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10 CFR 50.4
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U. S. Nuclear Regulatory Commission
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BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 AND 50-324 / RENEWED LICENSE NOS. DPR-71 AND DPR-62

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT
DOCKET NO. 50-302 / LICENSE NO. DPR-72

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-400 / RENEWED LICENSE NO. NPF-63

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261 / RENEWED LICENSE NO. DPR-23

SUBJECT: CAROLINA POWER & LIGHT COMPANY'S AND FLORIDA POWER CORPORATION'S RESPONSE TO FOLLOW-UP LETTER ON TECHNICAL ISSUES FOR RESOLUTION REGARDING LICENSEE COMMUNICATION SUBMITTALS ASSOCIATED WITH NEAR-TERM TASK FORCE RECOMMENDATION 9.3 (TAC NO. ME7951)

REFERENCES:

1. NRC Letter, E.J. Leeds (NRC) to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status, *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. Progress Energy Letter, Carolina Power & Light Company and Florida Power Corporation'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. ML12138A016
3. Duke Energy Letter, Carolina Power & Light Company and Florida Power Corporation's Response to NRC's March 12, 2012, *Request for Information Pursuant to 10 CFR 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 October 31, 2012, Accession No. ML12311A299
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 (TAC No. ME7951)*, dated January 23, 2013, Accession No. ML13010A162

Ladies and Gentlemen:

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.

Carolina Power & Light Company (CP&L) and Florida Power Corporation (FPC) 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 the CP&L and FPC responses to the NRC's January 23, 2013 follow-up letter as follows:

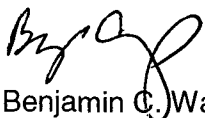
- Enclosure 1: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
- Enclosure 2: Crystal River Unit 3 Nuclear Generating Plant
- Enclosure 3: Shearon Harris Nuclear Power Plant, Unit No. 1
- Enclosure 4: H. B. Robinson Steam Electric Plant, Unit No. 2

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: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
2. Response to Follow-Up Letter: Crystal River Unit 3 Nuclear Generating Plant
3. Response to Follow-Up Letter: Shearon Harris Nuclear Power Plant, Unit No. 1
4. Response to Follow-Up Letter: H. B. Robinson Steam Electric Plant, Unit No. 2

cc: USNRC Region II, Regional Administrator
USNRC Resident Inspector – BSEP, Unit Nos. 1 and 2
USNRC Resident Inspector – CR3
USNRC Resident Inspector – SHNPP, Unit No. 1
USNRC Resident Inspector – HBRSEP, Unit No. 2
C. Gratton, NRR Project Manager – BSEP, Unit Nos. 1 and 2; CR3
A. T. Billoch Colón, NRR Project Manager – SHNPP, Unit No. 1; HBRSEP, Unit No. 2

ENCLOSURE 1

RESPONSE TO FOLLOW-UP LETTER:

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2

RESPONSE TO FOLLOW-UP LETTER:

BRUNSWICK STEAM ELECTRIC PLANT (BSEP), UNIT NOS. 1 AND 2

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 staff's request for information regarding communications. Upon the staff'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, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, presents a methodology for licensees to analyze their ability to perform critical communications during and after a large-scale natural event. The NRC staff has previously reviewed 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.

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. 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/or hand-held satellite phones and offsite communications via hand-held satellite phones.

BSEP primarily utilizes an 800 MHz radio system onsite consisting of 500 hand-held radios. BSEP also utilizes a 450 MHz radio system consisting of 12 hand-held radios to support offsite monitoring teams.

BSEP has 35 hand-held Iridium Portable handset model 9555 satellite phones, 70 batteries, and 35 phone battery chargers available for use by the Emergency Response Organization.

Issue 1.A.1

Hand-held Radios

Brunswick Steam Electric Plant (BSEP) has identified that 25 of the 500 800 MHz radios would support the minimum communication links (without sharing) outlined in Carolina Power & Light Company (CP&L) and Florida Power Corporation (FPC) response letter dated October 31, 2012, Attachment 2, Table 4.1.6.1.

For the 800 MHz radios, per the manufacturer, a fully charged battery pack will remain active for 30 hours on standby and has a talk time of 8 hours (40%/60% duty cycle). A fully discharged battery will recharge to $\geq 80\%$ nominally within 2 hours. One spare battery per radio for the 25 radios would be required to support 24 hours of operation.

BSEP has identified that 3 of the 12 450Mhz radios would support the minimum communication links (without sharing) outlined in CP&L and FPC response letter dated October 31, 2012, Attachment 2, Table 4.1.6.1.

For the 450 MHz radios, per the manufacturer, a fully charged battery pack has a talk time of 12 hours (10%/90% duty cycle). A fully discharged battery will recharge in 1.5 hours. One spare battery per radio for the 3 radios would be required to support 24 hours of operation.

Hand-held Satellite Phones

According to the manufacturer, a fully charged standard capacity battery pack will remain active for 30 hours on standby and has a talk time of 3.1 hours. A fully discharged battery will recharge in 3 hours. Starting with two fully charged batteries will allow one to be in use and one on charge; thus, the number of batteries is two per hand-held satellite phone, assuming recharge capability via a portable generator.

As an enhancement, the two standard capacity batteries per hand-held satellite phone will be replaced with three high capacity batteries per hand-held satellite phone. According to the manufacturer, a high capacity battery pack will remain active for 43 hours on standby, has a talk time of 6.5 hours, and will recharge in 4 hours.

