



Entergy Operations, Inc.  
1448 S.R. 333  
Russellville, AR 72802  
Tel (479) 858-3110

**Vince Fallacara**  
Vice President, Operations  
Grand Gulf Nuclear Station  
Tel. (601) 437-2129

GNRO-2016/00010

August 24, 2016

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

**SUBJECT:** Entergy Update to Response to NRC Technical Issues for Resolution Regarding Licensee Communication Submittals Associated with Near-Term Task Force Recommendation 9.3 (TAC No. ME7951) Grand Gulf Nuclear Station, Unit 1  
Docket No. 50-416  
License No. NPF-29

- REFERENCES:**
1. NRC letter 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 (ML12053A340)
  2. Entergy Letter to NRC (GNRO-2012/00038), "Entergy's 60-Day Response to the March 12, 2012, Information Request, Action Plan for Completing Emergency Communication and Staffing Assessments," dated May 9, 2012 (ML12130A418)
  3. Entergy Letter to NRC (GNRO-2012/00052), "Entergy's 90-Day Response to the March 12, 2012, Information Request, Action Plan for Completing Emergency Communication and Staffing Assessments," dated June 8, 2012 (ML12163A548)
  4. Entergy Letter to NRC (GNRO-2012/00131), "Entergy's Response to the March 12, 2012, Information Request Pursuant to 10 CFR 50.54(f) Regarding Recommendation 9.3 for Completing Emergency Communication Assessments," dated October 31, 2012 (ML12306A245)

5. NRC letter 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 (ML13010A162)
6. Entergy Letter to NRC (GNRO-2013/00014), "Entergy's Response to NRC Technical Issues for Resolution Regarding Licensee Communication Submittals Associated with Near-Term Task Force Recommendation 9.3 (TAC No. ME7951)," dated February 21, 2013 (ML13053A091)

Dear Sir or Madam:

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued a letter (Reference 1) 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." Grand Gulf Nuclear Station (GGNS) responded within 60 days (Reference 2) proposing to take an alternative course of action. GGNS implemented this alternate course of action with the submittal of Reference 3 and summarized the enhancements in Reference 4.

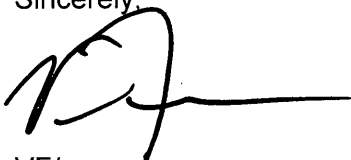
The NRC issued a follow-up letter regarding technical issues (Reference 5) and GGNS responded to the technical questions in Reference 6. The purpose of this letter is to provide an update to the communications assessment which has been revised to reflect changes to the facility.

There are no new commitments identified in this submittal.

If you have any questions concerning the content of this letter, please contact Mr. James J. Nadeau at (601) 437-2103.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 24, 2016.

Sincerely,



VF/sas

Attachment: Grand Gulf Nuclear Station (GGNS) Supplemented Communications Assessment

cc: U.S. Nuclear Regulatory Commission  
ATTN: Mr. Jim Kim, NRR/DORL (w/2)  
Mail Stop OWFN 8 B1  
Rockville, MD 20852-2738

U.S. Nuclear Regulatory Commission  
ATTN: Mr. Kriss Kennedy (w/2)  
Regional Administrator, Region IV  
1600 East Lamar Boulevard  
Arlington, TX 76011-4511

Mr. B. J. Smith  
Director, Division of Radiological Health  
Mississippi State Department of Health  
Division of Radiological Health  
3150 Lawson Street  
Jackson, MS 39213

NRC Senior Resident Inspector  
Grand Gulf Nuclear Station  
Port Gibson, MS 39150

Attachment to GNRO-2016/00010

Grand Gulf Nuclear Station (GGNS)  
Supplemented Communications Assessment

### 1. Executive Summary:

The purpose of this report is to document performance of an NRC-requested assessment of the current communications systems and equipment used at the Grand Gulf Nuclear Station (GGNS) site (Unit 1) during an emergency event as defined by Nuclear Energy Institute (NEI) 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities." Power supplies for the existing communications equipment to be credited have been assessed to determine power availability during a prolonged Station Blackout (SBO) event.

