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February 22, 2013

10 CFR 50.4
10 CFR 50.54(f)

U. S. Nuclear Regulatory Commission
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SUBJECT: Duke Energy Carolinas, LLC (Duke Energy)
Catawba Nuclear Station (CNS), Units 1 And 2
Docket Nos. 50-413 and 50-414
Renewed License Nos. NPF-35 and NPF-52
McGuire Nuclear Station (MNS), Units 1 and 2
Docket Nos. 50-369 and 50-370
Renewed License Nos. NPF-9 and NPF-17
Oconee Nuclear Station (ONS), Units 1, 2, and 3
Docket Nos. 50-269, 50-270, and 50-287
Renewed License Nos. DPR-38, DPR-47, and DPR-55
Response to NRC Follow-up Letter on Technical Issues For Resolution
Regarding Licensee Communication Submittals Associated With Near-Term
Task Force Recommendation 9.3, dated January 23, 2013 (TAC No. ME7951)

REFERENCE:

1. 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, Accession No. ML12053A340
2. Duke Energy's 60-Day Response to the March 12, 2012, Request for Information Regarding Enclosure 5, Recommendation 9.3: Emergency Preparedness, dated May 9, 2012, Accession No. ML12132A377
3. Duke Energy Letter dated October 31, 2012, Emergency Preparedness Information Requested by 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, Accession No. ML12311A028
4. NRC Letter, Matthew A. Mitchell (NRC) to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status, *Follow-Up Letter on Technical Issues for Resolution Regarding Licensee Communication Submittals Associated With Near-Term Task Force Recommendation 9.3*, dated January 23, 2013, (TAC No. ME7951), Accession No. ML13010A162

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On March 12, 2012, the NRC staff issued Reference 1. Enclosure 5 of Reference 1 contains specific Requested Actions and Requested Information associated with Near-Term Task Force (NTTF) Recommendation 9.3 for Emergency Preparedness (EP) programs. In accordance with 10 CFR 50.54, "Conditions of licensees," paragraph (f), addressees were requested to submit a written response to the information requests within 90 days.

Duke Energy responded to Reference 1 and submitted an alternative course of action for providing the requested information via letter dated May 9, 2012 (i.e., Reference 2). The alternate course of action included, among other things, a plan to provide the Phase 1 Communications Assessment results and associated implementation schedule by October 31, 2012.

On October 31, 2012, Duke Energy provided the Phase 1 Communications Assessment results and associated implementation schedule (i.e., Reference 3). Subsequently, the NRC identified eight generic technical issues needing resolution to complete its evaluation of that response. On January 23, 2013, the NRC sent a follow-up letter documenting the eight generic technical issues providing licensees the opportunity to supplement their original submittal (i.e., Reference 4).

The Enclosures to this letter provide Duke Energy's response to the NRC's January 23, 2013 follow-up letter as follows:

- Enclosure 1, Response to Follow-Up Letter: Catawba Nuclear Station, Unit Nos. 1 and 2
- Enclosure 2, Response to Follow-Up Letter: McGuire Nuclear Station, Unit Nos. 1 and 2
- Enclosure 3, Response to Follow-Up Letter: Oconee Nuclear Station, Unit Nos. 1, 2, and 3

This letter contains no new regulatory commitments. Any actions discussed in the Enclosures should be considered intended or planned enhancement actions.

If you have any questions or require additional information, please contact Donna Alexander, Manager - Nuclear Regulatory Affairs, at (919) 546-5357.

I declare under the penalty of perjury that the foregoing is true and correct. Executed on February 22, 2013.

Sincerely,



Benjamin C. Waldrep
Vice President – Corporate Governance &
Operations Support

Enclosures:

1. Response to Follow-Up Letter: Catawba Nuclear Plant, Unit Nos. 1 and 2
2. Response to Follow-Up Letter: McGuire Nuclear Plant, Unit Nos. 1 and 2
3. Response to Follow-Up Letter: Oconee Nuclear Plant, Unit Nos. 1, 2 and 3

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Enclosure 1

Response to Follow-Up Letter:

**Catawba Nuclear Station (CNS), Unit Nos. 1 and 2
Docket Nos. 50-413 and 50-414
Renewed License Nos. NPF-35 and NPF-52**

**CNS RESPONSE TO NRC'S 10 CFR 50.54(F) INFORMATION REQUEST-
COMMUNICATIONS
REQUEST FOR ADDITIONAL INFORMATION**

Background

On March 12, 2012, the NRC staff 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 part, the request for information asked that licensees assess their current communications systems and equipment during a large scale natural event and loss of all alternating current power. On October 31, 2012, licensees responded to the NRC's request for information regarding communications. Upon the NRC's review of the licensee's communications submittals, the staff has identified generic technical issues which need to be resolved in order for the staff to complete its review.

Nuclear Energy Institute (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. According to the NRC letter from D.L. Skeen to S. Perkins-Grew dated May 15, 2012, the NRC staff reviewed NEI 12-01 and found it to be an acceptable method for licensees to employ when responding to NRC's March 12, 2012 information request.

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).

Response:

An assessment of the survivability of primary or backup communications systems described in the Emergency Plan (E-Plan) or Emergency Plan Implementing Procedures (EPIPs) during a beyond design basis extended loss of alternating current (AC) power event was not performed. Instead, it was conservatively assumed that such communication systems would not be relied upon during a beyond design basis extended loss of AC power event. As a result, no improvements will be made to *existing* onsite and offsite communications systems and their required normal and/or backup power supplies.

Onsite communications can be established via line-of-sight (without the aid of a repeater or antenna system), hand-held radios and offsite communications via hand-held satellite phones.

There are approximately 330 Motorola XPR 7550 hand-held radios on-site. They are stored in security, operations, fire protection storage, and maintenance areas. There are approximately 330 spare batteries, in addition to the batteries currently installed within the radios.

Issue 1.A.1

The Emergency Response Organization needs a minimum of 34 Motorola XPR 7550 hand-held radios. With the installed batteries needed to support emergency response and 68 additional Motorola Impress batteries, this will provide 24 hours of use. At least 38 (6)-gang Motorola Impress battery chargers are onsite and available for use by the Emergency Response Organization.

According to the manufacturer, a fully charged battery will last approximately 18 hours. CNS allows for more rigorous use and assumes the battery will last only 12 hrs. Fully discharged batteries can be fully recharged within 4 hours using the rapid rate charge feature.

There will be 45 hand-held Iridium Portable handset model 9555 satellite phones, 135 Lithium-Ion batteries, and 45 Iridium battery chargers onsite and available for use by the Emergency Response Organization.

According to the manufacturer, a fully charged battery pack will remain active for approximately 43 hours on standby and has a talk time of approximately 6.5 hours. A fully "discharged" battery will "recharge" in approximately 4-5 hours. Starting with three fully charged batteries will allow one to be in use, one on charge, and one on standby, thus the optimum number of batteries is three per hand-held satellite phone.

Issue 1.A.2

Eight 6kW portable generators were purchased and are onsite. They can be used to power hand-held radio battery chargers and hand-held satellite phone battery chargers.

