Dave Morey
Vice President
Farley Project

Southern Nuclear
Operating Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201

Tel 205.992.5131

SOUTHERN COMPANY
Energy to Serve Your World℠

October 8, 2001

Docket Nos. 50-348

NEL-01-0239

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Joseph M. Farley Nuclear Plant
Unit 1 Cycle 15 - 90 Day Report

Ladies and Gentlemen:

During NRC review of the Farley Nuclear Plant, Unit 1 Cycle 15 90 day report dated March 16, 1999, a discrepancy was noted between reported signal growth statistics reported in 1997 for Cycle 14 and Cycle 14 data submitted in 1999 as part of the Cycle 15 report. NRC letter dated August 8, 2001 requested the following information:

> "Provide within 90 days an explanation for this noted difference and its effect on the integrity and leakage assessments."

Enclosure 1 provides our response to the requested information. Enclosure 2 provides amended pages to the FNP Unit 1 Cycle 15 report.

If you have any questions please contact this office. This letter contains no NRC commitments.

Respectfully submitted,

D Morey

Dave Morey

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Enclosure
1. Response to NRC Letter
2. Amended Pages to the FNP Unit 1 Cycle 15 report.

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cc:

Southern Nuclear Operating Company
Mr. L. M. Stinson, General Manager - Farley

U. S. Nuclear Regulatory Commission, Washington, D. C.
Mr. F. Rinaldi, Licensing Project Manager - Farley

U. S. Nuclear Regulatory Commission, Region II
Mr. L. A. Reyes, Regional Administrator
Mr. T. P. Johnson, Senior Resident Inspector – Farley

ENCLOSURE 1

RESPONSE TO NRC LETTER DATED AUGUST 8, 2001
REQUEST FOR ADDITIONAL INFORMATION

The Cycle 14 growth distributions presented in the Farley-1 90-day reports prepared in August 1997 and March 1999 are expected to differ because the EOC-14 voltages were revised in 1998 using recalibrated voltages for the bobbin standards used in the EOC-14 (1997) inspection. The EOC-14 voltages were reduced on the average by about 13.6% because of this readjustment. The present review of the Cycle 14 growth data showed that the data presented in the March 1999 (Cycle 15) report is incorrect and does not represent Farley-1 inspection data. Specifically, Tables 3-3 and 3-5 and Figure 3-6 in the March 1999 report show incorrect growth data for Cycle 14. Revised Tables 3-3 and 3-5 and Figure 3-6 showing the proper Cycle 14 growth data for Farley-1 are provided in Enclosure 2.

Although the cumulative probability distribution for Cycle 15 growth data falls to the right of the Cycle 14 growth distribution indicating that the growth rates during Cycle 15 were higher than those during Cycle 14, the largest growth observed during Cycle 14 (7.9 volts/EFPY) is higher than that for Cycle 15 (7.0 volts/EFPY). So, it is not evident whether the Cycle 15 growth distribution is the limiting distribution for the two cycles for tube integrity analysis. Therefore, Monte Carlo analysis to project EOC-16 SLB leak rates and tube burst probabilities for the limiting SG (SG-C) was repeated using the Cycle 14 growth data. Both the SG-C specific growth distribution as well as the all SG composite distribution were considered. These results are included along with the original results in the revised Table 7-2 provided in Enclosure 2. It is evident that the results based on the SG composite distribution for Cycle 15 envelope the results with Cycle 14 composite distribution. Also, the worst case SLB leak rate and tube burst probability values presented in the March 1999 report, which were obtained using a voltage-dependent distribution, envelope all results shown in the revised Table 7-2. Cycle 14 growth data does not show a dependency on the BOC-14 voltages. Therefore, the worst case results presented originally in Table 7-2 of the March 1999 report still represent the limiting EOC-16 projection.

ENCLOSURE 2

AMENDED PAGES TO THE FNP UNIT 1 CYCLE 15 REPORT.