The beyond design basis events assumed in this assessment introduce conditions that could render a significant portion of existing communications capabilities inoperable. The assessment identified enhancements for maintaining communication capabilities for responding to emergency events. These enhancements include:

- Sizing of existing Uninterruptible Power Source (UPS) batteries in Emergency Planning (EP) facilities to ensure that adequate power capacity exists.
- Correction of various seismic-related issues related to Anchorages and Spatial Interactions.

### 2. Methodology

This report is based on the recommended criteria from NEI 12-01, for use in identifying enhancements that will ensure the availability of critical communications capabilities during an extended loss of alternating current (AC) power, including evaluation of power sources for communications equipment. This approach provides the flexibility to perform a communications capability assessment that accommodates specific site needs while, at the same time, ensuring consistency with industry-developed standards, and NRC regulations and guidance.

The assessment focused on the communication systems to be credited. For example, existing telephone communications are assumed to be inoperable and therefore are not credited or evaluated in this assessment. Communication links are assumed to be established via satellite phones and use of the existing site radio system(s). Walk downs to evaluate the equipment locations and function were performed. Enhancements identified within the assessment have been implemented where prudent.

### 3. Assumptions

The assumptions as stated in NEI 12-01 form the basis for this assessment, including:

- Extended loss of AC power (ELAP) event
- Successful plant shutdown
- No hostile action
- 6 hours post event - no site access
- 6-24 hours post event - limited site access, individual access by walking, personal transport or alternative transport
- 24+ hours post event - site access restored to near normal status
- Installed sources of AC power not available

- Non-essential loads from direct current (DC) battery sources are stripped per station procedures
- Installed inverters and battery chargers remain available provided they are protected from external events
- Onsite diesel fuel oil is available provided it is stored in a protected manner from external events
- Portable equipment may be used provided it is stored onsite and protected from seismic, wind and flooding events. Includes portable AC and DC power sources
- Onsite communications infrastructure remains available provided it is protected from seismic, wind and flooding events
- Offsite communications infrastructure is inoperable out to 25 miles
- Communications equipment located at an offsite response facility and supplied from a backup power source is assumed to be functional

#### 4. COMMUNICATIONS DURING AN EXTENDED LOSS OF AC POWER

NEI 12-01 Section 4, "Communications During an Extended Loss of AC Power," provides the basis for the following assessment.

##### 4.1 Required Emergency Communication Capabilities (NEI 12-01 Section 4.1)

The GGNS Emergency Planning Department has reviewed the communications links and has determined the method of communications (i.e. radio or satellite phone) for each defined link and overall the number of satellite phones and radios needed. An Assessment has been performed to determine the number of links needed to implement any Phase 2 strategies developed in response to NRC Order EA-12-049. Satellite phones and radios, along with spare batteries, have been provided for the recommended links. The attached rollup tables provide additional detail on the identified communication links.

##### 4.2 Plant Paging (Announcement) System (NEI 12-01 Section 4.2)

NEI 12-01 Section 4.2 requires notification of the plant staff at the onset of the event. The GGNS plant paging system provides public address capability over a large portion of the site. Considering the event as defined by NEI 12-01, the system is limited primarily by the lack of system wide back up power. Although portions of the system may be available, it will not be credited as available for notification of plant personnel. Alternative measures have been established (e.g. non-essential plant personnel should be trained to report to site assembly areas during SBO conditions). Plant personnel will become aware of the large scale natural event by personal observation (e.g., loss of lighting). General Employee Training (GET) has been updated to include direction regarding actions to be taken by personnel upon observation of the event. That is, they are to report to the designated site assembly area(s). Site accountability process has been implemented to ensure all personnel are notified.

