

USNRC REGION II  
ATLANTA, GEORGIA



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July 8, 1980  
L-80-215

Mr. James P. O'Reilly, Director, Region II  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

Re: RII:JPO  
50-335  
IE Bulletin 80-8

A reply to the subject Bulletin is attached.

Very truly yours,

Robert E. Uhrig  
Vice President  
Advanced Systems & Technology

REU/MAS/paf

Attachment

cc: Director, Division of Reactor Construction Inspection  
Harold F. Reis, Esquire

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ATTACHMENT

Re: RII:JPO  
50-335  
I&E BULLETIN 80-08

EXAMINATION OF CONTAINMENT LINER  
PENETRATION WELDS

The subject I&E Bulletin requested data on Non Destructive Examination (NDE) performed on full penetration butt welds made between containment penetration assemblies and the penetration sleeve, and penetration assembly flued head to outer sleeve welds. Figures 1 and 2, attached, illustrate the types of penetration assemblies utilized at St. Lucie Unit #1. Note that containment boundary butt welds have been identified on Figures 1 and 2, and consist of field welds made during construction and shop welds made by the penetration assembly fabricator, Tube Turns Division of Chemetron Corporation.

The date of issue of the Purchase Order with Tube Turns was June 30, 1971. Fabrication of the penetration assemblies and shop welding was done in accordance with ASME Section III, 1971 Edition. The design specification for the assemblies and manufacturers and fabrication drawings both required Radiography (RT) as the method for NDE in accordance with the code. Tube Turns has been contacted and has assured that no exception was taken on any assembly to the RT examination requirements (see Tube Turns letter dated 6/2/80, attached).

The following and Table 1, attached, are our responses to the action items enumerated in the subject Bulletin and are directed to the field welds only:

