WATTS BAR NUCLEAR PLANT

SURVEILLANCE INSTRUCTION

SI-4.4.10.1

PRESERVICE BASELINE INSPECTION
AND INSERVICE INSPECTION PROGRAM FOR
TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT

UNITS 1 AND 2

1C	Plant Master File
	Superintendent
1U	Assistant Superintendent
1U	Maintenance Supervisor
1C	Results Supervisor
1C	Operations Supervisor
1C	Quality Assurance Supervisor
1C	Health Physicist
	Administrative Supervisor
	Chemical Laboratory
	Instrument Shop
1C	Shift Engineer's Office
1C	Unit Control Room
	Health Physics Laboratory
	Chief Storekeeper
1C	Mechanical Engineer
	Reactor Engineer
	Chemical Engineer
	Instrument Engineer
3U	Chief, Nuclear Generation Branch
1C	Assistant Maintenance Supervisor
	DPP Central Office File
1C	Supervisor, Metallurgy and NDT Section, 505 EB-C
1U	NRC
1C	P PROD Training Center
1C	PPMB Plant Representative
2C	Industrial Engineer

Rev. No.	Date	Revised Pages
0	10/25/78	All
1	11/17/78	37, 38, 39, 43, 44, 58, 58a, 58b
2	1-24-79	4, 37, 38, 39, 43, 44, 58, 58a-58c
3	2/19/79	19, 25, 41, 45, ~~59-1 through 59-7~~

Prepared By G. L. Belew

Submitted By E. R. Ennis
Supervisor

PORC Review 10-25-78
Date

Approved By C. E. Nelson
for Superintendent

Date Approved 10-25-78

The last page of this instruction is number 59-7.

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3.0 BASELINE AND INSERVICE INSPECTION PROGRAM EXAMINATION - TVA CLASS A COMPONENTS

The areas to be inspected during the first 10-year inspection interval are tabulated in Table A of appendix A. The planned inspection areas are outlined in Table A for each 40-month inspection period during this inspection interval.

Tabulations are presented on a per-unit basis.

A further elaboration of the inspection of the various components will be discussed in the following paragraphs.

3.1 Reactor Vessel

3.1.1 Reactor Pressure Vessel Seam Welds

3.1.1.1 Circumferential Shell Welds - Beltline Region

There are three circumferential seam welds, each approximately 50 feet in length, totaling 150 feet, in the vessel cylinderical shell located behind the thermal shield. These welds will be accessible for inspection from the vessel I.D. with the core internals removed and will be inspected from the I.D. as part of the preservice baseline and inservice inspection using remote inspection devices.

All vessel shell sections are machined forgings fabricated of A-508, class 2, manganese-molybdenum steel and are clad with weld deposited austenitic stainless steel.

3.1.1.2 Circumferential Shell Weld

There is one circumferential seam weld, approximately 50 feet in length, in the vessel cylinderical shell located outside of the beltline region. The weld will be inspected from the vessel I.D. with the core internals removed and will be inspected as part of the preservice baseline and inservice inspection using remote inspection devices.

3.1.1.3 Lower Head Seam Welds

There are six orange peel seam welds (21 feet) and one circumferential seam weld (40 feet), for a total of approximately 61 feet, which will be accessible for future examination from the vessel I.D. with the core internals removed. The welds will be inspected as part of the preservice baseline and inservice inspection.

* Base metal on the bottom head cap that is below the circumferential seam weld is inaccessible for examination due to instrumentation penetrations.

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

3.1.1.4 Closure Head Seam Weld

The head cap weld is approximately 41 feet in length and shall be inspected for the preservice baseline and inservice inspection from the head outside surface. The head does not have any orange peel welds.

The closure head ring is fabricated of A-508, class 2, maganese-molybedenum steel. The closure hemispherical head section is fabricated of A-533, Gr. B, class 1, maganese-molybdenum steel. Both sections are clad with weld deposited austenitic stainless steel.

3.1.1.5 Vessel-to-Flange Weld and Head-to-Flange Weld

The vessel-to-flange weld is approximately 50 feet in length and will be accessible for future examination. The preservice baseline shall be performed from the vessel inside diameter with vessel remote inspection tools. The technique used for the baseline will also be used for future inservice inspection.

TABLE A

Watts Bar Inservice Inspection Program - Class "A" Components

Component	Total Sample	Sample Tested	Method of Inspection	Quantity Inspected 40 Month	80 Month	120 Month	Examination Category From Table IWB-2600, Section XI	Reference Drawing Number and Remarks	Procedure Number
16. Vessel cladding	6 Patches		VT	2	2	2	B-I-1	N/A	N-VT-1
17. Vessel interior surfaces and core support structures			VT	General Surveillance			B-N-1 B-N-3	N/A	N-VT-1
18. Control rod drive housings	17	2	UT	1	1	-	B-O	From O.D.	
B. Pressurizer									
1. Circumferential welds	120 ft.	7.5 ft.	UT	1.5 ft	3 ft.	3 ft.	B-B	From O.D. * Ø CH-M-2570-A	LMT-UT-2 Rev. 11
2. Longitudinal welds	44 ft.	4 ft.	UT	1 ft.	1 ft.	2 ft.	B-B	From O.D. * Ø CH-M-2570-A	LMT-UT-2 Rev. 11
3. Nozzle-to-vessel welds and nozzle-to-vessel inside radiused sections	7	7	UT	2	3	2	B-D	From O.D. * Ø CH-M-2570-A	LMT-UT-2 Rev. 11
4. Heater penetrations	78	20	VT	6	7	7	B-E	From exterior (IWA-5000)	N-VT-1
5. *Nozzle-to-safe end welds	6	6	UT PT	2	2	2	B-F	From O.D.	WB-UT-1 WB-PT-1
6. Pressure-retaining bolting	16	16	VT	5	5	6	B-G-2		N-VT-1
7. Vessel support skirt weld	23 ft.	2.5 ft.	UT	.5 ft.	1 ft.	1 ft	B-H	From O.D.	LMT-UT-2 Rev. 11
8. Vessel cladding	1 Patch		VT	1	--	--	B-I-2	Remote viewing	N-VT-1

* Ø See ATTACHMENT 3

TABLE A

Watts Bar Inservice Inspection Program - Class "A" Components

Component	Total Sample	Sample Tested	Method of Inspection	Quantity Inspected 40 Month	80 Month	120 Month	Examination Category From Table IWB-2600, Section XI	Reference Drawing Number and Remarks	Procedure Number
C. Steam Generators									
1. Primary head-to-tube sheet weld	144 ft.	8 ft.	UT	2 ft.	2 ft.	4 ft.	B-B *	From O.D.	LMT-UT-2 Rev. 11
2. Primary nozzle-to-vessel inside radii	16	16	UT	5	6	5	B-D *	From O.D.	LMT-UT-2 Rev. 11
3. Nozzle-to-safe end welds	8	8	UT PT	2	2	4	B-F	From O.D.	WB-UT-1 WB-PT-1
4. Pressure retaining bolting	128	128	VT	32	48	48	B-G-2		N-VT-1
5. Vessel cladding	8 Patches		VT	3	2	3	B-I-2	Remote viewing	N-VT-1
6. Steam generator tubing	18,696		ET	See Section 3.3.6					WB-ET-1 WB-ET-2 WB-ET-3
D. Piping									
1. Reactor coolant system									
Circumferential and socket welds								From O.D.	
31" I.D. SS	24	6	UT	2	2	2	*	B-J Ø CH-M-2547-B, CH-M-2566-B	WB-UT-1
29" I.D. SS	8 } 12		UT	1	1	1	*	B-J Ø CH-M-2547-B, CH-M-2566-B	WB-UT-1
29" I.D. SS	4 }	3	UT					B-J See attachment 1	SWRI 700-5
							*	Ø See attachment 2	

TABLE A

Watts Bar Inservice Inspection Program - Class "A" Components

Component	Total Sample	Sample Tested	Method of Inspection	Quantity Inspected 40 Month	80 Month	120 Month	Examination Category From Table IWB-2600, Section XI	Reference Drawing Number and Remarks	Procedure Number
27.5" I.D. SS	8		UT					Attachment 1	SWRI 700-5
27.5" I.D. SS	4 } 16	4	UT	1	1	2	* B-J Ø	CH-M-2547-B, CH-M-2566-B	WB-UT-1
27.5" I.D. SS	4		UT					Attachment 1	SWRI 800-17
14" SS			UT				B-J		WB-UT-1
6" SS			UT				B-J		WB-UT-1
4" SS			UT				B-J		WB-UT-1
3" SS			UT				B-J		WB-UT-1
2" SS			PT				B-J		WB-PT-1