Table 3-3
Farley Unit 1 November 98
Signal Growth Statistics For Cycle 15 on an EFPY Basis
(Revised in July 2001 to Correct Cycle 14 Growth Distributions)

Delta Volts	Steam Generator A			Steam Generator B			Steam Generator C			Cumulative		
	Cycle 14	Cycle 15		Cycle 14	Cycle 15		Cycle 14	Cycle 15		Cycle 14	Cycle 15	
	CPDF	No. of Inds	CPDF	CPDF	No. of Inds	CPDF	CPDF	No. of Inds	CPDF	CPDF	No. of Inds	CPDF
-0.4	0.0022	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0007	0	0.0
-0.3	0.0043	0	0.0	0.00197	1	0.001	0.00965	0	0.0	0.0055	1	0.0003
-0.2	0.0109	1	0.001	0.01085	8	0.009	0.03246	2	0.002	0.0189	11	0.004
-0.1	0.1196	25	0.026	0.08679	52	0.061	0.15702	23	0.02	0.1226	100	0.034
0	0.5424	139	0.162	0.55128	263	0.325	0.52807	239	0.207	0.54	641	0.229
0.1	0.8772	333	0.49	0.90039	319	0.644	0.88158	529	0.621	0.8865	1181	0.587
0.2	0.9609	243	0.729	0.97633	184	0.829	0.97456	284	0.843	0.971	711	0.803
0.3	0.9848	118	0.845	0.99112	72	0.901	0.98947	100	0.922	0.9886	290	0.892
0.4	0.9935	71	0.914	0.99606	29	0.93	0.99649	46	0.958	0.9954	146	0.936
0.5	0.9946	39	0.953	0.99803	27	0.957	0.99649	30	0.981	0.9964	96	0.965
0.6	0.9967	18	0.971	0.99803	14	0.971	0.99737	9	0.988	0.9974	41	0.978
0.7	0.9967	7	0.977	0.99901	8	0.979	0.99737	2	0.99	0.9977	17	0.983
0.8	0.9989	7	0.984	0.99901	7	0.986	0.99737	2	0.991	0.9984	16	0.988
0.9	0.9989	6	0.99	0.99901	2	0.988	0.99912	2	0.993	0.999	10	0.991
1	0.999	0	0.99	0.99901	1	0.989	0.9991	2	0.995	0.999	3	0.991
1.1	0.999	1	0.991	1.0	2	0.991	0.9991	0	0.995	0.9993	3	0.992
1.2	0.999	4	0.995		3	0.994	0.9991	2	0.996	0.9993	9	0.995
1.3	0.999	2	0.997		0	0.994	0.9991	0	0.996	0.9993	2	0.996
1.4	0.999	0	0.997		1	0.995	0.9991	0	0.996	0.9993	1	0.996
1.5	0.999	1	0.998		1	0.996	0.9991	1	0.997	0.9993	3	0.997
1.8	1.0	0	0.998		1	0.997	0.9991	0	0.997	0.99967	1	0.997
1.9		1	0.999		0	0.997	0.9991	1	0.998	0.99967	2	0.998
2		0	0.999		0	0.997	0.9991	0	0.998	0.99967	0	0.998
2.1		0	0.999		0	0.997	0.9991	1	0.998	0.99967	1	0.9982
2.3		0	0.999		1	0.998	0.9991	0	0.998	0.99967	1	0.9985
2.8		0	0.999		0	0.998	0.9991	1	0.999	0.99967	1	0.9988
3.2		0	0.999		1	0.999	0.9991	0	0.999	0.99967	1	0.9991
3.7		1	1.0		0	0.999	0.9991	0	0.999	0.99967	1	0.9994
4.5		0			1	1.0	0.9991	0	0.999	0.99967	1	0.9997
7		0			0		0.9991	1	1.0	0.99967	1	1.0
7.9							1.0			1.0	0	
Total		1017			998			1277			3292	

Table 3-5
Farley Unit 1
Average Voltage Growth for Cycle 15
Composite of All Steam Generator Data
(Revised in July 2001 to Correct Cycle 14 Growth Statistics)

