Thomas D. Gatlin
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SCE&G®
A SCANA COMPANY

February 1, 2013
RC-13-0017

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

Attn: E. A. Brown

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
LICENSE AMENDMENT REQUEST – LAR-06-00055
LICENSE AMENDMENT REQUEST TO ADOPT NFPA 805
ADDITIONAL INFORMATION REGARDING RESPONSE
TO REQUEST FOR ADDITIONAL INFORMATION

References:

1. Letter from Thomas D. Gatlin to NRC Document Control Desk, dated November 15, 2011, License Amendment Request - LAR-06-00055, "License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition)"

2. NRC Letter from Robert E. Martin to Thomas D. Gatlin dated July 26, 2012, "Virgil C. Summer Nuclear Station Unit 1 (VCSNS) - Request for Additional Information (TAC NO. ME7586)" ADAMS Accession No. ML12202A027

3. Letter from Thomas D. Gatlin to NRC Document Control Desk, dated October 10, 2012, License Amendment Request – LAR-06-00055, "License Amendment Request to Adopt NFPA 805 Response to Request for Additional Information"

South Carolina Electric & Gas Company (SCE&G), acting for itself and as agent for South Carolina Public Service Authority, has identified additional information that will further explain the responses to Probability Risk Assessment (PRA) Request for Additional Information (RAI) Numbers 07, 09, 66, and 68. The additional information is being provided as a result of a January 14, 2013 teleconference regarding Reference 3. The attachment to this letter provides the additional information.

A006
LIRR

There are no regulatory commitments in this letter. If you have any questions regarding this submittal, please contact Mr. Bruce L. Thompson at (803) 931-5042.

I certify under penalty of perjury that the foregoing is correct and true.

Feb 01 2013 Shawn Zabardi for D. Gatlin
Executed on Thomas D. Gatlin

TS/TDG/wm

Attachment

c: K. B. Marsh
S. A. Byrne
J. B. Archie
T. D. Gatlin
N. S. Carns
J. H. Hamilton
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File (813.20)
PRSF (RC-13-0017)

VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) Unit 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12

ATTACHMENT

Probability Risk Assessment Additional Information

PRA RAI 07

Section 10 of NUREG/CR-6850 Supplement 1 states that a sensitivity analysis should be performed when using the fire ignition frequencies in the Supplement instead of the fire ignition frequencies provided in Table 6-1 of NUREG/CR-6850. Provide the sensitivity analysis of the impact on using the Supplement 1 frequencies instead of the Table 6-1 frequencies on CDF, LERF, ΔCDF, and ΔLERF for all of those bins that are characterized by an alpha that is less than or equal to one. If the sensitivity analysis indicates that the change in risk acceptance guidelines would be exceeded using the values in Table 6-1, justify not meeting the guidelines.

SCE&G Response

Based on this RAI and review of Section 10 of NUREG/CR-6850 Supplement 1 (EPRI 1019259), SCE&G has determined that additional work on the sensitivity studies performed for initiating event frequencies used in the fire PRA is warranted. SCE&G will re-submit the response to this RAI by April 1, 2013.

PRA RAI 09

It was recently stated at the industry fire forum that the Phenomena Identification and Ranking Table Panel (PIRT) being conducted for the circuit failure tests from the DESIREE-FIRE and CAROL-FIRE tests may be eliminating the credit for Control Power Transformers (CPTs) (about a factor 2 reduction) currently allowed by Tables 10-1 and 10-3 of NUREG/CR-6850, Vol. 2, as being invalid when estimating circuit failure probabilities. Provide a sensitivity analysis that removes this CPT credit from the PRA and provide new results that show the impact of this potential change on CDF, LERF, ΔCDF, and ΔLERF. If the sensitivity analysis indicates that the change in risk acceptance guidelines would be exceeded after eliminating CPT credit, please justify not meeting the guidelines.