Each satellite phone battery charger requires approximately 15 watts.

Each six (6)-gang radio battery charger requires approximately 150 watts.

To maintain the radios and satellite phones ready for use, 135 satellite phone batteries, 68 radio batteries, and applicable (single or multi-unit) chargers will be needed.

Thus, the capacity of one 6KW generator exceeds the total number of chargers (both radio and satellite phone) expected to be in service.

Issue 1.A.3

Portable Generator Fuel:

The portable diesel generator will operate for 4.6 - 6 hours on one 4.6 gallon tank of fuel. Conservatively the generators would require 5 gallons of fuel every four hours resulting in 30 gallons each to operate for the first 24 hours.

A procedure will be developed for refueling which will list multiple sources of fuel available on site with and without electricity available and various means to both obtain and then transport the fuel to the needed locations. A diversity of fuel sources and means of transport increase the chances that adequate fuel would be available for the portable generators following a beyond design basis external event. This process can be used in the interim until the final FLEX refueling methodology is established.

Battery Chargers:

As noted above, with one battery on charge and one battery on standby the optimum number of available battery chargers is two (2) per hand-held satellite phone and two (2) per hand-held radio.

The hand-held radio battery chargers and hand-held satellite phone battery chargers can be connected to the 6kW portable generator by connecting power strips in series or other suitable connection.

Therefore, a capability to charge 135 satellite and 68 radio batteries is required. Duke Energy plans to purchase the appropriate number of satellite phones, batteries and chargers by March 28, 2013. Additionally, suitable numbers of power strips or other suitable connection will be purchased and/or constructed.

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 communications capabilities.

Response:

Issue 2.A.1

There will be 45 hand-held satellite phones and there are 330 800 MHz hand-held radios available for use for each of the minimum communication links (without sharing), as applicable, listed in tables 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6.1, 4.2, and 4.3 of the Duke Energy Carolinas Letter, *Catawba Nuclear Station, McGuire Nuclear Station and Oconee Nuclear Station Response to Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident*, issued March 12, 2012, dated October 31, 2012.

Issues 2.A.2 and 2.A.3

A new fleet procedure *AD-EP-ALL-0400, Emergency Communications*, will be developed to describe the protocols for emergency communications. The purpose of this procedure is to provide instructions for the use and operation of emergency communications systems and equipment between site and corporate Emergency Response Organization (ERO) members, various corporate organizations, federal, state, and local agencies, and other offsite support agencies upon declaration of a declared emergency event.

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 complete 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.

Response:

Issue 3.A.1

In the interim, the Motorola XPR7550 hand-held radios available for use for each of the minimum communication links (without sharing) will be stored in the following locations:

- Main Control Room
- Security Offices
- Maintenance Areas
- Fire Protection Storage areas

In the interim, the hand-held satellite phones, when purchased, will be available for use for each of the minimum communication links (without sharing) will be stored in the following locations:

- Main Control Room – 3 satellite phones
- Technical Support Center – 13 satellite phones

In the interim, the 6kW portable generators will be stored in the following location:

- The interim storage location for the generators is in a maintenance warehouse on site.

The final proposed permanent storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) that will meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Issue 3.A.2

No emergency communications equipment or associated ancillary equipment is stored at a remote (offsite) location. Therefore, no analysis is required.

Issue 3.A.3

The above analysis of equipment, ancillary equipment and both interim and future storage locations will assure that the equipment used for communications as required to support the emergency plan of CNS will remain available. PT/0/B/4600/004, Periodic Test of Emergency Response Communications Equipment, will be revised to address the maintenance and

required surveillance intervals and actions to assure the communications equipment remains functional.

The final storage locations of offsite communications equipment and its associated ancillary equipment will meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

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.

Response:

Issue 4.A.1

Actions have been added to the corrective action program to develop a site level procedure for the operation, maintenance, and refueling of the generators and chargers.

Issue 4.A.2

Actions have been added to the corrective action program to develop a site level procedure for the maintenance, and operability tests of the generators and chargers.

Issue 4.A.3

Actions have been added to the corrective action program to revise a site level procedure for the inventory check of the generators, chargers, satellite telephones, and radios.

Issue 4.A.4

Recommendation 4 in the Duke Energy Communications Assessment Response (Enclosure 1) dated October 31, 2012, states that training will be performed on the locations and use of communications systems and equipment (e.g., satellite phones and radios) with a due date of September 30, 2013.

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"

Response:

The Communications Assessment was conducted in accordance with the NRC endorsed guidance in NEI 12-01. In addition, Duke Energy utilized the NEI 12-01 Industry Standard Template for the NTTF 9.3 Communications Assessment.

The following assumptions from NEI 12-01, Sections 2.2, "Assumptions Common to Both Assessments," and 2.4, "Assumptions for Communications Assessment," were used:

NEI 12-01, Section 2.2 – Assumptions Common to Both Assessments

1. A large-scale external event occurs that results in:
 - all on-site units affected
 - extended loss of AC power
 - impeded access to the units
2. Initially, all on-site reactors are operating at full power and are successfully shut down
3. A Hostile Action directed at the affected site does not occur during the period that the site is responding to the event.
4. The event impedes site access as follows:
 - A. Post event time: 6 hours – No site access. This duration reflects the time necessary to clear roadway obstructions, use different travel routes, mobilize alternate transportation capabilities (e.g., private resource providers or public sector support), etc.
 - B. Post event time: 6 to 24 hours – Limited site access. Individuals may access the site by walking, personal vehicle or via alternate transportation capabilities (e.g., private resource providers or public sector support).
 - C. Post event time: 24+ hours – Improved site access. Site access is restored to a near-normal status and/or augmented transportation resources are available to deliver equipment, supplies and large numbers of personnel.

Each licensee should identify transportation and site access-enhancing methods in accordance with Section 3.9 of this document, and include this information in the response to Staffing Information Request #4. The Information Request #4 response should also include an overview discussion of how the identified methods will be implemented following a beyond design basis external event.

A staffing assessment may utilize a "no site access" end time of less than 6 hours and greater than or equal to 4 hours, if supported by a documented basis. This basis should include a discussion of the site-specific transportation-related resources and capabilities, and related supporting arrangements, which provide assurance that augmented staff would be available on the site starting at the time used in the assessment. These resources and capabilities could be provided by Company-internal, private or public sources (including vehicles and aircraft, such as helicopters from military and National Guard organizations). All arrangements with the anticipated service providers should be documented (e.g., Letter of Agreement, contract, etc.).

A staffing assessment may not utilize a "no site access" end time of less than 4 hours.

NEI 12-01, Section 2.4 – Assumptions for Communications Assessment

1. Installed sources of AC power, including alternate AC power sources, are not available. These power sources are typically classified as safety-related or governed by augmented quality requirements.

