Omaha Public Power District

1623 HARNEY ■ OMAHA, NEBRASKA 68102 ■ TELEPHONE 536-4000 AREA CODE 402

March 16, 1979

Director of Nuclear Reactor Regulation
ATTN: Mr. Robert W. Reid, Chief
Operating Reactors Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: Docket No. 50-285

Gentlemen:

In accordance with Fort Calhoun Station Technical Specification § 5.9.3 and 10 CFR 50.55a, please find enclosed forty (40) copies of a document entitled "Form NIS-1 Owners' Data Report for Inservice Inspections". The report provides results of the inservice inspection of selected Class 1 and 2 components conducted at the station during the 1978 refueling outage.

Sincerely,

W. C. Jones for

T. E. Short
Assistant General Manager

TES/KJM/BJH:jmm

Enclosures

cc: NRC Regional Office (2)
Mr. Peter Erickson (1)
LeBoeuf, Lamb, Leiby & MacRae (1)

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FORM NIS-1 OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS

As required by the Provisions of the ASME Code Rules

1. Owner Omaha Public Power District, 1623 Harney Street, Omaha, Nebraska 68102
(Name and Address of Owner)

2. Plant Fort Calhoun Station, P.O. Box 98, Fort Calhoun, Nebraska 68023
(Name and Address of Plant)

3. Plant Unit No. 1 4. Owner Certificate of Authorization (if required) _____

5. Commercial Service Date 9-26-73 6. National Board Number for Unit _____

7. Components Inspected

Component or Appurtenance	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No
Reactor Pressure Vessel and Closure Head	CE	66111		20828
	(see attachment, page 14)			
Pressurizer	CE	66602		20852
	(see attachment, page 14)			
St. Gen. #1	CE	66505		20879
	(see attachment, page 15)			
St. Gen. #2	CE	66506		20880
	(see attachment, page 15)			
Regenerative Heat Exchanger	Atlas Industrial Mfg. Co., Clifton, NJ (see attachment, page 16)	1022		866
Class 1 Piping Systems	(see attachment, page 17)			
Class 1 Valves	(see attachment, page 22)			
Class 2 Piping Systems	(see attachment, page 23)			

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. x 11 in., (2) information in items 1 through 6 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

Omaha Public Power District, 1623 Harney Street, Omaha, Nebraska 68102
Fort Calhoun Station Unit No. 1, P.O. Box 98, Fort Calhoun, Nebraska 68023
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FORM NIS-1 (back)

8. Examination Dates 10-13-78 to 12-24-78 9. Inspection Interval from 9-26-73 to 9-26-83

10. Abstract of Examinations. Include a list of examinations and a statement concerning status of work required for current interval. (Attachment, pages iii, 1, 2)

11. Abstract of Conditions Noted. (Attachment, pages iii, 1, 2)

12. Abstract of Corrective Measures Recommended and Taken

We certify that the statements made in this report are correct and the examinations and corrective measures taken conform to the rules of the ASME Code, Section XI.

Date 2-12 19 79 Signed Omaha Public Power District (Owner) By T. E. Short

Certificate of Authorization No. (if applicable) _____ Expiration Date _____

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of _____ and employed by Continental of Ins. Co. have inspected the components described in this Owners' Data Report during the period 10-13-78 to 12-24-78, and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owners' Data Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owners' Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date March 7 19 79

David C. Keyes (Inspector's Signature) Commissions NB 7084 (National Board, State, Province and No.)

Omaha Public Power District, 1623 Harney Street, Omaha, Nebraska 68102
Fort Calhoun Station Unit No. 1, P. O. Box 96, Fort Calhoun, Nebraska 68023
Commercial Service Date - September 26, 1973

ABSTRACT

During the October-November 1978 refueling outage, Southwest Research Institute (SwRI) personnel performed nondestructive examinations of selected Class 1 and Class 2 components in Omaha Public Power District's (OPPD) Fort Calhoun Station Unit No. 1. These examinations constituted the second inservice examination of the second 40-month period of commercial operation. The components examined were selected in accordance with the following documents:

(1) Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1974 Edition with Addenda through Summer 1975.

(2) Fort Calhoun Station Unit No. 1 Technical Specifications.

(3) "Fort Calhoun Station Unit No. 1, 10-Year Inservice Examination Plan for Class 1, 2, and 3 Components," October 1978, prepared by SwRI.

The nondestructive examinations were performed using manual ultrasonic (UT), magnetic particle (MT), liquid penetrant (PT), and visual (VT) techniques. The UT examinations revealed several insignificant indications. The MT and PT examinations revealed no recordable indications. Three examination areas exhibited VT indications which were reported to OPPD personnel on Customer Notification Forms (CNFs) for disposition. One area was repaired by OPPD and reexamined by SwRI personnel with no recordable indications observed. The remaining areas were dispositioned and accepted by OPPD personnel. No other recordable or reportable indications were observed by SwRI personnel.

LIST OF ABBREVIATIONS

ASME - The American Society of Mechanical Engineers
ASNT - The American Society for Nondestructive Testing, Inc.
CCW - Counterclockwise
CL - Charging Line
CNF - Customer Notification Form
CRT - Cathode Ray Tube
CSS - Containment Spray Line
CW - Clockwise
DAC - Distance Amplitude Correction
Deg - Degree(s)
FSH - Full Screen Height
FW - Feedwater System
HAZ - Heat-Affected Zone
HPH - High Pressure Header
ISI - Inservice Examination
LL - Letdown Line
Lo - Zero Reference Location
LPH - Low Pressure Header Line
LPSI - Low Pressure Safety Injection Line
mR - Millirem
MS - Main Steam System
MT - Magnetic Particle Examination
NDT - Nondestructive Testing
OPPD - Omaha Public Power District
PRL - Pressurizer Relief Line
PSL - Pressurizer Surge Line
PSS - Pressurizer Safety System
PT - Liquid Penetrant Examination
QA - Quality Assurance
RC - Reactor Coolant
RL - Refracted Longitudinal
RPV - Reactor Pressure Vessel
SDC - Shutdown Coolant Line
SI - Safety Injection System
SwRI - Southwest Research Institute
UT - Ultrasonic Examination
VT - Visual Examination

TABLE OF CONTENTS

*NOTE: Appendices A through H are not included in this report. They are available for inspection at the Fort Calhoun plant site or the Operations Technical Support Services office.

Omaha Public Power District, 1623 Harney Street, Omaha, Nebraska 68102
Fort Calhoun Station Unit No. 1, P. O. Box 98, Fort Calhoun, Nebraska 68023
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I. INTRODUCTION

During the October-November 1978 refueling outage, Southwest Research Institute (SwRI) personnel performed nondestructive examinations of selected Class 1 and Class 2 components in Omaha Public Power District's (OPPD) Fort Calhoun Station Unit No. 1. These examinations constituted the second inservice examination (ISI) of the second 40-month period of commercial operation.

A. Examination Areas

The components examined were selected in accordance with the following documents:

(1) Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1974 Edition, including Addenda through Summer 1975.

(2) Fort Calhoun Station Unit No. 1 Technical Specifications.

(3) "Fort Calhoun Station Unit No. 1, 10-Year Inservice Examination Plan for Class 1, 2, and 3 Components," October 1978, prepared by SwRI.

Representative samples of the components and/or areas in the following list were examined with nondestructive testing (NDT) techniques:

Class 1

(1) Reactor Pressure Vessel and Closure Head

(2) Pressurizer

(3) Steam Generators

(4) Regenerative Heat Exchanger

(5) Piping Systems

(6) Valves

Class 2

(1) Steam Generators

(2) Piping Systems

B. Summary of Examination Results

The nondestructive examinations were performed using visual (VT), magnetic particle (MT), liquid penetrant (PT), and manual ultrasonic (UT) techniques. The various examinations were conducted in accordance with

standard SwRI NDT procedures which were written to conform to the requirements of the applicable sections of the ASME Boiler and Pressure Vessel Code and the SwRI Nuclear Quality Assurance Program Manual. A copy of each applicable SwRI NDT procedure is included in Appendix C.