Issue 1.A.2

Eight Baldor DG6E 6kW portable diesel generators were purchased and are onsite at BSEP. They can be used to power hand-held radio battery chargers and hand-held satellite phone battery chargers.

Single and multi unit chargers are available to charge the hand-held radio and hand-held satellite phone batteries. Any combination of these chargers, if utilized simultaneously to charge all of the identified devices' batteries will not exceed the capacity of a single 6kW generator; (i.e., 5.5kW continuous/45.8amps).

The following list is an example of the electrical requirements for the various charges that would be utilized to charge the batteries of the Iridium satellite phones and the 800 MHz radios and 450 MHz radios.

Chargers	Wattage
3 of the 6 rack Ericsson 344A3072P8 chargers (most limiting model) at 170W input	510
6 of the Ericsson single chargers BML 161 59/1R3A labeled 350mA for a 120VAC input	252
1 of the M/A-COM BML 161 78/20 chargers labeled 400 mA for a 120VAC input	48
2 of the Qualcomm AC Charger model CXDTC051 120VAC * 300mA input	72
35 of the Iridium chargers output (not input) is at 150mA for a 120VAC input	630
TOTAL Watts	1512

Issue 1.A.3

According to the manufacturer, the 6kW portable diesel generator has a 4.6 gallon fuel tank and a run time of 4.6 to 6 hours. Conservatively, the generators would require 5 gallons of fuel every four hours resulting in 30 gallons each to operate for the first 24 hours.

Procedure OPM-ENG541, OPM-ENG542, or OPM-ENG543, provides guidance for obtaining fuel oil from the seven day tank to refuel the portable diesel generators. As an enhancement, a method of retrieving fuel oil from the emergency diesel generator fuel storage system will be implemented in alignment with NRC Order EA-12-049, *Issuance of Order to Modify Licenses With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*.

As an enhancement, a FLEX procedure is being developed to provide direction in the operation of the portable generators. The current projected issue date for this procedure is July 26, 2013. The current draft is 0SP- XXXX Flex Portable Diesel Generator Operation.

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 by 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

The hand-held radios and satellite phones are available for use for each of the minimum communication links (without sharing), as applicable. These are 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 letter, *Carolina Power & Light Company and Florida Power Corporation's 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*, 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 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 and Control Building complex
- Operations Support Center (OSC)
- Emergency Operations Facility (EOF)
- Technical and Administrative Center (TAC) Environmental Monitoring and Chemistry area

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

- Main Control Room
- Operations Support Center (OSC)
- Emergency Operations Facility (EOF)

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

- Alternate Fire Building (outside the Protected Area)
- Fire House (inside the Protected Area)
- (6) South of Technical Training Center (TTC)

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) to meet the requirements consistent with the implementation of NRC Order EA-12-049, as described in NEI 12-06, *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

At BSEP, OPEP-04.2, *Emergency Facilities and Equipment*, describes the maintenance, including periodic operability testing, of emergency communications equipment (e.g., satellite phones and radios.) This will ensure that the hand-held satellite phones and hand-held radios will be functional.

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

The purpose of fleet procedure EMG-NGGC-0007, *Equipment Important to Emergency Preparedness and Response*, is to provide guidance and a suggested format to each Nuclear Generation Group (NGG) site for development of a site-specific procedure which lists equipment important to Emergency Preparedness (EP), compensatory measures, restoration priority, response actions, and reporting requirements. The procedure should be developed based on the site emergency plan and licensing basis documents. This process should be integrated with the station configuration control program, corrective action program, design change process, and work management process.

At BSEP, *0PLP-037, Equipment Important to Emergency Preparedness and ERO Response*, establishes the programmatic controls for emergency communications equipment (e.g., satellite phones and radios.)

At BSEP, *0PEP-03.1.3, Use of Communication Equipment*, defines the method for operating the various communication links available in the Emergency Facilities.

Issue 4.A.2

At BSEP, *0PEP-04.2, Emergency Facilities and Equipment*, describes the maintenance, including operability testing, of emergency communications equipment (e.g., satellite phones and radios).

Issue 4.A.3

At BSEP, *0PEP-04.2, Emergency Facilities and Equipment* describes the periodic inventory checks of emergency communications equipment (e.g., satellite phones and radios.)

Issue 4.A.4

Recommendation 4 in the Progress 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.

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, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communication Capabilities. In addition, the two industry developed standard templates, one for the assessment and one for a rollup document, were used.

The following assumptions from NEI 12-01 were utilized.

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 Industry Template for the NTF Recommendation 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

At BSEP, OPEP-02.1.1, *Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency*, describes the emergency notification process of onsite plant staff via the public address system of the declared emergency event.

The BSEP Public Address (PA) System is assumed to not be available during a large scale external event.

BSEP has two portable handheld Southern VP model PM-25 megaphone/bullhorns. The units are powered by (8) "C" cell batteries. The data label attached to the units state they are rated at 15 watt output with a maximum output of 25 watts. Information or data sheets for these units are unavailable. Comparable units have a listed continuous use of 8-40 hours. Consequently, the megaphones/bullhorns would remain available for the 30 minute notification period.