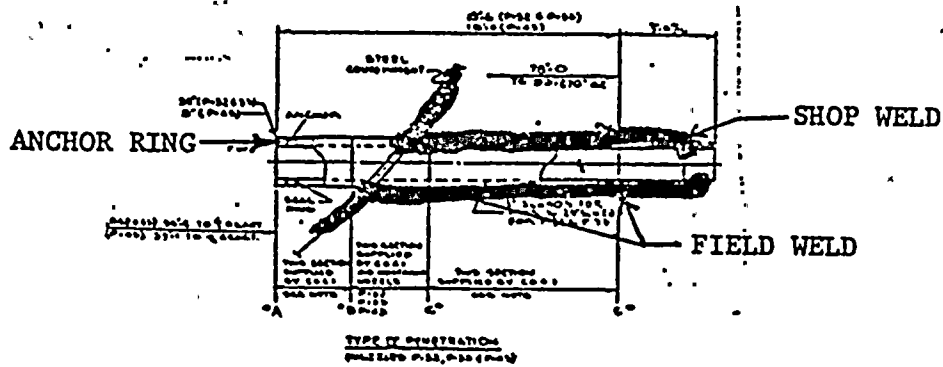
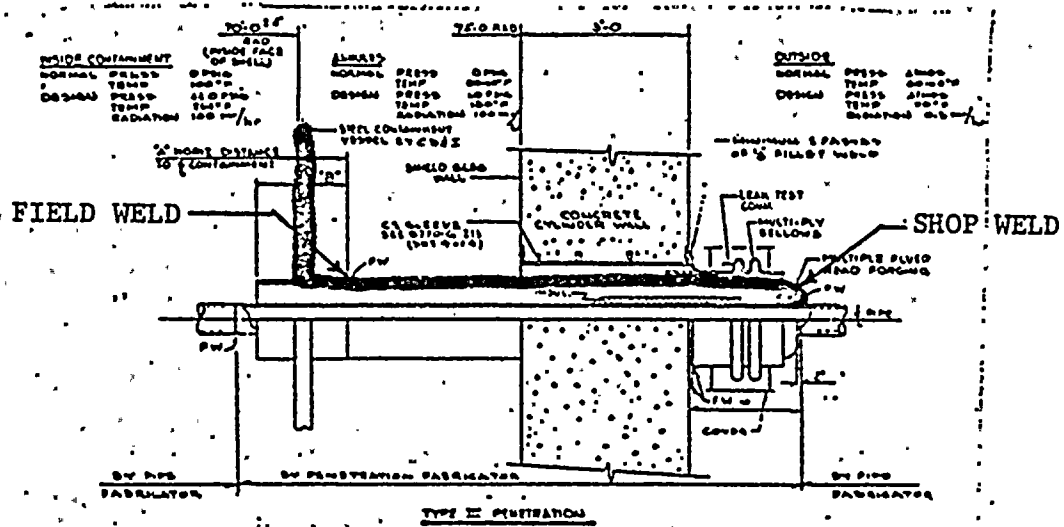
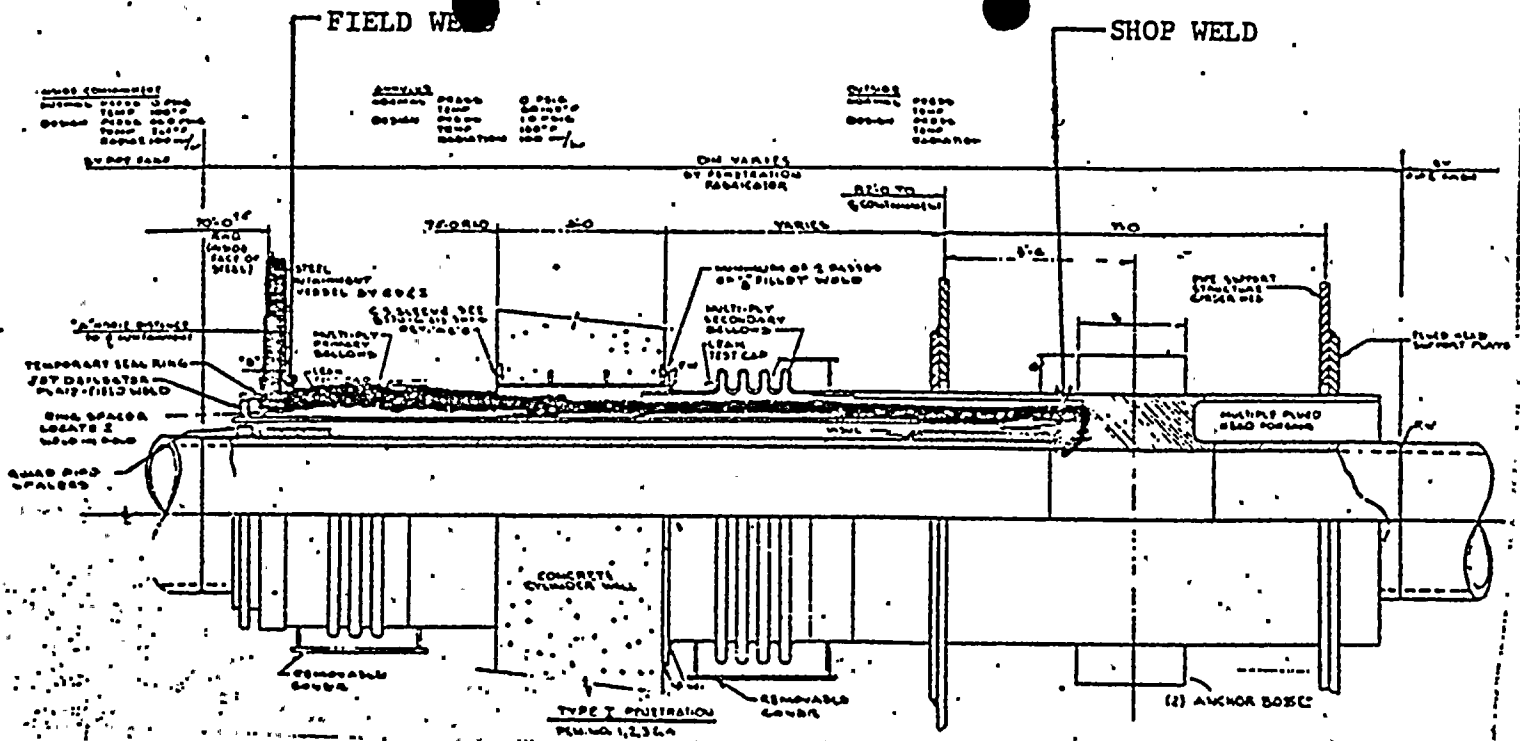
1. Penetration assemblies affected are as listed in Table 1 and illustrated in Figures 1 and 2.
- 2a. Although issue of the Construction Permit allowed the use of ANSI B31.1, St. Lucie Unit #1 committed to compliance with ANSI B31.7, 1968 Edition with 1969 Winter Addenda for construction. Acceptance standards for non-destructive examination (NDE) were in accordance with the draft ASME Section III, 1968 Edition with 1969 Winter Addenda.
- 2b. Type of NDE performed as per attached Table 1.
- 2c. Type of weld joints and joint details as per attached Table 1.
- 2d. Results of NDE as per attached Table 1.
3. Radiographic examination of full penetration circumferential butt welds in penetration assemblies which are part of the containment pressure boundary is required per code. However, when the joint detail does not permit radiographic examination such as on complex-designed mechanical penetrations, due to access limitations and/or geometric unsharpness factors, ultrasonic examination plus liquid penetrant or magnetic particulate examination may be used in lieu of radiography (reference ASME Section III, NE 5211.1). This option was exercised on approximately 50%