* Ø See attachment 2

TABLE A

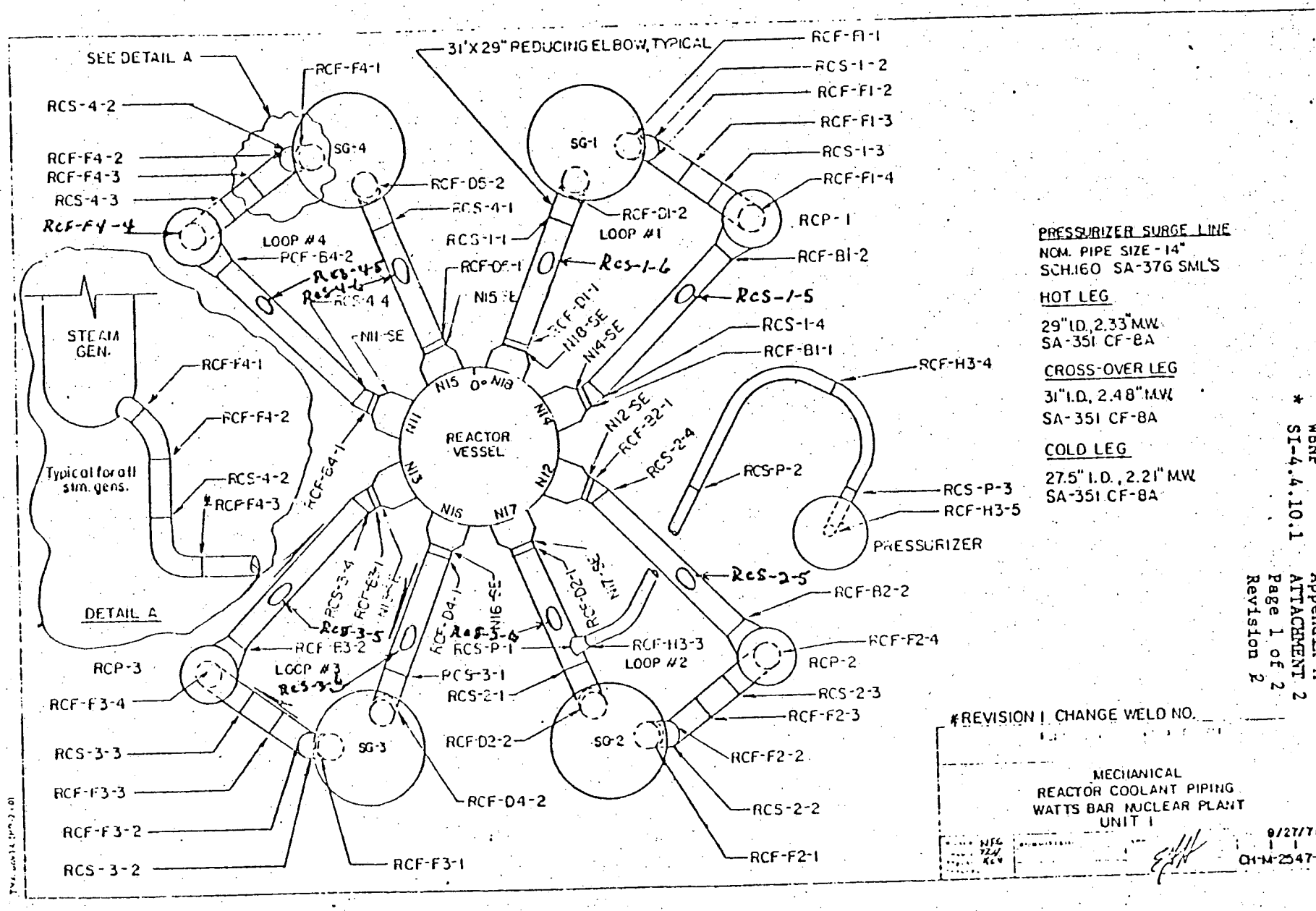
Watts Bar Inservice Inspection Program - Class "A" Components

Component	Total Sample	Sample Tested	Method of Inspection	Quantity Inspected 40 Month	80 Month	120 Month	Examination Category From Table IWB-2600, Section XI	Reference Drawing Number and Remarks	Procedure Number
E. Reactor Coolant Pumps									
1. Pressure-retaining bolting	96	96	VT, UT	24	24	48	B-G-1		N-VT-1
2. Support components	12	12	VT	4	4	4	B-K-2		N-VT-1
3. Pump casing welds	76 ft.	19 ft.	UT	-	-	19 ft.	B-L-1	From O.D. *	LMT-UT-2 Rev. 1
4. Pump casing	4	1	VT or UT	-	-	1	B-L-2	From I.D. or O.D.	N-VT-1
5. Flywheel	4	4	MT or PT, UT	-	-	4		Regulatory Guide 1.14	
			UT	4	4	4			-
F. Exempted Components									
			VT	Inspection during system pressure tests			B-P	IWA-5000 IWB-5000	

TABLE B

Watts Bar Inservice Inspection Program - Class "B" Components

Component	40-Year Sample	Sample Tested	Method of Inspection	Quantity Inspected 40 Month	80 Month	120 Month	Examination Category From Table IWC-2600, Section XI	Reference Drawing Number and Remarks	Procedure Number
A. Steam Generators									
1. Circumferential welds	45 ft.	18 ft.	UT	6 ft.	6 ft.	6 ft.	C-A	From O.D.	* LMT-UT-2 Rev. 1
2. Nozzle-to-vessel welds	5	2	UT	1	--	1	C-B	From O.D.	* LMT-UT-2 Rev. 1
3. Pressure	40	40	VT	14	12	14	C-D		
Retaining bolting	4	1	UT	1	--	--	C-D		N-VT-1
B. RHR Heat Exchangers									
1. Circumferential welds	6 ft.	2 ft.	UT	1 ft.	--	1 ft.	C-A	From O.D.	-
2. Nozzle-to-vessel welds	2	1	UT	1	--	--	C-B	From O.D.	-
3. Integrally-welded supports	2	1	PT	1	--	--	C-C	From O.D.	WB-PT-1
4. Pressure-retaining studs	52	52	VT	17	17	18	C-D		N-VT-1
	6	2	UT	1	1	-	C-D		-
nuts	104	104	VT	34	34	36	C-D		N-VT-1
	12	4	UT	2	2	--	C-D		-