Issue 6.B

BSEP implemented an Emergency Response Organization (ERO) self-activation process which is described in EMG-NGGC-1000, *Conduct of Emergency Preparedness*, and EPQ-001, *Emergency Response Organization Qualification Checklists Brunswick*. The stated purpose of EMG-NGGC-1000 is to provide the expectations for the NGG Emergency Preparedness Program to ensure uniform and consistent overall support and direction for Emergency Preparedness within the NGG fleet. Section 9.6.9 (ERO Responsibilities) states the following:

During an electrical grid disturbance (i.e., large scale natural disaster, regional blackout, technological disaster, etc.) communications capabilities (i.e., pagers, cell phones, internet, landline telephone systems, etc.) may be lost or severely degraded. ERO members, regardless of on-call status, are expected to monitor local radio, and emergency alert system (EAS) communications for impact to the grid structure. Should the situation appear to be a major disturbance to the power grid, then:

- *Ensure your home and family are safe, and*
- *If you are fit for duty and able to leave your family unattended, then*
- *Report to your designated emergency response facility (ERF).*

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/or hand-held satellite phones 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 available for use in the site 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. The ERFs may not meet all of the reasonable protection standards identified in NEI 12-06, *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) to meet the requirements consistent with the implementation of NRC order EA-12-049, as described in NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*.

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:

Issue 8.A

Emergency communication systems will be evaluated consistent with the implementation of NRC order EA-12-049 as described in NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*. The following timeline details the completion dates for site specific improvements:

	Description	Due Date
R1	Ensure that an appropriate inventory of portable hand-held satellite phones, spare batteries and chargers is available for use by the Emergency Response Organization	3/28/2013
R2	Evaluate and purchase, if necessary, additional portable radios, spare batteries, and chargers to ensure required communications links are fully established.	3/28/2013
R3	Ensure that portable communications equipment (i.e. satellite phones, radios, and small generators) are stored in a manner that maximizes survivability from applicable external events per NEI 12-01, Section 4.5.	Consistent with the implementation due date for Order EA-12-049
R4	Ensure that programmatic controls are established for communications equipment (i.e., portable satellite phones and portable radios) 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)	9/30/2013
R5	Ensure that the programmatic controls are established for the Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) programs.	3/28/2013
R6	Ensure that arrangements are in place with communications service providers to utilize their emergency services as described in NEI 12-01, Section 4.10	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. Those programmatic controls include:

- Designate emergency communications equipment (e.g., satellite phones and radios) as Equipment Important to EP
- Develop, as applicable, preventive maintenance strategies for emergency communications equipment (e.g., satellite phones and radios)
- 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 CP&L and FPC Communications Assessment Response (RA-12-038, Attachment 1) dated October 31, 2012, states that training will be performed on the locations and use of emergency communications systems and equipment (e.g., satellite phones and radios.)

Issue 8.B

Hand-held satellite phones, batteries, and chargers will be placed at the Brunswick County Warning Point and Emergency Operations Center, New Hanover County Warning Point and Emergency Operations Center, State of North Carolina Warning Point and Emergency Operations Center, and United States Coast Guard Station by March 28, 2013.

ENCLOSURE 2

RESPONSE TO FOLLOW-UP LETTER:

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

RESPONSE TO FOLLOW-UP LETTER:

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

General

On February 5, 2013, Crystal River Unit 3 (CR3) notified the NRC under 10CFR50.72(b)(2)(xi) that Progress Energy Florida, Inc., a subsidiary of Duke Energy, had announced plans to permanently shut down and decommission CR3. The corresponding notification required by 10CFR50.82(a)(1)(i) was submitted to the NRC on February 20, 2013. Changes to the CR3 Emergency Plan and Emergency Action Level (EAL) schemes are inevitable and may result in a reduction in scope of the actions and equipment being identified in the responses provided in this Attachment.

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 staff's request for information regarding communications. Upon the staff'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, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, presents a methodology for licensees to analyze their ability to perform critical communications during and after a large-scale natural event. The NRC staff has previously reviewed 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.

Generic Technical Issue 1

The NRC 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/or hand-held satellite phones and offsite communications via hand-held satellite phones.

CR3 primarily utilizes a 450MHz Kenwood radio system onsite consisting of 18 hand-held radios, 18 spare batteries, and six Kenwood 6-bay battery chargers.

CR3 has 35 hand-held Iridium Portable handset model 9555 satellite phones, 70 batteries, and 35 phone battery chargers available for use by the Emergency Response Organization

Issue 1.A.1

Hand-held Radios

CR3 has identified that 18 450MHz Kenwood radios would support the minimum communication links (without sharing) outlined in Carolina Power & Light Company (CP&L) and Florida Power Corporation (FPC) response letter dated October 31, 2012, Attachment 3, Table 4.1.6.1.

According to Kenwood's specifications, a fully charged radio KNB-48L battery pack will remain active for approximately 14.5 hours assuming a standard 90/5/5 duty cycle. A fully discharged radio battery will recharge in approximately 2 hours. One spare battery per radio for the 18 radios would be required to support 24 hours of operation.

Hand-held Satellite Phones

According to the manufacturer, a fully charged standard capacity battery pack will remain active for 30 hours on standby and has a talk time of 3.1 hours. A fully discharged battery will recharge in 3 hours. Starting with two fully charged batteries will allow one to be in use and one on charge, thus the number of batteries is two per hand-held satellite phone, assuming recharge capability via a portable generator.

As an enhancement, the two standard capacity batteries per hand-held satellite phone will be replaced with three high capacity batteries per hand-held satellite phone. According to the manufacturer, a high capacity battery pack will remain active for 43 hours on standby, has a talk time of 6.5 hours, and will recharge in 4 hours.

Issue 1.A.2

Four (4) Baldor DG6E 6kW portable diesel generators were purchased and are onsite. They can be used to power hand-held radio battery chargers and hand-held satellite phone battery chargers.

Single and multi unit chargers are available to charge the hand-held radio and hand-held satellite phone batteries. Any combination of these chargers if utilized simultaneously to charge all of the identified devices' batteries will not exceed the capacity of a single 6kW generator, (i.e., 5.5kW continuous/45.8amps).