of the weld joints listed in Table 1, since ultrasonic examination is, by code, an acceptable alternate to radiography for volumetric examination of open root type butt welds.

A major concern in using ultrasonic examination for open root butt welds is that if a backing ring is used during welding, it may distort the results of the examination in the root area. The welds listed on the attached Table and all shop welding were done without the use of backing rings or bars except in the case of penetrations P-40, P-64, and P-33. As part of the final repair welds to these penetrations in order to preclude additional weld-induced residual stresses, backing strips were used for sections of the welds and the welds were accepted by ultrasonic examination. The welds in Penetrations P-40 and P-64 were examined by radiographic examination during a recent plant outage and were accepted.

Penetration P-33 is for the containment sump suction piping and is one of three Type IV penetration assemblies (see Figure 1). The weld in question is located in the reactor auxiliary building pipe tunnel and would be extremely difficult to RT without disassembling the penetration. Therefore it is impractical to RT P-33. There is a high level of confidence in the integrity of the weld, however, based on the results of RT on P-40 and P-64. The three penetrations were all assembled and inspected in accordance with the same codes and procedures during plant construction. For these reasons, we are convinced of the integrity of the weld and no radiographic examination has been scheduled for P-33.





**FIGURE 1: TYPE I, III, & IV PENETRATIONS**





**Tube Turns Division**  
CHEMETRON CORPORATION  
Box 32160, Louisville, Kentucky 40232  
Telephone 502 774-6011

**RECEIVED**

JUN 4 1980

June 2, 1980

**EBASCO ENGINEERING**

Ebasco Services Incorporated  
St. Lucie Plants 1 and 2  
P. O. Box 1117  
Jensen Beach, Florida 33457

Attention: T. A. Tarte, Project Engineer

Tube Turns fabricated Containment Piping Penetration Assemblies for St. Lucie Plants 1 and 2 on Purchase Order NY-422564 from Ebasco Services Incorporated acting as agent for Florida Power And Light.

For this contract, all butt welds joining the containment sleeve pipe to the multiple flued forging and all butt welds within the containment sleeve were subjected to 100% radiographic examination and found to be satisfactory to specification requirements.