Bobbin Voltage Range	Number of Indications	Average Voltage BOC	Average Voltage Growth		Average Percentage Growth	
			Entire Cycle	Per EFPY	Entire Cycle	Per EFPY
	Cycle 15 (1997 - 1998) - 471.2 EFPD					
Entire Voltage Range	3292	0.86	0.160	0.124	18.7%	14.5%
$V_{BOC} < .75$ Volts	1411	0.55	0.117	0.090	21.1%	16.3%
$\geq .75$ Volts	1881	1.08	0.192	0.149	17.8%	13.8%
	Cycle 14 (1995 - 1997) - 482.1 EFPD					
Entire Voltage Range	3074	0.91	0.008	0.006	0.9%	0.7%
$V_{BOC} < .75$ Volts	1173	0.57	0.021	0.016	3.7%	2.8%
$\geq .75$ Volts	1901	1.12	0.000	0.000	0.0%	0.0%
	Cycle 13 (1994 - 1995) - 489.4 EFPD					
Entire Voltage Range	2571	0.89	0.085	0.063	10%	7%
$V_{BOC} < .75$	1024	0.56	0.101	0.075	18%	13%
$\geq .75$	1547	1.10	0.074	0.056	7%	5%
	Cycle 12 (1992 - 1994) - 442 EFPD					
Entire Voltage Range	1681	0.98	-0.01	-0.008	~ 0 %	~ 0 %
$V_{BOC} < .75$	466	0.60	0.04	0.003	7%	6%
$\geq .75$	1215	1.13	-0.03	-0.023	~ 0 %	~ 0 %
	Cycle 11 (1991 - 1992) - 471 EFPD					
Entire Voltage Range	1267	0.85	0.22	0.171	26%	20%
$V_{BOC} < .75$	546	0.57	0.21	0.163	37%	29%
$\geq .75$	721	1.08	0.23	0.178	21%	17%
	Cycle 10 (1989 - 1991)					
Entire Voltage Range	499	0.70	0.23	N/A	33%	N/A
$V_{BOC} < .75$	306	0.51	0.24	N/A	47%	N/A
$\geq .75$	193	1.01	0.08	N/A	8%	N/A
	Cycle 9 (1988 - 1989)					
Entire Voltage Range	431	0.62	0.22	N/A	35%	N/A
	Cycle 8 (1986 - 1988)					
Entire Voltage Range	274	0.48	0.28	N/A	58%	N/A
	Cycle 7 (1985 - 1986)					
Entire Voltage Range	123	0.45	0.20	N/A	44%	N/A

Table 7-2
Farley Unit-1
Summary of Projected Tube Leak Rate and Burst Probability for EOC-16
(Based on a projected Cycle 16 length 420 EFPD or 1.15 EFPY)
(Revised in July 2001 to include 2 Cases Based on Cycle 14 Growth)

Steam Generator	POD	No. of Indications[1]	Max. Volts	Burst Probability		SLB Leak Rate (gpm)[2]	Comments
				1 Tube	One or More Tubes		
Leak and Burst Database and Correlations Reported in Reference 8.7 Applied Leak Rate Correlation Applied							
A[3]	0.6	1624.7	9.6	2.9×10^{-3}	2.9×10^{-3}	6.7	Cycle 15 Growth applied
B[4]		1744.0	9.0	1.5×10^{-3}	1.5×10^{-3}	5.1	
C[4]		2129.0	10.8	3.1×10^{-3}	3.1×10^{-3}	7.7	
C[5]		2129.0	11.0	5.6×10^{-3}	5.6×10^{-3}	8.2	
A[3]	POPCD	1194.0	9.4	1.8×10^{-3}	1.8×10^{-3}	4.3	
B[4]		1413.0	8.7	6.5×10^{-4}	6.5×10^{-4}	3.5	
C[4]		1603.1	8.9	1.0×10^{-3}	1.0×10^{-3}	5.1	
C[6]	0.6	2129.0	11.0	4.3×10^{-3}	4.3×10^{-3}	6.7	SG-C Specific Cycle 14 Growth
C[7]		2129.0	10.9	2.8×10^{-3}	2.8×10^{-3}	6.4	All SG Composite Cycle 14 Growth

