

ST. LUCIE - UNIT 1

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Amendment No. 81

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PDR ADDCK 05000335
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TABLE B 3/4.4.1 (Cont'd)

REACTOR VESSEL TOUGHNESS

COMPONENT	COMP CODE	MATERIAL TYPE	CU %	NI %	P %	NDTT F	50 FT-LB/35 MIL TEMP F		RTNDT ⁽⁴⁾ F	MIN. UPPER SHELF FT-LB	
							LONG ⁽¹⁾	TRANS ^(1,2)		LONG	TRANS ⁽³⁾
Outlet Nozzle	C-3-1	A508C1.2	-	-	.009	+10	+88	+108	+48	119	77
Outlet Nozzle	C-3-2	A508C1.2	-	-	.010	-20	+92	+112	+52	111	72
Outlet Nozzle Ext.	C-17-1	A508C1.2	-	-	.013	+20	-	-	+28 ⁽⁵⁾	126	82
Outlet Nozzle Ext.	C-17-2	A508C1.2	-	-	.013	+20	-	-	+28 ⁽⁵⁾	126	82
Upper Shell Plate	C-6-3	A533BC1.1	-	-	.011	-10	+30	+50	-10	129	84
Upper Shell Plate	C-6-2	A533BC1.1	-	-	.010	-30	+45	+65	+5	123	80
Upper Shell Plate	C-6-1	A533BC1.1	-	-	.012	+10	+42	+62	+10	105	68
Inter. Shell Plate	C-7-1	A533BC1.1	0.11	0.64	0.004	0	+26	+46	0	126	82
Inter. Shell Plate	C-7-2	A533BC1.1	0.11	0.64	0.004	-30	+30	+50	-10	131	85
Inter. Shell Plate	C-7-3	A533BC1.1	0.11	0.58	0.004	-30	+50	+70	+10	117	76
Lower Shell Plate	C-8-3	A533BC1.1	0.12	0.58	0.004	0	+26	+46	0	136	88
Lower Shell Plate	C-8-1	A533BC1.1	0.15	0.56	0.006	-10	+60	+80	+20	126	82
Lower Shell Plate	C-8-2	A533BC1.1	0.15	0.57	0.006	0	+32	+52	20 ⁽⁷⁾	120	82
Closure Head Flange	C-2	A508C1.2	-	-	.008	+20	-	-	+20 ⁽⁵⁾	143	93
Closure Head Peels	C-21-2	A533BC1.1	-	-	.012	-30	+40	+60	0	133	86
Closure Head Peels	C-21-2	A533BC1.1	-	-	.012	-30	+40	+60	0	133	86

103⁽⁷⁾
78

SUMMARY OF
TECHNICAL SPECIFICATION BASES CHANGES

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- 1) **Lower shell plate C-8-2:** Unirradiated baseline Charpy specimens for this limiting plate were tested as part of the reactor vessel surveillance program. These specimens were oriented in both the longitudinal and transverse direction, thus allowing use of actual test data as opposed to an estimate.

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- 1) **Material type for welds:** These changes were made to correct typographical errors that listed the welds as plate. The corrections provide the weld wire heat and flux type for each of the reactor vessel beltline welds.
- 2) **Intermediate shell long. welds:** These changes provide new estimates of the values of the copper and nickel and are based on a larger body of generic data of CE fabricated submerged arc welds than the previous estimate. The Charpy upper shelf energy value was not previously determined and is based on a large body of generic CE fabricated submerged arc welds fabricated with type 124 flux. The referenced reports which provide the basis for each value is noted.
- 3) **Lower shell long. welds:** These changes provided new information based on an identical weld (wire heat and flux lot) in the Beaver Valley Unit 1 reactor vessel surveillance program. The new chemistry values are mean values of the chemical analyses from CE during qualification testing, and Westinghouse from the analysis of the Beaver Valley Unit 1 surveillance weld. These are the only known chemical analyses for this weld.

The initial values of NDTT, RT_{NDT} and upper shelf energy for this weld were obtained from the tests performed as part of the Beaver Valley Unit 1 Surveillance Program with the reference noted.

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- 1) **Minimum upper shelf Cv energy:** this change corrects the upper shelf energy which was mistakenly identified as being tested in the longitudinal direction. The Charpy specimens from the Unit 2 beltline plates were tested in both the longitudinal and transverse (weak) directions. The values reported are actually transverse test data and the table heading is corrected.