Respectfully,

S. D. Vitatoe  
Manager, Quality Assurance

/gjb

EBASCO SERVICES INCORPORATED

SHEET 3 OF 6

CLIENT FLORIDA POWER & LIGHT COMPANY  
 PROJECT ST. LUCIE UNIT NO. 1 - BACKFIT  
 SUBJECT NRC BULLETIN 80-03: EXAMINATION OF CONTAINMENT PENETRATION WELDS

OPS NO. FLO 5822.196 DEPT. NO. 531  
 BY M.J. DRIES DATE 5-8-80  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

TABLE 1

PEN. NO.	PEN. TYPE	SERVICE	WELD NO.	WELD TYPE	EBASCO WELD PROC.	O.D. (IN.)	THICK. (IN.)	BASE METAL	BACK. RING	NDE PERFORMED					RESULTS OF EXAMINATION
										RT	UT	HT	LP	VT	
P-1	I	MAIN STEAM	FW-1C	BUTT	WP-100	60.0	1.25	CS	NA	NA	X	X	NA	X	REJECTED ON UT FOR EXTENSIVE LINEAR DEFECTS, REPAIRED AND REJECTED ON UT FOR MORE DEFECTS, REPAIRED AND ACCEPTED ON THIRD UT.
P-2	I	MAIN STEAM	FW-1C	BUTT	WP-100	60.0	1.25	CS	NA	NA	X	X	NA	X	REJECTED ON UT FOR LINEAR DEFECTS, REPAIRED AND ACCEPTED ON SECOND UT.
P-3	I	FEEDWATER	FW-1C	BUTT	WP-100	45.0	1.25	CS	NA	NA	X	X	NA	X	SEVEN AREAS REJECTED ON FIRST UT 3-13-75, REPAIRED AND TWO AREAS REJECTED ON SECOND UT 4-22-75, REPAIRED AND ACCEPTED ON THIRD UT 5-1-75.
P-4	I	FEEDWATER	FW-1C	BUTT	WP-100	45.0	1.25	CS	NA	NA	X	X	NA	X	REJECTED ON UT 3-18-75, REPAIRED AND TWO AREAS REJECTED ON UT 4-22-75, REPAIRED AND ACCEPTED ON UT 5-1-75.
P-5	III	BLOWDOWN	FW-1	BUTT	WP-100	10.75	0.594	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-27-75 FOR DEFECT IN ROOT AT ONE POINT (APPROX. 1" LONG), REPAIRED AND ACCEPTED ON UT 8-24-75.
P-6	III	BLOWDOWN	FW-1	BUTT	WP-100	10.75	0.594	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-26-75 FOR EXCESSIVE ROOT MELT THROUGH, REPAIRED AND ACCEPTED ON UT 9-15-75.
P-7	II	PRIMARY WATER SUPPLY	FW-1	BUTT	WP-64	2.375	0.344	INCONEL	NA	X	NA	NA	NA	X	ACCEPTED.
			FW-1A	BUTT	WP-43	2.375	0.344	SS	NA	X	NA	NA	X	X	ACCEPTED.
P-8	II	STATION AIR	FW-1	BUTT	WP-24	2.375	0.344	CS	NA	X	NA	NA	X	X	REJECTED ON RT 10-7-75, REPAIRED AND ACCEPTED ON RT 10-28-75.
P-9	II	INSTRUMENT AIR	FW-1	BUTT	WP-24	2.375	0.344	CS	NA	X	NA	NA	X	X	ACCEPTED.
P-10	II	HVAC	---	BUTT	---	48.0	1.00	CS	NA	X	NA	NA	NA	X	ACCEPTED. WELD BY HVAC CONTRACTOR.



EBASCO SERVICES INCORPORATED

SHEET 2 OF 6

CLIENT FLORIDA POWER & LIGHT COMPANY  
 PROJECT ST. LUCIE UNIT NO. 1 - BACKFIT  
 SUBJECT NRC BULLETIN 80-08: EXAMINATION OF CONTAINMENT PENETRATION WELDS

OFF NO. FLO 5822.196 DEPT. NO. 521  
 BY H. J. DRIES DATE 5-8-80  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

TABLE 1 (CONTINUED)