##### 4.3 Communications Equipment at ORO Facilities (NEI 12-01 Section 4.3)

Per NEI 12-01, "Some communications capability should be available at the ORO facilities that normally receive licensee notifications of an emergency declaration or a Protective Action Recommendation." The GGNS Emergency Planning Department has assessed capabilities at their Offsite Response Organization ORO facilities. All four (4) ORO facilities [Mississippi Emergency Management Agency (MEMA), Governor's Office

Homeland Security/Emergency Preparedness (GOSHEP), Claiborne County Sheriff's Department, Tensas Parish Sheriff's Department] have backup power. Entergy has ensured that the ORO facilities have satellite phones.

4.4 Notification of the Emergency Response Organization (ERO) (NEI 12-01 Section 4.2)

NEI 12-01 offers two potential options to promote timely staff augmentation by the ERO. GGNS has ensured that "ERO members are trained to automatically respond to their assigned facilities or a designated staging area when made aware of a wide loss-of-grid (e.g. by direct observation, media reports, word-of-mouth, etc.)." This expectation has been communicated to the ERO and has been included in initial and annual ERO requalification training.

4.5 Equipment Location Requirements (NEI 12-01 Section 4.5)

Communication equipment to be used or considered operable, "should be in a location and maintained in a manner that maximizes survivability following a beyond design basis external event. In particular, the location or manner should reasonably preclude wetting from flooding or impact damage from a seismic event". The communication links as defined by NEI 12-01 have been established using satellite phones and radios. Existing, installed communications equipment to be credited (i.e. considered operable) is limited to the plant radio system(s). Assessments have been performed, including walkdowns, of the existing installed radio equipment. Modifications have been completed to enhance survivability of the credited radio equipment. Structural capability of the equipment support/mounting as well as impact from adjacent equipment and/or stored material has been addressed. Power supply enhancements have been installed adjacent to the existing equipment and therefore are subject to the same assessment findings and resulting enhancements. No issues associated with wetting from flooding were identified. See Sections 4.12.1 - 4.12.5 and Table 9 in attached rollup tables for details. Programmatic requirements have been established to ensure the credited equipment is maintained in a manner that maximizes survivability. No equipment is currently planned to be stored offsite for onsite use.

4.6 Performance Characteristics (NEI 12-01 Section 4.6)

The performance characteristics as identified in this section of NEI 12-01 require that communication pathways (e.g., radio channels, satellite phone) designated to support multiple functions (communication links, refer to Tables 1-8) must be analyzed to demonstrate that they can simultaneously support both functions. Entergy has not identified any communication pathway assigned to support multiple functions.

4.7 Other Assessment Considerations (NEI 12-01 Section 4.7)

Enhancements (physical and programmatic) have been established to ensure considerations, as identified in this section of NEI 12-01, are met. Portable generators and batteries have been provided to maintain power to credited communications equipment.

4.8 Quality and Maintenance-Related Requirements (NEI 12-01 Section 4.8)

Programmatic controls have been established to ensure that equipment remains available and operable. Existing site inventory and test procedures have been

updated to ensure that the equipment is available and operable. Site maintenance programs will be used as appropriate for controlling required maintenance (e.g., replacing UPS batteries).

4.9 National Communications System (NCS) Services (NEI 12-01 Section 4.9)

Government Emergency Telecommunications Services (GETS) access cards are staged in Emergency Response Facilities and are available for use. GGNS has replaced its phone System with a Voice over Internet Protocol (VoIP) capable system which utilizes a combination of local leased circuits and redundant Wide Area Network (WAN) circuits to communicate offsite. If the local leased circuits are not available, off network call will route out of another Entergy facility. Other voice and video tools are also available via the WAN. Telecommunications Service Priority (TSP) protected circuits are not provided.

4.10 Communication Provider Emergency Services (NEI 12-01 Section 4.10)

Entergy has contacted the major communications service providers which service the Entergy nuclear fleet (i.e. Verizon and AT&T). Neither company has a separate emergency services priority. No further enhancements are planned.

