UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 30, 2013

Mr. Kevin Walsh, Site Vice President
c/o Michael O'Keefe
Seabrook Station
NextEra Energy Seabrook, LLC
P.O. Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 – STAFF ASSESSMENT IN RESPONSE TO RECOMMENDATION 9.3 OF THE NEAR-TERM TASK FORCE RELATED TO THE FUKUSHIMA DAI-ICHI NUCLEAR POWER PLANT ACCIDENT (TAC NO. ME9986)

Dear Mr. Walsh:

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340), the U.S. Nuclear Regulatory Commission (NRC) issued a request for information pursuant to Section 50.54(f) to Title 10 of the *Code of Federal Regulations* (henceforth referred to as the 50.54(f) letter). The request was issued as part of implementing lessons learned from the accident at the Fukushima Dai-ichi nuclear power plant. Enclosure 5 to the 50.54(f) letter contained specific requested information associated with the NRC's Near-Term Task Force Recommendation 9.3 for emergency preparedness communications. Specifically, the letter requested that licensees provide an assessment of the current communications systems and equipment used during an emergency event.

By letter dated October 31, 2012 (ADAMS Accession No. ML12311A034), NextEra Energy Seabrook, LLC (the licensee, NextEra) responded to this request for Seabrook Station, Unit No. 1 (Seabrook). Generic technical concerns were issued by the NRC in a letter dated January 23, 2013 (ADAMS Accession No. ML13010A162). NextEra supplemented its response in a letter, dated February 21, 2013 (ADAMS Accession No. ML13060A048).

The NRC staff has reviewed the communications assessments for Seabrook and, as documented in the enclosed safety assessment, determined that the assessment for communications is reasonable, and the interim measures, analyzed existing systems, and proposed enhancements will help to ensure that communications are maintained. Further, in coordination with the Near-Term Task Force Recommendation 4.2 (mitigating strategies), the NRC staff plans to follow up with the licensee to confirm that upgrades to the site's communications systems have been completed.

If you have any questions, please contact me at (301) 415-3100 or via e-mail at john.lamb@nrc.gov.

Sincerely,

John G. Lamb, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure:
Safety Assessment

cc w/encl: Distribution via Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY ASSESSMENT BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REVIEW OF COMMUNICATIONS ASSESSMENT IN RESPONSE TO

REQUEST FOR INFORMATION DATED MARCH 12, 2012

NEXTERA ENERGY SEABROOK, LLC

SEABROOK STATION

DOCKET NO. 50-443

1.0 INTRODUCTION

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340), the U.S. Nuclear Regulatory Commission (NRC) issued a request for information pursuant to Section 50.54(f) to Title 10 of the *Code of Federal Regulations* (10 CFR) (henceforth referred to as the 50.54(f) letter). The request was issued as a part of implementing lessons learned from the accident at the Fukushima Dai-ichi nuclear power plant. Enclosure 5 to the 50.54(f) letter contained specific requested information associated with the NRC's Near-Term Task Force Recommendation 9.3 for emergency preparedness communications. Specifically, the letter requested that licensees provide an assessment of the current communications system and equipment used during an emergency event.

By letter dated October 31, 2012 (ADAMS Accession No. ML12311A034), NextEra Energy Seabrook, LLC (NextEra, or the licensee), provided an assessment of its communications capabilities in response to the NRC's request for information.

Within the licensee response letter, an assessment of the current communications systems and equipment to be used during an emergency event was performed to identify any enhancements needed to ensure communications are maintained during and following a beyond design-basis large-scale natural event. In this assessment, it was assumed that a large-scale natural event causes: (1) a loss of all alternating current (ac) power; and (2) extensive damage to normal and emergency communications systems both onsite and in the area surrounding the site (i.e., within 25 miles of the site, consistent with the guidance endorsed by NRC's letter dated May 15, 2012).[1] Additionally, interim actions were identified by the licensee during the period of implementation of the planned improvements to the communications systems or procedures (ADAMS Accession No. ML12166A324).

[1] Skeen, D.L., U.S. Nuclear Regulatory Commission, letter to Susan Perkins-Grew, Nuclear Energy Institute, "U.S. Nuclear Regulatory Commission Review of NEI 12-01, 'Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities,' Revision 0,," dated May 15, 2012 (ADAMS Accession No. ML12131A043).

1.1 Background

On March 12, 2012, NRC issued a letter entitled, "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." In accordance with 10 CFR 50.54(f), addressees were requested to submit a written response to the information requests within 90 days.

