



October 31, 2012

NG-12-0430
10 CFR 50.54(f)

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Duane Arnold Energy Center
Docket No. 50-331
Renewed Op. License No. DPR-49

Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 9.3, Emergency Preparedness

- References:
1. NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident; dated March 12, 2012, (ML12073A348)
 2. NRC Letter, D.L. Skeen (NRC) to S. Perkins-Grew (NEI), "U.S. Nuclear Regulatory Commission Review of NEI 12-01, 'Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities,' Revision 0, dated May 2012," dated May 15, 2012, (ML12131A043)
 3. NextEra Energy Duane Arnold, LLC's 90 Day Response to NRC Letter, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," NG-12-0232, dated June 8, 2012, (ML12165A473)

On March 12, 2012, the NRC staff issued the Reference 1 letter requesting information pursuant to Title 10 of the Code of Federal Regulations 50.54(f). Enclosure 5 of the letter contains specific Requested Actions and Requested Information associated with Recommendation 9.3 for Emergency Preparedness (EP) programs. The requested information consists of the following three items:

- (1) an assessment of the current communications systems and equipment used during an emergency event to identify any enhancements that may be needed to ensure communications are maintained during a large scale natural event. The assessment should:
 - Identify any planned or potential improvements to existing onsite communications systems and their required normal and/or backup power supplies,

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HPL

- Identify any planned or potential improvements to existing offsite communications systems and their required normal and/or backup power supplies,
 - Provide a description of any new communications system(s) or technologies that will be deployed based upon the assumed conditions described above, and
 - Provide a description of how the new and/or improved systems and power supplies will be able to provide for communications during a loss of all ac power;
- (2) a description of any interim actions that have been taken or are planned to be taken to enhance existing communications systems power supplies until the communications assessment and resulting actions are complete; and
- (3) an implementation schedule of the time needed to conduct and implement the results of the assessment.

The Reference 2 letter documents the NRC's review and acceptance of NEI 12-01, Revision 0 as providing an acceptable method for licensees to employ when responding to the 10 CFR 50.54(f) letters regarding Recommendation 9.3.

Table 1.1 of NEI-12-01 provides a summary of licensee actions and due dates pertaining to the subject NRC information request. Consistent with Action # 3 of this table, NextEra Energy Duane Arnold, LLC (hereafter, NextEra Energy Duane Arnold) responded to item 2 of the information request via the Reference 3 letter. In that response, NextEra Energy Duane Arnold identified an interim action to make portable satellite phones available in various Emergency Response Organization facilities. That interim action has been completed. Consistent with Action # 5 of this table, this letter is responsive to items 1 and 3 of the information request and completes our response to the Communications portion of Recommendation 9.3.

The enclosed report, "DUANE ARNOLD ENERGY CENTER COMMUNICATIONS ASSESSMENT DURING AN EXTENDED LOSS OF AC POWER," was prepared in accordance with the guidance of NEI 12-01, Revision 0. This report documents the requested communications assessment. The planned communications improvements resulting from the assessment, along with an implementation schedule, are identified below as new commitments.

This submittal contains the following new commitments:

<u>Planned Communications Improvement</u>	<u>Implementation Schedule</u>
1. Develop procedural guidance to recharge portable communications systems batteries.	July 31, 2013
2. Develop procedural guidance to periodically test new communications equipment and portable generators.	July 31, 2013
3. Acquire Government Emergency Telecommunications Service (GETS), and the Wireless Priority Service (WPS) cards for each communication link, as appropriate to each communication type (wired or wireless).	July 31, 2013
4. At least 24 portable radios will be stored in the Control Building.	July 31, 2013

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If you have any questions or require additional information, please contact Ken Putnam at 319-851-7238.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on October 31, 2012

A handwritten signature in black ink, appearing to read "Richard L. Anderson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Richard L. Anderson
Vice President, Duane Arnold Energy Center
NextEra Energy Duane Arnold, LLC

Enclosure

cc: NRC Regional Administrator (Region III)
NRC Resident Inspector (DAEC)
NRC Licensing Project Manager (DAEC)

Enclosure to
NG-12-0430

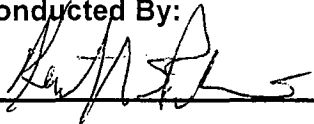
DUANE ARNOLD ENERGY CENTER
COMMUNICATIONS ASSESSMENT
DURING AN EXTENDED LOSS OF AC POWER

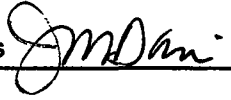
Duane Arnold Energy Center response to NRC Request for Information Pursuant to Title 10 of the code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Team Task Force Review of insights from the Fukushima Dai-ichi Accident, dated March 12, 2012. The NRC requested among other things, information related to Emergency Communications.