2. Nonessential loads from DC battery buses are stripped in accordance with plant emergency or abnormal operating procedures, or other response guidelines to extend battery life.
3. Installed inverters and battery chargers remain available provided they are protected from external events consistent with the current station design. If the flood protection walk-downs performed in response to NTTF Recommendation 2.3 identify a lack of sufficient flood protection margin, the communications assessment should be updated to reflect the potentially lost equipment. A regulatory submittal of the updated assessment is not required.
4. On-site diesel fuel oil is available provided that it is stored in a manner protected from external events consistent with the current station design. If the flood protection walk-downs performed in response to NTTF Recommendation 2.3 identify a lack of sufficient flood protection margin, the communications assessment should be updated to reflect the potentially lost fuel oil. A regulatory submittal of the updated assessment is not required.
5. Portable equipment staged for implementation of accident management strategies (e.g., SAMG and EDMG) may be used provided it is stored on-site; is reasonably protected from seismic, wind, and flooding events; is maintained through programmatic controls; and has implementing actions specified in existing procedures or guidelines. This includes use of portable AC and DC power sources.
6. On-site communications infrastructure remains available provided that the credited components are reasonably protected from seismic, wind, and flooding events; maintained through programmatic controls; have a power source consistent with the other assumptions in this section; and employed in accordance with implementing actions specified in existing procedures or guidelines.
7. Offsite infrastructure supporting communications systems is inoperable in the area surrounding the site (e.g., cellular telephone or microwave towers, telephone central office buildings, telephone lines, etc.). A licensee has two options for determining the affected area.
 - Apply a default distance value, in all directions, of approximately 25 miles from the plant site, OR
 - Develop a site-specific distance assumption and document the basis

Communications infrastructure in locations beyond the area defined above is not significantly impacted by the event

8. Communications equipment located at an offsite response facility, and supplied from a backup power source, is assumed to be functional. The availability of this equipment must be determined in conjunction with Assumption #7, above. For example, a diesel generator-powered satellite telephone system at an Emergency Operations Center (EOC) located 4 miles from the plant would be available since the system does not rely upon ground-based communications infrastructure within the affected area. A land-line telephone in the same EOC would not be available due to local infrastructure impacts consistent with Assumption #6.

In addition, Option 3 in the NEI 12-01 Industry Standard Template for the NTTF 9.3 Communications Assessment, was followed.

OPTION 3 - Proposed Guidance for 9.3 EP Communication for establishment of reasonable protection from a beyond design basis seismic event: Implement alternate and back-up communications systems and plans, given the beyond design basis event renders all on site and off site communications systems inoperable. No assessment is necessary for this option.

Note: Equipment must be stored in a configuration that ensures survivability. Utilize Option 1 or Option 2 to meet this configuration requirement

By selecting Option 3, it was conservatively assumed that the primary communication systems and equipment for our onsite and offsite communications capabilities would not be relied upon during a beyond design basis extended loss of AC power event.

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]

Response:

Issue 6.A

It is anticipated that at least a Site Area Emergency would be initially declared and Catawba SAE procedure RP/0/A/5000/004 provides actions for these events. The declaration of a Site Area Emergency requires the conduct of assembly and accountability. Site procedure, RP/0/A/5000/010, "Procedure for Site Assembly" directs a site assembly to be conducted along with security to perform sweeps of the Owner Controlled Area in order to notify them to assemble and/or evacuate.

The CNS Public Address (PA) System has an Uninterrupted Power Supply (UPS) System which consists of UPS buses, one for each unit. Each Bus receives its power from a 100 percent capacity UPS unit or a 100 percent capacity alternate source with a high speed static switch between them. A battery from either plant unit can be selected as the alternate DC input to either unit's lighting or communications UPS. Consequently the PA system would remain available for the 30 minute notification period.

Issue 6.B

An ERO self-activation process was implemented which is described in NSD 117, Emergency Response Organization, Staffing, Training, and Responsibilities. Section 117.4.4 (ERO Responsibilities) states the following:

Following a large scale natural disaster on site, all ERO personnel should respond to their Emergency Response Facility or their designated alternate site, if their Emergency Response Facility is inaccessible, as soon as safely possible. This is not dependent upon receiving an initial ERO activation page or call.

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.

Response:

Issue 7.A

During a beyond design basis extended loss of AC power event, onsite communications can be established via existing hand-held radios (line-of-sight) and offsite communications via hand-held satellite phones. Portable generators are available onsite and can be used to power the hand-held radio and satellite phone battery chargers.

In the interim, the hand-held radios and satellite phones will be stored onsite and available for use in the site Emergency Response Facilities (ERFs). The site has or will purchase sufficient quantities of radios and satellite phones such that each of the minimum communication links can be established without sharing devices. It is noted that the ERFs may not meet all of the reasonable protection standards as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

The rationale is that by dispersing the communication devices in the ERFs, it increases their availability for use by the ERO members at their normal points of communication and increases the likelihood that a number of the radios and phones will survive the initiating event.

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) that meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Procedures and training have been developed or will be developed or revised for emergency communications equipment (e.g., satellite phones and radios).

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.

Response:

Emergency communication systems will be evaluated consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Issue 8.A

The following timeline details the completion dates for site specific improvements:

R-1:	Ensure that an appropriate inventory of portable hand-held satellite phones, spare batteries, and chargers is available for use by the Emergency Response Organization.
Due Date: 03/28/2013	
R-2:	Evaluate and purchase, if necessary, additional portable radios, spare batteries, and chargers to ensure required communications links are fully established.
Due Date: 03/28/2013	

R-3:	Ensure that portable communications equipment (i.e., satellite phones, radios, and diesel generators) are stored in a manner such that maximizes survivability from applicable external events per NEI 12-01, Section 4.5.
Due Date: Consistent with the implementation due dates of Order EA-12-049.	
R-4:	Ensure that programmatic controls are established for communications equipment (e.g., portable satellite phones, radios, small generators) to ensure availability and reliability, including the performance of periodic inventory checks and operability testing per NEI 12-01, Section 4.8. Also, provide training on the locations and use of communications systems and equipment (NEI 12-01, Section 4.11).
Due Date: 9/30/2013	
R-5:	Ensure that programmatic controls are established for the Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) programs.
Due Date: 3/28/2013	
R-6:	Ensure that arrangements are in place with communications service providers to utilize their emergency services as described in NEI 12-01, Section 4.10.
Due Date: 9/20/2013	

Programmatic controls will be applied to emergency communications equipment (e.g., satellite phones and radios) to ensure availability, reliability, and survivability of the equipment, including the performance of periodic inventory checks and operability testing per Recommendation 4 in the Duke Energy Communications Assessment Response, (Enclosure 1) dated October 31, 2012. Those programmatic controls include:

- Designate emergency communications equipment (e.g., satellite phones and radios) as Equipment Important to EP and input into the site's Engineering Database
- Develop, as applicable, Preventive Maintenance strategies for emergency communications equipment (e.g., satellite phones and radios)
- Update, as applicable, Drawings (such as General Arrangements and Electric one-lines)
- Establish a process for inventory, maintenance, testing and recharging of batteries during normal operations
- Establish a process to recharge batteries during a Station Blackout event and an extended loss of AC power event
- Ensure portable communications equipment (e.g., satellite and cellular phones, radios, etc.) are stored in a manner that is reasonably protected from flooding, seismic activity, wind, and extreme temperatures
- Document the location of portable communication equipment (e.g., satellite and cellular phones, radios, etc.) in applicable Emergency Preparedness procedures

Issue 8.B

An action has been added to the corrective action program to provide two (2) hand-held satellite phones, batteries, and chargers with the York County, Mecklenburg County, and Gaston County Emergency Management Departments. In addition, the Duke Energy South Carolina Nuclear Plants collectively plan to provide South Carolina Emergency Management with two hand-held satellite phones, batteries, and chargers. These actions are planned to be completed by 3/28/13.

