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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

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

Subject: 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

- References:**
- (1) 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.
 - (2) PSEG Letter LR-N12-0351, "PSEG Nuclear LLC's Assessment Report for Communications During an Extended Loss of AC Power," dated October 31, 2012.
 - (3) NRC Letter, "Follow-up Letter on Technical Issues for Resolution Regarding Licensee Communication Submittals Associated with Near-Term Task Force Recommendation 9.3 (TAC NO. ME7951)," dated January 23, 2013.

In response to the Nuclear Regulatory Commission's (NRC's) request for information (Reference 1), PSEG Nuclear LLC (PSEG) provided an assessment of communications capability during a beyond-design basis, extended loss of AC power event via Reference 2. Based on its initial review of licensees' communications assessment

submittals, the NRC staff identified 8 generic technical issues for resolution. By letter dated January 23, 2013 (Reference 3), the NRC requested licensees to provide a response to the 8 issues within 30 days. Attachment 1 contains the requested response.

PSEG's communications assessment (Reference 2) includes a commitment to finalize an implementation plan for communications system improvements. PSEG's planned improvement actions and projected completion dates, developed in accordance with the aforementioned commitment, are included in Attachment 1 as part of PSEG's response to Generic Technical Issue 8. There are no new 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 2/2/13
(Date)

Sincerely,



Robert C. Braun
Senior Vice President, Nuclear Operations and Chief Operating Officer

Attachments:

1. PSEG Nuclear LLC's Response to NRC Technical Issues Regarding Communications Submittals Associated with Fukushima Near-Term Task Force Recommendation 9.3

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
NRC Senior Resident Inspector, Hope Creek
Mr. P. Mulligan, Manager IV, NJBNE
Hope Creek Commitment Tracking Coordinator
Salem Commitment Tracking Coordinator
PSEG Corporate Commitment Tracking Coordinator

PSEG Nuclear LLC's Response to NRC Technical Issues
Regarding Communications Submittals Associated with Fukushima Near-Term
Task Force Recommendation 9.3

Generic Technical Issue 1

The staff identified that licensees need to discuss how the power for the equipment analyzed is expected to be available, and how the planned communications enhancements are expected to be maintained. The following areas were identified:

- A. A detailed description of how power will be maintained for (1) planned or potential enhancements to the communication links and (2) existing equipment analyzed to be available.
1. The number of replacement batteries expected to be needed for a 24-hour duration, per the Nuclear Energy Institute (NEI) 12-01 "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities."
 2. Generator availability to charge batteries without offsite equipment for a duration of 24 hours.
 3. A description of how ancillary equipment supports operations for a 24-hour duration (e.g., adequacy of fuel supplies for the generators; and the minimum number of battery chargers expected to be necessary).

PSEG Response to Generic Technical Issue 1:

- A.1 As identified in Table 3.3.1 of PSEG's communications assessment report (Reference 1), existing equipment that is expected to remain available during a beyond-design basis large scale external event (LSEE) includes portions of the Salem and Hope Creek radio systems and Public Address (PA) plant paging systems. Also, satellite phones located in the Salem and Hope Creek Technical Support Centers (TSCs), the Salem Control Room area, and Emergency Operations Facility (EOF), are available as a backup means of communication with Offsite Response Organizations (OROs) and NRC. The Salem and Hope Creek PA and plant radio equipment expected to remain available in Reference 1 are battery-backed. The existing communications capability is not designed for 24 hours of backup power during an extended loss of offsite power resulting from a beyond-design basis LSEE.

Section 4.2 of Reference 1 addresses existing battery-backed PA system availability within approximately 30 minutes of the LSEE, consistent with NEI 12-01 (Reference 2) guidance. PSEG does not currently plan to enhance the PA systems to address the LSEE. Notification of onsite personnel as an initial action following declaration of an emergency event is addressed in response to Generic Technical Issue (GTI) 6.A.

Specific numbers of batteries and chargers to support 24 hours of operation have not been finalized. Enhancements identified in sections 3.3.2 and 3.3.3 of Reference 1, and included on the milestone schedule in response to GTI 8, include provisions for charged batteries sufficient to support satellite phone and hand-held radio use for a minimum of 24 hours.