PEN. NO.	PEN. TYPE	SERVICE	WELD NO.	WELD TYPE	EBASCO WELD PROC.	O.D. (IN.)	THICK. (IN.)	BASE METAL	BACK. RING	NDE PERFORMED					RESULTS OF EXAMINATION
										RT	UT	MT	LP	VT	
P-11	II	HVAC	--	BUTT	----	48.0	1.00	CS	NA	X	NA	NA	NA	X	ACCEPTED. WELD BY HVAC CONTRACTOR.
P-14	II	NITROGEN SUPPLY	FW-1	BUTT	WP-64	2.375	0.218	INCONEL	NA	X	NA	NA	X	X	ACCEPTED.
			FW-1A	BUTT	WP-50	2.375	0.344	SS	NA	X	NA	NA	X	X	REJECTED AND REPAIRED TWICE ON RT. ACCEPTED ON THIRD RT.
P-15	II	CCW FROM FAN COOLER 1C	FW-1	BUTT	WP-24	8.625	0.322	CS	NA	X	NA	NA	X	X	ACCEPTED.
P-16	II	CCW TO FAN COOLER 1C	FW-1	BUTT	WP-24	8.625	0.500	CS	NA	X	NA	NA	X	X	WELD MADE AND ACCEPTED ON RT 4-11-73. CUT AND REWELDED DUE TO PIPING MIS-ALIGNMENT, ACCEPTED AGAIN ON RT 5-25-73.
P-17	II	CCW FROM FAN COOLER 1D	FW-1	BUTT	WP-24	8.625	0.500	CS	NA	X	NA	NA	X	X	ACCEPTED.
P-18	II	CCW TO FAN COOLER 1D	FW-1	BUTT	WP-24	8.625	0.500	CS	NA	X	NA	NA	X	X	SAME AS P-16 (EXCEPT FOR DATES).
P-19	II	CCW FROM FAN COOLER 1A	FW-1	BUTT	WP-24	8.625	0.500	CS	NA	X	NA	NA	X	X	SAME AS P-16 (EXCEPT FOR DATES).
P-20	II	CCW TO FAN COOLER 1A	FW-1	BUTT	WP-24	8.625	0.500	CS	NA	X	NA	NA	X	X	SAME AS P-16 (EXCEPT FOR DATES).
P-21	II	CCW FROM FAN COOLER 1B	FW-1	BUTT	WP-39	8.625	0.500	CS	NA	X	NA	X	NA	X	ACCEPTED.
P-22	II	CCW TO FAN COOLER 1B	FW-1	BUTT	WP-24	8.625	0.500	CS	NA	X	NA	NA	X	X	SAME AS P-16 (EXCEPT FOR DATES).
P-23	II	CCW TO R.C. PUMPS	FW-1	BUTT	WP-39	8.625	0.500	CS	NA	X	NA	X	NA	X	ACCEPTED.

EBASCO SERVICES INCORPORATED

CLIENT FLORIDA POWER & LIGHT COMPANY  
 PROJECT ST. LUCIE UNIT NO. 1 - BACKFIT  
 SUBJECT NRG BULLETIN 80-08: EXAMINATION OF CONTAINMENT PENETRATION WELDS

OPS NO. PLO 5822,196 DEPT. NO. 531  
 BY H. J. LRIES DATE 5-8-80  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

TABLE 1 (CONTINUED)

