

WATTS BAR NUCLEAR PLANT

TECHNICAL INSTRUCTION

TI-50A

ASME SECTION XI

PRESERVICE INSPECTION PROGRAM

UNIT 1

CURRENT REVISION LEVEL 15

Prepared By Jeff Goulart

Revised By Jeff Goulart

Submitted By *Harold Belin*
ISI Programs Supervisor

FQE Review *DJ Howard for JMS*

PORC Review Date 2/1/85

Approved By *M. Miller*
Superintendent

Date Approved 2/1/85

Last page of this instruction: 454

<u>1C</u>	Document Control Unit, 1520 CST2C
<u>1U</u>	NRC
<u>1C</u>	Nuclear Safety Review Staff
<u>1C</u>	Plant Master File
	Plant Superintendent
	Asst. Plant Supt. (Operations)
	Asst. Plant Supt. (Maintenance)
	Adm. Svs. Supervisor
<u>1C</u>	Asst. Mechanical Maint. Sup.
	Chemical Laboratory
	Chemical Unit Supervisor
<u>1C</u>	Chief, Nuclear Training Branch
	Compliance Unit
	DPSO-WBN
	Document Control Supervisor
	Electrical Maint. Supervisor
	Electrical Shop
<u>1C</u>	Engineering Supervisor
<u>1C</u>	Field Services Supervisor
<u>1C</u>	Health Physicist
	Health Physics Laboratory
	Instrument Engineer
<u>1C</u>	Instrument Maint. Supervisor
	Instrument Shop
	Janitor & Labor Supervisor
	Management Svs. Supervisor
<u>1C</u>	Mechanical Maint. Supervisor
<u>1C</u>	Mechanical Unit Supervisor
<u>1U</u>	Operations Supervisor
	OPQA - Plant Coordinator
	Plant Services Supervisor
	Plant Training Officer
<u>1U</u>	Plant Training Shift Engineer
<u>1U</u>	Power Stores Unit Supervisor
	Preop Test Supervisor
	Public Safety
	QA Manager, QA and Audit Staff
<u>2C</u>	Field Quality Engineering Supervisor
	Reactor Unit Supervisor
	Safety Engineer
<u>1C</u>	Shift Engineer's Office
	Stationary Equipment Group
	Technical Support Center
<u>1C</u>	Unit 1 Control Room
<u>1U</u>	Unit 2 Control Room
<u>1U</u>	Regulatory Engineer
<u>1C</u>	Inservice Inspection Group-C
<u>2C</u>	ISI Programs Section-C
<u>1C</u>	NDE Engineering Section-C
<u>1C</u>	NDE Engineering Section-WBNP
<u>1C</u>	NDE Inspection Section-C
<u>1C</u>	NDE Inspection Section-WBNP
<u>1C</u>	DCU-B-WBNP-CONST
<u>1C</u>	ANI

8502220144 850219
PDR ADOCK 05000390
Q PDR

HISTORY OF REVISION/REVIEW

ASME SECTION XI

REVISION INSPECTION PROGRAM

REASON FOR CURRENT REVISION (INCLUDE ALL TEMPORARY CHANGE NUMBERS)

REV. NO.	DATE	REVISED PAGES	REASON FOR CURRENT REVISION (INCLUDE ALL TEMPORARY CHANGE NUMBERS)
0	07/14/81	All	Chemical Unit Supervisor Catalytic Nuclear Training Area
1	09/29/81	Page 55	
2	10/13/81	Page 103	Electrical Maint Supervisor
3	10/17/81	Pages 69,70,75, 76,89-97,105-109 Added pages 69a, 76a,97a,97b,97c, 109a,109b,109c, 109d, & 109e	Electrical Maint Supervisor Mechanical Maint Supervisor Operations Supervisor Catalytic Nuclear Training Area
4	11/10/81	Added page 92a	Electrical Maint Supervisor
5	01/15/82	Table of Contents 34a, 35	Mechanical Maint Supervisor Electrical Maint Supervisor Operations Supervisor
6	01/20/82	Punchlist	Catalytic Nuclear Training Area
7	04/28/82	All	
8	01/11/83	Cover sheet; Table of Contents; Punchlist; Pages 2-4, 17, 18, 20-22, 38-46, 48, 49 100; Added pages 20a-20d, 22a, 22b, 45a, 45b, 49a, 51a, 109L-109Q, 137-151	Add Appendix E - Minor corrections and clarifications
9	03/22/83	Pg. 1	Change WB7.3.8 to AI-9.7
10	07/25/83	Table of Contents; Pages 2-4, 7, 15, 20b, 20c, 22a, 22b, 25, 31-40, 47, 49a, 51, 51a, 73-76, 89a, 90, 91, 104, 150; Added pages 31a, 46a, 79a, 79b, 109J1, 109J2, 109R, 109S; Deleted pages 26-30, 36	- Minor corrections, added and revised weld location drawings, revised section on repairs and replacement, and revised organizations titles.
11	09/21/83	Pages 33,34,50,51a, added pages 51b, 109T-109BBBB	Incorporated temporary change number 83118, revised section on Notification of Indication, and added hanger location drawings.

HISTORY OF REVISION/REVIEW

REV. NO.	DATE	REVISED PAGES	REASON FOR CURRENT REVISION (INCLUDE ALL TEMPORARY CHANGE NUMBERS)
12		All	General revision to update program, added support drawings, tables, incorporated temporary changes <u>83-137</u> , <u>83-149</u> , and <u>84-46</u> , removed calibration block drawings, removed reciprocation charging pump drawings and renumbered all pages.
13		Punchlist, Table of Contents, 2-4, 7, 9, 13-19, 21-36, 38, 42-47, 50, 53, 63-65, 87, 93-106, 113, 120-123, 128, 137, 146, 149, 154, 162-164, 170, 171, 178, 181, 185, 188, 189, 191, 264, 270, 276, 288, 292, 315, 316, 320, 325, 327, 334-342, 405, 413-418, 426, 430-432 Added 4a, 15a, 15b, 35a, 82a, 312a, 417a, 417b, 417c, 432a, 432b, 432c, 432d, 433-454	Revised Request for Relief to incorporate NRC comments, added construction examinations of socket welds, incorporated temporary change TC-84-179, minor corrections and clarification, added reciprocation charging pump, added national board numbers.
14		Punchlist, 2, 3, 4, 11, 15a, 19, 22, 23, 29, 30, 32, 34-38, 41, 47, 63, 64, 73-75, 85, 100, 106, 121, 122, 124, 125, 126, 178, 187, 281-342, 401-408, 416, 417, 417a, 417b, 417c, 429, 435-437, 440, 442-445, 454, Added 38a, 312a, 312b, 429a, 429b	Added acceptance ranges for snubber and spring supports, made minor corrections and clarifications, added detail of safe end on steam generator drawing, revised Request for Relief ISI-10.

HISTORY OF REVISION/REVIEW

REV. NO.	DATE	REVISED PAGES	REASON FOR CURRENT REVISION (INCLUDE ALL TEMPORARY CHANGE NUMBERS)
15 12	2-1-85	Cover Sheet, History of Revision/Review, Table of Contents, 2, 3, 4, 6, 15, 15B, 22, 25, 38, 45, 50, 88, 89, 92, 95-106, 111, 112, 124, 165, 180, 181, 189, 304, 308, 309, 311, 328, 330, 333, 416, 417C, 418, 434-446, 448-452 ADDED History of Revision/Review Page 10, 200, 232 DELETED Punchlist Page	Minor corrections and clarifications, added penetration welds to drawings, added penetration welds to Request for Relief IST-4, revised some of the National Board Numbers, and deleted punchlist page.

WBNP
TI-50A
Cover Sheet
Page 1 of 1
Revision 15

Preservice Inspection Program

Cover Sheet

Owner: Tennessee Valley Authority

Address of Corporate Office: Tennessee Valley Authority
Office of Nuclear Power
1750 Chestnut Street Tower 2
Chattanooga, Tennessee 37401

Name and Address of Nuclear Power Plant: Watts Bar Nuclear Plant
P. O. Box 800
Spring City, Tennessee 37381

Applicable Nuclear Power Units: Watts Bar Nuclear Plant, Unit 1

WBNP
TI-50A
Table of Contents
Page 1 of 2
Revision 15

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 STATEMENT OF APPLICABILITY	1
2.0 PURPOSE	1
3.0 CODES OF RECORD AND CODE CASES	1
4.0 METHOD OF IMPLEMENTATION AND RESPONSIBILITIES	2
5.0 ABBREVIATIONS AND DEFINITIONS	4
6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1	5
7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2	18
8.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 3	29
9.0 HYDROSTATIC PRESSURE TESTS	29
10.0 AUTHORIZED INSPECTOR	29
11.0 EXAMINATION METHODS	29
12.0 QUALIFICATIONS OF NONDESTRUCTIVE EXAMINATION PERSONNEL	31
13.0 ACCEPTANCE CRITERIA	31
14.0 REPAIRS AND REPLACEMENTS	31
15.0 RECORDS AND REPORTS	31
16.0 NOTIFICATION OF INDICATION	35
17.0 CALIBRATION BLOCKS	36
18.0 REQUESTS FOR RELIEF	36
19.0 AUGMENTED INSPECTIONS	38
20.0 REFERENCES	38
APPENDIX A - Table A	39
APPENDIX A - Table B	44

WBNP
TI-50A
Table of Contents
Page 2 of 2
Revision 15

	<u>Page No.</u>
APPENDIX A - Table C	48
APPENDIX A - Drawings	51
APPENDIX A - Table D	262
APPENDIX A - Table E	264
APPENDIX A - Table F	275
APPENDIX A - Table G	281
APPENDIX A - Table H	313
APPENDIX A - Table I	343
APPENDIX A - Table J	399
APPENDIX B - Data Sheets	401
APPENDIX C - Notification of Indication Form	408
APPENDIX D - Requests for Relief	409
APPENDIX E - National Board Number	433

This program was prepared to meet the requirements of the 1974 Edition, Summer 1975 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code.

Procedures for eddy current examination of heat exchanger tubing, which the Summer 1975 Addenda of ASME Section XI has no provisions for, meets the requirements of the 1974 Edition, Summer 1976 Addenda of ASME Section XI. Steam generator tubing examination requirements are in accordance with a modification of Regulatory Guide 1.83, Revision 1.

The following categories shall be in accordance with the 1977 Edition, Summer 1978 Addenda of Section XI:

- (1) Criteria for determining Class 1 and 2 pressure-retaining bolting subject to examination
- (2) Class 2 valve body weld examinations
- (3) Component support integrally welded attachment examinations for piping, pumps, valves and pressure vessels.
- (4) Component support examinations for piping, pumps and valves.
- (5) Technique for ultrasonic examination of piping welds shall be in accordance with IWA-2232(b) and IWA-2232(c) for examinations performed after 9/16/81. (See Request for Relief ISI-1, ISI-4 and ISI-13)
- (6) Standards for examination evaluation following ultrasonic examination of piping welds (IWA-3000) (See Request for Relief ISI-1)
- (7) Interior clad surfaces of reactor vessels and other vessels examination are not required.
- (8) Reactor vessel interior and core support structure examinations.

The repair and replacement program is in accordance with plant instruction AI-9.15 and DPM No. WB82M1.

The use of code cases N-234, N-235, and N-401 have been approved for TVA use by NRC.

4.0 METHOD OF IMPLEMENTATION AND RESPONSIBILITIES

Preliminary weld maps and other pertinent component drawings and tables are included in Appendix A of this program to define areas subject to examination (in addition to sections 5.0, 6.0, 7.0, and 8.0). The preliminary piping weld maps should be established by ISI Programs Section of the Division of Nuclear Services Inservice Inspection Group from CONST's latest revision weld maps.

Prior to performance of the examinations, each system shall be walked down by the ISI Programs Section to verify that the ISI Programs Section drawings depict field configurations. Any drawing revisions that are necessary as a result of the walkdown will be made before the drawings are included in this program. Also each component drawing shall be reviewed by the responsible ISI Programs Section engineer to ensure that the appropriate information is included on the drawing and shall be approved by the ISI Programs Section supervisor.

The NDE Engineering Section of the Inservice Inspection Group shall prepare scan plans using component drawings for systems or components requiring examinations. The plans shall include as a minimum references to specific welds or components supports to be examined, ASME Code Category, component drawing number, Non-Destructive Examination (NDE) procedures to be used, and calibration block number.

Prior to performing examinations on a system or component, the scan plans shall be established and approved by NDE Level III and submitted by NDE Section to the Plant Manager for information, and system or component weld maps incorporated in Appendix A of this program.

The NDE Section shall notify the authorized inspection agency (AIA) reasonably in advance of when components are scheduled for examination.

If variations in piping configurations are discovered or modifications or repairs to piping are made during the course of the PSI, these changes shall be marked on field copies of drawings. This information shall be communicated to the ISI Programs Section which shall be responsible for revising the original drawings. The NDE Engineering Section scan plan shall also be revised to reflect these changes. Following completion of each system examination, the revised drawings shall be incorporated into this program as a reference for inservice inspections.

The preservice examinations will be performed by Personnel from either the Inservice Inspection Group, Plant Quality Assurance Staff or outside contractors. Contract preparation, administration, and supervision will be the responsibility of the NDE Engineering Section. Inspection plans and/or Quality Assurance Programs submitted by outside contractors shall be reviewed and approved by the Inservice Inspection Group and Division of Quality Assurance, Procurement Evaluation Branch prior to use. All specific NDE procedures used during the inspection program shall be reviewed and approved in accordance with OQAM Part II, Section 6.3.

Certain ASME Section III examinations performed in shop and/or by CONST will be identified by the ISI Programs Section and employed to serve for the ASME Section XI PSI. When in shop examination records are employed, the examination data sheets and the applicable data package form, with the ANI sign-off, shall be obtained by the ISI Programs Section. When CONST examination records are employed, CONST examination procedures

shall be obtained by the NDE Engineering Section for reference (excluding pressure test procedures), and a random sample review of records shall be done by the NDE Engineering Section.

Additionally, the Inservice Inspection Group representative will be responsible for notifying the Plant Manager of all unacceptable indications as soon as practical. Whenever an unacceptable indication is discovered, the procedure and form in Appendix C shall be utilized. In those cases where an outside contractor is furnishing preservice examination services, the contractor will normally initiate the form in Appendix C under the supervision of the Inservice Inspection Group representative. See section 16.0 of this program.

Computer monitor programs are used to identify any welds or supports that have been reworked by CONST after the preservice examination has been done. The plant shall include provisions for notifying inservice inspection group in any work instruction written to modify or rework welds or supports after the preservice examination has been done.

The Inservice Inspection Group shall maintain the status of completed examinations for each weld or component support required to be examined. Individual component status is kept by transferring all the information from the scan plan to a master plan, as examinations are preformed they are recorded in the master plan for status.

As sections are completed, the NDE Inspection Section representative shall sign for completion the appropriate sections of Data Sheet 1 in Appendix B of this program. When all examinations of this program have been completed, Data Sheet 1 shall be signed for completion by the NDE Section representative and reviewed by the NDE Section Supervisor, ISI programs section supervisor, and approved by inservice inspection group supervisor. In the event system or component alterations or repairs are made which require component reexamination, or components are reexamined for other reasons, following sign-off of Data Sheet 1, the appropriate sections of Data Sheet 2 in Appendix B shall be completed and signed by the NDE Section representative.

All preservice examinations shall be completed prior to initial plant startup (Operational Mode 2). Prior to initial plant startup, Data Sheet 2, in addition to Data Sheet 1, in Appendix B shall be signed by the NDE Section representative and reviewed by the NDE Section Supervisor, and the ISI Programs Supervisor, and approved by the Supervisor of the Inservice Inspection Group. After the data sheets 1 and 2 have been approved, the data package cover sheet shall be signed by the Mechanical Branch Chief and the Plant Manager. These data sheets shall be filed at the plant site with PSI examination data and final reports discussed in Section 15.0 of this program.

PSI program preparation is the responsibility of ISI Programs Section. Any revisions initiated by other groups shall be submitted to the ISI Programs Section for approval prior to incorporating the revisions into this program.

When examinations have been completed on the various components, the data sheet(s) in Appendix B shall be completed.

Table A in Appendix A supplies additional information such as reference drawing numbers and Section XI, Table IWB-2600, examination categories.

6.1 Reactor Vessel

6.1.1 Reactor Vessel Seam Welds

6.1.1.1 Circumferential Shell Weld - Beltline Region

There is one circumferential weld in the vessel cylindrical shell located behind the neutron shield pads. This weld will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed. The vessel shell sections are machined forgings fabricated of SA-508, Class 2, manganese-molybdenum steel and are clad with weld deposited austenitic stainless steel.

6.1.1.2 Circumferential Shell Welds

There are three circumferential welds in the vessel cylindrical shell located outside of the beltline region. These welds will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed.

The vessel shell section material is identified in section 6.1.1.1.

6.1.1.3 Lower Head Welds

There are six meridional welds and one circumferential weld in the lower head. The welds will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed.

Base metal below the lower head circumferential weld is inaccessible for examination from the vessel I.D. due to instrumentation penetrations (weld No. W01-02). A manual ultrasonic examination of this area will be conducted from the vessel O.D. (see Request for Relief ISI-6).

The bottom head sections are fabricated of SA-533, Gr. B, Class 1, manganese-molybdenum steel, and are clad with weld deposited austenitic stainless steel.

6.4 Piping All examinations have been completed on the various components the
 in Appendix B shall be completed.

Table All ASME Class 1 piping systems to be examined are fabricated of
 stainless steel. The reactor coolant main loop piping straight
 lengths are centrifugal cast and the elbows are static cast. The
 upper head injection auxiliary head adapter is included in Section
 6.1.11. Specific material specifications for each piping system
 are included in weld map isometrics in Appendix A. Some examinations
 cannot be performed (see Request ISI-4).

The following Class 1 piping systems are subject to examination:

Reactor Coolant
 Chemical and Volume Control
 Residual Heat Removal
 Safety Injection
 Upper Head Injection

6.4.1 Circumferential And Longitudinal Pipe Welds

The entire length of each circumferential and longitudinal
 pipe weld shall be ultrasonically examined as practical.

The following circumferential pipe welds will be radio-
 graphically examined (RHRF-D053-5, -1, -12, -4,
 RHRF-D055-14, UHIF-D040-13, UHIF-D041-7, UHIF-D042-13,
 UHIF-D043-7., UHIS-26, SIF-D092-13, and RCF-D232-1D).

6.4.2 Branch Pipe Connection Welds

All branch pipe connection welds exceeding six inches in
 diameter shall be ultrasonically examined. Each branch
 pipe connection weld six inches in diameter and smaller
 shall be liquid penetrant examined.

6.4.3 Piping Socket Welds

Each socket weld shall be liquid penetrant examined
 as practical. Construction examination records will be
 used for welds done after 12/79. Welds are listed below.

1-068A-T001-2	1-068A-T002-1	1-068A-T005-2
-3	-2	-7
-4	-3	-10
-5	-4	-11
-6	-5	-12
-7	-6	-13
-11	-7	-17
-12	-8	-18
-13	-9	-19
-17	-10	
-18	-11	
-19		

1-062B-T217-6	1-063B-T048-2	1-063B-T063-3
-22	-3	-4
	-4	-5
1-062B-T198-1	-5	-6
-2	-6	-7
-3	-7	-8
-4	-8	-9
-5	-9	
-6	-10	1-063B-T026-12
-7		-15
-7A	1-063B-T044-12	-16
-7B		
-8	1-063B-T105-1	1-063B-T034-1
-9	-2	-2
-10	-3	-3
-11	-4	-4
-12	-5	-5
-13	-6	-6
-14	-6A	-7
	-6B	-8
1-062B-T225-2	-7	
-3	-8	1-063B-T034-9
-4	-9	
-5	-10	1-063B-T113-11
-6A	-10A	-12
-6B	-10B	-15
-7	-11	-16
-7A	-12	-19
-7B	-12A	-23
-8	-12B	-26
-9	-16	-30
-11	-17	-32
1-063B-T108-1	1-063B-T112-1	1-063B-T060-2
-2	-2	
-3	-6	1-063B-T061-11
-4	-7	-17
-5	-9	
-6	-11	1-063B-T058-19A
-7	-13	-19B
-8		-19C
-9	1-063B-T063-2A	-19D
		-19E
		-19F
		-19G
		-19H

6.4.4 Piping Nozzle Weld

There is one 1½" nozzle weld located on the reactor coolant cold leg number four. CONST radiography examination data will be used. (Weld number RCF-B4-4)

7.3 Regenerative Heat Exchanger (1)-RHX

7.3.1 RHX Circumferential Welds

The regenerative heat exchanger is composed of three heat exchangers interconnected with piping. There are twelve circumferential welds located at structural discontinuities on the heat exchanger. These welds shall be ultrasonically examined. The examinations shall cover at least twenty percent of each weld and shall be uniformly distributed among three areas around the vessel circumference. This examination cannot be uniformly distributed (see Request for Relief ISI-10).

These welds include six channel cylinder section to channel head welds and six channel cylinder section to the tube sheet head welds. The channel cylinder sections are fabricated to SS, SA-351-CF8. The channel heads are fabricated to SS, SA-240-304L. The channel flanges are fabricated to SS, SA-182-F304.

7.3.2 RHX Nozzle-to-Vessel Welds

There are not any nozzles greater than 4 in. diameter. The nozzles are fabricated to SA-479-304 sch 160 material.

7.3.3 RHX Integrally - Welded Supports

There is one integrally welded support (1/4 inch thick) attachment and three lugs (5/8 inch thick) welded to the heat exchanger. The three (5/8 inch thick) lugs per Westinghouse are not functionally required and no credit has been taken for these welds in the analysis of the heat exchanger. Therefore, there is no integrally welded support attachments exceeding 1/2 inch material design thickness.

