

November 18, 2005

Ms. Leslie Fields  
Project Manager  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Mail Stop O-11F1  
Washington, DC 20555

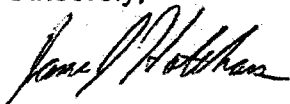
SUBJECT: Supplement to "Response to NRC Request for Additional Information Dated August 24, 2005 relating to License Renewal for the Palisades Nuclear Plant", dated October 21, 2005, (Accession Number ML052990316) and telecon on November 10, 2005.

Dear Ms. Fields,

Enclosed, please find information addressing your inquiries to Palisades Nuclear Plant responses to NRC RAIs submitted on October 21, 2005 (Accession Number ML05299036) and telecon on November 10, 2005 concerning the Severe Accident Mitigation Alternatives reviewed in the Environmental Report.

If you have any questions or concerns, please contact me at 715-377-3380.

Sincerely,



James Holthaus  
Environmental Project Manager  
Palisades Nuclear Plant  
Nuclear Management Company, LLC

## Enclosure 1

**NRC E-Mail: 3.c.i** - NMC response is that the importance list did not disclose any instances where the level of redundancy for actuation logic was an issue. Why was this the case? Did the NMC model evaluate this redundancy and determine it wasn't important or does the NMC model not evaluate this redundancy?

### NMC Response to 3.c.i

Why certain events at other units have importance measures that meet the criteria they have established for screening and do not meet the criteria for another plant, would require an in depth evaluation of the design of their systems and their interactions to understand the differences. The PRA model includes the redundancy in the logic as it exists for Palisades. Events that result in failure of the logic did not meet the criteria ( $RRW > 1.01$ ) established for screening in the Palisades SAMA analysis. AFAS Logic is modeled however, it screens out.

**NRC E-Mail: 3.c.iii** - NMC response is that at time of CST depletion it is possible to align the power to this equipment to a safety related power supply that would be supplied by a diesel generator. This response suggests that this SAMA is applicable to Palisades. Does this mean that NMC will investigate the benefits of developing a procedure to do this and, if beneficial, add it to the Palisades Severe Accident Management Guidelines?

### NMC Response to 3.c.iii

Current Palisades design does include automatic makeup from the demineralized water tank (T-939) to the condensate storage tank (CST) (T-2). The alignment of power exists in procedure guidance. The required actions are included in Off-Normal procedure 2.1, Revision 12, "Loss of AC Power," Attachment 2 "Restoring P-936 To Service During Loss Of Offsite Power." Pump P-936 is the pump that provides the makeup function to Condensate Storage Tank (T-2).

**NRC E-Mail: 7.d** - NMC response provided an estimate of the cost of a new dedicated cooling loop to serve as the primary source of EDG cooling. The response is confusing because SAMA 18 already evaluated the cost of a dedicated pump and line for EDG cooling. How is the RAI response cost estimate different than the SAMA 18 estimate? Is the RAI response cost estimate for a permanent or temporary line? It is still not clear whether it is feasible to install an additional line or temporary connection directly from the FPS (by-passing the SW lines).

### NMC Response to 7.d

Palisades will conduct an evaluation to identify a lower cost alternative to the proposed permanent diesel generator cooling line discussed in SAMA 18. An action to document the evaluation has been entered into the corrective action system. If an appropriate cost-benefit as defined in the Environmental Report is calculated this SAMA would be evaluated according to the plant's design processes.

**NRC E-Mail: 7.e-iii and 7.e-viii** - Clarify what is meant in the last sentence of the responses to these RAIs (i.e., that the respective failures did not meet the criteria for SAMA consideration).

### NMC Response to 7.e-iii

Palisades' PRA model was reviewed to identify plant specific components that were the same or performed the same function for the referenced plant. The importance of Palisades' plant specific events for equivalent equipment (basket strainers) or conditions (thermally induced failure of steam generator tubes) did not meet the criteria ( $RRW > 1.01$ ) for consideration of SAMA for Palisades.

Thermally induced failure of steam generator tubes did not meet the criteria for consideration of SAMA for Palisades. This event screened out.

