

RS-12-185  
RA-12-112  
TMI-12-151

October 31, 2012

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

Braidwood Station, Units 1 and 2  
Facility Operating License Nos. NPF-72 and NPF-77  
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2  
Facility Operating License Nos. NPF-37 and NPF-66  
NRC Docket Nos. STN 50-454 and STN 50-455

Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

Dresden Nuclear Power Station, Units 2 and 3  
Renewed Facility Operating License Nos. DPR-19 and DPR-25  
NRC Docket Nos. 50-237 and 50-249

LaSalle County Station, Units 1 and 2  
Facility Operating License Nos. NPF-11 and NPF-18  
NRC Docket Nos. 50-373 and 50-374

Limerick Generating Station, Units 1 and 2  
Facility Operating License Nos. NPF-39 and NPF-85  
NRC Docket Nos. 50-352 and 50-353

Oyster Creek Nuclear Generating Station  
Renewed Facility Operating License No. DPR-16  
NRC Docket No. 50-219

Peach Bottom Atomic Power Station, Units 2 and 3  
Renewed Facility Operating License Nos. DPR-44 and DPR-56  
NRC Docket Nos. 50-277 and 50-278

Quad Cities Nuclear Power Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

Three Mile Island Nuclear Station, Unit 1  
Renewed Facility Operating License No. DPR-50  
NRC Docket No. 50-289

**Subject:** Exelon Generation Company, LLC's Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Emergency Communications Aspects of Recommendation 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident

**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
2. Exelon Generation Company, LLC's 60-Day Response to March 12, 2012 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 May 14, 2012
3. Nuclear Energy Institute, NEI-12-01 (Revision 0), "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," dated May 2012

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Reference 1 to all power reactor licensees. Enclosure 5 of Reference 1 contains specific Requested Actions, Requested Information, and Required Responses associated with Near-Term Task Force Recommendation 9.3 addressing onsite and offsite communication during a prolonged station blackout. In Reference 2, Enclosure 3, Exelon Generation Company, LLC (EGC) committed to providing a Communications Assessment (NRC Requested Action 1) for each EGC station and a Communications Implementation Schedule (NRC Requested Action 3B) applicable to all EGC stations.

Attachments 1 through 10 of this letter are the Communications Assessments (NRC Requested Action 1) for each EGC station. The assessments follow the content and numbering protocols contained in Reference 3.

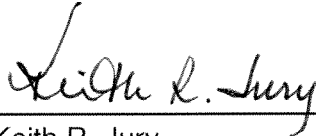
Attachment 11 is the Milestone Schedule for EP Communications Equipment Installation (NRC Requested Action 3B).

A list of regulatory commitments contained in this letter is provided in Attachment 12.

Should you have any questions concerning the content of this letter, please contact Ron Gaston at (630) 657-3359.

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

Respectfully,



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Keith R. Jury  
Vice President, Licensing and Regulatory Affairs  
Exelon Generation Company, LLC

Attachments:

- Attachment 1 -- Braidwood Station, Units 1 and 2 Communications During an Extended Loss of AC Power
- Attachment 2 -- Byron Station, Units 1 and 2 Communications During an Extended Loss of AC Power
- Attachment 3 -- Clinton Power Station, Unit 1 Communications During an Extended Loss of AC Power
- Attachment 4 -- Dresden Station, Units 2 and 3 Communications During an Extended Loss of AC Power
- Attachment 5 -- LaSalle Station, Units 1 and 2 Communications During an Extended Loss of AC Power
- Attachment 6 -- Limerick Station, Units 1 and 2 Communications During an Extended Loss of AC Power
- Attachment 7 -- Oyster Creek Station, Unit 1 Communications During an Extended Loss of AC Power
- Attachment 8 -- Peach Bottom Station, Units 2 and 3 Communications During an Extended Loss of AC Power
- Attachment 9 -- Quad Cities Station, Units 1 and 2 Communications During an Extended Loss of AC Power
- Attachment 10-- Three Mile Island Station, Unit 1 Communications During an Extended Loss of AC Power
- Attachment 11 -- Milestone Schedule for EP Communications Equipment Installation
- Attachment 12 -- Summary of Regulatory Commitments

