

PSEG Nuclear LLC  
P.O. Box 236, Hancocks Bridge, NJ 08038-0236



Order EA-12-049

LR-N14-0173

**JUL 31** 2014

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

Salem Generating Station Unit 1  
Renewed Facility Operating License No. DPR-70  
NRC Docket No. 50-272

Subject: PSEG Nuclear LLC's Request for Relaxation from NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" – Salem Generating Station Unit 1

References:

1. NRC Order Number EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012
2. PSEG Letter LR-N13-0034, "PSEG Nuclear LLC's Overall Integrated Plan for the Salem Generating Station in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 28, 2013
3. Westinghouse Nuclear Safety Advisory Letter NSAL 14-1, "Impact of Reactor Coolant Pump No. 1 Seal Leakoff Piping on Reactor Coolant Pump Seal Leakage During a Loss of All Seal Cooling," dated February 10, 2014

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Order EA-12-049 (Reference 1) to PSEG Nuclear LLC (PSEG). NRC Order EA-12-049 was immediately effective and directed PSEG to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. This letter

transmits a request for relaxation from the requirements of NRC Order EA-12-049 for Salem Generating Station (SGS) Unit 1.

As described in the Overall Integrated Plan (Reference 2), the SGS mitigation strategies are based on generic Westinghouse reactor coolant pump (RCP) seal leakage rates. In response to Westinghouse Nuclear Safety Advisory Letter (NSAL) 14-1 (Reference 3), Westinghouse has conservatively re-calculated leakage rates applicable to SGS and determined that they are not enveloped by the generic leakage values. PSEG is in the process of evaluating options to reduce RCP seal leakage rates, which are part of the technical bases for demonstrating SGS compliance with the requirements of NRC Order EA-12-049. The current schedule requirement for SGS Unit 1 implementation of NRC Order EA-12-049 is prior to restart from the 23<sup>rd</sup> refueling outage (S1R23) in Fall 2014. The requested relaxation would defer full implementation of NRC Order EA-12-049 by one refueling outage, i.e., prior to restart from S1R24 in Spring 2016. The requested relaxation would enable PSEG to develop and implement plant changes to reduce RCP seal leakage rates to values that are compatible with the assumptions of the SGS mitigation strategies. PSEG is proceeding with completion of other design, equipment procurement and programmatic changes to support the ability to implement the SGS Unit 1 mitigation strategies.

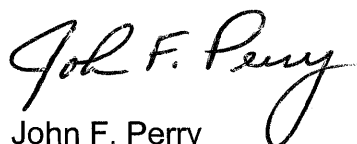
In accordance with Section IV of NRC Order EA-12-049, PSEG requests the Director, Office of Nuclear Reactor Regulation to relax the schedule requirement for full implementation prescribed by Condition IV.A.2 of the Order for the reasons provided in Attachment 1 to this letter. PSEG considers that the requested relaxation would constitute a change in the implementation schedule requirements of NRC Order EA-12-049 for SGS Unit 1. There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact Mr. Brian J. Thomas at 856-339-2022.

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

Executed on 7/31/2014  
(Date)

Sincerely,



John F. Perry  
Vice President – Salem

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Attachment 1: Salem Generating Station Unit 1 Request for Relaxation from NRC  
Order EA-12-049, "Order Modifying Licenses with Regard to  
Requirements for Mitigation Strategies for Beyond-Design-Basis  
External Events"

cc: Director of Office of Nuclear Reactor Regulation  
Administrator, Region I, NRC  
Mr. J. Lamb, Project Manager, NRC  
NRC Senior Resident Inspector, Salem  
Mr. P. Mulligan, Manager IV, NJBNE  
Salem Commitment Tracking Coordinator  
PSEG Corporate Commitment Coordinator

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***(The bcc list should not be submitted as part of the DCD submittal - remove this page prior to submittal and make the bcc distribution accordingly)***

bcc: President and Chief Nuclear Officer  
Senior Vice President and Chief Operating Officer  
Vice President - Salem  
Vice President - Operations Support  
Director - Nuclear Oversight  
Director - Regulatory Affairs  
Plant Manager - Salem  
Senior Project Manager – Fukushima Site Improvements Project  
Manager - Regulatory Assurance - Salem  
Manager - Licensing  
Document Control

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**Attachment 1**

**Salem Generating Station Unit 1 Request for Relaxation from NRC  
Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for  
Mitigation Strategies for Beyond-Design-Basis External Events"**

**Salem Generating Station Unit 1  
PSEG Nuclear LLC**

## **Relaxation Request**

In accordance with Section IV of NRC Order EA-12-049 (Reference 1) PSEG hereby requests relaxation of the Order requirement for Salem Generating Station (SGS) Unit 1 to complete full implementation by no later than two refueling cycles after submittal of the overall integrated plan required by Condition C.1.a of the Order, or December 31, 2016, whichever comes first.