4.11 Personnel Training (NEI 12-01 Section 4.11)

Training has been conducted to ensure personnel are familiar with the operation of new equipment, storage locations and other requirements.

4.12 Equipment Locations and Capabilities

The communications functions, radio reception/transmission equipment, and protection of each location from seismic, wind, and flooding are discussed below. Specifically, the structural capacity of the equipment in its current configuration was evaluated in its ability to withstand the identified external hazards. These hazards include seismic, flooding, and high winds. The structural evaluation was based on engineering judgment developed by a consensus of two engineers experienced in structural design and construction.

It is required that EP Communication equipment be reasonably protected from a beyond design basis seismic event. To the extent possible, the existing guidance provided in Electric Power Research Institute (EPRI) NP-6041, II Nuclear Power Plant Seismic Margin II is used for determination of the seismic/wind design capabilities of structures containing and Systems, Structures and Components (SSC's) in the vicinity (adjacent and overhead) of existing Emergency Plan (EP) Communication equipment. Additionally, existing seismic/wind housekeeping procedures should be used to establish secure storage of EP communication equipment. This included consideration of adjacent SSCs that may pose a potential seismic/wind interaction hazard.

EP Communication equipment has been verified to be contained within one or more of the configurations:

- In an existing safety related structure designed for the Safe Shutdown Earthquake (SSE), or
- In a structure designed to or evaluated equivalent to ASCE 7-10, Minimum Design Loads for Buildings and Other Structures, or



- Outside a structure and evaluated for seismic interactions to ensure equipment is not damaged by non-seismically robust components or structures, and
- Equipment is located above the design basis flood elevation for the plant (114.5') or is otherwise protected and would not be subjected to localized flooding.

The sections below provide the original summaries of the area walk downs and their potential configuration concerns that could present challenges in maintaining an operable communication system in the event of one or more of the identified environmental hazards. Also included are the actions taken to address identified deficiencies.

#### 4.12.1 189' Turbine Building Deck Radio Room

##### Location and General Description

The communications equipment is located in a room constructed with steel channel framing and metal panels on four sides and the ceiling. The floor is the concrete floor of Turbine Building 189'. The room is bounded by the Turbine Building exterior. Entrance is through an interior fire door from the main building entrance. The room is normally cooled via air conditioning. The antennae for the repeaters are located outside on the top of the Turbine Building. While the Radio Room is not a seismically designed structure nor is it located in or anchored to a seismically designed structure, the steel frame and panel construction, as well as the construction of the Turbine Building is robust enough to survive a seismic event.

##### Equipment & Functionality

The radio room contains six repeaters covering radio Channels 1, 2, 3, 4, 5 and 6. Only Channels 1 and 3 are credited for a Beyond Design Basis External Event (BDBEE). The repeaters are Motorola Model MTR2000 T5766A and are connected to receive and transmit antennas on the roof. These provide coverage for all interior and exterior areas of the plant. The equipment does not have a hardwired interface and is a RF retransmission location only. A simplified block diagram of the equipment is shown Plant Radio System Drawing E-6087 rev. 000, Appendix E. An Iridium 9555 satellite phone terminal dedicated for control room communication is installed in the turbine deck radio room. The transceiver unit is connected to an antenna unit mounted on the roof of the Turbine Building.

##### Power

Power to the radio system equipment and satellite phone terminal is supplied from a local 120V AC Power Panel R61-1. Power to R61-1 is fed from 120-240V Uninterruptable Power Distribution Panel 1Y91. Panel 1Y91 gets power feed from inverter cabinet 1Y82. Primary AC power to inverter cabinet 1Y82 comes from 480V MCC16842, breaker no. 52-164213 via step down transformer 1XY74 (drawing E-1024). Backup power to inverter cabinet 1Y82 is fed from 125V DC Bus 11 DE, Breaker 72-11 E08. 125V DC Bus 11 DE is connected to 125V DC battery 1E3 via breaker 72-11 E01. Capacity of Battery 1E3 is 2175 Amp Hour at 8 hour discharge rate (drawing E-1022). As an enhancement, the UPS/batteries for Channels 1 and 3 have been sized to provide adequate amp hours and 24 hours of capacity.

