



FPL Energy
Seabrook Station

FPL Energy Seabrook Station
P.O. Box 300
Seabrook, NH 03874
(603) 773-7000

December 2, 2002

Docket No. 50-443
NYN-02123
Ref.: NYN-02118

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Seabrook Station
Response to Request for Corrected Information – Steam Generator Tube

In letter NYN-02118, dated November 8, 2002, FPL Energy Seabrook, LLC (FPLE Seabrook) provided the Root Cause Analysis pertaining to the Steam Generator “D” tube cracking issue as requested by the Nuclear Regulatory Commission (NRC) staff during an October 9, 2002 conference call. FPLE Seabrook was notified that the submitted documentation contained pages that were difficult to read. Enclosed are replacements for those pages.

Should you have any questions pertaining to this matter, please contact me at (603) 773-7194.

Very truly yours,

FPL Energy Seabrook, LLC.

A handwritten signature in black ink, appearing to read 'J. Peschel', written over a horizontal line.

James M. Peschel
Manager – Regulatory Programs
Seabrook Station

A001

cc:

H. J. Miller, NRC Region 1 Administrator
R. D. Starkey, NRC Project Manager, Project Directorate I -2
G. F. Dentel, NRC Senior Resident Inspector

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 Technical Report 02807-TR-001
 Revision 0

Table 4- 2. Bulk Chemical Analysis Data for Unflawed Samples (See Appendix B for Data Sheets)

Sample Description	Sample	C%	Mn%	P%	S%	Si%	Cr%	Fe%	Ti%	Al%	Co%	Cu%	Ni%
Seabrook Service R3C62 - As Received	02807-1A	0.048	0.20	<0.010	<0.001	0.44	15.30	7.99	0.25	0.14	<0.01	0.21	75.82
Seabrook Service R9C63 - As Received	02807-2A	0.047	0.20	<0.010	<0.001	0.44	14.87	8.22	0.22	0.13	0.06	0.19	75.62
Heat 96845 - As Received - Mill Annealed	02807-7A	0.038	0.19	<0.010	<0.001	0.21	14.78	7.22	0.26	0.15	<0.01	0.01	77.14
Seabrook Archived Heat TY9402 9993 B9579B - As Received	02807-5A	0.026	0.16	<0.010	<0.001	0.34	15.20	9.56	0.16	0.13	<0.01	0.37	74.05
Seabrook Archived Heat 1456 - As Received - Thermally Treated	02807-12	0.043	----	----	0.002	----	----	----	----	----	----	----	----
Seabrook Archived Heat 1457 - As Received - Thermally Treated	02807-13	0.022	----	----	<0.001	----	----	----	----	----	----	----	----
Seabrook Archived Heat 1374 - As Received - Thermally Treated	02807-14	0.036	----	----	<0.001	----	----	----	----	----	----	----	----
Heat 1638 - As Received - Mill Annealed	NX-1638	0.014	0.21	0.006	0.003	0.22	14.95	9.6	0.22	0.22	0.05	0.33	74.68

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Table 4- 3. Summary Matrix for Modified Huey Tests Performed