7.3.4 RHX Pressure Retraining Bolting Exceeding 2 Inches in Diameter

There is not any pressure retaining bolting included with the RHX.

7.4 Letdown Heat Exchanger (1)-LHX

7.4.1 LHX Circumferential Welds

There are two circumferential welds located at structural discontinuities on the tube side. These welds shall be ultrasonically examined. The examinations shall cover at least twenty percent of each weld, uniformly distributed among three areas around the vessel circumference. This examination cannot be uniformly distributed (see Request for Relief ISI-11).

7.7.2 WA Nozzle-To-Vessel Welds

There are three 12 inch diameter nozzles on the accumulator, one on the top head and two on the bottom head. These welds shall be ultrasonically examined.

The nozzles are fabricated to SA-350-LF2.

7.7.3 WA Integrally-Welded Supports

The accumulator has an integrally welded support skirt (1 inch thick) attached to the bottom head. The support skirt-to-vessel weld shall be magnetic particle examined.

The integrally welded portion of the skirt is fabricated to SA-516, GR70.

7.7.4 WA Pressure Retaining Bolting Exceeding 2 Inches in Diameter

There are 32-2½" diameter studs and nuts located on two manholes covers installed on the head and shell. The bolting shall be volumetrically examined.

The studs and nuts are fabricated to SA-193, GRB7 and SA-194, CLH2 respectively.

The bolting may be examined either in place under tension, when the connection is disassembled, or when the bolting is removed.

7.8 UHI Surge Tank (1)-ST

7.8.1 ST Circumferential Welds

There are two circumferential welds located at structural discontinuities. These welds shall be ultrasonically examined. The examinations shall cover twenty percent of each weld and shall be uniformly distributed among three areas around the vessel circumference.

These welds include two head-to-shell welds. The shell and heads are fabricated to SA-240, TP 304.

7.8.2 ST Nozzle-to-Vessel Welds

There are not any nozzles greater than 4 inch diameter located on the surge tank.

The nozzles are fabricated to SA-479, TP 304, and SA-182, F304.

19.0 AUGMENTED INSPECTIONS

19.1 Steam Generator Tubes

The augmented examination requirements of the steam generator tubing are included in Technical Specification 4.4.5.0 and Section 6.3.8 of this program.

20.0 REFERENCES

20.1 Source Documents

- 20.1.1 ASME Boiler and Pressure Vessel Code - Section XI through Summer 1975 addenda, Summer 1976 addenda, Summer 1978 addenda.
- 20.1.2 ASME Boiler and Pressure Vessel Code - Section V through Summer 1975 addenda.
- 20.1.3 Watts Bar Nuclear Plant Final Safety Analysis Report.
- 20.1.4 Operational Quality Assurance Manual Part II, Sections 2.1, 2.3, 3.0, 5.1 and 6.3.
- 20.1.5 Operational Quality Assurance Manual Part III Sections 3.3 and 7.2.
- 20.1.6 Code of Federal Regulation, Title 10, Part 50.55a.
- 20.1.7 U.S. Nuclear Regulatory Commission Regulatory Guides 1.26 and 1.83.
- 20.1.8 Watts Bar Nuclear Plant Technical Specifications

20.2 Other Documents

- 20.2.1 Instruction Manual - 173-inch I.D. Reactor Pressure Vessel - Rotterdam Dockyard Company, Contract No. 71C62-54114-1, N3M-2-3.
- 20.2.2 Westinghouse Technical Manual - Pressurizer, TM 1440-C225, Contract No. 71C60-54114-1, N3M-2-6.
- 20.2.3 Westinghouse Technical Manual - Vertical Steam Generators, TM 1440-C254, Contract No. 71C62-54114-1, N3M-2-4.
- 20.2.4 Westinghouse Instruction Manual - Auxiliary Heat Exchangers, Contract No. 71C62-54114-1, N3M-2-30.
- 20.2.5 Westinghouse Instruction Book - Reactor Coolant Pump, Contract No. 71C62-54114-1, N3M-2-5.

TABLE B (CONTINUED)

WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 2 COMPONENTS

<u>Component</u>		<u>Program Reference Section (See Note 1)</u>	<u>Examination Category Item No. From Table IWB-2600, Section XI</u>	<u>From Table IWB-2600, Section XI</u>	<u>Method of Inspection</u>	<u>Reference Drawing No.</u>
E. <u>Excess Letdown Heat Exchanger</u>						
1.	Circumferential Welds	7.5.1	C1.1	C-A	UT	ISI-0076-A
F. <u>Boron Injection Tank</u>						
1.	Circumferential Welds	7.6.1	C1.1	C-A	UT	ISI-0053-B
2.	Nozzle-to-Vessel Welds	7.6.2	C1.2	C-B	UT	ISI-0053-B
3.	Integrally-Welded Supports	7.6.3	C3.10 (See Note 2)	C-C (See Note 2)	PT	ISI-0053-B
4.	Pressure Retaining Bolting Exceeding Two Inches in Diameter	7.6.4	C4.10 (See Note 2)	C-D (See Note 2)	UT	ISI-0053B
G. <u>Upper Head Injection Water Accumulator</u>						
1.	Circumferential Welds	7.7.1	C1.1	C-A	UT	ISI-0073-B
2.	Nozzle-to-Vessel Welds	7.7.2	C1.2	C-B	UT	ISI-0073-B
3.	Integrally-Welded Supports	7.7.3	C3.10 (See Note 2)	C-C (See Note 2)	MT	ISI-0073-B
4.	Pressure Retaining Bolting Exceeding Two Inches in Diameter	7.7.4	C4.10 (See Note 2)	C-D (See Note 2)	UT	ISI-0073B

- NOTES: 1. See Section 7.0 for additional information.
 2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.

TABLE C (CONTINUED)

LIST OF DRAWINGS - UNIT #1

REACTOR VESSEL

DRAWING NO.

TITLE

APPENDIX A
PAGE NO.

HANGER LOCATION DRAWINGS CLASS 1
AND CLASS 2 (CONTINUED)

ISI-0025-C	Upper Head Injection	140-144
ISI-0026-C	Chemical and Volume Control	145-146
ISI-0063-C	CVCS Seal Water Injection	155-158
ISI-0117-A	Residual Heat Removal Pump Supports	43
ISI-0118-A	Centrifugal Charging Pump Supports	44
ISI-0119-A	Reciprocation Charging Pump Supports	44A
ISI-0120-A	Safety Injection Pump Supports	45
ISI-0121-A	Reactor Coolant Pump Supports	46
ISI-0124-C	Pressurizer Surge Line	159

HANGER LOCATION DRAWINGS CLASS 3

ISI-0106-C	Safety Injection	160-162
ISI-0107-C	Residual Heat Removal	163
ISI-0108-C	Containment Spray	164
ISI-0109-C	Chemical and Volume Control	165
ISI-0110-C	Fuel Pool Cooling and Cleaning	166-170
ISI-0111-C	Auxiliary Feedwater	171-174
ISI-0112-C	Essential Raw Cooling Water	175-216
N/A	Component Cooling	220-223
N/A	Raw Service Water and Fire Protection	217-219

REFERENCE DRAWINGS

WBN-E-2879 IC-50
WBN-E-2879 IC-51

P79432-C9.1

MATERIAL SPECIFICATIONS

CLASS 2

PIPE

SA-376 TP-316
12" SCH 140
SA-312 TP-304W
12" SCH 40S
8" SCH 40S

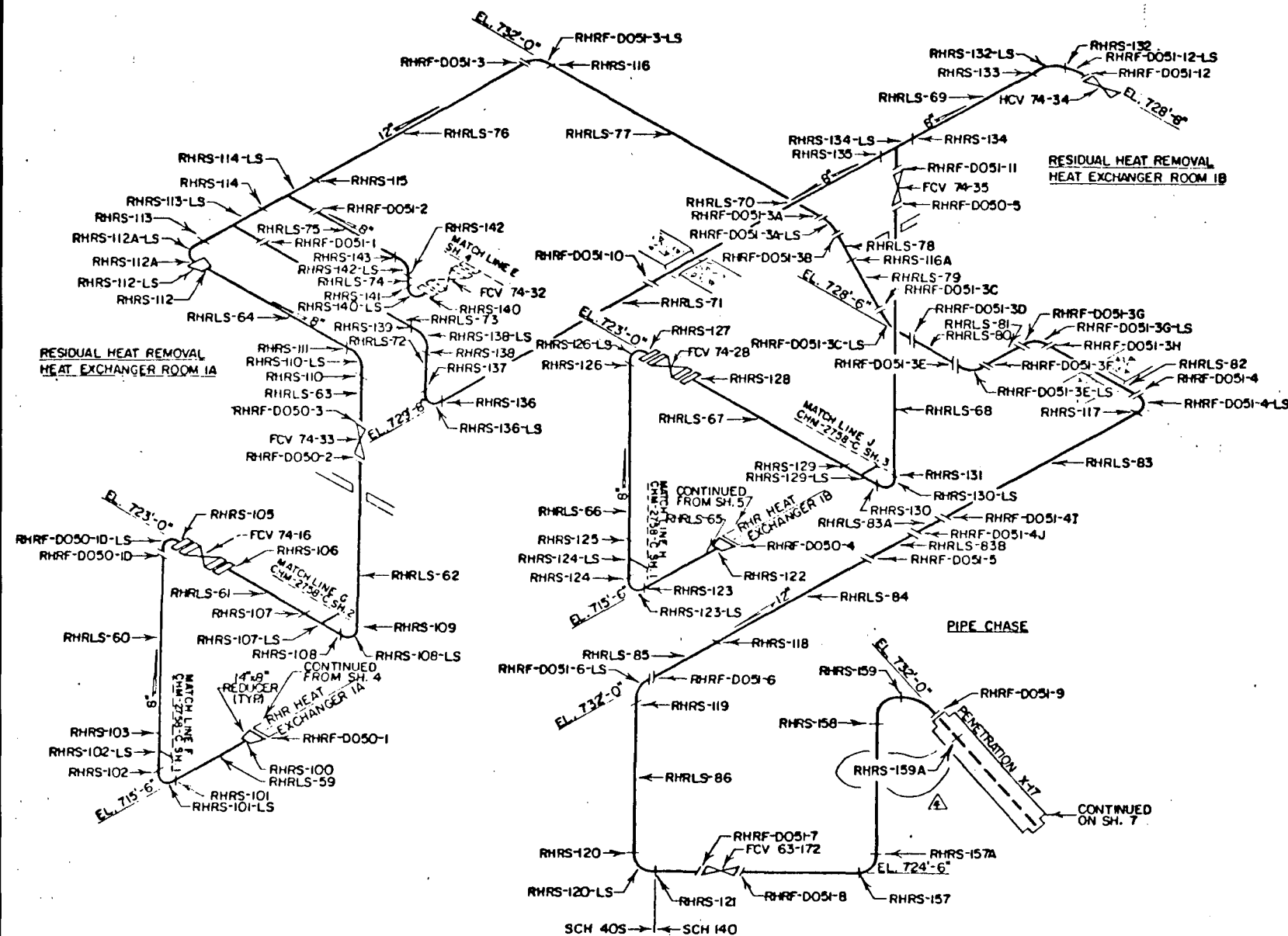
FITTINGS

SA-403 WP-316
12" SCH 140
SA-403 WP-304W
12" SCH 40S
8" SCH 40S

FLANGES

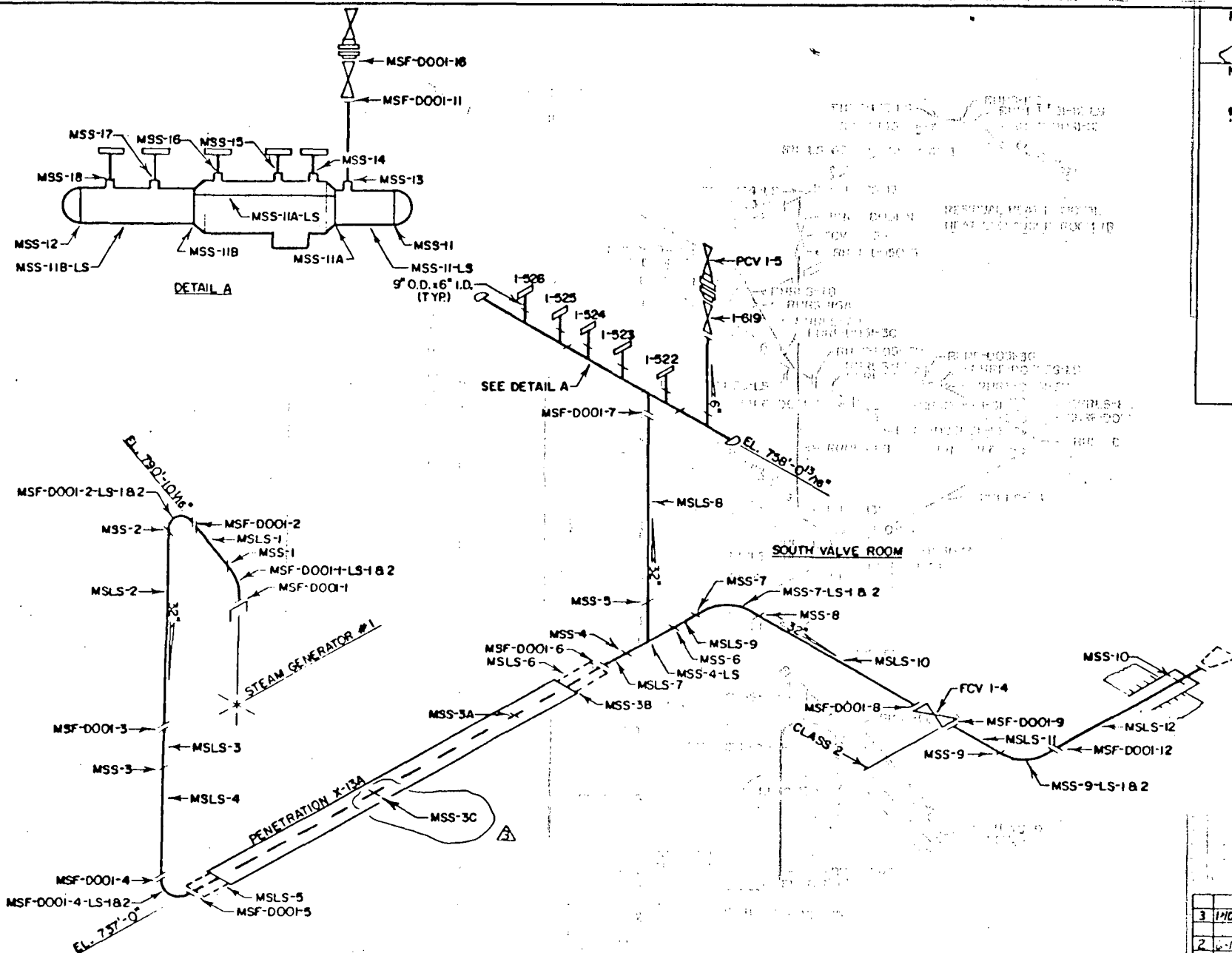
SA-182 F-316
8" BORED SCH 40S

WBNP
TI-50A
Appendix A
Page 54 of 362
Revision 15



SHOP WELDS RHRS-100 THRU RHRS-103, RHRS-105 THRU RHRS-143, RHRS-157
THRU RHRS-159, RHRS-162, RHRS-166A, AND RHRS-157A
PIPE LONG SEAM WELDS RHRS-59 THRU RHRS-84, RHRS-87A, AND
RHRS-87B

NO.	DATE	REVISIONS	CK'D APP.
4	1-10-85	ADD REF. DRAWING AND ADD WELD NUMBER KEY	JJ
3	6-16-83	ADD 12" SCH 40S AND 8" SCH 40S	JJ
2	1-6-82	CORRECT WELD NUMBER KEY	JJ
1	10-16-81	ADD CONTINUITY AND ADD 12" LINE DOWNSTREAM OF VALVE FCV 63-172	JJ
Tennessee Valley Authority DIVISION OF NUCLEAR POWER WATTS BAR NUCLEAR PLANT UNIT #1 RESIDUAL HEAT REMOVAL SYSTEM WELD LOCATIONS			
FILED	875	DATE 6-16-83	DATE 6-16-83
FILED	875	DATE 6-16-83	DATE 6-16-83
FILED	875	DATE 6-16-83	DATE 6-16-83



REFERENCE DRAWINGS

WBN-E-2878-IC-1
WBN-E-2880-IC-203
P79432-D1.1

MATERIAL SPECIFICATIONS

CLASS 2

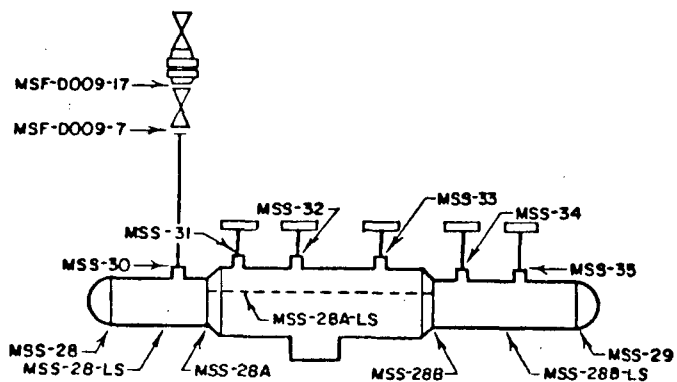
- PIPE 1P-305
- SA-155 KCF 70 CL. 1
- 32" O.D. x 1.175" M.W.
- FITTINGS
- SA-234 WPB-W
- 32" O.D. x 1.175" M.W.
- HEADER
- PIPE 1P-305
- SA-106 GR. B
- 0.6" XXS
- FITTINGS
- SA-234 WPB
- 30" x 1.09" M.W. WELDED CAP
- FLANGES
- SA-105
- 9" O.D. x 6" I.D. 1500 #
- RELIEF VALVE MANIFOLD
- SA-234 WPBW, 2.875" M.W.

WBNP
TI-50A
Appendix A
Page 57 of 362
Revision 15

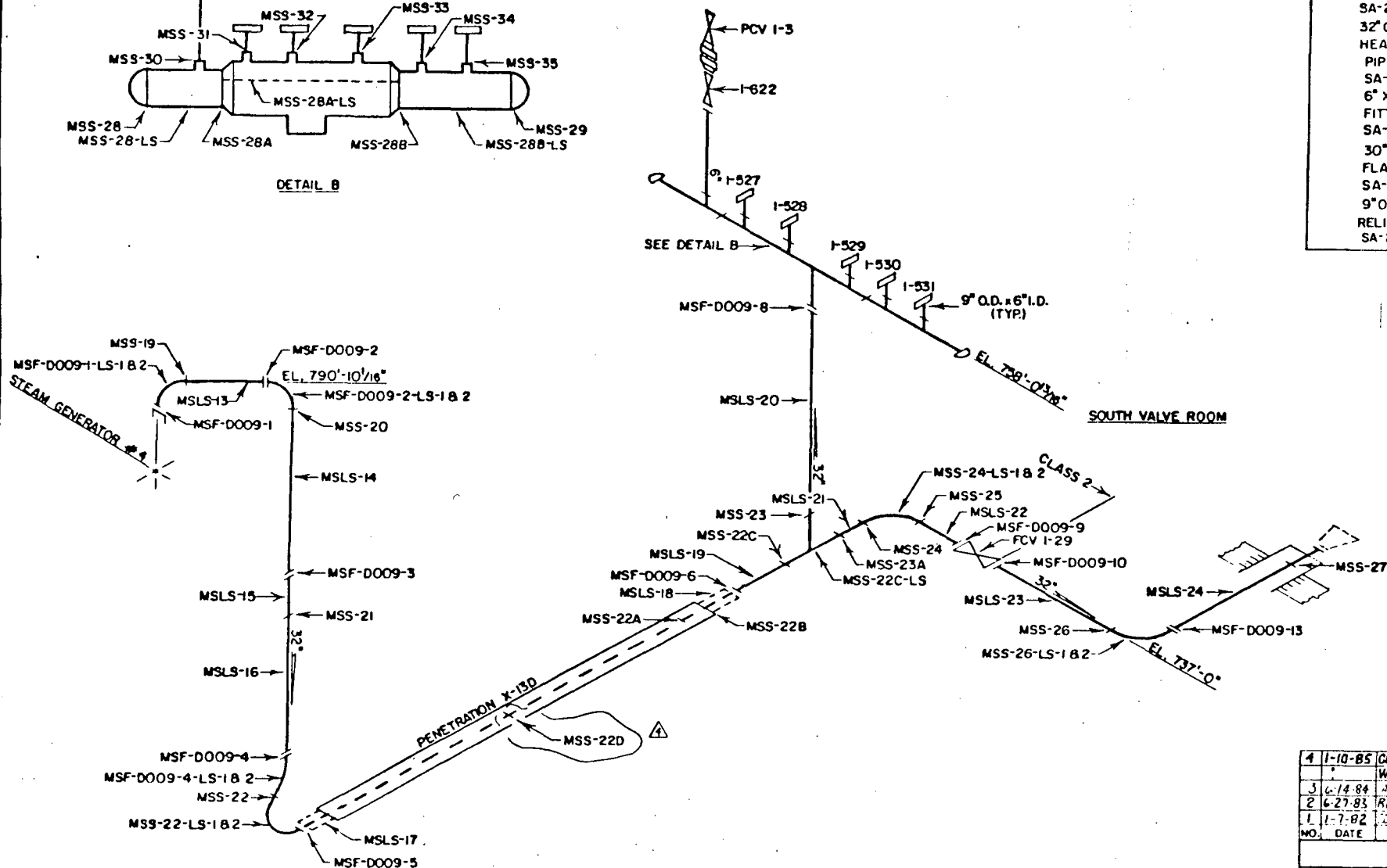
SHOP WELD MSS-1 THRU MSS-18, MSS-3A, MSS-11A, AND MSS-11B
PIPE LONG SEAM WELDS MSLS-1 THRU MSLS-12

NO.	DATE	REVISIONS	CK'D APPR.
3	11-08-85	CORRECT REF. DRAWING & ADD WELD NUMBER KEY	WBN
2	11-14-84	ADD MAT. SPECS.	WBN
1	6-22-83	ADDITIONAL MAT. ADD. 11/11/83	WBN
Tennessee Valley Authority DIVISION OF NUCLEAR POWER			
WATTS BAR NUCLEAR PLANT UNIT #1 MAINSTEAM SYSTEM WELD LOCATIONS			
SCALE: MSS	REVISIONS	DATE: 6-22-83	WBN
WBN	WBN	WBN	WBN

CHM-2669-C-13



DETAIL B



SHOP WELDS MSS-19 THRU MSS-35, MSS-22A, MSS-22B, MSS-22C,
MSS-23A, MSS-28A, AND MSS-28B
PIPE LONG SEAM WELDS MSLS-13 THRU MSLS-24

REFERENCE DRAWINGS

WBN-E-2878 IC-9
WBN-E-2880 IC-204
P79432-D4.1

MATERIAL SPECIFICATIONS

CLASS 2

PIPE

SA-155 KCF 70 CL. I

32\" O.D. x 1.175\" M.W.