Dates of Assessment:

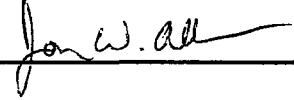
August 15, 2012 through September 28, 2012

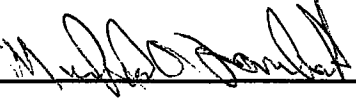
Assessment Conducted By:

Ken Putnam  DAEC License Renewal Manager
Name Title

Mike Davis  DAEC Emergency Preparedness Manager
Name Title

Nicole Knapp  Emergency Preparedness Coordinator
Name Title

Jon Aller  Nuclear Technology Analyst
Name Title

Mike Fairchild  Principal Engineer
Name Title

Name Title

Name Title

Executive Summary:

This assessment reviews the communications capabilities of Duane Arnold Energy Center to support emergency response to events involving loss of AC power and large scale natural events (LSNE) that disable the communications infrastructure in the area surrounding the plant out to 25 miles. Disabled infrastructure includes normal AC electrical service, commercial telephone service, cellular telephone service and radio communications towers. Backup power sources at offsite locations within the 25 mile area may be considered available and operable.

This assessment was conducted in accordance with industry guidance contained in NEI 12-01, Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications, dated May 2012.

The conclusion of the assessment is that Duane Arnold Energy Center has a diverse set of communications systems, designed to ensure reliable communications during normal plant operations and during emergency situations, including loss of offsite power. The communications systems are non-safety related. Reliability is established by providing primary and backup systems that are sufficiently independent of one another and by backup power capability to protect against loss of offsite power events.

The beyond design basis events assumed in this assessment introduce failure modes that could render a significant portion of existing communications capabilities inoperable. The assessment concludes that enhancements are necessary to maintain communications capabilities for responding to beyond design basis events. These enhancements include:

- Develop procedural guidance to recharge portable communications systems batteries.
- Develop procedural guidance to periodically test new communications equipment and portable generators.
- Acquire Government Emergency Telecommunications Service (GETS), and the Wireless Priority Service (WPS) cards for each communication link, as appropriate to each communication type (wired or wireless).
- At least 24 portable radios will be stored in the Control Building.

Topic: 10 CFR 50.54(f) Request For Information – Near Term Task Force (NTTF) Recommendation 9.3 - Communications

NRC Requested Information

NRC Requested Actions

It is requested that addressees assess their current communications systems and equipment used during an emergency event. It is also requested that consideration be given to any enhancements that may be appropriate for the emergency plan with respect to communications requirements of 10 CFR 50.47, Appendix E to 10 CFR Part 50, and the guidance in NUREG-0696. Also addressees are requested to consider the means necessary to power the new and existing communications equipment during a prolonged SBO.

NRC Request Assumptions

The NRC requests that the following assumptions be made in preparing responses to this request for information: the potential onsite and offsite damage is a result of a large scale natural event resulting in a loss of all alternating current (ac) power.

In addition, assume that the large scale natural event causes extensive damage to normal and emergency communications systems both onsite and in the area surrounding the site. It has been recognized that following a large scale natural event that ac power may not be available to cell and other communications infrastructures.

NRC Requested Information

1. Addressees are requested to provide an assessment of the current communications systems and equipment used during an emergency event to identify any enhancements that may be needed to ensure communications are maintained during a large scale natural event meeting the conditions described above.

NEI 12-01 Revision 0 (May 2012)

4 0 COMMUNICATIONS DURING AN EXTENDED LOSS OF AC POWER

4.1 REQUIRED EMERGENCY COMMUNICATIONS CAPABILITIES

Consistent with emergency planning standard requirements, communications systems and equipment associated with the following emergency response functions should be available during an extended loss of AC power. Availability should be determined after a review of existing capabilities and consistent with the assumptions listed in NEI 12-01 Rev. 0 Section 2. In particular, it is important that the primary and backup (if applicable) power source for each communications system or piece of equipment be identified.

End-point equipment identified for a communications link listed below should be used solely for the purpose indicated. For example, a satellite telephone assigned to the Control Room should not be credited for performing both Offsite Response Organization (ORO) and NRC notifications. When performing this assessment, consideration should be given to the desirability of providing some communications capabilities in alternate facilities at offsite locations instead of their normal locations in on-site facilities.