The 50.54(f) letter stated that if an addressee could not meet the requested response date, then the addressee must respond within 60 days of the date of the letter, and describe the alternative course of action that it proposes to take, including any estimated completion date. By letter dated May 10, 2012 (ADAMS Accession No. ML12136A238), the licensee committed to submit its completed communications assessment and implementation schedule by October 31, 2012. By letter dated June 8, 2012 (ADAMS Accession No. ML12166A324), the licensee also provided its description of any interim actions (discussed in further detail in Section 3.0) that have been taken or are planned to be taken to enhance existing communications systems power supplies until the communications assessment and the resulting actions are complete. The NRC staff found the proposed schedule acceptable by letter dated July 26, 2012 (ADAMS Accession No. ML12200A106).

Enclosure 5 of the 50.54(f) letter contained specific requested information associated with NRC's Near-Term Task Force Recommendation 9.3 for emergency preparedness communications. Specifically, the letter requested that licensees provide an assessment of the current communications systems and equipment used during an emergency event to identify any enhancements that may be needed to ensure communications are maintained during a large-scale natural event and subsequent loss of ac power. The licensee's assessment should:

- identify any planned or potential improvements to existing onsite communications systems and their required normal and/or backup power supplies;
- identify any planned or potential improvements to existing offsite communications systems and their required normal and/or backup power supplies;
- provide a description of any new communications system(s) or technologies that will be deployed based upon a large-scale natural event and damage to communications systems onsite and offsite; and
- provide a description of how the new and/or improved systems and power supplies will be able to provide for communications during a loss of all ac power.

The 50.54(f) letter also asked for licensees to:

- describe any interim actions that have been taken or are planned to be taken to enhance existing communications systems power supplies until the communications assessment and the resulting actions are complete; and

- provide a schedule of the time needed to implement the results of the communications assessment.

2.0 REGULATORY EVALUATION

The NRC staff reviewed the licensee's responses to the 50.54(f) letter against the regulations and guidance described below.

2.1 Regulations

Section 50.47, "Emergency plans," to 10 CFR Part 50, sets forth emergency plan requirements for nuclear power plant facilities.

Section 50.47(b) establishes the standards that the onsite and offsite emergency response plans must meet for NRC staff to make a positive finding that there is reasonable assurance that the licensee can and will take adequate protective measures in the event of a radiological emergency. Planning Standard (6) of this section requires that a licensee's emergency response plan contain provisions for communications among response organizations to emergency personnel and the public. Planning Standard (8) requires that the design should include adequate emergency facilities and equipment to support emergency response.

Section IV.D, "Notification Procedures," of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, requires that a licensee have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency. The design objective of the alert and notification system shall be to have the capability to complete the alerting and initiate notification of the public within the plume exposure pathway within approximately 15 minutes. This alerting and notification capability will include a backup method of public alerting and notification.

Section IV.E, "Emergency Facilities and Equipment," of Appendix E, to 10 CFR Part 50, states that adequate provisions will be made and described for emergency facilities including at least one onsite and one offsite communications system; and each system shall have a backup power source. These arrangements will include:

a. Provision for communications with contiguous State/local governments within the plume exposure pathway emergency planning zone.

b. Provision for communications with Federal emergency response organizations.

c. Provision for communications among the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams.

d. Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility.

2.2 Guidance

Nuclear Energy Institute (NEI) 12-01, Revision 0, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," dated May 2012, presents a methodology for licensees to analyze their ability to perform critical communications during and after a large-scale natural event. NRC staff has previously reviewed NEI 12-01 (ADAMS Accession No. ML12131A043), and determined that it was an acceptable method for licensees to use in responding to NRC's March 12, 2012, information request.

The NRC staff reviewed the licensees' analyses against the assumptions and guidance within NEI 12-01, Sections 2.2, 2.4 and 4. These sections provide a discussion on the assumptions and criteria to be used for a communications assessment.

3.0 TECHNICAL EVALUATION

In its letter dated October 31, 2012, the licensee submitted its assessment of communications assuming a large-scale natural event, which would lead to an extended loss of all ac power. This letter included a discussion of required communications links, primary and backup methods of communications, and any identified improvements.

On January 23, 2013 (ADAMS Accession No. ML13010A162), the NRC staff sent a letter to all operating reactor licensees requesting that eight generic technical issues, derived from NEI 12-01, be analyzed for applicability to its Communications Assessments. Seabrook Station responded to these generic technical issues by letter dated February 21, 2013 (ADAMS Accession No. ML13060A048).