PEN. NO.	PEN. TYPE	SERVICE	WELD NO.	WELD TYPE	EBASCO WELD PROC.	O.D. (IN.)	THICK. (IN.)	BASE METAL	BACK. RING	NDE PERFORMED					RESULTS OF EXAMINATION
										RT	UT	MT	LP	VT	
P-24	II	CCW FROM R.C. PUMPS	FW-1	BUTT	WP-24	8.625	0.500	CS	NA	X	NA	NA	X	X	SAME AS P-16 (EXCEPT FOR DATES).
P-26	III	LETDOWN	FW-1	BUTT	WP-100	12.75	1.25	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-26-75, REPAIRED AND ACCEPTED ON UT 8-25-75.
P-27	III	CHARGING	FW-1	BUTT	WP-100	10.75	1.125	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-25-75, REPAIRED AND ACCEPTED ON UT 8-24-75.
P-28	II	SAMPLING	FW-1	BUTT	WP-24	6.625	0.432	CS	NA	X	NA	X	X	X	ACCEPTED.
P-29	II	SAMPLING	FW-1	BUTT	WP-100	6.625	0.500	CS	NA	NA	X	X	NA	X	REJECTED FOUR TIMES ON UT, REPAIRS MADE AND ACCEPTED ON FIFTH UT.
P-30	II	BLOWDOWN	FW-1	BUTT	WP-100	6.625	0.500	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-29-75, REPAIRED AND ACCEPTED ON UT 9-15-75.
P-31	II	CONTAINMENT VENT HEADER	FW-1	BUTT	WP-64	2.375	0.218	INCONEL	NA	X	NA	NA	X	X	ACCEPTED.
P-32	IV	CONTAINMENT SURP SUCTION	FW-1	BUTT	WP-100	34.00	1.500	CS	NA	NA	X	X	NA	X	ACCEPTED.
			D	BUTT	-----	34.00	1.500	CS	NA	X	NA	NA	NA	X	ACCEPTED (SHOP WELD BY CB61).
			--	BUTT	-----	34.00	1.500	CS	NA	X	NA	NA	NA	X	ACCEPTED (FIELD WELD BY CB61).
P-33	IV	CONTAINMENT SURP SUCTION	FW-1	BUTT	WP-100	34.00	1.500	CS	NA	NA	X	X	NA	X	REJECTED AND REPAIRED NINE TIMES ON UT. ACCEPTED ON TENTH UT. FINAL REPAIR INCLUDED USE OF PARTIAL BACKING RING.
			D	BUTT	-----	34.00	1.500	CS	NA	X	NA	NA	NA	X	ACCEPTED (SHOP WELD BY CB61).
			--	BUTT	-----	34.00	1.500	CS	NA	X	NA	NA	NA	X	ACCEPTED (FIELD WELD BY CB61).

EBASCO SERVICES INCORPORATED

SHEET 4 OF 1

CLIENT FLORIDA POWER & LIGHT COMPANY  
 PROJECT ST. LUCIE UNIT NO. 1 - BACKFIT  
 SUBJECT NRC BULLETIN 80-08; EXAMINATION OF CONTAINMENT PENETRATION WELDS

OPS NO. FLO 5822.196 DEPT. NO. 531  
 BY H. J. DRIES DATE 5-8-80  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

TABLE 1 (CONTINUED)

PEN. NO.	PEN. TYPE	SERVICE	WELD NO.	WELD TYPE	EBASCO WELD PROC.	O.D. (IN.)	THICK. (IN.)	BASE METAL	BACK. RING	NDE PERFORMED					RESULTS OF EXAMINATION
										RT	UT	HT	LP	VT	
P-34A & 34B	II	CONTAINMENT SPRAY HEADER	CS-12/ FW-1	BUTT	WP-60	10.75	0.250	INCONEL TO SS	NA	X	NA	NA	X	X	ACCEPTED.
			CS-18/ FW-1	BUTT	WP-50	12.75	0.250	SS	NA	X	NA	NA	X	X	REJECTED AND REPAIRED TWICE, ACCEPTED ON THIRD RT.
P-35A & 35B	II	CONTAINMENT SPRAY HEADER	CS-13/ FW-2	BUTT	WP-60	10.75	0.250	INCONEL TO SS	NA	X	NA	NA	X	X	ACCEPTED.
			CS-19/ FW-1	BUTT	WP-50	12.75	0.250	SS	NA	X	NA	NA	X	X	ACCEPTED.
P-36	III	SI LOOP 1A2	FW-1	BUTT	WP-100	16.00	1.593	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-28-75, REPAIRED AND ACCEPTED ON UT 8-25-75.
P-37	III	SI LOOP 1A1	FW-1	BUTT	WP-100	16.00	1.593	CS	NA	NA	X	X	NA	X	REJECTED AND REPAIRED ON UT THREE TIMES FOURTH REPAIR AND UT ACCEPTED.
P-38	III	SI LOOP 1B1	FW-1	BUTT	WP-100	16.00	1.593	CS	NA	NA	X	X	NA	X	ACCEPTED.
P-39	III	SI LOOP 1B2	FW-1	BUTT	WP-100	16.00	1.593	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-27-75, REPAIRED AND ACCEPTED ON UT 8-24-75.
P-40	III	SHUTDOWN COOLING	FW-1	BUTT	WP-100	24.00	1.00	CS	NA	NA	X	X	NA	X	REJECTED AND REPAIRED EIGHT TIMES ON UT ACCEPTED ON NINTH UT. FINAL REPAIR INCLUDED USE OF PARTIAL BACKING RING.
P-41	III	S.I.T. TEST	FW-1	BUTT	WP-100	8.625	0.500	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-24-75, REPAIRED AND ACCEPTED ON UT 8-21-75.
P-42	II	CONTAINMENT SUMP PUMP DISCHARGE	FW-1	BUTT	WP-64	3.50	0.300	INCONEL	NA	X	NA	NA	X	X	REJECTED AND REPAIRED TWICE ON RT, ACCEPTED ON THIRD RT. WELD CUT AND REDONE DUE TO PIPING MISALIGNMENT, REJECTED AND REPAIRED TWICE AND ACCEPTED ON FINAL RT.