## Structural Assessment

### Radio room, Turbine Building Elevation 189 ft.

#### Seismic Protection – ENHANCEMENT

##### Anchorage

- Issue identified: The racks that support the Zetrons as well as some other communications equipment are anchored to the floor and are unsupported at the upper end (two racks have a small bracket anchored to the ceiling). The free end (upper end) of these racks needs to be supported. In addition, the Zetron rack is not anchored to the floor with bolts that penetrate the rack base plate.

Anchorage and bracing have been added to properly support the racks.

- Issue Identified: Some electrical equipment was missing hardware that fastens it to the racks.

Fasteners have subsequently been installed.

##### Spatial Interactions

- Issue Identified: In the back left of the Radio Room, there are two Motorola cabinets. The smaller cabinet houses a portion of the satellite phone system. This cabinet should be anchored to the floor and the satellite phone system should be anchored within the cabinet or the satellite system relocated and adequately anchored.

Both cabinets have been removed.

- Issue Identified: On the right side of the room, behind the racks near the door, another Motorola cabinet that stands alone is unanchored. This cabinet should be anchored to the floor or removed if not needed.

This cabinet has been removed.

Flood Protection – ACCEPTABLE

High Winds Protection - ACCEPTABLE (equipment located inside building)

### Antennae Turbine Building Roof

Seismic Protection – ACCEPTABLE

Flood Protection – ACCEPTABLE

High Winds Protection – ACCEPTABLE

#### 4.12.2 Containment Building El. 161'

##### Location and General Description

The communication equipment is located inside of the Containment Building on approximately the 161' elevation. The cabinet sits on a landing constructed of steel grating. The cabinet is anchored to a unistrut which is anchored to the metal grating.

##### Equipment & Functionality

The Containment Building contains two repeaters Motorola Model MTR2000 T5766A. The communications strategy does not utilize or credit this equipment therefore enhancements are not required.

#### 4.12.3 Emergency Operations Facility (EOF)

##### Location and General Description

The EOF is located northwest of the reactor at an elevation above the power block yard grade elevation. Equipment is located in four portions of the EOF. The EOF is located on the first floor of the Energy Service Center (ESC). The EOF is situated in the north section of the building. A diesel generator is located in a room on the first floor in the west section of the building. A mechanical penthouse located on the third floor in the east section of the building houses satellite phone and an air compressor that supplies the air starter on the diesel generator. On the roof of the ESC antennae are located to send and receive communications to and from the EOF.

##### Equipment & Functionality

The EOF contains portable, handheld mobile radios covering radio channels for EOF Communicator for communications between the EOF and the TSC or ORO. Building Satellite phones are used by the EOF Director, EOF Rad Manager for the Rad Protection measuring and dose assessment team and the Health Physics Network bridge for offsite communications.

The revised communications strategy does not utilize/credit the installed equipment at the EOF therefore previously anticipated enhancements are not required. Portable equipment is to be used instead.

#### 4.12.4 Technical Support Center (TSC)

##### Location and General Description

The TSC is located directly above and overlooking the Control Room on the mezzanine level (EL 177') of the control building. The control building which houses the TSC is designed Safety Class 3. The control building is seismic category I, and is designed to withstand tornadoes and extreme wind phenomena.

##### Equipment & Functionality

The TSC room contains portable, handheld mobile radios and satellite link providing communications between the TSC and various EP stations. The TSC contains a portable,

handheld mobile radio covering radio channels provided for Unit Response Coordination in the TSC. The TSC contains portable, handheld mobile radio channels for TSC Communicator for communications between the TSC and the EOF. The TSC contains Satellite phone covering the ENS Communicator for Emergency Notification System (ENS), Site Emergency Director, Operations Manager for OPS bridge communications, Maintenance Manager for Maintenance bridge communications, Engineering Manager for Engineering bridge communications and Radiological Support for Radiation Protection bridge communications.