Rev

Notes:
(1) Number of indications adjusted for POD.
(2) Volumetric leak rate adjusted to room temperature.
(3) A growth rate distribution composed of SG-A specific data plus the largest growth in SG-B and SG-C during Cycle 15 applied.
(4) All SG composite growth rate distribution for Cycle 15 applied.
(5) A voltage-dependent growth distribution for SG-C that includes top 3 growths observed for Cycle 15 applied.
(6) SG-C Cycle 14 growth distribution based on EOC-14 voltages readjusted in 1998 using recalibrated standards voltages applied. Added in July 2001.
(7) All SG composite Cycle 14 growth distribution based on EOC-14 voltages readjusted in 1998 using recalibrated standards voltages applied. Added in July 2001.
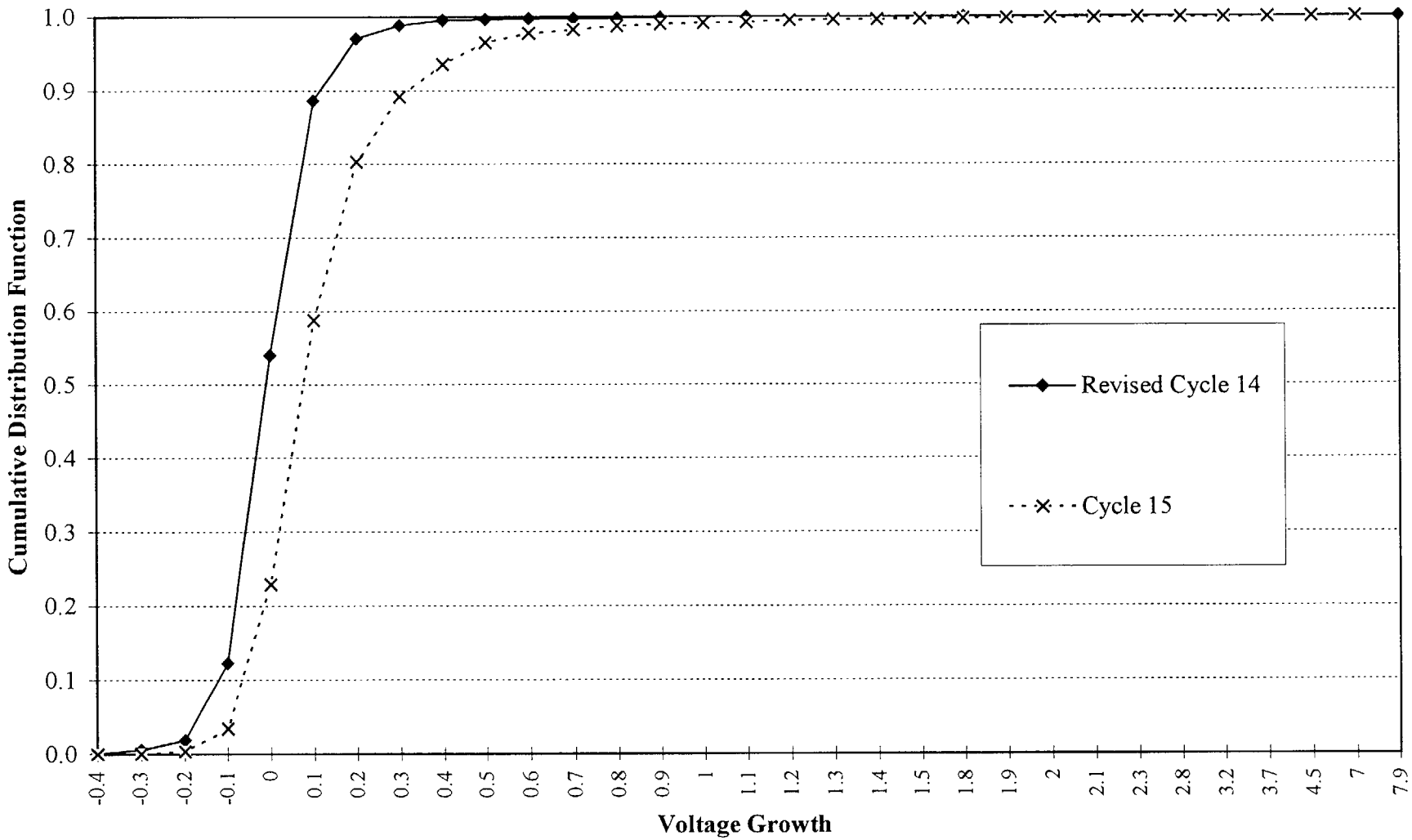
Figure 3-6
Farley Unit-1 November 1998
Bobbin Signal Growth History - Revised in July 2001
Cumulative Probability Distributions - Composite of All SG Data