Category II A+4 Item 2

PROCESS SPECIFICATION COVER SHEET
Form 44334

PROCESS SPECIFICATION	DATED	REVISION NO.	DATED	ORIGINAL ISSUE ☐	SUPERSEDES PREVIOUS REVISIONS ☐
PSPAS-01	5/26/77	0			

ATTACHMENTS

TITLE ASSEMBLY, FITTING, AND WELDING SEQUENCE FOR PRIMARY LOOP PIPING

PROCESS: OPEN BUTT FITTING TECHNIQUE.

ROOT WELDING BY MANUAL GAS TUNGSTEN ARC WITH BARE FILLER MATERIAL.

BALANCE OF JOINTS COMPLETED WITH MANUAL SHIELDED METAL ARC TECHNIQUE.

Weld Parameter Data
2 Sheets

Weld Procedure
No. PSWLD-04

Butt Weld Preparation
Drawing SDPIP01

WELD END PREPARATION
FOR R.C. PIPE
DRAWING 271C950

APPROVAL

	ORIGINAL ISSUE	REV. 1	REV. 2	REV. 3	REV. 4
AUTHOR	R.S. Eunson				

M363

Revision	Revisions	Revised By

DESIGN AND PROCEDURE CONSIDERATION FOR SITE ERECTION.

Weld joint groove design is specified by PWR and is compatible with PSPD Welding Procedure Number PSWLD04. If this procedure or another Site Procedure encompassing the essential variables has been qualified, no further qualification is required.

OXIDATION PROTECTION DURING WELDING OPERATIONS.

Back-up gas can be either nitrogen or argon depending on the procedure qualification. Checks on purge to determine the acceptable, "less than 2% 0_2 level," can best be accomplished with a gas analyzer.

HOT AND COLD LEG COMPONENTS.

Hot and cold leg piping is supplied in exact prefabricated lengths for field erection.

(1) Both closure joints of either section are to be fit up simultaneously. The extended lips of the joint are to be fit metal to metal-no insert. Any gaps due to misalignment of the large components not correctible by fitting shall be filled manually with the heliarc process and inspected by a 5X visual examination. Any gaps in excess .065" (2.4MM) should be filled prior to the start of production welding.

(2) Start production welding on both joints simultaneously (four (4) welders).

(3) Employing the GTAW section of the procedure, start one man on each end in the 6 o'clock to 9 o'clock position and his counterpart from 3 o'clock to 12 o'clock. After completing these runs, the welders will move to the unwelded sections and complete the first pass, ie, (6 o'clock to 3 o'clock and 9 o'clock to 12 o'clock). Continue these operations with all four welders until a minimum 3/8" or maximum 3/4" weld depth has been deposited by the GTAW process.

(4) Secure welding operations. Remove purge dams, evacuate back-up gas, and supply fresh air to the I.D. of pipe.

(5) Inspection personnel will L.P. the I.D. root of both welds and specify any necessary repairs. Any additional welding required on the I.D. shall be performed with the GTAW process at this time.

(6) Institute production welding with the SMAW process and continue the two welds to the 1" to 1 1/4" weld depth.

(7) Secure welding and make an in-process radiographic examination.

(8) Complete any repairs required.

(9) Institute production welding (SMAW) and continue both welds to the 2" to 2 1/4" weld depth.

(10) Repeat the in-process RT cycle and any necessary repairs.

(11) Complete the production welding, perform cosmetics, and liquid penetrant test the completed welds.

(12) Radiographic Test for record.

Upon successful radiograph acceptance, the joints are now ready for Customers in-service profile operations.

CLOSURE (MAKE-UP) COMPONENTS

Closure piping (steam generator to pump) is usually supplied in two sections.

Both sections can be erected at the same time. The designed end to end dimension will be approximately 3/16" too long to fit all joints for welding.

(1) Using temporary clips for support set up pipe with centerline axis joints #1 and #3 equally spaced out board of the pump and generator nozzle axis. The holding clips on joints #1 and #3 shall be designed to permit movement caused by shrinkage during welding of joint #2.

(2) Start production welding on joint #2 with two welders following the same format as specified for the hot and cold leg sequences.

(3) A welding inspector shall continuously monitor the weld shrinkage by measurement and observing the position of joints #1 and #3.

(4) When the axis points on the pipe at joints #1 and #3 are within 1/16" of the axis of pump and generator nozzles, the welding joint #2 shall be secured.

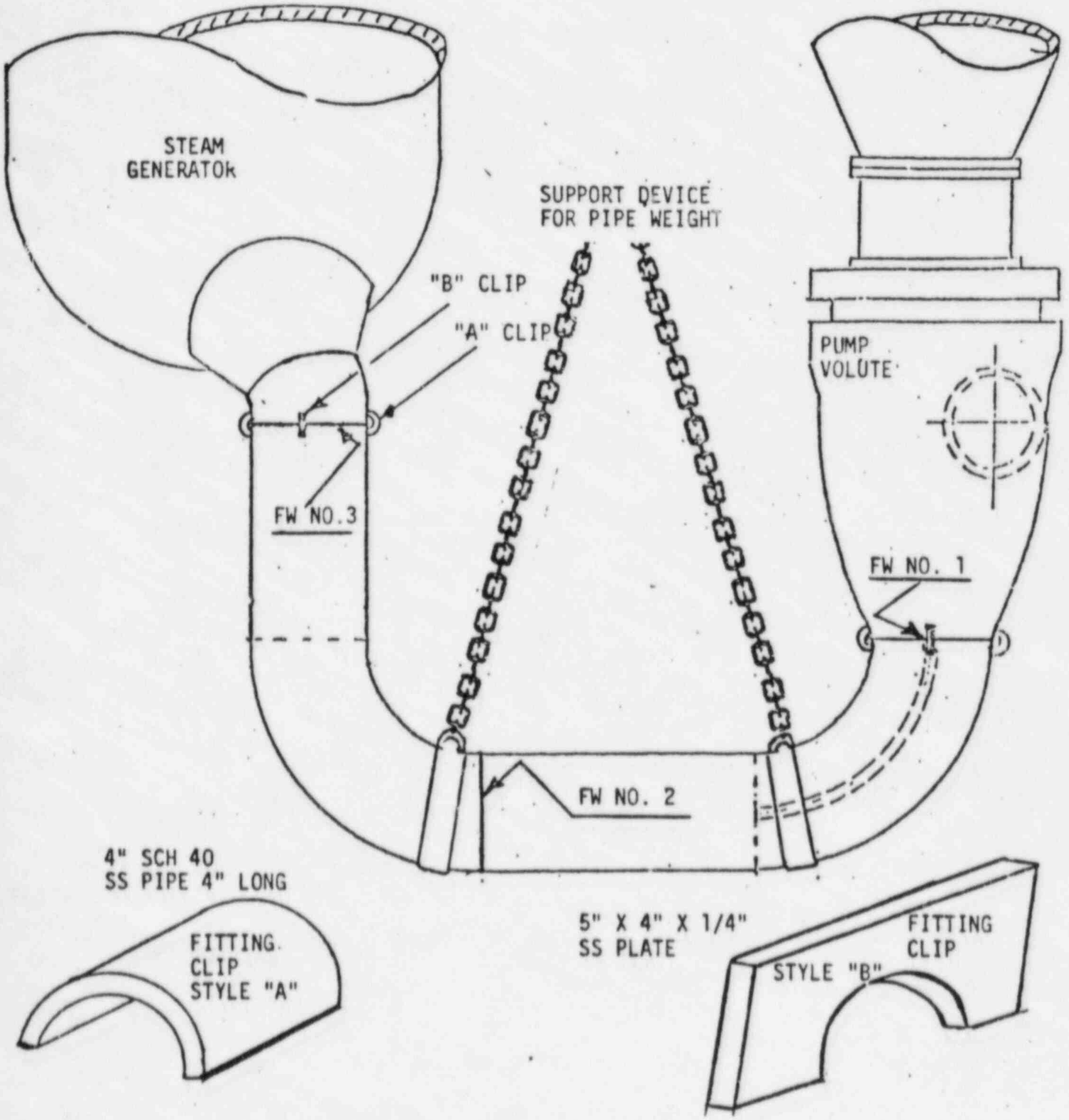
(5) Finish fit joints #1 and #3.

(6) Institute production welding on joints #1 and #3 employing the same format as specified for the hot and cold leg sequences.

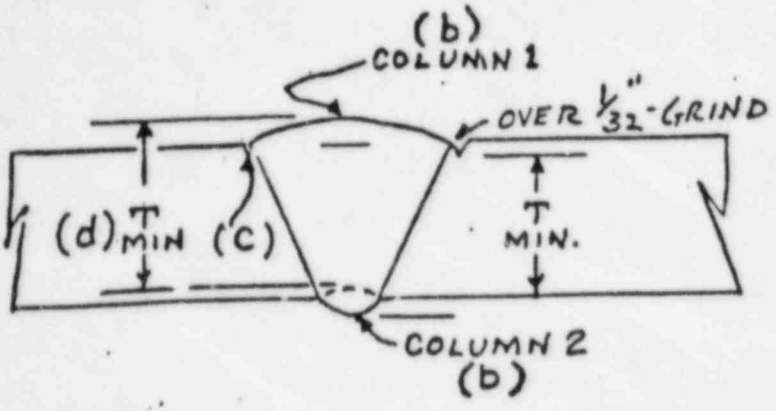
(7) When joints #1 and #3 approach the same level of completion as the secured operation on joint #2, work all three joints to completion at approximately the same rate of filler deposition.

Productive manhours for two loops-6300
Filler metal required-15001bs.

PRIMARY COOLANT LOOP CLOSURE
SECTION-TWO PIECES



Surfaces of Welds



Accessible reverse surfaces of root passes shall be examined to the same requirements specified for completed welds.

(a) The surface condition of the finished weld shall be suitable for the proper interpretation of radiographic and other required nondestructive examinations of the welds. In those cases where there is a question regarding the surface condition on the interpretation of a radiographic film, the film shall be compared to the actual weld surface for interpretation and determination of acceptability.

(b) Reinforcements are permitted in accordance with Thickness of Weld Reinforcement for Piping Chart.

(c) Undercuts shall not exceed 1/32 in. and shall not encroach on the required section thickness.

(d) Concavity on the root side of a single welded circumferential butt weld is permitted when the resulting thickness of the weld is at least equal to the thickness of the thinner member of the two sections being joined.

Thickness of Weld Reinforcement for Piping. For double welded butt joints, the limitation on the reinforcement given in Column 1 of the following tabulation shall apply separately to both inside and outside surfaces of the joint. For single welded butt joints, the reinforcement given in column 2 shall apply to the inside surface and the reinforcement given in Column 1 shall apply to the outside surface. The reinforcement shall be determined from the higher of the abutting surfaces involved.

Material Nominal Thickness, In.	Maximum Reinforcement Thickness, in.	
	Column 1	Column 2
Up to 1/8, incl.	3/32	3/32
Over 1/8 to 3/16, incl.	1/8	3/32
Over 3/16 to 1/2, incl.	5/32	1/8
Over 1/2 to 1, incl.	3/16	5/32
Over 1 to 2, incl.	1/4	5/32
Over 2	The greater of 1/4 in. or 1/8 times the width of the weld in inches.	5/32

Category 11
AP 4, Item 3

ARMS
INDEXED

L 17.1.55
FILE LOC
ME 78-014-5505

CONSTRUCTION OPERATION TRAVELER 35-1195

DATE

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE 1 OF
ME78-014-5505	SO 140 TRX-RLPLCL-01	1	1	

(6) ACTIVITY DESCRIPTION: LOOP No. 3 R.L. CROSSOVER LEG INSTALLATION
(7) REFERENCE DRAWINGS: 2323-M1-0520
(8) SPEC./PROC./ENG INSTR.: M-1[illegible]
(9) LOCATION: CONTAINMENT #1
(10) SYSTEM: R.C.

PREPARED BY [signature] DATE 6-28-78 DEPT. MECH ENG.
REVIEWED BY [signature] DATE 6-28-78 QA/QC ENG ✓ ANI ✓
ANI REVIEW [signature] DATE 6-28-78 ✓

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
1	P.1	REMOVE THE N_2 PURGE FROM THE STEAM GENERATOR PRIMARY SIDE.		
2	P1	STRIP THE PROTECTIVE COATING FROM THE STEAM GENERATOR PRIMARY OUTLET NOZZLE A MIN. 12" FROM THE WELD PREP. USE POWER WIRE BRUSH AS NEEDED QC MONITOR	8-14-78	
3	P1	REMOVE THE SHIPPING COVER BY GRINDING THE FILLET WELD FROM CENTER OF WELD TOWARD THE SHIPPING COVER. CARE SHOULD BE TAKEN TO PREVENT DAMAGE TO THE WELD BEVEL AND APPARENT BASE METAL OF THE NOZZLE. ANY TYPE OF FLAME CUTTING OR ARC GOUGING IS NOT PERMITTED. QC MONITOR	8-16-78	

FOIA 85-50

M364

CONSTRUCTION OPERATION TRAVELER CONTINUATION

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE
ME78-014-5505	LOOP No 3 R.C. CROSSOVER LEG INSTALLATION	2 OF ___

PREPARED BY P. Allison DATE 6-28-78

REVIEWED BY [signature] DATE 6-28-78

ANI REVIEW J Clayton DATE 6-28-78

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
4	P1	DRESS THE REMAINING WELD DOWN TO BASE METAL. THE GRINDING WHEEL MUST NOT BE ALLOWED TO BURN THE BASE METAL. QC MONITOR	[signature] 8-16-78	
5	QC ANI	PERFORM VISUAL EXAM. PER NDEP-200	Pump 8-21-78 SG [illegible] 8-21-78	Pump 8-22-78 SG [illegible] 8-21-78
1 6	QC	PERFORM L.P. EXAM. OF THE GROUND OUT FILLET WELD PER NDEP-300.	Pump [illegible] 8/22/78 SG [illegible] 8-21-78	SG [illegible] 8-21-78
1 7	WELD TECH.	PERFORM FERRITE CONTENT EXAM. PER S-52.01-107A PARA. 24.0. QC WITNESS		
	P1.	NOTE: WHEN WORK IS NOT BEING DONE ON THE PIPING INSTALLATION KEEP THE NOZZLE COVERED WITH SUITABLE PLYWOOD OR PIPE CAPS.		

CONSTRUCTION OPERATION TRAVELER REVISION RECORD SHEET

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE
ME-78-014-5505	LOOP No 3	1 OF 1
EQUIPMENT NO. 50.140 (Box - RLPCLL-01)	R.C. CROSSOVER LEG INSTALLATION	

① REV NO / OP NO	② INITIATED BY	③ REVIEWED BY: QC	③ REVIEWED BY: ANI	④ REVISION DESCRIPTION	⑤ QA/QC ENG	⑤ ANI
1 6,7	PO	[illegible]	11-7-78	REVISE OPER #6 TO INCLUDE THE INTIRE WELD END PREP DELETE OPER # 7 REVISE OPER #6 TO INCLUDE THE R.C.P. INLET NOZZLE - ADD STEP 8 PERFORM L.P. EXAM OF TWO WELD PREPS OF THE 40° ELL PER WDEP-200	VISUAL BOTH ENDS [illegible] 11-7-78 LP BOTH ENDS [illegible] 11-7-78	PT BOTH ENDS AN Q 11-7-78
2	JBS 11/7/78	[illegible] 11-7-78		Delete this traveler, see traveler No WE78-026-5505 FOR CONTINUATION		

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CONSTRUCTION OPERATION TRAVELER 35-1195

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE 1 OF
ME78-014-5505	SO 140 TBX-RLPLCL-01	1	1	

(6) ACTIVITY DESCRIPTION	(7) REFERENCE DRAWINGS
R.L. CROSSOVER LEG INSTALLATION LOOP No. 3	2323-M1-0520

(8) SPEC./PROC./ENG. INSTR.	(9) LOCATION	(10) SYSTEM
MS-100	CONTAINMENT #1	R.C.

PREPARED BY _____ DATE 6-28-78 DEPT. MECH. ENG.

REVIEWED BY _____ DATE 6-28-78 QA/QC ENG ✓ ANI ✓

ANI REVIEW _____ DATE 6-28-78 ✓

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
1	P.1	REMOVE THE N_2 PURGE FROM THE STEAM GENERATOR PRIMARY SIDE.		
2	P1	STRIP THE PROTECTIVE COATING FROM THE STEAM GENERATOR PRIMARY OUTLET NOZZLE A MIN. 12" FROM THE WELD PREP. USE POWER WIRE BRUSH AS NEEDED QL MONITOR		
3	P1	REMOVE THE SHIPPING COVER BY GRINDING THE FILLET WELD FROM CENTER OF WELD TOWARD THE SHIPPING COVER. CARE SHOULD BE TAKEN TO PREVENT DAMAGE TO THE WELD BEVEL AND APPARENT BASE METAL OF THE NOZZLE. ANY TYPE OF FLAME CUTTING OR ARC GOUGING IS NOT PERMITED. QL MONITOR		

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QA RECORD REV 0 QA REVIEW 7/5/78 FOR REFERENCE ONLY ME78-014-5505 5/8/79

CONSTRUCTION OPERATION TRAVELER CONTINUATION

TRAVELER NO.	ACTIVITY DESCRIPTION LOOP No 3 R.C. CROSSOVER LEG INSTALLATION	PAGE 2 OF __

PREPARED BY P. Allison DATE 6-28-78

REVIEWED BY [illegible] DATE 6-28-78

ANI REVIEW [illegible] DATE 6-28-78

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
4	P1	DRESS THE REMAINING WELD DOWN TO BASE METAL. THE GRINDING WHEEL MUST NOT BE ALLOWED TO BURN THE BASE METAL. QC MONITOR		
5	QC ANI	PERFORM VISUAL EXAM. PER NDEP-200		
6	QC	PERFORM L.P. EXAM. OF THE GROUND OUT FILLET WELD PER NDEP-300.		
7	WELD TECH	PERFORM FERRITE CONTENT EXAM. PER S-52.01-107A PARA. 24.0. QC WITNESS		
	P1.	NOTE: WHEN WORK IS NOT BEING DONE ON THE [illegible] INSTALLATION, THE [illegible] NOZZLE COVERED WITH SUITABLE PLYWOOD OR PIPE CAPS.		

Brown & Root, Inc.