#### Power

The 120V AC power supply for ERF dedicated communications equipment in TSC is fed from a local Uninterruptable Power Distribution Panel and is backed up by a UPS. As an enhancement, the UPS batteries will be sized to provide adequate amp hours and 24 hours of capacity as required.

#### Structural Assessment

The desktop communication equipment located in the TSC was not evaluated as a part of this walkdown. This equipment is considered similar to a portable phone and would not ordinarily be required to be fixed to a desk and doing so would be considered cumbersome. Therefore from a structural perspective, the equipment in this room is judged as acceptable.

### 4.12.5 Ingleside Remote Site

#### Location and General Description

The Ingleside Remote Site is located approximately 3.5 miles North East of site. A small building is located at the site inside a fence. The building has two rooms, one room for housing the electronic equipment and one room that houses a propane generator. A propane storage tank is located behind the building outside. The building is a steel framed concrete structure that is secured to a concrete slab.

#### Equipment & Functionality

The Ingleside Remote Site location contains two radio repeaters covering radio Channels 7 and 8. The repeaters are Motorola Model MTR2000 T5766A and are connected to receive and transmit antennas on the roof.

The revised communications strategy does not utilize/credit the installed equipment at this Facility therefore previously anticipated enhancements are not required.

### 5. Interim Actions

Interim actions previously taken are no longer applicable due to completions status of the EP Communications enhancements.

### 6. Schedule

The above assessment has identified potential enhancements to provide the required communications capability during a Beyond Design Basis event consistent with the assumptions specified in NEI 12-01.

The table below summarizes required actions and completion status.

Implementing Actions	Target Completion Date
<b>Communication Equipment</b>	
<ul style="list-style-type: none"> <li>Additional satellite phones (13) staged in ERFs</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Additional radios/batteries staged in ERFs</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Resolve non-engineering spatial interactions</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Complete engineering for identified enhancements (e.g., power supplies and structural upgrades)</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Procure additional portable equipment (e.g., radios, satellite phones, batteries, generators) as required</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Complete installation of engineered upgrades</li> </ul>	Complete
<b>Communication with OROs</b>	
<ul style="list-style-type: none"> <li>Ensure ORO facilities are equipped with satellite phones</li> </ul>	Complete
<b>Miscellaneous</b>	
<ul style="list-style-type: none"> <li>ERO notification methodology</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Finalize storage location(s) of portable generators</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Finalize training needs</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Implement required training</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Revise procedures to incorporate new equipment</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Revise GET to include assembly requirements during a large scale external event</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Ensure adequate Government Emergency Telecommunications Service (GETS) cards are available</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Complete evaluation of Telecommunications Service Priority (TSP) circuits</li> </ul>	Complete
<ul style="list-style-type: none"> <li>Implement TSP enhancements per evaluation results</li> </ul>	None Required

## Rollup Document

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 power source (if applicable) 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.

Note: Enhancements have been identified for power supplies for credited equipment (i.e. equipment expected to be operable following a Large Scale External Event [LSEE]). Detailed engineering has been performed to finalize the approach for these enhancements (e.g. UPS/batteries and/or portable generators). These enhancements have been completed.

**Table – 1: Offsite Response Organization**

Notifications to, and communications with, OROs [per 10 CFR 50 Appendix E.IV.D and E.9.a]

<b>Emergency Response Facility</b>	<b>Minimum Communications Links</b>	<b>Primary Method Described in site E-Plan</b>	<b>Primary Method Available following Assumed Large Scale External Event (LSEE)?</b>	<b>Backup Method(s) Described in site E-Plan</b>	<b>Backup Method(s) Available following Assumed LSEE?</b>	<b>Planned or Potential Improvement Identified?</b>
Control Room	1 per Control Room for Communicator	Operational Hot Line	NO	UHF Radio	NO	YES – satellite phone
Technical Support Center (TSC)	1 for Key TSC Communicator	Operational Hot Line	NO	UHF Radio	NO	YES – satellite phone
Emergency Facility (EOF)	1 for Key EOF Communicator	Operational Hot Line	NO	UHF Radio	NO	YES – satellite phone

