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LR-N15-0022

Order EA-12-049

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

Hope Creek Generating Station
Renewed Facility Operating License No. NPF-57
NRC Docket No. 50-354

Subject: PSEG Nuclear LLC's Fourth Six-Month Status Report for the Hope Creek 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-N13-0031, "PSEG Nuclear LLC's Overall Integrated Plan for the Hope Creek 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 27, 2013
3. PSEG Letter LR-N13-0173, "PSEG Nuclear LLC's First Six-Month Status Report for the Hope Creek 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 22, 2013

4. PSEG Letter LR-N14-0025, "PSEG Nuclear LLC's Second Six-Month Status Report for the Hope Creek 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 LR-N14-0184, "PSEG Nuclear LLC's Third Six-Month Status Report for the Hope Creek 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 26, 2014
6. NRC Letter to PSEG, "Hope Creek Generating Station – Relaxation of the Schedule Requirements For Order EA-12-049 'Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,'" dated May 20, 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 Hope Creek Generating Station (HCGS) on February 27, 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. PSEG previously provided six-month updates for HCGS via References 3, 4, and 5. Attachment 1 to this letter provides the fourth six-month status report of progress made in implementing the requirements of NRC Order EA-12-049 at HCGS as of January 31, 2015.

Attachment 1 reflects the schedule relaxation granted by the NRC in Reference 6, to allow HCGS sufficient time to implement enhanced containment wetwell (torus) venting capability in support of full compliance with NRC Order EA-12-049.

There are no regulatory commitments contained in this letter.

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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 2/18/2015
(Date)

Sincerely,



Paul J. Davison
Site Vice President
Hope Creek Generating Station

Attachment 1: Hope Creek Generating Station Fourth 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. William Dean, Director of Office of Nuclear Reactor Regulation
Mr. Daniel Dorman, Administrator, Region I, NRC
Ms. Carleen Sanders-Parker, Project Manager, NRC
NRC Senior Resident Inspector, Hope Creek
Mr. Patrick Mulligan, Manager IV, NJBNE
Hope Creek Commitment Tracking Coordinator
PSEG Commitment Coordinator – Corporate

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Attachment 1

**Hope Creek Generating Station Fourth 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**

1 Introduction

PSEG Nuclear LLC (PSEG) developed an Overall Integrated Plan (OIP) (Reference 1) for the Hope Creek Generating Station (HCGS), documenting the diverse and flexible coping strategies (FLEX) in response to NRC Order EA-12-049 (Reference 2). In References 3, 4, and 5, PSEG provided the previous six-month status reports associated with implementation of the requirements of NRC Order EA-12-049. This report is the fourth six-month status report, which provides implementation status as of January 31, 2015. This update follows the guidance in Section 13.2 of Nuclear Energy Institute (NEI) Report 12-06 (Reference 6), 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. Changes to the compliance method are identified in Section 4. Section 5 addresses the schedule relaxation associated with the severe accident capable hardened containment venting capabilities required by NRC Order EA-13-109 (Reference 7).

2 Milestone Accomplishments

The following HCGS FLEX milestones have been completed as of January 31, 2015:

- Submit Overall Integrated Plan - PSEG submitted the HCGS FLEX OIP to the NRC via Reference 1.
- Develop FLEX Strategies - PSEG has developed HCGS FLEX strategies as described in the OIP and has identified design, analysis, procurement, and programmatic actions necessary to achieve compliance with NRC Order EA-12-049. Changes to the FLEX strategies involving changes to methods of compliance with NEI 12-06 are addressed in Section 4.
- Perform Staffing Analysis – PSEG completed the HCGS Phase 2 staffing analysis (Reference 8) as required by the 10 CFR 50.54(f) information request dated March 12, 2012 (Reference 9). The HCGS Phase 2 staffing analysis addresses resources needed to implement FLEX strategies during simultaneous extended loss of AC power scenarios at HCGS and Salem Generating Station, Units 1 and 2.
- Develop Training Plan – PSEG developed training materials and schedules, and has begun training personnel on the HCGS FLEX strategies

3 Milestone Schedule Status

The following table provides an update to HCGS FLEX OIP milestones. The table provides the activity status of each item, and whether the original expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed. The milestones reflect implementation of NRC Order EA-12-049 requirements by the original implementation outage in spring 2015, with the exception of torus venting changes needed to achieve full compliance by the fall 2016 outage, consistent with the schedule relaxation approved in Reference 10.

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	Complete With This Report	
	Aug 2015	Not Started	
	Feb 2016	Not Started	
	Aug 2016	Not Started	
Develop Strategies	May 2013	Complete	
Modifications			
Develop Modifications	Apr 2014	Started	Feb 2015
Implement Modifications	Apr 2015	Started	May 2015
FLEX Support Guidelines (FSGs)			
Develop FSGs	Dec 2013	Started	Apr 2015
Validation Walk-throughs or Demonstrations of FLEX Strategies and Procedures	May 2015	Started	
Perform Staffing Analysis	Dec 2013	Complete	Dec 2014
Develop Training Plan	Jun 2014	Complete	Jan 2015
Implement Training	Dec 2014	Started	May 2015
Develop Strategies / Contract with National SAFER Response Center (formerly called "Regional Response Center")	Oct 2013	Started	Feb 2015
Procure Equipment	Dec 2013	Started	Apr 2015