Three examination areas exhibited VT indications which were reported to OPPD personnel on Customer Notification Forms (CNFs) for disposition. These VT indications were observed on pipe restraints No. 2-HPH-2.12-21-PR, No. 3-HPH-12-9-PR, and No. 3-PSS-14-10-PR. No. 2-HPH-2.12-21-PR was repaired by OPPD personnel and reexamined by SwRI personnel; no recordable indications were observed. The other two areas were dispositioned and accepted by OPPD personnel. No other VT indications were observed.

UT examinations revealed four insignificant spot indications in the Reactor Pressure Vessel Head-to-Flange weld. These indications, at 10 percent and 20 percent of the Distance Amplitude Correction (DAC) curve reference level were well below the required recording level of 50 percent of the DAC curve, but were recorded for future reference only. The UT examinations of piping welds revealed a few insignificant indications and several indications due to weld crown or root geometry.

No recordable indications were observed during MT and PT examinations.

All UT examinations of piping welds subject to the provisions of IE Circular No. 76-06, "Stress Corrosion in Stagnant, Low Pressure Stainless Steel Piping Containing Boric Acid Solution at PWRs," were performed in accordance with the requirements of the Circular. (See "Remarks" column in the Table.)

Test data (instrument calibration records and examination data) for examinations were recorded on standard SwRI forms.

Operating Procedures governing the weld joint identification marking on nuclear power plant components and measuring and recording search unit location and maximum signal amplitude data during ultrasonic examinations are located in Appendix D.

The SwRI Quality Assurance and Reliability Engineering Section was represented onsite by an SwRI Quality Assurance (QA) representative, who was present, for approximately 50 percent of the examination period. The QA representative performed the appropriate duties outlined in Section 3.3.1.4, "Onsite Quality Assurance Activities," of the "Project Plan for the 1978 Inservice Examination of Fort Calhoun Station Unit No. 1."

II. DETAILS OF THE INSERVICE EXAMINATION

This section of the report provides a discussion of the equipment used during the ISI, supplementary information, and a summary of the nondestructive examinations performed.

A. Equipment

1. Manual Ultrasonic Instruments

Sonic FTS Mark I ultrasonic instruments were used for the UT examinations and thickness gauging of materials. They were also used as an aid in determining the acoustic characteristics/properties through measurement of transmission and attenuation of ultrasound in materials.

2. Transducers

Various brands, sizes, types, and frequencies of ultrasonic transducers (search units) were used to perform the examinations. Certifications for the transducers used for this ISI can be found in Appendix G. For information on the actual transducer used for any specific examination, consult the data sheets and referenced calibration sheets in the Inservice Examination Field Data Volumes of the SwRI Final Report.

B. Radiation Exposure

Of fundamental concern to all personnel involved in the ISI was the radiation exposure received during the daily examination activities. SwRI personnel took the necessary precautions to minimize overall exposure, and consequently, received the minimum dosage practicable while performing the selected examinations. The following listing details the approximate radiation exposure levels associated with the various examination areas:

Area	Exposure Level
RPV and Closure Head	90 to 400 mR/hr.
Pressurizer	10 to 30 mR/hr.
Steam Generators	30 to 100 mR/hr.
Regenerative Heat Exchanger	50 to 200 mR/hr.
Piping Systems	10 to 100 mR/hr.
Valves	10 to 30 mR/hr.

C. Summary of Nondestructive Examinations

The Summary of Nondestructive Examinations table provides the results of examinations performed to satisfy the requirements of OPPD's Technical Specifications and the ASME Section XI requirements. The specific areas examined are listed in Table 1 and Table 2A in the "Fort Calhoun Station Unit No. 1, 10-Year Inservice Examination Plan for Class 1, 2, and 3 Components."

The Summary of Nondestructive Examinations table lists the examination areas, methods, and results. It is divided into sections according to major systems or components and subdivided to list the specific component, area, or weld examined. Several columns are self-explanatory, but the following comments may be helpful in interpreting the information as presented.

1. Examination Area Identification Column

In the column "Examination Area Identification," each area, component, or weld is designated with a unique alphanumeric code. Each area, component, or weld which was examined is listed in the following manner.

a. Pressure Retaining Vessels

The examination areas for these components are listed by the generic terms which specifically identify the area, component, or weld examined. These terms, such as "Pressurizer Surge Line-to-Bottom Head Weld," are self-explanatory and are exclusive to that area, component, or weld. In addition to generic names, weld numbers are used wherever possible.

b. Class 1 Piping

The Class 1 piping welds examined during this ISI are identified by nominal pipe size, function, and line number within the systems, which are abbreviated functionally as follows:

CL - Charging Line	PSL - Pressurizer Surge Line
HPH - High Pressure Header	PSS - Pressurizer Safety System
LL - Letdown Line	SI - Safety Injection
PRL - Pressurizer Relief Line	

Weld Identification Figures (Appendix A) identify component welds and piping weld locations along with other information pertinent to the performance of the ISI.

Line numbering and designations for Class 1 are unchanged from those used for the baseline examination and are explained below.

(1) Figure 1 shows a general composite layout of the area covered by the 1972 preservice (baseline) examination of Omaha Public Power District, Fort Calhoun Nuclear Power Station Unit No. 1, and illustrates the line numbering scheme.

(2) Whenever possible, the lines and systems were numbered in such a manner as to focus on the main components, that is, the reactor vessel and the reactor coolant system.

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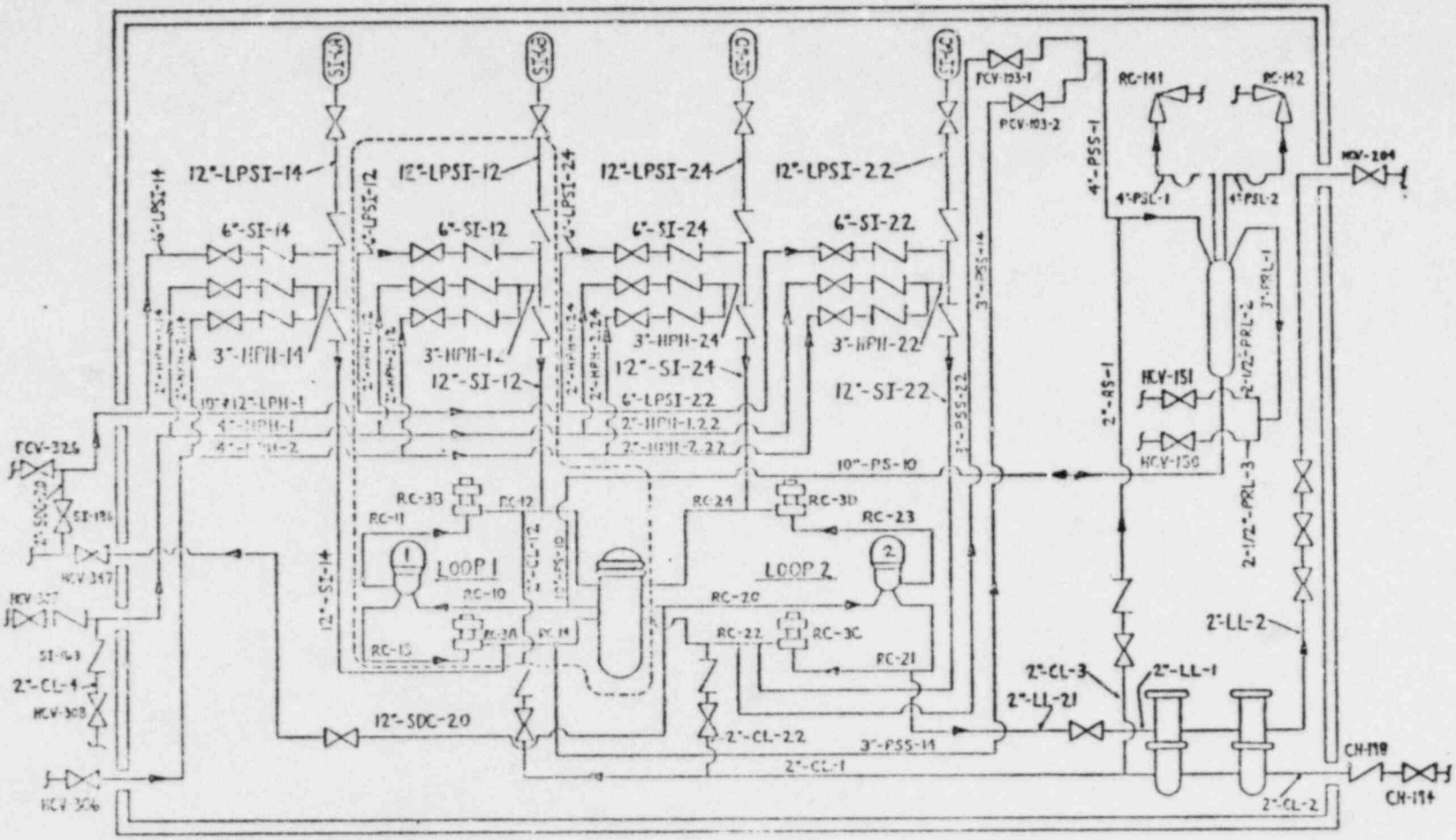