**Table – 2: Nuclear Regulatory Commission**

Notifications to, and communications with, the Nuclear Regulatory Commission (NRC) Headquarters Incident Response Center and the appropriate NRC Regional Operations Center [per 10 CFR 50 Appendix E.IV.D and E.9.d]

<b>Emergency Response Facility</b>	<b>Minimum Communications Links</b>	<b>Primary Method Described in Site E-Plan</b>	<b>Primary Method Available following Assumed Large Scale External Event (LSEE)?</b>	<b>Backup Method(s) Described in Site E-Plan</b>	<b>Backup Method(s) Available following Assumed LSEE?</b>	<b>Planned or Potential Improvement Identified?</b>
Control Room	1 per Control Room for ENS Communicator	Dedicated Phone Line	NO	NONE	N/A	YES – satellite phone
Technical Support Center (TSC)	1 for ENS Communicator	Dedicated Phone Line	NO	NONE	N/A	YES – satellite phone
Location(s) where HPN Communications are performed	1 for HPN Communicator	Dedicated Phone Line	NO	NONE	N/A	YES – satellite phone



**Table – 3: Licensee Emergency Response Facilities**

Communications between licensee emergency response facilities [per 10 CFR 50 Appendix E.9.c. 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 Large Scale External Event (LSEE)?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?
Control Room	1 per Unit	Fiber Optic Phone Line	NO	UHF RADIO	YES*	YES – satellite phone
Technical Support Center (TSC)	1 each for: <ul style="list-style-type: none"> <li>• Senior/Lead TSC Manager</li> <li>• Operations Coordination</li> <li>• Maintenance Coordination</li> <li>• Engineering Coordination</li> <li>• Radiological Support</li> </ul> Additional response coordination links for multi-unit sites: <ul style="list-style-type: none"> <li>• 1 for each position providing Unit Response Coordination</li> </ul>	Fiber Optic Phone Line	NO	UHF RADIO	YES*	YES

Operations Support Center (OSC)	<p>1 each for:</p> <ul style="list-style-type: none"> <li>• Senior/Lead OSC Manager</li> <li>• Radiological Support</li> </ul> <p>Additional response coordination links for multi-unit sites:</p> <ul style="list-style-type: none"> <li>• 1 for each position providing Unit In-Plant Team Coordination</li> </ul>	Fiber Optic Phone Line	NO	UHF RADIO	YES*	YES – structural and power supply(s) and/or satellite phone
Emergency Operations Facility (EOF)	<p>1 each for:</p> <ul style="list-style-type: none"> <li>• Senior/Lead Manager</li> <li>• Key Protective Measures</li> <li>• Operations or Technical Support (as needed to support performance of dose projections, formulation of PARs and plant status updates to ORO authorities)</li> </ul>	Fiber Optic Phone Line	NO	UHF RADIO	YES*	YES
Joint Information Center (JIC)	1 for Senior Manager	EOF/ENMC Hot Line	NO	NONE	N/A	Normal communications (e.g. land lines assumed available)

**\*There would be limited radio communication capability**

**Table – 4: Field / Offsite Monitoring Teams**

Communications with field/offsite monitoring teams [per 10 CFR 50 Appendix E.9.c.]

