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Energy to Serve Your World<sup>SM</sup>

NL-04-0693

Docket Nos.: 50-348  
50-364

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

Joseph M. Farley Nuclear Plant  
SAMA Additional Information

Ladies and Gentlemen:

On March 30, and April 6, 2004, SNC and the NRC conducted conference calls to discuss SAMA RAI responses submitted by letter NL-04-0287, dated February 26, 2004. During these conference calls, clarifications were provided to the NRC, some of which will be relied upon to develop the Draft Environmental Impact Statement for Farley Nuclear Plant. This additional information is documented in the attached enclosure.

Mr. L. M. Stinson states he is a Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

If you have any questions, please contact Mr. C. R. Pierce (205) 992-7872.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

L. M. Stinson

Sworn to and subscribed before me this 22 day of April, 2004.

Notary Public

My commission expires: 6-7-05



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LMS/JTD/slb

Enclosure:

cc: Southern Nuclear Operating Company  
Mr. J. B. Beasley, Jr., Executive Vice President  
Mr. D. E. Grissette, General Manager – Plant Farley (w/ enclosure)  
RTYPE: CFA04.054; LC# 14019

U. S. Nuclear Regulatory Commission  
Mr. J. S. Cushing, Environmental Project Manager (w/ enclosure)  
Mr. R. L. Palla Jr., Senior Reactor Engineer (w/ enclosure)  
Mr. L. A. Reyes, Regional Administrator  
Mr. S. E. Peters, NRR Project Manager (w/ enclosure)  
Mr. C. A. Patterson, Senior Resident Inspector – Farley

Alabama Department of Public Health  
Dr. D. E. Williamson, State Health Officer

**Joseph M. Farley Nuclear Plant Units 1 and 2 –  
Application for License Renewal  
Conference Call Additional Information on NL-04-0287 SAMA RAI Responses**

**Enclosure**

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**Enclosure**

**RAI 1c - It is not clear what the baseline PRA for SAMA assumed regarding the time the clapper valve was open. Based on this response it seems to be 102 hours/y (versus 1489 hours/year in Rev 5). However, the analysis of SAMA 118 in the ER suggests that the baseline PRA for SAMA used 1489 hours/year. Please explain.**

**Response:** The description of the model changes in the Application Environmental Report under Section 5.8 of Attachment F should read as follows:

**Model changes:** This SAMA would reduce the likelihood of the clapper valve being in an open position. The baseline SAMA model assumes that the clapper valve is open 1.2 percent of the year (i.e., 105.12 hours per year). This sensitivity assumes that the valve is open only 0.12 percent of the year (i.e., 10.5 hours per year). Event SAMA-FLD3-SENS was added under fault tree gate %FFLOOD3-INIT to represent this improvement in the amount of time the clapper is open. SAMA-FLD3-SENS was assumed to have a probability of 0.1 and is ANDed with basic event 1FPCL1A-43---O with a value of 0.012.

**RAI 1i - The total person-rem/year based on the table presented is 1.478, whereas the value used in the SAMA analysis is 1.214. Please resolve this discrepancy.**

**Response:** The following table presents a breakdown, by containment release mode, of the population dose risk in person-rem per year within 50 miles of FNP.

<b><u>CONTAINMENT RELEASE MODE</u></b>	<b><u>POPULATION DOSE (PERSON-REM/YEAR)</u></b>
SGTR	4.55E-02
ISLOCA	6.95E-01
Containment Isolation Failure	1.67E-01
Early Containment Failure	0.00E+00
Late Containment Failure	6.19E-02
No Containment Failure	2.45E-01
Total	1.214E+00

**RAI 5d - Many of the candidate SAMAs cited as addressing the identified risk contributors are indicated (in ER Table F-10) to already be implemented. If these SAMAs were in fact implemented and the related risk contributor is still dominant, then further SAMAs should have been considered. Three of the dominant risk contributors (Items R15-F01, E21-F11, and ORC\_A\_1) effectively have not been addressed by any SAMAs since the referenced SAMAs are either already implemented or (in the case of SAMA 66) eliminated on the basis of an inappropriate cost estimate (see RAI 10f). Additional justification is needed to support a conclusion that the set of SAMAs considered addressed the dominant risk contributors.**

**Response:** The only high contributors for which all analyzed SAMAs have previously been implemented are E21-F11 and ORC\_A\_1-----H. To lower the risk contribution from E21-F11, the capacity of the charging system would have to be increased by addition of additional pumps and/or flowpaths for delivery of water to the RCS. This would not be cost beneficial and was therefore not proposed. With respect to ORC\_A\_1-----H, this action was conservatively modeled in the IPE HRA analysis and therefore the importance of the action is considered to be inflated. Because of the short time window available for performance of this action, additional operator training beyond that already being performed will not significantly affect the importance of this action. The only improvements possible to address this item, other than increased operator training, would be replacement of the Reactor Coolant Pump motors with a design which does not require external support for bearing cooling or addition of an automatic control system to trip the Reactor Coolant Pumps on loss of flow to the oil coolers. Replacement of the pump motors would clearly not be cost beneficial and was not proposed. Addition of an automatic trip function on loss of cooling would introduce a new risk of plant trip due to control system malfunction and was therefore not proposed.