PRESSURIZER SURGE LINE
NOM. PIPE SIZE - 14"
SCH.160 SA-376 SML'S

HOT LEG
29" I.D., 2.33" M.W.
SA-351 CF-8A

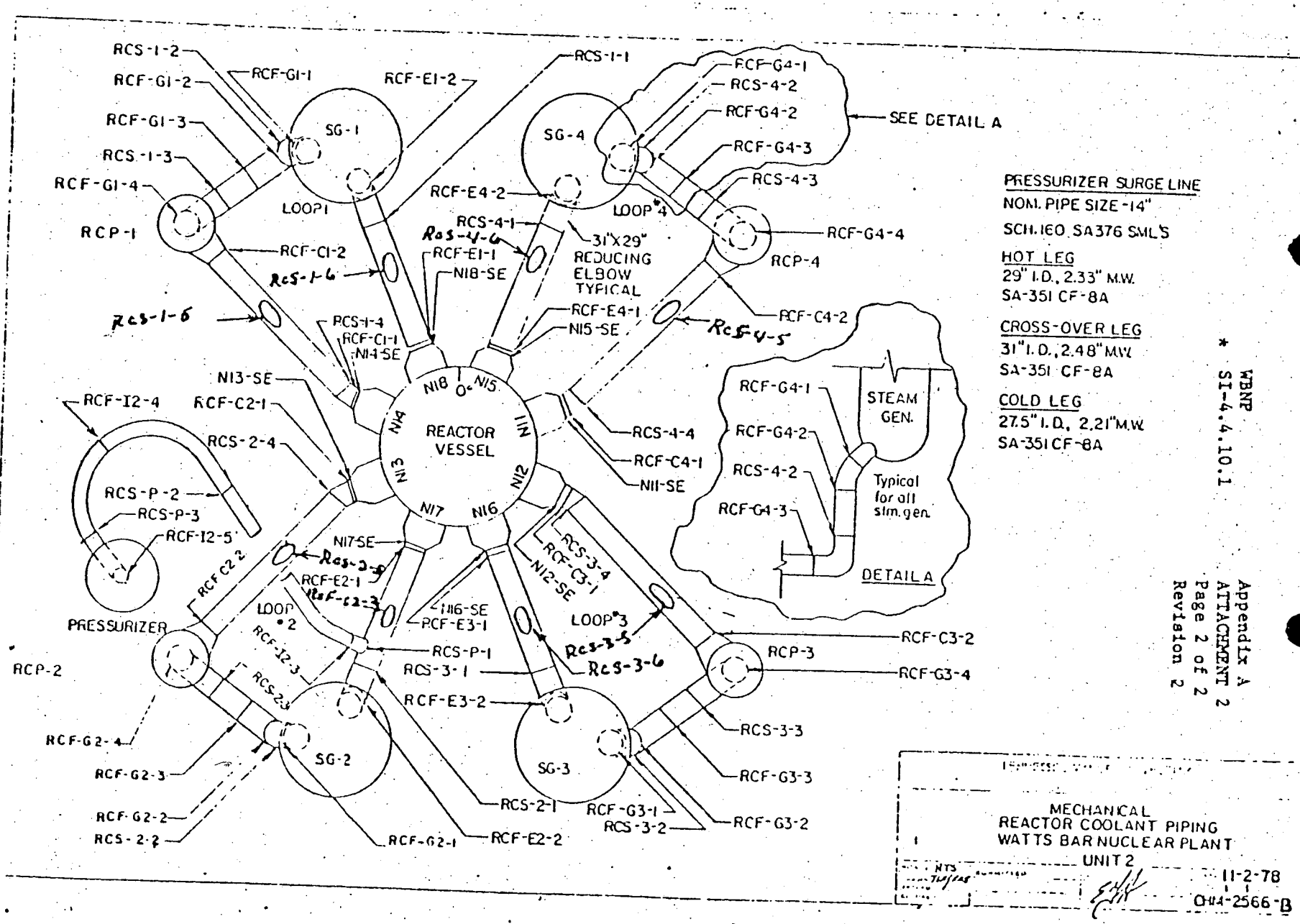
CROSS-OVER LEG
31" I.D., 2.48" M.W.
SA-351 CF-8A

COLD LEG
27.5" I.D., 2.21" M.W.
SA-351 CF-8A

*REVISION 1 CHANGE WELD NO.

MECHANICAL
REACTOR COOLANT PIPING
WATTS BAR NUCLEAR PLANT
UNIT 1

9/27/78
CH-M-2547-B



PRESSURIZER SURGE LINE
NOM. PIPE SIZE -14"
SCH. 160 SA376 SMLS

HOT LEG
29" I.D., 2.33" M.W.
SA-351 CF-8A

CROSS-OVER LEG
31" I.D., 2.48" M.W.
SA-351 CF-8A

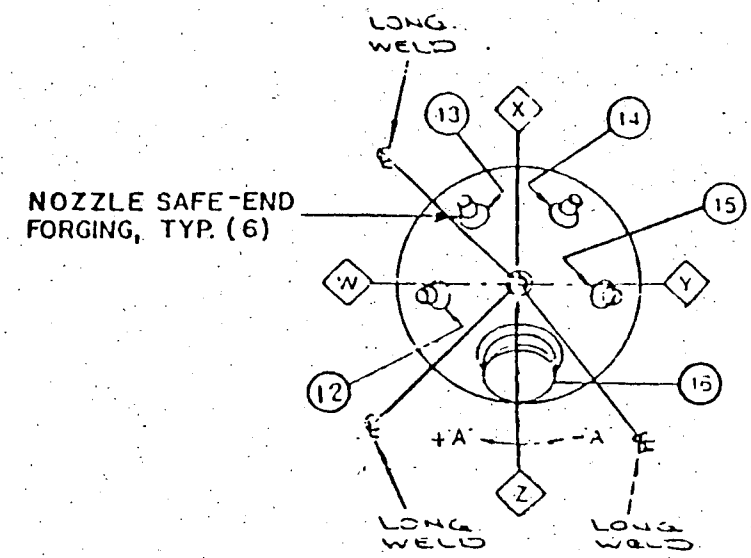
COLD LEG
27.5" I.D., 2.21" M.W.
SA-351 CF-8A

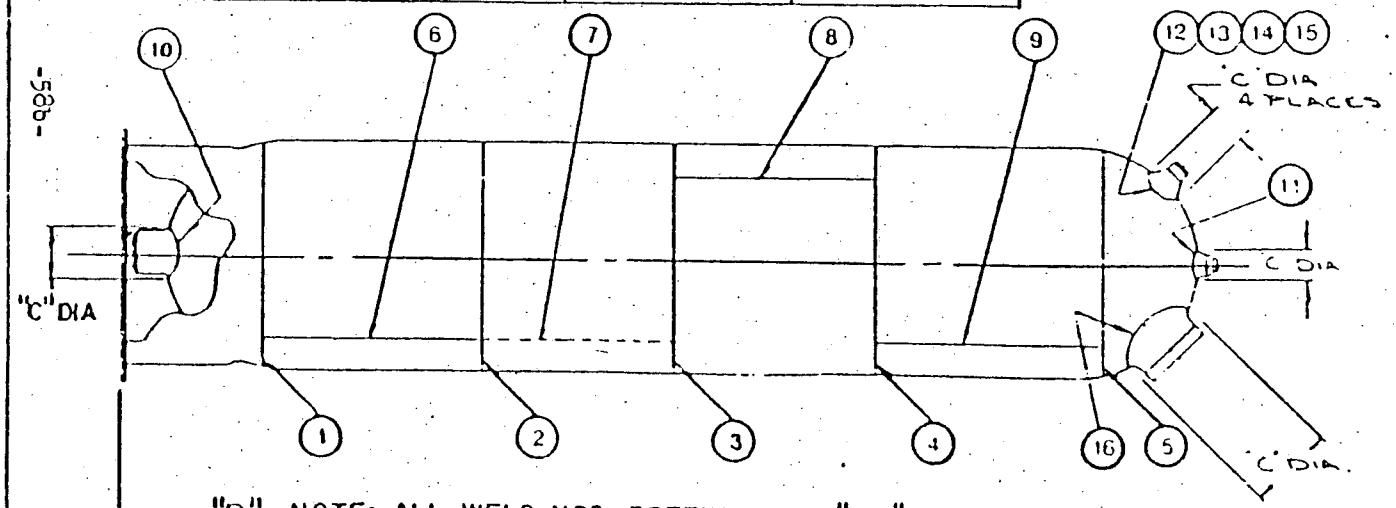
MECHANICAL
REACTOR COOLANT PIPING
WATTS BAR NUCLEAR PLANT
UNIT 2

NTS

11-2-78
OH4-2566-B

AS BUILT DIMENSIONS				
TITLE	SEAM NO.	"A"	"B"	"C" DIAMETER
Girth Welds	1		56.44 [1433.6]	
	2		193.25 [4908.6]	
	3		322.12 [8181.8]	
	4		450.37 [11452.1]	
	5		588.12 [14939.2]	
Longitudinal Welds	6	+30°		
	7	-29°		
	8	+135°		
	9	+47°		
Surge Noz.	10	0°		24.50 [622.3]
Spray Noz.	11	0°		12.75 [323.9]
Safety Noz.	12	+81°		15.00 [381.0]
Safety Noz.	13	+146° 59'		15.00 [381.0]
Safety Noz.	14	-147° 7'		15.00 [381.0]
Relief Noz.	15	-82°		15.00 [381.0]
Manway	16	-1°		32.50 [825.5]