QUALITY ASSURANCE DEPARTMENT
NDE LIQUID PENETRANT REPORT

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING: 2323-MI-520	SYSTEM: R.C.	CLASS: 1 ☑ 2 ☐ 3 ☐ OTHER
WELD/ITEM IDENTIFICATION: TAX-RCFCPC-03 END PREP (CLASS 1 PIPE TO NOZZLE)	LOCATION: CONTAINMENT #1	
MTL. TYPE: P-8	MTL. THICK: 2.48"	DIA/LENGTH: 31" DIA./WIDTH N/A LENGTH N/A
PENETRANT MFG.: MAGNAFLUX	BRAND: SPOTCHECK	NDE PROCEDURE NO.: CP-NDEP-300
CLEANER MFG.: MAGNAFLUX	BRAND: SPOTCHECK	
DEVELOPER MFG.: MAGNAFLUX	BRAND: SPOTCHECK	
STAGE OF MFG.: ☑ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL	SURFACE: ☐ AS WELDED ☐ GROUND ☑ OTHER MACHINED	
DWELL TIME: 15 min	DEVELOPING TIME: 15 min	

REMARKS: REF TRAVELER # ME 78-014-5505

ACCEPTANCE STD.: ASME SECTION III	ACCEPT ☑ REJECT ☐	DATE: 8/22/78
INSPECTOR: Jack Brewster	CERTIFICATION LEVEL: II	

STAGE OF MFG.: ☐ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL	SURFACE: ☐ AS WELDED ☐ GROUND ☐ OTHER	
DWELL TIME	DEVELOPING TIME	

REMARKS

ACCEPTANCE STD.: ASME SECTION III	ACCEPT ☐ REJECT ☐	DATE: / /
INSPECTOR	CERTIFICATION LEVEL	

STAGE OF MFG.: ☐ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL	SURFACE: ☐ AS WELDED ☐ GROUND ☐ OTHER	
DWELL TIME	DEVELOPING TIME	

REMARKS

ACCEPTANCE STD.: ASME SECTION III	ACCEPT ☐ REJECT ☐	DATE: / /
INSPECTOR	CERTIFICATION LEVEL	

STAGE OF MFG.: ☐ END PREP ☐ REPAIR ☐ ROOT ☑ INTERMEDIATE ☐ FINAL	SURFACE: ☐ AS WELDED ☐ GROUND ☐ OTHER	
DWELL TIME	DEVELOPING TIME	

REMARKS

ACCEPTANCE STD.: ASME SECTION III	ACCEPT ☐ REJECT ☐	DATE: / /
INSPECTOR	CERTIFICATION LEVEL	

QUALITY ASSURANCE DEPARTMENT NDER-

NDE REPORT

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING	SYSTEM	CLASS
2323-M1-520	R.C.	1☑ 2☐ 3☐ OTHER
WELD/ITEM NUMBER NOZZLE TBX-RCA-RC-03 END PREP	LOCATION CONTAINMENT #1	

CROSSOVER LEG Loop 3

MTL. TYPE	MTL. THICK	DIA/LENGTH
	2.48	31" DIA

STAGE OF MFG. ☑ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

JOINT DESIGN ☐ BRN ☐ BKS ☐ INS ☐ OPEN BUTT ☑ OTHER MACHINED

SKETCH AND REMARK (S)

REF. TRAVELER # ME 78-014-5505

ACCEPTANCE STD		DATE
ASME Sect III	ACCEPT ☑ REJECT ☐	8 12 78

INSPECTED	
Jack Langston	
NDE PROCEDURE NDEP-200	CERTIFICATION LEVEL II

Brown & Root, Inc.

QUALITY ASSURANCE DEPARTMENT
NDE LIQUID PENETRANT REPORT

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING: 2323-MI-520	SYSTEM: R.C.	CLASS: 1 ☒ 2 ☐ 3 ☐ OTHER
WELD/ITEM IDENTIFICATION: NOZZLE TBX-RCPCSG-03 END PREP Circ Weld 3	LOCATION: CONTAINMENT #1	
MTL. TYPE: P-8	MTL. THICK: 2.48	DIA/LENGTH: 31" DIA/WIDTH N/A LENGTH N/A

PENETRANT MFG. MAGNAFLUX BRAND SPOTCHECK NDE PROCEDURE NO. CP-NDEP-300

CLEANER MFG. MAGNAFLUX BRAND SPOTCHECK

DEVELOPER MFG. MAGNAFLUX BRAND SPOTCHECK

STAGE OF MFG. ☒ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL — SURFACE ☐ AS WELDED ☐ GROUND ☒ OTHER MACHINED

DWELL TIME: 15 MIN DEVELOPING TIME: 15 MIN

REMARKS: REF TRAVELER # ME 78-014-5505

ACCEPTANCE STD. ASME SECTION III — ACCEPT ☒ REJECT ☐ — DATE 8/21/78

INSPECTOR: L R Shaw — CERTIFICATION LEVEL: II

STAGE OF MFG. ☐ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL — SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME: DEVELOPING TIME:

REMARKS:

ACCEPTANCE STD. ASME SECTION III — ACCEPT ☐ REJECT ☐ — DATE / /

INSPECTOR: CERTIFICATION LEVEL:

STAGE OF MFG. ☐ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL — SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME: DEVELOPING TIME:

REMARKS:

ACCEPTANCE STD. ASME SECTION III — ACCEPT ☐ REJECT ☐ — DATE / /

INSPECTOR: CERTIFICATION LEVEL:

STAGE OF MFG. ☐ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL — SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME: DEVELOPING TIME:

REMARKS:

ACCEPTANCE STD. ASME SECTION III — ACCEPT ☐ REJECT ☐ — DATE / /

INSPECTOR: CERTIFICATION LEVEL:

QUALITY ASSURANCE DEPARTMENT NDER-

NDE REPORT

ANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

	SYSTEM	CLASS
1-MI-520	R.C.	1☑ 2☐ 3☐ OTHER

ITEM NUMBER NOZZLE: RCPSG-03 END PREP OSSOVER LOOP 3

LOCATION: CONTAINMENT #1

MTL. TYPE	MTL. THICK	DIA/LENGTH
P-8	2.48"	31" DIA

STAGE OF MFG. ☑ END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

JOINT DESIGN ☐ BRN ☐ BKS ☐ INS ☐ OPEN BUTT ☑ OTHER MACHINED

SKETCH AND REMARK (S)

REF TRAVELER # ME 78-014-5505

ACCEPTANCE STD		DATE
ASME SECT III	ACCEPT ☑ REJECT ☐	8/21/78

INSPECTOR L.R. Shaw

PROCEDURE NDEP-200 CERTIFICATION LEVEL II

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QUALITY ASSURANCE DEPARTMENT
NDE REPORT

SERIAL NUMBER NDER- 3340

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING	SYSTEM	CLASS
2923-M1-520	R.C.	1☒ 2☐ 3☐ OTHER
WELD/ITEM NUMBER: 12QI (NORTH END PREP)	LOCATION: CONTAINMENT #1	

CROSSOVER LEG Loop #3

MTL. TYPE	MTL. THICK.	DIA/LENGTH
P-E	2.48	31" DIA

STAGE OF MFG. ☐ REPAIR ☐ ROOT ☒ END PREP ☐ INTERMEDIATE ☐ FINAL

JOINT DESIGN ☐ BRN ☐ BKS ☐ INS ☐ OPEN BUTT ☐ OTHER MACHINED

DESCRIPTION (S) AND INSPECTION REMARKS (S)

REF. TRAVELER # ME78-014-5505

40° ELBOW

ACCEPTANCE STD		DATE
ASME SECT III	ACCEPT ☒ REJECT ☐	11.17.78

INSPECTOR L.R. Shaw

NDE PROCEDURE NDEP 200 CERTIFICATION LEVEL II

Brown & Root, Inc.

QUALITY ASSURANCE DEPARTMENT
NDE REPORT

SERIAL NUMBER
NDER- 3339

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING	SYSTEM	CLASS
2323-MI-520	R.C.	1 ☑ 2 ☐ 3 ☐ OTHER
WELD/ITEM NUMBER: 1201 (SOUTH END PREP)	LOCATION: CONTAINMENT #1	

CROSSOVER LEG Loop #3

MTL. TYPE	MTL. THICK	DIA/LENGTH
P-8	2.78	31" DIA

STAGE OF MFG. ☐ REPAIR ☐ ROOT ☑ END PREP ☐ INTERMEDIATE ☐ FINAL

JOINT DESIGN ☐ BRN ☐ BKS ☐ INS ☐ OPEN BUTT ~~☐ OTHER~~ MACHINED

DESCRIPTION (S) AND INSPECTION REMARKS (S)

REF. TRAVELER # ME 78-014-5505

40° ELBOW

ACCEPTANCE STD		DATE
ASME SECT III	ACCEPT ☑ REJECT ☐	11/17/78

INSPECTOR: H. R. Shaw

NDE PROCEDURE	CERTIFICATION LEVEL
NDEP 200	II

QA 502 0

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QUALITY ASSURANCE DEPARTMENT
NDE LIQUID PENETRANT REPORT

PAGE 1 OF 1

JOB NO. 35-1195 | UNIT 1 | CLASS 1 ☑ 2 ☐ 3 ☐ OTHER

COMANCHE PEAK | SYSTEM R.C.

23-M1-520 Loop #3 | LOCATION CONTAINMENT #1

ITEM IDENTIFICATION (NORTH END PREP) 3" OVER LEG | MTL THICK 2.48 | DIA/LENGTH 31" | DIA/WIDTH N/A | LENGTH N/A

P-8 | NDE PROCEDURE NO. CP-NDEP-300

40° ELBOW

PENETRANT MFG. MAGNAFLUX | BRAND SPOTCHECK

EMULSIFIER MFG. MAGNAFLUX | BRAND SPOTCHECK

DEVELOPER MFG. MAGNAFLUX | BRAND SPOTCHECK

SURFACE ☐ AS WELDED ☐ GROUND ☑ MACHINED ☐ OTHER

DEVELOPING TIME 15 MIN

STAGE OF MFG. ☑ END PREP ☐ EXCAVATION ☐ FINAL ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE

DWELL TIME 15 MIN

REMARKS REF TRAVELER # ME78-014-5505

ACCEPTANCE STD. ASME SECTION III ☑ ANSI B31.1 ☐ | ACCEPT ☑ REJECT ☐ | DATE 11/7/78

INSPECTOR [signature] | CERTIFICATION LEVEL II

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ FINAL ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE

DWELL TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ | ACCEPT ☐ REJECT ☐ | DATE / /

INSPECTOR | CERTIFICATION LEVEL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DEVELOPING TIME

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ FINAL ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE

DWELL TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ | ACCEPT ☐ REJECT ☐ | DATE / /

INSPECTOR | CERTIFICATION LEVEL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DEVELOPING TIME

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ FINAL ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE

DWELL TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ | ACCEPT ☐ REJECT ☐ | DATE / /

INSPECTOR | CERTIFICATION LEVEL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DEVELOPING TIME

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QUALITY ASSURANCE DEPARTMENT
NDE LIQUID PENETRANT REPORT

ROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING	SYSTEM	CLASS
2323-M1-520	R.C.	1 ☑ 2 ☐ 3 ☐ OTHER

WELD/ITEM IDENTIFICATION: 1201 (SOUTH END PREP) CROSSOVER LEG Loop #3

LOCATION: CONTAINMENT #1

MTL. TYPE	MTL. THICK	DIA/LENGTH	DIA/WIDTH	LENGTH
P-8	2.48	31"	N/A	N/A

PENETRANT MFG. MAGNAFLUX BRAND SPOTCHECK

NDE PROCEDURE NO. CP-NDEP-300

CLEANER MFG. MAGNAFLUX BRAND SPOTCHECK

DEVELOPER MFG. MAGNAFLUX BRAND SPOTCHECK

40° ELBOW

STAGE OF MFG. ☑ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☑ OTHER MACHINED

DWELL TIME: 15 min

DEVELOPING TIME: 15 min

REMARKS: REF. TRAVELER # ME78-014-5505

ACCEPTANCE STD. ASME SECTION III ☑ ANSI B31.1 ☐ ACCEPT ☑ REJECT ☐ DATE 11/7/78

INSPECTOR [signature] CERTIFICATION LEVEL II

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE

DWELL TIME

DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME

DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME

DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

CONSTRUCTION OPERATION TRAVELER CONTINUATION

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE
ME78-007-5505	LOOP # 2 R.C. CROSSOVER LEG INSTALLATION	PAGE 3 OF __

PREPARED BY [signature] DATE 9/16/78

REVIEWED BY _____ DATE _____

ANI REVIEW _____ DATE _____

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
		ALL WORK TO BE ACCOMBLISHED IN ACCORDANCE WITH B&R S-52.01-107A FOR ALL CUTTING, GRINDING, WELDING AND RELATED. SEE APPROPRIATE WELD DATA CARD FOR INSPECTION HOLD POINTS. SEE BRP-RL-1-520-1 FOR WELD MAP.		
9	P1	OBTAIN PURGE DAMS FOR SG.-40° ELL CONNECTION. FINAL ADJUSTMENT OF THE PURGE DAM SHALL BE MADE PRIOR TO ESTABLISHING THE PURGE		
10	P1	CLEAN AND DEGREASE WELD ENDS.		
11	P1	ALIGN AND FIT THE 40° ELL TO THE ST. GEN. OUTLET NOZZLE. THE JOINT SHALL BE FIT AND ALIGNED IN ACCORDANCE WITH THE WPS LISTED ON THE WELD DATA CARD AND MES-107A		

CONSTRUCTION OPERATION TRAVELER CONTINUATION

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE 4 OF ___
ME78-007-5505	LOOP № 2 RC CROSSOVER LEG INSTALLATION	

PREPARED BY P. [illegible] DATE 9/16/78

REVIEWED BY _____ DATE _____

ANI REVIEW _____ DATE _____

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
12	PI	MARK CENTER OF WELD JOINT PER FSM-00106. APPLY PUNCH MARKS TO DETERMINE FINAL WELD SHRINKAGE. RECORD INITIAL GAGE READING ON TRAVELER. (CLOCKWISE LOOKING AT S.G. NOZZLE) 12 o'clock 30 o'clock 60 o'clock 90 o'clock INITIAL READING - 4.046, 4.062, 3.953, 4.062	DF 10/5/78	
13	PI WE	OBTAIN WELD DATA CARDS. CHECK FIT AND TACK THE JOINTS PER WELD DATA CARD.		
14	PI	PROCEED WELDING UNTIL 1/2"-3/4" WELD METAL HAS BEEN DEPOSITED. MONITOR THE LEVELNESS OF THE ELBOW AND ADJUST WELDERS AS NECESSARY TO MAINTAIN LEVELNESS.		
15	PI	DISCONTINUE WELDING WHEN 1/2"-3/4" WELD METAL HAS BEEN DEPOSITED.		
16	QC	PERFORM RT EXAM PER NDEP-101.		

CONSTRUCTION OPERATION TRAVELER CONTINUATION

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE 5 OF __
TME18-007-5505	LOOP N°2 RE. CROSSOVER LEG INSTALLATION	

PREPARED BY P. Olson DATE 9/16/78

REVIEWED BY _____ DATE _____

ANI REVIEW _____ DATE _____

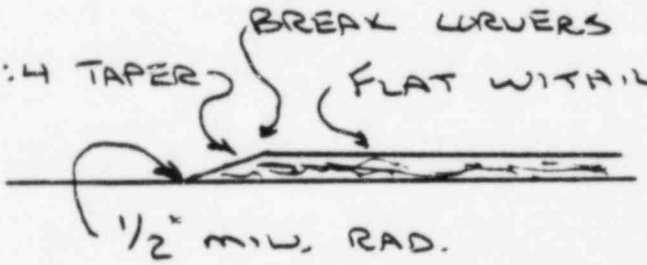
OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
4) 16A	P1 QL	UPON RT ACCEPTANCE, PROCEED WELDING. PERFORM RT PER WDEP-101 AFTER EACH 3/4" OF DEPOSITED WELD METAL. NOTE: WHEN REPAIRS ARE REQUIRED, THEY SHALL BE DONE AS GIVEN IN MES-107A.		
16B	P1 WE QL	AFTER WELDING IS COMPLETE, VERIFY THE FINAL WELD JOINT OFFSET IS NOT GREATER THAN 1/8 x THE PIPE WALL THICKNESS FAIR THE FINISHED WELD TO AT LEAST A 3 TO 1 TAPER OVER THE WIDTH OF THE FINISHED WELD.		
16C	P1 WE	PREPARE THE JOINT FOR INSERVICE INSPECTION AS FOLLOWS: A) THE WELD SHALL BE FLUSH WITH THE BASE METAL TO A MAX. 3/32" REINFORCED CROWN.		

CONSTRUCTION OPERATION TRAVELER CONTINUATION		
TRAVELER NO. ME78-007-550S	ACTIVITY DESCRIPTION LOOP No 2 R.L. CROSSOVER LEG INSTALLATION	PAGE 6 OF ___

PREPARED BY P [illegible] DATE 9/16/78

REVIEWED BY _____ DATE _____

ANI REVIEW _____ DATE _____

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
		B) BLEND ~~[illegible]~~ WELD CROWN INTO THE BASE ~~METAL~~ P.D 9/15/78 METAL AS FOLLOWS: 		
		C) FINISH TO 250 RMS 1" EACH SIDE OF THE WELD CENTERLINE.		
~~15~~ 16 D	PI WE	RECORD ON TRAVELER ~~THE~~ FINAL GAGE READING TO DETERMINE FINAL WELD SHRINKAGE.		
~~15~~ 16E	QC	PERFORM RT EXAM OF ~~THE~~ FINISHED WELD PER NDEP-101.		
17	WE	PERFORM DELTA FERRITE CHECK PER WELD DATA CARD.		

CONSTRUCTION OPERATION TRAVELER CONTINUATION		
TRAVELER NO. ME)8-007-5505	ACTIVITY DESCRIPTION LOOP Nº 2 R.L. CROSSOVER LEG INSTALLATION	PAGE 2 OF __

PREPARED BY P. Olson DATE 9/16/78

REVIEWED BY _____ DATE _____

ANI REVIEW _____ DATE _____

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
18	F.E.	AFTER COMPLETE WELD-OUT OF THE HOT & COLD LEGS, RECORD DIMENSIONS INDICATED ON ATTACHMENT #1. THESE RECORDINGS ARE TO BE SUBMITTED TO MECHANICAL ENGINEERING FOR REVIEW PRIOR TO PLACING CLOSURE SPOOLS ORDER WITH WESTINGHOUSE.		

