in welding codes
   f. responsibility of DNE to provide fabrication, erection and examination requirements which includes detailed welding procedures and NDE requirements
2. When BFN safety-related physical drawings are revised, specify applicable welding requirements, i.e. AISC/AWS, ANSI B31.1, or other applicable codes.
3. Review and revise as appropriate the BFN FSAR to consistently identify the source of the fabrication, inspection, and testing requirements for safety-related systems and structures.

4. DNE shall review and ensure that user organization implementing program procedures delineate the design requirements for welding and NDE.

5. Include in existing orientation programs and/or provide additional orientation programs which emphasize:

   a. Maintaining welder qualification (i.e. limits of qualification and continuity).

   b. Preparation of work instructions.

   c. That only DNE specified welding procedures are appropriate for use.

   d. Preparation of NOI (Notice of Indication) forms.

   e. The necessity of accurate filler metal recordkeeping on weld data sheets, particularly when combination-process welding procedures are used (i.e. for all filler metal used; record type, size, and traceability reference).

   It is recommended that this training be given to appropriate engineering, craft, and QA personnel.

6. Recordkeeping - Develop a weld identification and control program for future welds which provides for unique identification of safety-related welds and has the provisions for record retrievability.

7. Site Director's Standard Practice (SDSP) 9.8 'Walkdowns' be revised to require that engineering data collection for structural evaluation include weld presence, type, size, length, location, and those other indications which affect weld size such as burn through, missing weld, and excessive slag.

8. DNE issue documents specifying detailed welding procedures and NDE requirements for all future welding.

9. Uniquely identify future safety related welds on weld maps or other suitable records. Maintain these records as life of plant documents.

10. ISI program shall assure that inspection of all supports within the ISI program is accomplished over the next inspection interval.

11. The supports included within the ISI program shall also be examined for support and weld configuration. Once final configuration for an item has been verified and documented, this additional examination requirement will be dropped.

As an observation, the WP considers the establishment of a single welding unit at the plant to implement all welding at BFN would improve the overall welding program. This unit should ensure consistent implementation and avoid unnecessary duplication of training and recordkeeping due to the current separation of modification and maintenance welding activities.

6.7 Conclusions

A review of commitments, procedures, and design output documents which implement and control welding has demonstrated that TVA has an acceptable program in place which meets commitments, even though program implementation deficiencies did occur. An engineering evaluation of these program implementation

deficiencies demonstrated that they did not result in inadequate welds in the plant. An audit by an independent contractor has demonstrated that the welding program was adequately implemented during the construction and operations and maintenance phases of BFN.

A review of the results of PSI/ISI program by APTECH, Inc., demonstrated that the piping and support welds within the program are suitable for service. The results of the reinspection confirm that the reinspected mechanical welds meet code requirements and are acceptable for use and no additional reinspections are required. The results of the reinspection of structural welds confirms that a high percentage of the reinspected weld joints meet design requirements and are acceptable for use. In the two cases as discussed in Section 4.8.1 where the weld joints did not meet design requirements, TVA has a program plan for evaluation of all similar structures that will ensure that the installed hardware will meet design requirements. Therefore, additional reinspections are not required and the welding of presently installed hardware, with the exception of instrumentation piping supports, is suitable for service.

The WP has performed a detailed evaluation of employee concerns on BFN. The employee concerns as well as QTC, NSRS, and WP investigations and reports have been analyzed for program and hardware impact. This analysis has shown that none of the employee concerns have identified specific inadequate welds in

the plant. However, the WP has concluded the one employee concern that questions the weld adequacy of some hanger/pipe supports has some validity because of the percentage of welds that were found to be undersized. This concern is adequately addressed by the commitments of section 6.6.

The combination of all these actions taken by TVA has demonstrated:

(1) the adequacy of the welding program to meet regulatory requirements;

(2) with the exceptions noted, the program was properly implemented; and

(3) the suitability for service of the welds in the BFN with the exceptions of some instrumentation pipe support welds.

(4) additional reinspection of welds is not required.