NOTE:

In tables below, when referring to "Additional Information" in column 8, ensure the following is addressed:

1. Provide a description of any new communications system(s) or technologies that will be deployed based upon the assumed conditions described above, and
2. Provide a description of how the new and/or improved systems and power supplies will be able to provide for communications during a loss of all AC power

4.1.1 Notifications to, and communications with OROs [per 10 CFR 50 Appendix E]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Microwave Facilities (Telephone)	No	Telephone System Installed Satellite Phone Commercial Cell Phone Portable Satellite Phone	No No No Yes (1)	No No No Yes	Attachment D Attachment A
Technical Support Center (TSC)	1 for TSC Admin Supervisor	Microwave Facilities (Telephone)	No	Telephone System Installed Satellite Phone Commercial Cell Phone Portable Satellite Phone	No No No Yes (1)	No No No Yes	Attachment D Attachment A
Emergency Operations Facility (EOF)	1 for EOF Support Supervisor	Microwave Facilities (Telephone)	No	Telephone System Installed Satellite Phone Commercial Cell Phone Portable Satellite Phone	No No No Yes (1)	No No No Yes	Attachment D Attachment A

Note 1: Portable satellite phones are available at each ERO facility to provide communications to off-site facilities in the event that all other communications links are lost. These portable satellite phones are not described in the E-Plan.

4.1.2 Notifications to, and communications with, the Nuclear Regulatory Commission (NRC) Headquarters Incident Response Center and the appropriate NRC Regional Office Operations Center [per 10 CFR 50 Appendix E]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	Federal Telecommunications System (FTS 2001)	No	Telephone System Microwave Facilities Installed Satellite Phone Commercial Cell Phone Portable Satellite Phone	No No No No Yes (1)	No No No Yes Yes	Attachment A Attachment D
TSC	1 for ENS Communicator	Federal Telecommunications System (FTS 2001)	No	Telephone System Microwave Facilities Installed Satellite Phone Commercial Cell Phone Portable Satellite Phone	No No No No Yes (1)	No No No Yes Yes	Attachment A Attachment D

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
EOF Location where HPN communications are performed	1 for HPN Communicator	Federal Telecommunications System (FTS 2001)	No	Telephone System Microwave Facilities Installed Satellite Phone Commercial Cell Phone Portable Satellite Phone	No No No No Yes (1)	No No No Yes Yes	Attachment A Attachment D
TSC Location where HPN communications are performed	1 for HPN Communicator	Federal Telecommunications System (FTS 2001)	No	Telephone System Microwave Facilities Installed Satellite Phone Commercial Cell Phone Portable Satellite Phone	No No No No Yes (1)	No No No Yes Yes	Attachment A Attachment D

Note 1: Portable satellite phones are available at each ERO facility to provide communications to off-site facilities in the event that all other communications links are lost. These portable satellite phones are not described in the E-Plan.

4.1.3 Communications between licensee emergency response facilities [*per 10 CFR 50 Appendix E. Additional links that support performance of critical response functions are also specified.*] The minimum communications links to support this function are listed below by facility. For example, if the normally used telephone system cannot be restored to service, these links could rely upon some combination of radio, sound-powered and satellite-based communications systems.

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per unit	Telephone System	No	Microwave Facilities Installed Satellite Phone Commercial Cell Phone Plant Radio System Portable Satellite Phone	No No No No Yes (2)	No No Yes Yes Yes	Attachment A Attachment D Note 1 All communications between the Control Room and other ERO facilities is through the Control Room Communicator.
Technical Support Center (TSC) Co-Located with OSC	1 each for: • Senior/Lead TSC Manager • Operations Coordination • Maintenance Coordination • Engineering Coordination • Radiological Support	Telephone System	No	Microwave Facilities Installed Satellite Phone Commercial Cell Phone Plant Radio System Portable satellite phones	No No No No Yes (2)	No No Yes Yes Yes	Attachment A Attachment D Note 1 All communications with the OSC is face-to face. All communications to other ERO facilities is through the TSC Communicator.