SCE&G Response

In response to this RAI and PIRT Panel discussions, the circuit failure probabilities that initially took credit for Control Power Transformers (CPTs) have been revised to remove that credit. The results of this change are shown in the table below. The impact on CDF and LERF are not significant. The conclusion of this analysis is that the post-transition plant still complies with NFPA 805 Section 4.2.4.2 when no credit is taken for CPTs.

	CDF	LERF
Baseline with CPT credit	5.62E-05	2.73E-07
CPT credit removed	5.64E-05	2.74E-07
Change from Baseline	2.00E-07	1.00E-09

PRA RAI 66

FSS-B2-01: It is not clear from the MCR abandonment document what the criteria are for CR abandonment for main control board (MCB) fires. Secondly, from the MCB scenarios the conditional core damage probability (CCDP) does not appear correct for the specified number of panels as given in Appendix B of the Fire Risk Quantification Task 14 document. For example, for scenario CB 17.01 MCB 11-10-1, 11-9-1, and 11-8-1, 2, 3, and 4 panels are failed respectively, yet the CCDP from the quantification document specified that the CCDP is largest when only 2 panels are damaged. Also for scenarios CB17.01 MCB 18-18-1, 18-17-1, 18-16-1, and 18-15-1 the CCDP is the same for each scenario even though 1, 2, 3, and 4 panels are damaged respectively. Provide the criteria for CR evacuation for MCB fires, and justify the CCDPs provided for the various number of panels damaged. The response should take into account a further examination of the CCDPs for MCB fires than identified in this question to evaluate if the CCDP problem is more extensive than discussed in this question. Provide updated CDF, LERF, ΔCDF, and ΔLERF values for MCB scenarios.

SCE&G Response

The criteria for MCR abandonment are discussed in the response to PRA RAI 08.

The CCDP issue was an error in the model that was due to the FRANX software treatment of mutually exclusive events. The top logic structure of the fault tree (shown below) includes NOT logic that removes cutsets associated with mutually exclusive events. When the FRANX model sets the failures associated with the fire, it sets all of the failed events to TRUE and then compresses the tree and solves it. If two events are mapped to a scenario that appears in the mutually exclusive logic gate (FIREMEX), the gate @CDFALLF is set to FALSE. This means that only the MCR abandonment logic is considered for the scenario. This was the root cause of the issue that resulted in abnormal CCDP results for the main control board scenarios. The model has been updated to address this issue and the updated results for the MCB scenarios are listed in the table below including CDF, LERF, ΔCDF and ΔLERF.