FITTINGS

SA-234 WPB-W

32\" O.D. x 1.175\" M.W.

HEADER

PIPE

SA-106 GR. B

6\" XXS

FITTINGS

SA-234 WPB

30\" x 1.109\" M.W. WELDED CAP

FLANGES

SA-105

9\" O.D. x 6\" I.D. 1500#

RELIEF VALVE MANIFOLD

SA-234 WPBN, 2.875\" M.W.

WBNP
TI-50A
Appendix A
Page 58 of 362
Revision 15

4	1-10-85	CORRECT REF. DRAWING & ADD WELD NUMBER KEY	WBN
3	6-14-84	ADD MAT. SPECS	WBN
2	6-27-83	REDRAWN AND ADD LONG SEAM KEY	WBN
1	1-7-82	CORRECT AND ADD WELD NOS. KEY	WBN
NO.	DATE	REVISIONS	ICK'D APP.

TENNESSEE VALLEY AUTHORITY			
DIVISION OF NUCLEAR POWER			
WATTS BAR NUCLEAR PLANT			
UNIT #1			
MAINSTEAM SYSTEM			
WELD LOCATIONS			
DESIGN	WBN	DATE	6-27-83
APPROVED	WBN	DATE	6-27-83
REVIEW	WBN	DATE	6-27-83
CONTR.	WBN	DATE	6-27-83

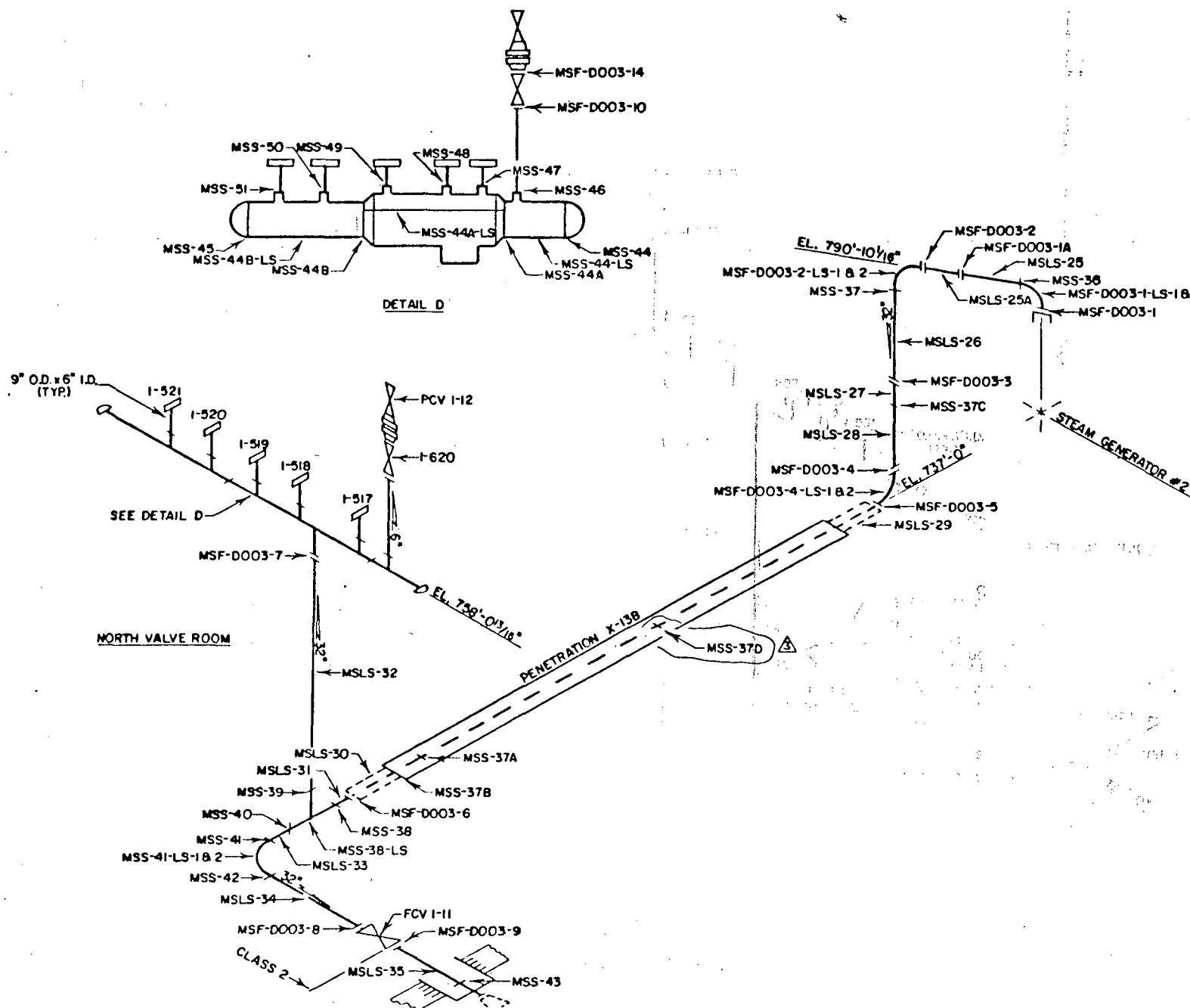
REFERENCE DRAWINGS

WBN-E-2878-IC-3
WBN-E-2880-IC-205
P79432-D2.1

MATERIAL SPECIFICATIONS

CLASS 2
PIPE
SA-155 KCF 70 CL. 1
32" O.D. x 1.175" M.W.
FITTINGS
SA-234 WPB-W
32" O.D. x 1.175" M.W.
HEADER
PIPE
SA-106 GR. B
6" XXS
FITTINGS
SA-234 WPB
30" x 1209" M.W. WELDED CAP
FLANGES
SA-105
9" O.D. x 6" I.D. 1500#
RELIEF VALVE MANIFOLD
SA-234 WRBN, 2.875" M.W.

WBNP
TI-50A
Appendix A
Page 59 of 362
Revision 15



SHOP WELDS MSS 34 THRU MSS 51, MSS 37A, MSS 37B, MSS 37C,
MSS 44A, AND MSS 44B
PIPE LONG SEAM WELDS MSLS 25 THRU MSLS 35 AND MSLS 25A

NO.	DATE	REVISIONS	CK'D APP
3	1-10-85	CORRECT REF. DRAWINGS 6 AND WELD NUMBER KEY	
2	6-14-84	ADD MAT. SPECS. 44B	
1	6-25-83	REDRAWN AND ADD LONG SEAM WELDS	
Tennessee Valley Authority DIVISION OF NUCLEAR POWER			
WATTS BAR NUCLEAR PLANT (UNIT #1) MAINSTEAM SYSTEM WELD LOCATIONS			
Rev'd	WLS	Welds	6-23-85
Rev'd	STP	Structural	6-23-85
Rev'd	WLS	Welds	6-23-85
Rev'd	STP	Structural	6-23-85

REFERENCE DRAWINGS

WBN-E-2878 IC-6
WBN-E-2880 IC-206
P79432-D3.1

MATERIAL SPECIFICATIONS

CLASS 2

PIPE

SA-155 KCF 70 CL. 1
32" O.D. x 1.175 M.W.

FITTING

SA-234 WPB-W
32" O.D. x 1.175 M.W.

HEADER

PIPE
SA-106 GR. B
6" XXS

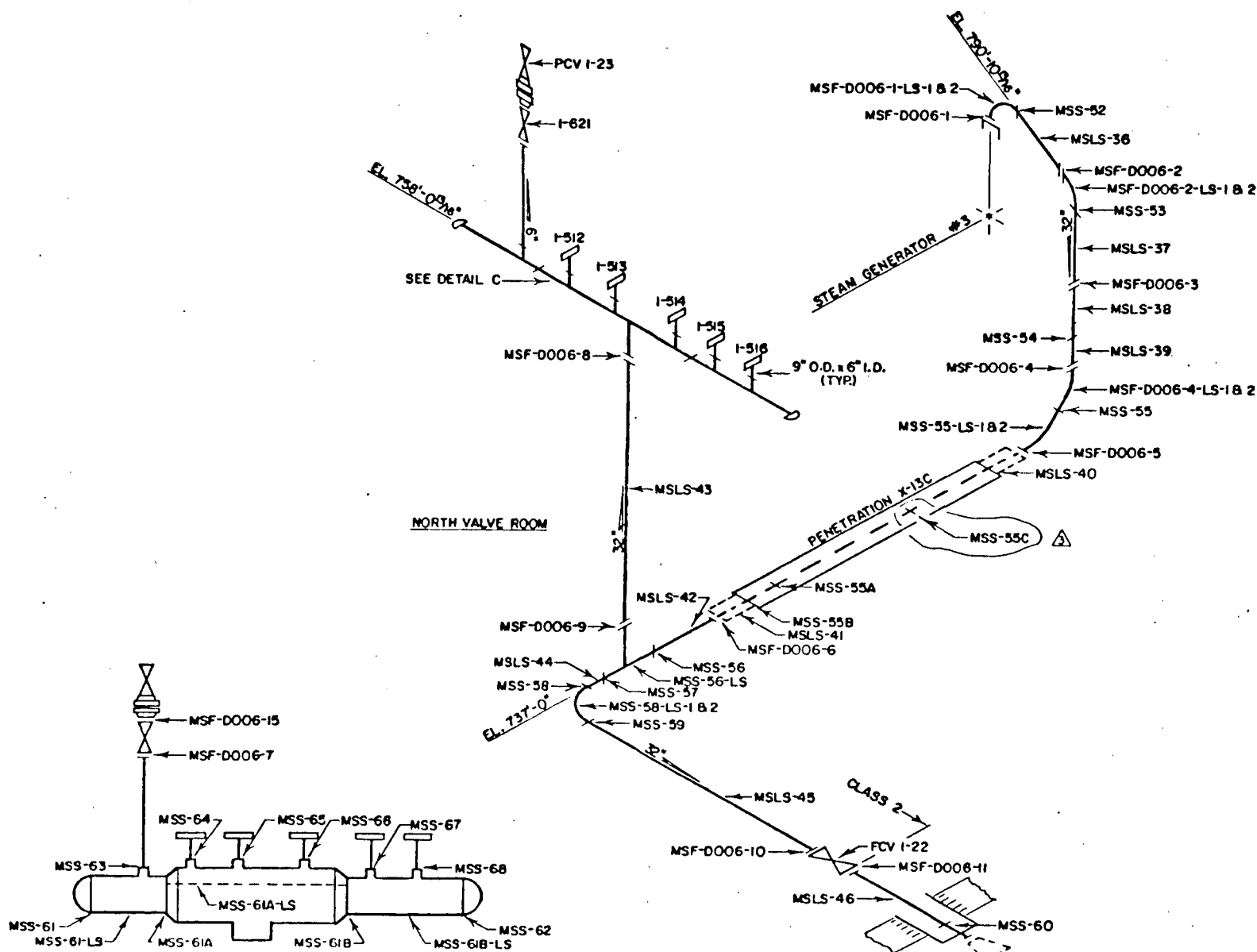
FITTINGS

SA-234 WPB
30" x 1.109" M.W. WELDED CAP

FLANGES

SA-105
9" O.D. x 6" I.D. 1500#

RELIEF VALVE MANIFOLD
SA-234 WPBN, 2.875" M.W.



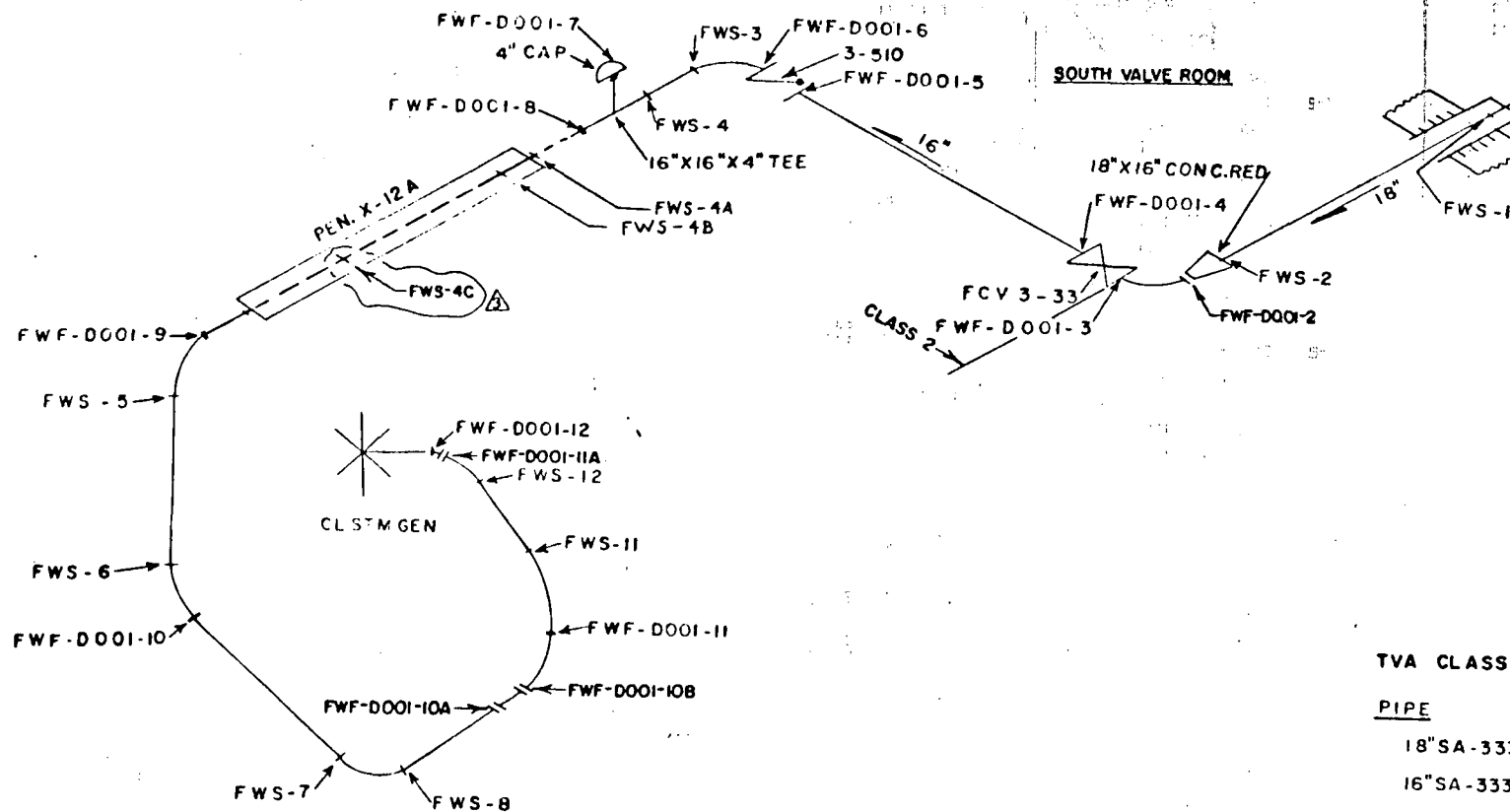
SHOP WELDS MSS-52 THRU MSS-68 MSS-61A AND MSS-61B
PIPE LONG SEAM WELDS MSLS-36 THRU MSLS-46

WBNP
TI-50A
Appendix A
Page 60 of 362
Revision 15

3	1-10-84	CORRECT REF. DRAWING & ADD WELD NUMBER KEY	WBNP
2	6-14-84	ADD MAT. SPECS. 104	WBNP
1	6-27-83	REVISION AND ADD LONG SEAMS KEY	WBNP
MO.	DATE	REVISIONS	CK'D APP.
TENNESSEE VALLEY AUTHORITY DIVISION OF NUCLEAR POWER			
WATTS BAR NUCLEAR PLANT UNIT #1 MAINSTEAM SYSTEM			
WELD LOCATIONS			
WELD NO.	REVISION	DATE	BY
WELD NO.	REVISION	DATE	BY
WELD NO.	REVISION	DATE	BY
WELD NO.	REVISION	DATE	BY

CHM-2669-C R3

WBNP
 TI-50A
 Appendix A
 Page 61 of 362
 Revision 15



TVA CLASS 2

PIPE

18\"/>

16\"/>

FITTINGS

18\"/>

16\"/>

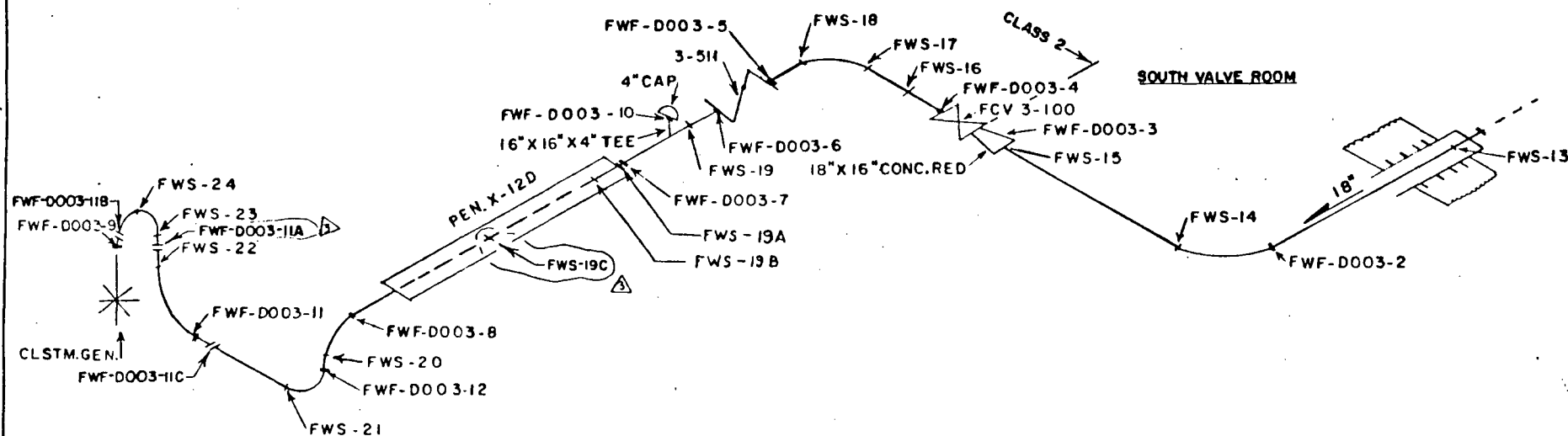
REF. DRAWING:

WBN E-2879 IC-1
 P79432-D5.1

Tennessee Valley Authority			
DIVISION OF POWER PRODUCTION			
WBNP			
FEEDWATER WELD MAP			
UNIT 1 LOOP 1			
NO.	DATE	REVISIONS	CK'D/APP
3	1-10-85	ADD REF. DRAWING & ADD WELD	WJS
2	7-84	CHANGED 1\"/>	
1	1-19-84	WELD NO. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000	

