

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



Order EA-12-049

LR-N14-0187

AUG 26 2014

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

Salem Generating Station Units 1 and 2
Renewed Facility Operating License Nos. DPR-70 and DPR-75
NRC Docket Nos. 50-272 and 50-311

Subject: PSEG Nuclear LLC's Third Six-Month Status Report 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)

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. PSEG Letter LR-N13-0175, "PSEG Nuclear LLC's First Six-Month Status Report 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 August 25, 2013

4. PSEG Letter LR-N14-0027, "PSEG Nuclear LLC's Second Six-Month Status Report 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 25, 2014
5. PSEG letter, "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," dated July 31, 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. In accordance with Condition IV.C.1.a of NRC Order EA-12-049, PSEG submitted an Overall Integrated Plan (OIP) for the Salem Generating Station (SGS) Units 1 and 2, on February 28, 2013 (Reference 2). Condition IV.C.2 of NRC Order EA-12-049 requires six-month status reports to delineate the progress made in implementing the requirements of the Order. References 3 and 4 provided the first and second six-month status reports, respectively, for SGS Units 1 and 2. Enclosure 1 to this letter provides the third six-month status report of progress made in implementing the requirements of NRC Order EA-12-049 at SGS Units 1 and 2, as of July 31, 2014.

By letter dated July 31, 2014 (Reference 5), PSEG requested relaxation of the schedule requirements of NRC Order EA-12-049 for Salem Unit 1, to allow time for implementation of plant changes to reduce reactor coolant pump seal leakage, which is part of the technical bases for the SGS mitigation strategies. This need for schedule relaxation is described in Section 5 of Enclosure 1.

AUG 26 2014

Order EA-12-049

Page 3
LR-N14-0187

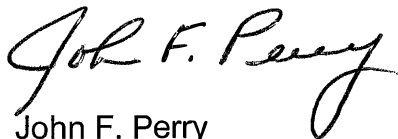
There are no regulatory commitments contained in this letter.

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

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

Executed on 8/26/2014
(Date)

Sincerely,



John F. Perry
Vice President – Salem

Enclosure 1: Salem Generating Station Units 1 and 2 Third Six-Month Status Report for the Implementation of 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
Project Manager, NRC
NRC Senior Resident Inspector, Salem
Mr. P. Mulligan, Manager IV, NJBNE
Salem Commitment Tracking Coordinator
PSEG Corporate Commitment Coordinator

AUG 26 2014

Order EA-12-049

Page 4

LR-N14-0187

(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

ENCLOSURE 1

LR-N14-0187

**Salem Generating Station Units 1 and 2 Third Six-Month Status Report for the
Implementation of Order EA-12-049, Order Modifying Licenses with Regard to
Requirements for Mitigation Strategies for Beyond-Design-Basis External Events**

**Salem Generating Station Units 1 and 2
PSEG Nuclear LLC**

1 Introduction

PSEG Nuclear LLC (PSEG) developed an Overall Integrated Plan (OIP) (Reference 1) for the Salem Generating Station (SGS) Units 1 and 2, documenting the diverse and flexible coping strategies (FLEX) in response to NRC Order EA-12-049 (Reference 2). References 3 and 4 transmitted the first and second SGS FLEX six-month status reports, respectively. This report is the third six-month status report, which provides implementation status as of July 31, 2014. This update follows the guidance in Section 13.2 of Nuclear Energy Institute (NEI) Report 12-06 (Reference 5), which states that the six-month status reports should include an update of milestone accomplishments since the previous report, changes to the compliance method, schedule, and the need for relief and the basis for relief, if applicable. Sections 2 and 3 of this status report include milestone accomplishments and milestone schedule status, respectively. Section 4 identifies changes to the method of compliance with NEI 12-06. Section 5 describes the request for schedule relaxation (Reference 6) for Salem Unit 1 associated with reactor coolant pump seal leakage.

2 Milestone Accomplishments

The following milestones have been completed since the development of the SGS FLEX OIP, and are current as of July 31, 2014.