## **Order Requirement from Which Relaxation is Requested**

Condition IV.A.2 of NRC Order EA-12-049 requires full implementation of the Order requirements by no later than two refueling cycles after submittal of the overall integrated plan required by Condition C.1.a, or December 31, 2016, whichever comes first. For SGS Unit 1, the current requirement for full implementation of NRC Order EA-12-049 is prior to restart from Salem 1 Refueling Outage 23 (S1R23) in Fall 2014. PSEG requests relaxation of Condition IV.A.2 for Salem Unit 1, to defer full implementation with the Order until prior to restart from the S1R24 outage in Spring 2016.

## **Justification for Relaxation Request**

As described in the SGS Overall Integrated Plan (Reference 2) for compliance with NRC Order EA-12-049, the mitigation strategies depend on generic evaluations in WCAP-17601 (Reference 3) that apply to Westinghouse four loop pressurized water reactor designs. A maximum reactor coolant pump (RCP) seal leakage rate of 21 gpm per pump is one of the WCAP-17601 assumptions that was used in development of the SGS mitigation strategies. Subsequent Westinghouse evaluations of RCP seal leakage in response to Nuclear Safety Advisory Letter (NSAL) 14-1 (Reference 4), indicate that the generic leakage rates in WCAP-17601 do not envelope calculated leakage rates applicable to the SGS design. PSEG is evaluating options to reduce RCP seal leakage to support the technical bases of the mitigation strategies, including plant modifications to increase the seal leakoff line resistance.

The revised RCP seal leakage rates affect the ability of SGS to fully implement the requirements of NRC Order EA-12-049 prior to restart from S1R23 in Fall 2014. The most likely option to reduce seal leakage at SGS Unit 1 is the installation of an orifice in each of the four RCP seal leakoff lines. The requested relaxation would allow for the completion of the design, engineering analysis, procurement, installation, and procedure changes associated with the reduction in RCP seal leakage.

PSEG is concurrently proceeding with the other design changes, equipment procurement and programmatic changes to implement the SGS Unit 1 mitigation strategies. Full compliance with the requirements of NRC Order EA-12-049 requires a reduction in RCP seal leakage, which PSEG is planning to complete during the S1R24 outage in Spring 2016.

The proposed date for full implementation of NRC Order EA-12-049 remains within the December 31, 2016 date in Order Condition IV.A.2. Based on current regulatory requirements and plant capabilities, a sequence of events similar to those encountered at the Fukushima Dai-ichi station is considered to be unlikely to occur in the United States. Therefore, the proposed schedule relaxation for full implementation of NRC Order EA-12-049 does not adversely affect nuclear safety or involve any significant increase in risk.

Accordingly, PSEG requests that the NRC Order EA-12-049, Condition IV.A.2, full implementation milestone for SGS Unit 1 be relaxed to prior to restart from S1R24 in Spring 2016.

### **Conclusion**

Full compliance with the mitigation strategy implementation schedule requirements of NRC Order EA-12-049 at SGS Unit 1 would result in hardship or unusual difficulty without a compensating increase in the level of safety. Therefore, in accordance with Section IV of NRC Order EA-12-049, PSEG requests relaxation of the schedule requirement described in Condition IV.A.2 of NRC Order EA-12-049, to allow full implementation of NRC Order EA-12-049 to be completed prior to restart from SGS Unit 1 Refueling Outage 24 in Spring 2016.

### **References**

1. NRC Order Number EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events," dated March 12, 2012
2. PSEG Letter LR-N13-0034, "PSEG Nuclear LLC's Overall Integrated Plan for the Salem Generating Station in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 28, 2013
3. Westinghouse Report WCAP-17601-P, Revision 0, "Reactor Coolant System Response to the Extended Loss of AC Power Event for Westinghouse, Combustion Engineering and Babcock & Wilcox NSSS Designs," dated August 2012
4. Westinghouse Nuclear Safety Advisory Letter NSAL 14-1, "Impact of Reactor Coolant Pump No. 1 Seal Leakoff Piping on Reactor Coolant Pump Seal Leakage During a Loss of All Seal Cooling," dated February 10, 2014