CONSTRUCTION OPERATION TRAVELER REVISION RECORD SHEET

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE
ME-78-007-5505	LOOP No 2	1 OF 1
EQUIPMENT NO. TBX-RCPCCL-01	R.C. CROSSOVER LEG INSTALLATION	

① REV NO / OP NO	② INITIATED BY	③ REVIEWED BY QC	③ REVIEWED BY ANI	④ REVISION DESCRIPTION	⑤ QA/QC ENG	⑤ ANI
1	PO			REVISE OPER. #6 TO INCLUDE THE ENTIRE WELD END PREP. DELETE OPER. #7	8/14/78	8-14-78
2	PO			REVISE OPER #6 TO INCLUDE THE R.C.P. INLET NOZZLE. ADD STEP 8 PERFORM PT EXAM OF TWO WELD PREPS ON THE 40° ELL PER NDEP-300 AN VISUAL PER NDEP-200	BOTH ENDS Spool TQI 8-25-78	BOTH ENDS 7-Q-1 8-25-78
3	PO 8/25/78			ADDED OPER. No 9 THRU 18 & ATTACHMENT No 1		
4	PO 10/20/78	10/20/78		① ADD TO STEPS 16, 16A, & 16B PRIOR TO PERFORMING RT EXAM, PERFORM PT PER NDEA-300. FIRST PT TO BE ON O.D & I.D. SUBSEQUENT PT'S ON O.D. ONLY. (REF TBX-SL-0021 ② CORRECTED NUMBERING SEQUENCE		
5	PO 12/6/78	12-6-78		DELETE ALL OPEN STEPS ON THIS TRAVELLER & REFER TO TRAVELLER NO. ME78-024-5505		

Category II AP 4 item 4

Ref NCR # 14651 - M Conner 6-84

CONSTRUCTION OPERATION TRAVELER 35-1195

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE OF
We78-026-5505	S0140 TBX-RCPCCL-01	1	1	

(6) ACTIVITY DESCRIPTION	(7) REFERENCE DRAWINGS
Loop No. 3 RC Crossover Leg Installation FW19	2323-M1-0520

(8) SPEC./PROC./ENG. INSTR.	(9) LOCATION	(10) SYSTEM
MS-100	RB #1	RC

PREPARED BY Robert A. Shaffer DATE 12/6/78 DEPT. Welding Engr

REVIEWED BY R. R. Shaw DATE 12-6-78 QA/QC ENG ☑ ANI ☑

ANI REVIEW Bob Conner DATE 12-7-78 ☑

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
		NOTE: All work to be accomplished in accordance with B & R CP-CPM-6.9 and drawing BRP-RC-1-520-1. For inspection hold points see appropriate weld data card.		
1	Pipe	Align and fit the 40° elbow to the Steam Generator outlet nozzle. The joint shall be fit and aligned in accordance with the HPS listed on the weld data card and CP-CPM-6.9.		
2	Pipe WE	Mark center of weld joint per FSM-00106. Apply punch marks to determine final weld shrinkage. Record initial gage reading at 12:00_____, 3:00_____ 6:00_____ 9:00_____		
3	WE	Monitor and document the weld metal thickness in each weld joint to attachment 4.		
4	Pipe	Welding will be discontinued at approximately ½" deposited metal.		
5	QC	See attachment 8 for intermediate RT, PT and WDC requirements.		
6	QC	The welds shall be contour ground with a maximum reinforcement of no more than 3/32" and shall have a taper of at least 3 to 1.		
7	Pipe QC	Remove all temporary lugs, supports and bracing.		
8	QC WE	Record the final gage reading to determine weld shrinkage.		
9	FE	After hot and cold legs are completely welded out and accepted, record dimensions indicated in attachment #1. These readings are to be submitted to mechanical engineering for review prior to installing crossover spools to be ordered by Westinghouse.		

QA RECORD

RTN.	QA REVIEW
FILE NO.	15.1.55.11
SUBFILE NO.	We78-026-5505

366

M

CONSTRUCTION OPERATION TRAVELER REVISION RECORD SHEET

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE
We78-026-5505	RC Crossover Leg Installation FW 19	__OF__
EQUIPMENT NO. SU 140 TBX-RCPCCL-01		

① REV NO / OP NO	② INITIATED BY	③ REVIEWED BY: QC	③ REVIEWED BY: ANI	④ REVISION DESCRIPTION	⑤ QA/QC ENG	⑥ ANI

QA RECORD

RTN.	QA REVIEW
L	QAO 8684
FILE NO.	15.1
SUBFILE NO.	NCR #

QA RECORD

INDEXED

BROWN & ROOT, INC. DATE:
Quality Assurance Department
Nonconformance Report (NCR)
CPSES-35-1195

NCR NO. M- 14,651

PAGE 1 OF 3

DRAWING/IDENTIFICATION (REV)	TAG/ID NUMBER	LOCATION OR ELEVATION	RIR NO.
RC-1-520-001 10	FW19	RB#1 826'	NA

NONCONFORMING CONDITION SUBSYSTEM RC-1 ROOM NO. C-1

DOCUMENT VIOLATED: CP-QAP 12.1 REV. 11 PARA. 3.2.1.2 TREND CATEGORY D-6

The original traveler which was issued for installation activities of Loop 3 RC Crossover Leg for Field Weld 19 can not be located

(see attached copy which is also available at PPRV)

No Hold tag applied

INFORMATION COPY PPRV

REPORTED BY:	DATE:	REVIEW/APPROVAL	DATE:	C.A.R. NUMBER:
Ralph Clark	7/31/84	Ted Neely	7/31/84	NA

ACTION ADDRESSEE	'N' STAMPED ITEM	N-2 REQUIRED	ASME N-5 CERT.
Baker	___ YES XX NO	___ YES XX NO	___ YES XX NO

DISPOSITION: REPAIR/REWORK ____ USE AS IS ____ OTHER X

This traveler was originally intended to be worked in conjunction with the WOC for FW 19. The W.E. traveler program for the loop piping was deleted shortly after its origination. W.E. traveler log indicates the traveler in question was never issued to construction. The WOC package stands on its on. Therefore: QCI shall annotate this NCR # on the traveler copy that is filed in the PPRV.

Ref Traveler For closure - M. Conner 8-6-84

ENG. REVIEW/APPROVAL: N/A DEN 8/4/84	QA REVIEW: Ted Neely 8/4/84
CONST. REVIEW/APPROVAL: Mary Madgen 8-4-84	ANI REVIEW/CONCURRENCE: Ben 8-4-84
QC VERIFICATION: M. Conner 8-6-84	WESTINGHOUSE CONCURRENCE: N/A DEN 8/4/84
ANI REVIEW/CONCURRENCE: 8/6/84	
QA REVIEW/CLOSURE: Ted Neely 8/6/84	

FOR INFORMATION ONLY

CONSTRUCTION OPERATION TRAVELER 38-1195

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE__OF__
WeTP-026-5505	S0140 TBX-RCPCCL-01	1	1	

(6) ACTIVITY DESCRIPTION: RC Crossover Leg Installation Loop No. 3 FW19

(7) REFERENCE DRAWINGS: 2323-M1-0520

(8) SPEC./PROC./ENG. INSTR.: MS-100

(9) LOCATION: RB #1

(10) SYSTEM: RC

PREPARED BY Jack H. Hall DATE 12/6/78 DEPT. Welding Engr.

REVIEWED BY R. R. Shaw DATE 12-6-78 QA/QC ENG ANI ☑ ☑ ☑

ANI REVIEW Lon Lunsford DATE 12-7-78

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
		NOTE: All work to be accomplished in accordance with B & R CP-CPM-6.9 and drawing BRP-RC-1-520-1. For inspection hold points see appropriate weld data card.		
1	Pipe	Align and fit the 40° elbow to the Steam Generator outlet nozzle. The joint shall be fit and aligned in accordance with the HPS listed on the weld data card and CP-CPM-6.9.	Fit-up	
2	Pipe WE	Mark center of weld joint per FSM-00106. Apply punch marks to determine final weld shrinkage. Record initial gage reading at 12:00_____, 3:00_____ 6:00_____ 9:00_____	X	
3	WE	Monitor and document the weld metal thickness in each weld joint to attachment 4.		
4	Pipe	Welding will be discontinued at approximately ½" deposited metal.	X	
5	QC	See attachment 8 for intermediate RT, PT and WDC requirements.		
6	QC	The welds shall be contour ground with a maximum reinforcement of no more than 3/32" and shall have a taper of at least 3 to 1.		
7	Pipe QC	Remove all temporary lugs, supports and bracing.		
8	QC WE	Record the final gage reading to determine weld shrinkage.		
	FE	After hot and cold legs are completely welded out and accepted, record dimensions indicated in attachment #1. These readings are to be submitted to mechanical engineering for review prior to installing closure spools to be ordered by Westinghouse.		

INFORMATION COPY PDRV

QA RECORD

RTN.	QA REVIEW
FILE NO.	170.55.11
SUBFILE NO.	WETP-026-5505

BROWN & ROOT, INC
RECEIVED
DEC 07 1978
FILES NOTED
QUALITY ASSURANCE

CONSTRUCTION OPERATION TRAVELER REVISION RECORD SHEET

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE
We78-026-5505	RC Crossover Leg Installation FW 19	__OF__
EQUIPMENT NO. SU 140 TBX-RCPCCL-01		

① REV NO. / OP NO.	② INITIATED BY	③ REVIEWED BY: QC	③ REVIEWED BY: ANI	④ REVISION DESCRIPTION	⑤ QA/QC ENG	⑥ ANI

Category II, AP4 Item 5

CONSTRUCTION OPERATION TRAVELER 35-1195

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE OF
WE-79-035-55-5	TBX-Loop 1-SG & RCP	1	2	

(6) ACTIVITY DESCRIPTION	(7) REFERENCE DRAWINGS
Errection of crossunder pipes	BRP-RC-1-520-1

(8) SPEC./PROC./ENG. INSTR.	(9) LOCATION	(10) SYSTEM
MS-100	RB-1	RC

PREPARED BY Douglas Mayo DATE 1-31-79 DEPT. WE

REVIEWED BY K Caskwell DATE 2/1/79 QA/QC ENG ☐ ANI ☐

ANI REVIEW _____ DATE _____ ☐

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
		NOTE: All work is to be accomplished in accordance with B & R CP-CPM-6.9 and drawing BRP. RC-1-520-1. For inspection hold points see appropriate Weld Data Cards.		
1	PI QC(M)	Align and fit crossover connections. The three weld joints, with respect to each joint, shall be fit and aligned in accordance with the WPS listed on the appropriate Weld Data Card and CP-CPM-6.9.	FW4 FW5 FW6	
		NOTE: The sequence for weldout of a two piece crossunder colsure pipe is as follows: (The PWE will be notified prior to fit-up).		
		Step 1 Mock fit the elbow to the RC pump volute and the intermediate vertical joint. The spool piece to 40° elbow joint is to be fit up on centerline only. The horizontal pipe section is intentionally manufactured long to allow for weld shrinkage in the intermediate vertical joint and its effect at the 40° elbow.		
		Step 2 Deposit approximately ½" of weld metal in the RC Pump to fitting joint. The subsequent metal shrinkage will effect the fitup of the two remaining joints. That effect must be monitored and corrective action taken as necessary. The limiting factor for how much metal to deposit is to be whenever the fitup is acceptable in the remaining joints.		
		Step 3 Once either ½" of weld deposit is reached or the 40° elbow vertical clearance is correct, deposit enough weld metal in the intermediate vertical joint to align the centerline of the pipe to the 40° elbow. If necessary, to obtain correct alignment, additional weld metal can be placed in the RC pump joint.		
		Step 4 Once the 40° elbow is properly fitup, that joint should be welded to completion concurrently with the RC pump to fitting joint. This is to minimize any strain due to unequal weld shrinkage.		

MEMORANDUM
WESTINGHOUSE FORM 2478 K

TBX-M-281

For.
Please see me
J

TO	CPSES	TUSI	J. B. GEORGE	JANUARY 23, 1979
	LOCATION	DEPT.	NAME	DATE

SUBJECT [redacted]

Note The ~~recommended~~ sequence for weldout of a two piece crossunder closure pipe is as follows. C The PWE. will be notified prior to fit-up.

1. ~~Fit for weldout~~ mock fit the elbow to the RC pump volute and the intermediate vertical joint. The spool piece to 40° elbow joint is to be fitup on centerline only. The horizontal pipe section is intentionally manufactured long to allow for weld shrinkage in the intermediate vertical joint and its effect at the 40° elbow.

2. Deposit approximately 1/2 inch of weld metal in the RC Pump to fitting joint. The subsequent metal shrinkage will effect the fitup of the two remaining joints. That effect must be monitored and corrective action taken as necessary. The limiting factor for how much metal to deposit is to be whenever the fitup is acceptable in the remaining joints.

mock up 1st → crunkle

3. Once either 1/2 inch of weld deposit is reached or the 40° elbow vertical clearance is correct, deposit enough weld metal in the intermediate ~~longitudinal~~ (vertical) joint to align the centerline of the pipe to the 40° elbow. If necessary, to obtain correct alignment, additional weld metal can be placed in the RC pump joint. ~~Obtain the typical shrinkage value based on the process being employed, and verify prior to welding that the intermediate joint shrinkage is enough for pipe alignment.~~

4. Once the 40° elbow is properly fitup, that joint should be welded to completion concurrently with the RC pump to fitting joint. This is to minimize any strain due to unequal weld shrinkage.

5. Complete the intermediate joint weldment. ~~The majority of the weld shrink is to be expected during the first fifty percent of the total thickness. Weld shrink from the completion of the intermediate joint should be minimal and therefore induce a negligable amount of cold stress~~

A Westinghouse representative must be notified prior to each fit up. It is recommended that all parties concerned be instructed in the method presented in the applicable traveler. This is a reasonably simple operation but an individual person's misinterpretation can cause a non reversable situation if specific verbal instructions are not presented.

M. R. WUESTEFELD
W Resident Mechanical Eng.
CPSES

P. S. VAN TESLAAR
W Site Manager
CPSES

cc: U. D. Douglas, B&R
J. T. Merritt, TUSI
F. Shaikh, B&R
R. G. Tolson, TUGCO - Q/C
P. Clarke, B&R - Q/A

Comanche Peak Site

L 17.1.55

WE79-035-5505

S, S, C Category II AP4 item 6

CONSTRUCTION OPERATION TRAVELER 35-1195

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE OF
WE-79-035-5505	TBX-* Loop 1-SG & RCP	1	2	

(6) ACTIVITY DESCRIPTION	(7) REFERENCE DRAWINGS
Erection of crossunder pipes	BRP-RC-1-520-1

(8) SPEC./PROC./ENG. INSTR.	(9) LOCATION	(10) SYSTEM
MS-100	RB-1	RC

PREPARED BY Douglas Mayo DATE 1-31-79 DEPT WE

REVIEWED BY D K Cashwell DATE 2/1/79 QA/QC ENG ☐ ANI ☐

ANI REVIEW W D Shewbart DATE 2/19/79 ☐

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
		NOTE: All work is to be accomplished in accordance with B & R CP-CPM-6.9 and drawing BRP. RC-1-520-1. For inspection hold points see appropriate Weld Data Cards.		
1	PI QC(M) ANI (PT and Proof)	Align and fit crossover connections. The three weld joints, with respect to each joint, shall be fit and aligned in accordance with the WPS listed on the appropriate Weld Data Card and CP-CPM-6.9.	FW4 FW5 FW6	
		NOTE: The sequence for weldout of a two piece crossunder colsure pipe is as follows: (The PWE will be notified prior to fit-up).		
		Step 1 Mock fit the elbow to the RC pump volute and the intermediate vertical joint. The spool piece to 40° elbow joint is to be fit up on centerline only. The horizontal pipe section is intentional manufactured long to allow for weld shrinkage in the intermediate vertical joint and its effect at the 40° elbow.		
		Step 2 Deposit approximately ½" of weld metal in the RC Pump to fitting joint. The subsequent metal shrinkage will effect the fitup of the two remaining joints. That effect must be monitored and corrective action taken as necessary. The limiting factor for how much metal to deposit is to be whenever the fitup is acceptable in the remaining joints.		
		Step 3 Once either ½" of weld deposit is reached or the 40° elbow vertical clearance is correct, deposit enough weld metal in the intermediate vertical joint to align the centerline of the pipe to the 40° elbow. If necessary, to obtain correct alignment, additional weld metal can be placed in the RC pump joint.		
		Step 4 Once the 40° elbow is properly fitup, that joint should be welded to completion concurrently with the RC pump to fitting joint. This is to minimize any strain due to unequal weld shrinkage.		
		* TBX-RCPCFB-09 ~~AS~~ 8-27-81		

INFORMATION COPY PPW

ARMS INDEXED DATE:

M368

CONSTRUCTION OPERATION TRAVELER CONTINUATION

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE OF
WE-79-035-55-5	Errection of crossunder pipes	

PREPARED BY Douglas Mayo DM DATE 1/30/79

REVIEWED BY K White DATE 2/15/79

ANI REVIEW [illegible] DATE 2-9-79

OP. NO	DEPT	OPERATION	QA/QC ENG	ANI
		Step 5 Complete the intermediate joint weldment.		
2	PI WE	Mark center of weld joint per FSM 00106. Apply punch marks to determine final weld shrinkage. Record initial gage readings at:		
		FW-4 12 8.062 (PUMP) 3 8.00 (RC) 6 7.937 9 8.062	DAS 4/17/79	
		FW-5 12 8.00 3 8.00 6 8.062 9 8.0 Same as below	BW 4-16-79	
		FW-6 12 7.500 3 7.500 6 7.500 9 7.625 Behind pump Looking down on weld towards the S.G.	BW 4-13-79	
3	M/W	Monitor pump for any movement.		
4	WE	Intermediate R.T. will be done at the 1" level.	(1" LEVEL) DAS 4-23-79 FW4 DAS 4-23-79 FW5 DAS 4-23-79 FW6	(2" LEVEL) 5-1-79 DAS 5-2-79 DAS BW 5-2-79
5	WE	Intermediate R.T. will be done at the 2" level.		
6	WE	Sign off final shrinkage measurements. DAS 5-1-79 DAS NOTED 5/[illegible]/79	FW4 FW5 FW6	BW 6-11-79 BW 6-11-79 BW 6-11-79
Looking Down Toward S.G.		FW-4 12 7.562 3 7.625 6 7.687 9 7.625		
Looking at weld Toward S.G.		FW-5 12 7.625 3 7.625 6 7.750 9 7.625		
		FW-6 12 7.625 3 7.00 6 7.00 9 7.250		

CONSTRUCTION OPERATION TRAVELER REVISION RECORD SHEET

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE
WE-79-035-55-5	Errection of crossunder pipes	__OF__
EQUIPMENT NO. TBX-Loop 1-SG & RCP		