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Operational Support Center (OSC) Co-located with TSC	1 each for: • Senior/Lead OSC Manager • Radiological Support	Face-to-Face	Yes	Face-to-Face	Yes	No	The TSC & OSC are adjacent to each other. Normal communications between them is Face-to-Face communications
Emergency Operations Facility (EOF)	1 each for: • Senior/Lead Manager • Key Protective Measures • Operations or Technical Support (as needed to support performance of dose projections, formulation of PARs and plant status updates to ORO authorities).	Telephone System	No	Microwave Facilities Installed Satellite Phone Commercial Cell Phone Portable satellite phone	No No No Yes (2)	No No Yes Yes	Attachment A Attachment D Note 1 All communications between the EOF and other ERO facilities is through the EOF Communicator.
Joint Information Center (JIC)	1 for Senior Manager	Telephone System	No	Face-to-Face	Yes	No	The JIC and the EOF are in the same building. Face-to-Face communications will suffice.

Note 1: The Control Room Communicator, TSC Communicator and EOF Communicator are all on a phone bridge to allow communications between all three facilities at once. Other communications between the Control Room and TSC can be by portable (handheld) radio if the telephone systems are not available.

Note 2: Portable satellite phones are available at each ERO facility to provide communications to off-site facilities in the event that all other communications links are lost. These portable satellite phones are not described in the E-Plan. The current portable satellite phones are being replaced.

4.1.4 Communications with field/offsite monitoring teams [per 10 CFR 50 Appendix E]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Primary location where field/offsite monitoring team coordination is performed	Field/offsite monitoring team coordination	Radiological Survey Radio System	Yes (Using portable radios)	Radiological Survey Backup Radio System	Yes (Using portable radios)	Yes	Attachment B
Primary location from which field/offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Radiological Survey Radio System	Yes (Using portable radios)	Radiological Survey Backup Radio System	Yes (Using portable radios)	Yes	Attachment B

4.1.5 Communications with other Federal agencies as described in the site emergency plan (e.g., the US Coast Guard) [per 10 CFR 50 Appendix E]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Primary location where communication with Federal agencies is performed	Coordination with Federal agencies	There are no communications with other Federal agencies described in the E-Plan.	N/A	N/A	N/A	N/A	N/A

4.1.6 Coordination and direction of on-site and in-plant response teams. This includes teams necessary to affect emergency repairs, firefighting, search and rescue, radiological monitoring, and implementation of Transition Phase coping and severe accident management strategies. To accommodate the timeline associated with NRC Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (as discussed in Section 1), this element should be assessed in 2 phases.

4.1.6.1 Phase 1 Assessment

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
On-shift staff	Number necessary for the on-shift staff to perform Initial Phase coping actions (reflecting current staff & strategies)	Plant Radio System	Yes (Using portable radios)	Plant Wireless Telephone System	No	Yes	Attachment A Attachment B
Operational Support Center (OSC) and other site-specific locations as necessary	1 each for: <ul style="list-style-type: none"> • On-site radiological monitoring 2 each for: <ul style="list-style-type: none"> • Firefighting (1 for brigade leader and 1 for the brigade) 2 each per unit for: <ul style="list-style-type: none"> • In-plant rad. monitoring • Search and Rescue • Emergency repairs 	Plant Radio System	Yes (Using portable radios)	Plant Wireless Telephone System	No	Yes	Attachment A Attachment B

4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	See assumptions and discussion in NEI 12-01.	Plant Public Address System	Yes (Control Building & Reactor Building only)	Security Personnel Walkthrough	Yes	No	Attachment E
TSC	See assumptions and discussion in NEI 12-01	All Public Address System announcements are made by the Control Room. The TSC does not make any announcements	N/A	N/A	N/A	N/A	

4.3 Communications Equipment at ORO Facilities

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Location where OROs receive notifications of an emergency declaration or a Protective Action Recommendation (as described in the site emergency plan)	At least one. See assumptions and discussion in NEI 12-01.	Microwave Facilities (Telephone)	No	Telephone System Installed Satellite Phone Commercial Cell Phone Portable Satellite Phone	No No No Yes (1)	No No Yes Yes	Attachment A Attachment D

Note 1: Portable satellite phones are available at each ERO facility to provide communications to off-site facilities in the event that all other communications links are lost. These portable satellite phones are not described in the E-Plan.

4.4 Notification of the Emergency Response Organization (ERO)

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSNE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSNE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Location where ERO notifications of an emergency (as described in the site emergency plan)	At least one. See assumptions and discussion in NEI 12-01.	Telephone System Paging System Cell Phone	No	Predetermined response based on wide area loss of power (memo to employees)	Yes	No	Attachment C

Considerations for performing the communications assessment and identifying enhancements:

4.5 EQUIPMENT LOCATION REQUIREMENTS

To be assumed operable, a piece of on-site communications equipment should be stored in a location, and maintained in a manner, that maximizes survivability following a beyond design basis event.