- Each satellite phone battery charger requires approximately 15 watts.
- Each 6-gang radio battery multi-charger requires approximately 180 watts.

Issue 1.A.3

According to the manufacturer, the 6kW portable diesel generator has a 4.6 gallon fuel tank and a run time of 4.6 to 6 hours. Conservatively the generators would require 5 gallons of fuel every four hours resulting in 30 gallons each to operate for the first 24 hours. Replacement fuel is available from the Emergency Diesel fuel oil storage tanks which contain a minimum of volume of 45,834 gallons

OP-611, *Transfer of Diesel Fuel Oil*, addresses obtaining fuel from the Emergency Diesel fuel oil storage tanks using the AC fuel transfer pump. As an enhancement, OP-611, *Transfer of Diesel Fuel Oil*, will be revised to provide instructions for obtaining additional fuel from the existing Emergency Diesel Generator fuel reservoirs to refill the 6kw portable diesel generators.

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 by 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

The hand-held radios and satellite phones are available for each of the minimum communication links (without sharing), as applicable. These are 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 letter, *Carolina Power & Light Company and Florida Power Corporation's 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*, 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 hand-held radios available for use for each of the minimum communication links (without sharing) will be stored in the following locations:

- Control Complex
- Technical Support Center

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

- Control Complex
- Technical Support Center
- Nuclear Administration Building
- Emergency Operations Facility

In the interim, the two 6kW portable generators will be stored in the Turbine Building 145' elevation:

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) to meet the requirements consistent with the implementation of NRC Order EA-12-049 as described in NEI 12-06, *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

At CR3, AI-4000, *Conduct of Emergency Preparedness and Schedule for Radiological Emergency Response Plan Maintenance*, describes the maintenance, including operability testing, of emergency communications equipment. As an enhancement, AI-4000 will be revised to include the satellite phones and radios. This will ensure that the hand-held satellite phones and hand-held radios will be functional.

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

The purpose of fleet procedure EMG-NGGC-0007, *Equipment Important to Emergency Preparedness and Response*, is to provide guidance and a suggested format to each Nuclear Generation Group (NGG) site for development of a site-specific procedure which lists equipment important to Emergency Preparedness (EP), compensatory measures, restoration priority, response actions, and reporting requirements. The procedure should be developed based on the site emergency plan and licensing basis documents. This process should be integrated with the station configuration control program, corrective action program, design change process, and work management process.

At CR3, EM-500, *Emergency Response Equipment Responsibilities*, establishes the programmatic controls for emergency communications equipment (e.g., satellite phones and radios.)

At CR3, OP-704, *Operation of Communication System*, provides guidance for operating the various communication links available in the Emergency Facilities. As an enhancement, OP-704 will be revised to provide guidance on radio storage requirements.

At CR3, EM-220, *Violent Weather*, describes storm response protocols. As an enhancement, EM-220 will be revised to move the radios and satellite phones stored in the Technical Support Center to the Control Complex in the event of a hurricane.

Placing at least one 6kW generator in service providing the ability to recharge necessary batteries for radios and satellite phones is expected to occur after the first 12 hours. As an enhancement, EM-102, *Operation of the Technical Support Center (TSC)*, will be revised to include instructions for operating the portable diesel generators.

Issue 4.A.2 and 4.A.3

At CR3, AI-4000, *Conduct of Emergency Preparedness and Schedule for Radiological Emergency Response Plan Maintenance*, describes the maintenance, including operability testing, of emergency communications equipment. As an enhancement, AI-4000 will be revised to include instructions for operating the portable diesel generators

As an enhancement, Preventive Maintenance Identification Requests (PMIDRQs) will be established at CR-3 in accordance with ADM-NGGC-0203, *Preventive Maintenance and Surveillance Testing Administration*, to address maintenance, operability testing, and periodic inventory checks of emergency communications equipment (e.g., satellite phones and radios.)

Issue 4.A.4

Recommendation 4 in the CP&L and FPC 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.

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, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communication Capabilities. In addition, the two industry developed standard templates, one for the assessment and one for a rollup document were used.

The following assumptions from NEI 12-01 were utilized.

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 Industry Template for the NTTF Recommendation 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

At CR-3, EM-202, *Duties of the Emergency Coordinator*, describes the emergency notification process of onsite plant staff. As an enhancement EM-202 will be revised to provide alternative methods, such as hand-held radios used in the line-of-sight mode, to make notifications to site personnel during the event.

Issue 6.B

An Emergency Response Organization (ERO) self-activation process was implemented which is described in EMG-NGGC-1000, *Conduct of Emergency Preparedness*. The stated purpose of *EMG-NGGC-1000* is to provide the expectations for the NGG Emergency Preparedness Program to ensure uniform and consistent overall support and direction for Emergency Preparedness within the NGG fleet. Section 9.6.9 (ERO Responsibilities) states the following:

During an electrical grid disturbance (i.e., large scale natural disaster, regional blackout, technological disaster, etc.) communications capabilities (i.e., pagers, cell phones, internet, landline telephone systems, etc.) may be lost or severely degraded. ERO members, regardless of on-call status, are expected to monitor local radio, and emergency alert system (EAS) communications for impact to the grid structure. Should the situation appear to be a major disturbance to the power grid, then:

- *Ensure your home and family are safe, and*
- *If you are fit for duty and able to leave your family unattended, then*
- *Report to your designated emergency response facility (ERF).*

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/or hand-held satellite phones 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 available for use in the site 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. The ERFs may not meet all of the reasonable protection standards identified in NEI 12-06, *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) to meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*.