① REV NO / OP NO	② INITIATED BY	③ REVIEWED BY QC	ANI	④ REVISION DESCRIPTION	⑤ QA/QC ENG	⑥ ANI
1 / 1	[illegible] 2/16/79	[illegible] 2/14/79	[illegible] 2/[illegible]/79	PRIOR TO ERECTION ALL WELD END PREPS SHALL HAVE A PT PERFORMED PER NDE P-300		
2 / 1	DRM 3/23/79	DKC 3/23/79	JDB 4/13/79	N/A REVISION ONE		
3 / 1	Bli 4-20-79	gkw 4/20/79	JDP 4/20/79	ADD: NOTE * After 1" of metal has been deposited in the 40°EL and the RC Pump to fitting joint, welding on the intermediate vertical joint may be continued. On a case by case basis, repairs to the 40°EL. and/or the RC Pump to fitting joint greater than 3/8" in depth will be evaluated by the PWE and Westinghouse to decide if welding may continue at the intermediate vertical joint. R L Searcy (W) 4/20/79		

L 17.1.55

WE79-036-5505

Category 11 APY item 7

CONSTRUCTION OPERATION TRAVELER 35-1195

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE OF
WE-79-036-5505	TBX-RCP Loop 3 - SG & RCP	1	1	

(6) ACTIVITY DESCRIPTION	(7) REFERENCE DRAWINGS
Errection of Crossunder Pipes	BRP-RC-1-520-1

(8) SPEC / PROC / ENG INSTR	(9) LOCATION	(10) SYSTEM
MS-109	RB-1	RC

PREPARED BY Douglas Mayo DATE 1/30/79 DEPT WE

REVIEWED BY BK Caldwell DATE 2/1/79 QA/QC ENG ☐ ANI ☐

ANI REVIEW R.D. Powell DATE 2/19/79 ☐

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
		NOTE: All work is to be accomplished in accordance with B & R CP-CPM-6.9 and drawing BRP. RC-1-520-1. For inspection hold points see appropriate Weld Data Cards.		
1	PI QC(M)	Align and fit crossover connections. The three weld joints, with respect to each joint, shall be fit and aligned in accordance with the WPS listed on the appropriate Weld Data Card and CP-CPM-6.9.	FW20 FW21 FW25	
		NOTE: The sequence for weldout of a two piece crossover colsure pipe is as follows: (The PWE will be notified prior to fit-up).		
		Step 1 Mock fit the elbow to the RC pump volute and the intermediate vertical joint. The spool piece to 40° elbow joint is to be fit up on centerline only. The horizontal pipe section is intentionally manufactured long to allow for weld shrinkage in the intermediate vertical joint and its effect at the 40° elbow.		
		Step 2 Deposit approximately ½" of weld metal in the RC Pump to fitting joint. The subsequent metal shrinkage will effect the fitup of the two remaining joints. That effect must be monitored and corrective action taken as necessary. The limiting factor for how much metal to deposit is to be whenever the fitup is acceptable in the remaining joints.		
		Step 3 Once either ½" of weld deposit is reached or the 40° elbow vertical clearance is correct, deposit enough weld metal in the intermediate vertical joint to align the centerline of the pipe to the 40° elbow. If necessary, to obtain correct alignment, additional weld metal can be placed in the RC pump joint.		
		Step 4 Once the 40° elbow is properly fitup, that joint should be welded to completion concurrently with the RC pump to fitting joint. This is to minimize any strain due to unequal weld shrinkage.		
		* TBX-RCPCEB-11 DAS 8-27-81		

CONSTRUCTION OPERATION TRAVELER CONTINUATION

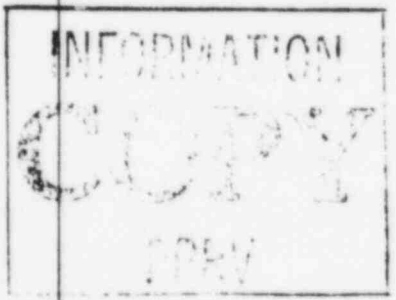
TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE OF
WE-79-036-5505	Errection of Crossunder Pipes	

PREPARED BY Douglas Mayo DRM DATE 1/30/79

REVIEWED BY [illegible] DATE 2/15/79

ANI REVIEW [illegible] DATE 3/19/79

OP NO	DEPT	OPERATION	QA/QC ENG	ANI
		Step 5 Complete the intermediate joint weldment.		
2	PI WE	Mark center of weld joint per FSM 00106. Apply punch marks to determine final weld shrinkage. Record initial gage readings at: FW-20 12 8" 3 7 7/8" 6 8 3/32" 9 8" FW-21 12 7" 3 7 3/4" 6 8" 9 7 3/4" FW-~~25~~ 12 7 1/2" 3 7 1/2" 6 7 9/16" 9 7 1/2"	FW20 FW21 ~~22~~ FW~~25~~	
3	M/W	Monitor pump for any movement.		
4	WE	Intermediate R.T. will be done at the 1" level.	FW20 FW21 FW~~25~~	
5	WE	Intermediate R.T. will be done at the 2" level.		
6	WE	Sign off final shrinkage measurements. Looking North at Pump Down P.P.E FW-21 12 7.687 3 7.625 6 7.687 9 7.531 Looking North at Pump FW-21 12 7.531 3 7.375 6 7.781 9 7.375 Looking South at S.E Down P.P.E FW-22 12 7.662 3 7.175 6 7.662 9 7.156	FW20 FW21 FW~~25~~	



CONSTRUCTION OPERATION TRAVELER REVISION RECORD SHEET

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE
WE-79-036-5505	Errection of Crossunder Pipes	__OF__
EQUIPMENT NO. TBX-Loop 3-SG & RCP		

① REV NO / OF NO	② INITIATED BY	③ REVIEWED BY: QC	③ REVIEWED BY: ANI	④ REVISION DESCRIPTION	⑤ QA/QC ENG	⑥ ANI
1 / 1	Rev 2-4-79 ~~Initiator~~	2/14/79	2/7/79	Prior to Erection ALL WELD End Preps SHALL HAVE A PT. Performed PER NDE P-300.		
2 / 2	DRM 3/23/79	3/29/79	HDB 4/13/79	N/A revision one		
3 / 1	Rev 4-20-79	4/20/79	HDB 4/20/79	add: Note* After 1" of metal has been deposited in the 40° EL. and the RC Pump to fitting joint, welding on the intermediate vertical joint may be continued. On a case by case basis, repairs to the 40° EL and/or the RC Pump to fitting joint greater than 3/8" in depth will be evaluated by the PWE and Westinghouse to decide if welding may continue at the intermediate vertical joint. H.B. Stacey (W) 4/20/79		

Category II, AP4, Item

L 17.155

WE79-037-5505

CONSTRUCTION OPERATION TRAVELER 35.1195

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE__OF__
WE-79-037-5505	Loop 4-SG and RCP	1	2	

(6) ACTIVITY DESCRIPTION	(7) REFERENCE DRAWINGS
Frection of crossunder pipes	BRP-RC-1-520-1

(8) SPEC./PROC./ENG. INSTR.	(9) LOCATION	(10) SYSTEM
WS-12	RC-1	RC

PREPARED BY Douglas Hayes DC Hayes DATE 1/30/79 DEPT WE

REVIEWED BY G.K. Cashwell DATE 2/1/79 QA/QC ENG ☐ ANI ☐

ANI REVIEW K.D. Caldwell DATE 2/19/79 ☐

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
		NOTE: All work is to be accomplished in accordance with B & R CP CPM-6.9 and drawing BRP. RC-1-520-1. For inspection hold points see appropriate Weld Data Cards.	4/13/79	
1	PI QC(ANI)	Align and fit crossover connections. The three weld joints, with respect to each joint, shall be fit and aligned in accordance with the WPS listed on the appropriate Weld Data Card and CP-CPM-6.9.	FW12 FW13 FW14	4-13-79
		NOTE: The sequence for weldout of a two piece crossunder colsure pipe is as follows: (The PWE will be notified prior to fit-up.)		
		Step 1 Mock fit the elbow to the RC pump volute and the intermediate vertical joint. The spool piece to 40° elbow joint is to be fit up on centerline only. The horizontal pipe section is intentionally manufactured long to allow for weld shrinkage in the intermediate vertical joint and its effect at the 40° elbow.	4-5-79	RLB 4.5 79
		Step 2 Deposit approximately ½" of weld metal in the RC Pump to fitting joint. The subsequent metal shrinkage will effect the fitup of the two remaining joints. That effect must be monitored and corrective action taken as necessary. The limiting factor for how much metal to deposit is to be whenever the fitup is acceptable in the remaining joints.		
		Step 3 Once either ½" of weld deposit is reached or the 40° elbow vertical clearance is correct, deposit enough weld metal in the intermediate vertical joint to align the centerline of the pipe to the 40° elbow. If necessary, to obtain correct alignment additional weld metal can be placed in the RC pump joint.		
		Step 4 Once the 40° elbow is properly fitup, that joint should be welded to completion concurrently with the RC pump to fitting joint. This is to minimize any strain due to unequal weld shrinkage.		
3		* TBX-RCPFB-10 MS 8-27-81		

FOIA-85-59

M370

CONSTRUCTION OPERATION TRAVELER CONTINUATION

TRAVELER NO. 037 WRM WE-79-037-5505	ACTIVITY DESCRIPTION Frection of crossunder pipes	PAGE__ OF__

PREPARED BY Douglas Mayo DCMayo DATE 1/30/79

REVIEWED BY [illegible] DATE 2/5/79

ANI REVIEW [illegible] DATE [illegible]

OP. NO.	DEPT.	OPERATION	QA QC ENG	ANI
		Step 5 Complete the intermediate joint weldment.		
2	PI WE	Mark center of weld joint per FSM 00106. Apply punch marks to determine final weld shrinkage. Record initial gage readings at:	FW12 FW13 FW14	Bw 4-13-79
		FW-12 12 8.[illegible] (North) 3 9.937 (East) 6 8.312 (South) 9 8.250 (West) Bw 4-13-79		
		FW-13 12 8.062 3 8.187 6 8.000 9 8.000	4/9/79	
		FW-14 12 7.500 (RC) 3 7.750 6 7.937 9 7.937 (GEN.)	4/9/79	
3	H/W	Monitor pump for any movement.		
4	WE	Intermediate R.T. will be done at the 1" level. (1" LEVEL) 4/17/79	FW12	Bw 4-20-79
5	WE	Intermediate R.T. will be done at the 2" level. (2" LEVEL) 4/17/79	FW13 FW14	4/17/79 Bw 4-20-79
6	WE	Sign off final shrinkage measurements.	FW12 FW13 FW14	Bw 5-2-79 Bw 7-14-79 Bw 7-14-79
		FW-12 12:00 7.750" 3 7.500" 6 7.937 9 7.875"		FINAL SHRINKAGE
AWAITING NT SG		FW-13 12:ex 7.687 3 7.687 6 7.687 9 7.843		
FAILING N... WELDING D... W.CO		FW-14 12:ex 7.593 3 7.593 6 7.343 9 7.156		

5/1/79

CONSTRUCTION OPERATION TRAVELER 35-1195

(1) TRAVELER NO.	(2) EQUIPMENT NO.	(3) UNIT NO.	(4) QUANTITY	(5) PAGE OF
WE-79-037-5505	TBX Loop 2-SG and RCP	1	2	

(6) ACTIVITY DESCRIPTION	(7) REFERENCE DRAWINGS
Erection of crossunder pipes	BRP-RC-1-520-1

(8) SPEC./PROC./ENG. INSTR.	(9) LOCATION	(10) SYSTEM
MS-100	RB-1	RC

PREPARED BY Gerard A. Schultz DATE 5/1/79 DEPT WE

REVIEWED BY D.K. Jacobus DATE 5-1-79 QA QC ENG ANI

ANI REVIEW S.R. Simko DATE 5-1-79 ☐ ☐ ☐

OP. NO.	DEPT.	OPERATION FW-12	QA/QC ENG	ANI
		FW-12: The present location of R.T. station marks on FW-12 prohibits accomplishing a 3 to 1 taper. Therefore the following steps shall be performed.		
1.	Q.C. ANI	1. Transfer R.T. station markers to an acceptable location	5-2-79	RCB 5-2-79
2.	P.D.	2. Transfer any weldor's symbols to the nozzle on steam generator side.		
3.	W.E. G.H.	3. The P.W.E. and Gibbs and Hill evaluate the final X-ray. (OF BASE METAL CONTAINTING WELD) 5/2/79 5-2-79 6-2-79		

CONSTRUCTION OPERATION TRAVELER CONTINUATION

TRAVELER NO.	ACTIVITY DESCRIPTION	PAGE__ OF__
WE-79-037-5505	Weld a 3 to 1 Taper	

PREPARED BY David A. Stutes DATE 5-2-79 (WE)

REVIEWED BY S.K. [illegible] DATE 5-2-79

ANI REVIEW [illegible] DATE 5/2/79

OP. NO.	DEPT.	OPERATION	QA/QC ENG	ANI
A.	Q.C.	FW-12 A. Weld approximately 3/4" back from the toe of weld on to the spool 8Q1, in order to achieve a 3 to 1 taper.	[illegible] 5-4-79	

CONSTRUCTION OPERATION TRAVELER REVISION RECORD SHEET

TRAVELER NO 037 WRM WE-79-037-5505	ACTIVITY DESCRIPTION	PAGE __OF__
EQUIPMENT NO. TBX- Loop 2-SG and RCP	Erection of crossunder pipes	

① REV NO / OP NO	② INITIATED BY	③ REVIEWED BY: QC	③ REVIEWED BY: ANI	④ REVISION DESCRIPTION	⑤ QA QC ENG	⑥ ANI
1 / 1	[illegible] 2-6-79	[illegible] 2/16/79	[illegible] 2/9/79	Prior to Erection ALL WELD END PREPS SHALL HAVE A PT. PERFORMED PER NDEP 300	W.E.S. 3/23/79	SRT 3/23/79
2 / 1 (A REV 3-23-79)	~~ORM~~ 3/23/79 ~~CRM~~ 3/23/79			~~N/A revision only~~ ORM 3/23/79		
3 / 1	bw 4-20-79	gw 4/24/79	RDP 4/20/79	Add: Note * after 1" of metal has been deposited in the 40° El. and the RC Pump to fitting joint, welding on the intermediate vertical joint may be continued. On a case by case basis, repairs to the 40° EL and/or the RC Pump to fitting joint greater than 3/8" in depth will be evaluated by the PWE and Westinghouse to decide if welding may continue at the intermidiate vertical joint. R.B. Sloey (W) 4/20/79		

Brown & Root, Inc.

QUALITY ASSURANCE DEPARTMENT
NDE LIQUID PENETRANT REPORT

SERIAL NUMBER

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING	SYSTEM	CLASS
BRP-RC-1-520-1	5505	1 ☑ 2 ☐ 3 ☐ OTHER
WELD/ITEM IDENTIFICATION	**LOCATION**	
FW-13 SPOOL 901	R.B.	

MTL. TYPE	MTL. THICK	DIA/LENGTH		
P-8	2.48	31" ID	DIA./WIDTH	LENGTH

STAGE OF MFG. END PREP ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

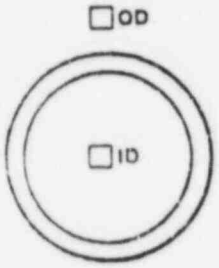
JOINT ☐ BRN ☐ BKS ☐ INS ☐ OPEN BUTT ☐ OTHER

PENETRANT			DWELL TIME
MFG. MAGNAFLUX	BRAND SPOTCHECK	BATCH	10 MIN
CLEANER			
MFG. MAGNAFLUX	BRAND SPOTCHECK	BATCH	
DEVELOPER			**DEVELOPING TIME**
MFG. MAGNAFLUX	BRAND SPOTCHECK	BATCH	7 MIN

NDE PROCEDURE NO. 300

SURFACE ☐ AS WELDED ☐ GROUND ☑ OTHER MACHINED

SKETCH & REMARKS



ACCEPTANCE STD.		DATE
NDEP-300	ACCEPT ☑ REJECT ☐	3/22/79
INSPECTOR		**CERTIFICATION LEVEL**
H. E. Stubbs SET 3/23/79		II

QA-505-1

Brown & Root, Inc.

Post Office Box [illegible] Houston, Texas 77043

QUALITY ASSURANCE DEPARTMENT
NDE LIQUID PENETRANT REPORT

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING: BRP-RC-1-520-1	SYSTEM: RC.	CLASS: 1 ☑ 2 ☐ 3 ☐ OTHER ☐
WELD/ITEM IDENTIFICATION: FW 13 spool 8 Q1 A End	LOCATION: CONTAINMENT	

MTL. TYPE	MTL. THICK	DIA/LENGTH	
P-8	2.48"	31"10	DIA/WIDTH

INFORMATION COPY PPRV

PENETRANT MFG. MAGNAFLUX	BRAND SPOTCHECK	NDE PROCEDURE NO. CP-NDE-300	
CLEANER MFG. MAGNAFLUX	BRAND SPOTCHECK		
DEVELOPER MFG. MAGNAFLUX	BRAND SPOTCHECK		

STAGE OF MFG.: ☑ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE: ☐ AS WELDED ☐ GROUND ☑ MACHINED ☐ OTHER

DWELL TIME: 10 DEVELOPING TIME: 10

REMARKS

ACCEPTANCE STD.: ASME SECTION III ☑ ANSI B31.1 ☐ ACCEPT ☑ REJECT ☐ DATE: 3/21/79

INSPECTOR: W.T. Sims JQA 3-21-79 CERTIFICATION LEVEL: II

STAGE OF MFG.: ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE:

DWELL TIME: DEVELOPING TIME:

REMARKS

ACCEPTANCE STD.: ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE: / /

INSPECTOR: CERTIFICATION LEVEL:

STAGE OF MFG.: ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE: ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME: DEVELOPING TIME:

REMARKS

ACCEPTANCE STD.: ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE: / /

INSPECTOR: CERTIFICATION LEVEL:

STAGE OF MFG.: ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE: ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME: DEVELOPING TIME:

REMARKS

ACCEPTANCE STD.: ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE: / /

INSPECTOR: CERTIFICATION LEVEL:

Brown & Root, Inc.

P. O. Box [illegible] Texas 76043

QUALITY ASSURANCE DEPARTMENT
NDE LIQUID PENETRANT REPORT

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING	SYSTEM	CLASS
BRP-RC-1-520-1	R.C.	1 ☑ 2 ☐ 3 ☐ OTHER

WELD/ITEM IDENTIFICATION	LOCATION
FW 14 spool 9Q1 A End	CONTAINMENT

MTL. TYPE	MTL THICK	DIA/LENGTH	DIA/WIDTH	LENGTH
P-8	2.48"	31" TO		

PENETRANT MFG. MAGNAFLUX BRAND SPOTCHECK NDE PROCEDURE NO. CP-NDER-8C

CLEANER MFG. MAGNAFLUX BRAND SPOTCHECK

DEVELOPER MFG. MAGNAFLUX BRAND SPOTCHECK

INFORMATION COPY PPRV

STAGE OF MFG. ☑ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☑ MACHINED ☐ OTHER

DWELL TIME 10 DEVELOPING TIME 10

REMARKS

ACCEPTANCE STD. ASME SECTION III ☑ ANSI B31.1 ☐ ACCEPT ☑ REJECT ☐ DATE 3/21/79

INSPECTOR W. T. Sims 3-21-79 CERTIFICATION LEVEL II

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE

DWELL TIME DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

Brown & Root, Inc.