- A.2 Existing communications capability does not credit the use of portable generators. PSEG has purchased 6 small, portable, diesel-powered generators, for deployment as part of the diverse and flexible coping strategies (FLEX), in accordance with NRC Order EA-12-049 (Reference 3). These generators will provide a means of charging batteries for communications equipment, without reliance on offsite equipment.
- A.3 Existing PSEG communications capability is not designed to provide 24 hours of backup power during an extended loss of AC power resulting from a beyond-design basis LSEE. PSEG plans to determine and purchase batteries and battery chargers for a minimum of 24 hours of backup power, as part of implementation of the actions on the milestone schedule provided in response to GTI 8. Regarding fuel supplies for portable diesel generators, FLEX guidance in Section 3.2.1.3 of NEI 12-06 (Reference 4), establishes an initial condition that fuel for FLEX equipment remains available, if it is robust with respect to seismic events, floods and high winds. Assumption 2.1.8 of the Reference 1 communications assessment report is also consistent with this FLEX guidance. Salem and Hope Creek Technical Specifications (TS) for Electrical Power Systems (TS 3.8.1.1 for operations and TS 3.8.1.2 for shutdown), require minimum volumes of diesel fuel of 23,000 gallons for Salem Unit 1, 23,000 gallons for Salem Unit 2, and 44,800 gallons per installed emergency diesel generator for Hope Creek. These minimum volumes are safety-related and will be credited during FLEX implementation, consistent with Reference 4 guidance. PSEG has purchased portable hand pumps and jerry cans to enable fuel transfer to the portable generators described above in response to 1.A.2.

Generic Technical Issue 2

The use and function of the planned enhancements for the improvement of communications.

- A. A description of the use of the planned enhancements.
 - 1. A discussion of whether each planned enhancement identified is only to be used for maintaining the communication link identified, or if it is expected to be shared among other communication links.
 - 2. A general description of the planned enhancement and how the equipment will be integrated.
 - 3. The title and general description of the procedure that will be developed and used by plant personnel to describe protocols for shared usage of communication capabilities.

PSEG Response to Generic Technical Issue 2:

- A. Potential improvements involving radio systems, satellite phones, and HAM radios are described in Reference 1, sections 3.3.2.A, 3.3.2.B, and 3.3.3.B, respectively. A milestone schedule for improvements, based on the Reference 1 assessment, is included in response to GTI 8:
 - A.1 PSEG's planned enhancements identified in response to GTI 8 include improvements to satellite phones (including the purchase of additional phones), improvements to existing radio systems, and evaluation of the feasibility of HAM radios as a backup to satellite phones. The planned enhancements to communication links do not involve sharing of equipment among different communication links.
 - A.2 Integration of newly installed features will be achieved consistent with existing plant processes and procedures, as described in response to GTI 4.
 - A.3 The planned enhancements do not involve sharing among other communication links. PSEG does not plan to develop any new procedures for establishing protocols for shared usage of communications capabilities.

Generic Technical Issue 3

The protection of the new equipment purchased as a planned enhancement as well as the protection of existing communications equipment analyzed as being available.

- A. A discussion of how the existing equipment analyzed to be available and enhancements to these communication links as well as associated ancillary equipment will be stored in a manner that is protective from a large scale natural event.
1. A description of pre-identified areas that are considered protective for existing equipment and whether new equipment will be stored in a similar location. The title and brief description of a procedure for new communications equipment storage is acceptable, if this procedure is planned to be developed in the future; or a statement that this will be completed in alignment with NRC Order EA-12-049.
 2. Equipment stored offsite, should have an analysis of duration to set-up this equipment for use.
 3. The analysis demonstrates that the existing equipment that is expected to be available will be functional.

PSEG Response to Generic Technical Issue 3:

Consistent with NEI 12-01 (Reference 2) assumptions, the Reference 1 communications assessment assumes onsite communications infrastructure remains available if it is reasonably protected from seismic, wind, and flooding events. As a beyond-design basis event, the LSEE does not include design basis bounding conditions (i.e., for seismic, wind, or flooding parameters). Safety-related structures throughout the site are considered to be protective of onsite equipment. Offsite communications infrastructure is assumed to be lost within approximately 25 miles of the site. Communications infrastructure at the EOF is assumed to be lost consistent with NEI 12-01 assumptions, because it is located within 25 miles of the PSEG site.

