



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

April 24, 2013

Mr. George H. Gellrich, Vice President
Calvert Cliffs Nuclear Power Plant, Inc.
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 - 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 NOS. ME9947 AND ME9948)

Dear Mr. Gellrich:

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 (RFI) pursuant Section 50.54, paragraph (f) of Title 10 of the *Code of Federal Regulations* (10 CFR), regarding Recommendations 2.1 (seismic and flooding evaluations), 2.3 (seismic and flooding walkdowns), and 9.3 (emergency preparedness communication and staffing) of the Near Term Task Force review of insights from the Fukushima Dai-ichi accident. With respect to Recommendation 9.3, Enclosure 5 to the NRC's letter requested licensees to assess their means to power communications equipment onsite and offsite during a prolonged Station Blackout event and to perform a staffing study to determine the staff required to fill all necessary positions in response to a multi-unit event.

By letter dated October 26, 2012 (ADAMS Accession No. ML12311A300), Constellation Energy Nuclear Group, LLC (the licensee), responded to this request for Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (CCNPP 1 and 2). Generic technical concerns were issued by the NRC in a letter dated January 23, 2013 (ADAMS Accession No. ML13016A111).

The licensee provided regulatory commitments in its submission dated October 26, 2012, in response to the March 12, 2012 request for information. The NRC staff's review did not rely on these regulatory commitments for determination of the acceptability of the licensee's communications assessments and the interim measures, analyzed existing systems, and proposed enhancements for CCNPP 1 and 2. As a NTTF initiative and in coordination with the near term task force recommendation 4.2 (mitigating strategies), the NRC staff is planning on following up with the licensee to confirm that the regulatory commitments made by the licensee regarding the upgrades to the site's communications systems have been completed.

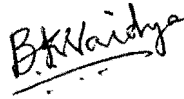
G. H. Gellrich

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The NRC staff has reviewed the communications assessments for CCNPP 1 and 2 and, as documented in the enclosed staff 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.

If you have any questions, please contact me at (301) 415-3308.

Sincerely,

A handwritten signature in black ink that reads "B.K. Vaidya". The signature is written in a cursive style with a horizontal line underneath the name.

Bhalchandra K. Vaidya, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosures:
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

ASSESSMENT OF COMMUNICATIONS IN RESPONSE TO

REQUEST FOR INFORMATION DATED MARCH 12, 2012

CONSTELLATION ENERGY NUCLEAR GROUP, LLC

CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-317; 50-318

1.0 INTRODUCTION

By letter dated October 26, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12311A300), Constellation Energy Nuclear Group, LLC (the licensee), for Calvert Cliffs Nuclear Power Plant, Units 1 and 2 provided an assessment of its communications capabilities in response to the U.S. Nuclear Regulatory Commission's (NRC's) March 12, 2012 (ADAMS Accession No. ML12053A340), request for information, regarding the Near-Term Task Force Recommendation 9.3 on emergency preparedness communications, under Section 50.54(f) to Title 10 to the *Code of Federal Regulations* (10 CFR).

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 May 15, 2012 [ADAMS Accession No. ML12131A043], letter). Additionally, interim actions (ADAMS Accession No. ML12165A315) were identified by the licensee during the period of implementation of the planned improvements to the communications systems or procedures.

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 March 12, 2012 letter states that if an addressee cannot 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.

On May 11, 2012 (ADAMS Accession No. ML12136A231), the licensee committed to submitting their completed communications assessment and implementation schedule by October 31, 2012. On June 8, 2012 (ADAMS Accession No. ML12165A315), the licensee also provided their 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 NRC's March 12, 2012 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 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 March 12, 2012, 10 CFR 50.54(f), request for information 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 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 of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," 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

The Nuclear Energy Institute's (NEI) 12-01 "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," 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 (ADAMS Accession No. ML12131A043) NEI 12-01 and determined that it was an acceptable method for licensees to use in responding to NRC's March 12, 2012 information request.

The 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 October 26, 2012 letter, 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 February 22, 2013 (ADAMS Accession No. M13066A710), the licensee submitted supplemental information and a revision to their October 26, 2012 communications response, which the NRC staff reviewed as part of this evaluation.

3.1 Communication Areas Reviewed

3.1.1 Communication Links

Calvert Cliffs Nuclear Power Plant, Units 1 and 2 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 some existing communications system equipment¹, such as satellite phones and radio systems, would be available after implementation of planned enhancements, for certain communication links listed above given a seismic, high wind, or flooding event. This was determined by ensuring that the final location of the equipment will be located in emergency response facilities or consistent with protectiveness criteria contained within NEI 12-06², "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide."

As an interim measure prior to the implementation of all planned enhancements, the licensee is utilizing existing site communication systems, including radio-to-radio communications and existing satellite telephones. Portable generators were purchased for charging satellite phone batteries and radio chargers. This equipment will be used as an interim measure, and these communication systems will be further enhanced as part the implementation of the communication assessment results (e.g., purchasing more satellite phones and enhancing the radio repeater power supplies). Initial training on the location and use of this equipment will be completed via a Standing Order. The current protectiveness of the satellite phones is based on the diversity of the storage locations, such as the site emergency operations facility and the technical support center (a seismic class I structure).