NOTE: ALL WELD NOS. PREFIXED BY "WP"
SAFE-END WELD NOS. ALSO INCLUDE "SE" SUFFIX

PRESSURIZER
SEAM WELDS
WATTS BAR
NUCLEAR PLANT
UNIT 1 CH-M-2570-A

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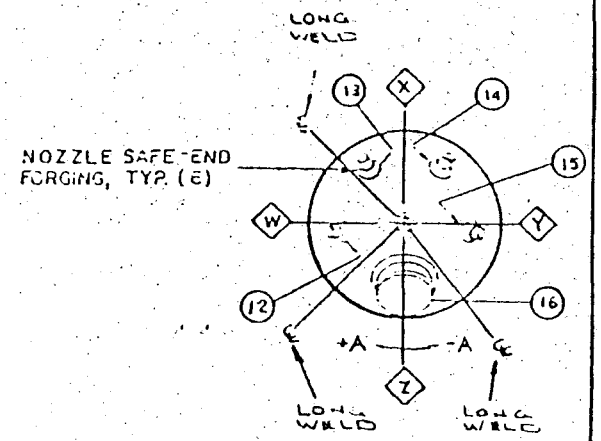
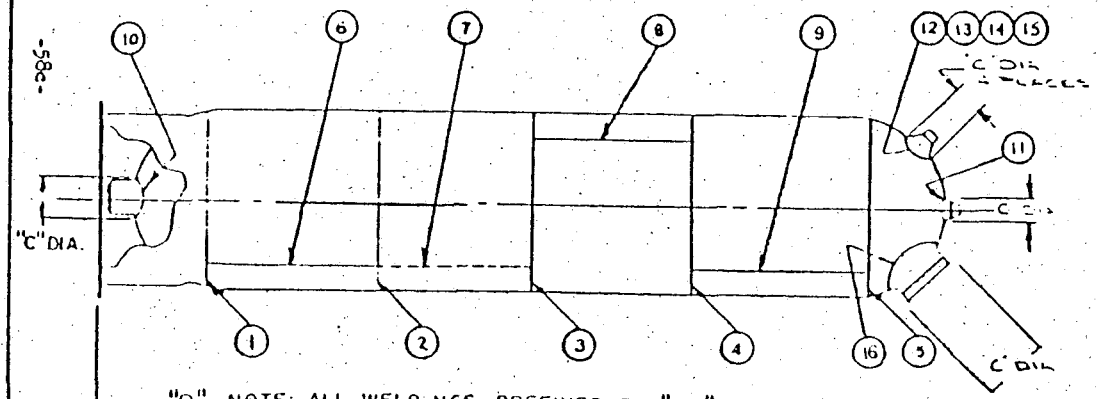
AS BUILT DIMENSIONS				
TITLE	SEAM NO	"A"	"B"	"C" DIAMETER
Girth Welds	1		53.00 [1,347.9]	
	2		193.00 [4,902.2]	
	3		322.00 [8,178.6]	
	4		449.50 [11,417.3]	
	5		588.00 [14,935.2]	
Longitudinal Welds	6	+13°		
	7	-27° 30'		
	8	+133° 30'		
	9	+53°		
Surge Noz.	10	0°		24.50 [622.3]
Spray Noz.	11	0°		12.75 [323.9]
Safety Noz.	12	+81° 30'		15.00 [381.0]
Safety Noz.	13	+151° 40'		15.00 [381.0]
Safety Noz.	14	-152° 23'		15.00 [381.0]
Relief Noz.	15	-8°		15.00 [381.0]
Manway	16	0°		32.50 [825.5]





"B" NOTE: ALL WELD NOS. PREFIXED BY "WP"
SAFE-END WELD NOS. ALSO INCLUDE
"SE" SUFFIX

PRESSURIZER
SEAM WELDS
WATTS BAR
NUCLEAR PLANT
UNIT 2 CH-M-2574-A

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of the total will be inspected during the inservice inspection interval.

The entire system is stainless steel.

In appendix A, Table A lists the pipe size, number of welds, scheduled inspections, and types of examinations.

* 3.4.2.3 Residual Heat Removal and Safety Injection Piping (RHR, SI)

There are 61 Class A RHR welds and (later) SI welds which require ultrasonic or liquid penetrant examination (NOTE: 2" lines by CONST.) All of these welds will be examined for the preservice baseline and approximately 25 percent of these welds will be examined during the inservice inspection interval.

Each system is entirely stainless steel.

In appendix A, Table A lists the pipe size, number of welds, scheduled inspections, and types of examinations.

3.4.2.4 Upper Head Injection Piping (UHI)

There are class A welds which require ultrasonic or liquid penetrant examination. All of these welds will be examined for the preservice baseline, and approximately 25 percent of these welds will be examined during each inservice inspection interval.

The entire system is stainless steel except for the lower portion of each UHI auxiliary head adapter which is Inconel.

In appendix A, Table A lists the pipe size, number of welds, scheduled inspections, and type of examinations

3.4.3 Pressure-Retaining Bolting

Any class A pressure-retaining bolting 2 inches in diameter and larger shall be visually and ultrasonically examined. Class A bolting less than 2 inches shall be visually examined.

3.4.4 Integrally-Welded Supports and Support Components

Class A integrally-welded supports shall be ultrasonically examined for the preservice baseline and during the ISI intervals. Support components shall be visually examined for the baseline and during the ISI interval.

Unless a condition exists which should merit a detail record of the condition, only a checkoff sheet record will be maintained verifying visual inspection of supports and hangers.

3.5 Reactor Coolant Pumps (4)

3.5.1 Pressure Retaining Bolting

The main flange on each pump includes 24 bolts (4-1/2 inches in diameter).

Each bolt will be visually and ultrasonically examined for the preservice baseline and during the ISI intervals.

The main flange bolts are fabricated from SA-450, Gr. B24.

3.5.2 Support Components

Each pump has three bolted support components. Each support component shall be visually examined during the preservice baseline and inservice inspection interval.

Longitudinal weld joints in pipe fittings (tees, elbows, reducers, etc.) shall also be ultrasonically examined in accordance with IWC-1200 and IWC-2400.

In some cases, it may be impractical to inspect all welds from both sides or from either side; i.e., hanger interference, concrete or steel walls, or case stainless-steel valve and pump casing adjoining the weld(s). Where there is interference or problems from one direction only, consideration will be given to performing an angle beam examination for 2T+ (greater than two wall thicknesses from one edge of weld) from the accessible side of the weld in order or examine the entire weld cross section.

4.3.1.1 Residual Heat Removal and Safety Injection Piping (RHR, SI)

* There are (later) Class B welds subject to examination. Approximately
* 146 of these welds will be examined for RHR (SI later) during the first inspection interval
* and (later) welds during the 4 intervals and for the preservice baseline.

Each system is entirely stainless steel. In appendix A, Table B lists the weld size, number of welds, scheduled inspections, and type of examinations.

4.3.1.2 Main Steam

There are class B circumferential welds subject to examination. Approximately welds will be examined for the preservice baseline and during the 4 intervals. Approximately of these welds will be examined during the first inservice inspection interval.

The entire system is carbon steel.

In appendix A, Table B lists weld size, number of welds, scheduled inspections, and type of examinations.

TVA intends to terminate main steam class B on each main steam loop after the MSIV (FCV 1-4, 1-11, 1-22, 1-29) for baseline and ISI purposes. This is consistant with Regulatory Guide 1.26.

4.3.1.3 Feedwater

There are class B circumferential welds subject to examination. Approximately of these welds will be examined during the first inservice inspection interval, and welds during the 4 intervals and for the preservice baseline.

The entire system is carbon steel.

In appendix A, Table B lists the weld size, number of welds, scheduled inspections, and type of examinations.

TVA intends to terminate feedwater class B on each feedwater loop after the outermost containment isolation valve (FCV 3-33, 3-47, 3-87, 3-100) for baseline and ISI purposes. This is consistant with Regulatory Guide 1.26.

4.3.2 Pressure-Retaining Bolting

Pressure-retaining bolting larger than 1 inch in diameter shall be visually examined for the preservice baseline and each inservice interval in accordance with IWC-2100 and IWC-2411 of Section XI. Ten percent of the pressure-retaining bolting (or 2 bolts or studs whichever is greater) in each joint selected for examination in accordance with IWC-2100 and IWC-2411 shall be ultrasonically examined for the preservice baseline and 4 inspection intervals.

4.3.3 Integrally-Welded Supports and Support Components

Integrally-welded supports shall be surface examined for the preservice baseline and during the inservice inspection intervals in accordance with IWC-2100 and IWC-2411.

All nonintegrally welded supports selected for examination in accordance with IWC-2100 and IWC-2411 shall be visually examined for the baseline and each inspection interval.

Unless a condition exists which should merit a detail record of the condition, only a checkoff sheet record will be maintained verifying visual inspection of supports.