FIGURE 1. LINE NUMBERING SCHEME

(3) Loop 1 reactor coolant loop contains five sections. The hot leg, the primary Reactor Pressure Vessel (RPV)-to-Steam Generator Line, is numbered RC-10. Therefore, any line that is connected directly to Loop 1 is numbered in the 10s, and the lines connected directly to the reactor coolant system in Loop 2 are numbered in the 20s. The cold legs, the Steam Generator-to-Pump, and Pump-to-RPV lines are numbered in the direction of the flow. Any line connected to one of these lines bears the same designation as the main run of pipe in order to maintain continuity.

(4) For example, in the upper lefthand portion of the dash-line box in Figure 1, the 6-inch Low Pressure Safety Injection (LPSI)-12 line ties in to the 6-inch Safety Injection (SI)-12, which connects to the 12-inch Safety Injection (SI)-12, which then connects to the 24-inch Reactor Coolant (RC) line No. 12 (RC-12).

c. Class 2 Piping

Weld Identification Figures (Appendix B) identify component welds and piping weld locations along with other information pertinent to the performance of the ISI.

For the Class 2 piping systems, the designation system consists of several parts:

(1) The first character set is one or two digits indicating nominal pipe size.

(2) The second set, of two to four letters, identifies the system by an abbreviation of its functional name. The abbreviations for the lines examined during this ISI are listed below:

FW - Feedwater System
MS - Main Steam System
SI - Safety Injection System
CSS - Containment Spray Lines
LPH - Low Pressure Header Lines
LPSI - Low Pressure Safety Injection Lines
SDC - Shutdown Coolant Lines

(3) The third set consists of a unique line number. The first digit is a "2," signifying Class 2. The second digit is a "0." The third and fourth digits assure uniqueness.

(4) The fourth set is usually a 1- or 2-digit number identifying a specific circumferential weld. Items such as pipe supports, etc., are identified by adding initials to the number of the circumferential weld directly upstream. For example, -4-PR is a pipe restraint downstream from circumferential weld No. 4. If there are successive components between circumferential welds, a fifth set will be added to identify them sequentially either clockwise from zero reference location (Lo) or in the direction of flow, as appropriate.

(5) Representative examples are as follows (see Appendix B, Figure B-3):

(i) 28-MS-2001-6 is the sixth circumferential weld in sequence on Class 2, 28-in. Main Steam Line No. 2001.

(ii) 28-MS-2001-6-PR-1 is the pipe restraint directly downstream from weld No. 6 referred to in (i) above. Since two pipe restraints exist between weld Nos. 6 and 7, their numbers are -6-PR-1 and -6-PR-2, respectively.

2. Examination Method Column

a. Visual (VT)

Areas requiring VT were examined in accordance with SwRI Procedure NDT-900-1, Rev. 42, or NDT-900-4, Rev. 19. These SwRI procedures include those guidelines outlined in Paragraph IWA-2210 of Section XI and specify methods of documenting indications.

b. Liquid Penetrant (PT)

Manual PT tests were performed in accordance with SwRI Procedure NDT-200-1, Rev. 42, using a visible red-dye penetrant. PT material certifications are in Appendix C.

c. Magnetic Particle (MT)

Magnetic Particle tests were performed in accordance with SwRI Procedure NDT-300-1, Rev. 14, using the dry powder magnetic particle method. MT material certifications are in Appendix C.

d. Manual Ultrasonic (UT)

The specific UT procedures employed in any particular examination covered in this report are found in Appendix C.

Each weld was subjected to examination means discussed in the following subsections. Exceptions to these tests were usually due to area/component configurations and/or inaccessibility.

(1) Longitudinal Attenuation. The base metal adjacent to piping welds was examined with a straight-beam search unit in order to determine the relative sound transmission characteristics of the base metal and the calibration block.

(2) Lamination Scan (0°L). A 0-degree (deg) longitudinal wave was used to examine the base metal adjacent to the welds to determine the existence of any laminations or inclusions which, if present, would cast "shadows" which could prevent sound beam access to all or part of the welds and/or could affect the interpretation of the examination results (see Paragraph T-2330 of Appendix I to Section XI, and Paragraph T-534.3 of Article 5, Section V).

(3) Longitudinal Wave Weld Scan (0°W). In cases where physical configuration prohibited shear wave examinations from both sides of piping welds, a 0-deg longitudinal wave examination was performed from the surface of the weld whenever possible. A 0-deg longitudinal wave examination was performed on vessel welds unless the accessibility and/or configurations prevented the examination. The examinations are used to determine the existence of any reflectors in the weld positioned parallel to the weld surface (see Paragraph I-2310 of Appendix I to Section XI and Paragraph T-536 of Article 5, Section V).

e. Refracted Longitudinal Wave Scan (RL). For the RPV-to-Flange Weld examination, refracted longitudinal wave search units were used to perform the examination scans. The refracted angle is included in the Summary of Nondestructive Examinations table along with the "RL" designation.

(4) Shear Wave Scans (45°, 45°T, 60°, 60°T). Each weld was examined using 45- and/or 60-deg shear waves to determine the internal characteristics of the weld metal. Whenever possible, examinations were performed from both sides of the weld using the required test angles. In addition, transverse scans (applied along the weld and base metal to detect any reflectors oriented "transverse to the weld") using 45-deg shear wave search units were performed whenever possible. The use of these techniques is denoted by "45°T" in the nondestructive examination summary table. Vessel weld examinations also included similar 60°T scans.

3. Indications Columns

The four columns under the general heading of "Indications" are "No Recordable," "Insignificant," "Geometric," and "Other." These columns were used as required, and their general description is provided below.

The results for the VT, MT, and PT examinations are indicated by an "X" in the appropriate column to be either "No Recordable" or "Other." The term "Other" is used when indications are observed that exceed the recording requirements of the applicable procedure.

The results of the UT examinations are indicated by recording the angle of the ultrasonic search unit under the column heading which describes the test results for that angle, i.e., the "No Recordable," "Insignificant," "Geometric," or "Other" column.

In the performance of the UT examinations, the data recording level was established by the applicable NDT procedure.

The term "No Recordable" was applied when no indications were observed greater than the recording level and no indications were observed between 20 percent of the DAC curve and the recording level which were suspected by the Level II examiner to be other than geometric in nature.

"Insignificant" was applied when (1) the amplitude of any indication observed was equal to or greater than the recording level, but less than 100 percent of the DAC curve, or (2) nonrelevant indications, such as reflections due to standing waves, trapped glycerine, etc., were observed.

"Geometric" indications were (1) those indications which have an amplitude equal to or greater than 100 percent of the DAC curve and have been resolved and documented to be geometric in nature, or (2) indications that are less than 100 percent of the DAC curve but were suspected by the Level II examiners to be other than geometric in nature, and were then resolved and documented to be geometric in nature.

