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PSEG
Nuclear LLC

Order EA-12-049

LR-N14-0027

FEB 25 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 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)

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. NRC Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0, dated August 29, 2012

5. Nuclear Energy Institute (NEI) Report NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012

6. 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

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 Section IV.C 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). In accordance with Condition IV.C.2 of NRC Order EA-12-049, PSEG provided the first six-month status report to summarize the progress made in implementing the requirements of the Order at SGS Units 1 and 2, on August 25, 2013 (Reference 3). The purpose of this letter is to provide the second six-month status report for SGS Units 1 and 2, pursuant to Condition IV.C.2 of NRC Order EA-12-049.

NRC Interim Staff Guidance JLD-ISG-2012-01(Reference 4) endorsed, with clarifications, industry guidance document NEI 12-06, Revision 0 (Reference 5) as an acceptable means of meeting the requirements of NRC Order EA-12-049. NEI 12-06 provides direction regarding the content of the status reports; i.e., the reports should include an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, and the need for relief and the basis for relief, if applicable. Enclosure 1 provides the second six-month status report for SGS Units 1 and 2, in accordance with the NRC-endorsed guidance of NEI 12-06. Enclosure 1 reflects the status of FLEX implementation as of January 31, 2014 and includes a status of open items and confirmatory items identified in the NRC's interim staff evaluation report for SGS Units 1 and 2 (Reference 6). There are no changes in compliance method or requests for regulatory relief identified in Enclosure 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 Mrs. Emily Bauer at 856-339-1023.

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

Executed on 02/25/2014
(Date)

Sincerely,

Christopher J. Schwarz
Vice President – Operations Support

Enclosure 1: Salem Generating Station Units 1 and 2 Second 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: Mr. E. Leeds, Director of Office of Nuclear Reactor Regulation
Mr. W. Dean, Administrator, Region I, NRC
Mr. J. Hughey, Project Manager, NRC
NRC Senior Resident Inspector, Salem
Mr. P. Mulligan, Manager IV, NJBNE
Salem Commitment Tracking Coordinator
PSEG Corporate Commitment Coordinator

FEB 25 2014

ENCLOSURE 1 LR-N14-0027

Salem Generating Station Units 1 and 2 Second 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). In Reference 3, PSEG provided the first six-month status report associated with SGS FLEX OIP. Provided herein is the second six-month status report, for the period ending January 31, 2014. This update follows the guidance in Section 13.2 of Nuclear Energy Institute (NEI) Report 12-06 (Reference 4), 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. There are no changes to compliance method (Section 4) and no issues requiring regulatory relief (Section 5) identified in this report. Section 6 includes a status of the open items and confirmatory items identified in the NRC's interim staff evaluation and audit report for SGS Units 1 and 2 (Reference 5).

2 Milestone Accomplishments

The following milestones have been completed since the development of the SGS FLEX OIP, and are current as of January 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 are being evaluated and are the subject of Confirmatory Item (CI) 3.2.1.6.A in Section 6, below.

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 do not impact the Order EA-12-049 compliance dates.

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

Milestone	Original Target Completion Date	Activity Status	Revised Target Completion Date
Procure Equipment			
Unit 1 Procurement	Dec 2013	Started	Oct 2014
Unit 2 Procurement	Dec 2013	Started	Oct 2014
Create Maintenance Procedures	May 2014	Started	Nov 2014
Emergency Preparedness (EP) Communications Improvements (Note 3)	Jun 2014	Started	Nov 2015
Unit 1 Implementation Outage	Oct 2014	Not Started	Nov 2014
Unit 1 Report to NRC When Full Compliance is Achieved	Feb 2015	Not Started	
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) 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.
2) The staffing analysis milestone's revised target completion date is aligned with the FLEX staffing study required by the 10 CFR 50.54(f) information request dated March 12, 2012 (Reference 6). PSEG's staffing analyses will address simultaneous ELAP scenarios at HCGS and SGS Units 1 and 2.
3) 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 7). This milestone is based on PSEG's regulatory commitment in Reference 8, to complete communications improvements prior to restart from the Salem Unit 1 23rd Refueling Outage (S1R23) in Fall 2014.

4 Changes to Compliance Method

PSEG is evaluating changes to FLEX equipment storage and deployment strategies and will include the results of the evaluation in a future six-month update.

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

PSEG expects to comply with the Order EA-12-049 (Reference 2) implementation date for SGS Units 1 and 2, and no relief or relaxation is requested at this time.