Enclosure 2

Response to Follow-Up Letter:

**McGuire Nuclear Station (MNS), Unit Nos. 1 and 2
Docket Nos. 50-369 and 50-370
Renewed License Nos. NPF-9 and NPF-17**

Background

On March 12, 2012, the NRC staff 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 part, the request for information asked that licensees assess their current communications systems and equipment during a large scale natural event and loss of all alternating current power. On October 31, 2012, licensees responded to the NRC's request for information regarding communications. Upon the NRC's review of the licensee's communications submittals, the staff has identified generic technical issues which need to be resolved in order for the staff to complete its review.

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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).

Response:

An assessment of the survivability of primary or backup communications systems described in the Emergency Plan (E-Plan) or Emergency Plan Implementing Procedures (EPIPs) during a beyond design basis extended loss of alternating current (AC) power event was not performed. Instead, it was conservatively assumed that such communication systems would not be relied upon during a beyond design basis extended loss of AC power event. As a result, no improvements will be made to *existing* onsite and offsite communications systems and their required normal and/or backup power supplies.

Onsite communications can be established via line-of-sight (without the aid of a repeater or antenna system), hand-held radios and offsite communications via hand-held satellite phones.

There are approximately 300 Motorola XPR 6550 hand-held radios on-site. They are stored in security, operations, fire protection storage, and maintenance areas. There are approximately 300 spare batteries, in addition to the batteries currently installed within the radios.

Issue 1.A.1

The Emergency Response Organization needs a minimum of 34 Motorola XPR 6550 hand-held radios. With the installed batteries needed to support emergency response and 68 additional Motorola Impress batteries, this will provide 24 hours of use. At least 30 (6)-gang Motorola Impress battery chargers are onsite and available for use by the Emergency Response Organization.

According to the manufacturer, a fully charged battery will last approximately 18 hours. MNS allows for more rigorous use and assumes the battery will last only 12 hrs. Fully discharged batteries can be fully recharged within 4 hours using the rapid rate charge feature.

There will be 47 hand-held Iridium Portable handset model 9555 satellite phones, 141 Lithium-Ion batteries, and 47 Iridium battery chargers onsite and available for use by the Emergency Response Organization.

According to the manufacturer, a fully charged battery pack will remain active for approximately 43 hours on standby and has a talk time of approximately 6.5 hours. A fully "discharged" battery will "recharge" in approximately 4-5 hours. Starting with three fully charged batteries will allow one to be in use, one on charge, and one on standby, thus the optimum number of batteries is three per hand-held satellite phone

Issue 1.A.2

Six (6) 6kW portable generators were purchased. One generator was returned to vendor for repair or replacement. Currently, five (5) portable generators 6kW portable generators are onsite. They can be used to power hand-held radio battery chargers and hand-held satellite phone battery chargers.

Each satellite phone battery charger requires approximately 15 watts.

Each six (6)-gang radio battery charger requires approximately 150 watts.

To maintain the radios and satellite phones ready for use, 141 satellite phones batteries and 68 radio batteries and applicable (single or multi-unit) chargers will be needed.

Thus, the capacity of one 6KW generator exceeds the total number of chargers (both radio and satellite phone) expected to be in service.

Issue 1.A.3

Portable Generator Fuel:

The portable diesel generator will operate for 4.6 - 6 hours on one 4.6 gallon tank of fuel. Conservatively the generators would require 5 gallons of fuel every four hours resulting in 30 gallons each to operate for the first 24 hours.

A procedure will be developed for refueling which will list multiple sources of fuel available on site with and without electricity available and various means to both obtain and then transport the fuel to the needed locations. A diversity of fuel sources and means of transport increase the chances that adequate fuel would be available for the portable generators following a beyond design basis external event. This process can be used in the interim until the final FLEX refueling methodology is established.

Battery Chargers:

As noted above, with one battery on charge and one battery on standby the optimum number of available battery chargers is two (2) per hand-held satellite phone and two (2) per hand-held radio.

The hand-held radio battery chargers and hand-held satellite phone battery chargers can be connected to the 6kW portable generator by connecting power strips in series or other suitable connection.

Therefore, a capability to charge 141 satellite and 68 radio batteries is required. Duke Energy plans to purchase the appropriate number of satellite phones, batteries and chargers by March 28, 2013. Additionally, suitable numbers of power strips or other suitable connection will be purchased and/or constructed.

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 communications capabilities.

Response:

Issue 2.A.1

There will be 47 hand-held satellite phones and there are 300 800-MHz hand-held radios available for use for each of the minimum communication links (without sharing), as applicable, listed in tables 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6.1, 4.2, and 4.3 of the Duke Energy Carolinas Letter, *Catawba Nuclear Station, McGuire Nuclear Station and Oconee Nuclear Station Response to Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident*, issued March 12, 2012, dated October 31, 2012.

Issues 2.A.2 and 2.A.3

A new fleet procedure *AD-EP-ALL-0400, Emergency Communications*, will be developed to describe the protocols for emergency communications. The purpose of this procedure is to provide instructions for the use and operation of emergency communications systems and equipment between site and corporate Emergency Response Organization (ERO) members, various corporate organizations, federal, state, and local agencies, and other offsite support agencies upon declaration of a declared emergency event.

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 complete 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.

Response:

Issue 3.A.1

In the interim, the Motorola XPR6550 hand-held radios available for use for each of the minimum communication links (without sharing) will be stored in the following locations:

- Main Control Room
- Security Offices
- Maintenance Areas
- Fire Protection Storage areas

In the interim, the hand-held satellite phones when purchased will be available for use for each of the minimum communication links (without sharing) will be stored in the following locations:

- Main Control Room – 3 satellite phones
- Technical Support Center – 13 satellite phones

In the interim, the 6kW portable generators will be stored in the following locations:

- The interim storage location for the generators will be in 2 diverse locations

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) that will meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Issue 3.A.2

No emergency communications equipment or associated ancillary equipment is stored at a remote (offsite) location. Therefore no analysis is required.

Issue 3.A.3

The above analysis of equipment, ancillary equipment and both interim and future storage locations will assure that the equipment used for communications as required to support the emergency plan of MNS will remain available. PT/0/A/4600/091 (Quarterly), TSC Phones/Outside Agencies/Phone Update, will be revised to address the maintenance and required surveillance intervals and actions to assure the communications equipment remains functional.

The final storage locations of offsite communications equipment and its associated ancillary equipment will meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

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.

Response:

Issue 4.A.1

Actions have been added to the corrective action program to develop a site level procedure for the operation, maintenance and refueling of the generators and chargers.