Indications that are geometric in nature are those resolved as due to a reflection from a geometric feature of the weld or component such as "root" geometry, "crown" geometry, "inside surface" geometry, or "outside surface" geometry. An indication due to "root" geometry is one in which the ultrasonic wave is reflected by the root geometry of the weld bead; "crown" geometry indications occur when the ultrasonic wave reflects off the inside surface of the examination area, strikes the crown of the weld, and is returned to the transducer; "inside surface" geometric indications occur when the internal surface of the examination area of the weld fitup contains an angular plane sufficient to reflect a portion of the ultrasonic beam back to the transducer; and "outside surface" geometric indications occur when the ultrasonic wave reflects off the inside surface of the examination area, strikes the outside surface of the examination area, and is returned to the transducer.

"Other" indications include those indications evaluated to be other than "Insignificant" or "Geometric" indications, as described above.

The resolution of each "Geometric" and "Other" indication was documented on SwRI Indication Resolution Records and included with the weld data package. These records are listed by serial number along with the appropriate examination data sheets on the summary sheet for the component.

4. Remarks Column

The "Remarks" column is used to provide additional information pertinent to the examination results:

(1) When complete coverage of the examination area was not possible, the "Remarks" column was used to indicate the limitations.

(2) For VT, MT, or PT examination results reported to the "Other" column, a brief description is given in the "Remarks" column.

(3) For UT examination results reported in the "Geometric" or "Other" columns, a brief description of the resolution of the indication is presented in the "Remarks" column.

(4) Reference is made in the "Remarks" column to CNFs used in the reporting of indications.

(5) The required UT calibration block number is listed in the "Remarks" column for the applicable examinations.

5. Table

The Summary Table is included from page 13 through page 39 of this report.

D. Deviations From the 10-Year ISI Plan

The following examination areas deviate from the scheduled examination areas of the 10-Year ISI Plan dated October 1978. The examination areas were chosen over those scheduled as a matter of accessibility and convenience, unless otherwise noted, and represent similar welds on the same or similar piping.

Examination Area	Deviation From 10-Year Plan
Vessel Interior (page 14 of Examination Table)	Added to schedule to conform with requirements of the Section XI Code.
Pressurizer Surge Line Nozzle-to-Bottom Head Weld (page 14 of Examination Table)	60°T scan added to complete examination performed in the 1977 ISI.
Steam Generators 1-N-1, 1-N-3, Head-to-Nozzle Welds (page 15 of Examination Table)	60°T scan added to complete examination performed in the 1977 ISI.
Steam Generators 2-M-2, 2-M-4, Meridional Welds (page 15 of Examination Table)	Appendix A Figure of 10-Year Plan had welds incorrectly labeled.

Examination Area	Deviation From 10-Year Plan
Steam Generators 2-SL-2, 2-SL-3, 2-SL-4, Support Lugs (page 15 of Examination Table)	Examined for feasibility of UT scans not performed in the 1977 ISI.
Regenerative Heat Exchanger Welds #9 and #10 (page 16 of Examination Table)	Dye penetrant examination performed in lieu of UT examination as called for in the 10-Year Plan because the weld configurations could not be determined. Will be rescheduled.
3-PSS-14-22-PR (page 17 of Examination Table)	Rescheduled from 1980 to 1978.
2½-PRL-2-10-SC (page 18 of Examination Table)	Rescheduled from 1980 to 1978.
12-SI-24-14-SC-1, -2 (page 18 of Examination Table)	Rescheduled from 1980 to 1978.
12-SI-24-15-PR (page 18 of Examination Table)	Rescheduled from 1980 to 1978.
28-MS-2001-11-SW (page 25 of Examination Table)	Addition to 10-Year Plan.
12-LPSI-2024-2-PR (page 28 of Examination Table)	Designation changed from SC (welded support) to PR (clamped-type pipe restraint).
12-LPH-2001-19-PI-2 (page 29 of Examination Table)	Rescheduled from second 10-year interval.
12-LPH-2001-29A (page 29 of Examination Table)	Not previously listed. Weld 29 of 10-Year Plan changed to 29 and 29A.
12-LPH-2001-29 (page 29 of Examination Table)	Unable to perform UT examination as scheduled due to configuration. Dye penetrant examination performed instead.
12-CSS-2001-24 (page 32 of Examination Table)	Rescheduled from third 10-year interval to replace weld 26 found to be inaccessible.

Examination Area	Deviation From 10-Year Plan
6-SI-2024-3 (page 37 of Examination Table)	Unable to perform UT examination from downstream side of the weld due to configuration. Dye penetrant examination performed in addition to the UT from the upstream side.

None of the above deviations from the 10-Year Plan are critical to meeting the required number of examinations as specified by the ASME Section XI Code. The 10-Year ISI Plan will be revised to reflect these scheduling changes.

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Fort Calhoun Station Unit No. 1, P. O. Box 98, Fort Calhoun, Nebraska 68023
Commercial Service Date - September 26, 1973

SUMMARY OF NONDESTRUCTIVE EXAMINATIONS TABLE

Class 1

FORT CALHOUN STATION UNIT 1
1978 INSERVICE EXAMINATION - CLASS 1
SUMMARY OF NONDESTRUCTIVE EXAMINATIONS

PRESSURE VESSELS (See Referenced Figures in Appendix A)

ASME SEC XI ITEM NO.	ASME SEC XI CATGY.	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM. SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		REACTOR PRESSURE VESSEL AND CLOSURE HEAD (Figures A-1 and A-2a)								
		Flange Welds								
B1.3	B-C	A-11 Vessel-to-Flange	UT	600-13/23	300303	1.35°RL, 10°RL, 18°RL				35% of weld length examined from stud hole No. 17 through stud hole No. 34. 11-CSCL-5-FCL.
B1.3	B-C	Closure Head-to-Flange	UT	600-15/37	300102	0°L, 0°W, 45°T, 60°T	45°, 60°			39% of weld length examined from centerline of stud hole No. 16 through centerline of stud hole No. 35. Examination limited by head and flange configuration. 7-CSCL-7-FCL.
		Vessel Interior								
B1.15	B-N-1	Vessel Interior	VT	900-1/42	300302	X				Examination performed remotely by means of television camera.
		PRESSURIZER (Figures A-3 and A-4)								
B2.1	B-B	2-403-C Lower Shell Course Longitudinal Weld	UT	600-15/37	300103	0°L, 0°W, 45°, 45°T, 60°, 60°T				10% (10") of weld length examined, measured up from top of insulation support ring. 5-CSCL-6-FCL.
B2.1	B-B	4-403 Upper-to-Lower Shell Weld	UT	600-15/37	300104	0°L, 45°, 45°T, 60°, 60°T				UT limited due to insulation support ring covering weld plus 1/2" of base metal above top weld fusion line. 5% (16") of weld length examined starting 10" clockwise from centerline of manway. 5-CSCL-6-FCL.
B2.2	B-D	Surge Line (10-PSL-10) Nozzle-to-Bottom Head Weld	UT	600-15/37	300297	60°T				See 1977 ISI Report for other scans. No UT from the upstream side due to the nozzle configuration. 3-CSCL-8-FCL.
B2.11	B-G-2	Bolting Manway Closure	VT	900-1/42	300291	X				All 20 studs and all 20 nuts examined in place.