6 Open Items from Overall Integrated Plan and Draft Safety Evaluation

The following table provides a status of SGS Units 1 and 2 resolution of NRC Generic Concerns associated with mitigation strategies, as well as Open Items (OIs) and Confirmatory Items (CIs) that are identified in the NRC's interim staff evaluation and audit report for SGS Units 1 and 2 (Reference 5):

ID	Item Ref.	Description	Status
1.	Generic Concern – Battery Life	SGS is currently working on extending the battery duty cycle, and is following the industry position on battery life as outlined in the Nuclear Energy Institute (NEI) white paper dated August 27, 2013 (Reference 9) and endorsed by NRC via letter to NEI dated September 16, 2013 (Reference 10).	In progress. PSEG expects to provide the results of battery load shedding and duty cycle evaluations by the August 2014 update.
2.	Generic Concern - MAAP	SGS is using the Modular Accident Analysis Program (MAAP) to complete the development of FLEX timelines and strategies, consistent with the NRC endorsement letter to NEI dated October 3, 2013 (Reference 11).	In progress. PSEG expects to provide a summary of the results of the SGS MAAP analyses by the August 2014 update.
3.	Generic Concern – Shutdown / Refueling Modes	SGS will enhance shutdown risk processes and procedures using the supplemental guidance provided in the NEI position paper entitled "Shutdown / Refueling Modes," dated September 18, 2013 (Reference 12) and endorsed by the NRC via letter to NEI dated September 30, 2013 (Reference 13).	Not started. PSEG expects completion to be coincident with Order EA-12-049 compliance.

ID	Item Ref.	Description	Status
4.	Generic Concern – Preventive Maintenance	As part of the development of FLEX maintenance and testing programs, SGS will use the EPRI Technical Report entitled "Nuclear Maintenance Applications Center: Preventative Maintenance Basis for FLEX Equipment," transmitted to NRC via NEI letter dated October 3, 2013 (Reference 14) and endorsed by NRC letter dated October 7, 2013 (Reference 15).	In progress. PSEG expects completion to be coincident with Order EA-12-049 compliance.
5.	Generic Concern – Core Sub-criticality OI 3.2.1.8.A	Core Sub-Criticality - The Pressurized Water Reactor Owners Group (PWROG) submitted to NRC a position paper, dated August 15, 2013, via Reference 16, which provides test data regarding boric acid mixing under single-phase natural circulation conditions and outlined applicability conditions intended to ensure that boric acid addition and mixing would occur under conditions similar to those for which boric acid mixing data is available. The licensee should address the clarifications in the NRC endorsement letter dated January 8, 2014 (Reference 17).	In progress. See Section 7.
6.	OI 3.2.4.7.A	Water Sources - The licensee appears to use a probability approach to reach a conclusion that at least one of the three tanks depended on for SG makeup will survive an ELAP event. NEI 12-06 guidance does not give probability as an option. The licensee should determine if a water supply would be available after a tornado event by analyzing the tornado characteristics for the site compared to the separation characteristics of the tanks. This is an alternate approach from the strategies identified in NEI 12-06.	In progress. See Section 7.

ID	Item Ref.	Description	Status
7.	CI 3.1.1.1.A	Protection of FLEX Equipment including FLEX diesel generators (DGs) - The licensee needs to finalize its evaluation of the use of the SGS auxiliary building and the use of the Hope Creek Generating Station, Unit 2 reactor building for permanent FLEX equipment storage.	In progress. PSEG is evaluating changes to FLEX equipment storage and deployment strategies and expects to provide additional information by the August 2014 update.
8.	CI 3.1.1.2.A	Deployment of FLEX Equipment - The licensee should complete a review of deployment routes between the proposed equipment storage locations and the areas the equipment will be moved to and evaluate the potential for soil liquefaction.	The requested information is provided in Section 7.
9.	CI 3.1.1.2.B	Deployment of FLEX Equipment - The licensee does not state that the Nuclear Service Water Connections will be protected from seismic events. Confirm that this is ensured.	In progress. Seismic capability of the connections will be ensured as part of the design change process.
10.	CI 3.1.1.3.B	Procedural Interfaces - Seismic Hazard - The licensee's integrated plan did not provide any information on: 1) non-robust internal flooding sources that do not require ac power; 2) the use of ac power to mitigate ground water in critical locations.	In progress. PSEG expects to provide additional information by the August 2014 update.