The Interim Staff Guidance for FLEX equipment was issued, by the NRC on 8/29/12. All equipment storage locations will be assessed and where needed, enhancements identified earlier in this assessment report will be made to verify:

1. Location or manner of storage reasonably precludes wetting from flooding;
2. Location or manner of storage reasonably precludes damage from a seismic event; and,
3. Equipment is stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, potential constraints to equipment access or movement when selecting a storage location will be considered.

When assessing storage locations, criteria presented in regulatory and industry guidance applicable to equipment associated with NRC Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External events (e.g., FLEX equipment) has been/will be considered.

This guidance applies to equipment at the point of use (e.g., a radio) as well as any supporting infrastructure components. Such components may include portable power sources, and radio system repeaters and antennas.

4.6 PERFORMANCE CHARACTERISTICS

DAEC communications equipment is listed in existing emergency plan and UFSAR descriptions. While this review documents the robust and diverse equipment available for communications, the systems that are fully assured for the specific assumed conditions of this analysis are the plant page in the Control Building and Reactor Building portable radios and portable satellite phones. Performance characteristics of communications equipment is discussed further in the attachments.

4.7 OTHER ASSESSMENT CONSIDERATIONS

DAEC identified that site communications capabilities could be enhanced by establishing a procedure for using a portable generator to charge the batteries of portable communications equipment. The battery chargers and a portable generator are available on-site.

4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS

DAEC has established programmatic controls. As noted in the DAEC Emergency Plan Section F, Periodic tests are conducted to determine the operability of the communications systems discussed in this section. The test (preferably in conjunction with the exercise addressed in DAEC E-Plan Section N) is performed to test all communications links and notification procedures and the system used to alert the public. The NRC ENS, NRC HPN, and the other telephone lines in the FTS-2001 network are tested on a monthly basis. The Emergency Response Data System (ERDS) is tested quarterly by establishing a link with the NRC ERDS system. DAEC identified that site communications capabilities could be enhanced by adding portable satellite phones and portable generators to the list communications equipment that are periodically tested.

4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICES

NextEra Energy has arrangements to utilize the services of the National Communications System. Phone system in the emergency operations facilities could be enhanced by ensuring each applicable off site communication node has an associated GETS card for use. The fixed cell phone system can be enhanced by ensuring each applicable cell phone lines have an associated WPS card.

4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES

Existing communications vendors utilized by DAEC were contacted to determine if emergency communications services were available beyond what currently is used to improve communications for the scenarios assumed in NEI 12-01. No additional enhancements were identified. The providers contacted were Windstream Communications, Palo Phone Co., USA Communications, and Century Link.

4.11 PERSONNEL TRAINING

Emergency response personnel receive periodic training on the location and use of communications systems via periodic ERO training drills.

5.0 Planned Improvements

- 5.1 Planned improvements to existing on-site communications systems and their required normal and/or backup power supplies;
- Develop procedural guidance to recharge portable radio batteries.
 - Develop procedural guidance to periodically test portable generators.
 - At least 24 portable radios will be stored in the Control Building
- 5.2 Planned improvements to off-site communications systems and their required normal and/or backup power supplies
- Acquire Government Emergency Telecommunications Service (GETS) and the Wireless Priority Service (WPS) cards for each communication link, as appropriate to each communication type (wired or wireless).
 - Develop procedural guidance to recharge portable satellite phone batteries.
 - Develop procedural guidance to periodically test portable generators.
- 5.3 Provide a description of any new communications system(s) or technologies that will be deployed based upon the assumed conditions;
- No new communications systems will be deployed.
- 5.4 Provide a description of how the new and/or improved systems and power supplies will be able to provide for communications during a loss of all ac power.
- Portable generators will be able to recharge portable communication equipment batteries. Each portable radio or portable satellite phone has limited battery life. Providing a means to recharge the batteries will allow each piece of equipment to work during a loss of all ac power.