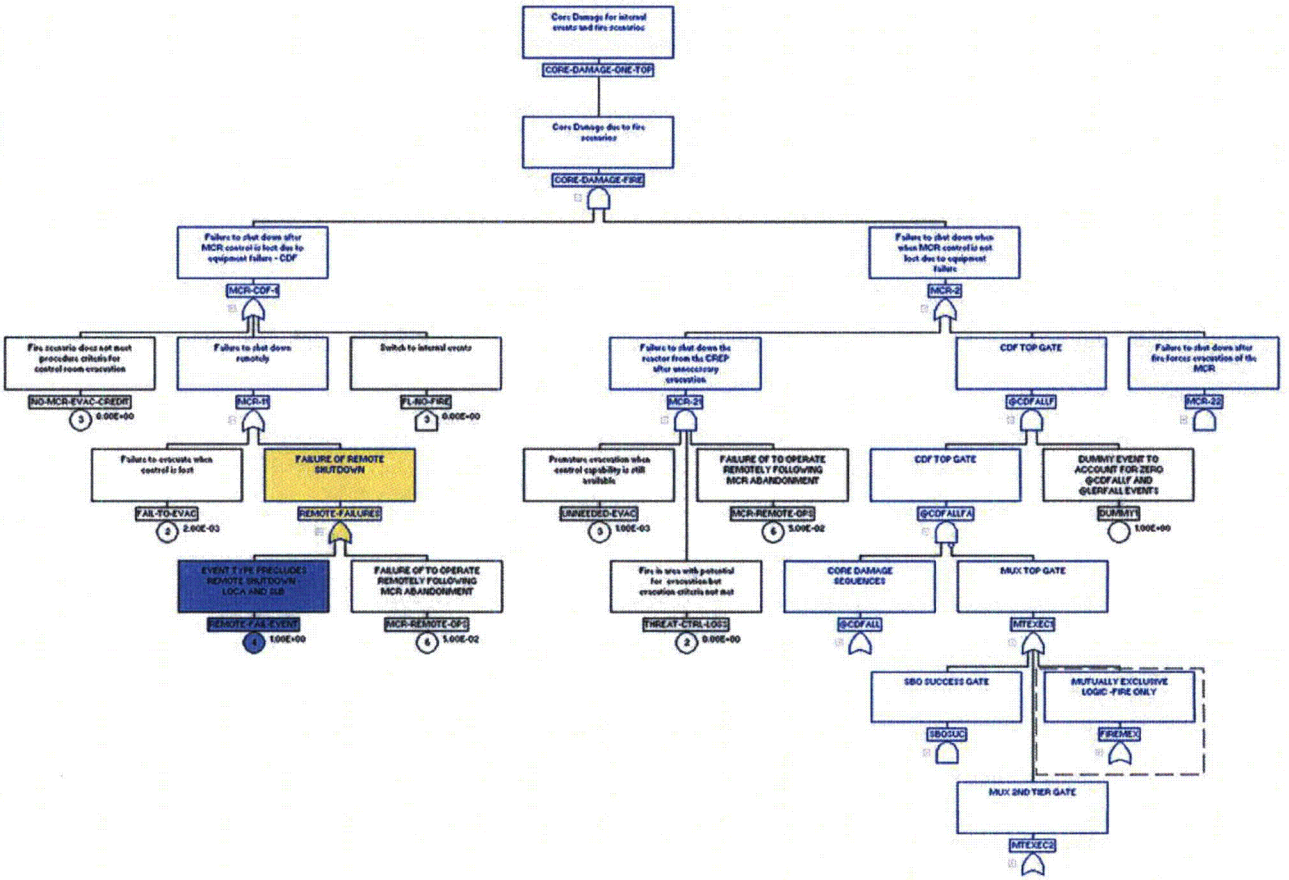
Core Damage for internal events and fire scenarios
CORE-DAMAGE-ONE-TOP
Core Damage due to fire scenarios
CORE-DAMAGE-FIRE
Failure to shut down after MCR control is lost due to equipment failure - CDF
MCR-CDF-2
Failure to shut down when MCR control is not lost due to equipment failure
MCR-2
Fire scenario does not meet procedure criteria for control room evacuation
NO-MCB-EVAC-CREDIT
0.00E+00
Failure to shut down remotely
MCR-1
Switch to internal events
FL-NO-FIRE
0.00E+00
Failure to evacuate when control is lost
FAIL-TO-EVAC
2.00E-03
FAILURE OF REMOTE SHUTDOWN
REMOTE-FAILURES
EVENT TYPE PRECLUDES REMOTE SHUTDOWN LOCA AND SLB
REMOTE-FAIL-EVENT
1.00E+00
FAILURE OF TO OPERATE REMOTELY FOLLOWING MCR ABANDONMENT
MCR-REMOTE-OPS
5.00E-02
Failure to shut down the reactor from the CREF after unnecessary evacuation
MCR-21
CDF TOP GATE
@CDFALLF
Failure to shut down after fire forces evacuation of the MCR
MCR-22
Premature evacuation when control capability is still available
UNNEEDED-EVAC
1.00E-03
FAILURE OF TO OPERATE REMOTELY FOLLOWING MCR ABANDONMENT
MCR-REMOTE-OPS
5.00E-02
CDF TOP GATE
@CDFALLFA
DUMMY EVENT TO ACCOUNT FOR ZERO @CDFALLF AND @LERFALL EVENTS
DUMMY1
1.00E+00
Fire in area with potential for evacuation but evacuation criteria not met
THREAT-CTRL-LOSS
0.00E+00
CORE DAMAGE SEQUENCES
@CDFALL
MUX TOP GATE
MTEXEC1
SBO SUCCESS GATE
SBOSUC
MUTUALLY EXCLUSIVE LOGIC -FIRE ONLY
FIREMEX
MUX 2ND TIER GATE
MTEXEC2