ID	Item Ref.	Description	Status
11.	CI 3.1.1.4.A	Considerations in Using Offsite Resources - Seismic Hazard - Flooding Hazard - High Winds Hazard - Snow, Ice and Extreme Cold Hazard - Equipment staging areas for deployment of offsite equipment from SAFER will be finalized in a future 6 month update.	In progress. PSEG expects to provide additional information by the August 2014 update.
12.	CI 3.1.2.2.A	Deployment of FLEX Equipment - Flooding Hazard – Finalization of proposed changes to the deployment of FLEX equipment during a hurricane induced flooding condition will be provided in a future 6 month update.	In progress. PSEG expects to provide additional information by the August 2014 update.
13.	CI 3.1.4.2.A	Deployment of FLEX Equipment- Flooding Hazard - The licensee should address the formation of frazil ice and means to cope with it.	In progress. PSEG expects to provide additional information by the August 2014 update.
14.	CI 3.1.4.2.B	The licensee should address manual operations required by plant personnel during periods of snow, ice, and extreme cold hazards.	In progress. PSEG expects to provide additional information by the August 2014 update.
15.	CI 3.1.5.2.A	The licensee should confirm that there is no need for backup ventilation with respect to protection of FLEX equipment during high temperature hazards and what the impacts of high temperature hazards would be on the deployment of the FLEX equipment in such conditions.	In progress. PSEG expects to provide additional information by the August 2014 update.

ID	Item Ref.	Description	Status
16.	CI 3.1.5.3.A	The licensee should specify the peak temperature for which FLEX equipment would be expected to operate.	In progress. PSEG expects to provide additional information by the August 2014 update.
17.	CI 3.2.1.A	The licensee should specify which analysis performed in WCAP-17601-P (Reference 18) is applicable to SGS and justify the use of that analysis by identifying and evaluating the important parameters and assumptions demonstrating that they are representative of SGS and appropriate for simulating the ELAP transient.	The requested information is provided in Section 7.
18.	CI 3.2.1.1.A	Computer Code Used for ELAP Analysis - Reliance on the NOTRUMP code for the ELAP analysis of Westinghouse plants is limited to the flow conditions prior to reflux condensation initiation. Verify that the code is not used beyond these flow conditions. This includes specifying an acceptable definition for the onset of reflux condensation cooling.	The requested information is provided in Section 7.
19.	CI 3.2.1.1.B	The licensee utilized the existing analyses in WCAP-17601-P to develop its sequence of events and time constraints. The licensee will validate the response times at a future time.	Not started. PSEG expects completion to be coincident with Order EA-12-049 compliance.
20.	CI 3.2.1.2.A	Reactor Coolant Pump Seal Leakage Rates - Confirm that the RCP seal initial maximum leakage rate used in the analysis is greater than or equal to the upper bound expectation for the ELAP event (21 gpm/seal) discussed in the PWROG white paper addressing the RCP seal leakage for Westinghouse plants.	The requested information is provided in Section 7.

ID	Item Ref.	Description	Status
21.	CI 3.2.1.2.B	Reactor Coolant Pump Seal Leakage Rates - In some plant designs, such as those with 1200 to 1300 psia SG design pressures and no accumulator backing of the main steam system power-operated relief valve actuators, the cold legs could experience temperatures as high as 580°F before cooldown commences. This is beyond the 550°F qualification temperature of the O-rings used in the RCP seals. For those Westinghouse designs, a discussion of the information (including the applicable analysis and relevant seal leakage testing data) should be provided to justify that (1) the integrity of the associated O-rings will be maintained at the temperature conditions experienced during the ELAP event, and (2) the seal leakage rate of 21 gpm/seal used in the ELAP is adequate and acceptable.	The requested information is provided in Section 7.
22.	CI 3.2.1.5.A	Monitoring Instrumentation and Controls - The review identified a concern with the level of accuracy of the FLEX instrumentation to ensure that electrical equipment remains protected (from an electrical standpoint- e.g., power fluctuations) and with the ability of this instrumentation to provide operators with accurate information ensure the maintenance of core cooling, containment, and spent fuel cooling. The licensee should confirm the accuracy of portable equipment instrumentation as it relates to equipment protection and operator information for maintenance of FLEX strategies.	In progress. PSEG expects to provide additional information by the August 2014 update.
23.	CI 3.2.1.6.A	Sequence of Events - During the NRC audit process the licensee summarizes the changes in its mitigation strategies for Phase 1 and Phase 2. The evaluation for implementing these changes will be communicated in a future 6 month update.	In progress. PSEG expects to provide additional information by the August 2014 update.