As the planned enhancement, the licensee has a schedule for ensuring that radios or satellite telephones for each communication link outlined in Section 4 of NEI 12-01 is available. As part of its planned enhancements for the satellite phones, the licensee is purchasing and installing additional fixed satellite phones and uninterruptible power supplies. As part of its planned enhancements for the site radios, the licensee is powering the system with uninterruptible power supplies and providing battery capabilities for 24 hours of operations. The licensee also committed to implementing planned improvements for communications with offsite response organizations, by ensuring each affected organization has a satellite phone. The licensee will put these enhancements in place, with licensee approved procedures in phases, ranging from

1 Sound powered phones are also expected to be available for use for onsite communications.

2 FLEX is outlined for consideration as a definition of protectiveness within NEI 12-01, Section 2.4.

providing preventative maintenance procedures for portable satellite phones by December 2013 to installing fixed satellite phones and uninterruptible power supplies by December 2014.

The NRC staff has reviewed the licensee's expected communications links within their communications assessment. In reviewing their 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 of the plant due to their ability to function without installed infrastructure. The radios and satellite phones will help ensure communications onsite due to the redundancy of the communication systems, and backup power supplies for the radio system. 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 availability, 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

Calvert Cliffs Nuclear Power Plant, Units 1 and 2, has analyzed the survivability of their communications equipment for large-scale natural events by committing to storing their satellite phones, radios and batteries within emergency response facilities or in accordance with FLEX criteria. The generators and battery chargers that will be used to support the interim measures and/or planned enhancements, will also be stored in areas reasonably protected from seismic, flooding, and high winds (in accordance with FLEX criteria). Fuel strategies for these generators will be completed by August 2015. The determination of the protectiveness of onsite buildings for the storage of equipment will be completed by December 2013, or in alignment with FLEX.

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 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 generators 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 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

Calvert Cliffs Nuclear Power Plant, Units 1 and 2, has analyzed the availability of their communications system power supplies following the loss of all ac power. The licensee has proposed a combination of batteries, generators, and uninterruptible power supplies to power site communications equipment, including the satellite phones, and radios, and has extra batteries for this equipment. The site strategies will result in: (1) each portable satellite phone having a sufficient battery supply to operate the phone for 24 hours; (2) fixed satellite phones

having a 24 hour uninterruptible power supply; (3) radios will be provided with a 24 hour power supply capability through batteries and chargers; and (4) the radio system will be powered by a uninterruptible power supply. It is expected that this equipment has power to support communications for a minimum of 24 hours, based on assumptions for impeded site access. A future fueling and use strategy (consistent with FLEX) for generators is being developed and will be used to provide power for a minimum of 24 hours. The licensee is planning on having these enhancements to the communication system power supplies completed by August 2015.

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 uninterruptible power supplies. 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 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

Calvert Cliffs Nuclear Power Plant, Units 1 and 2, has confirmed that there will be sufficient reserves of equipment to minimize the need of multi-use equipment for different communication functions. The licensee currently has programmatic controls in place for all communications equipment to ensure availability and reliability, including inventory checks and operability testing. Updates to existing procedures, or new procedures for the planned enhancements will be completed by December 2014. In the interim, licensee staff will be trained on equipment location and use.

Site procedures will be modified by December 2013, to allow for the notification of plant employees by bullhorn if the public address system is nonfunctional. The licensee has procedures in place for emergency response organization staff self-activation due to large-scale natural events. 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, maintenance, and 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, 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.

3.2 Regulatory Commitments

The licensee's regulatory commitments listed below were provided in its submission dated October 26, 2012, in response to the March 12, 2012 request for information.

TABLE 1

REGULATORY COMMITMENT	DUE DATE
Communications equipment installed or upgraded to support implementation of the FLEX strategies will be put in service in accordance with NRC Order EA-12-049 and Interim Staff Guidance (ISG) JLD-ISG-2012-01	December 31, 2016
Implement the Calvert Cliffs Unit 1 improvements related to mitigating strategies (FLEX) derived from the results of the communications assessment	Prior to refueling outage startup Spring 2016
Implement the Calvert Cliffs Unit 2(*) improvements related to mitigating strategies (FLEX) derived from the results of the communications assessment	Prior to refueling outage startup Spring 2015

(*) Reflects the correction of a typographical error from "Unit 1" to "Unit 2."

The NRC staff's review did not rely on these regulatory commitments for determination of the acceptability of the licensee's communications assessments and the interim measures, analyzed existing systems, and proposed enhancements for CCNPP 1 and 2. As a NTTF initiative and in coordination with the near term task force recommendation 4.2 (mitigating strategies), the NRC staff is planning on following up with the licensee to confirm that the regulatory commitments made by the license regarding the upgrades to the site's communications systems have been completed.

4.0 CONCLUSION

The NRC staff has reviewed the licensee's communications assessment for communications with or among: offsite response organizations, NRC, licensee emergency response facilities, field and offsite monitoring teams, and on-site and in-plant response teams. In reviewing their submittal, the NRC staff considered a number of factors, outlined above, and determined that their 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 is planning on following up with the licensee to confirm that upgrades to the site's communications systems have been completed.

Principal Contributor: R. Chang
E. Robinson

Date: April 24, 2013

G. H. Gellrich

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The NRC staff has reviewed the communications assessments for CCNPP 1 and 2 and, as documented in the enclosed staff 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.

If you have any questions, please contact me at (301) 415-3308.

Sincerely,

/ra/

Bhalchandra K. Vaidya, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosures:
Safety Assessment

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ADAMS Accession No. ML13100A240

(Via email dated 04/18/13)

OFFICE	LPLI-1/PM	LPLI-1/LA	NSIR/DPR/NRLB/BC	OGC (NLO w/comment)	LPLI-1/BC	LPLI-1/PM
NAME	BVaidya	KGoldstein	KWilliams(*)	BHarris	SMeighan	BVaidya
DATE	4/18/13	04/18/13	04/18/13	04/23/13	04/24/13	04/24/13

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