6.0 DAEC Emergency Response Communication Systems (Current Capabilities)

Communications Systems/Equipment	Alternate methods	System/Equipment Description
Telephone System	<ul style="list-style-type: none"> • Portable Satellite Phones • Radio Systems 	See Attachment A for a detailed description.
Radio System	<ul style="list-style-type: none"> • Portable Radios 	See Attachment B for a detailed description.
Emergency Response Data System	<ul style="list-style-type: none"> • None 	ERDS needs the Plant Process Computer, the Intranet and the Internet to communicate with the NRC. Internet connection requires T1 communications with Juno Beach or Main Office (Florida). All internet connections are through servers there. T1 communications is assumed to be lost.
ERO Notification System	<ul style="list-style-type: none"> • Telephone System • Portable Satellite Phones 	See Attachment A for a detailed description.
Federal Telecommunications System (FTS 2001)	<ul style="list-style-type: none"> • Telephone System • Portable Satellite Phones 	See Attachment A for a detailed description.
Installed Satellite Phone	<ul style="list-style-type: none"> • Telephone System • Portable Satellite Phones 	See Attachment A for a detailed description.
Microwave Facilities	<ul style="list-style-type: none"> • Telephone System • Radio System 	See Attachment D for a detailed description
Public Address System	<ul style="list-style-type: none"> • Runner • Loudspeaker 	See Attachment E for a detailed description
Portable Satellite Phone	<ul style="list-style-type: none"> • None 	See Attachment A for a detailed description.

Attachment A

DAEC Telephone System Description

Figure F-6 of DAEC Emergency Plan Section "F" illustrates the telephone system. The system is operated and maintained by the Palo Cooperative Telephone Association and Qwest which serves the Alliant Tower. The DAEC PBX is connected to the central office by 20 active Central Office (CO) trunk lines, 48 long distance trunks, 23 duplex dial trunks, and 24 direct dial trunk lines. The PBX also contains six direct-dial tie trunks to the microwave terminal at the DAEC Substation. The PBX currently handles approximately 1,500 telephone stations. There are 4 emergency lines with unlisted numbers which connect directly to the Control Room and several offices but do not connect through the PBX. There are 6 dedicated telecommunications circuits which bypass the local system switch in the EOF and directly connect to the public switched network provided by Qwest. There are seven data lines used for computer operations which do not connect through the PBX. A telephone cable connects the DAEC to the central office with a redundant fiber connection. This cable terminates at the DAEC PBX.

The Installed Satellite Phone System connects the DAEC Control Room to a communications satellite. This phone system provides an alternative in the event the surrounding local area communications infrastructure is degraded for any reason. In addition to a dedicated phone in the Control Room, the Installed Satellite Phone System can be accessed from any site phone via the PBX. The power supply for the Installed Satellite Phone System was upgraded in April 2012 to include an uninterruptible power supply that is sized consistent with 24 hours of use with no AC power. The antennas for the Installed Satellite Phone System are on the PSC Building.

A fixed cell phone system connects the DAEC Control Room and TSC with the Shellsburg Cell tower via exterior antenna. This phone system has a UPS power supply in the event of a loss of power.

NRC ENS and NRC HPN telephones are connected to the Federal Telephone System (FTS-2001). The NRC ENS telephones are located in the Control Room, TSC, and EOF which gives those facilities the capability to contact NRC Headquarters in Rockville, MD. The NRC HPN telephones are located in the TSC and EOF and can be used to call regional NRC offices, the NRC Headquarters, or other sites within the region. FTS-2001 is a simple phone connection of copper wire at DAEC. The box on F-7 of DAEC Emergency Plan Section "F" that says "Local" would be the local CO (Central Office) providing the dial tone. We have a DEMARC in the Computer Room where the line is installed. From there it is a patching/distributing function to get the line to the various locations; Control Room and TSC. There are no "active" devices at DAEC that support the FTS-2001 system, just copper wire and jumper panels.

The Emergency Operations Facility has available dedicated circuits to the NRC on the Federal Telecommunications system FTS-2001, Direct-ring leased telephone lines and dedicated microwave circuits to the Control Room, Technical Support Center, and Operational Support Center. In addition the EOF has direct inward dialing to unlisted numbers in the telephone system direct-ring microwave and land-based telephone lines between the Control Room, Technical Support Center, Simulator, Iowa Homeland Security and Emergency Management Division, Benton County and Linn County Emergency Operations Centers, Benton County and Linn County Sheriff 911 Dispatch Centers

The Portable Satellite Phones allow communications via a communications satellite. This phone system provides an alternative in the event the surrounding local area communications infrastructure is degraded for any reason. These phones have an internal battery and can be powered by 120 VAC or 10 to 32 VDC. The antenna does not require pointing at the satellite. The phones come with a docking station.

NextEra Energy has arrangements to utilize the services of the National Communications System. Phone system in the emergency operations facilities could be enhanced by ensuring each applicable off site communication node has an associated GETS card for use. The fixed cell phone system can be enhanced by ensuring each applicable cell phone lines have an associated WPS card.