ID	Item Ref.	Description	Status
24.	CI 3.2.1.9.A	Use of Portable Pumps - The Integrated Plan provides a table depicting the FLEX equipment to be deployed and states that the quantity does not reflect the NEI 12-06 spare capability (N+1) guidance. The licensee should specify how many pieces of equipment will be available for an ELAP/Loss of Ultimate Heat Sink (UHS), and this should meet N+1 requirements unless an alternative approach is proposed.	In progress. PSEG expects to provide additional information by the August 2014 update.
25.	CI 3.2.2.A	Spent Fuel Pool Cooling Strategies - In the audit and review, the licensee provided additional information regarding the SFP makeup during an ELAP event. It stated that a new 4" FLEX hose is being evaluated as replacement for SFP makeup. This connection would be upstream of 1(2)SF9 and would allow water from SW, AFW, and the FLEX boron mixing tank pump discharges to be aligned for SFP makeup. The proposed connection point is in the Auxiliary Building in the SFP pump area. Additionally, a spray pipe system is being re-evaluated. The licensee should provide details of the final configuration, including flow rates, and this information should be included in a six-month update.	In progress. PSEG expects to provide additional information by the August 2014 update.
26.	CI 3.2.3.A	The licensee committed to perform further containment analysis to demonstrate that containment integrity can be maintained up until a point in time when containment cooling can be restored during Phase 3.	In progress. PSEG expects to provide additional information by the August 2014 update.
27.	CI 3.2.3.B	Containment Functions Strategies - In the audit and review, the licensee stated that SGS plans to use the Modular Accident Analysis Program analysis to complete the FLEX strategies and timelines. Review these analyses when available.	In progress. PSEG expects to provide additional information by the August 2014 update.

ID	Item Ref.	Description	Status
28.	CI 3.2.4.2.A	Ventilation - Equipment Cooling - The licensee has provided insufficient details of the ventilation provided in the battery room to support a conclusion that there is reasonable assurance that the effects of elevated or lowered temperatures in the battery room, especially if the ELAP is due to a high or low temperature hazard, have been considered. Confirm the adequacy of the ventilation provided in the battery room to protect the batteries from the effects of elevated or lowered temperatures.	In progress. Evaluation of high temperatures depends on the results of GOTHIC modeling and analyses. PSEG expects to provide a response by the August 2014 update.
29.	CI 3.2.4.2.B	Ventilation - Equipment Cooling - The licensee provided a discussion on how hydrogen concentration in the battery rooms will be mitigated when the batteries are being recharged during Phases 2 and 3. The licensee will provide strategies to repower installed battery room exhaust fans or portable fans for ventilation.	In progress. PSEG plans to mitigate hydrogen build-up by repowering the installed battery room exhaust fans when the batteries are being recharged, and expects to provide additional information by the August 2014 update.
30.	CI 3.2.4.2.C	Ventilation - Equipment Cooling - The licensee stated that GOTHIC modeling and room heat-up calculations are being developed for plant strategic areas including the TDAFW rooms. The results of the modeling and analyses will be communicated in a future 6 month update.	In progress. PSEG expects to provide the results of GOTHIC modeling and analyses by the August 2014 update.

ID	Item Ref.	Description	Status
31.	CI 3.2.4.4.A	Communications - Confirm that upgrades to the site's communications systems have been completed.	In progress. A current status of the upgrades is provided in Note 1.
32.	CI 3.2.4.6.A	Personnel Habitability - Elevated Temperature – Confirm the maximum environmental room temperatures at ELAP coping periods greater than the 4-hours assumed in NUMARC 87-00, and confirm that measures are in place to ensure personnel habitability, as needed.	In progress. PSEG expects to provide the results of GOTHIC modeling and analyses by the August 2014 update.
33.	CI 3.2.4.6.B	Personnel Habitability - The licensee stated that formal analyses would be performed to support the initial actions taken to provide cooling for the MCR until Phase 2 actions can be implemented. The results of the modeling and analyses will be communicated in a future 6 month update.	In progress. PSEG expects to provide the results of GOTHIC modeling and analyses by the August 2014 update.
34.	CI 3.2.4.8.A	Electrical Power Sources/Isolations and Interactions - licensee stated that diesel generator sizing calculations are in progress. The results will be communicated in a future six-month update.	In progress. PSEG expects to provide additional information by the August 2014 update.
35.	CI 3.2.4.8.B	Electrical Power Sources/Isolations and Interactions – The licensee discussed use of electrical equipment such as 480 VAC DG Power Distribution, 480 VAC "A" Vital Bus, 230 VAC DG Power Distribution, associated cablings and connectors. Confirm that electrical isolation will be maintained such that (a) Class 1E equipment is protected from faults in portable/FLEX electrical equipment and (b) multiple sources do not attempt to power electrical buses.	In progress. PSEG expects to provide additional information by the August 2014 update.