EBASCO SERVICES INCORPORATED

SHEET: 5 OF 6

CLIENT: FLORIDA POWER & LIGHT COMPANY  
 PROJECT: ST. LUCIE UNIT NO. 1 - BACKFIT  
 SUBJECT: NRC BULLETIN 80-08; EXAMINATION OF CONTAINMENT PENETRATION WELDS

OPS NO. FLO 5822.196 DEPT. NO. 531  
 BY H. J. DRIES DATE 5-8-76  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

TABLE 1 (CONTINUED)

PEN. NO.	PEN. TYPE	SERVICE	WELD NO.	WELD TYPE	EBASCO WELD PROC.	O.D. (IN.)	THICK. (IN.)	BASE METAL	BACK. RING	NDE PERFORMED					RESULTS OF EXAMINATION:
										RT	UT	MT	LP	VT	
P-43	IV	REACTOR DRAIN PUMP SUCTION	FW-2	BUTT	WP-76	8.625	0.500	INCONEL TO CS	NA	X	NA	NA	X	X	REJECTED ON RT 10-9-72. REPAIRED AND ACCEPTED ON RT 10-13-72.
			FW-4	BUTT	WP-24	8.625	0.500	CS	NA	X	NA	NA	X	X	ACCEPTED.
			FW-5	BUTT	WP-24	8.625	0.500	CS	NA	NA	X	NA	X	X	ACCEPTED.
P-44	III	RCP BLEEDOFF	FW-1	BUTT	WP-100	6.625	0.432	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-29-75. REPAIRED AND ACCEPTED ON UT 8-24-75.
P-45	II	INSTRUMENT TUBING	FW-1	BUTT	WP-100	2.375	0.344	CS	NA	NA	X	NA	X	X	REJECTED TWICE ON UT FOR SURFACE POROSITY REPAIRED AND ACCEPTED ON THIRD UT.
P-46	II	REFUELING CAV. PURIF. INLET	FW-1	BUTT	WP-68	6.625	0.432	CS TO SS	NA	X	NA	NA	X	X	ACCEPTED.
P-47	II	REFUELING CAV. PURIF. OUTLET	FW-1	BUTT	WP-72	5.563	0.625	INCONEL TO SS	NA	NA	X	X	NA	X	ACCEPTED.
P-48	II	INSTRUMENT TUBING	FW-1	BUTT	WP-100	6.625	0.719	CS	NA	NA	X	X	NA	X	ACCEPTED.
P-49	II	BLOWDOWN	FW-1	BUTT	WP-100	6.625	0.500	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-29-75. REPAIRED AND ACCEPTED ON UT 9-15-75.
P-51	II	INSTRUMENT TUBING	FW-1	BUTT	WP-24	6.625	0.500	CS	NA	NA	X	X	NA	X	ACCEPTED.
P-52	II	INSTRUMENT TUBING	FW-1	BUTT	WP-100	12.00	0.500	CS	NA	NA	X	X	NA	X	ACCEPTED.
P-53	II	INSTRUMENT TUBING	FW-1	BUTT	WP-100	8.625	0.500	CS	NA	NA	X	X	NA	X	REJECTED ON UT 7-25-75. REPAIRED AND ACCEPTED ON UT 8-24-75.