### NMC Response to 7.e-viii

## Enclosure 1

The Palisades PRA model was reviewed to identify plant specific components that were the same or performed the same function for the referenced plant. The importance of Palisades' plant specific events for equivalent equipment (basket strainers) or conditions (thermally induced failure of steam generator tubes) did not meet the criteria ( $RRW > 1.01$ ) for consideration of SAMA for Palisades.

The Palisades modeled basket strainers screened out. Therefore any back flush device would also screen out.

**NRC E-Mail: 7.e-iv** - Is it accurate to characterize NMC's response as a commitment to further evaluate the SAMA (flashing the EDG field) as an additional, potentially-cost-beneficial SAMA?

### NMC Response to 7.e-iv

NMC agreed to review this SAMA. This SAMA has been entered into the Palisades corrective action system for further review.

**NRC E-Mail: 7.e-ix** - NMC response provided a cost estimate to replace one of the containment sump AOVs with an MOV. This response suggests that the SAMA is applicable to Palisades. Based on the cost estimate, is the SAMA cost beneficial? (This can't be determined from the response because a risk reduction and benefit estimate was not provided.)

### NMC Response to 7.e-ix

Palisades will conduct an evaluation to determine the potential risk reduction and cost benefit of the installation of a diverse valve operator to one of the containment sump valves. An action to document the evaluation has been entered into the corrective action system. If an appropriate cost-benefit as defined in the Environmental Report is calculated this SAMA would be evaluated according to the plant's design processes.

During the telecon with the NRC on 11/10/2005, the issue of a lower cost alternative to the installation of a new diesel generator discussed in SAMA 1 was raised for further consideration. The plant's position is that a lower cost alternative (SAMA 10) has already been identified. While SAMA 1 was intended to address the broad class of Loss of Offsite Power (LOOP) events that contribute to the Palisades core damage frequency, approximately eighty-seven percent of the core damage frequency from LOOP events is associated with the dominant station blackout scenario. For this scenario the turbine-driven pump is operating, offsite power is not recovered within 4 hours, and battery depletion occurs at four hours. Under these conditions core damage is assumed to occur due to the potential to overfill a steam generator and fail the turbine-driven pump. SAMA 10 was developed as a mitigating strategy to deal specifically with this station blackout scenario. Therefore, SAMA 10 is a lower cost alternative that will provide a significant percentage of the expected benefit of SAMA 1.

In addition, the following information was obtained regarding the installation of non-safety commercially procured diesel generators at the DC Cook (COOK) plant. Two non-safety grade diesel generators will be installed with connections to an existing non-safety off-site bus. Both diesels are required to support one division of power (each diesel is rated at about 2450 KW). The original intent of the modification was to provide an alternate power source to provide cooling to the COOK reactor coolant pump seals (which is not a significant issue with Combustion Engineering (CE) seals). However, the modification evolved to supporting eight different LOOP configurations as well as extending different system Tech Spec AOTs. The cost of the diesel units is currently in the range of 5 to 7 million dollars (unofficial and not final).

It is considered that a single diesel may be sufficient for Palisades. However, engineering would be required to support the Palisades EDG 1-1 and EDG 1-2 initial loading requirements of about 2529 KW and 2630 KW, respectively (note that according to COOK personnel an upgrade of the 2450 KW design to a higher rated value was a significant cost increase).

Assuming a single diesel would be sufficient, an equivalent cost to Palisades would be on the order of 2.5 to 3.5 million for a single unit plus an undefined cost of a connection capability from a non-safety to a safety system. Additionally the connection would have to be capable of supplying either of the safety buses depending on which diesel generator failed or was unavailable. It is expected that the cost of the

## **Enclosure 1**

Connection will significantly increase the total cost of the installation of a non-safety diesel generator. Moreover, the engineering costs justifying a single diesel would contribute to the overall expense as well. As noted above, implementation of SAMA 10 would offset a portion of the benefit related to SAMA 1.

Palisades will conduct an evaluation to determine the potential risk reduction and cost benefit of the installation of a non-safety diesel generator as a lower cost alternative to SAMA 1 subsequent to the evaluation of SAMA 10. An action to document the evaluation has been entered into the corrective action system. If an appropriate cost-benefit as defined in the Environmental Report is calculated, this SAMA would be evaluated in accordance with Palisades Plant design processes.