ID	Item Ref.	Description	Status
36.	CI 3.2.4.8.C	Electrical Power Sources/Isolations and Interactions - Confirm the analyses address the minimum voltage that must be maintained on the dc buses and its basis.	In progress. PSEG expects to provide additional information by the August 2014 update.
37.	CI 3.2.4.9.A	Portable Equipment Fuel - Confirm that sufficient fuel is available considering the fuel consumption rate for each FLEX piece of equipment.	In progress. PSEG expects to provide additional information by the August 2014 update.
38.	CI 3.2.4.10.A	Load Reduction to Conserve DC Power - The licensee should describe the results of the final battery load shed analyses, including which functions are lost, plant components that will change state, and the effects of components changing state.	In progress. PSEG expects to provide additional information by the August 2014 update.
39.	CI 3.3.2.A	Configuration Control - The licensee should provide the single line diagrams of the proposed electrical systems.	In progress. PSEG expects to provide additional information by the August 2014 update.
40.	CI 3.4.A	Offsite Resources - The licensee's Integrated Plan addressed the use of off-site resources to obtain equipment and commodities to sustain and backup the site's coping strategies (NEI 12-06, Section 12.2, Guideline 1). The licensee should provide information on how the plan addresses implementation guidelines 2 through 10.	In progress. This is part of RRC strategy development, with a milestone target completion date of October 2014.

Section 6 Table Note 1:

CI 3.2.4.4.A, Communications Improvements

PSEG's regulatory commitments in Reference 8 are to complete communications improvements prior to restart from the Salem Unit 1 23rd Refueling Outage (S1R23) in Fall 2014 and the Salem Unit 2 21st Refueling Outage (S2R21) in Fall 2015. Reference 7 identified planned communications enhancements for satellite phones, radio communications, and communications vendor interfaces. The current status and schedule of these improvements is provided below:

Satellite phones – PSEG purchased ten new Iridium satellite phones, batteries and chargers, and has distributed them to PSEG Emergency Response Facilities (ERFs). A Design Change Package (DCP) is being developed to install satellite base stations and antennae. DCP issuance is targeted for May 2014, with installation prior to S1R23. The new satellite phones and associated equipment will be included in EP procedures as part of the design change process.

Radio Communications – PSEG initiated the procurement of additional batteries and chargers for existing EP radios. These batteries and chargers will be deployed to the appropriate ERFs following receipt. A DCP is being developed to ensure power is available to critical radio repeaters. DCP issuance is targeted for May 2014, with installation prior to S1R23.

Periodic Verification of EP Communication Vendor Contracts – PSEG verified EP communication vendor contracts are in place, and will ensure that vendor contracts relied upon for EP communications, including those associated with ongoing communications enhancements, are periodically verified.

7 Potential Draft Safety Evaluation Impacts

Generic Concern and OI 3.2.1.8.A, Core Sub-Criticality

SGS Units 1 and 2 abide by the position expressed by the NRC staff in the letter dated January 8, 2014 regarding the boron mixing issue for PWRs (Reference 17). The NRC letter states that the NRC staff has reviewed the information submitted to date and concluded that use of the industry approach (Reference 16) is acceptable with clarifications listed in the letter.

OI 3.2.4.7.A, Water Sources

During a high wind event, it could be postulated that three sources of water (auxiliary feedwater, demineralized water, and fresh water storage tanks) are lost due to the effects of a tornado. In such a scenario, SGS can align the fire water header to the Hope Creek fire water system to provide water from the Hope Creek fire water tank. The Hope Creek fire water tank is located a sufficient distance from the SGS tanks to not be affected by the same tornado. A new FLEX connection on the fire header will be provided in the auxiliary building to supply this source of water to the suction of the TDAFW pump. PSEG will provide additional details regarding this approach in a future update.

CI 3.2.1.1.A, Computer Code Used for ELAP Analysis

SGS Units 1 and 2 used generic ELAP analyses performed with the NOTRUMP computer code to support the mitigating strategy in the SGS FLEX OIP (Reference 1). The use of NOTRUMP was limited to the thermal-hydraulic conditions before reflux condensation initiates. The initiation of reflux condensation cooling is defined when the one hour centered moving average (CMA) of the flow quality at the top of the SG U-tube bend exceeds 0.1 in any one loop.