TABLE A

Watts Bar Inservice Inspection Program - Class "A" Components

Component	Total Sample	Sample Tested	Method of Inspection	Quantity Inspected 40 Month	80 Month	120 Month	Examination Category From Table IWB-2600, Section XI	Reference Drawing Number and Remarks	Procedure Number
3. Residual heat removal system									
Circumferential and socket welds								From O. D.	
*14" SS	21		UT				B-J	CH-M-2636-C	WB-UT-1
*10" SS	10		UT				B-J	CH-M-2636-C	WB-UT-1
* 8" SS	12		UT				B-J	CH-M-2636-C	WB-UT-1
* 6" SS	15		UT				B-J	CH-M-2636-C	WB-UT-1
* 2" SS	(later)		PT				B-J	CH-M-2636-C	WB-PT-1
Branch pipe connection welds								From O.D.	
*14" SS	1		UT				B-J	CH-M-2636-C	WB-UT-1
* 6" SS	2		PT				B-J	CH-M-2636-C	WB-PT-1
* 2" SS	(later)		PT				B-J	CH-M-2636-C	WB-PT-1
Safety injection system									
Circumferential and socket welds								From O.D.	
10" SS			UT				B-J		WB-UT-1
6" SS			UT				B-J		WB-UT-1
3" SS			UT				B-J		WB-UT-1
2-1/2" SS			PT				B-J		WB-PT-1
2" SS			PT				B-J		WB-PT-1
1-1/2" SS			PT				B-J		WB-PT-1

TABLE B

Watts Bar Inservice Inspection Program - Class "B" Components

Component	40-Year Sample	Sample Tested	Method of Inspection	Quantity Inspected 40 Month	80 Month	120 Month	Examination Category From Table IWC-2600, Section XI	Reference Drawing Number and Remarks	Procedure Number
Piping									
1. Residual heat removal system									
Circumferential welds									
* 18" SS	1		UT					CH-M-2636-C	WB-UT-1
* 14" SS	48		UT					CH-M-2636-C	WB-UT-1
* 12" SS	21		UT				C-F	CH-M-2636-C	WB-UT-1
* 10" SS	4		UT					CH-M-2636-C	WB-UT-1
* 8" SS	72		UT				C-F	CH-M-2636-C	WB-UT-1
2. Safety Injection System								From O.D.	
Circumferential welds									
8" SS			UT				C-F		WB-UT-1
6" SS			UT				C-F		WB-UT-1
3. Main Steam								From O.D.	
Circumferential welds									
36-1/4" CS			UT				C-G		WB-UT-1
32" CS			UT				C-G		WB-UT-1
9" CS			UT				C-G		WB-UT-1
6" CS			UT				C-G		WB-UT-1
4. Feedwater								From O.D.	
Circumferential welds									
18" CS			UT				C-G		WB-UT-1
16" CS			UT				C-G		WB-UT-1

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For Rodney Daniel, PPMB

By Tommy L Hale Date 3/16

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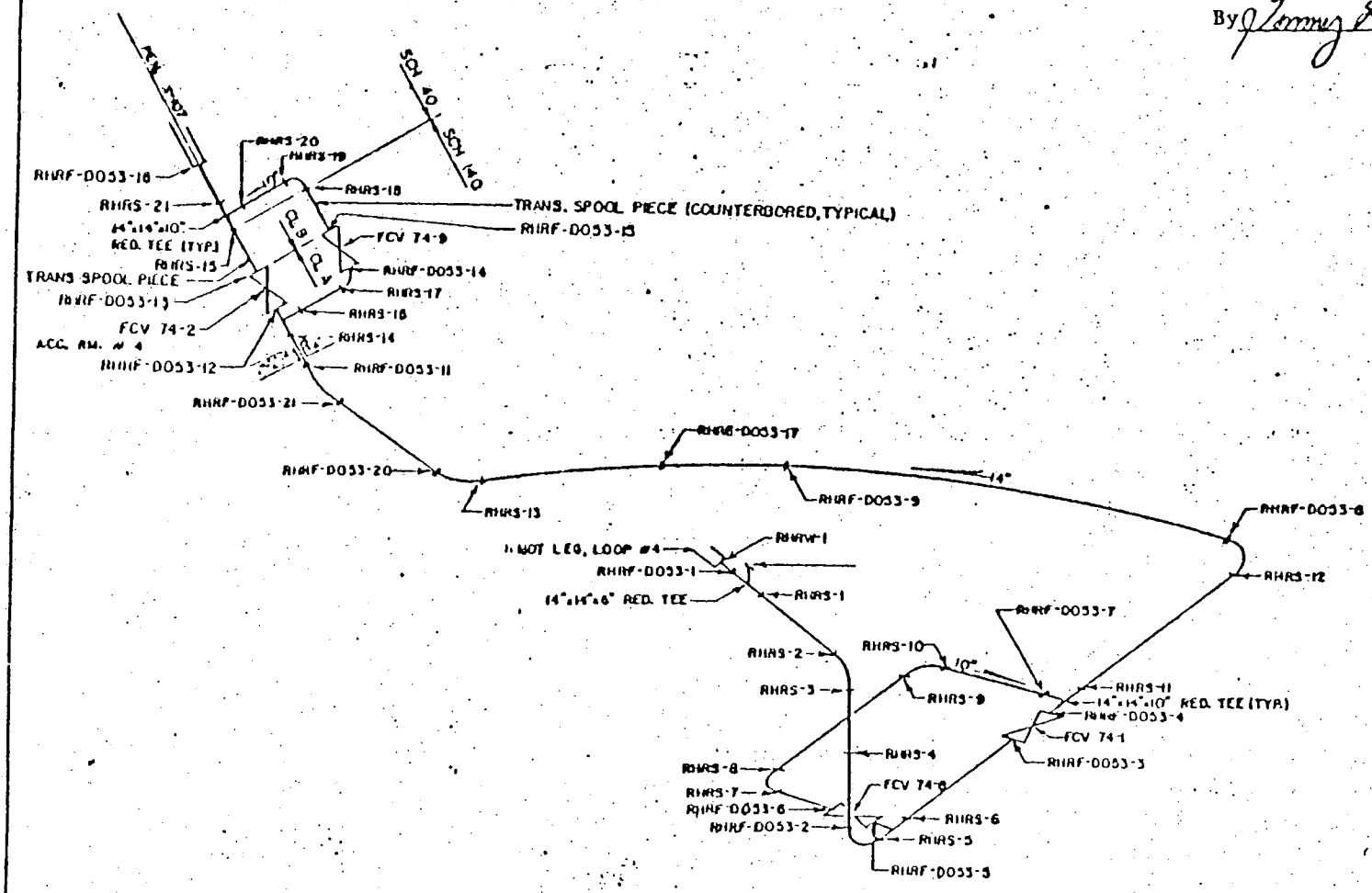


REF. DWGS.
DRAVO E-2879-IC-53 R6

CLASS A
PIPE
14" & 10" SCH. 140, SA-376 TP. 316 S
FITTINGS
14" & 10" SCH. 140, SA-403 WP. 316 S

CLASS B
PIPE
14" SCH. 40, SA-358 CL. 1 TP 304 W
10" SCH. 40S, SA-312 TP 304 W/S
FITTINGS
14" SCH. 40, SA-403 WP 304 W
10" SCH. 40S, SA-403 WP 304 WWO/S
TRANSITION SPOOL PIECES
14" SCH. 140, SA-358 CL. 1 TP 304 W
10" SCH. 140, SA-312 TP 304 W