DAEC Telephone System

- Communication within the plant will remain for a minimum of sixteen hours with a loss of AC power but is not protected from all natural events.
- Communication anywhere offsite will be lost as the assumption for this evaluation is that all normal communications with 25 miles of the plant is lost.

Installed Satellite Phones

- Installed Satellite Phone communications will remain operational for a minimum of twenty four hours with a loss of AC power but is not protected from all natural events.

Fixed Cell Phone System

- Fixed Cell Phone System will be lost as the assumption for this evaluation is that all normal communications with 25 miles of the plant is lost.

NRC ENS and NRC HPN telephones

- Connection to the FTS-2001 System will be lost

Emergency Operations Facility Phones

- Emergency Operations Facility Phone connections out of the facility will be lost

Portable Satellite Phones

- Portable Satellite Phone communications will remain operational with a loss of AC power and will be protected from all natural events.

Telephone system enhancements

- Provide the capability to recharge the portable communications equipment batteries via a portable generator
- Develop procedural guidance to periodically test new communications equipment and portable generators.
- Acquire Government Emergency Telecommunications Service (GETS), and the Wireless Priority Service (WPS) cards for each communication link, as appropriate to each communication type (wired or wireless)..

Attachment B

DAEC Radio System Description

As discussed in the DAEC Emergency Plan, the DAEC has four radio systems for communications during an emergency; DAEC Radiological Survey Radio System, DAEC (Backup Radiological Survey) Radio System, Plant Operations Radio System and the Point-to Point Radio System.

The DAEC Radiological Survey Radio System (Figure F-1 of DAEC Emergency Plan Section "F") provides base-to-portable communications for conducting radiological surveys throughout the DAEC plume exposure EPZ. The base station is a mobile relay (repeater) type using two VHF frequencies for a single frequency simplex talk-around, or for monitoring short range portable-to-portable communications in the event the base station is inoperative for a short period of time. In addition, the DAEC Radiological Survey teams have three vehicles equipped with a 50-watt radio transceiver for communications to the DAEC at distances greater than obtainable with the high power portables. The transmitter is located at the Microwave Tower at DAEC.

DAEC (Backup Radiological Survey) Radio System (Figure F-2 of DAEC Emergency Plan Section "F") provides backup capability for the VHF radio listed above and provides base-to-portable communications for conducting radiological surveys throughout the DAEC plume exposure EPZ. The backup system is an 800 MHz (UHF) trunked/conventional repeater system. The trunked base is located at the Alliant Tower with conventional repeaters located at the Belle Plaine (26.5 mi.), Traer (35 mi.) and Coggon substations (16.9 mi.).

The Plant Operations Radio System (Figure F-3 of DAEC Emergency Plan Section "F") which consists of a UHF base station connected to an omnidirectional antenna. Seven remote control units are associated with this base station, located in the Control Room, Control Room Back panel, Technical Support Center, Secondary Alarm Station, Security Control Point, and the Central Alarm Station. Hand-held transceivers are used in this system to provide simplex communications within the plant and onsite.

The Point-to-Point Radio System (Figure F-4 of DAEC Emergency Plan Section "F") is a base station licensed for operation in the Police Radio Service on the law enforcement statewide, point-to-point VHF frequency. This station is for communications with the Iowa Department of Public Safety radio station, Linn County Sheriff's office, Benton County Sheriff's office, and the Cedar Rapids Fire Department, and uses a two-tone sequential signal to alert the latter two public-safety stations. This point-to-point channel is also used by the Linn County Emergency Management and other public safety organizations throughout the state of Iowa. DAEC has access to a mobile communications vehicle that has the capability to replace the base stations listed above. The mobile communications vehicle has a portable generator to supply power.

There are 210 UHF radio hand held transceivers, 80 VHF radio hand held transceivers and 35 VHF/UHF radio hand held transceivers. All hand held transceivers can communicate with other hand held transceivers on the same frequency. There are sufficient hand held transceivers to equip the appropriate ERO personnel with sufficient spare hand held transceivers that can be charging while other hand held transceivers are in use.

DAEC Radio Systems

- All base station communications will be lost as they are not protected from all natural events
- Portable radios can communicate as long as the batteries last
- The 800 MHz repeaters at Belle Plaine and Traer will remain operable as they are beyond 25 miles from the plant

Radio system enhancements

- Provide the capability to recharge the portable communications equipment batteries via a portable generator
- Store at least 24 radios in the Control Building.
- Develop procedural guidance to periodically test new communications equipment and portable generators.