cc: Director, Office of Nuclear Reactor Regulation  
Regional Administrator - NRC Region I  
Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - Braidwood Station  
NRC Senior Resident Inspector - Byron Station  
NRC Senior Resident Inspector - Clinton Power Station  
NRC Senior Resident Inspector - Dresden Nuclear Power Station  
NRC Senior Resident Inspector - LaSalle County Station  
NRC Senior Resident Inspector - Limerick Generating Station  
NRC Senior Resident Inspector - Oyster Creek Nuclear Generating Station  
NRC Senior Resident Inspector - Peach Bottom Atomic Power Station  
NRC Senior Resident Inspector - Quad Cities Nuclear Power Station  
NRC Senior Resident Inspector - Three Mile Island Nuclear Station, Unit 1  
NRC Project Manager, NRR - Braidwood Station  
NRC Project Manager, NRR - Byron Station  
NRC Project Manager, NRR - Clinton Power Station  
NRC Project Manager, NRR - Dresden Nuclear Power Station  
NRC Project Manager, NRR - LaSalle County Station  
NRC Project Manager, NRR - Limerick Generating Station  
NRC Project Manager, NRR - Oyster Creek Nuclear Generating Station  
NRC Project Manager, NRR - Peach Bottom Atomic Power Station  
NRC Project Manager, NRR - Quad Cities Nuclear Power Station  
NRC Project Manager, NRR - Three Mile Island Nuclear Station, Unit 1  
Illinois Emergency Management Agency - Division of Nuclear Safety  
Director, Bureau of Radiation Protection - Pennsylvania Department of Environmental Resources  
Director, Bureau of Nuclear Engineering - New Jersey Department of Environmental Protection  
Chairman, Board of County Commissioners of Dauphin County, PA  
Chairman, Board of Supervisors of Londonderry Township, PA  
Mayor of Lacey Township, Forked River, NJ  
S. T. Gray, State of Maryland  
R. R. Janati, Commonwealth of Pennsylvania

bcc: Site Vice President - Braidwood Station  
Site Vice President - Byron Station  
Site Vice President - Clinton Power Station  
Site Vice President - Dresden Nuclear Power Station  
Site Vice President - LaSalle County Station  
Site Vice President - Limerick Generating Station  
Site Vice President - Oyster Creek Nuclear Generating Station  
Site Vice President - Peach Bottom Atomic Power Station  
Site Vice President - Quad Cities Nuclear Power Station  
Site Vice President - Three Mile Island Nuclear Station  
Vice President Operations Support  
Regulatory Affairs Manager  
Regulatory Assurance Manager - Braidwood Station  
Regulatory Assurance Manager - Byron Station  
Regulatory Assurance Manager - Clinton Power Station  
Regulatory Assurance Manager - Dresden Nuclear Power Station  
Regulatory Assurance Manager - LaSalle County Station  
Regulatory Assurance Manager - Limerick Generating Station  
Regulatory Assurance Manager - Oyster Creek Nuclear Generating Station  
Regulatory Assurance Manager - Peach Bottom Atomic Power Station  
Regulatory Assurance Manager - Quad Cities Nuclear Power Station  
Regulatory Assurance Manager - Three Mile Island Nuclear Station  
Severe Accident Management Director  
Site Operations Director - Braidwood Station  
Site Operations Director - Byron Station  
Site Operations Director - Clinton Power Station  
Site Operations Director - Dresden Nuclear Power Station  
Site Operations Director - LaSalle County Station  
Site Operations Director - Limerick Generating Station  
Site Operations Director - Oyster Creek Nuclear Generating Station  
Site Operations Director - Peach Bottom Atomic Power Station  
Site Operations Director - Quad Cities Nuclear Power Station  
Site Operations Director - Three Mile Island Nuclear Station  
Corporate Licensing Manager - East  
Corporate Licensing Managers - West  
Corporate Licensing Director - East  
Corporate Licensing Director - West  
Exelon Records Management  
Commitment Tracking Coordinator - East  
Commitment Tracking Coordinator - West  
PA DEP BRP Inspector - LGS

## **Attachment 1– Braidwood Station, Units 1 and 2 Communications During an Extended Loss of AC Power**

**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

**Braidwood**

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**Dates of Assessment:**  
**September 19, 2012**

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**Assessment Conducted By:**

<b>Ryan Hitzler</b>	<b>Electrical Design Engineer</b>
<b>Name</b>	<b>Title</b>

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<b>Deborah Poi</b>	<b>Emergency Preparedness Manager</b>
<b>Name</b>	<b>Title</b>

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**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 1.**

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS): [Offsite notification system]	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

Attachment 1 – Braidwood

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?	Refer to Following Section for Additional Information
Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Yes - EOF is greater than 25 miles from Braidwood Station.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Yes – EOF is greater than 25 miles from Braidwood Station.	None	N/A

**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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications Emergency Notifications System (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Location(s) where HPN communications are performed	1 for Health Physics Network (HPN) Communicator	HPN Line (TSC and EOF)	TSC: No - Assumed not available EOF:	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available. EOF:	TSC: Satellite trailer with compatible cell phones	See Section 1

Attachment 1 – Braidwood

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
			Yes – EOF is greater than 25 miles from Braidwood Station.		Yes - EOF is greater than 25 miles from Braidwood Station	EOF: None	