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT

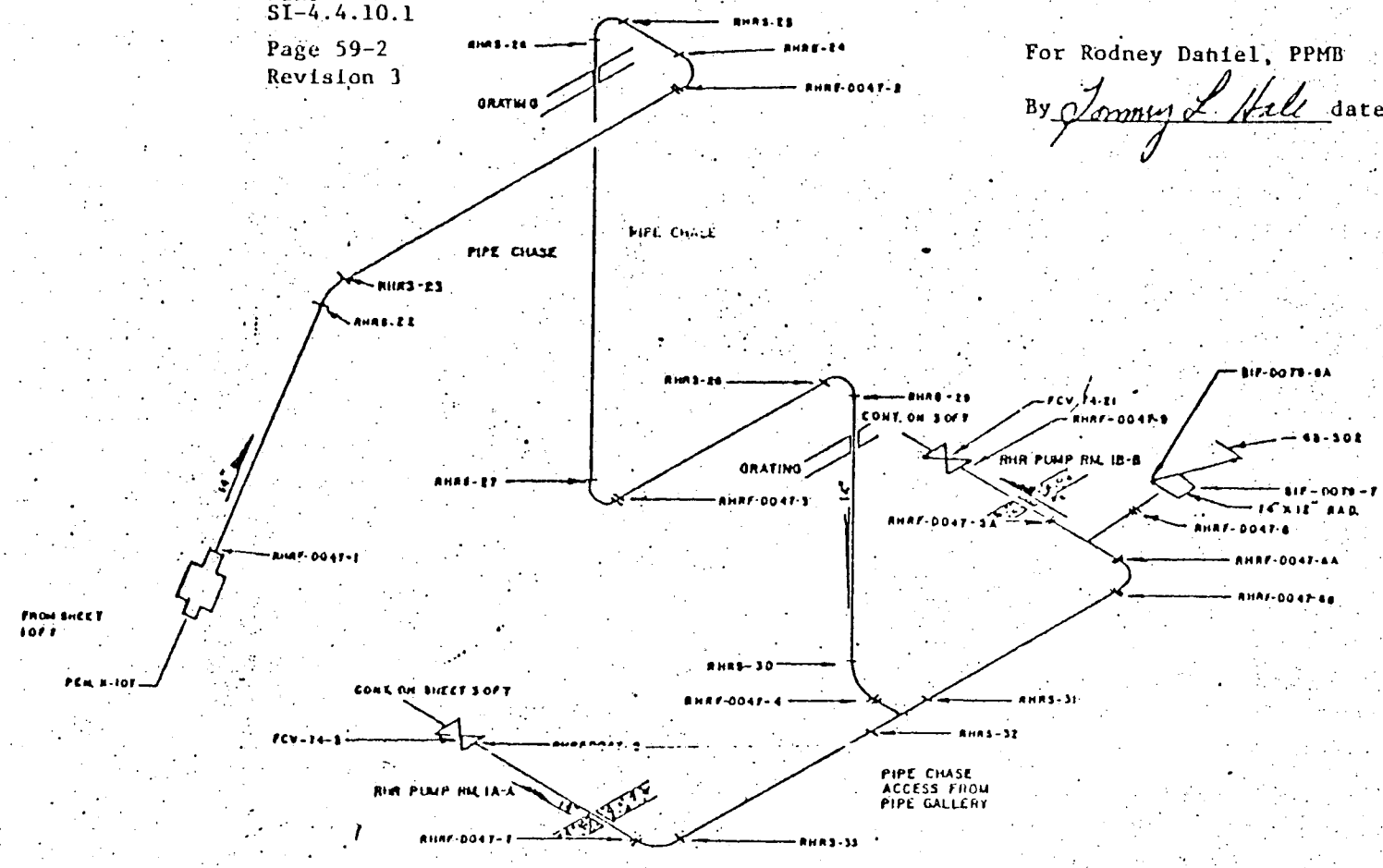
WBNP
RESIDUAL HEAT REMOVAL
WELD MAP
UNIT 1

CH-M-2636-C

WBNP
SI-4.4.10.1
Page 59-2
Revision 3

For Rodney Daniel, PPMB

By Tommy L. Hale date 3/14



CLASS B

PIPE
14" SCH 40 SA 358 CL1TP 304W

FITTINGS
14 X 12 SCH 40 SA-403 WP 304 W

REF. DWGS.

DRAWG E-2879-IC-47 R0

DRAWG E-2879-IC-79 R3

TENNESSEE VALLEY AUTHORITY
DIVISION OF POWER PRODUCTION

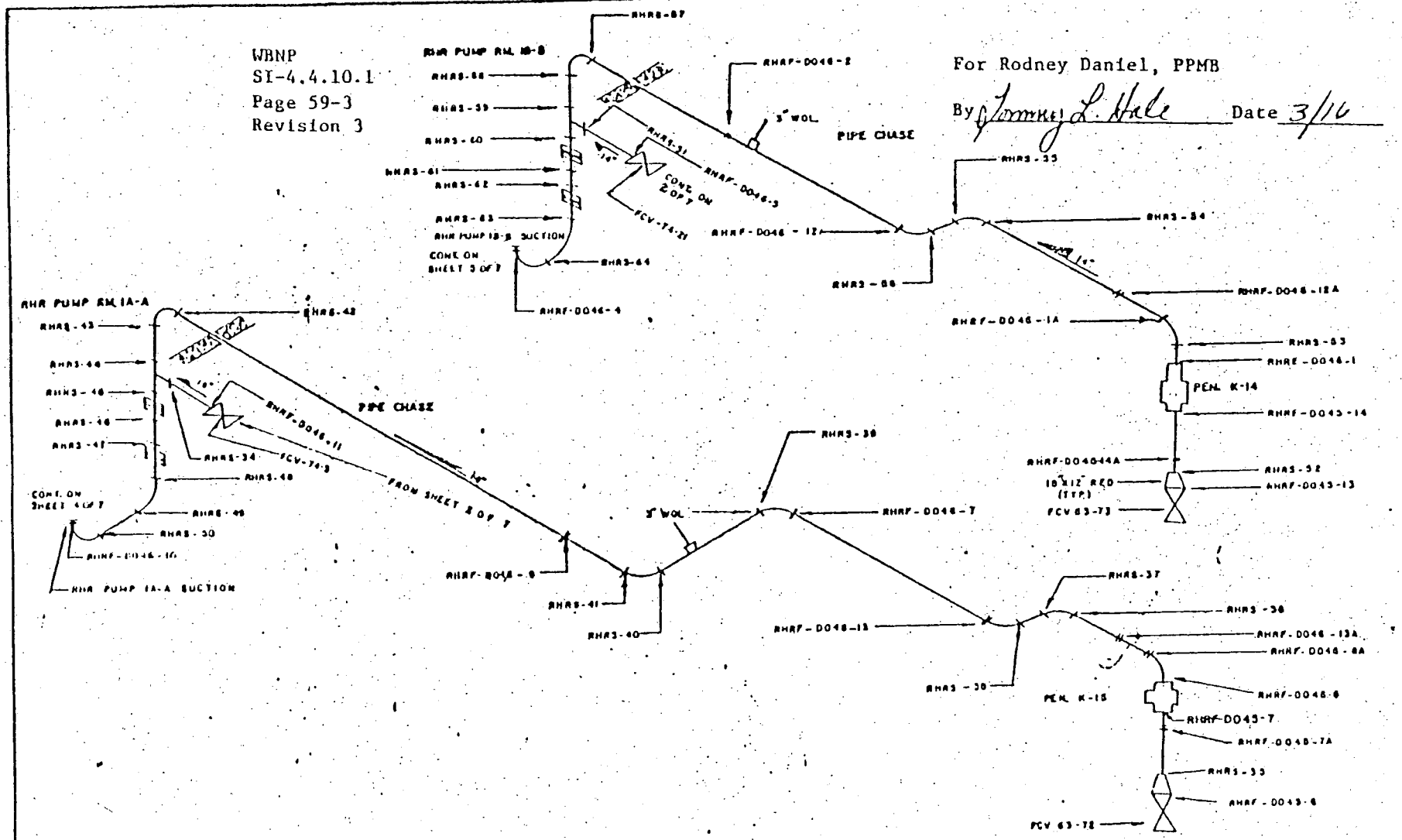
W.B.N.P.
RESIDUAL HEAT REMOVAL
WELD MAP - UNIT 1