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PRESSURE VESSELS (See Referenced Figures in Appendix A) (Cont'd)

ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		STEAM GENERATOR NO. 1 (Figure A-5)								
B3.1	B-B	1-C-1 Dollar Weld	UT	600-15/37	300106	0°L,0°W,45°, 45°T,60°,60°T				5% (13") of weld length examined counterclockwise from weld 1-M-3. 7-CSCL-7-FCL.
B3.1	B-B	1-M-3 Meridional Weld	UT	600-15/37	300107	0°L,0°W,45°, 45°T,60°,60°T				10% (6") of weld length examined from edge of weld 1-C-1 up. 7-CSCL-7-FCL.
B3.2	B-D	1-N-1 Head-to-Nozzle Weld	UT	600-15/37	300108	60°T				No UT from the downstream side due to the nozzle configuration. See 1977 ISI Report for other scans. 7-CSCL-7-FCL.
B3.2	B-D	1-N-3 Head-to-Nozzle Weld	UT	600-15/37	300109	60°T				No UT from the downstream side due to the nozzle configuration. See 1977 ISI Report for other scans. 7-CSCL-7-FCL.
B3.7	B-H	1-SL-1 Support Lug	UT	600-15/37 Dev. 1	300110	0°L,45°,45°T 60°,60°T				No UT on weld due to weld configuration. PL-CS-5.0-3-FCL.
		STEAM GENERATOR NO. 2 (Figure A-6)								
B3.1	B-B	2-M-2 Meridional Weld	UT	600-15/37	300299	0°L,0°W,45°, 45°T,60°,60°T				10% (6") of weld length examined from edge of weld 2-C-1 up. 7-CSCL-7-FCL.
B3.1	B-B	2-M-4 Meridional Weld	UT	600-15/37	300300	0°L,0°W,45°, 45°T,60°,60°T				10% (6") of weld length examined from edge of weld 2-C-1 up. 7-CSCL-7-FCL.
B3.7	B-H	2-SL-2 Support Lug	UT	600-15/37 Dev. 1	300287	0°L,45°,45°T, 60°,60°T				No UT on weld due to weld configuration. PL-CS-5.0-3-FCL.
B3.7	B-H	2-SL-3 Support Lug	UT	600-15/37 Dev. 1	300288	0°L,45°,45°T, 60°,60°T				No UT on weld due to weld configuration. PL-CS-5.0-3-FCL.
B3.7	B-H	2-SL-4 Support Lug	UT	600-15/37 Dev. 1	300293	0°L,45°,45°T, 60°,60°T				No UT on weld due to weld configuration. PL-CS-5.0-3-FCL.

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ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY.	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		REGENERATIVE HEAT EXCHANGER (Figure A-7)								
B3.1	B-B	No. 9 Circumferential Weld	PT	200-1/42	300114	X				PT performed in lieu of UT due to indeterminate configuration of weld. Feasibility of UT to be investigated.
B3.2	B-D	No. 10 Nozzle-to-Shell Weld	PT	200-1/42	300116	X				PT performed in lieu of UT due to indeterminate configuration of weld. Feasibility of UT to be investigated.

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PIPING (See Referenced Figures in Appendix A)

ASME SEC XI ITEM NO.	ASME SEC XI CATGY.	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM. SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		PRESSURIZER SURGE LINE 10-PSL-10 (Figure A-14)								
B4.10	B-K-2	10-PSL-10-9-PR-1 Pipe Restraint	VT	900-4/19	300117	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
B4.10	B-K-2	10-PSL-10-9-PR-2 Pipe Restraint	VT	900-4/19	300118	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
B4.10	B-K-2	10-PSL-10-9-PR-3 Pipe Restraint	VT	900-4/19	300119	X				Examination area painted. Fluid level reads 2 points to right of "EXT" point.
		PRESSURIZER SPRAY SYSTEM 3-PSS-14 (Figure A-17)								
B4.10	B-K-2	3-PSS-14-10-PR Pipe Restraint RCS-9	VT	900-4/19	300123				X	Examination area painted. No fluid level indication. See CNF 100003. Repaired and accepted by OPPD personnel.
B4.10	B-K-2	3-PSS-14-12-PR-1 Pipe Restraint RCS-7A	VT	900-4/19	300124	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
B4.10	B-K-2	3-PSS-14-12-PR-2 Pipe Restraint RCS-7	VT	900-4/19	300125	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
B4.10	B-K-2	3-PSS-14-22-PR Pipe Restraint	VT	900-4/19	300126	X				Examination area painted.
B4.10	B-K-2	3-PSS-14-23-PR-1 Pipe Restraint	VT	900-4/19	300127	X				Examination area painted.
B4.10	B-K-2	3-PSS-14-23-PR-2 Pipe Restraint RCS-29	VT	900-4/19	300128	X				Examination area painted. Fluid level reads 1.5 points to right of "EXT" point.

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ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY.	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		PRESSURIZER SPRAY SYSTEM (Cont'd)								
		3-PSS-14 (Cont'd) (Figure A-14)								
B4.10	B-K-2	3-PSS-14-23-PR-3 Pipe Restraint RCS-30-A	VT	900-4/19	300129	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
		PRESSURIZER RELIEF LIN								
		2-1/2-PRL-2 (Figure A-20)								
B4.10	B-K-2	2-1/2-PRL-2-1-PR-1 Pipe Restraint	VT	900-4/19	300131	X				Examination area painted.
B4.10	B-K-2	2-1/2-PRL-2-1-PR-2 Pipe Restraint	VT	900-4/19	300132	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
B4.10	B-K-2	2-1/2-PRL-2-10-SC Support Components	VT	900-4/19	300133	X				Examination area painted.
		SAFETY INJECTION								
		12-SI-14 (Figure A-23)								
B4.10	B-K-2	12-SI-14-13-PR Pipe Restraint	VT	900-4/19	300134	X				Examination area painted.
B4.10	B-K-2	12-SI-14-15-PR Pipe Restraint	VT	900-4/19	300135	X				Examination area painted.
		12-SI-24 (Figure A-25)								
B4.10	B-K-2	12-SI-24-14-SC-1 Support Components	VT	900-4/19	300276	X				Examination area painted.
B4.10	B-K-2	12-SI-24-14-SC-2 Support Components	VT	900-4/19	300137	X				Examination area painted.
B4.10	B-K-2	12-SI-24-15-PR Pipe Restraint	VT	900-4/19	300138	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.

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ASME SEC XI ITEM NO.	ASME SEC XI CATGY.	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		SAFETY INJECTION (Cont'd)								
		6-SI-14 (Figure A-27)								
B4.10	B-K-2	6-SI-14-9-PR-1 Pipe Restraint	VT	900-4/19	300139	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
B4.10	B-K-2	6-SI-19-9-PR-2 Pipe Restraint	VT	900-4/19	300140	X				Examination area painted.
		HIGH PRESSURE HEADERS								
		3-HPH-12 (Figure A-30)								
B4.10	B-K-2	3-HPH-12-3-PR-1 Pipe Restraint	VT	900-4/19	300141	X				Examination area painted.
B4.10	B-K-2	3-HPH-12-3-PR-2 Pipe Restraint	VT	900-4/19	300142	X				Examination area painted.
B4.10	B-K-2	3-HPH-12-9-PR Pipe Restraint	VT	900-4/19	300143				X	Examination area painted. PR position shifted on pipe. See CWP 100002. Repaired and accepted by OPPD personnel.
		2-HPH-1.22 (Figure A-36)								
B4.10	B-K-2	2-HPH-1.22-12-PR Pipe Restraint	VT	900-4/19	300144	X				Examination area painted.
		2-HPH-1.24 (Figure A-37)								
B4.10	B-K-2	2-HPH-1.24-11-PR Pipe Restraint	VT	900-4/19	300145	X				Examination area painted.

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PIPING (See Referenced Figures in Appendix A) (Cont'd)

ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		HIGH PRESSURE HEADERS (Cont'd)								
		2-HPH-2.12 (Figure A-38)								
B4.10	B-K-2	2-HPH-2.12-19-PR-1 Pipe Restraint	VT	900-4/19	300146	X				Examination area painted.
B4.10	B-K-2	2-HPH-2.12-19-PR-2 Pipe Restraint	VT	900-4/19	300147	X				
B4.10	B-K-2	2-HPH-2.12-21-PR Pipe Restraint	VT VT	900-4/19 900-4/19	300148	X			X	Examination area painted. Support rod detached; see CSF 100001. Re-examination after repair revealed no recordable indications.
		2-HPH-2.24 (Figure A-41)								
B4.10	B-K-2	2-HPH-2.24-13-PR Pipe Restraint	VT	900-4/19	300149	X				Examination area painted.
B4.10	B-K-2	2-HPH-2.24-15-PR Pipe Restraint	VT	900-4/19	300150	X				Examination area painted.
		CHARGING LINE								
		2-CL-22 (Figure A-44)								
B4.10	B-K-2	2-CL-22-1-PR Pipe Restraint	VT	900-4/19	300277	X				Examination area painted.
B4.10	B-K-2	2-CL-22-7-PR Pipe Restraint	VT	900-4/19	300152	X				Examination area painted.
		LETDOWN LINES								
		2-LL-1 (Figure A-45)								
B4.10	B-K-2	2-LL-1-5-PR Pipe Restraint	VT	900-4/19	300153	X				Examination area painted.