CHM-2671-C/R3

WBNP
 TI-50A
 Appendix A
 Page 62 of 362
 Revision 15



SEE SHEET ONE FOR NOTES

REF DRAWING

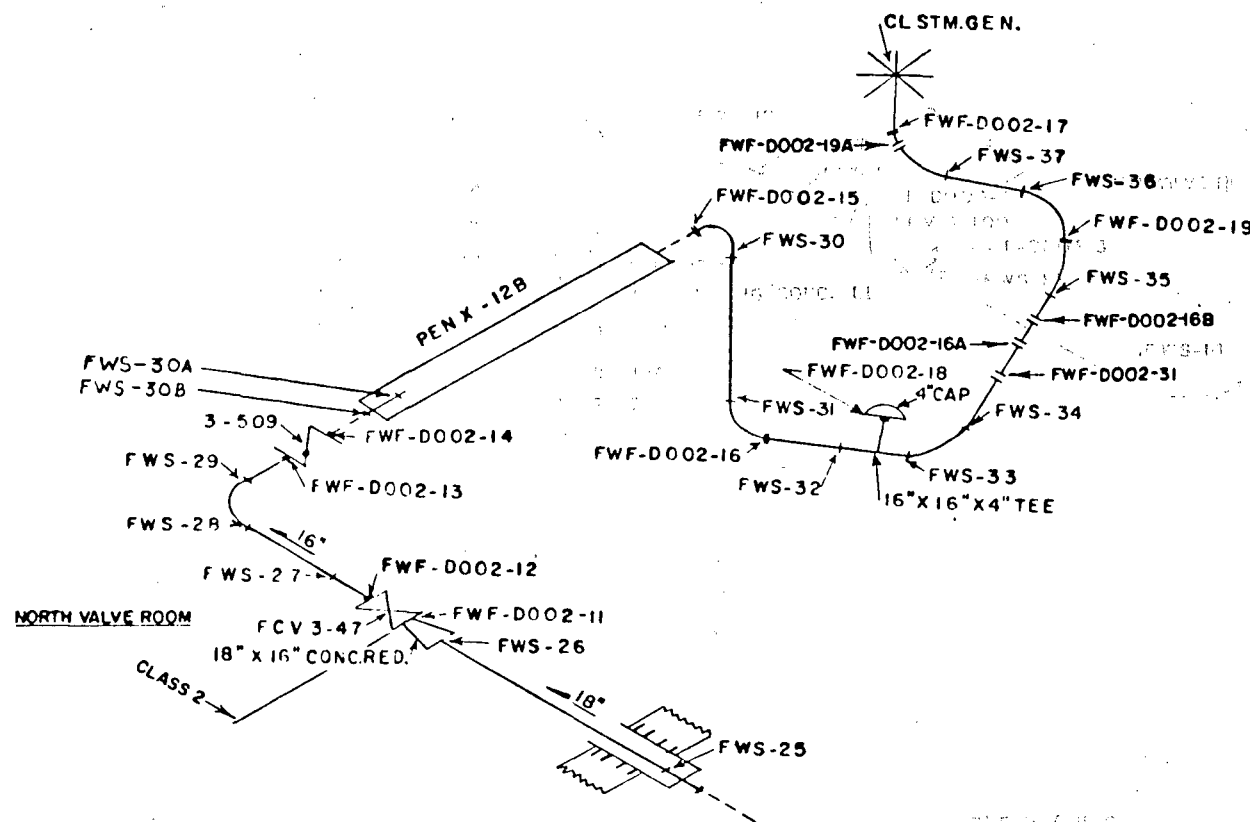
WBNP-2879 IC-3
 P79432-08.1



3	1-10-84	ADD REF. DRAWING, ADD WELD	1.0	1.0
2	6-7-84	NUMBER AND CORRECT WELD NUMBER REV	8.0	8.0
1	1-18-84	CORRECT REF. DWN. 15, 17, 18	8.0	8.0
		ADD AND DELETE WELDS, ROOM NUMBER	8.0	8.0
		ADD CLASS BREAK, DELETE REF. DWN. REV		
NO.	DATE	REVISIONS	CK'D	APP.
TENNESSEE VALLEY AUTHORITY DIVISION OF POWER PRODUCTION				
WBNP FEEDWATER WELD MAP UNIT 1 LOOP 4				
SCALE 1"=10'	DESIGNED LNS	SUBMITTED 11/13	DATE 2-2-8	CHK'D CHM-2671C

REVISIONS

WBNP
 TI-50A
 Appendix A
 Page 63 of 362
 Revision 15



REF DRAWINGS

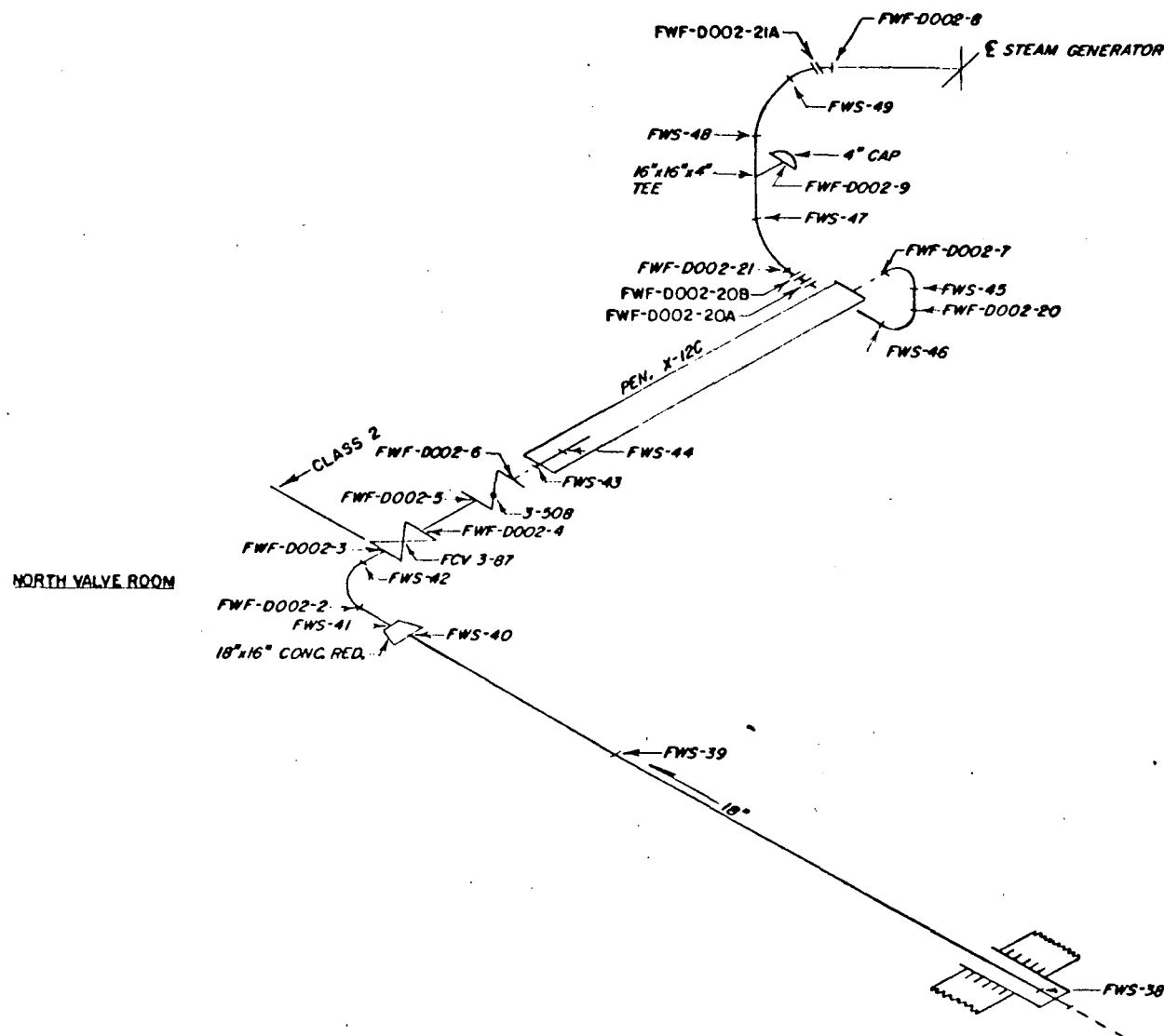
WBN E-2879 IC-2
 P79432-D6.1

SEE SHEET ONE FOR NOTES

NO	DATE	REVISIONS	CK'D	APP
3	1-10-85	ADD REF. DRAWING REV.	JA	JA
2	6-7-84	CORRECT PLE-DRAWINGS	JA	JA
1	1-14-84	ADD TWO DRIFT WELDS, ADD ROOM NAME	JA	JA
		ADD CLASS BREAK, DELETE REF. DWG.		
TENNESSEE VALLEY AUTHORITY				
DIVISION OF POWER PRODUCTION				
W.B.N.P.				
FEEDWATER WELD MAP				
UNIT 1, LOOP 12				
SCALE	AS SHOWN	DATE	BY	CHK'D
1" = 10'			W.B.	
				CHM 2671-C R3

WBNP
 TI-50A
 Appendix A
 Page 64 of 362
 Revision 15

REF. DRAWING
 WBN E-2879 IC-2
 P79432-D7.1



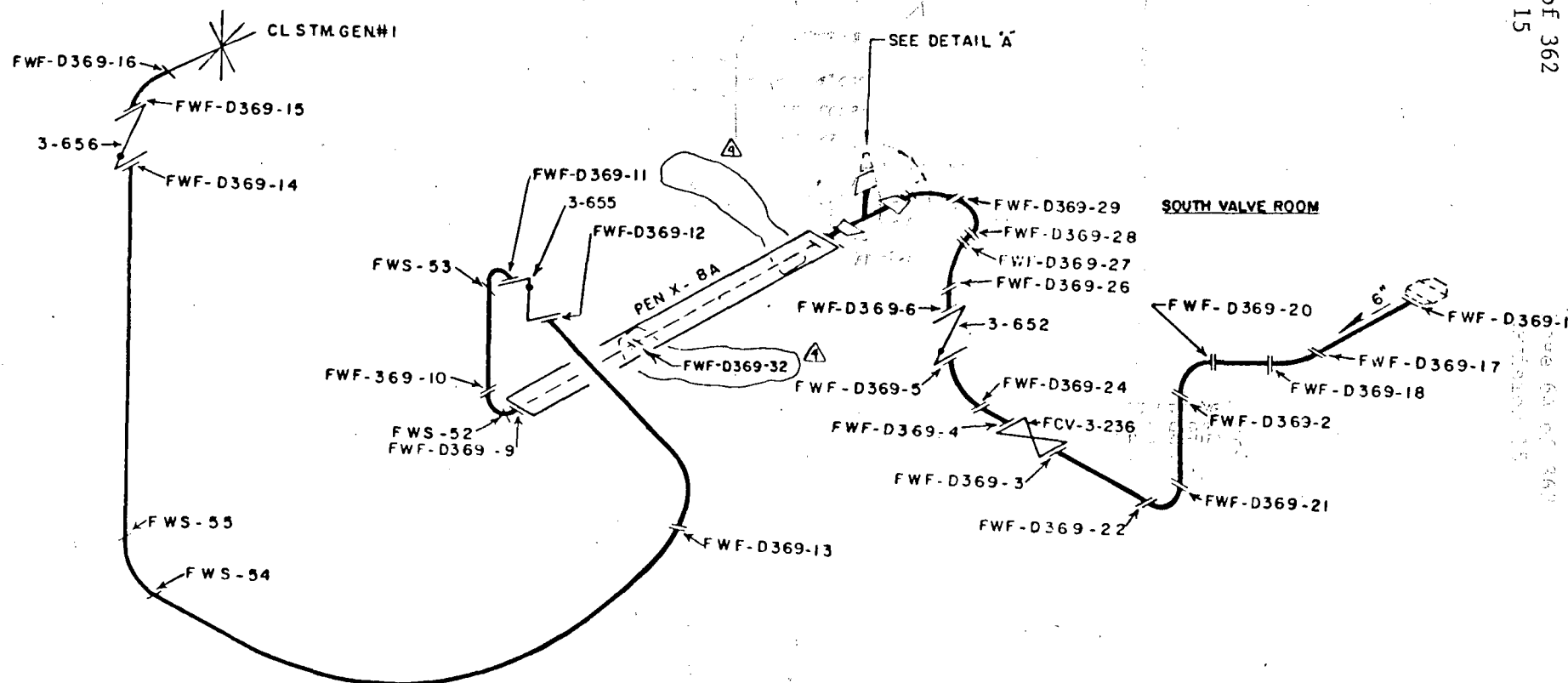
SEE SHEET 1 FOR NOTES

TENNESSEE VALLEY AUTHORITY
 DIVISION OF POWER PRODUCTION

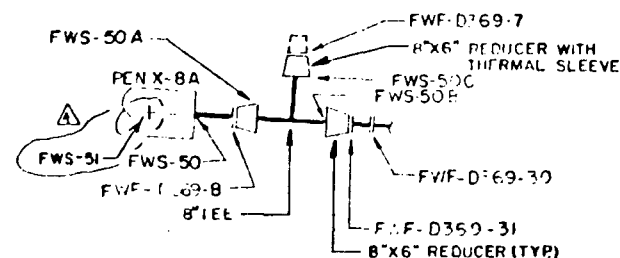
WATTS BAR NUCLEAR PLANT
 UNIT 1
 FEEDWATER
 WELD MAP LOOP 3

NO.	DATE	REVISIONS	CK'D	APP
3	1-10-85	ADD REF. DRAWING #11		
2	1-7-84	CORRECT REF. DRAWING #11		
1	1-14-84	ADD P.V. CHIT MIDS, ADD ROOM NAME		
		CLASS BREAK & DRIFT REF. DNG. #11		

SCALE	NTS	SUBMITTED	DATE	6/1/79
BY		CHK'D	DATE	6/1/79
APP		DATE	6/1/79	



SOUTH VALVE ROOM



DETAIL A

REF DRAWING

WBN E-2879 IC 369
P79432-D91.1

TVA CLASS 2

PIPE

6" SA-333 GR6 SCH 80

FITTINGS

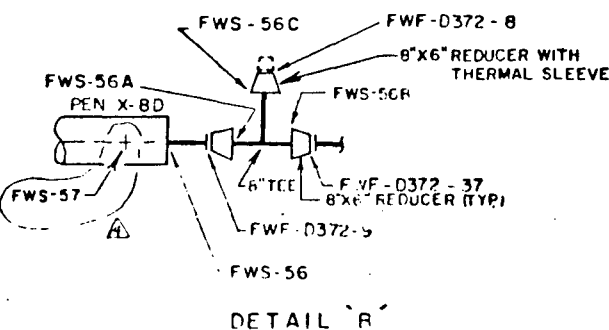
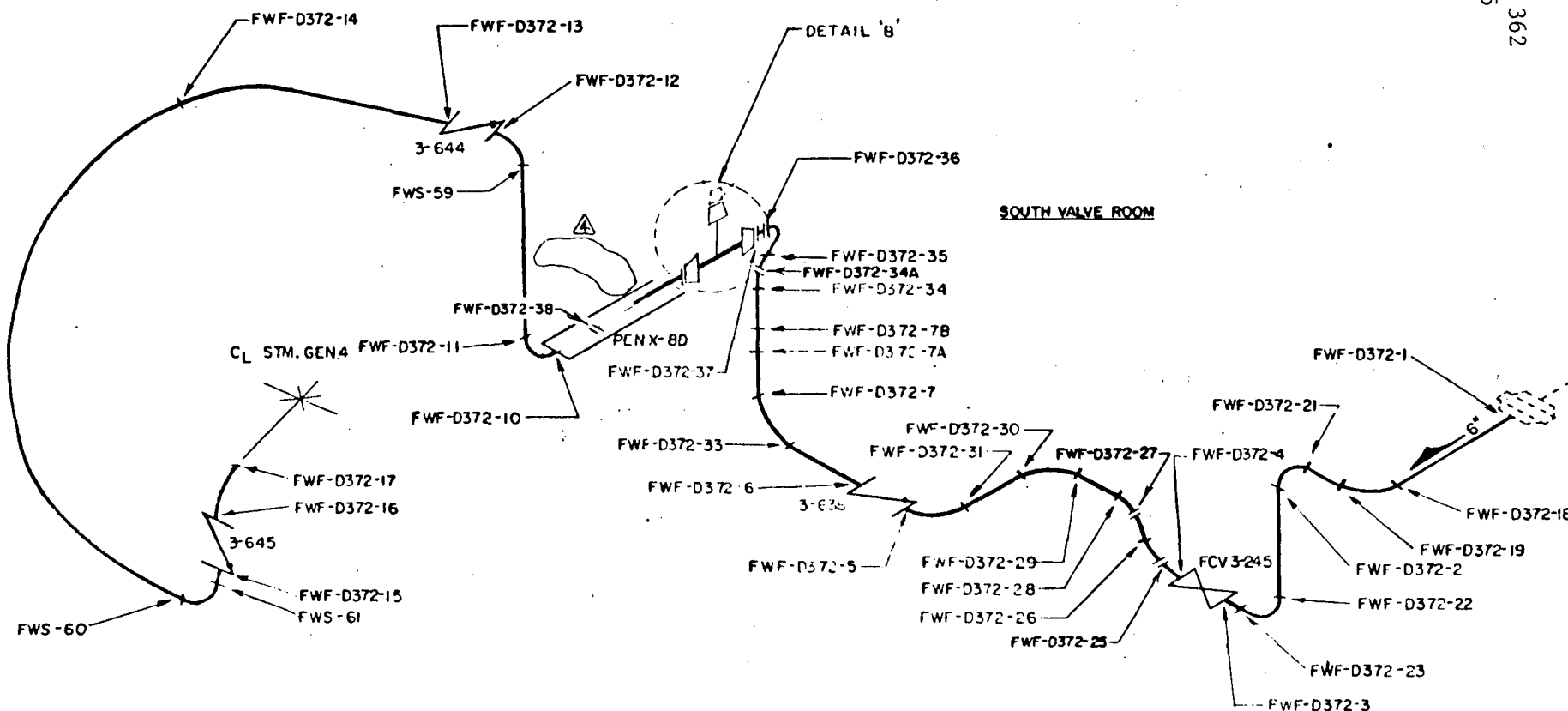
SA-420 WPL6
6" SCH 80
6" SCH 80
THERMAL SLEEVE SA-350 LFZ
6"x6" SCH 80

4	1-10-85	ADD REF DRAWING AND WELD NUMBER AND DATE WHO DRAUGHT	1	10/10/85	WBNP
3	1-14-84	ADD REF DRAWING AND WELD NUMBER AND DATE WHO DRAUGHT	1	10/10/85	WBNP
2	1-14-84	ADD REF DRAWING AND WELD NUMBER AND DATE WHO DRAUGHT	1	10/10/85	WBNP
1	1-14-84	ADD REF DRAWING AND WELD NUMBER AND DATE WHO DRAUGHT	1	10/10/85	WBNP
NO	DATE	REVISIONS	BY	CHKD	APP'D

TENNESSEE VALLEY AUTHORITY
DIVISION OF POWER PRODUCTION

WBNP
6" FEEDWATER WELD MAP
UNIT 1

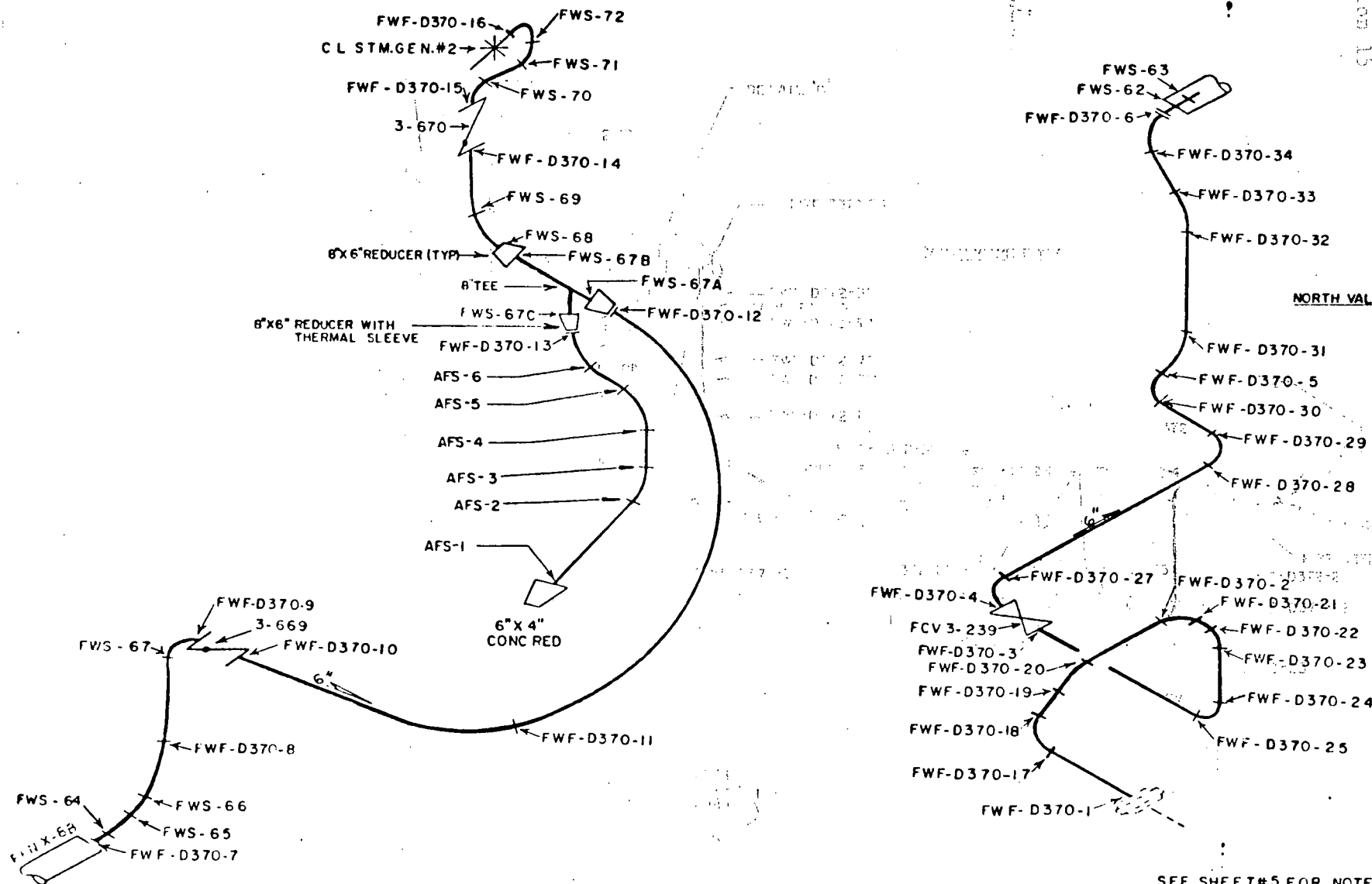
CHM 3071 C 174



REF. DRAWING
 WHI E 2879 IC-372
 P79432-D191.1
 A

SEE SHEET #5 FOR NOTES

REVISIONS				Tennessee Valley Authority DIVISION OF POWER PRODUCTION			
NO	DATE	REVISIONS	CK'D/APP'D	WBNP 6" FEEDWATER WELD MAP UNIT 1 LOOP 4			
1	1-12-85	ADD REF. DRAWING AND LOCATED		DATE TIME BY DATE TIME BY			
2	2-13-84	WELD ON DETAIL KEY					
3	2-13-84	ADD 10" TEE (W/ 1/2" TEE AND 1/2" TEE)					
4	2-13-84	ADD 10" TEE (W/ 1/2" TEE AND 1/2" TEE)					
5	2-13-84	ADD 10" TEE (W/ 1/2" TEE AND 1/2" TEE)					