Issue 4.A.2

Actions have been added to the corrective action program to develop a site level procedure for the maintenance and operability tests of the generators and chargers.

Issue 4.A.3

Actions have been added to the corrective action program to revise a site level procedure for the inventory check of the generators and chargers, satellite telephones, and radios.

Issue 4.A.4

Recommendation 4 in the Duke Energy Communications Assessment Response (Enclosure 1) dated October 31, 2012, states that training will be performed on the locations and use of communications systems and equipment (e.g., satellite phones and radios) with a due date of September 30, 2013.

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"

Response:

The Communications Assessment was conducted in accordance with the NRC endorsed guidance in NEI 12-01. In addition, Duke Energy utilized the NEI 12-01 Industry Standard Template for the NTTF 9.3 Communications Assessment.

The following assumptions from NEI 12-01, Sections 2.2, "Assumptions Common to Both Assessments," and 2.4, "Assumptions for Communications Assessment," were used:

NEI 12-01, Section 2.2 – Assumptions Common to Both Assessments

- 1. A large-scale external event occurs that results in:

- all on-site units affected
 - extended loss of AC power
 - impeded access to the units
2. Initially, all on-site reactors are operating at full power and are successfully shut down
 3. A Hostile Action directed at the affected site does not occur during the period that the site is responding to the event.
 4. The event impedes site access as follows:
 - A. Post event time: 6 hours – No site access. This duration reflects the time necessary to clear roadway obstructions, use different travel routes, mobilize alternate transportation capabilities (e.g., private resource providers or public sector support), etc.
 - B. Post event time: 6 to 24 hours – Limited site access. Individuals may access the site by walking, personal vehicle or via alternate transportation capabilities (e.g., private resource providers or public sector support).
 - C. Post event time: 24+ hours – Improved site access. Site access is restored to a near-normal status and/or augmented transportation resources are available to deliver equipment, supplies and large numbers of personnel.

Each licensee should identify transportation and site access-enhancing methods in accordance with Section 3.9 of this document, and include this information in the response to Staffing Information Request #4. The Information Request #4 response should also include an overview discussion of how the identified methods will be implemented following a beyond design basis external event.

A staffing assessment may utilize a “no site access” end time of less than 6 hours and greater than or equal to 4 hours, if supported by a documented basis. This basis should include a discussion of the site-specific transportation-related resources and capabilities, and related supporting arrangements, which provide assurance that augmented staff would be available on the site starting at the time used in the assessment. These resources and capabilities could be provided by Company-internal, private or public sources (including vehicles and aircraft, such as helicopters from military and National Guard organizations). All arrangements with the anticipated service providers should be documented (e.g., Letter of Agreement, contract, etc.).

A staffing assessment may not utilize a “no site access” end time of less than 4 hours.

NEI 12-01, Section 2.4 – Assumptions for Communications Assessment

1. Installed sources of AC power, including alternate AC power sources, are not available. *These power sources are typically classified as safety-related or governed by augmented quality requirements.*
2. Nonessential loads from DC battery buses are stripped in accordance with plant emergency or abnormal operating procedures, or other response guidelines to extend battery life.
3. Installed inverters and battery chargers remain available provided they are protected from external events consistent with the current station design. *If the flood protection walk-downs performed in response to NTF Recommendation 2.3 identify a lack of sufficient flood protection margin, the communications assessment should be updated to reflect the potentially lost equipment. A regulatory submittal of the updated assessment is not required.*
4. On-site diesel fuel oil is available provided that it is stored in a manner protected from external events consistent with the current station design. *If the flood protection walk-downs performed in response to NTF Recommendation 2.3 identify a lack of sufficient flood*

protection margin, the communications assessment should be updated to reflect the potentially lost fuel oil. A regulatory submittal of the updated assessment is not required.

5. Portable equipment staged for implementation of accident management strategies (e.g., SAMG and EDMG) may be used provided it is stored on-site; is reasonably protected from seismic, wind, and flooding events; is maintained through programmatic controls; and has implementing actions specified in existing procedures or guidelines. This includes use of portable AC and DC power sources.
6. On-site communications infrastructure remains available provided that the credited components are reasonably protected from seismic, wind, and flooding events; maintained through programmatic controls; have a power source consistent with the other assumptions in this section; and employed in accordance with implementing actions specified in existing procedures or guidelines.
7. Offsite infrastructure supporting communications systems is inoperable in the area surrounding the site (e.g., cellular telephone or microwave towers, telephone central office buildings, telephone lines, etc.). A licensee has two options for determining the affected area.
 - Apply a default distance value, in all directions, of approximately 25 miles from the plant site, OR
 - Develop a site-specific distance assumption and document the basis

Communications infrastructure in locations beyond the area defined above is not significantly impacted by the event

8. Communications equipment located at an offsite response facility, and supplied from a backup power source, is assumed to be functional. The availability of this equipment must be determined in conjunction with Assumption #7, above. For example, a diesel generator-powered satellite telephone system at an Emergency Operations Center (EOC) located 4 miles from the plant would be available since the system does not rely upon ground-based communications infrastructure within the affected area. A land-line telephone in the same EOC would not be available due to local infrastructure impacts consistent with Assumption #6.

In addition, Option 3 in the NEI 12-01 Industry Standard Template for the NTTF 9.3 Communications Assessment was followed.

OPTION 3 - Proposed Guidance for 9.3 EP Communication for establishment of reasonable protection from a beyond design basis seismic event: Implement alternate and back-up communications systems and plans, given the beyond design basis event renders all on site and off site communications systems inoperable. No assessment is necessary for this option.

Note: Equipment must be stored in a configuration that ensures survivability. Utilize Option 1 or Option 2 to meet this configuration requirement

By selecting Option 3, it was conservatively assumed that the primary communication systems and equipment for our onsite and offsite communications capabilities would not be relied upon during a beyond design basis extended loss of AC power event.

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]

Response:

Issue 6.A

It is anticipated that at least a Site Area Emergency (SAE) would initially be declared. MNS procedure RP/0/A/5700/003 provides actions in response to a SAE. The declaration of a SAE requires the conduct of assembly and accountability. Site assembly and accountability is directed by site procedure RP/0/A/5700/011, "Conducting a Site Assembly, Site Evacuation or Containment Evacuation". As an enhancement, this procedure will be revised to provide alternative methods to make notifications to site personnel when the Public Address System is unavailable. Eight (8) electronic bullhorns have been purchased and are onsite to provide this capability.

Issue 6.B

An ERO self-activation process was implemented which is described in NSD 117, Emergency Response Organization, Staffing, Training, and Responsibilities. Section 117.4.4 (ERO Responsibilities) states the following:

Following a large scale natural disaster on site, all ERO personnel should respond to their Emergency Response Facility or their designated alternate site, if their Emergency Response Facility is inaccessible, as soon as safely possible. This is not dependent upon receiving an initial ERO activation page or call.

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.

Response:

Issue 7.A

During a beyond design basis extended loss of AC power event, onsite communications can be established via existing hand-held radios (line-of-sight) and offsite communications via hand-held satellite phones. Portable generators are available onsite and can be used to power the hand-held radio and satellite phone battery chargers.