P.O. Box 1001, Glen Rose, Texas 76043

QUALITY ASSURANCE DEPARTMENT
NDE LIQUID PENETRANT REPORT

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING	SYSTEM	CLASS
BRP-RC-1-520-1	R.C.	1 ☑ 2 ☐ 3 ☐ OTHER

WELD/ITEM IDENTIFICATION	LOCATION
FW 12 spool 8 Q 1	CONTAINMENT

MTL. TYPE	MTL THICK	DIA/LENGTH
P-8	2.48"	31" ID DIA/WIDTH LENGTH

PENETRANT MFG. MAGNAFLUX BRAND SPOTCHECK NDE PROCEDURE NO. CP-NDEP-300

CLEANER MFG. MAGNAFLUX BRAND SPOTCHECK

DEVELOPER MFG. MAGNAFLUX BRAND SPOTCHECK

INFORMATION COPY

STAGE OF MFG. ☑ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☑ MACHINED ☐ OTHER

PRRV

DWELL TIME 10 min

DEVELOPING TIME 10 min

REMARKS

ACCEPTANCE STD. ASME SECTION III ☑ ANSI B31.1 ☐ ACCEPT ☑ REJECT ☐ DATE 3 / 21 / 79

INSPECTOR Tim Ruiz 3-21-79 CERTIFICATION LEVEL II

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE

DWELL TIME

DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME

DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

STAGE OF MFG. ☐ END PREP ☐ EXCAVATION ☐ REPAIR ☐ ROOT ☐ INTERMEDIATE ☐ FINAL

SURFACE ☐ AS WELDED ☐ GROUND ☐ OTHER

DWELL TIME

DEVELOPING TIME

REMARKS

ACCEPTANCE STD. ASME SECTION III ☐ ANSI B31.1 ☐ ACCEPT ☐ REJECT ☐ DATE / /

INSPECTOR CERTIFICATION LEVEL

Brown & Root, Inc.

INSPECTION REPORT

PLANT CODE (1-4)	SYSTEM CODE (5-10)	COMPONENT CODE (11-16)
	5505	

TAG/SPIN/IDENT NO (A B C D E F)	DRAWING/SPECIFICATION NO (G) (Units)	(H) (Units)	SERIAL NO (J) (Units)
FW-13 SPOOL 901	BRP-RC-1-520-1		

(17-55)

PURCHASE ORDER NUMBER (56-69)	VEND CODE (70-73)

MRR NUMBER (74-79)	RIR NUMBER (80-85)	VENDOR'S HEAT/LOT/BATCH NO. (86-95)	COUNT / UNITS QUANTITY (96-105)	PURCH'S OR NO. (106-111)	RLS HOLD NO / CODE STATUS (112-121)	INPUT DATE (122-127)
					NCR # M-1377	3/22/79

FURPOSE AND TYPE OF INSPECTION/SURVEILLANCE:

P.T. OF END PREP

RESULTS OF INSPECTION / SURVEILLANCE:

UPON RE-INSPECTION OF THE END PREP THE INDICATIONS WHICH WERE PREVIOUSLY REJECTS WERE EVALUATED WITH AN OPTICAL COMPARITOR AN FOUND TO BE ACCEPTABLE I.A.W. NDEP-300.

BASED UPON THE ABOVE THE RETECTABLE NDE REPORT AND NCR # M-1377 SHOULD BE VOIDED/CANCELED.

HOLD TAG HAS BEEN REMOVED.

NCR NO M-1377

H. E. Stubbs
QC ENGINEER/INSPECTOR

DATE 3/22/79

Category II, APH, item 9

35-1195
2-27-79

Brown & Root, Inc. Post Office Box 1001, Glen Rose, Texas 76043

BRF-9181

February 27, 1979

Mr. J. T. Merritt, Jr.
Texas Utilities Services, Inc.
P. O. Box 1002
Glen Rose, TX 76043

TEXAS UTILITIES SERVICES, INC.
COMANCHE PEAK STEAM ELECTRIC STATION
1981-83 2300 MW INSTALLATION
REACTOR COOLANT PIPE
REF: BRF-9152 2-19-79
P.O.# CP-0001

Dear Mr. Merritt:

Attached is revision-1 to the measurements transmitted by the referenced letter. The revision affects the miter to be machined on the end prep adjacent to the steam generator. All other dimensions remain the same.

Please contact us if any questions arise concerning these measurements.

Very truly yours,

BROWN & ROOT, INC.

U. D. Douglas
Project Manager

UDD:JHM:JJR:eh
cc: ARMS OL,1A
L. A. Ashley 1L,1A
J. T. Merritt 1L,1A

M371

BROWN & ROOT, INC.
ENGINEERING DIVISION

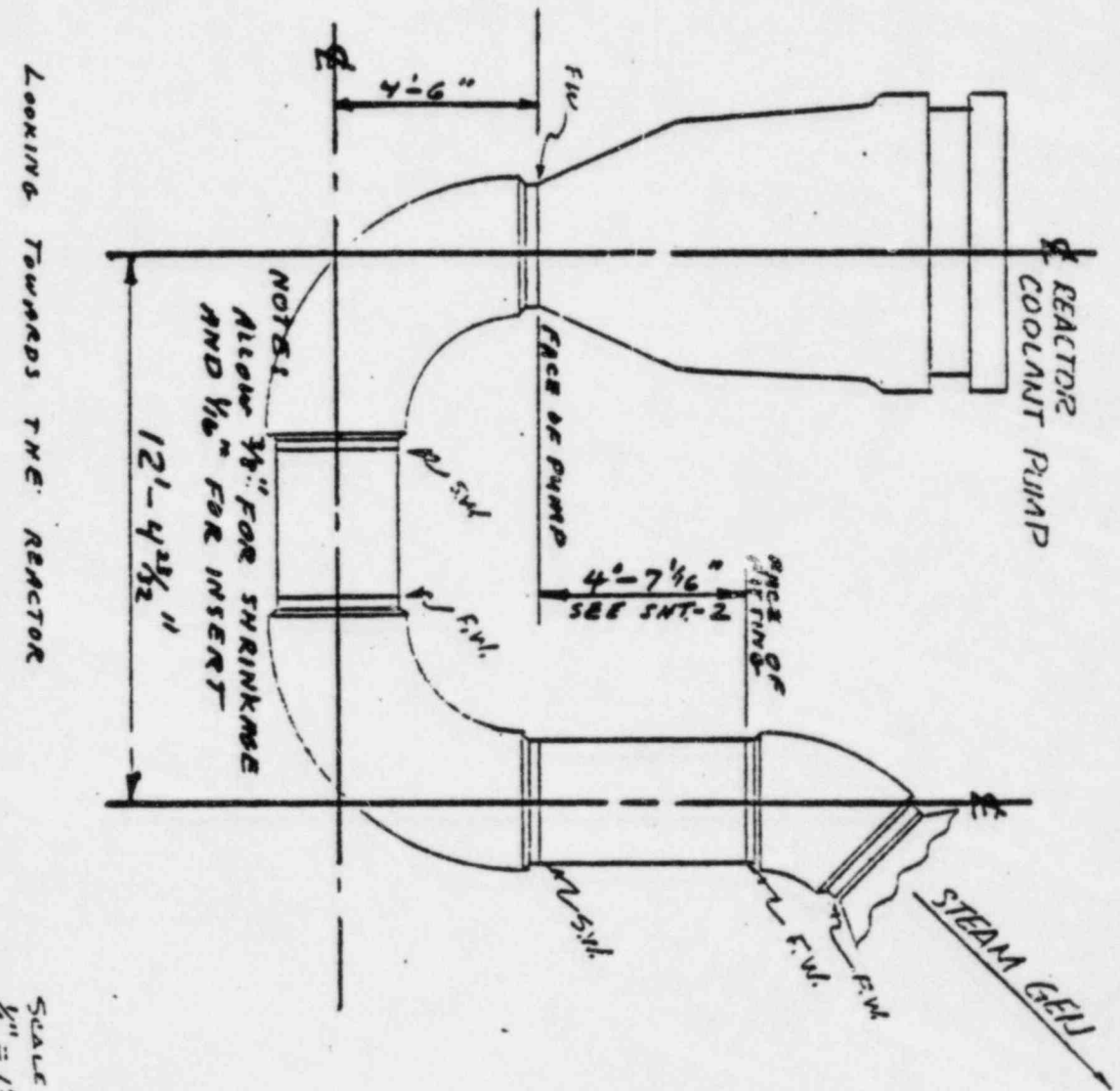
SHEET NO. 1 OF 2

CLIENT TEXAS UTILITIES JOB NO. 35-1195

SUBJECT CLOSURE LOOP FIELD MEASUREMENTS, UNIT-1, LOOP-2

BASED ON FIELD MEASUREMENTS DRAWING NO.

COMPUTER FIELD ENGR. CHK'D. BY J.R. APP'D. BY JHM DATE 2-19 19 79



LOOKING TOWARDS THE REACTOR

SCALE: 1/4" = 1'-0"

BROWN & ROOT, INC.
ENGINEERING DIVISION

SHEET NO. 2 OF 2

CLIENT TEXAS UTILITIES JOB NO. 35-1195

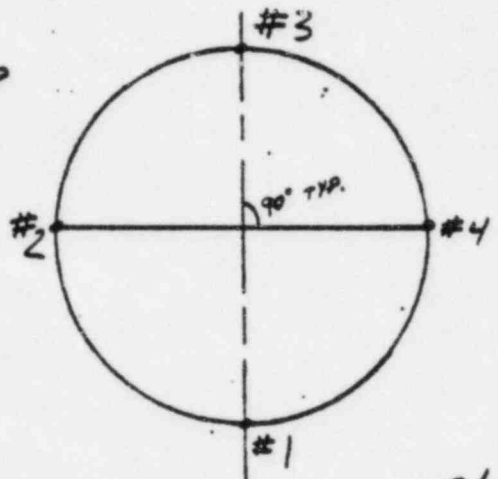
SUBJECT CLOSURE LOOP FIELD MEASUREMENTS, UNIT-1, LOOP-2

BASED ON FIELD MEASUREMENTS DRAWING NO.

COMPUTER FIELD ENER. CHK'D BY J. R. APP'D. BY [signature] DATE 2/27 19 71

Revision-1

R.C. PUMP NOZZLE

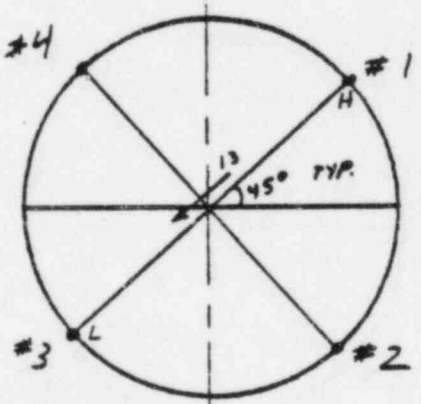


#1 — 3'-9 31/64"
#2 — 3'-9 31/64"
#3 — 3'-9 31/64"
#4 — 3'-9 31/64"
AVG — 3'-9 31/64"

N

8'-4 35/64
3'-9 31/64
4'-7 1/16"

STM. GEN. NOZZLE



△1

#1 — 8'-4 43/64"
#2 — 8'-4 37/64"
#3 — 8'-4 29/64"
#4 — 8'-4 33/64"
AVG. — 8'-4 35/64"

35-1195
3-12-79

Category II
AP 4
Item 11

Brown & Root, Inc. Post Office Box 1001, Glen Rose, Texas 76043

BRF- 9207

March 12, 1979

Mr. J. T. Merritt, Jr.
Texas Utilities Services, Inc.
P. O. Box 1002
Glen Rose, TX 76043

Texas Utilities Services, Inc.
COMANCHE PEAK STEAM ELECTRIC STATION
1981-83 2300 MW Installation
P. O. CP-0001
Reactor Coolant Pipe Field Measurements

Dear Mr. Merritt:

Attached are the field measurements required for the fabrication of the closure loop for Unit-1, Loop-4. Also, noted on the sketch are the fabrication allowances for weld shrinkage and consumable insert.

Please contact us if you have any questions concerning these measurements.

Very truly yours,

BROWN & ROOT, INC.,

U. D. Douglas
Project Manager

Attachment
UDD:JHM:JJR:eh
cc: ARMS OL, 1A
L. A. Ashley 1L,1A
J. T. Merritt 1L,1A

FOIA-85-55

M3R

BROWN & ROOT, INC.
ENGINEERING DIVISION

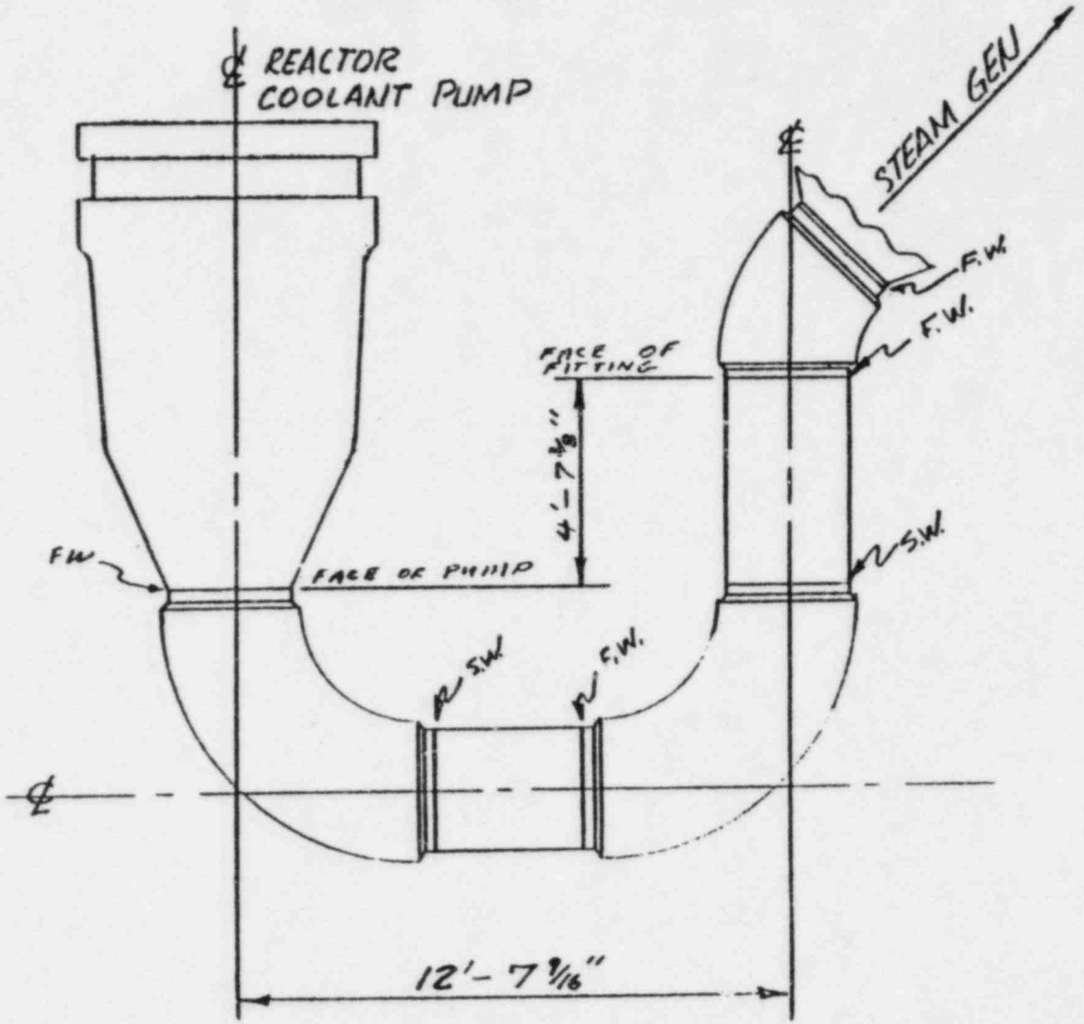
SHEET NO. 1 OF 1

CLIENT TEXAS UTILITIES — JOB NO. 35-1195

SUBJECT CLOSURE LOOP FIELD MEASUREMENTS, UNIT-1, LOOP-4

BASED ON AS-BUILT MEASUREMENTS — DRAWING NO.

COMPUTER FIELD ENGR. CHK'D BY JR DATE 3-12 19 APP'D. BY



NOTE:
ALLOW 3/8" FOR SHRINKAGE AND 1/16" FOR FIT-UP AT ALL FIELD WELDS

SCALE:
¼" = 1'-0"

Category II, AP4, Item 10

Brown & Root, Inc. Post Office Box 1001, Glen Rose, Texas 76043

BRF-9211

March 13, 1979

Mr. J.T. Merritt, Jr.
Texas Utilities Services, Inc.
P. O. Box 1002
Glen Rose, Texas 76043

Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
1981-83 2300 MW Installation
Reactor Coolant Pipe Field Measurements

Dear Mr. Merritt:

Attached are the field measurements required for the fabrication of the closure loop for Unit 1, Loop-1. Also, noted on the sketch are the fabrication allowances for weld shrinkage and consumable insert.

Please contact us if you have questions concerning these measurements.

Very truly yours,
BROWN & ROOT, INC.