TABLE B 3/4.4-1 (cont'd)

REACTOR VESSEL TOUGHNESS

COMPONENT	COMP CODE	MATERIAL TYPE	CU %	NI %	P %	NDTT F	50 FT-LB/35 MIL TEMP F		RTNDT ⁽⁴⁾ F	MIN. UPPER SHELF FT-LB ⁽³⁾	
							LONG ⁽¹⁾	TRANS ^(1,2)		LONG	TRANS ⁽³⁾
Closure Head Peels	C-21-1	A533BC1.1	-	-	.013	-10	0	+20	-10	138	90
Closure Head Peels	C-21-1	A533BC1.1	-	-	.013	-10	0	+20	-10	138	90
Closure Head Peels	C-21-2	A533BC1.1	-	-	.012	-30	+40	+60	0	133	86
Closure Head Peels	C-21-3	A533BC1.1	-	-	.013	-40	+36	+56	-4	129	84
Closure Head Dome	C-20-1	A533BC1.1	-	-	.014	-10	+44	+64	+4	105	68
Inter. Shell Long. Welds	2-203 A,B,C	A8746/348009 A533B Linde 124	0.19 ⁽⁸⁾	0.10 ⁽⁸⁾	.018	-	-	-	-56 ⁽⁶⁾	-	1023 ⁽⁸⁾
Lower Shell Long. Welds (10)	3-203 A,B,C	305424 A533B Linde 1092	0.28	0.63	.016	-60 ⁽⁹⁾	-	-	-60 ⁽⁹⁾	-	112 ⁽⁹⁾
Lower-to-Inter. Shell Seam Weld	9-203	90136 A533B Linde 0091	0.23	0.11	.013	-60 ⁽⁷⁾	-	-36 ⁽⁷⁾	-60 ⁽⁷⁾	-	144 ⁽⁷⁾

- NOTES:**
- (1) Charpy 50 ft-lb and 35 mils lateral expansion index temperature (lower bound)
 - (2) Determined using Branch Technical Position MTEB 5-2, Section 1.1(3)(b)
 - (3) Determined by using Branch Technical Position MTEB 5-2 Section 1.2
 - (4) As per ASME B&PV Code, Section III, NB-2331
 - (5) Charpy test data either do not have lateral expansion value or the data are not legible. The reference temperature from Charpy test data was obtained by following MTEB Position 5.2, Section 1.1(4)
 - (6) Estimated based on generic data for C-E submerged arc welds ("Evaluation of Pressurized Thermal Shock Effects due to Small Break LOCA's with Loss of Feedwater for the Combustion Engineering NSSS," CEN-189, December 1981).
 - (7) Surveillance Program Data - Average USE
 - (8) Estimate based on generic data for CE submerged arc welds (CE Reports CE-NP SD-906P, F-MECH-93-050).
 - (9) Initial Property for identical CE fabricated weld in the Beaver Valley Unit 1 Surveillance Program.
 - (10) Weld chemistry is the mean of data from CE analysis and note 9.