Table 1. Main Control Board Fire Scenarios – Results

Scenario	IGF	Updated CDF	CCDP	Updated LERF	CLERP	ΔCDF	ΔLERF
CB17.01_MCB-10-10-1	5.04E-06	8.92E-07	1.77E-01	3.33E-09	6.62E-04	-6.60E-08	-2.80E-10
CB17.01_MCB-10-6-1	4.92E-07	4.31E-07	8.76E-01	8.80E-09	1.79E-02	4.29E-07	8.80E-09
CB17.01_MCB-10-7-1	4.92E-07	4.31E-07	8.76E-01	8.80E-09	1.79E-02	4.29E-07	8.76E-09
CB17.01_MCB-10-8-1	8.21E-07	7.19E-07	8.76E-01	1.47E-08	1.79E-02	7.15E-07	1.46E-08
CB17.01_MCB-10-9-1	1.67E-06	1.29E-06	7.68E-01	3.38E-08	2.02E-02	1.28E-06	3.37E-08
CB17.01_MCB-1-1-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-11-10-1	1.67E-06	2.97E-07	1.77E-01	1.11E-09	6.62E-04	-2.20E-08	-9.00E-11
CB17.01_MCB-11-11-1	5.04E-06	1.42E-07	2.82E-02	6.01E-11	1.19E-05	6.00E-09	2.70E-12
CB17.01_MCB-11-8-1	4.92E-07	4.31E-07	8.76E-01	8.80E-09	1.79E-02	4.29E-07	8.76E-09
CB17.01_MCB-11-9-1	8.21E-07	6.31E-07	7.68E-01	1.66E-08	2.02E-02	6.27E-07	1.65E-08
CB17.01_MCB-12-10-1	8.21E-07	1.45E-07	1.77E-01	5.43E-10	6.62E-04	-1.10E-08	-4.50E-11
CB17.01_MCB-12-11-1	1.67E-06	4.71E-08	2.82E-02	2.00E-11	1.19E-05	2.00E-09	9.00E-13
CB17.01_MCB-12-12-1	5.04E-06	1.42E-07	2.81E-02	6.01E-11	1.19E-05	6.00E-09	2.70E-12
CB17.01_MCB-12-9-1	4.92E-07	3.78E-07	7.68E-01	9.93E-09	2.02E-02	3.76E-07	9.89E-09
CB17.01_MCB-13-10-1	4.92E-07	8.72E-08	1.77E-01	3.26E-10	6.62E-04	-6.40E-09	-2.60E-11
CB17.01_MCB-13-11-1	8.21E-07	2.33E-08	2.84E-02	9.89E-12	1.20E-05	1.00E-09	4.30E-13
CB17.01_MCB-13-12-1	1.67E-06	4.76E-08	2.84E-02	2.02E-11	1.20E-05	2.00E-09	9.00E-13
CB17.01_MCB-13-13-1	5.04E-06	4.27E-08	8.49E-03	1.80E-11	3.58E-06	6.20E-09	2.60E-12
CB17.01_MCB-14-11-1	4.92E-07	1.40E-08	2.84E-02	5.93E-12	1.20E-05	6.00E-10	2.60E-13
CB17.01_MCB-14-12-1	8.21E-07	2.33E-08	2.84E-02	9.89E-12	1.20E-05	1.00E-09	4.30E-13
CB17.01_MCB-14-13-1	1.67E-06	1.42E-08	8.49E-03	5.99E-12	3.58E-06	2.10E-09	8.80E-13
CB17.01_MCB-14-14-1	5.04E-06	4.27E-08	8.49E-03	1.80E-11	3.58E-06	6.20E-09	2.60E-12
CB17.01_MCB-15-12-1	4.92E-07	1.40E-08	2.84E-02	5.93E-12	1.20E-05	6.00E-10	2.60E-13