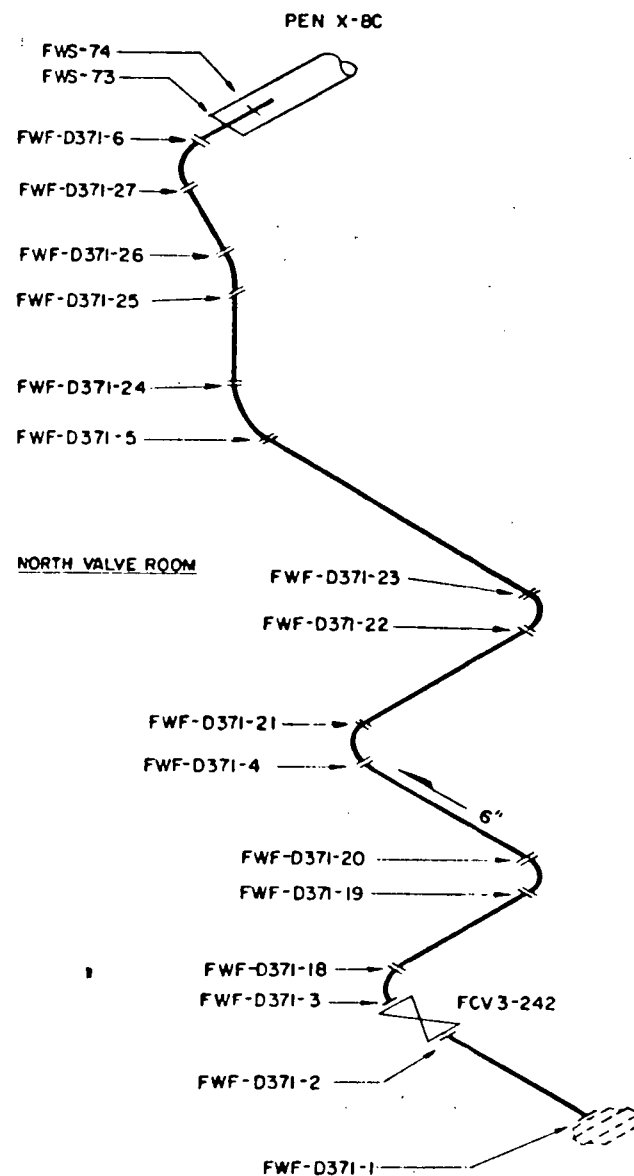
SEE SHEET #5 FOR NOTES

REF DRAWING

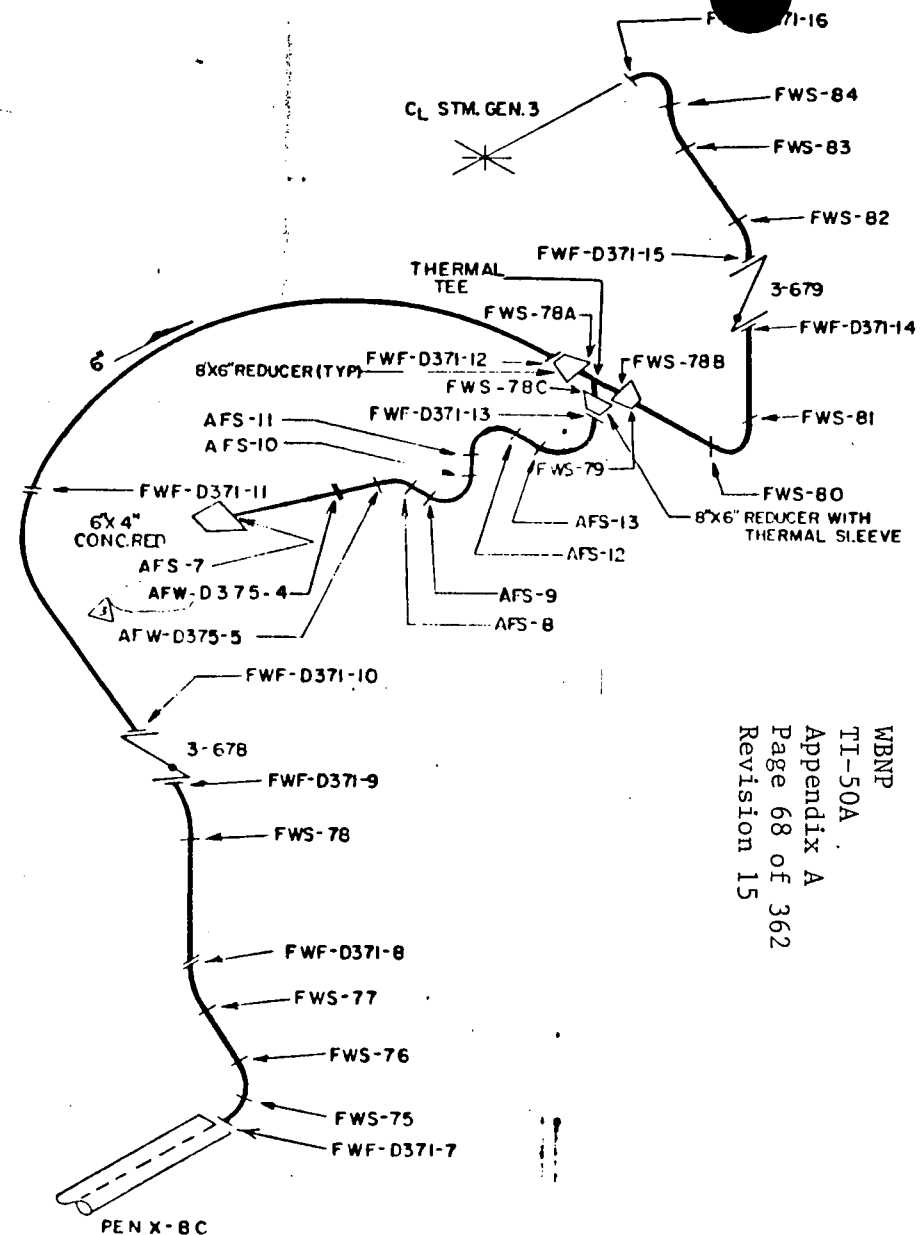
WPN E-2879 IC-370
 (P79432-D192.1)

NO.	DATE	REVISIONS	CKD APP
3	1-10-85	ADD REF. DRAWING NEW	
2	7-13-84	ADD D192.1 TO THE MAIN TEE AND CONNECTED PIPING LAG. E.	
1	1-11-84	ADD MAIN LINE D192.1 REF. DNG. A.	

TENNESSEE VALLEY AUTHORITY DIVISION OF POWER PRODUCTION			
WBNP 6" FEEDWATER WELD MAP UNIT 1 LOOP 2			
DATE	SUBMITTED	DATE	DATE



REF. DRAWING
WHN E-2879 IC-371, IC-375
P79432-D192.1



WBNP
TI-50A
Appendix A
Page 68 of 362
Revision 15

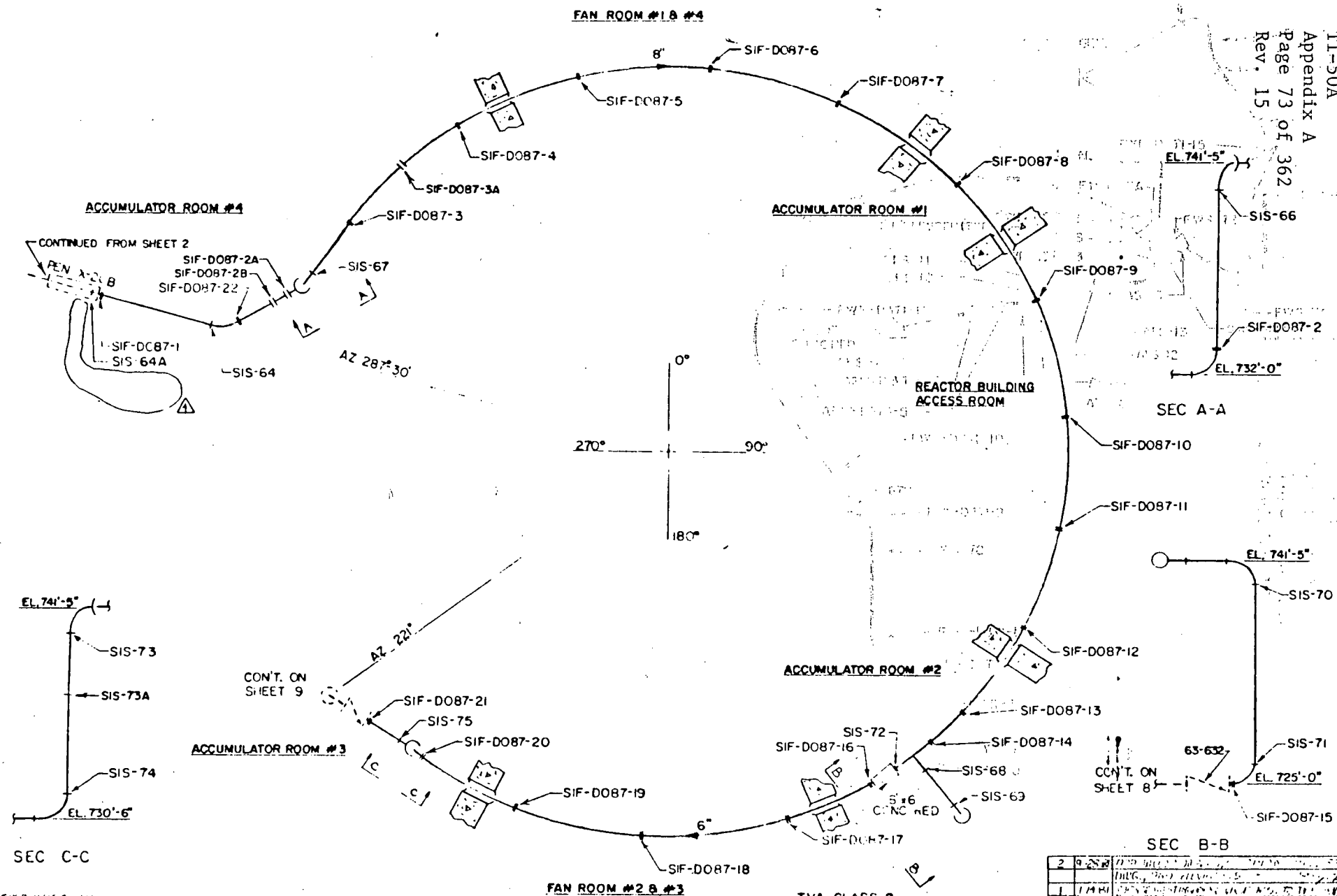
SEE SHEET #5 FOR NOTES

TENNESSEE VALLEY AUTHORITY
DIVISION OF POWER PRODUCTION

WBNP
6" FEEDWATER WELD MAP
UNIT 1 LOOP 3

NO.	DATE	REVISIONS	CK'D	APP
1	1-10-83	ADD REF. DRAWING AND CORRECT		
2	7-13-83	WELD NUMBER REV		
3	1-14-84	ADD 8" X 12" THERMAL TEE AND CORRECT REFERENCE Dwg. No. 44		
4	1-14-84	ADD REVISED WELD MAP		

SCALE: 1/2" = 1'-0"
SUBMITTED: [Signature]
DATE: 6-1-83
CHK'D: APP
CHN-2671-C R3



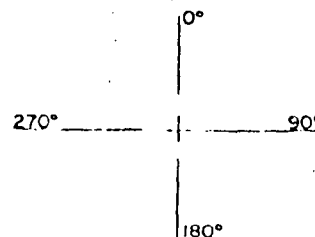
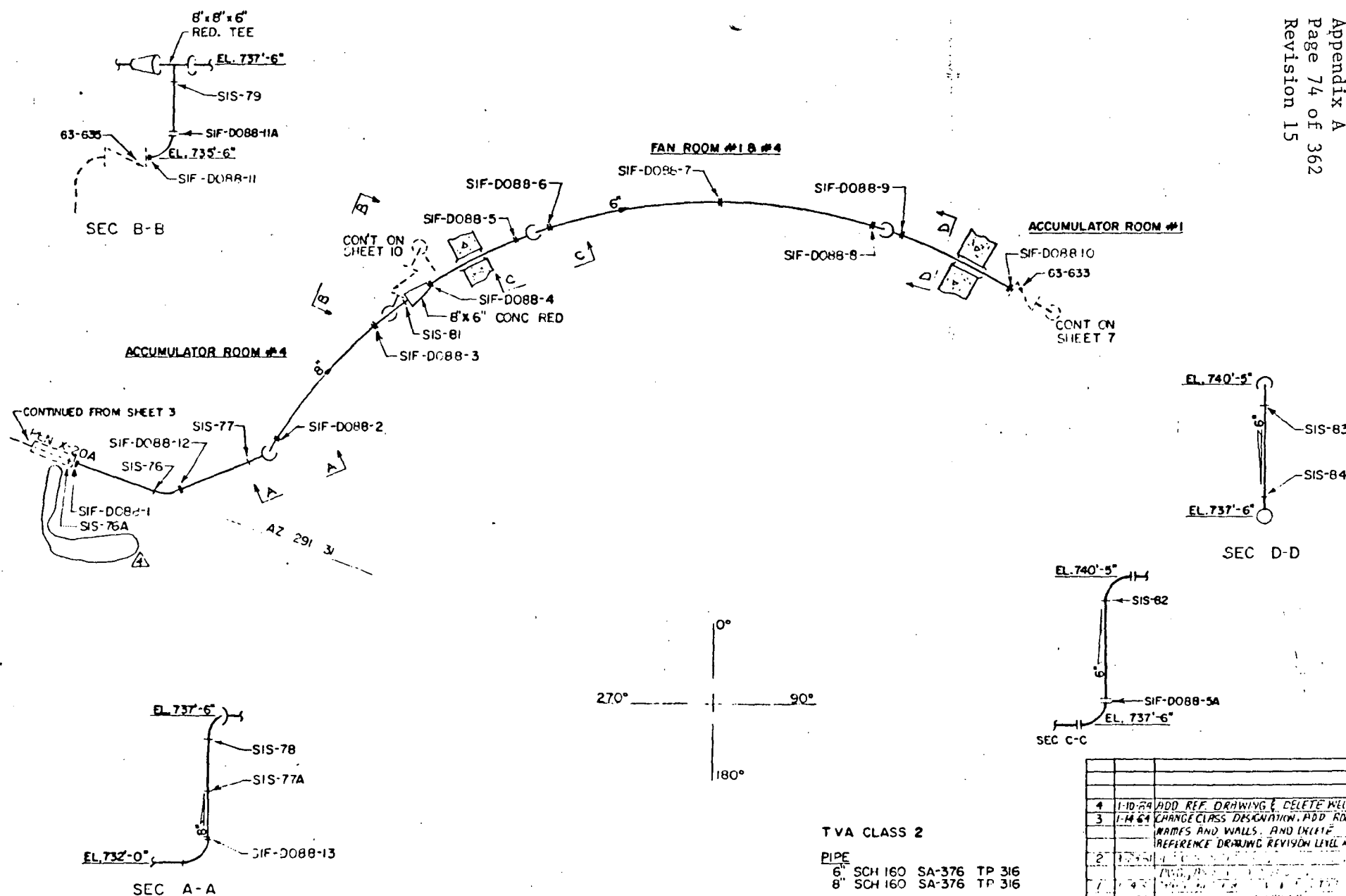
TVA CLASS 2

PIPE
6" SCH 160 SA-376 TP 316
8" SCH 160 SA-376 TP 316

BITTINGS
6" SCH 160 SA-403 WP 316S
8" SCH 160 SA-403 WP 316S

NO.	DATE	REVISIONS	CKD	APP
4	1-10-84	ADD REF. DRAWING, TITLED WELD MAP		
3	1-14-84	ADD REF. DRAWING, TITLED WELD MAP		
2	1-14-84	ADD REF. DRAWING, TITLED WELD MAP		
1	1-14-84	ADD REF. DRAWING, TITLED WELD MAP		

2	9-25-88	ADD REF. DRAWING, TITLED WELD MAP		
1	1-14-84	ADD REF. DRAWING, TITLED WELD MAP		
NO.	DATE	REVISIONS	CKD	APP
TENNESSEE VALLEY AUTHORITY DIVISION OF POWER PRODUCTION				
WBNP SAFETY INJECTION WELD MAP				
SCALE	SHEET	SUBMITTED	DATE	BY
			1-13-84	CHM-275B-C



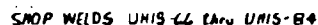
TVA CLASS 2

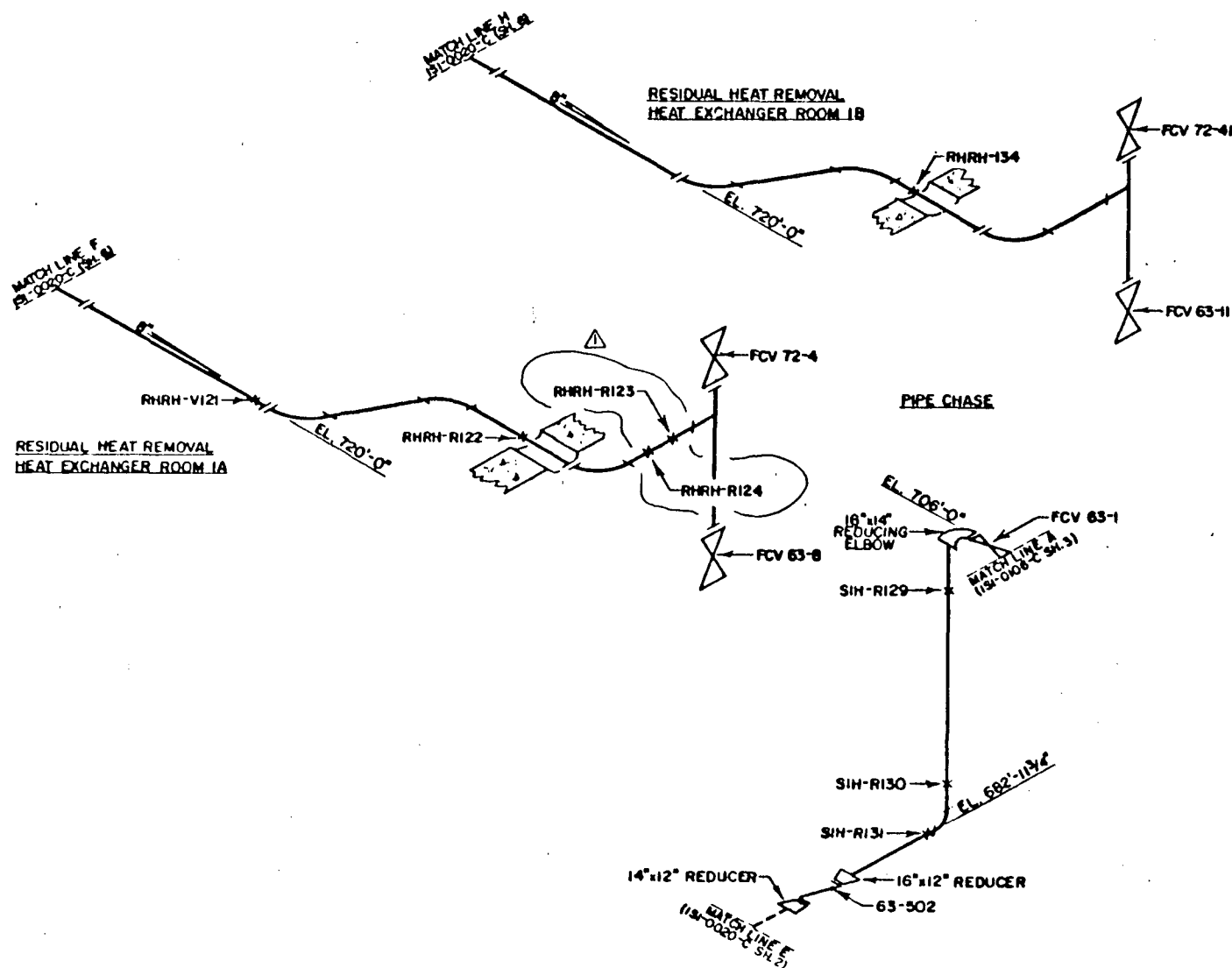
PIPE
6" SCH 160 SA-376 TP 316
8" SCH 160 SA-376 TP 316

FITTINGS
6" SCH 160 SA-403 WP 316S
8" SCH 160 SA-403 WP 316S

SIM. P. WELDS: SIS-76 THRU SIS-79, SIS-81 THRU SIS-84, SIS-76A, SIS-76B, AND SIS-77A

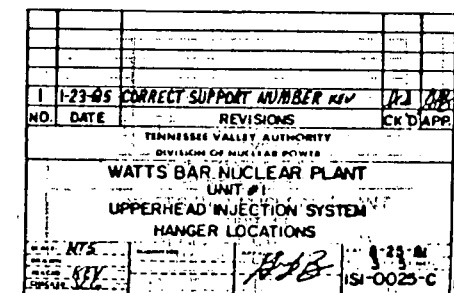
4	1-10-84	ADD REF. DRAWING & DELETE WELD	10	22
3	1-14-84	CHANGE CLASS DESIGNATION, ADD ROOM NAMES AND WALLS, AND INITIAL REFERENCE DRAWING REVISION LINE	10	22
2	1-14-84		10	22
1	1-14-84		10	22
NO.	DATE	REVISIONS	CHK'D	APP
TENNESSEE VALLEY AUTHORITY				
DIVISION OF POWER PRODUCTION				
WBNP				
SAFETY INJECTION SYSTEM				
UNIT 1				
SCALE	AS SHOWN	DATE	6-13	1984