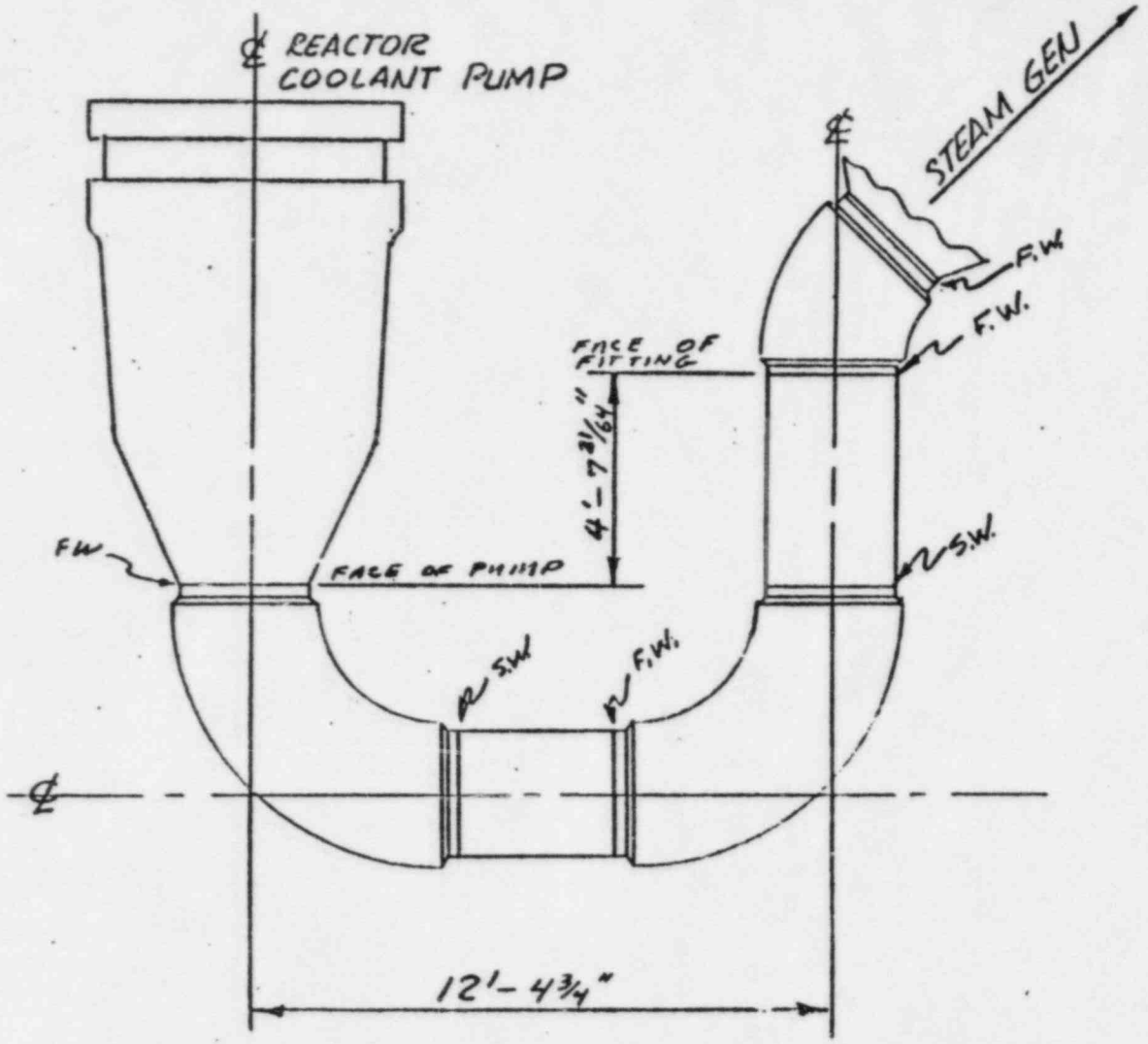
U. D. Douglas
Project Manager

Attachment
UDD:JHM:JJR:kc
cc: ARMS (OL,1A)
L. A. Ashley (1L,1A)
J. T. Merritt (1L,1A)

BROWN & ROOT, INC.
ENGINEERING DIVISION

SHEET NO. 1 OF 1
JOB NO. 35-1195

CLIENT TEXAS UTILITIES
SUBJECT CLOSURE LOOP FIELD MEASUREMENTS, UNIT-1, LOOP 1
BASED ON AS BUILT MEASUREMENTS DRAWING NO.
COMPUTER FIELD ENGR. CHK'D BY JR APP'D. BY [signature] DATE 3-13 1975



NOTE:
ALLOW 3/8" FOR SHRINKAGE AND 1/16" FOR FIT-UP AT ALL FIELD WELDS

SCALE:
1/4" = 1'-0"

WELD END DIMENSIONAL CHECK		
(11)	C = 31.200" ±.010" ACTUAL = 31.200" - 31.206"	LIP THICKNESS = .090" ±.015" ACTUAL = .082" - .102"
(12)	C = 31.200" ±.010" ACTUAL = 31.202" - 31.210"	LIP THICKNESS = .090" ±.015" ACTUAL = .083" - .098"
(C)	C = 2.693" ±.010" ACTUAL = 2.692" - 2.694"	LIP THICKNESS = .055" +.010" -.000" ACTUAL = .060" - .064"

WALL THICKNESS AND WELD JOINT LOCATION					
BEV. ITEM	0°	90°	180°	270°	℄ B.W. LOCATION
(11) —	2.507"	2.498"	2.502"	2.499"	2'-9 1/8"
(12) —	2.481	2.491	2.484	2.490"	2'-7 13/16"
(13) —	2.507	2.509	2.508"	2.513"	1'-10 13/16"
(14) —	2.519	2.501	2.503"	2.515	9 5/16"

EDGE OF HOLE MUST BE CLEAN & SHARP .005" MAX. RADIUS, FREE FROM BURRS, WIRE EDGES, OR OTHER IRREGULARITIES.

9/16" RADIUS (GRIND SMOOTH)

.375"

DRILL THRU & REAM OR GRIND TO DEBURR. (AFTER WELDING CPL'G. TO ELL)

T.I.G. ROOT PASS (FULL PENETRATION)

DETAIL "X"
(TYPICAL 4 PLACES)

USE LARGER O.D. THIS END

4'-7 21/64" ±1/8"

4'-7 1/8"

TBX-LOOP-1-RCP-SIDE SER# 13277

2'-1 3/16" ±1/8"

2'-1 1/2"

ALL NOTE 11123

TEMP WELDS

ALL

44 1/2°

57 1/2°

22°30'

"A" 70°

31" I.D.

MBE PER SHT. 46 (R10) NOTES 14 & 22

TBX-LOOP-1-SB-S SER# 13278

SEE DET. "X" (TYP.-4)

HT.# 415CX SER.# 32478-23

HT.# 415CX SER.# 32478-18

HT.# 415CX SER.# 32478-24

HT.# 415CX SER.# 32478-15

345° 15° 0° 15° 15° 180°

SECT. "A-A"

PIPE

FITTING

5° MAX.

3/4"

MFG'S NAME ℞

LOC. WKT. 270° 180° 90° 0°

TO ℄ B.W.

DETAIL "A"

MARK WITH LOW STRESS STENCIL 1/4" CTRS.

SHOP INSTALL ON SAME ℄ AS PIPE MFG. ℞

SER# 13278 NOTE 1

SER# 13277 NOTE 2

N PT

SOUTHWEST FABRICATING AND WELDING CO.
(Name of Manufacturer)

13277-13278
(Manufacturer's Serial No.)

1979
(Year Built)

DETAIL "B"

1-EACH REQ'D MK: A" SHOWN

NO.

ASME III / 1974 THRU ADDENDA
WINTER 1975 / Code Case 1423-2

1. MARK WITH LOW STRESS STENCIL OR ETCH.
2. HEAT AND SERIAL NO. TO BE APPLIED TO EACH PART OF THE FABRICATED ASSEMBLY.
3. SEE ATTACHED MANUFACTURING RECORD SHEET FOR DOCUMENTATION AND PROCEDURES.
4. INSTALL 3/4" THRU 2" NOZZLES PER SHEET 4B (R/1)
5. INSTALL 3" AND LARGER NOZZLES PER SHEET 4A (R/1)
6. T.I.G. ROOT PASS OF ALL WELDS.
7. CONTOUR GRIND ALL WELDS - 250 RMS MAX.
8. MAXIMUM REINFORCEMENT OF BUTT WELDS IS 1/16" PER DET. "A".
9. ALL TEMPORARY ATTACHMENTS SHALL BE OF A COMPATIBLE AND IDENTIFIED MATERIAL.
10. ALL SURFACES FROM WHICH METAL HAS BEEN GROUND BY THE SHOP, SHALL BE LIQUID PENETRANT EXAMINED PER PROCEDURE.
11. LIQUID PENETRANT EXAMINE PER PROCEDURE THE ROOT PASS, AND ALL ACCESSIBLE SURFACES OF FINISHED BUTT WELDS, NOZZLE WELDS, FILLET WELDS, AND THE HEAT AFFECTED ZONE OF THE BASE METAL ADJACENT TO THE WELD. IN ADDITION, FOR NOZZLES 4" AND SMALLER, LIQUID PENETRANT EXAMINE EACH 1/2" INCREMENT OF WELD DEPOSIT.
12. REMOVE LUGS FROM ULT. & P.T. GROUND SURFACES PER PROCEDURE.
13. LIQUID PENETRANT EXAMINE PER PROCEDURE ACCESSIBLE FINISHED MACHINED NOZZLE BORES, BEVELS AND GROUND SURFACE INSIDE HEADER AT NOZZLE WELDS.
14. LIQUID PENETRANT EXAMINE PER PROCEDURE ALL PIPE WELD BEVELS AND WELD SURFACE CUT IN WALL FOR I.D. NOZZLE WELD.
15. RADIOGRAPH 6" AND LARGER BUTT WELDS AND NOZZLE WELDS PER PROCEDURE.
17. CLEAN AND PREPARE FOR SHIPMENT PER PROCEDURES. WAPD 4 Rq / WAPD 6 Rq.
18. DIMENSION INCLUDES 3/8" FOR FIELD WELD SHRINKAGE. (| PLACE).
19. DIMENSION INCLUDES — FOR FIELD WELD SHRINKAGE (— PLACES).
20. SHOP TO COMPLETE W SPUN NO. ON PIPE MFG. NAME PLATE.
21. FILLER METAL: TP 308 STAINLESS STEEL.
22. RECORD WALL THK. AT C BORE AND MEASURED LOCATION OF BUTT WELD ON NAME PLATE AND TABLE PER DETAIL "X".
3" MIN. DESIGN THICKNESS = 2.48"
23. CONT. WELD MFG. NAME & ID LOCATION INDICATED BY MATL. MFRS. AT 4 DOCUMENT

12'-5 1/8" ± 1/16" (NOTE 18)
12'-5 1/8"
WELDS (28)

ALL MATL. TYPE 316N STAINLESS STL. (U&W)

SOUTHWEST FABRICATING & WELDING CO. P.O. BOX 9449 HOUSTON, TEXAS 77011

ITEM	QUA	DESCRIPTION		QUA	UNIT	TOTAL
A	1	31" I.D. 90° ELL (ULT) (100% RT) (AT ALL SURFACES) HEAT 3-3319/2665 SER 2	SA-351 CF8A (70% MAX DELTA FERRITE)			EXCEPT HYDRO. AFTER ERECTION
B	1	31" I.D. 90° ELL WITH PLENUM (ULT) (100% RT) (PT ALL SURFACES) HT# 3-3378/0211 SER# 2	SA-351 CF8A (70% MAX DELTA FERRITE)			EXCEPT HYDRO. AFTER ERECTION
C	1	3" SCH 160 NOZZ. ON 31" I.D. HDR. PER SHT M-4A (R6) MACHINE IN SHOP PER SHT 4A (R/1) REPLACE W/ PLUG PER DET B THIS SHT (100% UT) (PT ACCESS SIDE) HT# A01CX SER# 32378-12	SA-182 F316N			
D	1	3" SOCKWELD BOSS SCH 160 BORE PER SHT 4B (R/1) (100% UT) (PT ACCESS SIDE) HT# 41ECX SER# 32378-4	SA-182 F316N			
E	4	3/4" 6000# SOCKWELD HALF COUP. (.250" MAX. BORE) DRILL IN SHOP PER DET "X" HEAT # SER # 5 NOTE 15 (100% U.T.) (PT ACCESSIBLE SURFACES) HT# 41CX SER# 32378-13 HT# 41CX SER# 32378-20 HT# 41CX SER# 32378-23 HT# 41BX SER# 32378-18	SA-182 F316N			
F	1	12.48" MW CAST PIPE (ULT) (100% RT) (AT ALL SURFACES) "I.D. 0.72 0A" 2 MAKER CONT SHT 4A (R/0) HEAT # 153701-PC 1	SA-351 CF-8A (70% MAX DELTA FERRITE)			EXCEPT HYDRO. AFTER ERECTION
F	1	12" I.D. X 5/16" X MAKER SHT 4 G (R/0) HEAT # 153700-PC 2				
						TOTAL

546-CVH-253731-B/B
TBX-RCPCFB-09

860612 0564 - 01

ADDED AS BUILT DATA	JM	3/9/79
REMOVED HOLDS		3-15-79
"E" SPEC WAS REV. 0		1-23-79
AE DWG WAS REV 2		6-27-78
ORIGINAL ISSUE		5-18-77
REVISION	CHK'D	DATE

PREHEAT 50°F MIN. | PWHT | CUSTOMER WESTINGHOUSE
WELD MAP | HEAT TREAT | PO 546-CVH-253731-B
NDE NOTE 2,11,12,13,14,25 | COLOR CODE | CUST DWG NO 2323-M
RADIOGRAPH NOTE 15 | W SPUN # TBX-RCPCFB-09 | DATE 5-10-77 DRAWN BY RV
ASME III CLASS 1 | PO Q-6214-TBX
WEIGHT 19,133 lbs 7194

35-1195
5-4-79

Category II, App, Item 3

Brown & Root, Inc. Post Office Box 1001, Glen Rose, Texas 76043

BRF-9348

May 4, 1979

Mr. J. T. Merritt
Texas Utilities Services, Inc.
P. O. Box 1002
Glen Rose, TX 76043

Texas Utilities Services, Inc.
COMANCHE PEAK STEAM ELECTRIC STATION
1981-83 2300 MW Installation
P. O. CP-0001
Reactor Coolant Pipe Field Measurements

Dear Mr. Merritt:

Attached are the field measurements required for the fabrication of the closure loop for Unit-1, Loop-3. Also, noted on the sketch is the fabrication allowance for weld shrinkage.

Please contact us if you have any questions concerning these measurements.

Very truly yours,
BROWN & ROOT, INC

D. C. Douglas

U. D. Douglas
Project Manager

Attachment
UDD:JHM:JJR:dt
cc: ARMS OL, 1A
L. A. Ashley 1L, 1A
J. T. Merritt 1L, 1A

TUIA-05-59

M375

BROWN & ROOT, INC.
ENGINEERING DIVISION

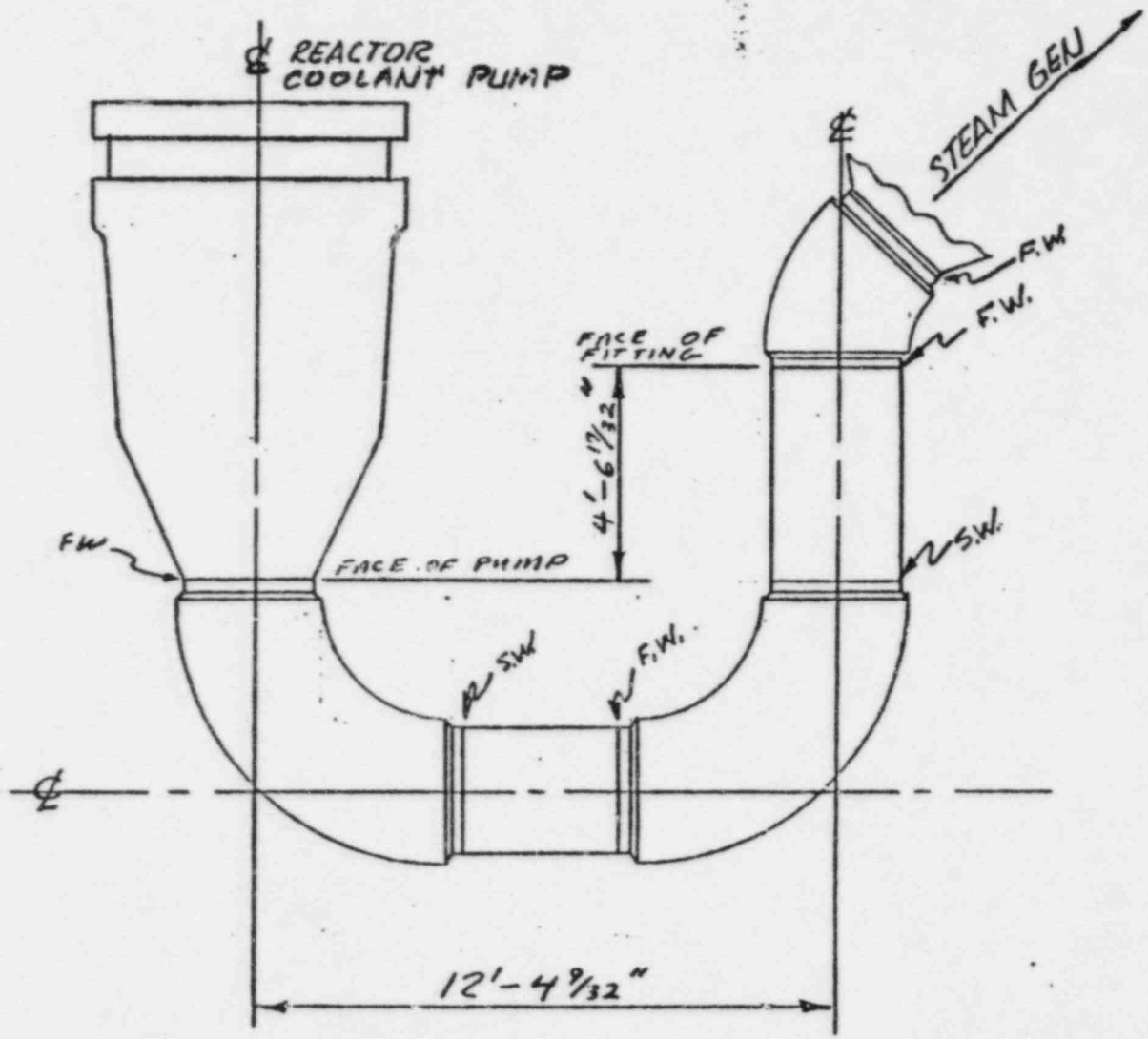
SHEET NO. 1 OF 1

CLIENT TEXAS UTILITIES JOB NO. 35-1195

SUBJECT CLOSURE LOOP FIELD MEASUREMENTS, UNIT-1, LOOP-3

BASED ON DRAWING NO.

COMPUTER FIELD ENGR. CHK'D. BY JR APP'D. BY DATE 5-4 1979



NOTE:
ALLOW 3/8" FOR SHRINKAGE
AT ALL FIELD WELDS

SCALE:
1/4" = 1'-0"

BROWN & ROOT, INC. CPSES	INSTRUCTION NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QAP-11.1-26	0	1-3-80	1 of 40
ASME PIPING & WELDING INSPECTIONS	APPROVED BY: [signature]		DATE 1/3/80	

1.0 REFERENCES

1-A QA Personnel Training Manual
1-B WES-16, "Schedule of Standard Test Welder Qualification Matrix and Welder Performed Qualification Log"
1-C QI-QAP-11.1-22, "Cleanliness Control"
1-D VT-NDEP, "Visual Examiniation"
1-E G&H Specification, MS-100, "Piping Erection Specification"
1-F G&H Specification, MS-43B, "Piping Nuclear (Shop Fabrication)"
1-G CP-NDEP-000, "Marking Requirements for NDE"

2.0 PURPOSE

To outline QC inspection activities for welding during site fabrication and installation of ASME piping.