Milestone	Original Target Completion Date	Activity Status	Revised Target Completion Date
Create Maintenance Procedures	Jun 2014	Started	May 2015
Emergency Preparedness (EP) Communications Improvements (Note 1)	Jun 2014	Started	May 2015
HC Implementation Outage (Note 2)	Apr 2015	Not Started	May 2015 Oct 2016
Report to NRC When Full Compliance is Achieved	Aug 2015	Not Started	Jan 2017 See Section 5

Section 3 Table Notes

- 1) 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 11). PSEG's regulatory commitment in Reference 12 is to complete communications improvements prior to restart from HCGS Refueling Outage 19 (H1R19) in spring 2015.
- 2) The May 2015 implementation outage milestone is consistent with the original NRC Order EA-12-049 implementation schedule requirements. The October 2016 milestone applies to changes to the torus venting capability based on the schedule relaxation request approved in Reference 10.

4 Changes to Compliance Method

The following are changes to the compliance method as described in the HCGS FLEX OIP.

Outdoor FLEX Storage Areas and Deployment Strategies

HCGS 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 common HCGS and Salem Generating Station (SGS) protected area and consist of the following:

- HCGS Unit 2 reactor building roof
- west of SGS
- east of the SGS Unit 1 condensate polisher building
- near the HCGS 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.

The outdoor storage locations provide greater than 1200 feet of separation, generally in a north-south direction, to provide reasonable protection from a tornado event.

Two diesel generators will be pre-staged at their point of deployment on the HCGS Unit 2 reactor building roof. In the event of a tornado that disables both diesel generators, an additional diesel generator will be deployed from a location greater than 1200 feet from the affected diesel generators.

Prior to the arrival of a hurricane on site, FLEX equipment to mitigate a flooding event will be moved inside of the cancelled HCGS Unit 2 reactor building.

The HCGS FLEX strategy includes equipment pre-staged at its point of deployment as an alternative to portable Phase 2 equipment as suggested by NEI 12-06. Protection of pre-staged equipment from external hazards combined with diversely located portable equipment provides flexibility to prevent a single event from defeating the FLEX strategy.

Event Timelines

The OIP timelines are being adjusted to reflect finalization of plant-specific analyses and will be described in a future six-month update.

GOTHIC Analyses

Plant-specific GOTHIC analyses are being used to establish temperature conditions for personnel habitability and equipment availability, including determination of the need for compensatory measures.

Reactor Core Isolation Cooling (RCIC) Suction Line Connection

The FLEX connection to RCIC suction piping has been determined to be unnecessary and eliminated from the strategy.

Torus Water Flow Path

A flow path from the torus to the FLEX header is being established via connection to the core spray system in lieu of the torus water cleanup system.

FLEX Equipment Fuel Oil Storage

On-board diesel fuel storage tank capacities for Phase 2 FLEX equipment are being revised and will not support 24 hours of continuous operation without refueling. The

tanks will provide sufficient capacity to support refueling from on-site, protected fuel oil sources.

Equipment List

The list of FLEX equipment is being finalized, including clarification of N vs. N+1 sets of equipment, and will be provided in a future six-month update.

Sketches

Sketches are being finalized and will be provided in a future six-month update.

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

By letter dated April 16, 2014 (Reference 13), PSEG requested schedule relaxation to defer HCGS full compliance with NRC Order EA-12-049, from the HCGS Refueling Outage 19 (H1R19) in spring 2015, to H1R20 in fall 2016. This relaxation request was approved via Reference 10 in order to allow time for implementation of torus venting requirements as needed to support compliance with NRC Order EA-12-049, and is consistent with the schedule for implementation of severe accident capable torus venting requirements in NRC Order EA-13-109. PSEG is proceeding with completion of other design, equipment procurement and programmatic changes to support the ability to implement the HCGS 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 HCGS (Reference 14) is being addressed as part of the mitigation strategies audit process.

7 Potential Draft Safety Evaluation Impacts

There are no potential impacts to the Draft Safety Evaluation identified at this time.

8 References

1. PSEG letter LR-N13-0031, "PSEG Nuclear LLC's Overall Integrated Plan for the Hope Creek 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 27, 2013
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5. PSEG Letter LR-N14-0184, "PSEG Nuclear LLC's Third Six-Month Status Report for the Hope Creek 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 26, 2014
6. Nuclear Energy Institute (NEI) Report NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012
7. NRC Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Effective Immediately)," dated June 6, 2013
8. PSEG Letter LR-N14-0248, "Hope Creek 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 December 9, 2014
9. 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
10. NRC Letter to PSEG, "Hope Creek Generating Station – Relaxation of the Schedule Requirements For Order EA-12-049 'Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,'" dated May 20, 2014
11. 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
12. PSEG Letter LR-N12-0351, "PSEG Nuclear LLC's Assessment Report for Communications During an Extended Loss of AC Power," dated October 31, 2012
13. PSEG Letter LR-N14-0093, "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' - Hope Creek Generating Station," dated April 16, 2014
14. NRC Letter to PSEG, "Hope Creek Generating Station – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC NO. MF0867)," dated February 11, 2014