In the interim, the hand-held radios and satellite phones will be stored onsite and available for use in the site Emergency Response Facilities (ERFs). The site has or will purchase sufficient quantities of radios and satellite phones such that each of the minimum communication links can be established without sharing devices. It is noted that the ERFs may not meet all of the reasonable protection standards as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

The rationale is that by dispersing the communication devices in the ERFs, it increases their availability for use by the ERO members at their normal points of communication and increases the likelihood that a number of the radios and phones will survive the initiating event.

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) that meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Procedures and training have been developed or will be developed or revised for emergency communications equipment (e.g., satellite phones and radios).

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.

Response:

Emergency communication systems will be evaluated consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Issue 8.A

The following recommendations (improvements), including their milestone implementation dates, were identified:

R-1: Ensure that an appropriate inventory of portable hand-held satellite phones, spare batteries, and chargers is available for use by the Emergency Response Organization.
Due Date: 03/28/2013
R-2: Evaluate and purchase, if necessary, additional portable radios, spare batteries, and chargers to ensure required communications links are fully established.
Due Date: 03/28/2013
R-3: Ensure that portable communications equipment (i.e., satellite phones, radios, and diesel generators) are stored in a manner such that maximizes survivability from applicable external events per NEI 12-01, Section 4.5.
Due Date: Consistent with the implementation due dates of Order EA-12-049.
R-4: Ensure that programmatic controls are established for communications equipment (e.g., portable satellite phones, radios, small generators) to ensure availability and reliability, including the performance of periodic inventory checks and operability testing per NEI 12-01, Section 4.8. Also, provide training on the locations and use of communications systems and equipment (NEI 12-01, Section 4.11).
Due Date: 9/30/2013
R-5: Ensure that programmatic controls are established for the Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) programs.
Due Date: 3/28/2013
R-6: Ensure that arrangements are in place with communications service providers to utilize their emergency services as described in NEI 12-01, Section 4.10.
Due Date: 9/20/2013

R-7: McGuire should evaluate and establish a reasonable alternate method to communicate initial response instructions to the plant staff, when the Public Address System is unavailable.
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Due Date: 3/28/2013

Programmatic controls will be applied to emergency communications equipment (e.g., satellite phones and radios) to ensure availability, reliability, and survivability of the equipment, including the performance of periodic inventory checks and operability testing per Recommendation 4 in the Duke Energy Communications Assessment Response, (Enclosure 1) dated October 31, 2012. Those programmatic controls include:

- Designate emergency communications equipment (e.g., satellite phones and radios) as Equipment Important to EP and input into the site's Engineering Database
- Develop, as applicable, Preventive Maintenance strategies for emergency communications equipment (e.g., satellite phones and radios)
- Update, as applicable, Drawings (such as General Arrangements and Electric one-lines)
- Establish a process for inventory, maintenance, testing and recharging of batteries during normal operations
- Establish a process to recharge batteries during a Station Blackout event and an extended loss of AC power event
- Ensure portable communications equipment (e.g., satellite and cellular phones, radios, etc.) are stored in a manner that is reasonably protected from flooding, seismic activity, wind, and extreme temperatures
- Document the location of portable communication equipment (e.g., satellite and cellular phones, radios, etc.) in applicable Emergency Preparedness procedures

Issue 8.B

An action item has been added to the corrective action program to provide two (2) hand-held satellite phones, batteries, and chargers to the Mecklenburg County, Iredell County, Catawba County, Gaston County, and Lincoln County Emergency Departments. This action item is planned to be completed by 3/28/13.

Enclosure 3

Response to Follow-Up Letter:

**Oconee Nuclear Station (ONS), Unit Nos. 1, 2, and 3
Docket Nos. 50-269, 50-270, and 50-287
Renewed License Nos. DPR-38, DPR-47, and DPR-55**

Background

On March 12, 2012, the NRC staff 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 Daiichi Accident." In part, the request for information asked that licensees assess their current communications systems and equipment during a large scale natural event and loss of all alternating current power. On October 31, 2012, licensees responded to the NRC's request for information regarding communications. Upon the NRC's review of the licensee's communications submittals, the staff has identified generic technical issues which need to be resolved in order for the staff to complete its review.

Nuclear Energy Institute (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. According to the NRC letter from D.L. Skeen to S. Perkins-Grew dated May 15, 2012, the NRC staff reviewed NEI 12-01 and found it to be an acceptable method for licensees to employ when responding to NRC's March 12, 2012 information request.

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).

Response:

An assessment of the survivability of primary or backup communications systems described in the Emergency Plan (E-Plan) or Emergency Plan Implementing Procedures (EPIPs) during a beyond design basis extended loss of alternating current (AC) power event was not performed. Instead, it was conservatively assumed that such communication systems would not be relied upon during a beyond design basis extended loss of AC power event. As a result, no improvements will be made to existing onsite and offsite communications systems and their required normal and/or backup power supplies.

Onsite communications can be established via line-of-sight (without the aid of a repeater or antenna system), hand-held radios and offsite communications via hand-held satellite phones.

There are approximately 341 Motorola XPR 6550 hand-held radios currently on-site. They are stored in security, operations, fire protection storage, and maintenance areas. There are

approximately 100 spare batteries, in addition to the batteries currently installed within the radios.

Issue 1.A.1

The Emergency Response Organization needs a minimum of 39 Motorola XPR 6550 hand-held radios. With the installed batteries needed to support emergency response and 78 additional Motorola Impress batteries, this will provide 24 hours of use. At least 48 (6)-gang Motorola Impress battery chargers are onsite and available for use by the Emergency Response Organization.

According to the manufacturer, a fully charged battery will last approximately 18 hours. ONS allows for more rigorous use and assumes the battery will last only 12 hrs. Fully discharged batteries can be fully recharged within 4 hours using the rapid rate charge feature.

An action has been added to the corrective action program to provide for 47 hand-held Iridium Portable handset model 9555 satellite phones, 141 Lithium-Ion batteries, and 47 Iridium battery chargers onsite and available for use by the Emergency Response Organization.

According to the manufacturer, a fully charged battery pack will remain active for approximately 43 hours on standby and has a talk time of approximately 6.5 hours. A fully "discharged" battery will "recharge" in approximately 4-5 hours. Starting with three fully charged batteries will allow one to be in use, one on charge, and one on standby, thus the optimum number of batteries is three per hand-held satellite phone.

Issue 1.A.2

Four 6kW portable generators have been purchased and are onsite. They can be used to power hand-held radio battery chargers and hand-held satellite phone battery chargers.

Each satellite phone battery charger requires approximately 15 watts.

Each six (6)-gang radio battery charger requires approximately 150 watts.

To maintain the radios and satellite phones ready for use, 141 satellite phone batteries and 78 radio batteries and applicable (single or multi-unit) chargers will be needed.

Thus, the capacity of one 6KW generator exceeds the total number of chargers (both radio and satellite phone) expected to be in service.