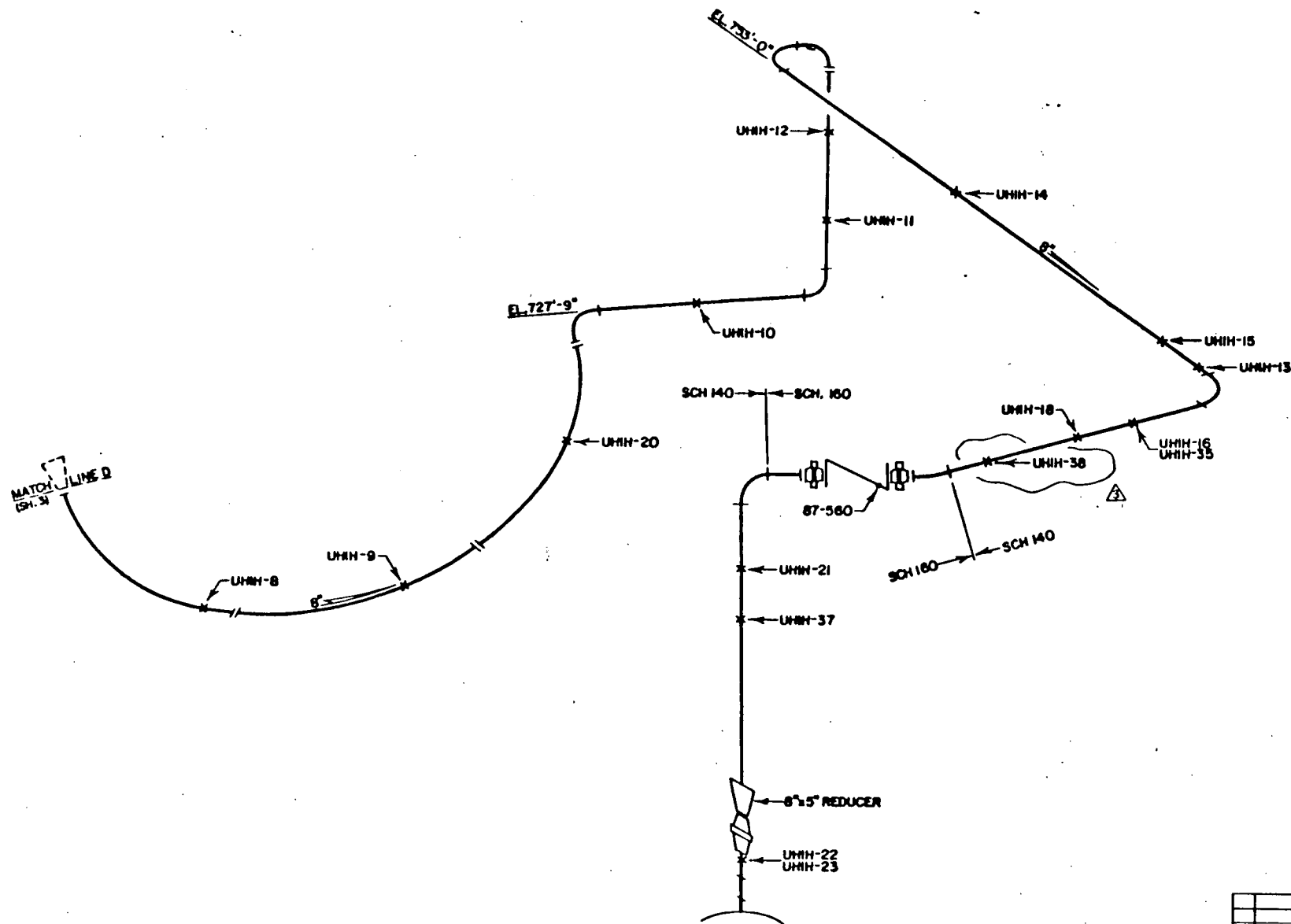




WBNP
TI-50A
Appendix A
Page 127 of 362
Revision 15

NO	DATE	REVISIONS	CK'D	APP'D
1	1-23-85	ADD SUPPORTS KEY	WLB	WLB
Tennessee Valley Authority DIVISION OF NUCLEAR POWER				
WATTS BAR NUCLEAR PLANT UNIT #1 SAFETY INJECTION SYSTEM HANGER LOCATIONS				
DESIGN	3/75	REVISION	WLB	WLB
DATE	8-18-81	BY	WLB	WLB
REVISION	1	2/15/81	WLB	WLB
DATE	8-18-81	BY	WLB	WLB
REVISION	1	2/15/81	WLB	WLB
DATE	8-18-81	BY	WLB	WLB
REVISION	1	2/15/81	WLB	WLB



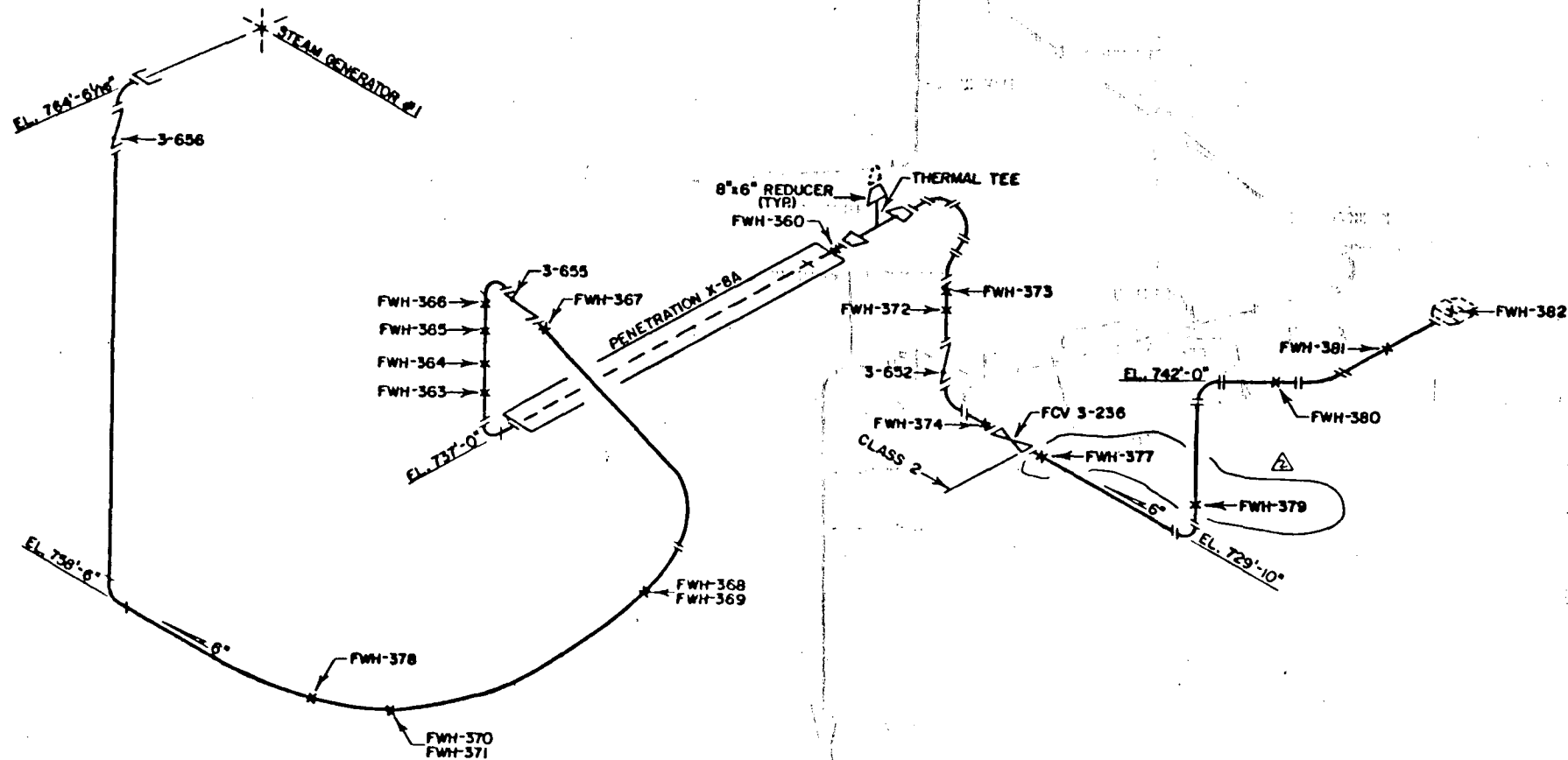


WBNP
TI-50A
Appendix A
Page 143 of 362
Revision 15

NO.	DATE	REVISIONS	CK'D APPR
1	1-20-84	CORRECT HANGER NUMBER REV	JCC
2	7-12-84	CORRECT HANGER LOCATION	WAB
3	1-23-85	ADD SUPPORT	WAB

TENNESSEE VALLEY AUTHORITY
 DIVISION OF NUCLEAR POWER
WATTS BAR NUCLEAR PLANT
 UNIT #1
UPPERHEAD INJECTION SYSTEM
HANGER LOCATIONS

DRAWN BY: NTS
 CHECKED BY: NTS
 DESIGNED BY: NTS
 SCALE: 1/4" = 1'-0"
 SHEET NO: 143
 TOTAL SHEETS: 362



WBNP
TI-50A
Appendix A
Page 151 of 362
Revision 15

NO.	DATE	REVISIONS	CK'D	APP'D
2	1-23-85	REPLACE DELETED SUPPORTS K&H	1/24	1/24
1	6-1-84	DELETED HANGERS V&A	1/25	1/25
Tennessee Valley Authority DIVISION OF NUCLEAR POWER				
WATTS BAR NUCLEAR PLANT UNIT #1 FEEDWATER SYSTEM HANGER LOCATIONS				
DESIGN	BY	DATE	BY	DATE
W&A	W&A	1-23-85	W&A	1-23-85
151-0062-C				

TABLE G (CONTINUED)

COMPONENTS SUBJECT TO EXAMINATION CATEGORY

ASME CLASS 1 SUPPORTS

WBNP
 TI-50A
 Appendix A
 Page 266 of 362
 Revision 15

System		Dwg. No.		Table							
SIS		ISI-0021-C		IWB							
UHI		ISI-0025-C		IWB							
Support No.	Sheet No.	Support Type					Integrally-Welded Attachment Size	Exam Required	Bolting	Acceptance Range	
		Pipe Size	Restraint	Snubber	Spring	Anchor					
SIH-551	13	1 1/2		PSA-1/2			2 1/2	No	VT-3,4	Yes	1 1/4" - 2 1/4"
SIH-552	13	1 1/2		PSA-1/2			2 1/2	No	VT-3,4	Yes	1/4" - 1 7/16"
UHIH-040	1	8	X					No	VT-3	Yes	
UHIH-043	1	8	X					No	VT-3	Yes	
UHIH-044	1	8	X					No	VT-3	No	
UHIH-045	1	8	X					No	VT-3	Yes	
UHIH-063	1	8		PSA-35			6"	No	VT-3,4	Yes	1 1/16" - 5 3/4"
UHIH-064	1	8		PSA-35			6"	No	VT-3,4	Yes	1 3/16" - 5 3/4"
UHIH-065	1	8	X					No	VT-3	Yes	
UHIH-066	1	8	X					No	VT-3	No	
UHIH-067	1	8		PSA-3			5"	No	VT-3,4	Yes	1/4" - 3 7/8"
47W435-17-13	1	8		PSA-1 (2)			4"	Yes (8 lugs 1/2" thick)	VT-3,4	No	1/4" - 3 11/16"
UHIH-068	1	8		PSA-1			4"	No	VT-3,4	Yes	1/4" - 2 1/2"
UHIH-069	1	8			BP-VS1F-12		1 1/8	No	VT-3,4	Yes	3/8" - 7/8"

TABLE G (CONTINUED)

COMPONENTS SUBJECT TO EXAMINATION CATEGORY

ASME CLASS 1 SUPPORTS

WBNP
 TI-50A
 Appendix A
 Page 270 of 362
 Revision 15

System		Dwg. No.		Table							
UHI		ISI-0025-C		IWB							
Support No.	Sheet No.	Support Type				Stroke	Integrally-Welded Attachment Size	Exam Required	Bolting	Acceptance Range	
		Pipe Size	Restraint	Snubber	Spring						Anchor
UHIH-30	3	8		PSA-3		5"	No	VT-3,4	Yes	7/16" - 4 3/4"	
UHIH-032	3	8		PSA-3		5"	No	VT-3,4	Yes	1/2" - 4 3/4"	
UHIH-150	3	8		PSA-35		6"	No	VT-3,4	Yes	3/4" - 5 3/4"	
UHIH-008	4	8	X				No	VT-3	Yes		
UHIH-009	4	8	X				No	VT-3	Yes		
UHIH-010	4	8	X				No	VT-3	No		
UHIH-011	4	8	X				No	VT-3	No		
UHIH-020	4	8	X				No	VT-3	No		
UHIH-012	4	8		PSA-3		5"	No	VT-3,4	Yes	1/4" - 3 7/8"	
UHIH-013	4	8		PSA-3		5"	No	VT-3,4	Yes	1/4" - 4 9/16"	
UHIH-014	4	8			BP-VS1F-14	1 1/8	No	VT-3	Yes	7/16" - 7/8"	
UHIH-015	4	8		PSA-3		5"	No	VT-3,4	Yes	1/4" - 1 5/16"	
UHIH-016	4	8			BP-VS2F-8(2)	2 1/4	No	VT-3	Yes	1" - 2"	
UHIH-018	4	8		PSA-3		5"	No	VT-3,4	Yes	5/16" - 3 7/16"	
UHIH-021	4	8		PSA-35		6"	No	VT-3,4	Yes	1 9/16" - 5 3/4"	
UHIH-038	4	8	X				No	VT-3	Yes		

TABLE G (CONTINUED)

COMPONENTS SUBJECT TO EXAMINATION CATEGORY

ASME CLASS 1 SUPPORTS

WBNP
 TI-50A
 Appendix A
 Page 271 of 362
 Revision 15

System		Dwg. No.		Table							
UHI		ISI-0025-C		IWB							
CVC		ISI-0026-C		IWB							
Support No.	Sheet No.	Support Type					Integrally-Welded Attachment Size	Exam Required	Bolting	Acceptance Range	
		Pipe Size	Restraint	Snubber	Spring	Anchor					
UHIH-022	4	5		PSA-10			6"	No	VT-3,4	Yes	11/16" - 5 3/4"
UHIH-023	4	5		PSA-3			5"	No	VT-3,4	Yes	3/4" - 4 3/4"
UHIH-035	4	8	X					No	VT-3	Yes	
UHIH-037	4	8		PSA-35			6"	No	VT-3,4	Yes	1 3/8" - 5 3/4"
CVCH-290	1	3			BP-3400		4 1/2	No	VT-3,4	Yes	1/4" - 3 1/8"
CVCH-291	1	3		PSA-1			4"	No	VT-3,4	Yes	2 5/16" - 3 3/4"
CVCH-292	1	3		PSA-1			4"	No	VT-3,4	Yes	1/4" - 5/16"
CVCH-293	1	3	X					No	VT-3	Yes	
CVCH-294	1	3		PSA-1			4"	No	VT-3,4	Yes	1/4" - 3 1/2"
CVCH-295	1	3		PSA-1			4"	No	VT-3,4	Yes	1/4" - 2 3/8"
CVCH-296	1	3	X					No	VT-3	Yes	
CVCH-297	1	3	X					No	VT-3	Yes	
CVCH-298	1	3	X					No	VT-3	Yes	
CVCH-299	1	3	X					No	VT-3	Yes	
CVCH-300	1	3	X					No	VT-3	Yes	

TABLE G (CONTINUED)

COMPONENTS SUBJECT TO EXAMINATION CATEGORY

ASME CLASS 1 SUPPORTS

WBNP
 TI-50A
 Appendix A
 Page 273 of 362
 Revision 15

System		Dwg. No.	Table									
CVC		ISI-0026-C										
CVC		ISI-0063-C	IWB									
Support No.	Sheet No.	Support Type					Integrally-Welded Attachment Size	Exam Required	Bolting	Acceptance Range		
		Pipe Size	Restraint	Snubber	Spring	Anchor						
CVCH-331	2	2				X	No	VT-3	Yes	1 1/4" - 2 1/2"		
CVCH-383	2	2	X				No	VT-3	Yes	1 1/4" - 2 1/2"		
CVCH-384	2	2		PSA-1/4"			4"	No	VT-3,4	Yes	5/16" - 3 3/4"	
CVCH-385	2	2			BP-VS1B-6		1 1/8	No	VT-3,4	Yes	5/16" - 7/8"	
CVCH-1	1	2	X				No	VT-3	Yes	1 1/4" - 2 1/2"		
CVCH-2	1	2		PSA-1/4			4"	No	VT-3,4	Yes	2 11/16" - 3 3/4"	
CVCH-3	1	2	X				No	VT-3	Yes	1 1/4" - 2 1/2"		
CVCH-4	1	2		PSA-1/4			4"	No	VT-3,4	Yes	15/16" - 3 3/4"	
CVCH-5	1	2	X				No	VT-3	Yes	1 1/4" - 2 1/2"		
CVCH-6	1	2		PSA-1/4			4"	No	VT-3,4	Yes	2 3/16" - 3 3/4"	
CVCH-7	1	2	X				No	VT-3	Yes	1 1/4" - 2 1/2"		
47A406-8-56	1	2		PSA-1/4			4"	No	VT-3,4	Yes	1 3/4" - 3 3/4"	
CVCH-30	2	2	X				No	VT-3	Yes	1 1/4" - 2 1/2"		
CVCH-31	2	2		PSA-1			4"	No	VT-3,4	Yes	1/4" - 2 1/2"	

TABLE H (CONTINUED)

COMPONENTS SUBJECT TO EXAMINATION CATEGORY

ASME CLASS 2 SUPPORTS

WBNP
 TI-50A
 Appendix A
 Page 290 of 362
 Revision 15

System		Dwg. No.		Table									
SIS		ISI-0021-C		IWC									
Support No.	Sheet No.	Support Type					Integrally-Welded Attachment Size	Exam Required	Bolting	Acceptance Range			
		Pipe Size	Restraint	Snubber	Spring	Anchor							
RHRH-V121	1	8			BP-VS2F		2 1/4	No	VT-3	Yes	1/4" - 1 13/16"		
RHRH-R122	1	8	X					No	VT-3	Yes			
RHRH-R123	1	8	X					No	VT-3	Yes			
RHRH-R124	1	8	X					No	VT-3	Yes			
RHRH-R134	1	8	X					No	VT-3	No			
RHRH-R211	2	8	X					No	VT-3	Yes			
RHRH-R212	2	8	X					No	VT-3	Yes			
RHRH-R213	2	8	X					Yes - 1/2"	VT-3	Yes			
RHRH-R214	2	8	X						No	VT-3	Yes		
RHRH-R215	2	8	X					No	VT-3	Yes			
RHRH-R216	2	8		PSA-1/2"			2 1/2	No	VT-3,4	Yes	9/32" - 1 3/4"		
RHRH-R217	2	8	X					No	VT-3	Yes			
RHRH-R218	2	8	X					No	VT-3	No			
RHRH-R219	2	8	X					No	VT-3	Yes			
RHRH-R220	2	8	X					No	VT-3	Yes			
SIH-R129	1	16	X					No	VT-3	Yes			
SIH-R130	1	16	X					No	VT-3,4	Yes			
SIH-R131	1	16	X					No	VT-3,4	Yes			

TABLE H (CONTINUED)

COMPONENTS SUBJECT TO EXAMINATION CATEGORY

ASME CLASS 2 SUPPORTS

WBNP
 TI-50A
 Appendix A
 Page 292 of 362
 Revision 15

System		Dwg. No.		Table								
SIS		ISI-0021-C		IWC								
Support No.	Sheet No.	Pipe Size	Support Type				Anchor	Stroke	Integrally-Welded Attachment Size	Exam Required	Bolting	Acceptance Range
			Restraint	Snubber	Spring							
SIH-044	3	8	X					No	VT-3	Yes	1/4" - 1 1/8"	
SIH-045	3	8	X					No	VT-3	Yes		
SIH-046	3	8	X					No	VT-3	Yes		
SIH-047	3	8	X					Yes 3/4"	VT-3	Yes		
SIH-048	3	8	X					No	VT-3	Yes		
SIH-049	3	8	X					Yes - 3/4"	VT-3	Yes		
SIH-050	3	8	X					No	VT-3	Yes		
SIH-077	3	6	X					No	VT-3	Yes		
SIH-078	3	6		PSA-3			5"	No	VT-3,4	Yes	1/4" - 3 7/16"	
SIH-079	3	6		PSA-3			5"	No	VT-3,4	Yes	5/16" - 4 11/16"	
SIH-063	3	6			BP-VS2B		2 1/4	No	VT-3	Yes	3/4" - 2"	
SIH-064	3	6		PSA-3			5"	No	VT-3,4	Yes	1/4" - 4 1/8"	
47A435-1-12	5	8	X					No	VT-3	Yes		
RHRH-R221	5	8	X					No	VT-3	Yes		
RHRH-R222	5	8	X					No	VT-3	Yes		

TABLE H (CONTINUED)