- Submit Integrated Plan: PSEG submitted the SGS FLEX OIP to the NRC.
- Develop FLEX Strategies: PSEG has developed SGS Units 1 and 2 FLEX strategies as described in the SGS FLEX OIP and has identified design, analysis, procurement, and programmatic actions necessary to achieve compliance with Order EA-12-049. Changes to the FLEX strategies involving changes to methods of compliance with NEI 12-06 are described in Section 4.
- Perform Staffing Analysis – PSEG completed an analysis of the staff needed to implement the SGS FLEX strategies during a beyond-design-basis external event, and transmitted the staffing assessment report to the NRC via Reference 7.
- Develop Training Plan – PSEG developed training materials and schedules, and has begun training personnel on the SGS mitigation strategies.

3 Milestone Schedule Status

The following table provides an update of SGS FLEX OIP milestones. The table provides the milestone activity status and indicates whether the original expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed. The revised milestone target completion dates reflect the pending NRC Order EA-12-049 compliance schedule relaxation request for Salem Unit 1 (Reference 6).

Milestone	Original Target Completion Date	Activity Status	Revised Target Completion Date
Submit Overall Integrated Plan	Feb 2013	Complete	
Six-Month Status Update	Aug 2013	Complete	
	Feb 2014	Complete	
	Aug 2014	Complete	
	Feb 2015	Not Started	
	Aug 2015	Not Started	
Feb 2016	Not Started		
Develop Strategies	May 2013	Complete	
Modifications			
Develop Modifications – Unit 1	Dec 2013	Started	Aug 2014 See Section 5
Implement Modifications – Unit 1	Oct 2014	Started	Nov 2014 See Section 5
Develop Modifications – Unit 2	Dec 2013	Started	Jan 2015
Implement Modifications – Unit 2	Oct 2015	Not Started	Nov 2015
Flex Support Guidelines (FSGs)			
Develop FSGs – Unit 1 (Note 1)	Dec 2013	Started	Nov 2014
Validation Walk-throughs or Demonstrations of FLEX Strategies and Procedures – Unit 1 (Note 2)	Nov 2014	Not Started	
Develop FSGs – Unit 2 (Note 1)	Dec 2013	Started	Nov 2015
Validation Walk-throughs or Demonstrations of FLEX Strategies and Procedures – Unit 2 (Note 2)	Nov 2015	Not Started	
Perform Staffing Analysis (Note 3)	Dec 2013	Complete	Jun 2014
Develop Training Plan	Jun 2014	Complete	

Milestone	Original Target Completion Date	Activity Status	Revised Target Completion Date
Implement Training			
Unit 1 Training	Dec 2014	Started	Nov 2014
Unit 2 Training	Dec 2014	Started	Nov 2015
Develop Strategies/Contract with Regional Response Center (RRC)	Oct 2013	Started	Oct 2014
Procure Equipment			
Unit 1 Procurement	Dec 2013	Started	Oct 2014
Unit 2 Procurement	Dec 2013	Started	Jun 2015
Create Maintenance Procedures	May 2014	Started	Nov 2014
Emergency Preparedness (EP) Communications Improvements (Note 4)	Jun 2014	Started	Nov 2014
Unit 1 Implementation Outage	Oct 2014	Not Started	Nov 2014 See Section 5
Unit 1 Report to NRC When Full Compliance is Achieved (Note 5)	Feb 2015	Not Started	Aug 2016
Unit 2 Implementation Outage	Oct 2015	Not Started	Nov 2015
Unit 2 Report to NRC When Full Compliance is Achieved	Feb 2016	Not Started	

Section 3 Table Notes

- 1) Draft FSGs have been developed. The Salem Unit 1 milestone of November 2014 and Unit 2 milestone of November 2015 reflect final approval and issuance during the respective unit refueling outages.
- 2) The validation walk-through milestone is not specifically identified in the SGS FLEX OIP milestone schedule, but is added here as a follow-up to the milestone for development of FSGs.
- 3) The SGS FLEX staffing assessment report was transmitted to the NRC via Reference 7, as required by the 10 CFR 50.54(f) information request dated March 12, 2012 (Reference 8).

Section 3 Table Notes (continued)

- 4) The original EP communications improvement milestone is the target completion date associated with the milestone to complete installation, procedure revision, and training for satellite phone base units and antennae (Reference 9). The revised milestone is based on PSEG's regulatory commitment in Reference 10, to complete communications improvements prior to restart from the Salem Unit 1, 23rd Refueling Outage (S1R23) in Fall 2014.
- 5) The Salem Unit 1 milestone for affirming full compliance with NRC Order EA-12-049 is consistent with the pending schedule relaxation request to address reactor coolant pump seal leakage (Reference 6).