Table 1. Main Control Board Fire Scenarios – Results

Scenario	IGF	Updated CDF	CCDP	Updated LERF	CLERP	ΔCDF	ΔLERF
CB17.01_MCB-15-13-1	8.21E-07	6.97E-09	8.49E-03	2.94E-12	3.58E-06	1.02E-09	4.30E-13
CB17.01_MCB-15-14-1	1.67E-06	1.42E-08	8.49E-03	5.99E-12	3.58E-06	2.10E-09	8.80E-13
CB17.01_MCB-15-15-1	5.04E-06	3.82E-08	7.58E-03	1.61E-11	3.20E-06	6.30E-09	2.60E-12
CB17.01_MCB-16-13-1	4.92E-07	4.18E-09	8.49E-03	1.76E-12	3.58E-06	6.10E-10	2.60E-13
CB17.01_MCB-16-14-1	8.21E-07	6.97E-09	8.49E-03	2.94E-12	3.58E-06	1.02E-09	4.30E-13
CB17.01_MCB-16-15-1	1.67E-06	1.27E-08	7.58E-03	5.35E-12	3.20E-06	2.10E-09	8.80E-13
CB17.01_MCB-16-16-1	5.04E-06	3.82E-08	7.58E-03	1.61E-11	3.20E-06	6.30E-09	2.60E-12
CB17.01_MCB-17-14-1	4.92E-07	4.18E-09	8.49E-03	1.76E-12	3.58E-06	6.10E-10	2.60E-13
CB17.01_MCB-17-15-1	8.21E-07	6.22E-09	7.58E-03	2.62E-12	3.20E-06	1.01E-09	4.30E-13
CB17.01_MCB-17-16-1	1.67E-06	1.27E-08	7.58E-03	5.35E-12	3.20E-06	2.10E-09	8.80E-13
CB17.01_MCB-17-17-1	5.04E-06	2.43E-08	4.82E-03	1.02E-11	2.03E-06	-7.60E-09	-3.30E-12
CB17.01_MCB-18-15-1	4.92E-07	3.73E-09	7.58E-03	1.57E-12	3.20E-06	1.44E-09	6.07E-13
CB17.01_MCB-18-16-1	8.21E-07	6.22E-09	7.58E-03	2.62E-12	3.20E-06	2.40E-09	1.01E-12
CB17.01_MCB-18-17-1	1.67E-06	8.08E-09	4.82E-03	3.40E-12	2.03E-06	2.90E-10	1.20E-13
CB17.01_MCB-18-18-1	5.04E-06	2.34E-08	4.65E-03	9.85E-12	1.96E-06	0.00E+00	0.00E+00
CB17.01_MCB-2-1-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-2-2-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-3-1-1	1.67E-06	7.82E-09	4.67E-03	3.29E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-3-2-1	1.67E-06	7.82E-09	4.67E-03	3.29E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-3-3-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-4-1-1	1.67E-06	7.82E-09	4.67E-03	3.29E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-4-2-1	1.67E-06	7.82E-09	4.67E-03	3.29E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-4-3-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-4-4-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00