CI 3.1.1.2.A, Deployment Routes and Soil Liquefaction

Liquefaction of the uppermost and recent geologic age site layered sediments, beyond the areas of safety related structures, could possibly occur during the seismic event; but it is expected that the material's behavior as a liquid would cease following the earthquake and would revert to a stiffness and strength needed to accommodate equipment movement onsite. In the event pathways or roadways are damaged, alternate travel routes around the potentially undermined surfaces would be implemented. In addition, Phase 3 equipment can be transported to the site via helicopter.

CI 3.2.1.A, WCAP-17601-P Applicability

The analysis performed in section 5.2 of WCAP-17601-P (Reference 18) is being applied to SGS Units 1 and 2. The use of this analysis is justified as the SGS Units 1 and 2 are Westinghouse designed NSSS with replacement steam generators. Section 5.3 of WCAP-17601-P discusses ELAP coping times relative to RCS inventory control and is an

extension of the analysis performed in Section 5.2. WCAP-17601-P Section 5.3 describes Westinghouse NSSS analysis performed in Section 5.2 as being applicable to the SGS design.

The parameters and assumptions utilized in WCAP-17601-P are representative of the values and actions taken in the current Salem Station Blackout (SBO) procedures. The WCAP Steam Generator (S/G) depressurization target of 300 psia correlates to the 250 psia S/G target contained in the Salem Emergency Operating Procedures (EOPs) with the same basis of balancing RCS cooldown, RCS pressure, ECCS Accumulator liquid injection, and re-criticality. The Reactor Coolant Pump (RCP) design (Model 93-A) evaluated in the WCAP reference case is similar to the Salem RCPs. The Westinghouse AFW consumption calculation performed in WCAP-17601-P, Section 5.2.2 is utilized, substituting the Salem rated core power of 3459 MWt,

CI 3.2.1.2.A and CI 3.2.1.2.B, RCP Seal Leakage Rates

The RCPs at SGS Units 1 and 2 are Westinghouse Model 93-A with high temperature seals. SGS Units 1 and 2 ELAP analyses assume that RCP seal leakage increases to 21 gpm per seal package consistent with the Westinghouse-specific analyses in WCAP-17601-P (Reference 18).

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, 2014
4. Nuclear Energy Institute (NEI) Report NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012
5. 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
6. 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

7. 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
8. PSEG Letter LR-N12-0351, "PSEG Nuclear LLC's Assessment Report for Communications During and Extended Loss of AC Power," dated October 31, 2012
9. NEI letter to NRC, "EA-12-049 Mitigating Strategies Resolution of Extended Battery Duty Cycles Generic Concern," dated August 27, 2013 (ADAMS Accession No ML13241A186)
10. NRC letter to NEI, "Battery Life White Paper Endorsement," dated September 16, 2013 (ADAMS Accession No. ML13241A188)
11. NRC letter to NEI, "Mitigation Strategies Order EA-12-049, NEI Position Paper: MAAP Endorsement Letter," dated October 3, 2013 (ADAMS Accession No. ML13275A318)
12. NEI Position Paper, "Shutdown / Refueling Modes," dated September 18, 2013 (ADAMS Accession No. ML13273A514)
13. NRC letter to NEI, "Endorsement Letter: Mitigation Strategies Order EA-12-049, NEI Position Paper: Shutdown / Refueling Modes," dated September 30, 2013 (ADAMS Accession No. ML13267A382)
14. NEI letter to NRC, "EA-12-049 Mitigating Strategies Resolution of FLEX Equipment Maintenance and Testing Templates," dated October 3, 2013 (ADAMS Accession No. ML13276A573)
15. NRC letter to NEI, "Maintenance and Testing Endorsement Letter in Regards to Mitigation Strategies Order EA-12-049," dated October 7, 2013 (ADAMS Accession No. ML13276A224)
16. Westinghouse proprietary position paper, "Westinghouse Response to NRC Generic Request for Additional Information (RAI) on Boron Mixing in Support of the Pressurized Water Reactor Owners Group (PWROG)," transmitted to NRC via letter dated August 16, 2013 (ADAMS Accession No. ML13235A135)
17. NRC letter to PWROG, "Boron Mixing Endorsement Letter in Regards to Mitigation Strategies Order EA-12-049," dated January 8, 2014 (ADAMS Accession No. ML13276A183)
18. 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