3.0 INSTRUCTIONS

3.1 VERIFICATION PRIOR TO FABRICATION/INSTALLATION

The QC Inspector shall verify that the documentation to be used in fabrication or installation corresponds to the revision of the construction drawings that are part of the documentation package.

Welder qualification shall be verified on a random basis by consulting the "Welder Qualification Matrix" at Weld Filler Material Log entries. This shall be performed at fit-up.

3.2 DOCUMENTING WELD INSPECTIONS

Upon verification, witnessing, or monitoring that an operation or the results of an inspection are acceptable, the QC Inspector shall initial, or sign and date the applicable documentation in the space provided. Work may not proceed beyond an established QC or ANI hold point until it is witnessed, monitored, or verified, or where permitted for an ANI inspection point, waived. ANI inspection points will be waived by the ANI in writing.

The NDE Procedure and revision date shall be entered on the applicable Weld Data Card by the QC Inspector. For RT and UT, the NDE report number should also be entered in the blank block to the right of the UT-NDEP space.

BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
(Supplement 6.9D-II)	QI-QAP 11.1-26	1	2-6-80	1 of 8

TITLE:
QI-QAP-11.1-26
(SUPPLEMENT 6.9D-II)
ASME WELD INSPECTIONS

ORIGINATOR: Lynn E. Potter 2-6-80 DATE

REVIEWED BY: Gregg M Brandt 2-6-80 DATE

CONTROLLED BY: Richard M. Kimmel 2-6-80 DATE
Site QA Manager

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2.1.2	QC NDE and Welding Inspection	2.5.2
2.1.3	General Requirements for Visual Inspection of Weldments	2.5.1
2.1.4	Nondestructive Examination (NDE)	2.5.2
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3.2.1	Material Traceability Control	2.5.4
3.2.2	Traceability Marking Transfer	2.5.5
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3.4.2	Root Weld Inspection	3.10/3.11
3.4.3	Attachment Welds	3.14
3.4.4	Purge Dam Removal	3.5
3.4.5	RT Flagging	3.17
3.4.6	Piping Subassembly/Component Support Final Inspection	N/A
3.4.6.1	Surface and Dimensional Examination	N/A
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4.1.1 B&R Nondestructive Examination Procedures Manual
4.1.2 B&R Personnel Training Manual
4.1.3 B&R ASME Quality Assurance Manual

0.ii TABLES

11.1-26-1 Matrix of QC Inspections 3.0

1.0 INTRODUCTION

This instruction has been prepared to delineate ASME Welding and NDE inspection requirements and shall be used with the corresponding Appendices to Procedure CPM-6.9, "General Piping Procedure", and the Brown & Root Nondestructive Examination Procedures Manual.

2.0 GENERAL

2.1 DOCUMENTING WELD INSPECTIONS

When the results of an inspection are determined, the QC Inspector shall initial or sign and date the applicable documentation in the space provided indicating the results of the inspection. Work may not proceed beyond an established QC or ANI holdpoint until all such holdpoints have been witnessed, monitored, or verified (see 2.1.1) or, alternatively, waived where permitted for ANI inspection points. Definitions are given in Procedure CPM-6.9, Section 2.2 and below.

2.1.1 QC Holdpoints

The following QC holdpoints may be established:

1. Verification (QCI).

   This type of inspection does not require the QC Inspector to observe an operation being performed, but allows the inspector to physically inspect an item after performance of an operation. The QC Inspector must be notified subsequent to performance of an operation with "QCI" designated; example: Fit-up Inspection.

2. Witness (QCI-W).

   Witnessing requires the inspector to observe the entire operation being performed. The QC Inspector must be notified before the operation to assure presence during performance of it when "QCI-W" is designated; example: Pressure Test Inspection.

Category II, AP4, Item 14

Void Pages per Rev. 2

BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	CP-CPM 6.9E	1	5/23/80	1 of 22

TITLE:

CP-CPM 6.9E
(APPENDIX E)
PIPE FABRICATION
AND INSTALLATION

ORIGINATOR: [signature] 5/21/80 DATE

REVIEWED BY: [signature] 5-22-80 DATE

APPROVED BY [signature] 5-23-80 DATE
CONSTRUCTION PROJECT MANAGER

VOID

ARMS INDEXED

DATE

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2.2 RESPONSIBILITY

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3.1 GENERAL
3.2 PIPING SYSTEMS REQUIRING THE REMOVAL OF THE MANUFACTURERS' INTERIOR COATINGS
3.3 CONTROL OF PIPING MATERIALS IN THE PIPE FABRICATION SHOP
3.4 PIPE BENDER QUALIFICATION
3.5 REQUIREMENTS FOR PIPE JOINTS
3.6 PENETRATIONS THROUGH WALLS AND SLABS
3.7 VALVES
3.8 TEMPORARY STRAINERS
3.9 BURIED PIPING
3.10 FABRICATION TOLERANCES
3.11 TORQUING
3.12 PIPING DESIGN LOCATION
3.13 PIPE, HANGER, AND OTHER STRUCTURAL MATERIAL SALVAGING
3.14 VALVE DISASSEMBLY/REASSEMBLY
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DCN #1
DCN #2
DCN #3
DCN #4

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6.9E-1 Length of Thread on Pipe

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6.9E-1 Buttweld End Pipe - Nuclear Pipe
6.9E-2 Buttweld Preps - Non-Nuclear
6.9E-3 Determining Wall Thickness After Machining
6.9E-4 Half Coupling Bevel Detail
6.9E-5 Pipe Bender Qualification Form
6.9E-6 Valve Spools
6.9E-7 Fabrication Tolerance
6.9E-8 Material Salvage Sheet

3.12 PIPING DESIGN LOCATION

Verification of alignment shall be made at the time of fit-up (flanged connections or weld joints).

The piping shall be located to the dimensions shown on the B&R installation drawings. Erection tolerances shall be as required by Appendix 6.9F.

Prior to making a piping connection to equipment, verify that the equipment has been "approved" for piping as per Procedure MCP-1. Contact the mechanical superintendent to facilitate the removal of desiccant and/or purge, and to monitor the alignment of rotating equipment during welding operations. Final connections to equipment and valve flanges or nozzles shall be accomplished by adjustment of the piping and supports to provide accurate alignment at these joints without stressing of the pipe, equipment, or valves. Springing, bending, or localized heating to obtain alignment shall not be done without approval of engineering.

Weld joint alignment, temporary attachment lugs, straps, etc. used for weld fit-up and alignment shall in accordance with Appendix 6.9D.

Once the piping has been brought into position, the piping location shall be checked against the installation drawing for conformity by the craftsman. Piping out of design location shall be adjusted until it is within the allowed tolerance. When this tolerance cannot be met without bending of the piping, cold spring, or localized heating, the PS should advise engineering.

Measurement for piping locations shall be taken using control base lines and bench marks set up by the B&R Field Engineering Department. The use of as-built column lines, floor lines and other structures as reference is not permitted.

3.13 PIPE, HANGER, AND OTHER STRUCTURAL MATERIAL SALVAGE

When items cannot be used because of redesign, misfabrication, damage, the disposition to Nonconformance Reports, etc., the items may be scrapped, salvaged, or returned to bulk stock. The responsible foreman shall make this determination based on the NCR, CMC or the item's physical condition, as appropriate. When subassembly modification results, documentation for such modification shall be prepared as required by Appendix 6.9G, and the modification accomplished accordingly.

BROWN & ROOT, INC. CPSES JOB 35-1195 (Supplement 6.9D-II)	NUMBER	REVISION	ISSUE DATE	PAGE
	OI-QAP 11.1-26	2		1 of 8

TITLE:
OI-QAP-11.1-26
(SUPPLEMENT 6.9D-II)
ASME WELD INSPECTIONS

ORIGINATOR: Lynn E. Watson 6-26-80 DATE

REVIEWED BY: [signature] 6-26-80 DATE

APPROVED BY: [signature] Site QA Manager 6-26-80 DATE

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3.4.4	Purge Dam Removal	3.5
3.4.5	RT Flagging	3.17
3.4.6	Piping Subassembly/Component Support Final Inspection	N/A
3.4.6.1	Surface and Dimensional Examination	N/A
3.4.7	Repairs	3.19
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4.0	SUPPORTING MATERIAL	
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4.1.1 B&R Nondestructive Examination Procedures Manual
4.1.2 B&R Personnel Training Manual
4.1.3 B&R ASME Quality Assurance Manual

0.ii TABLES

11.1-26-1 Matrix of QC Inspections 3.0

1.0 INTRODUCTION

This instruction has been prepared to delineate ASME Welding and NDE inspection requirements and shall be used with the corresponding Appendices to Procedure CPM-6.9, "General Piping Procedure", and the Brown & Root Nondestructive Examination Procedures Manual.

2.0 GENERAL

2.1 DOCUMENTING WELD INSPECTIONS

When the results of an inspection are determined, the QC Inspector shall initial or sign and date the applicable documentation in the space provided indicating the results of the inspection. Work may not proceed beyond an established QC or ANI holdpoint until all such holdpoints have been witnessed, monitored, or verified (see 2.1.1) or, alternatively, waived where permitted for ANI inspection points. Definitions are given in Procedure CPM-6.9, Section 2.2 and below.

2.1.1 QC Holdpoints

The following QC holdpoints may be established:

1. Verification (QCI).

   This type of inspection does not require the QC Inspector to observe an operation being performed, but allows the inspector to physically inspect an item after performance of an operation. The QC Inspector must be notified subsequent to performance of an operation with "QCI" designated; example: Fit-up Inspection.

2. Witness (QCI-W).

   Witnessing requires the inspector to observe the entire operation being performed. The QC Inspector must be notified before the operation to assure presence during performance of it when "QCI-W" is designated; example: Pressure Test Inspection.

Category II AP4 : Item 15

ARMS INDEXED

QA RECORD

Brown & Root, Inc.

QUALITY ASSURANCE DEPARTMENT
NONCONFORMANCE REPORT (NCR)
DATE:

NCR No. M-2305

PROJECT CPSES JOB NO. 35-1195 PAGE 1 OF 8

(2) UNIT	STRUCTURE/SYSTEM	COMPONENT	TAG/ID NUMBER	LOCATION OR ELEVATION	RIR NO.
1	3700 Auxiliary Feedwater	Field Weld 8-A & 9	AF-1-SB-032	SB. #1 790'	N/A

(3) NONCONFORMING CONDITION
(3) DOCUMENT VIOLATED: QI-QAP-11.1.2 REV 1 PARA 2.13
(4) TREND CATEGORY: M-10

During random surveillance of piping installation FW-8A & 9 were observed to be cold sprung by use of jacking device forcing spool 203 away from the wall. Both weldments are in intermediate stage of weldout.

See attached NDER A-1251 for plan view detail.

INFORMATION COPY PPRV

Hold tags applied

(5) REPORTED BY	(6) DATE	(9) REVIEW/APPROVAL	(10) DATE
S. R. Dodd	5/28/80		
(7) PREPARED BY	(8) DATE	(11) ISSUED BY	(12) DATE
S. R. Dodd	6/10/80	Clara Halliday	6/17/80

(13) DISPOSITION ASSIGNED TO	(14) DUE DATE	(15) CORRECTIVE ACTION REQUEST: CAR NO.	(16) ASME CODE	CLASS
D. C. Frankum	6/24/80	☐ Required XX Not Required	XX Yes _No	

(17) DISPOSITION:
REWORK _____ REPAIR _____ USE AS IS XX SCRAP _____

Subject pipe cannot be cold sprung in the configuration that it is in, ie., pipe has a free end. Slope of pipe is within construction tolerance. Use as is based on acceptable R.T. on welds to valve.

(18) CONSTRUCTION REVIEW/APPROVAL	(19) DATE	(20) QA/QC REVIEW APPROVAL	(21) DATE
George K Hler	7/15/80		7/16/80
(22) ENG. REVIEW/APPROVAL	(23) DATE	(24) ANI REVIEW APPROVAL	(25) DATE
	7/15/80	Stanley D. Turbett	7/16/80

(26) VERIFICATION: ☑ Satisfactory ☐ Unsatisfactory ☐ Not Req'd

(27) QA/QC ENGR/INSPR VERIFICATION	(28) DATE
	10/16/80
(29) ANI CONCURRENCE	(30) DATE
	10/16/80
(31) QA REVIEW/CLOSURE	(32) DATE
	10/16/80

(33) REMARKS:

QA RECORD

RTN	QA REVIEW
L	CH

FILE NO. 15.1
SUBFILE NO. M-2305

FOIA-87-159

M380

Bennett Form BR114

Brown & Root, Inc.

QUALITY ASSURANCE DEPARTMENT
NDE REPORT

SERIAL NUMBER
NDER- A 1251

PROJECT: COMANCHE PEAK JOB NO. 35-1195 UNIT 1 PAGE 1 OF 1

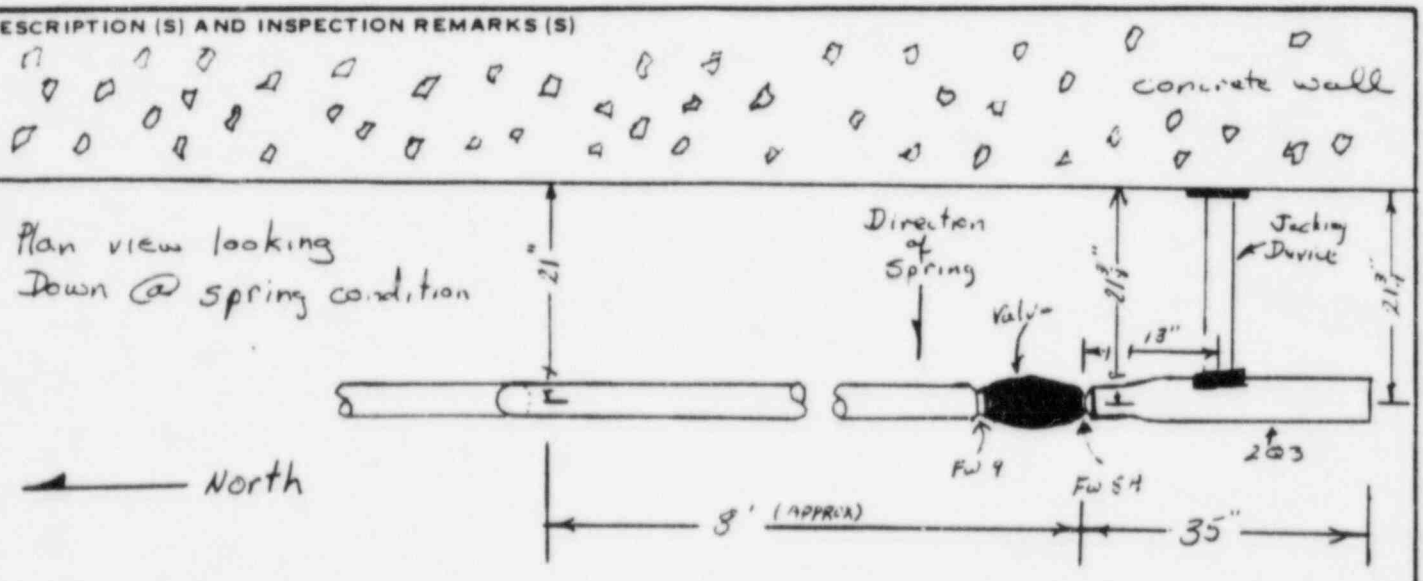
DRAWING	SYSTEM	CLASS
AF-1-SB-032	3700 Aux Feedwater	1☐ 2☐ 3☒ OTHER
WELD/ITEM NUMBER	**LOCATION**	
FW-9 & 8A	790' SB #1	NCR N-2305 Pg. 2 of 3

MTL. TYPE	MTL. THICK	DIA/LENGTH
P-1	.438	3"

STAGE OF MFG.
☐ REPAIR ☐ ROOT ☒ INTERMEDIATE ☐ FINAL

JOINT DESIGN ☐ BRN ☐ BKS
☐ INS ☐ OPEN BUTT ☐ OTHER

DESCRIPTION (S) AND INSPECTION REMARKS (S)



Jacking device located 13" from FW-8A
Total deflection over 11' (approx) is ¾" with FW-8A @ 9 in intermediate stage of weldout. Centerline measurements taken @ end of 2Q3 FW-8A and approx 8' north of FW-8A to determine amount of deflection.