3.1 Communication Areas Reviewed

3.1.1 Communication Links

Seabrook Station currently has communications capabilities with offsite response organizations, the NRC, between licensee emergency response facilities, with field and offsite monitoring teams, and with in-plant and offsite licensee emergency response organization staff. As part of its communications assessment, the licensee has determined that certain existing communications system equipment such as radios, sound powered phones, and private branch exchange phones would be available after implementation of planned enhancements, for the communication links listed above given a seismic, high wind, or flooding event. The final location of the equipment will be consistent with criteria contained within seismic category I; or uniform building code seismic zone 3.[2]

As an interim measure prior to the implementation of all planned enhancements, the licensee purchased additional supplies of portable satellite phones and generators for the site. Existing site radios will be used in point-to-point communications. Site instructions will be in place to help ensure the availability of the interim measures by providing for the charging of the satellite

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[2] The staff considers the storing of equipment within buildings designed for Uniform Building Code Seismic Zone 3 (i.e., 0.3g) to be reasonable considering the guidance in NEI 12-01, and Seabrook Station is located in Seismic Zone 2A (i.e., 0.15g). This review of reasonable protection only applies to meeting the guidance within NEI 12-01.

phones and radio batteries by September 30, 2013. These generators and satellite phones will be stored in protective areas by September 30, 2013.

As the planned enhancement, the licensee plans on enhancing communication systems for the links outlined in Section 4 of NEI 12-01. Satellite phones will be utilized as one of the methods for maintaining each offsite communication link. Communications among onsite Seabrook emergency facilities will primarily use the private branch exchange telephone system. Sound powered phones would be used to augment the private branch exchange system in plant facilities that are seismically protected. Onsite and in-plant response teams will utilize combinations of radios and their onsite telephone systems as backup (i.e., private branch exchange and sound powered phones). Field and offsite monitoring teams will use radio communications. The licensee is planning on enhancing the satellite telephones by staging the phones, extra batteries, and chargers in protected areas and installing a base station within the technical support center. Radios will be enhanced by storing the radios and portable generators for charging batteries in protected areas. The private exchange telephone system will be enhanced by making a portable generator available for powering the system. The licensee also confirmed that communications with offsite response organizations will be maintained with existing radios and equipment (the offsite response organizations are outside of the affected area). The licensee will put these enhancements in place, with licensee-approved procedures by September 30, 2013.

The NRC staff has reviewed the licensee's expected communications links within its communications assessment. In reviewing the licensee's submittal, the NRC staff considered whether it is reasonable that each communication link can be maintained, after the implementation of all planned enhancements, in accordance with the NRC-endorsed guidance of NEI 12-01. The satellite telephones are expected to help maintain communications offsite by their ability to function without offsite infrastructure postulated to be damaged by a large-scale natural event. The radios will help ensure communications in areas of the plant due to the ability to function in point-to-point mode and based on its storage locations, which would enhance its survivability. The private branch exchange system is primarily located in an area determined to be protective, and is backed-up by the sound powered phone system. Enhancements made to help the survivability of the private branch exchange phone systems, by providing for backup power, will help to provide for its use in the event of a large-scale natural event. The NRC staff concludes that since the licensee's assessment for the availability of communications systems is reasonable, and planned enhancements are to be made for communications areas to help ensure reliability, the licensee's interim measures and proposed enhancements will help to ensure that communications are maintained consistent with the assumptions in NRC-endorsed guidance of NEI 12-01.

3.1.2 Equipment Location

Seabrook Station has analyzed the survivability of its existing equipment for large-scale natural events by defining structures as meeting seismic category 1 standards (i.e., safe-shutdown earthquake) or are designed to twice the uniform building code area standards. Further, equipment locations were also analyzed to be protective against wind, and flooding. This criteria was also used to determine ancillary equipment storage locations, including the generators and battery chargers that will be used to support the interim measures and/or planned enhancements. Modifications have also been made to communications systems to

help provide for further measures of survivability given a large-scale natural event (i.e., powering the private branch exchange phone system). While not specifically analyzed, portions of the sound powered phones are expected to be available due to its locations within seismically protected buildings and its wiring runs within plant instrumentation raceway systems. The relocation of equipment for its protection will be completed by September 30, 2013.