As noted in Section 4 of Reference 1, partial availability of existing onsite radio and PA systems is expected, based on reasonable protection. Satellite phones and plant radios are hand-held devices and are therefore considered to be available as a means of offsite (satellite phones) and onsite (plant radios) communication. For planned enhancements, reasonable protection of communications infrastructure will be addressed as part of implementing the actions identified in response to GTI 8, and implementation of FLEX strategies in accordance with NRC Order EA-12-049 (Reference 3).

- A.1 Consistent with NEI 12-01 (Reference 2), existing communications infrastructure credited in the PSEG Emergency Plan (Reference 5) is assumed to be available if it is reasonably protected from seismic, wind, and flooding hazards. Safety related structures throughout the site are considered to be protective. Availability of existing communications infrastructure is addressed in Section 4 of Reference 1.

Potential improvements to communications links, including use of ancillary equipment, will include consideration of reasonable protection. Identification of protective locations of new equipment will be addressed in alignment with FLEX strategies pursuant to NRC Order EA-12-049 (Reference 3).

- A.2 PSEG does not currently rely on offsite storage of communications equipment for set-up and use onsite. Timelines for deployment of offsite resources to support onsite communications equipment will be addressed, as applicable, consistent with FLEX implementation.
- A.3 Availability of existing radio systems, PA systems, and satellite phones is addressed in Section 4 of Reference 1. Partial functional capability of these links for onsite communications is expected, e.g., radio use may be limited to hand-held to hand-held communications, and the use of the radios and satellite phones may require personnel to move to a location, including an outdoor location, to enable communication by obtaining a signal.

Satellite phones, although not specifically mentioned in the PSEG Emergency Plan (Reference 5), Section 7, "Emergency Communications," are kept in each TSC, the Salem control room area, and the EOF for use by emergency response personnel. These satellite phones provide backup capability to the existing communications equipment described in the PSEG Emergency Plan. Satellite phones are included in the equipment function matrix of EP-AA-121, "Emergency Response Facilities and Equipment Readiness" (Reference 6), and are tested monthly (References 7, 8, and 9). Monthly testing of each phone includes a step to ensure that the battery is charged.

Planned enhancements to improve functionality of communications systems are included in response to GTI 8.

Generic Technical Issue 4

The programmatic controls for the use of the new equipment purchased as a planned enhancement.

- A. A description of planned proceduralization and training for the use of these planned enhancements. It is acceptable to provide the title and description of a new procedure for new communications equipment.
1. A description of any credited manual actions and their procedures.
 2. A description of any maintenance for this equipment, including operability testing.
 3. A description of any periodic inventory checks.
 4. A description of planned staff training.

PSEG Response to Generic Technical Issue 4:

- A.1 Manual actions and associated procedures, e.g., for aligning portable back-up power, will be addressed in alignment with implementation of FLEX strategies pursuant to NRC Order EA-12-049 (Reference 3).
- A.2 PSEG procedure EP-AA-121, "Emergency Response Facilities and Equipment Readiness," (Reference 6) describes the practices for ensuring that emergency response facilities and equipment are maintained in an operational state of readiness. PSEG procedure EP-AA-124, "Inventories and Surveillances" (Reference 10), describes the process used to ensure that the emergency facilities and equipment are inspected and inventoried in accordance with the Emergency Plan (Reference 5). These procedures and associated lower tier documents (e.g., training and reference material, communications checklists for specific facilities, etc.) will be evaluated and revised as appropriate to support implementation of the potential improvements. The planned improvements in response to GTI 8 include an action to ensure that supporting contracts with vendors are periodically verified, consistent with Section 4.8 of NEI 12-01 (Reference 2).
- A.3 See the response to A.2.
- A.4 Existing PSEG training and qualification processes will be used to develop the training of plant staff, in alignment with the implementation of FLEX strategies.

Generic Technical Issue 5

A discussion on what assumptions are used as part of the Communications Assessment.

- A. A description of the assumptions used for the submitted Communications Assessment Summary, and technical justification for any differences from the assumptions within NEI 12-01, Sections 2.2 "Assumptions Common To Both Assessments" and 2.4 "Assumptions For Communications Assessment."