4 Changes to Compliance Method

PSEG has made changes to the method of compliance with NEI 12-06 subsequent to the February 2014 status report (Reference 4). These changes continue to meet the requirements of NRC Order EA-12-049, as summarized below.

The SGS Phase 1 strategy is based on an alternative to initial conditions 1 and 3 of NEI 12-06 Section 3.2.1.3. Initial condition 1 states that no specific initiating event is used, and initial condition 3 states "Cooling and makeup water inventories contained in systems or structures with designs that are robust with respect to seismic events, floods, and high winds, and associated missiles are available." The SGS FLEX strategy includes event-dependent consideration of cooling water availability, e.g., the Seismic Class I auxiliary feedwater storage tank (AFST) is assumed to remain available following a seismic event, but may become unavailable due to tornado missile damage. Based on the capability to align diverse water supplies depending on the specific hazard, the SGS FLEX strategy is consistent with the overarching goal of reasonable protection of equipment such that no single event results in failure of the strategy.

SGS is using an alternative to the criteria of NEI 12-06 Section 7.3.1, "Protection of FLEX Equipment," which recommends protection of FLEX equipment from high wind hazards via storage in a structure or in diverse locations. Two FLEX DGs, electrical connections and distribution equipment will be stored in the canyon area (i.e., the area between the Salem Unit 2 fuel handling building and auxiliary building). This equipment and their associated connections will be stored outdoors and provided with protection from external hazards to minimize the probability that a single event would damage all of the FLEX equipment needed to mitigate the event.

SGS is using an alternative to the criteria of NEI 12-06 Section 8.3.1, "Protection of FLEX Equipment," which recommends storage of the N FLEX equipment within a structure to provide protection against snow, ice and extreme cold hazards. Outdoor storage locations are within the protected area and consist of the following:

- canyon area
- west of SGS
- east of the Salem Unit 1 condensate polisher building
- near the Hope Creek Unit 2 reactor building west wall, north of SGS

FLEX equipment stored outdoors will be protected as required by the manufacturer, e.g., equipped with direct heating features (e.g., engine block heater, etc.) to ensure it will function when called upon.

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

The current schedule requirement for SGS Unit 1 implementation of NRC Order EA-12-049 is prior to restart from the 23rd refueling outage (S1R23) in Fall 2014. PSEG requested schedule relaxation via Reference 6, to 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 address recently recalculated RCP seal leakage rates that exceed the Westinghouse generic values assumed in the SGS FLEX OIP, by developing and implementing 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.

6 Open Items from Overall Integrated Plan and Draft Safety Evaluation

Resolution of items identified in the NRC's interim staff evaluation for SGS (Reference 11) is being addressed as part of the mitigation strategies audit process.

7 Potential Draft Safety Evaluation Impacts

Impacts to the NRC Safety Evaluation of SGS compliance with Order EA-12-049 are being addressed as part of the mitigation strategies audit process.

8 References

1. 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
2. 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
3. PSEG Letter LR-N13-0175, "PSEG Nuclear LLC's First Six-Month Status Report 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 August 25, 2013
4. PSEG Letter LR-N14-0027, "PSEG Nuclear LLC's Second Six-Month Status Report 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 25, 2014

5. Nuclear Energy Institute (NEI) Report NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012
6. PSEG letter LR-N14-0173, "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," dated July 31, 2014
7. PSEG letter LR-N14-0141, "Salem Generating Station's Response to March 12, 2012, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, Enclosure 5, Recommendation 9.3, Emergency Preparedness – Staffing, Requested Information Items 1, 2, and 6 - Phase 2 Staffing Assessment," dated June 16, 2014
8. US Nuclear Regulatory Commission (NRC) letter, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated March 12, 2012
9. PSEG letter LR-N13-0026, "PSEG Nuclear LLC's Response to NRC Follow-up Letter on Technical Issues for Resolution Regarding Licensee Communication Submittals Associated with Fukushima Near-Term Task Force Recommendation 9.3," dated February 21, 2013
10. PSEG Letter LR-N12-0351, "PSEG Nuclear LLC's Assessment Report for Communications During an Extended Loss of AC Power," dated October 31, 2012
11. NRC letter, "Salem Nuclear Generating Station, Unit Nos. 1 and 2 – Interim Staff Evaluation and Audit Report Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC Nos. MF0868 and MF0869), dated January 24, 2014