Attachment to NCR 2305

ACCEPTANCE STD		DATE
MS-100	ACCEPT ☐ REJECT ☒	6/11/80

INSPECTOR	
R Dodd	
NDE PROCEDURE 200 10/8/79	CERTIFICATION LEVEL II

QA-502-0

NCR M12305
Rev. 3-15

INSPECTION REPORT

BRP-AF-1-SB-32 FLUBA

PLANT CODE	SYSTEM CODE	COMPONENT CODE
1-4	5-10	11-16

TAG PLANT NO	DRAWING SPECIFICATION NO	SERIAL NO
A B C D E F	31 (UNITS) H (UNITS)	J (UNITS)
	17-55	

PURCHASE ORDER NUMBER	VEND CODE
56-69	70-73

MRR NUMBER	RIR NUMBER	VENDOR'S HEAT, LOT, BATCH NO.	COUNT UNITS QUANTITY	PURCH'S OR NO.	ALS HOLD NO CODE STATUS	INPUT DATE
74-79	80-85	86-95	96-105	106-111	112-121	122-127

PURPOSE AND TYPE OF INSPECTION/SURVEILLANCE: TO CLEAR NCR M12305

RESULTS OF INSPECTION / SURVEILLANCE: DISPOSITION OF NCR M12305 IS COMPLETE

C.O.C. PPRV

NCR NO. M12305

F.E. Walters
QA ENGINEER/INSPECTOR

DATE 10-16-80

ASC Serial No. ______

REPAIR PROCESS SHEET

NCRM 2860
Pg. 4 of 8

Drawing No. [illegible]

Weld No. [illegible]
FW&H

R-1 Ref NCR- M-2860 DESCRIPTION OF DEFECT (SKETCH)

* [illegible]

OPER. NO.	OPERATION	HOLD POINTS WT	HOLD POINTS QC	HOLD POINTS ANI.	CON	"S" or "W"	INSPECTION RESULTS QC or WT	NDE CERT LEVEL	(SIGN AND DATE) ANI
R-1	WELD MECH								
A	FINAL RT *	NA	✓	✓		S	[illegible] 10-16-80	II	DKW 10/16/80
Rein: Bead [illegible] 10-16-80									

INFORMATION COPY
PNV

WE	QC	ANI	G&H

Approval signatures shall be affixed on line immediately below the last item to admit repair sequence.
Base metal repair - WE, QC, G&H, ANI
Weld metal repair - WE, QC, ANI

RT 17297

Brumo [illegible]

QUALITY ASSURANCE DEPARTMENT

NDE RADIOGRAPHIC REPORT

SERIAL NUMBER [illegible]

RT NO 17237

PROJECT COMANCHE PEAK JOB NO 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING ESP AF 1-2232	SYSTEM CVCS	CLASS 1 ☐ 2 ☐ 3 ☑ OTHER
WELD/ITEM NUMBER FW-8A	LOCATION 9' W of ES wall 16' N of 35 at elev. 792'3"	

MTL. TYPE 1	MTL. THICK. 1"	DIA. LENGTH (PIPE) DIA 3"	(PLATE - LONG SEAM) LENGTH N/A
STAGE OF MFG. REPAIR ☐ ROOT ☐ INT. ☐ ATE ☐ FINAL ☐		JOINT DESIGN BRN. ☐ BKS ☐	OPEN BUTT ☐

X RAY	ISOTOPE	LEAD SCREENS
MAKE [illegible]	IRIDIUM 192 ☐ COBALT 60 ☐	FRONT / CENTER / BACK
KVP. N/A M.A.	SIZE DIA. [illegible] LENGTH 1/2"	.005 ☐ / N/A / ☐ .005
FOCAL SPOT SIZE	CURIES 12	.010 ☑ / N/A / ☑ .010
FILM MFG. EKC ASTM CLASS 1 ☐ 2 ☐	LOADED 1 ☐ 2 ☑ OTHER ☐	TECHNIQUE T-2 (if not standard, attach sketch)
FFD. 3.5	EXPOSURE TIME MIN. 1 SEC. 20	UNSHARPNESS
PENETRAMETER SIZE 12 MTL. 5/5 ASTM ☑ ASME ☐		$U_g = \frac{Ft}{d}$
PENETRAMETER SOURCE SIDE ☐ FILM SIDE ☑		F = ___" t = ___" d = ___" U_g = ✓
SHIM MTL. 5/5 THICK .090	NDE PROCEDURE CPNDEP-101	

RADIOGRAPHER Parker, Musick	CERTIFICATION LEVEL II dTR	RT COMPANY B&R

VIEWING SINGLE ☑ COMPOSITE ☐ RT DATE 10/6/85 ACCEPTANCE STANDARD CWI-4 & ASME Sec III

LOCATION MARKERS	SENSITIVITY	WELD DENSITY	PENETRAMETER DENSITY	ACCEPT	REJECT	CRACK	DISCONTINUITIES: ROOT CONCAVITY	ROOT CONVEXITY	ROOT CREASE	MELT THROUGH	CRATER PIT/CRACK	ROOT UNDERCUT	POROSITY	SLAG INCL	TUNGSTEN	INCOMPLETE PENET.	INCOMPLETE FUSION	UNDERCUT	BURN-THRU (SURFACE)	DEFEATS UNCOM. INSERT	REMARKS
A-2	4T	2.76	2.35	✓			✓											✓			
2-4	1	2.69	2.73	✓			✓														
4-6	1	3.45	2.91	✓														✓			
6-8	1	3.02	2.52	✓			✓							✓				✓			
8-0	1	3.13	2.42	✓			✓							✓							

ACCEPTED

B&R INTERPRETER [illegible] CERTIFICATION LEVEL

FILM EVALUATION DATE / / COMMENTS [illegible]

IF APPLICABLE CLIENT REP DATE / / IF APPLICABLE A.I. DATE [illegible]

NCR M-82-9
15-6-45

INSPECTION REPORT

PLANT CODE	SYSTEM CODE	COMPONENT CODE
1-4	5-10	11-16

ERF-AF-1-SB-32 FW9

FACILITY PLANT NO						DRAWING SHEET REV NO				SERIAL NO	
A	B	C	D	E	F	G	UNITS	H	UNITS	J	UNITS
						17-55					

PURCHASE ORDER NUMBER	VEND CODE
58-69	70-73

MRR NUMBER	RIR NUMBER	VENDOR'S HEAT/LOT BATCH NO.	COUNT UNITS QUANTITY	PURCH'S CA NO	RLS/HOLD NO CODE STATUS	INPUT DATE
74-79	80-85	86-95	96-105	106-111	112-121	122-127

PURPOSE AND TYPE OF INSPECTION/SURVEILLANCE: TO CLOSE NCR M2305

RESULTS OF INSPECTION / SURVEILLANCE: DISPOSITION OF NCR M2305 IS COMPLETE

INFORMATION ONLY

NCR NO M2305

R.E. Walters
QC ENGINEER/INSPECTOR

CA-15 1.1.2(4-1-77)

DATE 10-16-80

NCC Serial No. _____

REPAIR PROCESS SHEET

Drawing No. A.F.-05-52

Weld No. FW-9

11,21,11,23cc
Pg 7 of 8

R1 Lift-NR-M5 -230 DESCRIPTION OF DEFECT (SKETCH)

* Location Identification

OPER. NO.	OPERATION	HOLD POINTS WT	HOLD POINTS QC	HOLD POINTS ANI	CON	"S" or "M"	INSPECTION RESULTS QC or WT	INSPECTION RESULTS NDE CERT LEVEL	(SIGN AND DATE) ANI
R1	WELD REPAIR								
A	FINAL RT *	NA	✓	✓		S	T.A. 10-16-90	II	[illegible] 10/16/90
Rev:	[illegible]		[illegible]		10-16-90				

WE	QC	ANI	G&H

Additional signatures shall be affixed in the appropriate below the last item to which they pertain.
Base Metal Inspector - QC, ANI
Weld Metal Inspector - QC, ANI

LT II 17295

EXCHANGE

QUALITY ASSURANCE DEPARTMENT

SERIAL NUMBER [illegible]

RT No 17298

NDE RADIOGRAPHIC REPORT

PROJECT COMANCHE PEAK JOB NO 35-1195 UNIT 1 PAGE 1 OF 1

DRAWING SAI-ME-1-SB-32	SYSTEM 3700	CLASS 1 ☐ 2 ☐ 3 ☑ OTHER
WELD/ITEM NUMBER FW-4 74-2003-3	LOCATION 9 o'clock ES 1 1/2" North 36 wall AEL 792'3" 2nd Pt Room	

MTL TYPE P-1	MTL. THICK. .447	DIA LENGTH	(PIPE) DIA. 3" (PLATE - LONG SEAM) LENGTH N/A
STAGE OF MFG. ☐ REPAIR	ROOT ☐ INTER ☐ ATE	FINAL ☐	JOINT DESIGN BRN BKS ☐ OPEN BUTT ☑

X RAY	ISOTOPE	LEAD SCREENS
MAKE	IRIDIUM 192 ☑ COBALT 60 ☐	FRONT / CENTER / BACK
KVP. MA.	SIZE DIA. 1/1" LENGTH 1/4"	.005 ☐ / N/A / ☐ .005
FOCAL SPOT SIZE	CURIES 12	.010 ☑ / N/A / ☑ .010
FILM MFG. EKC ASTM CLASS 1 ☑ 2 ☐	LOADED 1 ☐ 2 ☑ OTHER ☐	TECHNIQUE T 3C (if not standard, attach sketch.)
FFD. 3"	EXPOSURE TIME MIN. 1 SEC. 20	UNSHARPNESS
PENETRAMETER SIZE 12 MTL. S/S ASTM ☑ ASME ☐		$U_g = \frac{Ft}{d}$
PENETRAMETER SOURCE SIDE ☐ FILM SIDE ☑		F = —" t = —" d = —" U_g = ✓
SHIM MTL. S/S THICK. .090	NDE PROCEDURE CP-NDEP 101	

RADIOGRAPHER	CERTIFICATION LEVEL	RT COMPANY
PARKER + MUSICK	I TR	B&R

VIEWING SINGLE ☑ COMPOSITE ☐ RT DATE 10/6/80 ACCEPTANCE STANDARD WEI-4 & ASME-III

LOCATION MARKERS	DENSITY: SENSITIVITY	DENSITY: WELD	DENSITY: PENETRAMETER	ACCEPT	REJECT	DISCONTINUITIES: CRACK	ROOT CONCAVITY	ROOT CONVEXITY	ROOT CREASE	MELT THROUGH	CRATER PT/CRACK	ROOT UNDERCUT	POROSITY	SLAG INCL	TUNGSTEN	INCOMPLETE PENET.	INCOMPLETE FUSION	UNDERCUT	BURN-THRU	SURFACE DEFEATS	UNCONF. INSERT	REMARKS
D-E	✓	[illegible]	[illegible]	✓			✓														
E-J		[illegible]	[illegible]	✓			✓														
J-[illegible]		[illegible]	[illegible]	✓			✓														
[illegible]-D		[illegible]	[illegible]	✓			✓														
D-C		[illegible]	[illegible]	✓			✓														

INFORMATION ONLY

APPROVED

ACCEPTED

B&R INTERPRETER CERTIFICATION LEVEL

FILM EVALUATION DATE COMMENTS

IF APPLICABLE CLIENT REP DATE IF APPLICABLE DATE

BROWN & ROOT, INC. CPSES JOB 35-1195 (Supplement 6.9D-II)	NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QAP 11.1-26	3	7-22-80	1 of 8

TITLE:

QI-QAP-11.1-26
(SUPPLEMENT 6.9D-II)
ASME WELD INSPECTIONS

ORIGINATOR: Lynn E. Watson 7-21-80 DATE

REVIEWED BY: Terry R. Shaw 7-21-80 DATE

APPROVED BY: R. Tomlinson for R. Klein 7-21-80 DATE
Site QA Manager

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2.1.2	QC NDE and Welding Inspection	2.5.2
2.1.3	General Requirements for Visual Inspection of Weldments	2.5.1
2.1.4	Nondestructive Examination (NDE)	2.5.
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3.4.4	Purge Dam Removal	3.15
3.4.5	RT Flagging	3.17
3.4.6	Piping Subassembly/Component Support Final Inspection	N/A
3.4.6.1	Surface and Dimensional Examination	N/A
3.4.7	Repairs	3.19
3.4.8	PWHT/QC Inspections (QCI-M)	3.21
4.0	SUPPORTING MATERIAL	
4.1	REFERENCES	

4.1.1 B&R Nondestructive Examination Procedures Manual
4.1.2 B&R Personnel Training Manual
4.1.3 B&R ASME Quality Assurance Manual

0.ii TABLES

11.1-26-1 Matrix of QC Inspections 3.0

1.0 INTRODUCTION

This instruction has been prepared to delineate ASME Welding and NDE inspection requirements and shall be used with the corresponding Appendices to Procedure CPM-6.9, "General Piping Procedure", and the Brown & Root Nondestructive Examination Procedures Manual.

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When the results of an inspection are determined, the QC Inspector shall initial or sign and date the applicable documentation in the space provided indicating the results of the inspection. Work may not proceed beyond an established QC or ANI holdpoint until all such holdpoints have been witnessed, monitored, or verified (see 2.1.1) or, alternatively, waived where permitted for ANI inspection points. Definitions are given in Procedure CPM-6.9, Section 2.2 and below.

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The following QC holdpoints may be established:

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   This type of inspection does not require the QC Inspector to observe an operation being performed, but allows the inspector to physically inspect an item after performance of an operation. The QC Inspector must be notified subsequent to performance of an operation with "QCI" designated; example: Fit-up Inspection.

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   Witnessing requires the inspector to observe the entire operation being performed. The QC Inspector must be notified before the operation to assure presence during performance of it when "QCI-W" is designated; example: Pressure Test Inspection.

BROWN & ROOT, INC. CPSES JOB 35-1195 (Supplement 6.9D-II)	NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QAP 11.1-26	4	8-28-80	1 or 8

TITLE:

QI-QAP-11.1-26
(SUPPLEMENT 6.9D-II)
ASME WELD INSPECTION

ORIGINATOR: _____ 8-21-80 DATE

REVIEWED BY: _____ 8-21-80 DATE

APPROVED BY: _____ Site QA Manager 8/22/80 DATE

0.1 TABLE OF CONTENTS

		CORRELATES WITH APPENDIX 6.9D SECTION
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1.1	REFERENCES	
1.1.1	B&R Nondestructive Examination Procedures Manual	
1.1.2	B&R Personnel Training Manual	
1.1.3	B&R ASME Quality Assurance Manual	
2.0	INTRODUCTION	
3.0	GENERAL	
3.1	DOCUMENTING WELD INSPECTIONS	2.5
3.1.1	QC Hold Points	2.5.1
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4.2.1	Material Traceability Control	2.5.4
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4.2.3	Prefabrication (QCI-M)	2.5.6
4.2.4	Procedure and Welder Qualification Verification	
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4.4	GENERAL REQUIREMENTS DURING WORK	3.11
4.4.1	Inspection After Tack Welding	3.10/3.11
4.4.2	Root Weld Inspection	

4.4.3	Attachment Welds		3.14
4.4.4	Purge Dam Removal		3.5
4.4.5	RT Flagging		3.17
4.4.6	Piping Subassembly/Component Support Final Inspection		N/A
4.4.6.1	Surface and Dimensional Examination		N/A
4.4.7	Repairs		3.19
4.4.8	PWHT/QC Inspections (QCI-M)		3.21
4.1.1	B&R Nondestructive Examination Procedures Manual		
4.1.2	B&R Personnel Training Manual		
4.1.3	B&R ASME Quality Assurance Manual		

0.ii TABLES

11.1-26-1 Matrix of QC Inspections 3.0

1.0 SUPPORTING MATERIAL

1.1 REFERENCES

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1.1.2 B&R Personnel Training Manual

1.1.3 B&R ASME Quality Assurance Manual

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BROWN & ROOT, INC. CPSES JOB 35-1195	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QAP-11.1-31	0	2/25/81	1 of 7

TITLE:

(Supplement 6.9E-III)

INSTALLATION INSPECTION OF THREADED PIPE CONNECTIONS

ORIGINATOR: William Hartshorn — DATE: 2-25-81

REVIEWED BY: [signature] — DATE: 2/25/81

APPROVED BY: [signature] Site QA Manager — DATE: 2-25-81

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1.0	REFERENCES
2.0	GENERAL
2.1	SCOPE
2.2	PURPOSE
2.3	THREADED CONNECTION IDENTIFICATION
3.0	INSTRUCTION
3.1	MATERIAL
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3.1.2	Thread Compound
3.1.3	Threads
3.1.4	Pipe Thread Engagement
4.0	BACK-FIT INSPECTIONS
5.0	DOCUMENTATION

M383

BROWN & ROOT, INC. CPSES JOB 35-1195 Supplement 6.9E-III	NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QAP-11.1-31	1	SEP 28 1981	1 of 7

TITLE:

INSTALLATION INSPECTION OF THREADED PIPE CONNECTIONS

ORIGINATOR: Sealie R Aci 9/25/81 DATE

REVIEWED BY: James Bagan 9/25/81 DATE

APPROVED BY: James R Site QA Manager 9/28/81 DATE

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1.0 INTRODUCTION

2.0 GENERAL

2.1 THREADED CONNECTION IDENTIFICATION

2.2 RESPONSIBILITY

3.0 INSTRUCTION

3.1 MATERIAL

3.1.1 Pipe Wall Thickness

3.1.2 Thread Compound

3.1.3 Threads

3.1.4 Pipe Thread Engagement

4.0 BACK-FIT INSPECTIONS

5.0 DOCUMENTATION

BROWN & ROOT, INC. CPSES JOB 35-1195 (Supplement 6.9D-II)	PROCEDURE NUMBER	REVISION	ISSUE DATE	PAGE
	QI-QAP 11.1-26	5	APR 29 1981	1 of 7

TITLE:

QI-QAP-11.1-26
(SUPPLEMENT 6.9D-II)
ASME PIPING WELD INSPECTIONS

ORIGINATOR: Gerald R Aw DATE 4/28/81

REVIEWED BY: [signature] DATE 4/28/81

APPROVED BY: [signature] Site QA Manager DATE 4/28/81

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1.0 INTRODUCTION

2.0 GENERAL
2.1 DOCUMENTING WELD INSPECTIONS
2.1.1 QC Hold Points
2.1.2 QC NDE and Welding Inspection

3.0 INSTRUCTION
3.1 PREFABRICATION/INSTALLATION VERIFICATION
3.2 MATERIAL/PARTS VERIFICATION
3.2.1 Material Traceability Control
3.2.2 Traceability Marking Transfer
3.2.3 Prefabrication (QCI-M)
3.2.4 Procedure and Welder Qualification Verification
3.3 VERIFICATION OF LIMITED ACCESS FOR WELDING
3.4 GENERAL REQUIREMENTS DURING WORK
3.4.1 Inspection After Tack Welding
3.4.2 Root Weld Inspection
3.4.3 Attachment Weld
3.4.4 Purge Dam Removal
3.4.5 RT Flagging
3.4.6 Piping Subassembly Final Inspection
3.4.6.1 Surface and Dimensional Examination
3.4.7 Repairs
3.4.8 PWHT/QC Inspections (QCI-M)

M384

1.0 INTRODUCTION

This instruction has been prepared to delineate ASME Welding and NDE inspection requirements and shall be used with the corresponding Appendices to Procedure CPM-6.9, "General Piping Procedure", and the Brown & Root Nondestructive Examination Procedures Manual.

2.0 GENERAL

2.1 DOCUMENTING WELD INSPECTIONS

When the results of an inspection are determined, the QC Inspector shall initial or sign and date the applicable documentation in the space provided indicating the results of the inspection. Work may not proceed beyond an established QC or ANI holdpoint until all such holdpoints have been witnessed, monitored, or verified or, alternatively, waived where permitted for ANI inspection points. Definitions of QC holdpoints are given below.

2.1.1 QC Holdpoints

The following QC holdpoints may be established:

A. Verification (QCI)

This type of inspection does not require the QC Inspector to observe an operation being performed, but allows the inspector to physically inspect an item after performance of an operation.

The QC Inspector must be notified subsequent to performance of an operation with "QCI" designated; example: Fit-up Inspection.

B. Witness (QCI-W).

Witnessing requires the inspector to observe the entire operation being performed. The QC Inspector must be notified before the operation to assure presence during performance of it when "QCI-W" is designated; example: Pressure Test Inspection.

C. Monitor (QCI-M).

Conformance verification by monitoring is accomplished by observing a task being performed on a periodic or random basis. The QC Inspector monitoring an operation determines