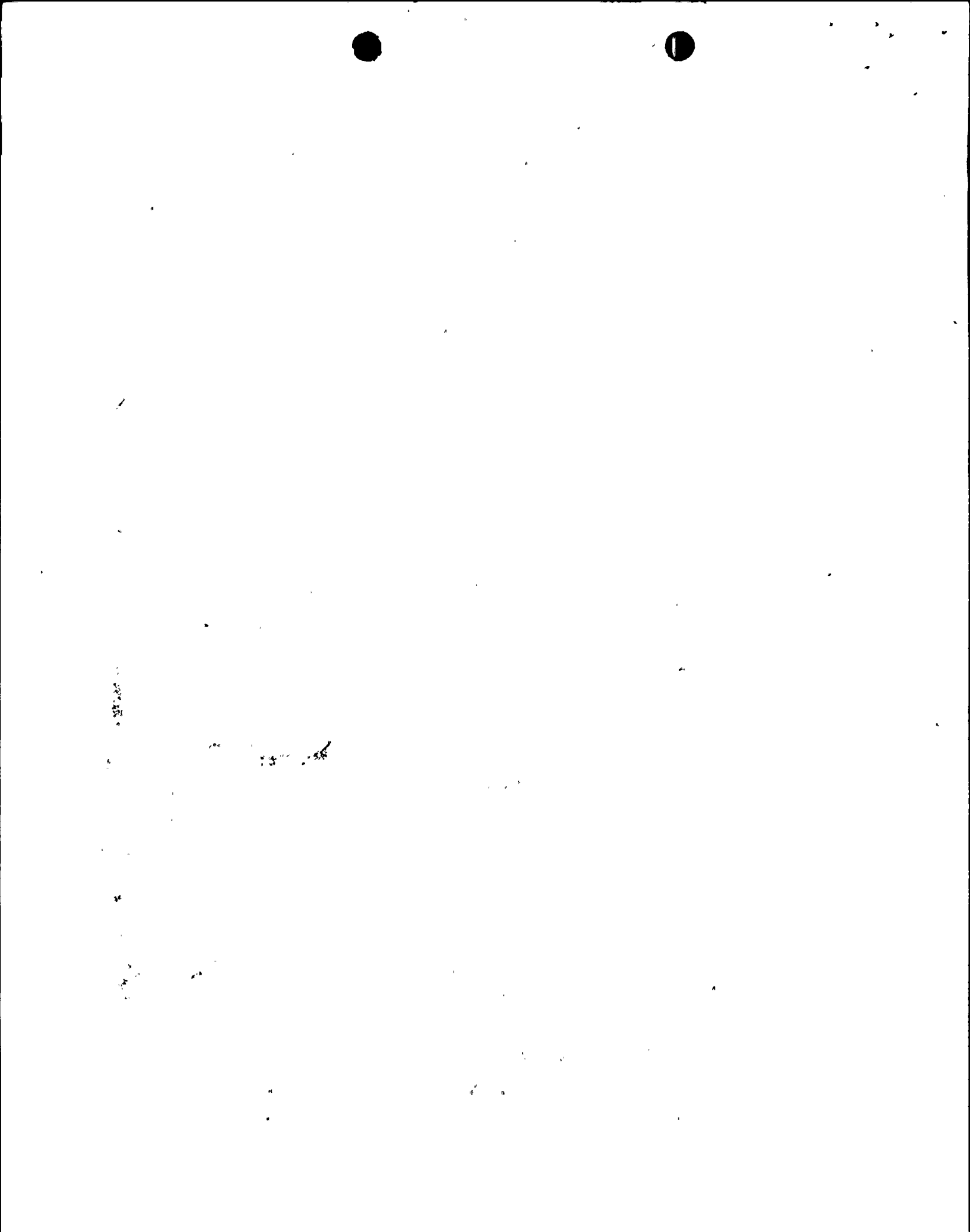


TABLE B 3/4.4-1

REACTOR VESSEL TOUGHNESS

Piece No.	Code No.	Material	Vessel Location	Drop Weight Results	Temperature of Charpy V-Notch RT (°F) NDT @ 50 ft - lb	Minimum Upper Shelf Cv energy
						Direction Charpy (1) Ft - lb
122-102A	M-604-1	SA 533B C1 1	Upper Shell Plate	0	+50	-
122-102B	M-604-2	SA 533B C1 1	Upper Shell Plate	+10	+50	-
122-102C	M-604-3	SA 533B C1 1	Upper Shell Plate	-10	+10	-
124-102B	M-605-1	SA 533B C1 1	Intermediate Shell Plate	0	+30	105
124-102C	M-605-2	SA 533B C1 1	Intermediate Shell Plate	-10	+10	113
124-102A	M-605-3	SA 533B C1 1	Intermediate Shell Plate	-20	0	113
142-102C	M-4116-1	SA 533B C1 1	Lower Shell Plate	-30	+20	91
142-102B	M-4116-2	SA 533B C1 1	Lower Shell Plate	-50	+20	105
142-102A	M-4116-3	SA 533B C1 1	Lower Shell Plate	-40	+20	100
102-101	M-4110-1	SA 533B C1 1	Closure Head	-10	+30	-
106-101	M-4101-1	SA 508 C1 2	Closure Head Flange	0	0	-
128-101A	M-4102-1	SA 508 C1 2	Inlet Nozzle	-20	-20	-
128-101D	M-4102-2	SA 508 C1 2	Inlet Nozzle	-20	-20	-
128-101B	M-4102-3	SA 508 C1 2	Inlet Nozzle	0	0	-
128-101C	M-4102-4	SA 508 C1 2	Inlet Nozzle	-10	-10	-
128-301B	M-4103-1	SA 508 C1 2	Outlet Nozzle	-20	-20	-
128-301A	M-4103-2	SA 508 C1 2	Outlet Nozzle	-30	-30	-
126-101	M-602-1	SA 508 C1 2	Vessel Flange	-30	-10	-
131-102A	M-4104-1	SA 508 C1 1	Inlet Nozzle Safe End	-20	+20	-
131-102D	M-4104-2	SA 508 C1 1	Inlet Nozzle Safe End	-20	+20	-
131-102B	M-4104-3	SA 508 C1 1	Inlet Nozzle Safe End	-20	+20	-
131-102C	M-4104-4	SA 508 C1 1	Inlet Nozzle Safe End	-20	+20	-
131-101B	M-4105-1	SA 508 C1 1	Outlet Nozzle Safe End	-10	0	-
131-101A	M-4105-2	SA 508 C1 1	Outlet Nozzle Safe End	-10	0	-
152-101	M-4112-1	SA 533B C1 1	Bottom Head Dome	-50	-40	-
154-102	M-4111-1	SA 533B C1 1	Bottom Head Torus	-40	+40	-
(A to F)						
104-102	M-4109-1	SA 533B C1 1	Closure Head Torus	-60	-10	-
(A to D)						

(1) Reported only for beltline region plates.

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Amendment No. 31