Table 1. Main Control Board Fire Scenarios – Results

Scenario	IGF	Updated CDF	CCDP	Updated LERF	CLERP	ΔCDF	ΔLERF
CB17.01_MCB-5-1-1	1.67E-06	7.82E-09	4.67E-03	3.29E-12	1.97E-06	3.00E-11	1.00E-14
CB17.01_MCB-5-2-1	1.67E-06	7.82E-09	4.67E-03	3.29E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-5-3-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-5-4-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-5-5-1	5.04E-06	2.35E-08	4.67E-03	9.90E-12	1.97E-06	0.00E+00	0.00E+00
CB17.01_MCB-6-1-1	8.21E-07	8.56E-08	1.04E-01	3.62E-11	4.41E-05	8.18E-08	3.46E-11
CB17.01_MCB-6-2-1	8.21E-07	8.56E-08	1.04E-01	3.62E-11	4.41E-05	8.18E-08	3.46E-11
CB17.01_MCB-6-3-1	1.67E-06	1.74E-07	1.04E-01	7.38E-11	4.41E-05	0.00E+00	0.00E+00
CB17.01_MCB-6-4-1	1.67E-06	1.74E-07	1.04E-01	7.38E-11	4.41E-05	0.00E+00	0.00E+00
CB17.01_MCB-6-5-1	1.67E-06	1.74E-07	1.04E-01	7.38E-11	4.41E-05	0.00E+00	0.00E+00
CB17.01_MCB-6-6-1	5.04E-06	5.25E-07	1.04E-01	2.22E-10	4.41E-05	0.00E+00	0.00E+00
CB17.01_MCB-7-1-1	8.21E-07	8.56E-08	1.04E-01	3.62E-11	4.41E-05	8.18E-08	3.46E-11
CB17.01_MCB-7-2-1	8.21E-07	8.56E-08	1.04E-01	3.62E-11	4.41E-05	8.18E-08	3.46E-11
CB17.01_MCB-7-3-1	1.67E-06	1.74E-07	1.04E-01	7.38E-11	4.41E-05	1.66E-07	7.05E-11
CB17.01_MCB-7-4-1	1.67E-06	1.74E-07	1.04E-01	7.38E-11	4.41E-05	1.66E-07	7.05E-11
CB17.01_MCB-7-5-1	1.67E-06	1.74E-07	1.04E-01	7.38E-11	4.41E-05	1.66E-07	7.05E-11
CB17.01_MCB-7-6-1	5.04E-06	5.25E-07	1.04E-01	2.22E-10	4.41E-05	5.02E-07	2.12E-10
CB17.01_MCB-7-7-1	5.04E-06	5.25E-07	1.04E-01	2.22E-10	4.41E-05	5.02E-07	2.12E-10
CB17.01_MCB-8-1-1	4.92E-07	5.25E-08	1.07E-01	7.51E-11	1.53E-04	5.02E-08	7.41E-11
CB17.01_MCB-8-2-1	4.92E-07	5.25E-08	1.07E-01	7.51E-11	1.53E-04	5.02E-08	7.41E-11
CB17.01_MCB-8-3-1	8.21E-07	8.77E-08	1.07E-01	1.25E-10	1.53E-04	8.39E-08	1.23E-10
CB17.01_MCB-8-4-1	8.21E-07	8.77E-08	1.07E-01	1.25E-10	1.53E-04	8.39E-08	1.23E-10
CB17.01_MCB-8-5-1	8.21E-07	8.77E-08	1.07E-01	1.25E-10	1.53E-04	8.39E-08	1.20E-10
CB17.01_MCB-8-6-1	8.21E-07	8.77E-08	1.07E-01	1.25E-10	1.53E-04	8.39E-08	1.20E-10