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:

Issue 8.A

Emergency communication systems will be evaluated consistent with the implementation of NRC order EA-12-049 as described in NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*. The following timeline details the completion dates for site specific improvements:

	Description	Due Date
R1	Ensure that an appropriate inventory of portable hand-held satellite phones, spare batteries and chargers is available for use by the Emergency Response organization	3/28/2013
R2	Evaluate and purchase, if necessary, additional portable radios, spare batteries, and chargers to ensure required communications links are fully established.	3/28/2013
R3	Ensure that portable communications equipment (i.e. satellite phones, radios, and small generators) are stored in a manner that maximizes survivability from applicable external events per NEI 12-01, Section 4.5.	12/31/2016
R4	Ensure that programmatic controls are established for communications equipment (i.e., portable satellite phones and portable radios) 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)	9/30/2013
R5	Ensure that the programmatic controls are established for the Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) programs.	3/28/2013
R6	Ensure that arrangements are in place with communications service providers to utilize their emergency services as described in NEI 12-01, Section 4.10	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. Those programmatic controls include:

- Designate emergency communications equipment (e.g., satellite phones and radios) as Equipment Important to EP
- Develop, as applicable, preventive maintenance strategies for emergency communications equipment (e.g., satellite phones and radios)
- 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 CP&L and FPC Communications Assessment Response (RA-12-038, Attachment 1) dated October 31, 2012, states that training will be performed on the locations and use of emergency communications systems and equipment (e.g., satellite phones and radios.)

Issue 8.B

Hand-held satellite phones, batteries, and chargers will be placed at the Citrus County Emergency Operations Center, Levy County Emergency Operations and Florida State Watch Office by March 28, 2013.

ENCLOSURE 3

RESPONSE TO FOLLOW-UP LETTER:

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1

RESPONSE TO FOLLOW-UP LETTER:

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1

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 staff's request for information regarding communications. Upon the staff'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, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, presents a methodology for licensees to analyze their ability to perform critical communications during and after a large-scale natural event. The NRC staff has previously reviewed 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.

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.

The Shearon Harris Nuclear Power Plant, Unit No. 1 (HNP) has Motorola HT 750/1000 hand-held radios and Motorola Impres (6)-gang battery chargers for onsite plant communications.

HNP has 35 hand-held Iridium Portable handset model 9555 satellite phones, 70 standard capacity batteries, and 70 phone battery chargers available for use by the Emergency Response Organization.

Issue 1.A.1

Hand-held Radios

HNP has identified that 24 hand-held radios would support the minimum communication links (without sharing) outlined in Carolina Power & Light Company (CP&L) and Florida Power Corporation (FPC) response letter dated October 31, 2012, Attachment 4, Table 4.1.6.1.

According to the manufacturer, a fully charged radio battery pack will remain active for approximately 18 hours. HNP allows for more rigorous use and assumes the battery will last only for 12 hours. One spare battery per radio for the 24 radios would be required to support 24 hours of operation, therefore, 48 total radio batteries are required for a 24-hour duration.

Hand-held Satellite Phones

HNP has identified that 29 hand-held Iridium Portable handset model 9555 satellite phones would support the minimum communication links (without sharing) outlined in Carolina Power & Light Company (CP&L) and Florida Power Corporation (FPC) response letter RA-12-038, Attachment 4.

According to the manufacturer, a standard capacity battery pack will remain active for 30 hours on standby, has a talk time of 3.1 hours, and will recharge in 3 hours, thus the number of standard capacity batteries is two per hand-held satellite phone. Therefore, a total of 58 standard capacity satellite phone batteries are required for a 24-hour duration, assuming recharge capability via a portable generator.

As an enhancement, the two standard capacity batteries per hand-held satellite phone will be replaced with three high capacity batteries per hand-held satellite phone. According to the manufacturer, a high capacity battery pack will remain active for 43 hours on standby, has a talk time of 6.5 hours, and will recharge in 4 hours.

Issue 1.A.2

Four (4) Baldor DG6E 6kW portable diesel generators were purchased and are onsite. They can be used to power hand-held radio battery chargers and hand-held satellite phone battery chargers.

Single and multi unit chargers are available to charge the hand-held radio and hand-held satellite phone batteries. Any combination of these chargers, if utilized simultaneously to charge all of the identified devices' batteries, will not exceed the capacity of a single 6kW generator, (i.e., 5.5kW continuous/45.8amps).

- Satellite phone battery chargers require approximately 15 watts.
- 6-gang radio battery multi-chargers require approximately 150 watts.
- To maintain the radios and satellite phones ready for use, 29 standard satellite phone batteries and 24 radio batteries and applicable (single or multi-unit) chargers will be needed. These numbers represent the number of batteries that would be charging with an installed battery in each operating radio or satellite phone.

Therefore:

$$29 \times 15W + (24/6) \times 150W = 1.035kW \text{ which is less than } 5.5kW$$

Issue 1.A.3

According to the manufacturer, the 6 kW portable diesel generator has a 4.6 gallon fuel tank and a run time of 4.6 to 6 hours. Conservatively the generators would require 5 gallons of fuel every four hours resulting in 30 gallons each to operate for the first 24 hours. Replacement fuel is available from the Emergency Diesel fuel oil storage tanks which contain a minimum of volume of 100,000 gallons of fuel.