Issue 1.A.3

Portable Generator Fuel:

The portable diesel generator will operate for 4.6 - 6 hours on one 4.6 gallon tank of fuel. Conservatively the generators would require 5 gallons of fuel every four hours resulting in 30 gallons each to operate for the first 24 hours.

An action has been added to the corrective action program to develop a site level procedure for the operation and maintenance of the generators and chargers, as well as for refueling which will list multiple sources of fuel available on site with and without electricity available and various means to both obtain and then transport the fuel to the needed locations. A diversity of fuel sources and means of transport increase the chances that adequate fuel would be available for the portable generators following a beyond design basis external event. This process can be used in the interim until the final FLEX refueling methodology is established.

Battery Chargers:

As noted above, with one battery on charge and one battery on standby the optimum number of available battery chargers is two (2) per hand-held satellite phone and two (2) per hand-held radio.

The hand-held radio battery chargers and hand-held satellite phone battery chargers can be connected to the 6kW portable generator by connecting power strips in series or other suitable connection.

Therefore, a capability to charge 141 satellite and 78 radio batteries is required. Duke Energy plans to purchase the appropriate number of satellite phones, batteries and chargers by March 28, 2013. Additionally, suitable numbers of power strips or other suitable connection will be purchased and/or constructed.

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 communications capabilities.

Response:

Issue 2.A.1

An action has been added to the corrective action program to provide for 47 hand-held satellite phones. There are currently 341 - 800 MHz hand-held radios available for use for each of the minimum communication links (without sharing), as applicable, listed in tables 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6.1, 4.2, and 4.3 of the Duke Energy Carolinas Letter, *Catawba Nuclear Station, McGuire Nuclear Station and Oconee Nuclear Station Response to Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident*, issued March 12, 2012, dated October 31, 2012.

Issues 2.A.2 and 2.A.3

A new fleet procedure *AD-EP-ALL-0400, Emergency Communications*, will be developed to describe the protocols for emergency communications. The purpose of this procedure is to provide instructions for the use and operation of emergency communications systems and equipment between site and corporate Emergency Response Organization (ERO) members, various corporate organizations, federal, state, and local agencies, and other offsite support agencies upon declaration of a declared emergency event.

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 complete 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.

Response:

Issue 3.A.1

In the interim, the Motorola XPR6550 hand-held radios available for use for each of the minimum communication links (without sharing) will be stored in the following locations:

- Main Control Room
- Security Offices
- Maintenance Areas
- Fire Protection Storage areas

In the interim, the hand-held satellite phones when purchased will be available for use for each of the minimum communication links (without sharing) will be stored in the following locations:

- Each Main Control Room (ONS has two Main Control Rooms) – 3 satellite phones
- Technical Support Center – 13 satellite phones

In the interim, the 6kW portable generators will be stored in the following locations:

- The interim storage location for the generators will be in 2 diverse locations within the protected area.

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) that will meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Issue 3.A.2

No emergency communications equipment or associated ancillary equipment is stored at a remote (offsite) location. Therefore no analysis is required.

Issue 3.A.3

The above analysis of equipment, ancillary equipment and both interim and future storage locations will assure that the equipment used for communications as required to support the emergency plan of ONS will remain available. PT/0/B/2000/002, Periodic Test of Emergency Response Communications Equipment, will be revised to address the maintenance and required surveillance intervals and actions to assure the communications equipment remains functional.

The final storage locations of offsite communications equipment and its associated ancillary equipment will meet the requirements consistent with the implementation of NRC order EA-12-

049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

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.

Response:

Issue 4.A.1

Actions have been added to the corrective action program to develop a site level procedure for the operation and maintenance of the generators and chargers.

Issue 4.A.2

Actions have been added to the corrective action program to develop a site level procedure for the maintenance and operability tests of the generators and chargers.

Issue 4.A.3

Actions have been added to the corrective action program to revise PT/0/B/2000/008 a site level procedure for the inventory check of the generators, satellite telephones and chargers, radios and chargers.

Issue 4.A.4

Recommendation 4 in the Duke Energy Communications Assessment Response (Enclosure 1) dated October 31, 2012, states that training will be performed on the locations and use of communications systems and equipment (e.g., satellite phones and radios) with a due date of September 30, 2013.

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"

Response:

The Communications Assessment was conducted in accordance with the NRC endorsed guidance in NEI 12-01. In addition, Duke Energy utilized the NEI 12-01 Industry Standard Template for the NTTF 9.3 Communications Assessment.

The following assumptions from NEI 12-01, Sections 2.2, "Assumptions Common to Both Assessments," and 2.4, "Assumptions for Communications Assessment," were used:

NEI 12-01, Section 2.2 – Assumptions Common to Both Assessments

1. A large-scale external event occurs that results in:
 - all on-site units affected
 - extended loss of AC power
 - impeded access to the units
2. Initially, all on-site reactors are operating at full power and are successfully shut down
3. A Hostile Action directed at the affected site does not occur during the period that the site is responding to the event.
4. The event impedes site access as follows:
 - A. Post event time: 6 hours – No site access. This duration reflects the time necessary to clear roadway obstructions, use different travel routes, mobilize alternate transportation capabilities (e.g., private resource providers or public sector support), etc.
 - B. Post event time: 6 to 24 hours – Limited site access. Individuals may access the site by walking, personal vehicle or via alternate transportation capabilities (e.g., private resource providers or public sector support).
 - C. Post event time: 24+ hours – Improved site access. Site access is restored to a near-normal status and/or augmented transportation resources are available to deliver equipment, supplies and large numbers of personnel.

Each licensee should identify transportation and site access-enhancing methods in accordance with Section 3.9 of this document, and include this information in the response to Staffing Information Request #4. The Information Request #4 response should also include an overview discussion of how the identified methods will be implemented following a beyond design basis external event.

A staffing assessment may utilize a “no site access” end time of less than 6 hours and greater than or equal to 4 hours, if supported by a documented basis. This basis should include a discussion of the site-specific transportation-related resources and capabilities, and related supporting arrangements, which provide assurance that augmented staff would be available on the site starting at the time used in the assessment. These resources and capabilities could be provided by Company-internal, private or public sources (including vehicles and aircraft, such as helicopters from military and National Guard organizations). All arrangements with the anticipated service providers should be documented (e.g., Letter of Agreement, contract, etc.).

A staffing assessment may not utilize a “no site access” end time of less than 4 hours.

NEI 12-01, Section 2.4 – Assumptions for Communications Assessment

1. Installed sources of AC power, including alternate AC power sources, are not available. These power sources are typically classified as safety-related or governed by augmented quality requirements.
2. Nonessential loads from DC battery buses are stripped in accordance with plant emergency or abnormal operating procedures, or other response guidelines to extend battery life.
3. Installed inverters and battery chargers remain available provided they are protected from external events consistent with the current station design. If the flood protection walk-downs performed in response to NTTF Recommendation 2.3 identify a lack of sufficient flood protection margin, the communications assessment should be updated to reflect the potentially lost equipment. A regulatory submittal of the updated assessment is not required.