PSEG Response to Generic Technical Issue 5:

Section 2 of Reference 1 includes the assumptions used in the assessment, which are consistent with those of NEI 12-01 Section 2.2 and Section 2.4.

Generic Technical Issue 6

How plant personnel will be notified in the event of a large scale natural event that causes a loss of all AC power.

- A. A description and title of the procedure for emergency notification of essentially all plant staff within 30 minutes [If applicable to the licensee Emergency Plan].
- B. A description and title of the procedure for notification of emergency response organization staff (i.e., self-activation) [If applicable].

PSEG Response to Generic Technical Issue 6:

- A. PSEG procedure NC.EP-EP.ZZ-0102, "Emergency Coordinator Response," (Reference 11) includes initial actions to notify all onsite personnel of any declared emergency. This onsite notification is estimated to occur within about 15 minutes of emergency declaration. For Alert or higher classifications, NC.EP-EP.ZZ-0102, Attachment 5, "Alert/SAE/GE - Emergency Message," also directs the implementation of NC.EP-EP.ZZ-0902(Q), "Assembly/Accountability/Evacuation," by the Security department. NC.EP-EP.ZZ-0902(Q), Section 5.1, "Assembly," directs the notification of all Security Force Members (SFMs) assigned to the field, as well as the use of security personnel to check and inform site personnel outside the plant structures, but within the Protected Area, to report to their assigned assembly area.
- B. Section 4.4 of Reference 1 addresses self-activation of the emergency response organization using PSEG Training and Reference Material (T&RM) EP-AA-120-1007, "Maintenance of the Emergency Response Organization" (Reference 12), which has been revised to include the following:

"All ERO Responders, when aware of a major loss or degradation of the electrical grid having the potential to negatively impact ERO notification methods, (i.e., the pager system, cellular telephones or home telephones) are expected to ENSURE their home and family are safe, then immediately REPORT to the EOF. ERO personnel traveling to the EOF should drive cautiously as unexpected road

hazards may be encountered. ERO Responder safety is of primary concern in fulfilling the obligation to protect the health and safety of the public and plant employees."

Generic Technical Issue 7

How communications will be maintained during the period of final implementation of the communication enhancements.

A. Identification and description of the interim actions that will be in place to bridge the gap until all final mitigation strategies being proceduralized are implemented. This also includes equipment protection.

PSEG Response to Generic Technical Issue 7:

Communications capability during a beyond-design basis LSEE is maintained via the following:

- Existing hand-held radio and PA capability for onsite communications.
- Existing satellite phones located in each TSC, the Salem Control Room area, and the EOF for offsite communications.
- Near term, interim improvements to radio system and satellite phone capability, included in the milestone schedule in response to GTI 8.

As noted in response to GTI 3, communications infrastructure, including portions of the PA system and plant radio systems at the PSEG site, are assumed to remain available if it is reasonably protected from seismic, wind and flooding events, consistent with NEI 12-01 (Reference 2). Satellite phones and portable radios are hand-held devices and are expected to be available to emergency response personnel. Planned enhancements, including interim actions that will be in place before all final mitigation strategies are implemented, will address reasonable protection of the enhanced capabilities.

Interim actions include purchase and use of:

- batteries and battery chargers for existing satellite phones and radios
- additional satellite phones, batteries and battery chargers.

Generic Technical Issue 8

Descriptions are needed regarding how communications will be maintained with the on-site and in-plant response teams and offsite response organizations if their communication links are not expected to be available.

- A. A timeline for when the evaluation for site specific improvements for on-site and in-plant response teams will be completed.
- B. A discussion of the enhancements that are planned for the offsite response organization communication links.