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PIPING (See Referenced Figures in Appendix A) (Cont'd)

ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		LETDOWN LINES (Cont'd)								
		2-LL-1 (Cont'd) (Figure A-45)								
B4.10	B-K-2	2-LL-1-15-PR-1 Pipe Restraint	VT	900-4/19	300154	X				Examination area painted.
B4.10	B-K-2	2-LL-1-15-PR-2 Pipe Restraint	VT	900-4/19	300155	X				Examination area painted.
		2-LL-2 (Figure A-46)								
B4.10	B-K-2	2-LL-2-37-PR-1 Pipe Restraint	VT	900-4/19	300156	X				Examination area painted.

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VALVES (See Referenced Figures in Appendix A)

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		VALVES								
B6.5	B-K-2	HCV-150-PR Valve Restraint (Figure A-20)	VT	900-4/19	300157	X				Examination area painted.
B6.5	B-K-2	HCV-238-PR-1 Valve Restraint (Figure A-43)	VT	900-4/19	300290	X				Examination area painted.
B6.5	B-K-2	HCV-238-PR-2 Valve Restraint (Figure A-20)	VT	900-4/19	300159	X				Examination area painted.

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Class 2

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VESSELS (See Referenced Figures in Appendix B)

ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY.	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		STEAM GENERATOR NO. 1 (Figure B-1)								
C1.2	C-B	Steam Outlet Nozzle-to-Vessel Weld	UT	600-15/37	300160	0°L,0°W,45°, 45°T,60°,60°T				No UT from the nozzle side due to the nozzle configuration. Limited 0°W, 45°T, and 60°T weld scans due to weld crown configuration. PL-CS-3.0-4-FCL.

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ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY.	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM. SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		MAIN STEAM - LOOP A 28-MS-2001 (Figures B-3 and B-4)								
C2.6	C-E-2	28-MS-2001-6-PR-1 Pipe Restraint	VT	900-4/19	300162	X				Examination area painted. Spring scale reading mid-scale.
C2.6	C-E-2	28-MS-2001-6-PR-2 Pipe Restraint	VT	900-4/19	300163	X				Examination area painted. Fluid level reads 3.5 points to right of "EXT" point.
C2.6	C-E-2	28-MS-2001-10-PR-1 Pipe Restraint	VT	900-4/19	300164	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
C2.6	C-E-2	28-MS-2001-10-PR-2 Pipe Restraint	VT	900-4/19	300165	X				Examination area painted. Spring scale reading 0.
C2.5	C-E-1	28-MS-2001-11-SW Seal Weld	MT	300-1/14	300286	X				Examination area extends from pipe lug No. 1 to pipe lug No. 3.
C2.5	C-E-1	28-MS-2001-11-PL-1 Pipe Lug	MT	300-1/14	300166	X				
C2.6	C-E-2	28-MS-2001-11-SC-1 Support Components	VT	900-4/19	300167	X				Examination area painted.
C2.5	C-E-1	28-MS-2001-11-PL-2 Pipe Lug	MT	300-1/14	300301	X				
C2.6	C-E-2	28-MS-2001-11-SC-2 Support Components	VT	900-4/19	300169	X				Examination area painted.
C2.6	C-E-2	28-MS-2001-15-PR-3 Pipe Restraint	VT	900-4/19	300170	X				Examination area painted. Fluid level reads 3.5 points to right of "EXT" point.
C2.6	C-E-2	28-MS-2001-15-PR-4 Pipe Restraint	VT	900-4/19	300171	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.

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PIPING (See Referenced Figures in Appendix B) (Cont'd)

ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		MAIN STEAM - LOOP B 28-MS-2002 (Figures B-5 and B-6)								
C2.6	C-E-2	28-MS-2002-8-PR-1 Pipe Restraint MSS-4	VT	900-4/19	300173	X				Examination area painted. Fluid level reads 3.5 points to right of "EXT" point.
C2.6	C-E-2	28-MS-2002-8-PR-2 Pipe Restraint	VT	900-4/19	300174	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.6	C-E-2	28-MS-2002-12-PR-1 Pipe Restraint	VT	900-4/19	300175	X				Examination area painted. Fluid level reads 2 points to right of "EXT" point.
C2.6	C-E-2	28-MS-2002-12-PR-2 Pipe Restraint	VT	900-4/19	300177	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.
C2.6	C-E-2	28-MS-2002-15-PR-6 Pipe Restraint	VT	900-4/19	300178	X				Examination area painted.
C2.6	C-E-2	28-MS-2002-15-PR-7 Pipe Restraint	VT	900-4/19	300179	X				Examination area painted.
C2.3	C-C	28-MS-2002-15-BC-3 6" Branch Connection	UT	600-3/46	300180	See Remarks				No examination due to the safety shield configuration.
		FEEDWATER - LOOP A 16-FW-2001 (Figure B-7)								
C2.6	C-E-2	16-FW-2001-2-SC-1 through 4 Support Components	VT	900-4/19	300181	X				Examination area painted.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		FEEDWATER - LOOP B 16-FW-2002 (Figure B-8)								
C2.6	C-E-2	16-FW-2002-2-PR-1 Pipe Restraint	VT	900-4/19	300182	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.
C2.6	C-E-2	16-FW-2002-2-PR-2 Pipe Restraint	VT	900-4/19	300183	X				Examination area painted. Fluid level reads 2 points to right of "EXT" point.
C2.6	C-E-2	16-FW-2002-7-PR-1 Pipe Restraint	VT	900-4/19	300184	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.6	C-E-2	16-FW-2002-7-PR-2 Pipe Restraint FWS-2C	VT	900-4/19	300185	X				Examination area painted. Fluid level reads 3.5 points to right of "EXT" point.
		LOW PRESSURE SAFETY INJECTION 14-LPSI-2001 (Figure B-9)								
C2.6	C-E-2	14-LPSI-2001-2-PR-3 Pipe Restraint SIS-27	VT	900-4/19	300186	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
		SHUTDOWN COOLANT 12-SDC-2020 (Figure B-11)								
C2.1	C-F	12-SDC-2020-5 Tee-to-Pipe	UT	800-36/18	300187	0°L,45°,45°T				Per IE Circular 76-06, examination extended to 3" W from weld fusion line. No examination from the upstream side due to the tee configuration. 12-SS-40S-.375-18-FCL.
C2.6	C-E-2	12-SDC-2020-16-PR-4A Pipe Restraint SIS-24A	VT	900-4/19	300188	X				Examination area painted.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		SHUTDOWN COOLANT (Cont'd)								
		12-SDC-2020 (Cont'd) (Figure B-11)								
C2.6	C-E-2	12-SDC-2020-16-PR-43 Pipe Restraint SIS-24A	VT	900-4/19	300189	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.
		LOW PRESSURE SAFETY INJECTION								
		12-LPSI-2012 (Figure B-12)								
C2.6	C-E-2	12-LPSI-2012-6-PR-3 Pipe Restraint	VT	900-4/19	300190	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.6	C-E-2	12-LPSI-2012-6-PR-4 Pipe Restraint	VT	900-4/19	300191	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
		12-LPSI-2014 (Figure B-13)								
C2.6	C-E-2	12-LPSI-2014-2-PR Pipe Restraint	VT	900-4/19	300192	X				Examination area painted. Fluid level reads 1.5 points to right of "EXT" point.
C2.6	C-E-2	12-LPSI-2014-11-PR-1 Pipe Restraint	VT	900-4/19	300193	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.
		12-LPSI-2022 (Figure B-14)								
C2.6	C-E-2	12-LPSI-2022-6-PR-1 Pipe Restraint	VT	900-4/19	300194	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.
		12-LPSI-2024 (Figure B-15)								
C2.6	C-E-2	12-LPSI-2024-2-PR Pipe Restraint	VT	900-4/19	300294	X				Examination area painted. Spring compressed 1/3 from top.
C2.6	C-E-2	12-LPSI-2024-6-PR-3 Pipe Restraint	VT	900-4/19	300197	X				Examination area painted. Fluid level reads 3 points past "EXT" point.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		LOW PRESSURE HEADER 12-LPH-2001 (Figure B-16)								
C2.1	C-F	12-LPH-2001-2 8" Flange-to-Reducer (Valve HCV-341)	UT	600-3/46	300283	0°L,0°W,45°T				Limited UT from the upstream and downstream sides due to the flange and reducer configurations. 6-2501-2-S.160.
C2.6	C-F-2	12-LPH-2001-3-PR Pipe Restraint SIS-86	VT	900-4/19	300199	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.
C2.1	C-F	12-LPH-2001-15 Pipe-to-Elbow	UT	800-36/18	300200	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line.
C2.6	C-F-2	12-LPH-2001-16-PR Pipe Restraint	VT	900-4/19	300201	X				Examination area painted.
C2.5	C-F-1	12-LPH-2001-19-PL-2 Pipe Lug	PT	200-1/42	300202	X				
C2.6	C-F-2	12-LPH-2001-25-PR Pipe Restraint	VT	900-4/19	300304	X				Examination area painted.
C2.1	C-F	12-LPH-2001-29 Tee-to-Pipe	UT PT	800-36/18 200-1/42	300204	45°T X				No UT from the upstream or downstream sides due to the configuration of the tee and pipe respectively. PT performed in lieu of UT. 12-SS-40S-.375-18-FCL.
C2.1	C-F	12-LPH-2001-29A Pipe-to-Elbow	UT	800-36/18	300275	0°L,45°,45°T				Per IE Circular 76-06, examination area extended downstream to 3" W from weld fusion line. No examination from the upstream side due to the configuration of the pipe. 12-SS-40S-.375-18-FCL.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		LOW PRESSURE SAFETY INJECTION 12-LPSI-2002 (Figure B-17)								
C2.6	C-E-2	12-LPSI-2002-1-PR-2 Pipe Restraint SIS-5	VT	900-4/19	300205	X				Examination area painted. Fluid level reads 4.5 points to right of "EXT" point.
C2.1	C-F	12-LPSI-2002-5 Tee-to-Reducer	UT	600-3/46	300206	0°L,0°W,45°T, 60°	45°			Limited UT from the upstream and downstream sides due to the tee and reducer configurations. 10-SS-60-.510-57.
C2.6	C-E-2	12-LPSI-2002-11-PR Pipe Restraint	VT	900-4/19	300207	X				Examination area painted.
C2.6	C-E-2	12-LPSI-2002-16-PR Pipe Restraint	VT	900-4/19	300208	X				Examination area painted.
C2.1	C-F	12-LPSI-2002-20 Elbow-to-Pipe	UT	800-36/18	300209	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 12-SS-40S-.375-18-FCL.
		12-LPSI-2003 (Figure B-18)								
C2.1	C-F	12-LPSI-2003-5 Pipe-to-Elbow	UT	800-36/18	300210	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 12-SS-40S-.375-18-FCL.
C2.6	C-E-2	12-LPSI-2003-14-PR-1 Pipe Restraint	VT	900-4/19	300211	X				Examination area painted.
C2.6	C-E-2	12-LPSI-2003-14-PR-2 Pipe Restraint	VT	900-4/19	300212	X				Examination area painted.
C2.1	C-F	12-LPSI-2003-21 Elbow-to-Pipe	UT	800-36/18	300213	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 12-SS-40S-.375-18-FCL.
C2.6	C-E-2	12-LPSI-2003-21-PR-1 Pipe Restraint	VT	900-4/19	300214	X				Examination area painted.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		LOW PRESSURE SAFETY INJECTION (Cont'd)								
		12-LPSI-2003 (Cont'd) (Figure B-18)								
C2.6	C-E-2	12-LPSI-2003-21-PR-2 Pipe Restraint SIS-90	VT	900-4/19	300215	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.6	C-E-2	12-LPSI-2003-31-PR-1 Pipe Restraint	VT	900-4/19	300216	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.6	C-E-2	12-LPSI-2003-31-PR-2 Pipe Restraint	VT	900-4/19	300217	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.
C2.1	C-F	12-LPSI-2003-34 Valve SI-167-to-Elbow	UT	800-36/18	300218	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. No examination from the upstream side due to the valve configuration. 12-SS-40S-.375-18-FCL.
		CONTAINMENT SPRAY								
		12-CSS-2001 (Figure B-19)								
C2.1	C-F	12-CSS-2001-2 Pipe-to-Pipe	UT	800-36/18	300219	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 12-SS-40S-.375-18-FCL.
C2.6	C-E-2	12-CSS-2001-12-PR Pipe Restraint	VT	900-4/19	300220	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.
C2.1	C-F	12-CSS-2001-17 Elbow-to-Pipe	UT	800-36/18	300284	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 12-SS-40S-.375-18-FCL.
C2.6	C-E-2	12-CSS-2001-19-PR-1 Pipe Restraint	VT	900-4/19	300222	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		CONTAINMENT SPRAY (Cont'd)								
		12-CSS-2001 (Cont'd) (Figure B-19)								
C2.6	C-E-2	12-CSS-2001-19-PR-2 Pipe Restraint	VT	900-4/19	300223	X				Examination area painted.
C2.1	C-F	12-CSS-2001-24 Tee-to-Pipe	UT	800-36/18	300279	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. No examination from the upstream side due to the tee configuration. 12-SS-40S-.375-18-FCL.
		12-CSS-2002 (Figure B-20)								
C2.1	C-F	12-CSS-2002-5 Valve SI-170-to-Elbow	UT	800-36/18	300225	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. No examination from the upstream side due to the valve configuration. 12-SS-40S-.375-18-FCL.
		SHUTDOWN COOLANT								
		12-SDC-2001 (Figure B-21)								
C2.5	C-E-1	12-SDC-2001-9-PS Pipe Support	PT	200-1/42	300226	X				
C2.6	C-E-2	12-SDC-2001-9-SC Support Components	VT	900-4/19	300227	X				Examination area painted.
C2.1	C-F	12-SDC-2001-10 Elbow-to-Valve SI-174	UT	800-36/18	300228	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. No examination from the downstream side due to the valve configuration. 12-SS-40S-.375-18-FCL.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		SHUTDOWN COOLANT (Cont'd)								
		12-SDC-2001 (Cont'd) (Figure B-21)								
C2.6	C-E-2	12-SDC-2001-24-PR-1 Pipe Restraint SIS-170A	VT	900-4/19	300229	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
C2.6	C-E-2	12-SDC-2001-24-PR-2 Pipe Restraint SIS-170	VT	900-4/19	300230	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
		12-SDC-2002 (Figure B-22)								
C2.1	C-F	12-SDC-2002-10 Elbow-to-Valve SI-173	UT	800-36/18	300231	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from the weld fusion line. No examination from the downstream side due to the valve configuration. 12-SS-40S-.375-18-FCL.
C2.6	C-E-2	12-SDC-2002-18-PR-1 Pipe Restraint	VT	900-4/19	300232	X				Examination area painted.
C2.6	C-E-2	12-SDC-2002-18-PR-2 Pipe Restraint SIS-67	VT	900-4/19	300233	X				Examination area painted. Fluid level reads 5 points to right of "EXT" point.
C2.6	C-E-2	12-SDC-2002-26-PR-1 Pipe Restraint SIS-169	VT	900-4/19	300234	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
C2.6	C-E-2	12-SDC-2002-26-PR-2 Pipe Restraint SIS-169A	VT	900-4/19	300235	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
		LOW PRESSURE HEADER								
		10-LPH-2001 (Figure B-23)								
C2.6	C-E-2	10-LPH-2001-31-PR Pipe Restraint	VT	900-4/19	300236	X				Examination area painted.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		LOW PRESSURE HEADER (Cont'd)								
		10-LPH-2001 (Cont'd) (Figure B-23)								
C2.1	C-F	10-LPH-2001-35 Elbow-to-Pipe	UT	800-36/18	300237	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 10-SS-40S-.365-19-FCL.
C2.6	C-E-2	10-LPH-2001-35-PR Pipe Restraint	VT	900-4/19	300238	X				Examination area painted.
C2.6	C-E-2	10-LPH-2001-39-PR Pipe Restraint	VT	900-4/19	300239	X				Examination area painted.
		LOW PRESSURE SAFETY INJECTION								
		10-LPSI-2001 (Figure B-24)								
C2.6	C-E-2	10-LPSI-2001-5-PR-1 Pipe Restraint SIS-26	VT	900-4/19	300240	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
C2.1	C-F	10-LPSI-2001-10 Pipe-to-Elbow	UT	800-36/18	300241	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 10-SS-40S-.365-19-FCL.
		10-LPSI-2002 (Figure B-25)								
C2.1	C-F	10-LPSI-2002-9 Elbow-to-Pipe	UT	800-36/18	300242	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 10-SS-40S-.365-19-FCL.
C2.6	C-E-2	10-LPSI-2002-18-PR-1 Pipe Restraint SIS-30	VT	900-4/19	300243	X				Examination area painted. Fluid level reads 4 points to right of "EXT" point.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		LOW PRESSURE SAFETY INJECTION (Cont'd)								
		10-LPSI-2002 (Cont'd) (Figure B-25)								
C2.6	C-F-2	10-LPSI-2002-18-PR-2 Pipe Restraint	VT	900-4/19	300244	X				Examination area painted.
C2.6	C-F-2	10-LPSI-2002-18-PR-3 Pipe Restraint SIS-30A	VT	900-4/19	300245	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
		CONTAINMENT SPRAY								
		8-CSS-2001 (Figure B-26)								
C2.6	C-F-2	8-CSS-2001-5-PR-1 Pipe Restraint SIS-1A	VT	900-4/19	300246	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.6	C-F-2	8-CSS-2001-5-PR-2 Pipe Restraint SIS-1	VT	900-4/19	300247	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
		8-CSS-2002 (Figure B-27)								
C2.1	C-F	8-CSS-2002-2 Elbow-to-Elbow	UT	800-36/18	300249	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 8-SS-40S-.322-20-FCL.
C2.6	C-F-2	8-CSS-2002-3-PR-2 Pipe Restraint SIS-4	VT	900-4/19	300251	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.6	C-F-2	8-CSS-2002-3-PR-3 Pipe Restraint	VT	900-4/19	300252	X				Examination area painted. Spring scale reads 3/4.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		CONTAINMENT SPRAY (Cont'd)								
		8-CSS-2003 (Figure B-28)								
C2.6	C-E-2	8-CSS-2003-7-PR-1 Pipe Restraint	VT	900-4/19	300253	X				Examination area painted.
C2.6	C-E-2	8-CSS-2003-7-PR-2 Pipe Restraint SIS-9	VT	900-4/19	300254	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.
C2.6	C-E-2	8-CSS-2003-14-PR-3 Pipe Restraint	VT	900-4/19	300255	X				Examination area painted.
C2.6	C-E-2	8-CSS-2003-14-PR-4 Pipe Restraint	VT	900-4/19	300256	X				Examination area painted.
		LOW PRESSURE SAFETY INJECTION								
		8-LPSI-2001-10 (Figure B-29)								
C2.1	C-F	8-LPSI-2001-10 Elbow-to-Pipe	UT	800-36/18	300257	0°L,45°,45°T				Per IE Circular 76-06, examination area extended to 3" W from weld fusion line. 8-SS-405-.322-20-FCL.
C2.6	C-E-2	8-LPSI-2001-10-PR Pipe Restraint SIS-7	VT	900-4/19	300258	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.5	C-E-1	8-LPSI-2001-16-SW Seal Weld	PT	200-1/42	300259	X				
C2.6	C-E-2	8-LPSI-2001-16-SC Support Components	VT	900-4/19	300260	X				Examination area painted.
		8-LPSI-2002 (Figure B-30)								
C2.6	C-E-2	8-LPSI-2002-10-PR-2 Pipe Restraint SIS-11	VT	900-4/19	300261	X				Examination area painted. Fluid level reads 4 points to right of "EXT" point.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		LOW PRESSURE HEADER 6-LPH-2022 (Figure B-31)								
C2.6	C-E-2	6-LPH-2022-1-PR-1 Pipe Restraint	VT	900-4/19	300262	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
C2.6	C-E-2	6-LPH-2022-1-PR-2 Pipe Restraint	VT	900-4/19	300263	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
		SAFETY INJECTION 6-SI-2024 (Figure B-32)								
C2.6	C-E-2	6-SI-2024-2-PR Pipe Restraint	VT	900-4/19	300264	X				Examination area painted. Fluid level reads 4 points to right of "EXT" point.
C2.1	C-F	6-SI-2024-3 Pipe-to-Valve SI-197	UT PT	600-3/46 200-1/42	300265	0°L,0°W,45°T X	45°,60°	45°		Per IE Circular 76-06, examination area extended upstream to 3T from weld fusion line. No UT from the downstream side due to the valve configuration. One 45° indication due to crown geometry. PT performed after crown grinding. 6-2501-2-S.160.
		6-SI-2012 (Figure B-33)								
C2.6	C-E-2	6-SI-2012-2-PR-1 Pipe Restraint	VT	900-4/19	300266	X				Examination area painted. Fluid level reads 2 points to right of "EXT" point.
		LOW PRESSURE HEADER 6-LPH-2014 (Figure B-34)								
C2.6	C-E-2	6-LPH-2014-9-PR-3 Pipe Restraint	VT	900-4/19	300267	X				Examination area painted. Fluid level reads 2.5 points to right of "EXT" point.