**RAI 10f - SAMA 66 involves developing procedures to replace failed breakers, and pre-staging the necessary replacement breakers. The cost estimate of \$7 million is based on replacing all breakers at both units, and is not what is intended for this SAMA. This same SAMA has been evaluated in previous SAMA analyses and its cost was estimated at about \$50K. This SAMA should be screened in and further evaluated. The point of this SAMA is to have procedures and spare breakers in place to assure that individual breakers that may fail during an event can be replaced in a timely manner.**

**Response:** The new breaker design is a better more reliable design and will reduce the risk associated with the breaker failure rate. FNP has procedures for replacing 4kV breakers and OPS and Maintenance staff are routinely trained on these procedures. In addition, spare breakers are available on the plant site.

**RAI 11 - This question asked about lower cost alternatives that are available in lieu of the high cost modifications evaluated. For SAMA 58, the suggested low cost alternative is a portable battery charger (generator) that would be independent of existing systems and connected during an event. The RAI response addressed a permanently installed charger, and did not consider the benefit that the diesel-driven charger would have in those events in which with existing spare battery chargers would not be functional. Please reconsider the costs and benefits for this alternative.**

**For SAMA 107, the suggested low cost alternative is a diesel-driven power source to supply the existing MDAFW pump. The cost for such a modification has been estimated elsewhere to be around \$200K - \$300K, which is less than the FNP benefit of about \$500K. Please evaluate the costs associated with using a diesel driven power source to power the existing MDAFW pump.**

**Response: Diesel Generator to Power a Motor-Driven AFW Pump (alternative to SAMA 107)**

Replacement of the motor on one of the MDAFWP with a diesel engine is not feasible due to the location of the pump in the plant (lower equipment room, 100' elevation, non-rad side, no access for installation), space available in the pump room (physically not enough room) and the need for engine fuel, air and cooling.

An appropriately sized generator to energize one of the existing motors would not be portable due to its physical size and weight, and would need to be permanently installed. Due to plant configuration, the generator would be located at-grade, external to the auxiliary building. About 100 feet of large conductor cabling would be needed to connect the generator to the MDAFW pump motor, which is about 50 feet below grade and inside watertight doors. Safety-related switchgear and disconnects would also be needed. Costs for modifications of this scope will easily exceed the \$500k FNP benefit. The original estimate for SAMA 107 of \$2.2 million is based on the configuration of FNP.

**Response: Diesel-driven battery charger (alternative to SAMA 58)**

The battery rooms at FNP are located in the Auxiliary Building approximately 30' below grade. The access to the battery rooms is through narrow hallways and doors, limiting the capability for moving portable equipment into the battery rooms. As with the MDAFWP, an appropriately sized charger would not be portable and would have to be permanently installed. Due to plant configuration, the new charger would have to be located outside the Auxiliary Building and be connected via new safety-related switch gear and several hundred feet of new safety-related cables permanently installed for this application. Costs for modifications of this scope will easily exceed the \$500k FNP benefit.

**RAI 12c - The majority of the cost for SAMA 11 (which appears to be about \$460K) is attributed to running a new small bore line through the aux bldg and adding a few isolation MOVs. Provide a breakout of the cost for the small bore pipe, e.g., how many feet of piping.**

**Response:** For this SAMA to be effective, the hydro test pump must be aligned for seal injection within 15 minutes of an accident. To meet this requirement, alignment must be achieved remotely. Necessary modifications to facilitate this include installation of three safety-related MOVs, installation of approximately 100 to 150 feet of seismically supported ANSI class piping which would run through the auxiliary building, and installation of several hundred feet of safety-related conduit and cabling to energize and control the remotely-actuated MOVs. The majority of cost would be associated with the conduit and control cabling to the MOVs due to length of the runs from the MOVs, through the auxiliary building to the cable spreading room and into the control room.

**RAI 12d - Rather than rely on room temperature as an entry condition, please address the feasibility of an event-based procedure to address room cooling in lieu of the hardware changes proposed under SAMA 24. The procedure would be entered upon loss of HVAC and involve actions to address high room temperatures that are anticipated following loss of HVAC (such as opening doors). The procedure would not require new instrumentation, and would appear to be cost-beneficial for FNP. If such a procedure were developed, what would be the associated cost and benefits? Are there reasons why the doors cannot be opened (e.g., flooding barrier)?**

**Response:** The room coolers for ESF equipment are already equipped with Fan Fault alarms to alert operators to a loss of room cooling due to mechanical or electrical faults in the HVAC fan. The Annunciator Response Procedures for these fan fault alarms direct the operators to monitor room temperatures and establish temporary ventilation if needed to maintain temperatures within qualification limits. Therefore, this SAMA has been implemented for HVAC fan fault events. The analysis that was performed for this SAMA was to install additional protection against localized loss of SW flow to the ESF room coolers by adding monitoring of room temperatures and providing this input to the existing Fan Fault alarms

**C-B SAMAs - SAMAs 11 and S166 have a positive net value when risk reduction from external events is considered (Table 8d), and an even greater net value when a lower discount rate or the impact of uncertainties are considered. SAMAs 24 and 66 would also have a positive net benefit given more appropriate implementation costs. In addition, SAMA 7 has a positive net value when uncertainties are considered. Given their positive net value, please discuss any plans and schedules for further evaluating or implementing these cost-beneficial SAMAs under the current operating license.**

**Response:** SNC currently has plans to implement the procedure change described by S166 in the near future. However, SAMA S166 is outside the scope of license renewal since it is not related to aging management issues. SNC will periodically evaluate SAMAs 7 and 11 for implementation, since they were identified as being cost-beneficial through additional RAI analysis. The NRC clarified their intent of SAMAs 24 and 66 in the telephone conversations of March 30 and April 6, 2004. Based on these discussions, as indicated in the response for 10f and 12d, actions to address SAMAs 24 and 66 have already been implemented at Farley Nuclear Plant.