OPT-3130, *Fire Response Vehicle Inspection*, is an HNP procedure that offers guidance for refueling much larger equipment credited for beyond design basis large area fires and explosions. This procedure lists multiple sources of fuel available on site with and without electricity available and various means to transport the fuel to the needed locations. Examples of fuel sources addressed by the procedure include drain from the Auxiliary Boiler Fuel Oil Tank A, drain from the Emergency Diesel Generator Fuel Oil Storage Tank A or B, and a portable Fuel Oil Tank via electric or manual hand pump. Note, that Technical Specifications require the Emergency Diesel Generator Fuel Oil Storage Tanks to contain a minimum of 100,000 gallons of fuel. Examples of fuel transportation methods addressed in the procedure include a site fuel truck, a 100 gallon pallet mounted tank, and 30 gallon drums. Note that the 100 gallon pallet mounted tank and 30 gallon drums are stored in separate warehouses on site. While not fully protected from the beyond design basis external events, 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 equipment refueling methodology is established.

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 by 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

The hand-held satellite phones and hand-held radios are available for use for each of the minimum communication links (without sharing), as outlined in Carolina Power & Light Company (CP&L) and Florida Power Corporation (FPC) response letter dated October 31, 2012, Attachment 4, Table 4.1.6.1.

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 hand-held radios available for use for each of the minimum communication links (without sharing) are stored in the following locations:

- Operations Support Center
- Alternate Staging Area

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

- Main Control Room
- Technical Support Center
- Emergency Operations Facility

In the interim, the four 6kW portable generators will be stored in the Generator Rewind Building.

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) to meet the requirements consistent with the implementation of NRC Order EA-12-049 as described in NEI 12-06, *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

At HNP, PLP-717, *Equipment Important to Emergency Preparedness and ERO Response*, and EPM-410, *Communications and Facility Performance Tests* describe the maintenance, including operability testing, of emergency communications equipment (e.g., satellite phones and radios.)

As an enhancement, EPM-410 will be revised to include a description of maintenance and operability testing for the hand-held satellite phones and hand-held radios.

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

Fleet procedure EMG-NGGC-0007, *Equipment Important to Emergency Preparedness and Response*, provides guidance and a suggested format to each Nuclear Generation Group (NGG) site for development of a site-specific procedure which lists equipment important to Emergency Preparedness (EP), compensatory measures, restoration priority, response actions, and reporting requirements. The [site] procedure should be developed based on the site emergency plan and licensing basis documents. This process should be integrated with the station configuration control program, corrective action program, design change process, and work management process.

PLP-717, *Equipment Important to Emergency Preparedness and ERO Response*, establishes the programmatic controls for emergency communications equipment (e.g., satellite phones and radios.) As an enhancement, hand-held radios stored in the OSC and the alternate staging area will be incorporated into this procedure.

PEP-310, *Notifications and Communications*, defines the method for operating the various communication links available in the Emergency Facilities. As an enhancement, hand-held satellite phones and hand-held radios will be incorporated into this procedure.

Issue 4.A.2

PLP-717, *Equipment Important to Emergency Preparedness and ERO Response*, and EPM-410, *Communication and Facility Performance Tests*, describe the maintenance, including operability testing, of emergency communications equipment (e.g., satellite phones and

radios.) As an enhancement, these procedures will be revised to incorporate the hand-held satellite phones and hand-held radios.

Issue 4.A.3

EPM-420, Emergency Equipment Inventory, describes the periodic inventory checks of emergency communications equipment (e.g., radios.) As an enhancement, the hand-held satellite phones will be incorporated into this procedure.

Issue 4.A.4

Recommendation 4 in the CP&L and FPC 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.

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, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communication Capabilities. In addition, the two industry developed standard templates, one for the assessment and one for a rollup document.

The following assumptions from NEI 12-01 were utilized.

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 Industry Template for the NTF Recommendation 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 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

Site procedure, PLP-201, *Emergency Plan*, describes the emergency notification process of onsite plant staff via the public address system of the declared emergency event, and is supplemented by the use of the normal and emergency communication systems identified in the plan, which includes hand-held radios.

Issue 6.B

An Emergency Response Organization (ERO) self-activation process is implemented as described in EMG-NGGC-1000, *Conduct of Emergency Preparedness*. The stated purpose of EMG-NGGC-1000 is to provide the expectations for the NGG Emergency Preparedness Program to ensure uniform and consistent overall support and direction for Emergency Preparedness within the NGG fleet. Section 9.6.9 (ERO Responsibilities) states the following:

During an electrical grid disturbance (i.e., large scale natural disaster, regional blackout, technological disaster, etc.) communications capabilities (i.e., pagers, cell phones, internet, landline telephone systems, etc.) may be lost or severely degraded. ERO members, regardless of on-call status, are expected to monitor local radio, and emergency alert system (EAS) communications for impact to the grid structure. Should the situation appear to be a major disturbance to the power grid, then:

- *Ensure your home and family are safe, and*
- *If you are fit for duty and able to leave your family unattended, then*
- *Report to your designated emergency response facility (ERF).*

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/or hand-held satellite phones 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 placed in the storage locations identified in 3.A.1 above. The site has sufficient quantities of radios and satellite phones such that each of the minimum communication links can be established without sharing devices. The current storage locations may not meet all of the reasonable protection standards identified in NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide. The rationale is that by dispersing the communication devices to multiple locations, it increases the likelihood that a number of the hand-held radios and satellite 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) to meet the requirements consistent with the implementation of NRC order EA-12-049 as described in NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide.