NRC staff reviewed the licensee's submittal and verified that the licensee has considered the equipment location and protection contained within the NRC-endorsed guidance of NEI 12-01. The NRC staff also verified that all equipment discussed in Section 3.1.1 of this document has been analyzed to be available after a large-scale natural event, has a reasonable backup system, or would be stored in a reasonably protected area from seismic, flooding, and high wind events as discussed in NEI 12-01. The NRC staff also ensured that ancillary equipment, such as batteries and fuel supplies also would be protected from seismic, flooding, and high wind events.

Based on this review, the staff considers the licensee's analysis of communications assessment equipment survivability and proposed enhancements for equipment location to be consistent with NRC-endorsed guidance of NEI 12-01. This determination of equipment protection, support the conclusion that these measures will help to ensure communications equipment availability for a large-scale natural event.

3.1.3 Equipment Power and Fuel

Seabrook Station has analyzed the availability of its communications system power supplies following the loss of all ac power. The licensee has proposed a combination of batteries and generators to power site communications equipment, including the satellite phones, radio system, and private branch exchange phone system, and has procured extra batteries for this equipment. The site strategies will result in: (1) each satellite phone having an adequate battery supply for operations for 24 hours and to allow for charging; (2) radios having an adequate battery supply for operations for 24 hours and to allow for charging; (3) the ability to power the private branch exchange phone system with a generator; and (4) large amounts of fuel for the generators. It is expected that this equipment has power to support communications for a minimum of 24 hours, based on assumptions for impeded site access. The licensee is planning on having these enhancements to the communications system power supplies completed by September 30, 2013, with approved procedures.

The NRC staff has reviewed the licensee's communications assessment power supplies. In reviewing their submittal, the NRC staff finds it reasonable that power for the existing equipment and proposed enhancement equipment, as listed in Section 3.1.1 of this document, would remain available for a 24-hour duration, based on the availability of extra batteries and generator fuel, and planned proceduralization of charging strategies. Additionally, the licensee's proposed enhancement is in accordance with NRC-endorsed guidance of NEI 12-01.

Based on this review, the staff considers the licensee's analysis of equipment power and proposed enhancements for equipment power to be consistent with NRC-endorsed guidance of NEI 12-01. This determination of available equipment power, support the conclusion that these measures will help to ensure communications equipment functionality for a large-scale natural event.

3.1.4 Proceduralization and Training

Seabrook Station has confirmed that there are sufficient reserves of equipment to minimize the need of multi-use equipment for different communication functions. Required new or modified procedures for new communications equipment maintenance will be developed for the: (1) use of the portable satellite phones; (2) connection of the portable generators to the private branch exchange telephone system and the battery chargers; and (3) fueling portable generators. These procedures will be in-place by September 30, 2013. The maintenance of the equipment to ensure reliability will be completed in accordance with the manufacturer; inventory and operational checks will be completed at least semi-annually. Licensee staff will be annually trained on the location and use of this communications equipment.

Existing site procedures utilize the public address system (with battery backup) to provide for notification to plant employees of an event. The licensee has procedures in place for emergency response organization staff self-activation due to major disturbances in the power grid. These site procedures will activate the offsite emergency response organization and notify plant staff.

The NRC staff reviewed the licensee's commitments on the planned quality assurance and maintenance of the equipment and licensee staff training on the use of this equipment. The NRC staff determined that the licensee's submittal is in accordance with the NRC-endorsed guidance of NEI 12-01.

Based on this review, the staff considers the licensee's planned proceduralization of equipment use and licensee staff training to be consistent with NRC-endorsed guidance of NEI 12-01. This determination of equipment availability and functionality, support the conclusion that these measures will help to ensure communications equipment functionality for a large-scale natural event.

4.0 CONCLUSION

The NRC staff has reviewed the licensee's communications assessment for communications with or among: offsite response organizations, the NRC, licensee emergency response facilities, field and offsite monitoring teams, and on-site and in-plant response teams. In reviewing the licensee's submittal, the NRC staff considered the factors as outlined above, and determined that its assessment of existing equipment, proposed enhancements and interim actions was in accordance with the NRC-endorsed guidance of NEI 12-01. The staff concludes that the licensee's assessment for communications is reasonable, and the licensee's interim measures and proposed enhancements will help to ensure that communications are maintained. Further, in coordination with the Near-Term Task Force Recommendation 4.2 (mitigating strategies), NRC staff plans to follow up with the licensee to confirm that upgrades to the site's communications systems have been completed.

Principal Contributor: K. Williams, NSIR

Date: April 30, 2013

If you have any questions, please contact me at (301) 415-3100 or via e-mail at john.lamb@nrc.gov.

Sincerely,

/ra/

John G. Lamb, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure:
Safety Assessment

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