PSEG Response to Generic Technical Issue 8:

- A. As stated in Section 4.1.1 of Reference 1, the primary means of onsite communications with Offsite Response Organizations (OROs), during a beyond-design basis LSEE, would be satellite phones. The milestone schedule provided below includes improvements to onsite satellite phone capabilities. It also includes an action (Item 11) to determine the viability of using HAM radios at PSEG Emergency Response Facilities (ERFs), as a backup to satellite phones.
- B. Section 4.3 of Reference 1 addresses communications equipment at ORO facilities. As described in Note 4.3 of Reference 1 satellite phones and HAM radios at ORO facilities are not mentioned in the PSEG Emergency Plan (Reference 5). PSEG has confirmed that New Jersey State Emergency Operations Center (EOC); Delaware State EOC; Kent County, DE; New Castle County, DE; and Cumberland County, NJ have satellite phone capabilities. The following table provides a schedule for the PSEG planned communication systems improvements, based on sections 3.3.2 and 3.3.3 of Reference 1. The schedule includes improvements to satellite phone and HAM radio communications capabilities for onsite and in-plant response teams to communicate with OROs.

**PSEG's Planned Enhancements for Communications
During a Beyond-Design Basis LSEE**

| No. | Description | Projected Completion |
|-------------------------|---|---|
| 1. | Submit Initial Communications Assessment. | 10/31/ 2012 (Complete) |
| 2. | Respond to NRC Follow-up Letter on Technical Issues for Resolution Regarding Licensee Communication Submittals. | 2/22/2013 |
| 3. | Include status of communications improvements in 6-month FLEX status reports. | 8/31/2013 2/28/2014 8/31/2014 2/28/2015 8/31/2015 |
| Satellite Phones | | |
| 4. | Purchase additional batteries for existing satellite phones, to support 24 hours of operation. | 2 nd Quarter 2013 (2Q13) |
| 5. | Purchase satellite phones (includes, batteries, chargers, base stations, antennae etc.) for: (a) ERFs, e.g., Control Rooms, Operations Support Centers, Technical Support Centers, Emergency Operations Facility, and the Emergency News Center/Joint Information Center; and (b) onsite and offsite field teams. | 3Q13 |
| 6. | Provide the ERFs, and onsite and offsite field teams, with satellite phones and battery chargers. Revise Procedure EP-AA-121, "Emergency Response Facilities and Equipment Readiness," EP-AA-124, "Inventories and Surveillances," or associated lower tier documents such as training and reference material and checklists, to include the new satellite phones and battery chargers. | 4Q13 |

| Satellite Phones (continued) | | |
|-------------------------------------|---|------|
| 7. | Issue Design Change Package (DCP) to support Installation of satellite phone base units and antennae. | 1Q14 |
| 8. | Complete Installation, procedure revisions and training for satellite phone base units and antennae. | 2Q14 |
| Radio Communications | | |
| 9. | Procure new batteries and charging racks to extend the use of each EP hand-held radio to at least 24 hours (estimated 4 battery packs per radio). | 3Q13 |
| 10. | Evaluate critical UHF / VHF equipment to determine FLEX interface. | 2Q13 |
| 11. | Evaluate if the use of HAM Radios is appropriate and a viable option for a commercial entity as a backup to satellite phones in the CRs, TSCs, and EOF. | 1Q14 |
| Communications Vendors | | |
| 12. | Ensure that supporting contracts with EP communications vendors are periodically verified. | 4Q13 |

References

1. "Communications During an Extended Loss of AC Power Assessment Report, PSEG Nuclear LLC, Salem and Hope Creek Generating Stations," Revision 0; transmitted via PSEG Letter to NRC LR-N12-0351, dated October 31, 2012.
2. Nuclear Energy Institute (NEI) 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, dated May 2012.
3. 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.
4. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, dated August 2012.
5. PSEG Nuclear LLC Emergency Plan.
6. PSEG Procedure EP-AA-121, "Emergency Response Facilities and Equipment Readiness."
7. PSEG Form EP-AA-124-1001-F12, "Communication Checklists – Salem Station."
8. PSEG Form EP-AA-124-1001-F13, "Communication Checklists – Hope Creek Station."
9. PSEG Form EP-AA-124-1001-F14, "Communication Checklists – EOF."
10. PSEG Procedure EP-AA-124, "Inventories and Surveillances."
11. PSEG Procedure NC.EP-EP.ZZ-0102, "Emergency Coordinator Response."
12. PSEG Training and Reference Material EP-AA-120-1007, "Maintenance of the Emergency Response Organization."
13. PSEG Procedure NC.EP-EP.ZZ-0902(Q), "Assembly/Accountability/Evacuation."