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:

Issue 8.A

Emergency communication systems will be evaluated consistent with the implementation of NRC order EA-12-049 as described in NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*. The following timeline details the completion dates for site specific improvements:

	Description	Due Date
R1	Ensure that an appropriate inventory of portable hand-held satellite phones, spare batteries and chargers is available for use by the Emergency Response organization	3/28/2013
R2	Evaluate and purchase, if necessary, additional portable radios, spare batteries, and chargers to ensure required communications links are fully established.	3/28/2013
R3	Ensure that portable communications equipment (i.e. satellite phones, radios, and small generators) are stored in a manner that maximizes survivability from applicable external events per NEI 12-01, Section 4.5.	Consistent with the implementation due date for Order EA-12-049
R4	Ensure that programmatic controls are established for communications equipment (i.e., portable satellite phones and portable radios) 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)	9/30/2013
R5	Ensure that the programmatic controls are established for the Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) programs.	3/28/2013
R6	Ensure that arrangements are in place with communications service providers to utilize their emergency services as described in NEI 12-01, Section 4.10	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. Those programmatic controls include:

- Designate emergency communications equipment (e.g., satellite phones and radios) as Equipment Important to EP
- Develop, as applicable, preventive maintenance strategies for emergency communications equipment (e.g., satellite phones and radios).
- 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 CP&L and FPC Communications Assessment Response (RA-12-038, Attachment 1) dated October 31, 2012, states that training will be performed on the locations and use of emergency communications systems and equipment (e.g., satellite phones and radios).

Issue 8.B

Hand-held satellite phones, batteries, and chargers will be placed at the Wake County Warning Point and Emergency Operations Center (EOC), the Chatham County Warning Point/EOC, the Lee County Warning Point and EOC, the Harnett County Warning Point and EOC, and the State Warning Point/EOC. (8 Total Satellite Phones)

ENCLOSURE 4

RESPONSE TO FOLLOW-UP LETTER:

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

RESPONSE TO FOLLOW-UP LETTER:

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

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 staff's request for information regarding communications. Upon the staff'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, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, presents a methodology for licensees to analyze their ability to perform critical communications during and after a large-scale natural event. The NRC staff has previously reviewed 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.

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.

RNP utilizes a radio system onsite consisting of 53 hand-held radios, with 70 spare batteries, in addition to the 53 batteries installed in the radios, and 20 (6)-gang Motorola Impress battery chargers.

RNP has 35 hand-held Iridium Portable handset model 9555 satellite phones, 70 batteries, and 35 phone battery chargers available for use by the Emergency Response Organization

Issue 1.A.1

Hand-held Radios

RNP has identified that 20 of the 53 radios would support the minimum communication links (without sharing) outlined in Carolina Power & Light Company (CP&L) and Florida Power Corporation (FPC) response letter dated October 31, 2012, Attachment 5, Table 4.1.6.1.

According to the manufacturer, a fully charged radio battery pack will remain active for approximately 13 hours on a 90% Duty Cycle (talking or listening 90% of the time). One spare battery per radio for the 20 radios would be required to support 24 hours of operation, therefore, 40 total radio batteries are required for a 24-hour duration.

Hand-held Satellite Phones

According to the manufacturer, a fully charged standard capacity battery pack will remain active for 30 hours on standby and has a talk time of 3.1 hours. A fully discharged battery will recharge in 3 hours. Starting with two fully charged batteries will allow one to be in use and one on charge, thus the number of batteries is two per hand-held satellite phone, assuming recharge capability via a portable generator.

As an enhancement, the two standard capacity batteries per hand-held satellite phone will be replaced with three high capacity batteries. According to the manufacturer, a high capacity battery pack will remain active for 43 hours on standby, has a talk time of 6.5 hours, and will recharge in 4 hours.

Issue 1.A.2

Four (4) Baldor DG6E 6kW portable diesel generators were purchased and are onsite. They can be used to power hand-held radio battery chargers and hand-held satellite phone battery chargers.

Single and multi unit chargers are available to charge the hand-held radio and hand-held satellite phone batteries. Any combination of these chargers if utilized simultaneously to charge all of the identified devices' batteries at the same time will not exceed the capacity of a single 6kW generator (i.e., 5.5kW continuous/45.8amps).

- Each satellite phone battery charger requires approximately 15 watts
- Each 6-gang radio battery multi-charger requires approximately 150 watts.
- To maintain the radios and satellite phones ready for use, 70 satellite phone batteries and 40 radio batteries and applicable (single or multi-unit) chargers will be needed.

Issue 1.A.3

According to the manufacturer, the 6 kW portable diesel generator has a 4.6 gallon fuel tank and a run time of 4.6 to 6 hours. Conservatively the generators would require 5 gallons of fuel every four hours resulting in 30 gallons each to operate for the first 24 hours. Replacement fuel is available from the Diesel fuel oil storage tank which contains a minimum of level of 20867.9 gallons.

As an enhancement, OP-909, *Fuel Oil System*, will be revised to provide instructions for obtaining additional fuel from the existing Emergency Diesel Generator fuel reservoirs to refill the 6 kW portable diesel generators.

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 by 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

The hand-held radios and satellite phones are available for use for each of the minimum communication links (without sharing), as applicable. These are 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 Progress Energy Letter, *Carolina Power & Light Company and Florida Power Corporation's 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*, 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 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
- Work Control Center
- Fire Equipment Building
- Technical Support Center
- Emergency Operations Facility
- Operations Support Center
- Paint Shop
- Unit 2 Administrative Building

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

- Main Control Room
- Operations Support Center
- Technical Support Center
- Emergency Operations Facility

In the interim, the four 6kW portable generators will be stored in the B.5.b Storage Building

The final storage locations of onsite communications equipment and its associated ancillary equipment will be in reasonably protected building(s) to meet the requirements consistent with the implementation of NRC Order EA-12-049 as described in NEI 12-06, *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

EPPRO-02, *Maintenance and Testing*, and OST-639, *Fire Equipment Inventory*, describe the maintenance, including operability testing, of emergency communications equipment. EPPRO-02 currently only includes radios.