Attachment C

ERO Notification systems – Duane Arnold has multiple methods to contact designated ERO members in the event of an emergency. All ERO members will be contacted via a phone call to their home or cell phone as needed. All management personnel filling a key ERO duty position will also have one of the following two methods available:

- A pocket-radio paging system, operated and maintained by a local contractor. The system is designed to enable simultaneous contact of such personnel in the event of an emergency.
- Cell phones or other similar devices that are programmed to be automatically contacted in the event of an emergency.

In the event of a wide scale natural event that impaired the ERO notification system, ERO members are expected to respond to their ERO facility without formal notifications. This expectation was communicated to the ERO members as part of the required annual training.

ERO Notification Systems

- Communication anywhere offsite will be lost as the assumption for this evaluation is that all normal communications with 25 miles of the plant is lost.

ERO Notification system enhancements

None identified at this time

Attachment D

Microwave Facilities – Duane Arnold, with a group of Iowa utilities, participates in a shared microwave system, a portion of which is illustrated in Figure F-5. The hub of this system is located at the Alliant Tower in Cedar Rapids. A westerly path extends from Cedar Rapids to the DAEC and contains the following:

- 24 channels used for outdial telephone, which connect the Duane Arnold phone system in Cedar Rapids to the DAEC phone system.
- Various circuits which connect the Central Alarm Station, the Secondary Alarm Station, the Linn County EOC and sheriff, the Benton County EOC and sheriff, the State of Iowa EOC's, the EOF, the TSC, Simulator, and the Control Room into a private telephone network referred to as the "DAEC ALL-CALL". See Figure F-8.

Additional microwave facilities provide paths east and west from the DAEC through the Alliant Energy substations at Vinton, Dysart, Traer, Wellsburg, and Marshalltown to complete the microwave loop system from Cedar Rapids. This enables a greater degree of reliability since loop switching equipment is installed at all microwave repeaters in the loop. Thus, if one microwave path becomes inoperative, signals will be switched continuing to provide communications to all points around the loop

Microwave Facilities

- Microwave communication anywhere offsite will be lost as they are not protected from all natural events.

Microwave Facilities enhancements

None identified at this time

Attachment E

Public Address System (Plant Page) - The Public Address System is used at DAEC to notify plant personnel of initial emergency declaration. The Public Address System is divided into eight zones (reference ACP 1406.10 Attachment 1) so that power or circuit failures in one zone will not prevent operability in other zones (reference UFSAR section 9.5.2.1.2). Zone 1 supports the Reactor Building and Control Building and is powered from 1Y23 Circuit 12 which is powered from Uninterruptable AC power which is battery backed (reference ACP 1406.10 and drawing BECH-E29<1>). Other zones are powered from reliable sources, but are not battery backed. For the assumed conditions defined for this evaluation it is anticipated that plant personnel on site would readily recognize the loss of all AC power on site and respond appropriately to their designated ERO location regardless of the status of the plant page system. In addition, EPIP 1.3 "Plant Assembly and Site Evacuation" defines alternate methods to provide notification of plant personnel using a runner system and megaphone or security vehicle loudspeaker system in the event the plant page system is inoperable for any reason. This provides reasonable assurance plant staff can be notified within approximately 30 minutes.

Public Address System

- The Public Address System in the Reactor Building and Control Building will remain operable for 4 hours
- The Public Address System on all other buildings will be lost as a result of the loss of AC power.

Paging system enhancements

None identified at this time

Attachment F

ORO Facility Communications – ORO facilities that normally receive notifications of emergency declaration or protective action recommendations are the Benton County Emergency Operations Center, the Linn County Emergency Operations Center, and the Iowa State Emergency Operations Center. Federal facilities that receive notifications are outside Iowa and are not the subject of this evaluation. Discussion with state and county facility operators indicates that they have back up power options that ensure they maintain some communications capabilities during an extended loss of grid event. Each facility includes radio communications that are not dependent on local phone exchanges. The Linn County Emergency Operations Center and the Iowa State Emergency Operations Center have satellite phones. The Benton County Emergency Operations center will have a satellite phone in the near future. The structures housing these off site facilities and their capacity to tolerate external events were not the subject of this evaluation. The Iowa State Emergency Operations Center is located over 100 miles west of the station and would not be expected to be impacted by the assumed event in NEI 12-01. State response capabilities include the capability to deploy supplemental communications equipment to the counties if requested during an emergency.

ORO Facility Communications enhancements

None identified at this time. The state and county emergency operations centers are responsible for providing their own robust communications links.