Table 1. Main Control Board Fire Scenarios – Results

Scenario	IGF	Updated CDF	CCDP	Updated LERF	CLERP	ΔCDF	ΔLERF
CB17.01_MCB-8-7-1	1.67E-06	1.79E-07	1.07E-01	2.56E-10	1.53E-04	1.71E-07	2.45E-10
CB17.01_MCB-8-8-1	5.04E-06	5.38E-07	1.07E-01	7.69E-10	1.53E-04	5.15E-07	7.36E-10
CB17.01_MCB-9-3-1	4.92E-07	4.27E-07	8.69E-01	8.37E-09	1.70E-02	4.25E-07	8.37E-09
CB17.01_MCB-9-4-1	4.92E-07	4.27E-07	8.69E-01	8.37E-09	1.70E-02	4.25E-07	8.37E-09
CB17.01_MCB-9-5-1	4.92E-07	4.27E-07	8.69E-01	8.37E-09	1.70E-02	4.25E-07	8.37E-09
CB17.01_MCB-9-6-1	8.21E-07	7.13E-07	8.69E-01	1.40E-08	1.70E-02	7.09E-07	1.39E-08
CB17.01_MCB-9-7-1	8.21E-07	7.13E-07	8.69E-01	1.40E-08	1.70E-02	7.09E-07	1.39E-08
CB17.01_MCB-9-8-1	1.67E-06	1.45E-06	8.69E-01	2.85E-08	1.70E-02	1.44E-06	2.84E-08
CB17.01_MCB-9-9-1	5.04E-06	3.78E-06	7.50E-01	9.57E-08	1.90E-02	3.76E-06	9.53E-08

PRA RAI 68

In the Generic Fire Methodology report, the transient zone describes the zone of damage from the fixed or transient ignition source. According to page 12 of 73 of this report, the transient zone bounds the effect of flame spread or propagation since an extended range of 4 feet beyond the transient zone boundaries was examined for PRA targets. Explain how the transient zone boundary takes into account fire growth over time, or propagation into adjacent transient zones via secondary combustible fires. Should the finding be that the 4 feet margin does not account adequately for these issues, the PRA should be updated accordingly.

SCE&G Response

Transient zone boundaries are conservatively established by using walk down results and qualitative criteria, such as where separation between potential targets exists. The transient ignition source is assumed to be located anywhere within the transient zone boundary, so all targets within the boundary are assumed failed. In response to a peer review comment questioning the adequacy of this strategy when the transient source is located on or near the boundary, a review of the transient fire zone of influence determined that 4 feet was a bounding distance. Therefore, the target selection boundary was expanded to include all targets outside, but within 4 feet of, the transient zone boundary.

In practice, this results in an overlap in the boundaries of transient zone areas. The resulting overlap ensures that scenarios postulated at or near a boundary would include nearby targets that are actually within a different scenario area. The overlap distance of 4 ft is justified as follows:

a. Considering the 98th percentile of a transient fire of approximately 317 kW, a damage criterion for targets of approximately 6 kW/m2, and a radiation fraction of 0.3, the radius r of the zone of influence based on flame radiation is estimated, using the methodology in Chapter 5, Section 5.3.1 of NUREG-1805, to be 1.1 m or 3.6 ft.

b. When a fixed ignition source is present in the transient zone area, there are two possibilities with regard to its location relative to the boundaries of the scenario area. First, the fixed ignition source may be completely within the boundaries and not near any of them (i.e., at least 4 ft from the boundaries). In this case, the separation from the boundary, and the fact that the space up to 4 ft from the boundaries has been examined to include nearby targets, bounds any need to assign targets outside the scenario area to fire scenarios that originate in the fixed ignition source. Second, a fixed ignition source may be located on or close to the boundary between adjacent scenario areas. This layout of scenario areas is particularly necessary in electrical rooms where electrical cabinets are targets themselves and must be accounted for in transient fire scenarios postulated on either side of the cabinets. In such cases, to capture all appropriate targets in fire scenarios that originate in the fixed ignition source, the fixed ignition source is assigned to all of the applicable adjacent scenario areas.

HLR-FSS-C of ASME/ANS RA-Sa-2009 requires the factors that relate to the timing and extent of damage be addressed. The peer review characterized all supporting requirements as met at least at Capability Category II. This further supports that the model accounts for fire growth/propagation.

Also note that if the scenario produces a hot gas layer, all targets within the fire zone are assumed failed.

In summary, the use of the 4 ft overlap for each transient scenario in conjunction with the inclusion of fixed ignition sources, located near the transient zone boundary in the adjacent transient zone, has been reviewed and found to be conservative. Therefore no PRA revision was made.