<b>Emergency Response Facility</b>	<b>Minimum Communications Links</b>	<b>Primary Method Described in Site E-Plan</b>	<b>Primary Method Available following Assumed Large Scale External Event (LSEE)?</b>	<b>Backup Method(s) Described in Site E-Plan</b>	<b>Backup Method(s) Available following Assumed LSEE?</b>	<b>Planned or Potential Improvement Identified?</b>
Primary location where field/offsite monitoring team coordination is performed (EOF)	Field/offsite monitoring team coordination	UHF RADIO	NO	NONE	N/A	YES – satellite phones
Primary location from which field/offsite monitoring teams are deployed (TSC)	1 for each field/offsite monitoring team	UHF RADIO	NO	NONE	N/A	YES – satellite phones

**Table – 5: Other Federal Agencies**

Communications with other Federal agencies as described in the site emergency plan (e.g., the US Coast Guard)[per 10 CFR 50 Appendix E.9.b]

<b>Emergency Response Facility</b>	<b>Minimum Communications Links</b>	<b>Primary Method Described in Site E-Plan</b>	<b>Primary Method Available following Assumed Large Scale External Event (LSEE)?</b>	<b>Backup Method(s) Described in Site E-Plan</b>	<b>Backup Method(s) Available following Assumed LSEE?</b>	<b>Planned or Potential Improvement Identified?</b>
Primary location where communication with Federal agencies is performed	Coordination with Federal agencies	N/A	N/A	N/A	N/A	N/A

**Table – 6: On-site and In-Plant Teams**

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).

<b>Emergency Response Facility</b>	<b>Minimum Communications Links</b>	<b>Primary Method Described in Site E-Plan</b>	<b>Primary Method Available following Assumed Large Scale External Event (LSEE)?</b>	<b>Backup Method(s) Described in Site E-Plan</b>	<b>Backup Method(s) Available following Assumed LSEE?</b>	<b>Planned or Potential Improvement Identified?</b>
On-shift staff	Number necessary for the on-shift staff to perform Initial Phase coping actions (reflecting current staff & strategies)	UHF RADIO	NO	NONE	N/A	YES – portable back-up power sources and spare batteries for handheld radios
Operational Support Center (OSC) and other site-specific locations as necessary	1 each for: <ul style="list-style-type: none"> <li>• On-site radiological monitoring</li> </ul> 2 each for: <ul style="list-style-type: none"> <li>• Firefighting (1 for brigade leader and 1 for the brigade)</li> </ul> 2 each for: <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and</li> </ul>	UHF RADIO	NO	NONE	N/A	YES – portable back-up power sources and spare batteries for handheld radios

	<p>Rescue</p> <ul style="list-style-type: none"><li>• Emergency repairs</li></ul> <p>Site-specific number needed to implement any 2 severe accident mitigation strategies</p>					
--	---	--	--	--	--	--

**Table – 7: Plant Paging (Announcement) System**

<b>Emergency Response Facility</b>	<b>Minimum Communications Links</b>	<b>Primary Method Described in Site E-Plan</b>	<b>Planned or Potential Improvement Identified?</b>
N/A	See assumptions and discussion in NEI 12-01	NO	YES – alternate approach see Section 4.2

**Table – 8: Communications Equipment at ORO Facilities**

Emergency Response Facility	Minimum Communications Links	Primary Method Described in Site E-Plan	Primary Method Available following Assumed Large Scale External Event (LSEE)?	Backup Method(s) Described in Site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?
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.  <u>ORO Facility</u>  (MEMA)  (GOHSEP)  Claiborne  Tensas Parish	   Operational Hot line  Operational Hot Line  Operational Hot Line  Operational Hot Line	   NO  NO  NO  NO	   NO  NO  UHF  UHF	   N/A  N/A  NO  NO	     YES – satellite phones



**Table – 9: Equipment Locations and Protection**

<b>System / Equipment</b>	<b>Primary System Component Location</b>	<b>Protected from Seismic</b>	<b>Protected from Flooding</b>	<b>Protected from Wind</b>
In-Facility Satellite Phones	EOF	Yes	yes	Yes
	TSC	Yes	Yes	Yes
	CR	Yes	Yes	Yes
UHF Radio Repeaters	Turbine Deck Radio Room 189'	NO	YES	YES
	Ingleside Remote Site	NO	YES	YES