(5) the need for implementing the recommendations identified in Section 6.6

ATTACHMENT 6.1

DETAILED EVALUATION OF BFN EMPLOYEE CONCERNS

DETAILED EVALUATION OF BFN EMPLOYEE CONCERNS
EMPLOYEE CONCERNS ADDRESSED BY THE WELDING PROJECT

CONCERN	DESCRIPTION OF ISSUES	COMMENTS
EX-85-039-001 IN-85-234-001 IN-85-247-001 IN-85-352-002 IN-85-424-001 IN-85-424-004 IN-85-424-006 IN-85-424-007 IN-85-426-001 IN-85-441-003 IN-85-453-009 IN-85-454-004 IN-85-501-001 IN-85-672-003 IN-86-047-001 WI-85-053-004	Lack of portable rod ovens to protect coated electrodes from moisture absorption.	The Browns Ferry program for control of welding filler material meets the requirements of ANSI/AWS D1.1 Section 4, ASME Section III NB-4000 and ASME Section XI IWB-4000. The quality of the electrodes purchased meets the requirements of ASME Sections II and III. These issues are addressed by Weld Project Report WP-01-BFN.
IN-85-458-001 IN-86-019-001 NS-85-001-001 PH-85-040-001 WI-85-013-003 WI-85-030-007 WI-85-030-008 WI-85-041-006 WI-85-041-008	The Process Specification permitted inspection of AWS welds through coating of carbo-zinc primer. Thousands of welds may have been inspected through primer. There is no documentation to show which welds were involved. Inspectors did not understand the coating thickness limit for inspecting primed welds.	The Process Specification in question was site unique for Watts Bar, and was never implemented at Browns Ferry. The BFN specifications and procedures meet the requirements of ANSI/AWS D1.1. These issues have been addressed by Weld Project Report WP-02-BFN.
EX-85-021-002 HI-85-077-N17 IN-85-346-003 IN-85-426-002 IN-85-480-004 IN-85-725-X14 IN-85-725-X15	The possibility exists that one welder could weld or complete a test plate for another welder. Welding by and uncertified welder. Inadequate basis for welders' qualification continuity updates.	No one except the Weld Test Supervisor is allowed to enter the test booth while a welder is being tested. There have been isolated instances of welders operating outside their limits of qualification. These instances were identified and corrected by the ongoing Quality Assurance activities. The basis for quali-

	Personnel whose duties do not require welding continue to have their qualification continuity updated.	fication continuity updates satisfies requirements and parallels industry practice. Continuation of supervisory personnel qualifications is an acceptable practice. These issues are addressed by Weld Project Report WP-03-BFN.
IN-85-007-001 IN-85-134-002 IN-85-406-003	Availability of inspection tools.	Inspection tools were available throughout construction and operation. This issue has been addressed by Weld Project Report WP-04-BFN.
IN-85-476-004 IN-85-981-001 SQN-86-035-001 SQN-86-035-002 WI-85-041-002 WI-84-081-007	Qualification of Welding Inspectors. Topical Report not in compliance with ANSI N45.2.6.	Welding inspectors are qualified in accordance with the Nuclear Quality Assurance Manual. Welding Inspectors are qualified and certified using SNT-TC-1A as a guide, rather than ANSI N45.2.6. Appropriate exceptions to Reg. Guide 1.58 are made in the Topical Report. These issues are addressed by Weld Project Report WP-06-BFN.
EX-85-008-001 IN-85-706-001 IN-86-158-006	Qualification and experience of Subjourneymen. Adequacy of TVA Welder Training Program.	Subjourneymen are utilized in accordance with the applicable labor agreement and good management practices. Welders are tested and qualified in accordance with AWS D1.1 and ASME Section IX. These issues are addressed by Weld Project Report WP-07-BFN.