CH-M-2636-C

WBNP
SI-4.4.10.1
Page 59-3
Revision 3

For Rodney Daniel, PPMB

By Tommy L. Hale Date 3/16



CLASS B

PIPE
14" SCH 40, SA-358 CL.1 TP304W

FITTINGS
16 & 14" SCH 40, SA-403 WP 304 W

FLANGES
14" SCH 40, SA-182 F 316

REF DWGS.
DRAWO E-2879-IC-45R3
DRAWO E-2879-IC-46 R1

TENNESSEE VALLEY AUTHORITY
BUREAU OF POWER PRODUCTION

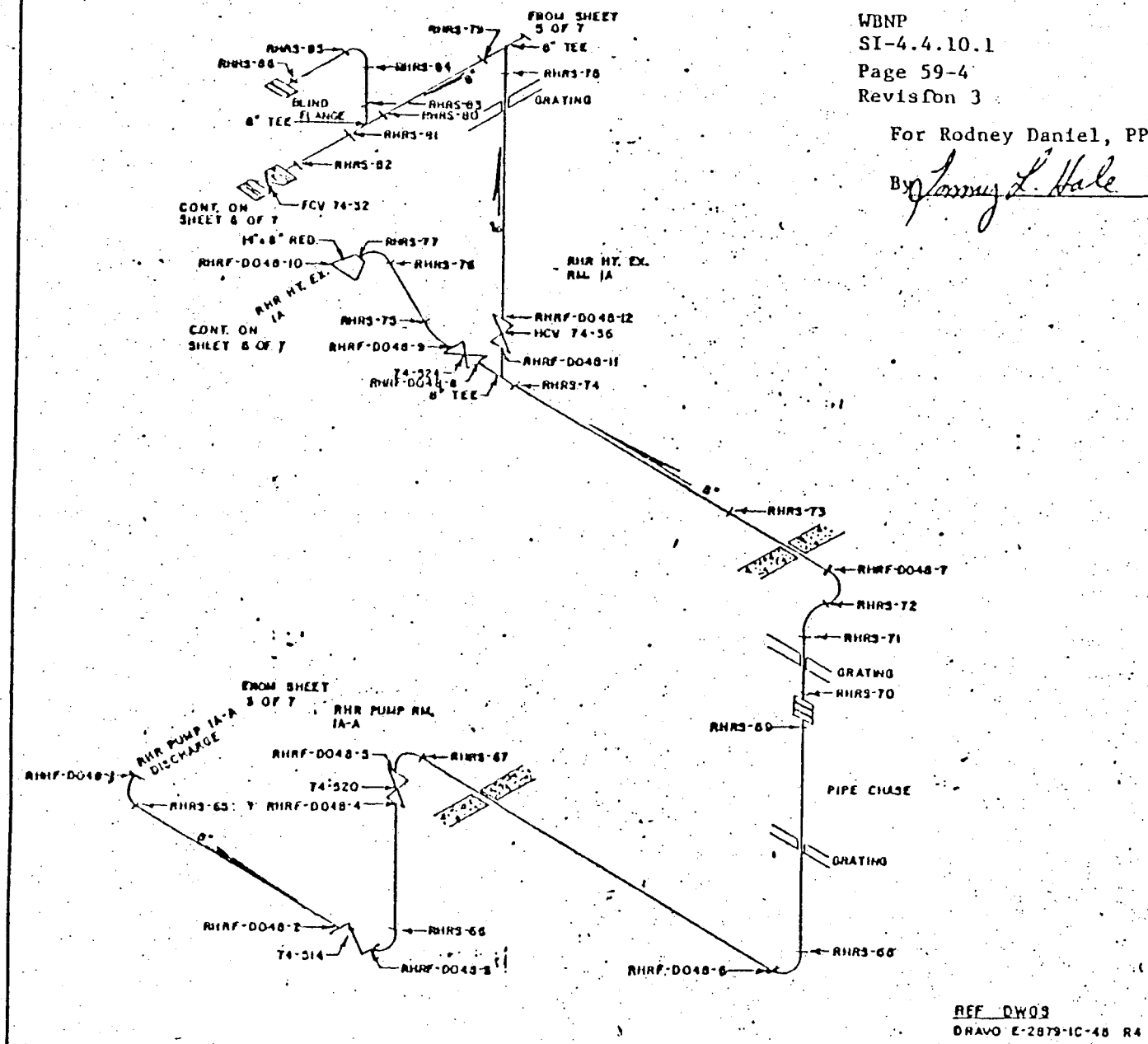
W.B.N.P.
RESIDUAL HEAT REMOVAL
WELD MAP - UNIT 1

CH-M-2636-C

WBNP
SI-4.4.10.1
Page 59-4
Revision 3

For Rodney Daniel, PPMB

By Tommy L. Hale Date 3/14



REF DWGS
DRAWO E-2879-IC-48 R4

CLASS B
PIPE
8" SCH. 40S, SA-312 TP 304 W/S
FITTINGS
8" SCH. 40S, SA-403 WP 304 WWO/S
14" SCH. 40 x 8" SCH. 40S RED., SA-403 WP 304 WWO/S
FLANGES
8" SCH. 40S, SA-182 F316