Sample Description	Modified Huey Test Condition				
	25% v/v ⁽¹⁾ Weighed Every 12 h Sample Length = 0.25"	25% v/v ⁽¹⁾ Continuous 48 h Immersion Sample Length = 0.25"	25% v/v ⁽¹⁾ Continuous 48 h Immersion Sample Weight = 3g	25% w/w ⁽¹⁾ Continuous 48 h Immersion Sample Length = 0.25"	25% w/w ⁽¹⁾ Continuous 48 h Immersion Sample Weight = 3g
Seabrook Service R5C62 - As Received	1B-1,943 mdd & 1G-1,948 mdd ^(1,2)				9B - 13 mdd
Seabrook Service R9C63 - As Received	2B-3,726 mdd & 2C-2,976 mdd				10B - 14 mdd
Seabrook Service R5C62 - Laboratory Thermal Treatment ⁽⁷⁾	1C - 65 mdd				9C - 15 mdd
Seabrook Service R9C63 - Laboratory Thermal Treatment	2C - 87 mdd				10C - 15 mdd
Seabrook Service R5C62 - As Received - Split Ring		1H - 1,013			
Seabrook Service R9C63 - As Received - Split Ring		2H - 2,368			
Heat 96845 - As Received - Mill Annealed	7B - 6,174 mdd	7F - 3,008 mdd	7G - 6,043 mdd	7H - 36 mdd	
Heat 96845 - Laboratory Thermal Treatment	6B - 35 mdd				
Heat 96845 - Laboratory Solution Treatment ⁽⁸⁾	3B - 36 mdd				
Heat 96845 - Laboratory Sensitization Treatment ⁽⁹⁾					8C - 1,973 mdd ⁽⁶⁾
Seabrook Archived Heat TY9402 9993 E0579B - As Received	5B - 84 mdd			5C - 22 mdd	
Seabrook Archived Heat 1456 - As Received - Thermally Treated		12B - 89 mdd			
Seabrook Archived Heat 1457 - As Received - Thermally Treated		13B - 98 mdd			
Seabrook Archived Heat 1374 - As Received - Thermally Treated		14B - 33 mdd			
NOTES:					
(1) Shaded boxes indicate unacceptably high corrosion rates.					
(2) Values shown in boxes are given in a "sample designation - 48 hour corrosion rate" format.					
(3) 25% v/v was prepared by mixing 428.56ml of stock acid to 371.44ml of distilled water					
(4) 25% w/w was prepared by mixing 285.6ml of stock acid to 514.4ml of distilled water					
(5) 25% w/w was prepared by mixing 230 ml of stock acid to 590ml of distilled water					
(6) Sample broke in two during post test cleaning.					
(7) Laboratory thermal treatment was performed by heating samples at 700°C for 10 hours then air cooling.					
(8) Laboratory solution treatment was performed by heating samples at 1050°C for 1 hour then water quenching.					
(9) Laboratory sensitization treatment was performed on solution treated samples that were subsequently heated at 700°C for 2 hours then air cooled.					
				Prepared By: Thomas McKrell, Ph.D.	
				Checked By: Thomas Service, Ph.D., P.E.	

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Table 4-9. XPS Summary Table

	With Sputter Data															
Position	Fe	Mn	Mg	Si	Al	P	C	Ca	O	Cu	Na	Pb	Ti	Cr	Ni	N
1	87	29	23	33	61	06	246	24	473	14	03	ND	ND	ND	ND	ND
2	87	34	27	47	92	02	203	1.1	479	14	03	00	ND	ND	ND	ND
2-12 sec	52	72	48	45	134	ND	29	6.1	555	04	ND	00	ND	ND	ND	ND
2-30 sec	58	78	46	44	135	ND	24	6.1	549	05	ND	ND	ND	ND	ND	ND
2-90 sec	58	84	48	42	138	ND	24	57	544	03	ND	ND	ND	ND	ND	ND
3	132	ND	ND	08	07	1.1	386	01	386	34	ND	ND	04	11	20	ND
4	144	ND	ND	ND	08	ND	283	ND	410	02	ND	ND	04	62	83	04
4-12 sec	356	ND	ND	ND	ND	ND	52	ND	366	04	ND	ND	03	10.5	11.4	ND
4-30 sec	442	ND	ND	ND	ND	ND	2.5	ND	350	03	ND	ND	ND	91	89	ND
5	ND	ND	59	ND	ND	ND	709	ND	232	ND	ND	ND	ND	ND	ND	ND
ND = Not Detected																
	Without Sputter Data															
Position	Fe	Mn	Mg	Si	Al	P	C	Ca	O	Cu	Na	Pb	Ti	Cr	Ni	N
1	87	29	23	33	61	06	246	24	473	14	03	ND	ND	ND	ND	ND
2	87	34	27	47	92	02	203	1.1	479	14	03	00	ND	ND	ND	ND
3	132	ND	ND	08	07	1.1	386	01	386	34	ND	ND	04	11	20	ND
4	144	ND	ND	ND	08	ND	283	ND	410	02	ND	ND	04	62	83	04
5	ND	ND	59	ND	ND	ND	709	ND	232	ND	ND	ND	ND	ND	ND	ND
ND = Not Detected																