IN-85-282-002 IN-85-299-003	Surface grinding of welds. Shrinkage of stainless steel butt joints.	Surface grinding of welds is provided for by the ASME, ANSI and AWS codes. Some shrinkage is inherent in girth butt welded joints in stainless steels. Heat input during welding is controlled by adherence to approved welding procedures. These issues have been addressed by Weld Project Report WP-11-BFN.
IN-85-247-002 IN-85-303-001	Suitability of welding equipment.	The Lincoln IDEALARC TIG 300 welding machine was used at Browns Ferry. This machine features remote current adjustment, soft start, and current output range of two through 375 amperes. This isues is addressed by Weld Project Report WP-13-BFN.
BEM-85-001-001 BEM-85-001-002 BFM-85-001-001 BFM-85-001-002 WBM-85-001-001 WBM-85-001-002 WI-85-030-007	Foremen perform pre-weld inspections, which is not in accordance with the Topical Report, ANSI N45.2.5 and AWS D1.1.	AWS D1.1 allows preweld activity examinations to be on a sampling basis, Browns Ferry procedures and specifications mandated surveillance programs of all welding activities. Practice at Browns Ferry does not violate the TVA Topical Report or ANSI N45.2.5. This issue is addressed by Weld Project Report WP-16-BFN.
JLH-85-002	Welders from Muscle Shoals may not have had the appropriate number of bend tests.	All affected welders at BFN were requalified to the requirements of ASME Section IX. This issue has been addressed by Weld Project Report WP-24-BFN.

2850162005	Weld repairs such as overlays, patches and Furmanite (viscous fluid sealant) not in accordance with the ASME Code.	Overlay welding is an acceptable method of making temporary repairs to correct for intergranular stress corrosion cracking. TVA's plan for use of overlays was approved by the USNRC. Temporary mechanical and welded patches are used to contain leakage. They do not substitute for permanent repairs in accordance with applicable codes. Temporary patches and overlay welding are addressed by Weld Project Report WP-25-BFN. Use of viscous fluid sealant is outside the scope of the Weld Project, and has been addressed by Operations Report 2850162005.
BFN-85-019-001	Many welds and hangers are questionable with respect to adequacy. Original welds would not meet today's requirements.	This issues is addressed in the proposed corrective action of WP-32-BFN. The corrective action is contained in the memorandum to H. P. Pomrehn from J. A. Roach dated July 14, 1987 (B27 870714 001). This corrective action requires the inclusion of weld type, size, length, and location for evaluation in existing qualification programs.
IN-85-406-002 PH-85-012-X03 XX-85-102-006 XX-85-102-007 XX-85-102-011	No speicific inspection criteria prior to 1979. Welding and brazing inspection of safety related ductwork was deleted from the QA program. NDE inspectors can only write a Notice of Inspection for inservice related defects.	During initial construction, direct application of the codes provided all of the necessary inspection criteria. At the time of commitment to 10CFR50 APP B, a procedure system was in place and provided all of the necessary inspection criteria.

Preservice defects can only be identified by a Maintenance Request.

HVAC at BFN was fabricated and erected using mechanical means. When welded modifications were specified, an appropriate procedure for inspection was emplaced.

The Notice of Indication is used to report defects identified within the defined scope of an inspection, inservice, or preservice. The Maintenance Request is used to report observations identified outside the defined scope of an inspection.

This system is in compliance with the Nuclear Quality Assurance Manual.

These issues are addressed by Weld Project Report WP-35-BFN.

ATTACHMENT 6.2

EMPLOYEE CONCERNS REASSIGNED TO OTHER AREAS OF RESPONSIBILITY

EMPLOYEE CONCERNS REASSIGNED TO OTHER AREAS OF RESPONSIBILITY

CONCERN	AREA	SUBCATEGORY
IN-85-007-003	Not applicable to BFN	
IN-85-405-001	Engineering	22202
IN-85-411-002	Not applicable to BFN	
IN-85-438-001	Not applicable to BFN	
IN-85-488-001	Not applicable to BFN	
IN-85-600-001	Not applicable to BFN	
IN-85-627-036	Not applicable to BFN	
IN-85-657-001	Not applicable to BFN	
XX-85-049-001	Not applicable to BFN	
XX-85-068-006	Not applicable to BFN	
XX-85-102-004	QA	80410
XX-85-086-004	Engineering	22201