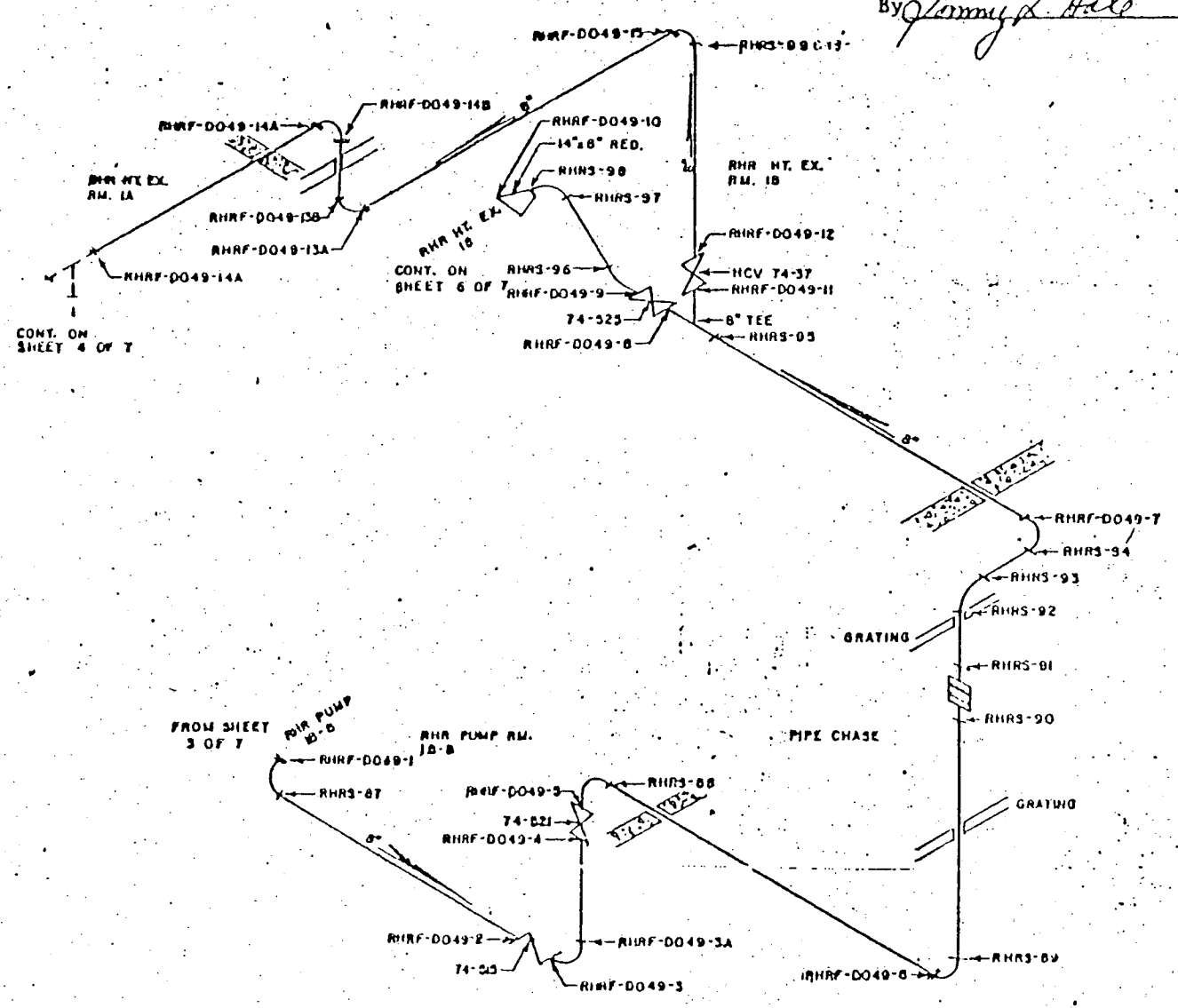
TENNESSEE VALLEY AUTHORITY
BUREAU OF POWER PRODUCTION

WBNP
RESIDUAL HEAT REMOVAL
WELD MAP
UNIT 1

CH-M-2636-C

For Rodney Daniel, PPMB

By Tommy L. Hale Date 3/16



CLASS B

PIPE:
8" SCH. 40S, SA-312 TP 304 W/S

FITTINGS
8" SCH. 40S, SA-403 WP 304 WWO/S
14" SCH. 40 x 8" SCH. 40S RED.,
SA-403 WP 304 WWO/S

FLANGE
8" SCH. 40S, SA-182 F 316

REF. DWGS.
DRAWO E-2879-IC-49 R3

TENNESSEE VALLEY AUTHORITY
DIVISION OF POWER PRODUCTION

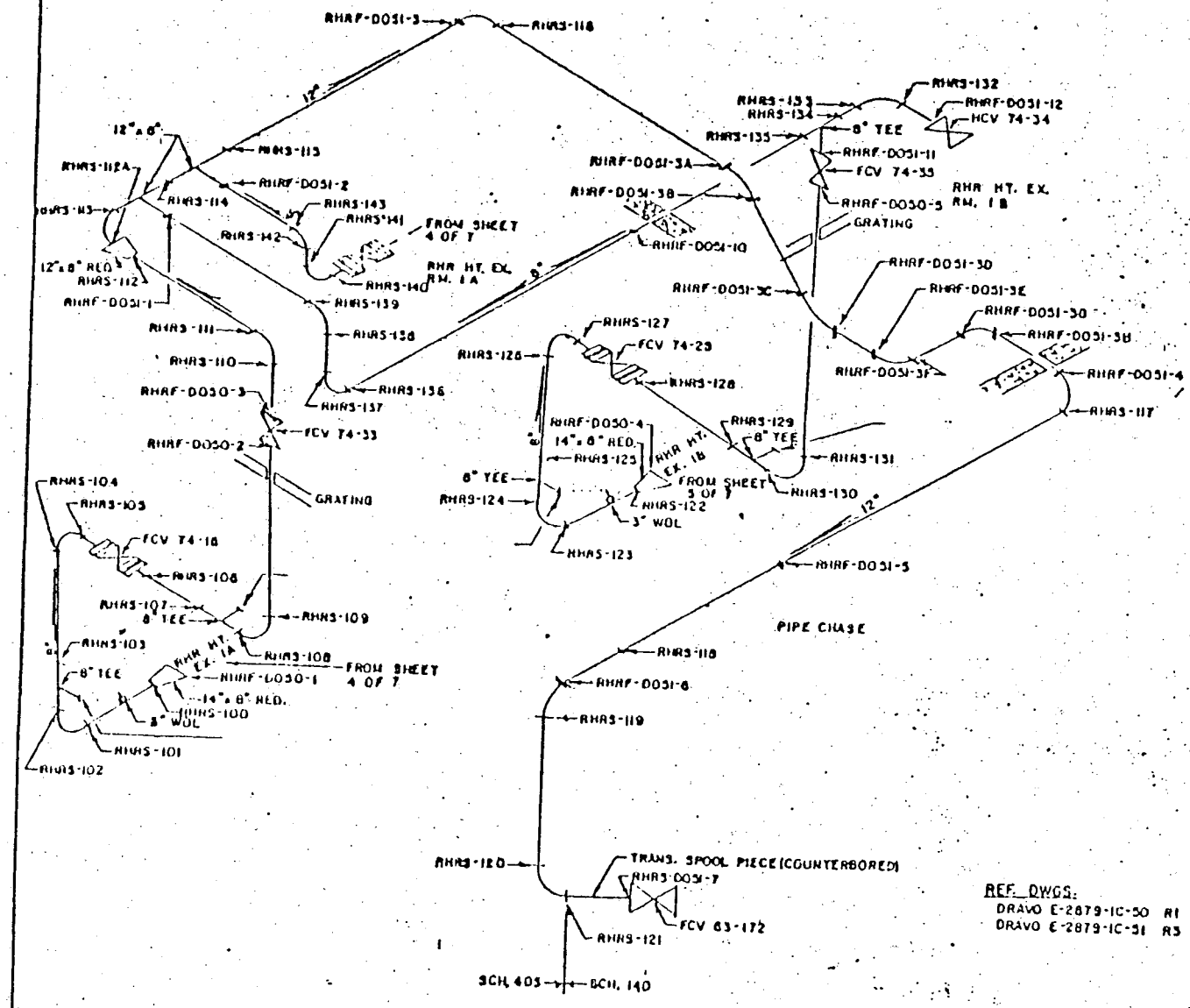
WBNP
RESIDUAL HEAT REMOVAL
WELD MAP
UNIT 1

OH-M-2636-C

WBNP
SI-4.4.10.1
Page 59-6
Revision 3

For Rodney Daniel, PPMB

By Tommy L. Hale Date 3/14



CLASS B

PIPE
12" & 8" SCH. 40S, SA-312 TP 304 W/S

FITTING
12" & 8" SCH. 40S, SA-403 WP 304 WWO/S
14" SCH. 40 x 8" SCH. 40S RED.
SA-403 WP 304 WWO/S

TRANSITION SPOOL PIECE
12" SCH. 140, SA-376 TP 316

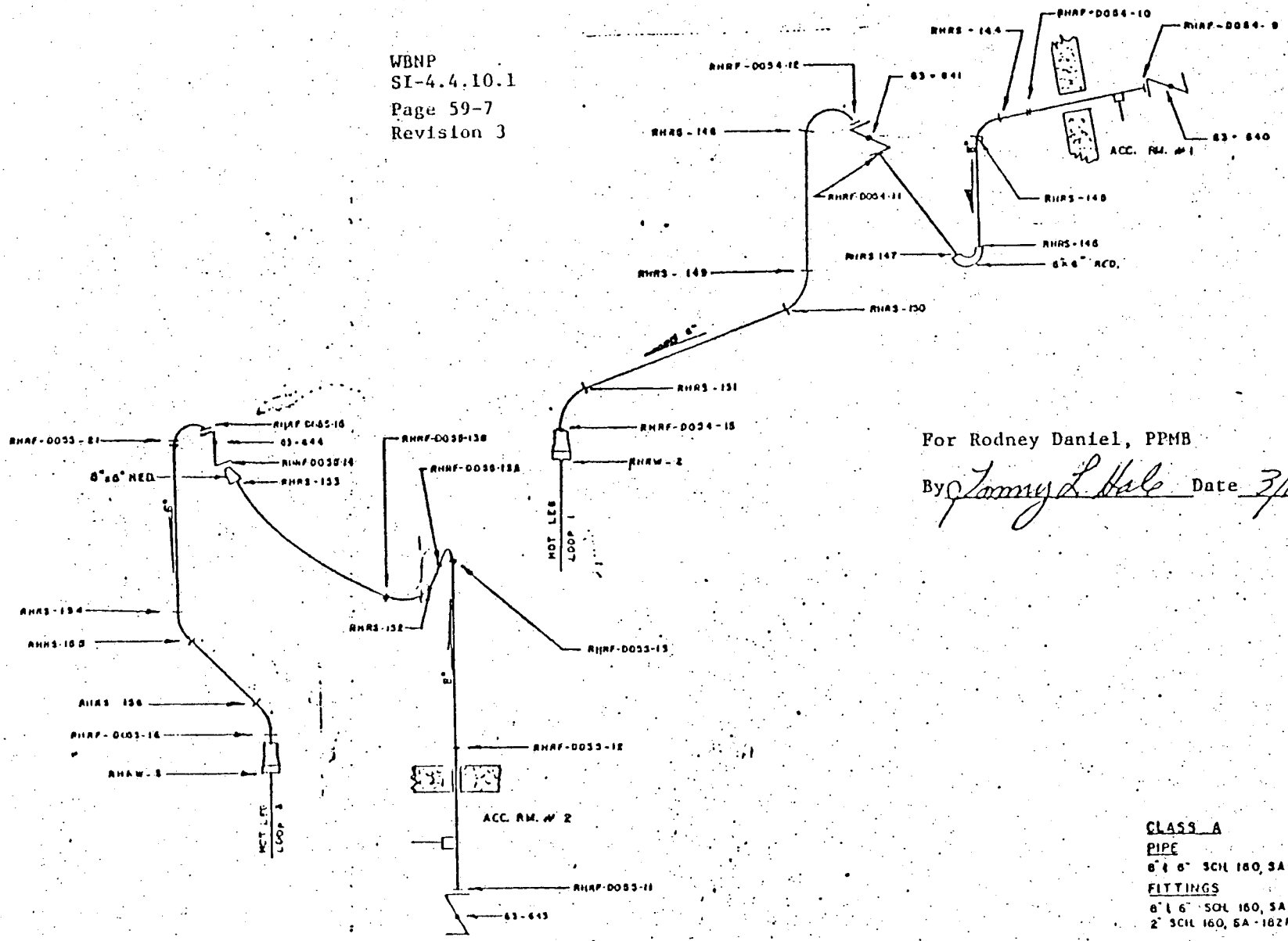
FLANGES
8" SCH. 40S, SA-182 F 304

REF. DWGS:
DRAWO E-2879-IC-50 R1
DRAWO E-2879-IC-51 R3

TENNESSEE VALLEY AUTHORITY
DIVISION OF POWER PRODUCTION

WBNP
RESIDUAL HEAT REMOVAL
WELD MAP
UNIT 1

CH-M-2636-C



For Rodney Daniel, PPMB

By Tommy L. Hale Date 3/11

CLASS A

PIPE

8" & 6" SCH 160, SA-376TP304S

FITTINGS

8" & 6" SCH 160, SA-403WP304S

2" SCH 160, SA-182F304

REF DWGS.
DRAWO E-2879 + IC-54R5 3
DRAWO E-2879 - IC-55R5

TENNESSEE VALLEY AUTHORITY
DIVISION OF POWER PRODUCTION

W.B.N.P.
RESIDUAL HEAT REMOVAL
WELD MAP - UNIT 1

CH-M-2836-C