4. On-site diesel fuel oil is available provided that it is stored in a manner protected from external events consistent with the current station design. If the flood protection walk-downs performed in response to NTTF Recommendation 2.3 identify a lack of sufficient flood protection margin, the communications assessment should be updated to reflect the potentially lost fuel oil. A regulatory submittal of the updated assessment is not required.
5. Portable equipment staged for implementation of accident management strategies (e.g., SAMG and EDMG) may be used provided it is stored on-site; is reasonably protected from seismic, wind, and flooding events; is maintained through programmatic controls; and has implementing actions specified in existing procedures or guidelines. This includes use of portable AC and DC power sources.
6. On-site communications infrastructure remains available provided that the credited components are reasonably protected from seismic, wind, and flooding events; maintained through programmatic controls; have a power source consistent with the other assumptions in this section; and employed in accordance with implementing actions specified in existing procedures or guidelines.
7. Offsite infrastructure supporting communications systems is inoperable in the area surrounding the site (e.g., cellular telephone or microwave towers, telephone central office buildings, telephone lines, etc.). A licensee has two options for determining the affected area.
 - Apply a default distance value, in all directions, of approximately 25 miles from the plant site, OR
 - Develop a site-specific distance assumption and document the basis

Communications infrastructure in locations beyond the area defined above is not significantly impacted by the event
8. Communications equipment located at an offsite response facility, and supplied from a backup power source, is assumed to be functional. The availability of this equipment must be determined in conjunction with Assumption #7, above. For example, a diesel generator-powered satellite telephone system at an Emergency Operations Center (EOC) located 4 miles from the plant would be available since the system does not rely upon ground-based communications infrastructure within the affected area. A land-line telephone in the same EOC would not be available due to local infrastructure impacts consistent with Assumption #6.

In addition, Option 3 in the NEI 12-01 Industry Standard Template for the NTTF 9.3 Communications Assessment, was followed.

OPTION 3 - Proposed Guidance for 9.3 EP Communication for establishment of reasonable protection from a beyond design basis seismic event: Implement alternate and back-up communications systems and plans, given the beyond design basis event renders all on site and off site communications systems inoperable. No assessment is necessary for this option.

Note: Equipment must be stored in a configuration that ensures survivability. Utilize Option 1 or Option 2 to meet this configuration requirement

By selecting Option 3, it was conservatively assumed that the primary communication systems and equipment for our onsite and offsite communications capabilities would not be relied upon during a beyond design basis extended loss of AC power event.

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]

Response:

Issue 6.A

It is anticipated that at least a Site Area Emergency would be initially declared for these events. The declaration of a Site Area Emergency requires the conduct of assembly and accountability. Site procedure, RP/0/A/1000/09, Procedure for Site Assembly, Enclosure 4.2 directs security to perform sweeps of the Owner Controlled Area in order to notify them to assemble and/or evacuate.

Issue 6.B

An ERO self-activation process was implemented which is described in NSD 117, Emergency Response Organization, Staffing, Training, and Responsibilities. Section 117.4.4 (ERO Responsibilities) states the following:

Following a large scale natural disaster on site, all ERO personnel should respond to their Emergency Response Facility or their designated alternate site, if their Emergency Response Facility is inaccessible, as soon as safely possible. This is not dependent upon receiving an initial ERO activation page or call.

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.

Response:

Issue 7.A

During a beyond design basis extended loss of AC power event, onsite communications can be established via existing hand-held radios (line-of-sight) and offsite communications via hand-held satellite phones. Portable generators are available onsite and can be used to power the hand-held radio and satellite phone battery chargers.

In the interim, the hand-held radios and satellite phones will be stored onsite and available for use in the site Emergency Response Facilities (ERFs). The site has or will purchase sufficient quantities of radios and satellite phones such that each of the minimum communication links can be established without sharing devices. It is noted that the ERFs may not meet all of the reasonable protection standards as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

The rationale is that by dispersing the communication devices in the ERFs, it increases their availability for use by the ERO members at their normal points of communication and increases the likelihood that a number of the radios and phones will survive the initiating event.

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) that meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Procedures and training have been developed or will be developed or revised for emergency communications equipment (e.g., satellite phones and radios).

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.

Response:

Emergency communication systems will be evaluated consistent with the implementation of NRC order EA-12-049 as described in NEI 12-006, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

Issue 8.A

The following timeline details the completion dates for site specific improvements:

R-1: Ensure that an appropriate inventory of portable hand-held satellite phones, spare batteries, and chargers is available for use by the Emergency Response Organization.
Due Date: 03/28/2013
R-2: Evaluate and purchase, if necessary, additional portable radios, spare batteries, and chargers to ensure required communications links are fully established.
Due Date: 03/28/2013
R-3: Ensure that portable communications equipment (i.e., satellite phones, radios, and diesel generators) are stored in a manner such that maximizes survivability from applicable external events per NEI 12-01, Section 4.5.
Due Date: Consistent with the implementation due dates of Order EA-12-049.
R-4: Ensure that programmatic controls are established for communications equipment (e.g., portable satellite phones, radios, small generators) to ensure availability and reliability, including the performance of periodic inventory checks and operability testing per NEI 12-01, Section 4.8. Also, provide training on the locations and use of communications systems and equipment (NEI 12-01, Section 4.11).
Due Date: 9/30/2013
R-5: Ensure that programmatic controls are established for the Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) programs.
Due Date: 3/28/2013
R-6: Ensure that arrangements are in place with communications service providers to utilize their emergency services as described in NEI 12-01, Section 4.10.
Due Date: 9/20/2013

Programmatic controls have been or will be applied to emergency communications equipment (e.g., satellite phones and radios) to ensure availability, reliability, and survivability of the equipment, including the performance of periodic inventory checks and operability testing. Those programmatic controls include:

- Designate emergency communications equipment (e.g., satellite phones and radios) as Equipment Important to EP and input into the site's Engineering Database
- Develop, as applicable, Preventive Maintenance strategies for emergency communications equipment (e.g., satellite phones and radios)
- Update, as applicable, Drawings (such as General Arrangements and Electric one-lines)
- Establish a process for inventory, maintenance, testing and recharging of batteries during normal operations
- Establish a process to recharge batteries during a Station Blackout event and an extended loss of AC power event
- Ensure portable communications equipment (e.g., satellite and cellular phones, radios, etc.) are stored in a manner that is reasonably protected from flooding, seismic activity, wind, and extreme temperatures
- Document the location of portable communication equipment (e.g., satellite and cellular phones, radios, etc.) in applicable Emergency Preparedness procedures

Recommendation 4 in the Duke Energy Communications Assessment Response dated October 31, 2012, states that training will be performed on the locations and use of communications systems and equipment (e.g., satellite phones and radios.) with a due date of September 30, 2013.

Issue 8.B

An action has been added to the corrective action program to provide two (2) hand-held satellite phones, batteries, and chargers to the Oconee County and Pickens County Emergency Management Departments. In addition, the Duke Energy South Carolina Nuclear Plants collectively plan to provide South Carolina Emergency Management with two hand-held satellite phones, batteries, and chargers. These actions are planned to be completed by 3/28/13.