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						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		LOW PRESSURE HEADER (Cont'd)								
		6-LPH-2014 (Cont'd) (Figure B-34)								
C2.6	C-E-2	6-LPH-2014-9-PR-4 Pipe Restraint	VT	900-4/19	300268	X				Examination area painted. Fluid level reads 3 points to right of "EXT" point.
		SAFETY INJECTION								
		6-SI-2014 (Figure B-34)								
C2.1	C-F	6-SI-2014-1A Reducer-to-Pipe	UT	600-3/46	300269	0°L,0°W 45°T		45°,60°		Per IE Circular 76-06, examination area extended downstream to 3T from weld fusion line. Limited UT from the upstream side due to reducer configuration. Two 45° and two 60° indications due to root geometry. One 45° and one 60° indication due to crown geometry. 6-2501-2-S.160.
C2.5	C-E-1	6-SI-2014-1A-PS Pipe Support	PT	200-1/42	300280	X				
C2.6	C-E-2	6-SI-2014-1A-SC Support Components	VT	900-4/19	300285	X				Examination area painted.
		CONTAINMENT SPRAY								
		6-CSS-2001 (Figure B-35)								
C2.1	C-F	6-CSS-2001-5 Elbow-to-Pipe	UT	800-36/18	300272	0°L,45°,45°T				Examination area extended to 2-1/2" W from weld fusion line. 6-SS-40S-.280-21-FCL.
C2.6	C-E-2	6-CSS-2001-5-PR-2 Pipe Restraint SIS-76	VT	900-4/19	300273	X				Examination area painted. Fluid level reads 1 point to right of "EXT" point.

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SUMMARY OF NONDESTRUCTIVE EXAMINATIONS

PIPING (See Referenced Figures in Appendix B) (Cont'd)

ASME SEC. XI ITEM NO.	ASME SEC. XI CATGY	EXAMINATION AREA IDENTIFICATION	EXAM. METHOD	SwRI PROCEDURE NO./REV.	WELD EXAM. SUM SHEET NO.	INDICATIONS				REMARKS
						NO RECORDABLE	INSIGNIFICANT	GEOMETRIC	OTHER	
		MAIN STEAM -LOOP A 6" Risers (Figure 5-4)								
C2.1	C-C	6-MS-2002-2 Pipe-to-Flange	UT	600-3/46	300274	0°L,0°W,45°, 45°T	60°	60°		No UT from the downstream side due to the flange configuration. Limited UT on weld and on upstream side due to lug and shield configurations. Three 60° indications due to root geometry. 6-CS-80-.432-22-FCL.

Omaha Public Power District, 1623 Harney Street, Omaha, Nebraska 68102
Fort Calhoun Station Unit No. 1, P. O. Box 98, Fort Calhoun, Nebraska 68023
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