As an enhancement, EPPRO-02 will be revised to include the satellite phones. This will ensure that the hand-held satellite phones and hand-held radios will be functional.

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

The purpose of fleet procedure EMG-NGGC-0007, *Equipment Important to Emergency Preparedness and Response*, is to provide guidance and a suggested format to each Nuclear Generation Group (NGG) site for development of a site-specific procedure which lists equipment important to Emergency Preparedness (EP), compensatory measures, restoration priority, response actions, and reporting requirements. The procedure should be developed based on the site emergency plan and licensing basis documents. This process should be integrated with the station configuration control program, corrective action program, design change process, and work management process.

PLP-069, *Emergency Response Equipment Responsibilities*, establishes the programmatic controls for emergency communications equipment (e.g., satellite phones and radios.) As an enhancement, PLP-069 will be revised to include portable satellite phones.

EPNOT-01, *CR/EOF Emergency Communicator*, defines the method for operating the various communication links available in the Emergency Facilities. As an enhancement, ENOT-01 will be revised to include portable satellite phones.

Issue 4.A.2

EPPRO-02, *Maintenance and Testing*, describe the maintenance, including operability testing, of emergency communications equipment (e.g., satellite phones and radios.) As an enhancement, EPPRO-02 will be revised to include portable satellite phones.

Issue 4.A.3

EPPRO-02, *Maintenance and Testing*, describes the periodic inventory checks of emergency communications equipment (e.g., satellite phones and radios.) As an enhancement, EPPRO-02 will be revised to include portable satellite phones.

Issue 4.A.4

Recommendation 4 in the Progress 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.

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, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communication Capabilities. In addition, Progress Energy utilized the two industry developed standard templates: (1) one for the assessment and (2) one for a rollout document.

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 Industry Template for the NTF Recommendation 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 primary communication systems and equipment for 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

At RNP, EPCLA-01, *Emergency Control*, describes the emergency notification process of onsite plant staff. As an enhancement this procedure will be revised to provide alternative methods, such as hand-held radios used in the line-of-sight mode and Bull-horns, to make notifications to site personnel in the event.

Issue 6.B

An Emergency Response Organization (ERO) self-activation process was implemented which is described in EMG-NGGC-1000, *Conduct of Emergency Preparedness*. The stated purpose of EMG-NGGC-1000 is to provide the expectations for the NGG Emergency Preparedness Program to ensure uniform and consistent overall support and direction for Emergency Preparedness within the NGG fleet. Section 9.6.9 (ERO Responsibilities) states the following:

During an electrical grid disturbance (i.e., large scale natural disaster, regional blackout, technological disaster, etc.) communications capabilities (i.e., pagers, cell phones, internet, landline telephone systems, etc.) may be lost or severely degraded. ERO members, regardless of on-call status, are expected to monitor local radio, and emergency alert system (EAS) communications for impact to the grid structure. Should the situation appear to be a major disturbance to the power grid, then:

- *Ensure your home and family are safe, and*
- *If you are fit for duty and able to leave your family unattended, then*
- *Report to your designated emergency response facility (ERF).*

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/or portable satellite phones 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 available for use in the site 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. The storage locations may not meet all of the reasonable protection standards identified in NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*. The rationale is that by dispersing the communication devices onsite and 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) to meet the requirements consistent with the implementation of NRC order EA-12-049, as described in NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*.

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:

Issue 8.A

Emergency communication systems will be evaluated consistent with the implementation of NRC order EA-12-049 as described in NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*. The following timeline details the completion dates for site specific improvements:

	Description	Due Date
R1	Ensure that an appropriate inventory of portable hand-held satellite phones, spare batteries and chargers is available for use by the Emergency Response organization	3/28/2013
R2	Evaluate and purchase, if necessary, additional portable radios, spare batteries, and chargers to ensure required communications links are fully established.	3/28/2013
R3	Ensure that portable communications equipment (i.e. satellite phones, radios, and small generators) are stored in a manner that maximizes survivability from applicable external events per NEI 12-01, Section 4.5.	Consistent with the implementation due date for Order EA-12-049
R4	Ensure that programmatic controls are established for communications equipment (i.e., portable satellite phones and portable radios) 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)	9/30/2013
R5	Ensure that the programmatic controls are established for the Government Emergency Telecommunications Service (GETS)/Wireless Priority Service (WPS) programs.	3/28/2013
R6	Ensure that arrangements are in place with communications service providers to utilize their emergency services as described in NEI 12-01, Section 4.10	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. Those programmatic controls include:

- Designate emergency communications equipment (e.g., satellite phones and radios) as Equipment Important to EP
- Develop, as applicable, Preventive Maintenance strategies for emergency communications equipment (e.g., satellite phones and radios)
- 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 CP&L and FPC Communications Assessment Response (RA-12-038, Attachment 1) dated October 31, 2012, states that training will be performed on the locations and use of emergency communications systems and equipment (e.g., satellite phones and radios.)

Issue 8.B

Hand-held satellite phones, batteries, and chargers will be placed at the Chesterfield County Emergency Operations Center, Darlington County Emergency Operations Center, Lee County Emergency Operations Center, and State of South Carolina Emergency Operations Center by March 28, 2013.