COMPONENTS SUBJECT TO EXAMINATION CATEGORY

ASME CLASS 2 SUPPORTS

WBNP
 TI-50A
 Appendix A
 Page 295 of 362
 Revision 15

System Dwg. No. Table
 UHI ISI-0025-C IWC

Support No.	Sheet No.	Support Type				Integrally- Welded Attachment Size	Exam Required	Bolting	Acceptance Range
		Pipe Size	Restraint	Snubber	Spring				
UHIH-100	5	12	X			No	VT-3	Yes	
UHIH-102	5	12	X			Yes - 3/4"	VT-3	Yes	
UHIH-105	5	12	X			Yes - 1-1/4"	VT-3, ST	Yes	
UHIH-107	5	12	X			No	VT-3	Yes	
UHIH-108	5	12	X			Yes - 3/4"	VT-3	Yes	
UHIH-109	5	12	X			Yes - 3/4"	VT-3	Yes	

REQUEST FOR RELIEF ISI-4 (Continued)

Weld Number ¹	Code Category ²	Drawing Number	Physical Configuration ³	Scan ⁴ /Limitation ⁵	Remarks ⁶
RHRS-102	CF	CHM-2636-C 6 of 8	E/T	3/5:00-7:00 4/6:00-9:00	ELL introdoses prevent coupling from 6:00-7:00
RHRF-D051-12-LS	CF	CHM-2636-C 6 of 8	E	9/No scan 10/No scan	ELL introdoses prevents ultrasonic coupling
RHRS-132-LS	CF	CHM-2636-C 6 of 8	E	9/No scan 10/No scan	ELL introdoses prevents ultrasonic coupling
SIS-40-LS	CF	CHM-2758-C 3 of 13	E	9/No scan 10/No scan	ELL introdoses prevents ultrasonic coupling
SIF-D080-1-LS	CF	CHM-2758-C 2 of 13	E	9/No scan 10/No scan	ELL introdoses prevents ultrasonic coupling
FWF-D001-6	CG	CHM-2671-C 1 of 8	E/V	3/11:00-1:00, 2:00-4:00, 5:00-7:00 4/No scan 5/See scan 3 limits 6/See scan 3 limits	No examination due to component geometry and permanent support
FWS-41	CG	CHM-2671-C 4 of 8	R/P	4/3:00-5:00 5/3:00-5:00 6/3:00-5:00	No examination due to permanent support
UHIF-D039-17	CF	ISI-0004-C 5 of 5	P/ Penetration	No scans	No examination due to weld covered by guard pipe

REQUEST FOR RELIEF ISI-4 (Continued)

Weld Number ¹	Code Category ²	Drawing Number	Physical Configuration ³	Scan ⁴ /Limitation ⁵	Remarks ⁶
RCS-4-6	B-J	CHM-2547-B 1 of 2	Branch Connec- tions	4/No scan	No examination due to branch connection configuration (Note 9)
RCS-P-1	B-J	CHM-2547-B 1 of 2	Branch Connec- tions	4/No scan	No examination due to branch connection configuration (Note 9)
RHRS-35A	C-F	CHM-2636-C 3 of 8	Pen P/ Pen F	No scan	Weld inside penetration inaccessible for any type of examination.
RHRS-159A	C-F	CHM-2636-C 6 of 8	Pen P/ Pen F	No scan	Weld inside penetration inaccessible for any type of examination.
MSS-55A	C-G	CHM-2669-C 4 of 4	Pen P/ Pen F	No scan	Weld inside penetration inaccessible for any type of examination.
FWS-4B	C-G	CHM-2671-C 1 of 8	Pen F/ Pen P	No scan	Weld inside penetration inaccessible for any type of examination.
FWS-63	C-G	CHM-2671-C 7 of 8	Pen F/ Pen P	No scan	Weld inside penetration inaccessible for any type of examination.
SIS-76A	C-F	CHM-2758-C 6 of 13	Pen P/ Pen F	No scan	Weld inside penetration inaccessible for any type of examination.
UHS-76A	C-F	ISI-0004-C 5 of 5	Pen F/ Pen P	No scan	Weld inside penetration inaccessible for any type of examination.
RCF-A-T129-7	B-J	ISI-0017-C 1 of 11	V/P	3/No Scan 4/2:00, 5:00, 8:00, 11:00	No examination due to integrally-welded support attachments (Note 8)

REQUEST FOR RELIEF ISI-4 (Continued)

NOTES:

1. LS following seam number indicates longitudinal seam.
2. Categories determined in accordance with ASME XI-74S75.
3. P = Pipe, V = Valve, E = ELL, T = TEE, R = Reducer, F = Flange, N = Nozzle, Pen P = Penetration Process Pipe, and Pen F = Penetration Flued Head.
4. Scans 3 and 4 are perpendicular to circumferential welds.
Scans 5 and 6 are parallel to circumferential welds.
Scans 7 and 8 are perpendicular to longitudinal welds.
Scans 9 and 10 are parallel to longitudinal welds.
5. Limitations are expressed in o'clock references. In general, the exact limitation is noted rather than a percentage of the required examinations.
6. Examinations conducted from one side of the weld provide full coverage within the variable limits of weld penetrability and opposite surface condition.
7. This weld can be exempt from examination to the later code since the stress level and usage factor were below the limits under loads associated with specific seismic events and operational conditions. [1977 Edition, Summer 1978 Addenda, Table IWB-2500-1, Category B-J, Noted (1)(b)]
8. This weld can be exempt from volumetric examination by the later code since the nominal pipe size is less than four inches. (1977 Edition, Summer 1978 Addenda, Table 2500-1, Category B-J)
9. Because of the attenuation resulting from inherent coarse grain structure in cast stainless steels, the examination is limited to the $\frac{1}{2}$ V technique. Also physical restrictions prevent the exam from both sides of the weld.

1000, 500, 300,
 1000

No examination due to integrally joined
 supercritical parts (see 3)

NATIONAL BOARD NUMBERS

SYSTEM: 001-MAIN STEAM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
1-SFV-01-526	Dresser	BS06215	N/A
1-SFV-01-516	Dresser	BS06217	N/A
1-SFV-01-531	Dresser	BS06218	N/A
1-SFV-01-525	Dresser	BS06223	N/A
1-SFV-01-515	Dresser	BS06225	N/A
1-SFV-01-530	Dresser	BS06226	N/A
1-SFV-01-524	Dresser	BS06231	N/A
1-SFV-01-514	Dresser	BS06233	N/A
1-SFV-01-529	Dresser	BS06234	N/A
1-SFV-01-523	Dresser	BS06239	N/A
1-SFV-01-513	Dresser	BS06241	N/A
1-SFV-01-528	Dresser	BS06242	N/A
1-SFV-01-522	Dresser	BS06247	N/A
1-SFV-01-517	Dresser	BS06248	N/A
1-SFV-01-512	Dresser	BS06249	N/A
1-SFV-01-527	Dresser	BS06250	N/A
1-SFV-01-521	Dresser	BS06216	N/A
1-SFV-01-520	Dresser	BS06224	N/A
1-SFV-01-519	Dresser	BS06232	N/A
1-SFV-01-518	Dresser	BS06240	N/A
1-RIS-01-619	Walworth	D66147	1508
1-RIS-01-620	Walworth	D66211	1565
1-RIS-01-622	Walworth	D66227	1581
1-RIS-01-621	Walworth	D66447	1708
N/A	Tube Turns X-13A	53777	N/A
N/A	Tube Turns X-13B	53778	N/A
N/A	Tube Turns X-13C	53779	N/A
N/A	Tube Turns X-13D	53780	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 003-FEEDWATER

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 03A-FW-030	11075	N/A
N/AFV-01-516	Dravo 03A-FW-031	11076	N/A
N/AFV-01-521	Dravo 03A-FW-036	14945	N/A
N/AFV-01-525	Dravo 03A-FW-037	14946	N/A
N/AFV-01-525	Dravo 03A-FW-038	14947	N/A
N/AFV-01-527	Dravo 03A-FW-039	14948	N/A
N/AFV-01-524	Dravo 03A-FW-044	14953	N/A
N/AFV-01-511	Dravo 03A-FW-045	14954	N/A
N/AFV-01-529	Dravo 03A-FW-046	14955	N/A
N/AFV-01-523	Dravo 03A-FW-047	14956	N/A
N/AFV-01-523	Dravo 03A-FW-048	14957	N/A
N/AFV-01-527	Dravo 03A-FW-049	14958	N/A
N/AFV-01-521	Dravo 03A-FW-054	14963	N/A
N/AFV-01-517	Dravo 03A-FW-055	14964	N/A
N/AFV-01-512	Dravo 03A-FW-056	14965	N/A
N/AFV-01-527	Dravo 03A-FW-057	14966	N/A
N/AFV-01-521	Dravo 03A-FW-058	14967	N/A
N/AFV-01-521	Dravo 03A-FW-059	14968	N/A
N/A	Dravo 03A-FW-065	14974	N/A
N/A	Dravo 03A-FW-066	14975	N/A
N/AFV-01-524	Dravo 03A-FW-067	14976	N/A
N/A	Dravo 03A-FW-068	14977	N/A
N/A	Dravo 03B-AF-178	14983	N/A
N/A	Dravo 03B-AF-181	14985	N/A
1-CKV-03-645	Borg-Warner	26305	N/A
1-CKV-03-655	Borg-Warner	26310	N/A
1-CKV-03-652	Borg-Warner	26311	N/A
1-CKV-03-669	Borg-Warner	26312	N/A
1-CKV-03-638	Borg-Warner	26313	N/A
1-CKV-03-656	Borg-Warner	26317	N/A
1-CKV-03-679	Borg-Warner	26318	N/A
1-CKV-03-670	Borg-Warner	26320	N/A
1-CKV-03-644	Borg-Warner	26321	N/A
1-CKV-03-678	Borg-Warner	26322	N/A
N/A	Dravo 03A-FW-001	6859	N/A
N/A	Dravo 03A-FW-003	6861	N/A
N/A	Dravo 03A-FW-005	6863	N/A
N/A	Dravo 03A-FW-006	6864	N/A
N/A	Dravo 03A-FW-007	6865	N/A
N/A	Dravo 03A-FW-008	6866	N/A
N/A	Dravo 03A-FW-010	6868	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 003-FEEDWATER

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 03A-FW-012	6870	N/A
N/A	Dravo 03A-FW-013	6871	N/A
N/A	Dravo 03A-FW-015	6873	N/A
N/A	Dravo 03A-FW-016	6874	N/A
N/A	Dravo 03A-FW-017	6875	N/A
N/A	Dravo 03A-FW-018	6876	N/A
N/A	Dravo 03A-FW-020	6878	N/A
N/A	Dravo 03A-FW-021	6879	N/A
N/A	Dravo 03A-FW-022	6880	N/A
N/A	Dravo 03A-FW-023	6881	N/A
N/A	Dravo 03A-FW-024	6882	N/A
N/A	Dravo 03A-FW-025	6883	N/A
N/A	Dravo 03A-FW-026	8570	N/A
N/A	Dravo 03A-FW-027	8571	N/A
N/A	Dravo 03A-FW-028	8572	N/A
N/A	Dravo 03A-FW-029	8573	N/A
1-FCV-03-236	Leslie	D17543-3CEX	N/A
1-FCV-03-239	Leslie	D17543-3CEZ	N/A
1-FCV-03-242	Leslie	D17543-3CFB	N/A
1-FCV-03-245	Leslie	D17543-3CFC	N/A
1-FCV-03-087	Walworth	D66290	1642
1-FCV-03-033	Walworth	D66291	1643
1-FCV-03-047	Walworth	D66292	1644
1-FCV-03-100	Walworth	D66293	1645
1-CKV-03-510	Walworth	D66295	1647
1-CKV-03-511	Walworth	D66296	1648
1-CKV-03-509	Walworth	D66297	1649
1-CKV-03-508	Walworth	D66451	1712
N/A	Tube Turns X-12A	53781	N/A
N/A	Tube Turns X-12B	53782	N/A
N/A	Tube Turns X-12C	53783	N/A
N/A	Tube Turns X-12D	53784	N/A
N/A	Tube Turns X-8A	55504	N/A
N/A	Tube Turns X-8B	55493	N/A
N/A	Tube Turns X-8C	55494	N/A
N/A	Tube Turns X-8D	55505	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 062-CHEMICAL & VOLUME CONTROL SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
1-CKV-62-659	Westinghouse	03CS882S710031	W-10328
1-CKV-62-660	Westinghouse	03CS882S710034	W-10331
1-CKV-62-638	Westinghouse	03CS882S710035	W-10332
1-CKV-62-640	Westinghouse	03CS882S710033	W-10330
1-DRV-68-580	Velan	1-678	N/A
1-HTX-62-120	Joseph Oat	2247-2A11	856
1-HTX-62-122	Atlas Mfg.	3142	2520
1-HTX-62-121	Atlas Mfg.	3151	2529
1-FCV-62-84	Fisher	5697030	2116
1-FCV-62-70	Fisher	5737615	2463
1-FCV-62-69	Fisher	5737616	2464
N/A	Dravo 62A-CVC-144	7390	N/A
N/A	Dravo 62A-CVC-145	7391	N/A
N/A	Dravo 62A-CVC-146	7392	N/A
N/A	Dravo 62A-CVC-147	7393	N/A
N/A	Dravo 62A-CVC-148	7394	N/A
N/A	Dravo 62A-CVC-149	7395	N/A
N/A	Dravo 62A-CVC-151	7396	N/A
N/A	Dravo 62A-CVC-152	7397	N/A
N/A	Dravo 62A-CVC-163	7408	N/A
N/A	Dravo 62A-CVC-164	7404	N/A
N/A	Dravo 62A-CVC-171	7416	N/A
N/A	Dravo 62A-CVC-172	7417	N/A
N/A	Dravo 62A-CVC-173	7418	N/A
N/A	Dravo 62A-CVC-174	7419	N/A
N/A	Dravo 62A-CVC-175	7420	N/A
N/A	Dravo 62A-CVC-150	9507	N/A
N/A	Dravo 62A-CVC-176	9508	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 062-CHEMICAL & VOLUME CONTROL SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 62A-CVC-177	9509	N/A
N/A	Dravo 62A-CVC-178	9510	N/A
1-ISV-62-567	Kerotest	JS2-19	N/A
1-ISV-62-564	Kerotest	JS2-2	N/A
1-ISV-62-565	Kerotest	JS2-21	N/A
1-ISV-62-566	Kerotest	JS2-9	N/A
1-CKV-62-562	Kerotest	MA6-11	N/A
1-CKV-62-576	Kerotest	MA6-13	N/A
1-CKV-62-563	Kerotest	MA6-14	N/A
1-CKV-62-578	Kerotest	MA6-22	N/A
1-CKV-62-661	Kerotest	MA6-24	N/A
1-CKV-62-561	Kerotest	MA6-4	N/A
1-CKV-62-560	Kerotest	MA6-6	N/A
1-CKV-62-577	Kerotest	MA6-7	N/A
1-CKV-62-579	Kerotest	MA8-11	N/A
1-PMP-62-230A	Gould Pumps	N717B672-1	87
1-PMP-62-232B	Gould Pumps	N717B672-2	88
1-PMP-62-101	Union Pmp Co.	N742885A601	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 063-SAFETY INJECTION SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 63-SI-116	10299	N/A
N/A	Dravo 63-SI-117	10300	N/A
N/A	Dravo 63-SI-118	10301	N/A
N/A	Dravo 63-SI-119	10302	N/A
N/A	Dravo 63-SI-120	10303	N/A
N/A	Dravo 63-SI-121	10304	N/A
N/A	Dravo 63-SI-122	10305	N/A
N/A	Dravo 63-SI-123	10306	N/A
N/A	Dravo 63-SI-124	10307	N/A
N/A	Dravo 63-SI-125	10308	N/A
N/A	Dravo 63-SI-126	10309	N/A
N/A	Dravo 63-SI-127	10310	N/A
N/A	Dravo 63-SI-128	10311	N/A
N/A	Dravo 63-SI-129	10312	N/A
N/A	Dravo 63-SI-130	10313	N/A
N/A	Dravo 63-SI-131	10314	N/A
N/A	Dravo 63-SI-132	10315	N/A
N/A	Dravo 63-SI-133	10316	N/A
N/A	Dravo 63-SI-134	10317	N/A
N/A	Dravo 63-SI-135	10318	N/A
N/A	Dravo 63-SI-136	10319	N/A
N/A	Dravo 63-SI-137	10320	N/A
N/A	Dravo 63-SI-138	10321	N/A
N/A	Dravo 63-SI-139	10322	N/A
N/A	Dravo 63-SI-140	10323	N/A
N/A	Dravo 63-SI-141	10324	N/A
N/A	Dravo 63-SI-142	10325	N/A
N/A	Dravo 63-SI-154	10328	N/A
N/A	Dravo 63-SI-155	10329	N/A
N/A	Dravo 63-SI-156	10330	N/A
N/A	Dravo 63-SI-157	10331	N/A
N/A	Dravo 63-SI-158	10332	N/A
N/A	Dravo 63-SI-159	10333	N/A
N/A	Dravo 63-SI-143	10366	N/A
N/A	Dravo 63-SI-144	10367	N/A
N/A	Dravo 63-SI-145	10368	N/A
N/A	Dravo 63-SI-146	10369	N/A
N/A	Dravo 63-SI-147	10370	N/A
N/A	Dravo 63-SI-148	10371	N/A
N/A	Dravo 63-SI-149	10372	N/A
N/A	Dravo 63-SI-150	10373	N/A
N/A	Dravo 63-SI-151	10374	N/A
N/A	Dravo 63-SI-162	10377	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 063-SAFETY INJECTION SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 63-SI-163	10378	N/A
N/A	Dravo 63-SI-164	10379	N/A
N/A	Dravo 63-SI-165	10380	N/A
N/A	Dravo 63-SI-166	10381	N/A
N/A	Dravo 63-SI-167	10382	N/A
N/A	Dravo 63-SI-168	10383	N/A
N/A	Dravo 63-SI-169	10384	N/A
N/A	Dravo 63-SI-170	10385	N/A
N/A	Dravo 63-SI-171	10386	N/A
N/A	Dravo 63-SI-176	10391	N/A
N/A	Dravo 63-SI-177	10392	N/A
N/A	Dravo 63-SI-178	10393	N/A
N/A	Dravo 63-SI-179	10394	N/A
N/A	Dravo 63-SI-180	10395	N/A
N/A	Dravo 63-SI-181	10396	N/A
N/A	Dravo 63-SI-182	10397	N/A
N/A	Dravo 63-SI-183	10398	N/A
N/A	Dravo 63-SI-215	10778	N/A
N/A	Dravo 63-SI-216	10779	N/A
N/A	Dravo 63-SI-217	10780	N/A
N/A	Dravo 63-SI-218	10781	N/A
1-63-CKV-623	Westinghouse	10CS880000011	W10413
1-63-CKV-624	Westinghouse	10CS880000014	W10433
1-63-CKV-562	Westinghouse	10CS880000015	W10442
1-63-CKV-625	Westinghouse	10CS880000016	W10443
1-63-CKV-622	Westinghouse	10CS880000020	W11118
1-63-CKV-563	Westinghouse	10CS880000021	W11119
1-63-CKV-561	Westinghouse	10CS880000022	W11120
1-63-CKV-560	Westinghouse	10CS880000023	W11121
1-63-FCV-118	Westinghouse	10GM88FNNH001	W10991
1-63-FCV-98	Westinghouse	10GM88FNNH002	W11253
1-63-FCV-80	Westinghouse	10GM88FNNH003	W11254
1-63-FCV-67	Westinghouse	10GM88FNNH004	W11902
N/A	Dravo 63-SI-219	11524	N/A
N/A	Dravo 63-SI-220	11525	N/A
N/A	Dravo 63-SI-221	11526	N/A
1-63-CKV-502	Westinghouse	12CS840000001	W11112
1-63-FCV-1	Westinghouse	14GM84FEB0001	W11954

NATIONAL BOARD NUMBERS

SYSTEM: 063-SAFETY INJECTION SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
1-63-THV-582	Borg-Warner	25042	N/A
1-63-THV-584	Borg-Warner	25043	N/A
1-63-THV-585	Borg-Warner	25587	N/A
1-63-THV-583	Borg-Warner	25590	N/A
Accum. #1	Delta Southern	33007-74-1	3548
Accum. #2	Delta Southern	33007-74-2	3549
Accum. #3	Delta Southern	33007-74-3	3550
Accum. #4	Delta Southern	33007-74-4	3551
1-63-CKV-581	Westinghouse	3CS880000036	W-10333
SI PMP 1A-A	Pacific Pumps	49351	108
SI PMP 1B-B	Pacific Pumps	49352	109
1-63-CKV-559	Westinghouse	6CS8800000090	W10407
1-63-CKV-635	Westinghouse	6CS8800000052	W10358
1-63-CKV-632	Westinghouse	6CS8800000053	W10359
1-63-CKV-633	Westinghouse	6CS8800000054	W10360
1-63-CKV-634	Westinghouse	6CS8800000088	W10405
1-63-CKV-558	Westinghouse	6CS8800000089	W10406
N/A	Dravo 63-SI-37	7580	N/A
N/A	Dravo 63-SI-38	7581	N/A
N/A	Dravo 63-SI-39	7582	N/A
N/A	Dravo 63-SI-41	7584	N/A
N/A	Dravo 63-SI-42	7585	N/A
N/A	Dravo 63-SI-43	7586	N/A
N/A	Dravo 63-SI-60	7603	N/A
N/A	Dravo 63-SI-61	7604	N/A
N/A	Dravo 63-SI-65	7608	N/A
N/A	Dravo 63-SI-66	7609	N/A
N/A	Dravo 63-SI-67	7610	N/A
N/A	Dravo 63-SI-68	7611	N/A
N/A	Dravo 63-SI-69	7612	N/A
N/A	Dravo 63-SI-70	7613	N/A
N/A	Dravo 63-SI-71	7614	N/A
N/A	Dravo 63-SI-75	7618	N/A
N/A	Dravo 63-SI-76	7619	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 063-SAFETY INJECTION SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 63-SI-77	7620	N/A
N/A	Dravo 63-SI-78	7621	N/A
N/A	Dravo 63-SI-79	7622	N/A
N/A	Dravo 63-SI-80	7623	N/A
N/A	Dravo 63-SI-81	7624	N/A
N/A	Dravo 63-SI-82	7625	N/A
1-63-FCV-8	Westinghouse	8GM84FEB0003	W10931
1-63-FCV-11	Westinghouse	8GM84FEB0004	W10932
1-63-FCV-94	Westinghouse	8GM88FNB0002	W10855
1-63-FCV-93	Westinghouse	8GM88FNB0001	W10854
1-63-CKV-588	Kerotest	LA1-11	N/A
1-63-CKV-586	Kerotest	LA1-20	N/A
1-63-CKV-589	Kerotest	LA1-24	N/A
1-63-CKV-587	Kerotest	LA1-7	N/A
1-63-CKV-549	Kerotest	LA5-12	N/A
1-63-CKV-543	Kerotest	LA5-14	N/A
1-63-CKV-553	Kerotest	LA5-15	N/A
1-63-CKV-547	Kerotest	LA5-2	N/A
1-63-CKV-555	Kerotest	LA5-23	N/A
1-63-CKV-551	Kerotest	LA5-24	N/A
1-63-CKV-545	Kerotest	LA5-5	N/A
1-63-CKV-557	Kerotest	LA5-9	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 063-SAFETY INJECTION SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
1-63-FCV-72	Westinghouse	18GM84FEH001	W17878
1-63-FCV-73	Westinghouse	18GM84FEH002	W17879
1-63-FCV-172	Westinghouse	12GM88SEH003	W11256
1-63-FCV-640	Westinghouse	8CS880000017	W10417
1-63-FCV-641	Westinghouse	6CS880000092	W10409
1-63-FCV-643	Westinghouse	8CS880000003	W10410
1-63-FCV-644	Westinghouse	6CS880000091	W10408
1-063-PEN-X-20A	Tube Turns-X-20A	53795	N/A
1-063-PEN-X-20B	Tube Turns-X-20B	53796	N/A
1-63-CKV-500	Kerolast		
1-63-CKV-501	Kerolast		
1-63-CKV-502	Kerolast		
1-63-CKV-503	Kerolast		
1-63-CKV-504	Kerolast		
1-63-CKV-505	Kerolast		
1-63-CKV-506	Kerolast		
1-63-CKV-507	Kerolast		
1-63-CKV-508	Kerolast		
1-63-CKV-509	Kerolast		
1-63-CKV-510	Kerolast		
1-63-CKV-511	Kerolast		
1-63-CKV-512	Kerolast		
1-63-CKV-513	Kerolast		
1-63-CKV-514	Kerolast		
1-63-CKV-515	Kerolast		
1-63-CKV-516	Kerolast		
1-63-CKV-517	Kerolast		
1-63-CKV-518	Kerolast		
1-63-CKV-519	Kerolast		
1-63-CKV-520	Kerolast		

NATIONAL BOARD NUMBERS

SYSTEM: 068-REACTOR COOLANT SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
1-068-SGEN-SG1	Westinghouse	1591	W10286
1-068-SGEN-SG2	Westinghouse	1592	W10287
1-068-SGEN-SG3	Westinghouse	1593	W10288
1-068-SGEN-SG4	Westinghouse	1594	W10289
1-068-PRES-PR	Westinghouse	1601	W10792
1-068-ISV-519	Westinghouse	3GH880000082	W10864
1-068-ISV-530	Westinghouse	3GH880000083	W10865
1-068-ISV-514	Westinghouse	3GH880000084	W10866
1-068-ISV-508	Westinghouse	3GH880000085	W10867
1-068-ISV-541	Westinghouse	3GH880000089	W10871
1-068-ISV-536	Westinghouse	3GH880000090	W10872
1-068-ISV-525	Westinghouse	3GH880000098	W10953
1-068-ISV-547	Westinghouse	3GH880000099	W10954
1-068-FCV-332	Westinghouse	3GH88FNNH02	W10877
1-068-FCV-333	Westinghouse	3GM88FNNH01	W10876
1-068-PCV-340B	Fisher	5909465	2752
1-068-PCV-340D	Fisher	5909466	2753
1-068-PCV-334	Fisher	5916726	N/A
1-068-PCV-340A	Fisher	5916727	N/A
1-068-PMP-8	ESCO (for W)	923	None Supplied
1-068-PMP-31	ESCO (for W)	924	None Supplied
1-068-PMP-50	ESCO (for W)	925	None Supplied
1-068-PMP-73	ESCO (for W)	926	None Supplied
N/A	Dravo 68-RC-01	9461	N/A
N/A	Dravo 68-RC-04	9464	N/A
N/A	Dravo 68-RC-05	9465	N/A
N/A	Dravo 68-RC-06	9466	N/A
N/A	Dravo 68-RC-07	9467	N/A
N/A	Dravo 68-RC-08	9468	N/A
N/A	Dravo 68-RC-09	9469	N/A
N/A	Dravo 68-RC-10	9470	N/A
N/A	Dravo 68-RC-11	9471	N/A
N/A	Dravo 68-RC-12	9472	N/A
N/A	Dravo 68-RC-13	M0727	N/A
N/A	Dravo 68-RC-14	9474	N/A
N/A	Dravo 68-RC-15	9475	N/A
N/A	Dravo 68-RC-16	9476	N/A
N/A	Dravo 68-RC-17	9477	N/A
N/A	Dravo 68-RC-18	9478	N/A
N/A	Dravo 68-RC-19	9479	N/A
N/A	Dravo 68-RC-20	9480	N/A
N/A	Dravo 68-RC-21	9481	N/A
N/A	Dravo 68-RC-22	9482	N/A
N/A	Dravo 68-RC-23	9483	N/A
N/A	Dravo 68-RC-24	9484	N/A
N/A	Dravo 68-RC-25	9485	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 068-REACTOR COOLANT SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 68-RC-27	9487	N/A
N/A	Dravo 68-RC-28	9488	N/A
N/A	Dravo 68-RC-29	9489	N/A
N/A	Dravo 68-RC-30	9490	N/A
N/A	Dravo 68-RC-31	9491	N/A
N/A	Dravo 68-RC-32	9492	N/A
N/A	Dravo 68-RC-33	9493	N/A
N/A	Dravo 68-RC-34	9494	N/A
N/A	Dravo 68-RC-35	9495	N/A
N/A	Dravo 68-RC-36	9496	N/A
1-68-ISM-515	Kerotest	DG-8-22	N/A
1-68-DRV-582	Kerotest	HX2-10	N/A
1-68-ISM-520	Kerotest	HX2-11	N/A
1-68-ISM-535	Kerotest	HX2-16	N/A
1-68-ISM-524	Kerotest	HX2-2	N/A
1-68-DRV-553	Kerotest	HX2-20	N/A
1-68-ISM-509	Kerotest	HX2-3	N/A
1-68-DRV-550	Kerotest	HX2-4	N/A
1-68-DRV-549	Kerotest	HX2-5	N/A
1-68-ISM-513	Kerotest	HX2-8	N/A
1-68-ISM-505	Kerotest	HX7-14	N/A
1-68-ISM-526	Kerotest	HX7-7	N/A
1-68-ISM-531	Kerotest	HX7-8	N/A
1-68-ISM-542	Kerotest	HX2-21	N/A
1-68-ISM-543	Kerotest	HX7-11	N/A
1-68-ISM-537	Kerotest	HX7-9	N/A
1-68-ISM-510	Kerotest	KP2-20	N/A
1-68-ISM-521	Kerotest	KP22-23	N/A
1-68-DRV-581	Kerotest	KP26-19	N/A
1-68-DRV-554	Kerotest	KP26-20	N/A
1-68-ISM-504	Kerotest	KP4-24	N/A
1-68-ISM-532	Kerotest	KP7-20	N/A
1-68-ISM-516	Kerotest	KP7-9	N/A
1-68-DRV-558	Kerotest	KP10-22	N/A
1-68-DRV-557	Kerotest	KP22-24	N/A
1-68-ISM-546	Kerotest	KP7-1	N/A
1-68-ISM-538	Kerotest	KP7-12	N/A
1-68-ISM-527	Kerotest	MC5-6	N/A
1-68-RFV-563	Crosby	N56964-06-0029	905
1-68-RFV-564	Crosby	N56964-06-0033	201
1-68-RFV-565	Crosby	N56964-06-0034	907

NATIONAL BOARD NUMBERS

SYSTEM: 068-REACTOR COOLANT SYSTEM

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Southwest FAB WAT-Loop 1-3	11503	N/A
N/A	Southwest FAB WAT-Loop 1-4	11504	N/A
N/A	Southwest FAB WAT-Loop 2-3	11505	N/A
N/A	Southwest FAB WAT-Loop 2-4	11506	N/A
N/A	Southwest FAB WAT-Loop 3-3	11507	N/A
N/A	Southwest FAB WAT-Loop 3-4	11508	N/A
N/A	Southwest FAB WAT-Loop 4-3	11509	N/A
N/A	Southwest FAB WAT-Loop 4-4	11510	N/A
N/A	Southwest FAB WAT-Surge-1	4221	N/A
N/A	Southwest FAB WAT-Surge-2	4222	N/A
N/A	Southwest FAB WAT-Loop 1-1	4251	N/A
N/A	Southwest FAB WAT-Loop 3-1	4252	N/A
N/A	Southwest FAB WAT-Loop 2-1	4467	N/A
N/A	Southwest FAB WAT-Loop 4-1	4468	N/A
N/A	Southwest FAB WAT-Loop 1-5	4622	N/A
N/A	Southwest FAB WAT-Loop 2-5	4623	N/A
N/A	Southwest FAB WAT-Loop 3-5	4624	N/A
N/A	Southwest FAB WAT-Loop 4-5	4625	N/A
N/A	Southwest FAB WAT-Loop 3-2	82485-2	N/A
N/A	Southwest FAB WAT-Loop 2-2	83976-1	N/A
N/A	Southwest FAB WAT-Loop 4-2	84141-1	N/A
N/A	Southwest FAB WAT-Loop 1-2	85305-1	N/A

NATIONAL BOARD NUMBERS:

SYSTEM: 074-RESIDUAL HEAT REMOVAL

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
1-074-HTX-01/1A	Eng & Fab, Inc.	S-17811-A	1558
1-074-HTX-01/1B	Eng & Fab, Inc.	S-17811-B	1559
N/A	Dravo 74-RHR-003	6733	N/A
N/A	Dravo 74-RHR-006	6736	N/A
N/A	Dravo 74-RHR-007	6737	N/A
N/A	Dravo 74-RHR-008	6738	N/A
N/A	Dravo 74-RHR-009	6739	N/A
N/A	Dravo 74-RHR-010	6740	N/A
N/A	Dravo 74-RHR-011	6741	Nonpp-1
N/A	Dravo 74-RHR-012	6742	N/A
N/A	Dravo 74-RHR-013	6743	N/A
N/A	Dravo 74-RHR-014	6744	N/A
N/A	Dravo 74-RHR-015	6745	N/A
N/A	Dravo 74-RHR-016	6746	N/A
N/A	Dravo 74-RHR-017	6747	N/A
N/A	Dravo 74-RHR-018	6748	N/A
N/A	Dravo 74-RHR-019	6749	N/A
N/A	Dravo 74-RHR-020	6750	N/A
N/A	Dravo 74-RHR-021	6751	N/A
N/A	Dravo 74-RHR-022	6752	N/A
N/A	Dravo 74-RHR-023	6753	N/A
N/A	Dravo 74-RHR-024	6754	N/A
N/A	Dravo 74-RHR-025	6755	N/A
N/A	Dravo 74-RHR-026	6756	N/A
N/A	Dravo 74-RHR-027	6757	N/A
N/A	Dravo 74-RHR-028	6758	N/A
N/A	Dravo 74-RHR-029	6759	N/A
N/A	Dravo 74-RHR-030	6760	N/A
N/A	Dravo 74-RHR-031	6761	N/A
N/A	Dravo 74-RHR-032	6762	N/A
N/A	Dravo 74-RHR-033	6763	N/A
N/A	Dravo 74-RHR-034	6764	N/A
N/A	Dravo 74-RHR-035	6765	N/A
N/A	Dravo 74-RHR-036	6766	N/A
N/A	Dravo 74-RHR-037	6767	N/A
N/A	Dravo 74-RHR-038	6768	N/A
N/A	Dravo 74-RHR-039	6769	N/A
N/A	Dravo 74-RHR-040	6770	N/A
N/A	Dravo 74-RHR-041	6771	N/A
N/A	Dravo 74-RHR-042	6772	N/A
N/A	Dravo 74-RHR-043	6773	N/A
N/A	Dravo 74-RHR-047	6777	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 074-RESIDUAL HEAT REMOVAL

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 74-RHR-048	6778	N/A
N/A	Dravo 74-RHR-049	6779	N/A
N/A	Dravo 74-RHR-050	6780	N/A
N/A	Dravo 74-RHR-051	6781	N/A
N/A	Dravo 74-RHR-052	6782	N/A
N/A	Dravo 74-RHR-053	6783	N/A
N/A	Dravo 74-RHR-054	6784	N/A
N/A	Dravo 74-RHR-055	6785	N/A
N/A	Dravo 74-RHR-064	6794	N/A
N/A	Dravo 74-RHR-065	6795	N/A
N/A	Dravo 74-RHR-066	6796	N/A
N/A	Dravo 74-RHR-067	6797	N/A
N/A	Dravo 74-RHR-068	6798	N/A
N/A	Dravo 74-RHR-069	6799	N/A
N/A	Dravo 74-RHR-070	6800	N/A
N/A	Dravo 74-RHR-071	6801	N/A
N/A	Dravo 74-RHR-072	6802	N/A
N/A	Dravo 74-RHR-073	6803	N/A
N/A	Dravo 74-RHR-074	6804	N/A
N/A	Dravo 74-RHR-075	6805	N/A
N/A	Dravo 74-RHR-076	6806	N/A
N/A	Dravo 74-RHR-077	6807	N/A
N/A	Dravo 74-RHR-078	6808	N/A
N/A	Dravo 74-RHR-079	6809	N/A
N/A	Dravo 74-RHR-080	6810	N/A
N/A	Dravo 74-RHR-081	6811	N/A
N/A	Dravo 74-RHR-082	6812	N/A
N/A	Dravo 74-RHR-083	6813	N/A
N/A	Dravo 74-RHR-084	6814	N/A
N/A	Dravo 74-RHR-085	6815	N/A
N/A	Dravo 74-RHR-086	6816	N/A
N/A	Dravo 74-RHR-087	6817	N/A
N/A	Dravo 74-RHR-088	6818	N/A
N/A	Dravo 74-RHR-089	6819	N/A
N/A	Dravo 74-RHR-090	6820	N/A
N/A	Dravo 74-RHR-091	6821	N/A
N/A	Dravo 74-RHR-092	6822	N/A
N/A	Dravo 74-RHR-093	6823	N/A
N/A	Dravo 74-RHR-094	6824	N/A
N/A	Dravo 74-RHR-095	6825	N/A
N/A	Dravo 74-RHR-096	6826	N/A
N/A	Dravo 74-RHR-097	6827	N/A
N/A	Dravo 74-RHR-098	6828	N/A
N/A	Dravo 74-RHR-099	6829	N/A
N/A	Dravo 74-RHR-100	6830	N/A
N/A	Dravo 74-RHR-101	6831	N/A
N/A	Dravo 74-RHR-102	6832	N/A

WBNP
 TI-50A
 Appendix E
 Page 18 of 22
 Revision 15

NATIONAL BOARD NUMBERS
 SYSTEM: 074-RESIDUAL HEAT REMOVAL
 SYSTEM: 074-RESIDUAL HEAT REMOVAL

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
1-74-PMP-10-A	Ingersoll Rand	67470	78
1-74-PMP-20-B	Ingersoll Rand	67471	79
1-74-FCV-9	Westinghouse	10GM88SEH0003	W14312
1-74-FCV-8	Westinghouse	10GM88SEH0004	W14313
1-74-FCV-3	Westinghouse	14GM84FEH0001	W11192
1-74-FCV-21	Westinghouse	14GM84FEH0002	W11193
1-74-FCV-2	Westinghouse	14GM88SEH0001	W11959
1-74-FCV-1	Westinghouse	14GM88SEH0002	W11960
1-74-CKV-514	Westinghouse	8CS840000005	W10347
1-74-CKV-515	Westinghouse	8CS840000006	W10354
1-74-HCV-34	Westinghouse	8GH840000008	W10913
1-74-ISV-525	Westinghouse	8GH840000009	W10914
1-74-ISV-524	Westinghouse	8GH840000010	W10915
1-74-HCV-037	Westinghouse	8GH840000011	W10916
1-74-HCV-036	Westinghouse	8GH840000012	W10938
1-74-ISV-521	Westinghouse	8GH840000014	W10388
1-74-ISV-520	Westinghouse	8GH840000015	W10981
1-74-FCV-35	Westinghouse	8GM84FEB0001	W10929
1-74-FCV-33	Westinghouse	8GM84FEB0002	W10994
1-74-FCV-16	Westinghouse	BF207887	3390
1-74-FCV-32	Westinghouse	BF207888	3391
1-74-FCV-28	Westinghouse	BF207889	3392
N/A	Tube Turns K-14	53836	N/A
N/A	Tube Turns K-15	53837	N/A
N/A	Tube Turns X-17	53785	N/A
N/A	Tube Turns X-107	53786	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 087-UPPER HEAD INJECTION

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
1-TANK-87-101	National Annealing	5835	2157
1-ACUM-87-102	Wyatt Div. USI	H-5223-N-72	4050
N/A	Dravo 87-UHI-55	12526	N/A
N/A	Dravo 87-UHI-56	12527	N/A
N/A	Dravo 87-UHI-57	12528	N/A
N/A	Dravo 87-UHI-58	12529	N/A
N/A	Dravo 87-UHI-59	12530	N/A
N/A	Dravo 87-UHI-60	12531	N/A
N/A	Dravo 87-UHI-53	2635-10, 2635-2	No Npp-1
N/A	Dravo 87-UHI-54	2635-10, 2635-2	No Npp-1
N/A	Dravo 87-UHI-05	6918	N/A
N/A	Dravo 87-UHI-07	6920	N/A
N/A	Dravo 87-UHI-08	6921	N/A
N/A	Dravo 87-UHI-09	6922	N/A
N/A	Dravo 87-UHI-10	6923	N/A
N/A	Dravo 87-UHI-11	6924	N/A
N/A	Dravo 87-UHI-12	6925	N/A
N/A	Dravo 87-UHI-13	6926	N/A
N/A	Dravo 87-UHI-14	6927	N/A
N/A	Dravo 87-UHI-15	6928	N/A
N/A	Dravo 87-UHI-16	6929	N/A
N/A	Dravo 87-UHI-17	6930	N/A
N/A	Dravo 87-UHI-18	6931	N/A
N/A	Dravo 87-UHI-19	6932	N/A
N/A	Dravo 87-UHI-20	6933	N/A
N/A	Dravo 87-UHI-21	6934	N/A
N/A	Dravo 87-UHI-22	6935	N/A
N/A	Dravo 87-UHI-23	6936	N/A
N/A	Dravo 87-UHI-24	6937	N/A
N/A	Dravo 87-UHI-25	6938	N/A
N/A	Dravo 87-UHI-26	6939	N/A
N/A	Dravo 87-UHI-27	6940	N/A
N/A	Dravo 87-UHI-28	6941	N/A
N/A	Dravo 87-UHI-29	6942	N/A
N/A	Dravo 87-UHI-30	6943	N/A
N/A	Dravo 87-UHI-31	6944	N/A
N/A	Dravo 87-UHI-32	6945	N/A
N/A	Dravo 87-UHI-33	6946	N/A
N/A	Dravo 87-UHI-34	6947	N/A
N/A	Dravo 87-UHI-35	6989	N/A
N/A	Dravo 87-UHI-36	6949	N/A

NATIONAL BOARD NUMBERS

SYSTEM: 087-UPPER HEAD INJECTION

TVA COMP. ID	MANUFACTURER	S/N	NAT. BD. NO.
N/A	Dravo 87-UHI-37	6950	N/A
N/A	Dravo 87-UHI-38	6951	N/A
N/A	Dravo 87-UHI-39	6952	N/A
N/A	Dravo 87-UHI-40	6953	N/A
N/A	Dravo 87-UHI-41	6954	N/A
N/A	Dravo 87-UHI-42	6955	N/A
N/A	Dravo 87-UHI-43	6956	N/A
N/A	Dravo 87-UHI-44	6957	N/A
N/A	Dravo 87-UHI-04	7628	N/A
1-CKV-87-563	Westinghouse	12CS8800000042	W10859
1-CKV-87-562	Westinghouse	12CS8800000043	W10860
1-FCV-87-07	Fisher	6498179	2432
1-FCV-87-08	Fisher	6498180	2433
1-CKV-87-558	Westinghouse	8CS8800000013	W10412
1-CKV-87-561	Westinghouse	8CS8800000014	W10414
1-CKV-87-559	Westinghouse	8CS8800000015	W10415
1-CKV-87-560	Westinghouse	8CS8800000016	W10416
1-FCV-87-21	Anchor Darling	E-5750-5-1	31
1-FCV-87-23	Anchor Darling	E-5750-5-2	32
1-FCV-87-22	Anchor Darling	E-5750-5-3	33
1-FCV-87-24	Anchor Darling	E-5750-5-4	34
N/A	Tube Turns X-108	53843	N/A
N/A	Tube Turns X-109	53844	N/A

ENCLOSURE 1

DISCUSSION OF OPEN ITEMS