**4.1.3** 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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per unit	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> <li>900 MHz Radio system</li> <li>Directors Hot Line</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Sound powered phones</li> <li>Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
Technical Support Center (TSC)	1 each for: <ul style="list-style-type: none"> <li>Senior/Lead TSC Manager</li> </ul>	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Technical Support Center (TSC)	<ul style="list-style-type: none"> <li>• Operations Coordination</li> <li>• Maintenance Coordination</li> <li>• Engineering Coordination</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 Response Coordination.</li> </ul>	<ul style="list-style-type: none"> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• 900 MHz Radio System</li> <li>• Directors Hot line</li> </ul>		<p>column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.</p> <p>Technical conference line only works between TSC and EOF</p>		<ul style="list-style-type: none"> <li>• Station radios (talk around channel)</li> </ul>	
Operational 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>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• 900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station Radios (talk around channel)s</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Emergency Operations Facility (EOF)	1 each for: <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>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Directors Hot Line</li> <li>• State Link Phone</li> </ul>	Yes – EOF Is greater than 25 miles from Braidwood Station.	Any combination of the communications systems listed in the primary method column comprises Exelon’s redundant capabilities when communicating from an ERF to an ERF.  Technical Conference Line only works between TSC and EOF.	Yes – EOF Is greater than 25 miles from Braidwood Station.	None	N/A
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>• Local Commercial Telephone system</li> </ul>	Yes – JIC Is greater than 25 miles from Braidwood Station.	Face to face with EOF staff	Yes	None	N/A

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	<u>TSC:</u> Satellite phone / radio system  <u>EOF:</u> Satellite phone / radio system	<u>TSC:</u> No - Assumed not available.  <u>EOF:</u> Yes – EOF is greater than 25 miles from any Exelon Station. The EOF uses a back-up generator that would be assumed operable in accordance with the guidance of NEI-12-01. As this is a satellite system it would remain operable.	<u>TSC:</u> <ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Local Commercial Telephone system</li> </ul> <u>EOF:</u> <ul style="list-style-type: none"> <li>- None</li> </ul>	<u>TSC:</u> No - Assumed not available.  <u>EOF:</u> Yes – EOF is greater than 25 miles from Braidwood Station.	<u>TSC:</u> Satellite trailer with compatible cell phones  <u>EOF:</u> None	See Section 1
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Team (FMT) Vehicle Satellite Phones / Radios	Yes – Satellite system used to transmit information to the TSC and EOF.	FMT cell phones	Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.	N/A	See Section 1

Attachment 1 – Braidwood

**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.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 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>	<b>Refer to Following Section for Additional Information</b>
Primary location where communication with Federal agencies is performed	Coordination with Federal agencies	All Exelon TSCs and EOFs <ul style="list-style-type: none"> <li>Plant/Facility PBX Telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available.  EOF: Yes - EOF is greater than 25 miles from Braidwood Station.	None	N/A	TSC: Satellite trailer with compatible cell phones  EOF: None	See Section 1

**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

<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 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>	<b>Refer to Following Section for Additional Information</b>
On-shift staff	Number necessary for the on-shift staff to perform Initial Phase coping actions (reflecting current staff and strategies)	<ul style="list-style-type: none"> <li>900 MHz radio system</li> <li>Plant PBX telephone system</li> <li>Sound powered phones</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
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 per unit for: <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and rescue</li> <li>• Emergency repairs</li> </ul> Site-specific number needed to implement any 2 severe accident mitigation strategies	<ul style="list-style-type: none"> <li>• 900 MHz radio system</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3



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4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None - Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	None	N/A

**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the “Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information” letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team satellite radio/phones system, satellite trailer and cell phones.
  - c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.

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- i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
- a. Exelon will use current station hand held radios using the "Talk Around" Frequency.
3. This assessment has verified that expected reliance upon "multi-use" equipment is minimized.
- a. The communications equipment selected for Exelon is a diverse communications plan. The satellite trailer and cell phones, Station Talk Around radios, sound powered phones, face to face and bull horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their "Emergency Preparedness Resource Manual" to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone directories and instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.

## **Section 1 –Emergency Response Communication Systems (Current Capabilities)**

### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer would be stored within a structure approved for FLEX.

### **On Site Communications:**

Following a LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Satellite Phones:**

#### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOC's, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Braidwood Station and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24-hours of operation from the onset of an LSEE.

#### **On Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where planned or potential improvement lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the "Talk Around" Frequency. This frequency has been programmed on station handheld radios and will operate without the use of radio repeaters. The "Talk Around" frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

Attachment 1 – Braidwood

**Sound Powered Phones:**

Sound Powered Phones are available in specific site locations and will be used for Operations functions. The Sound Powered Phone system is located within a safety-related structure and headsets are stored inside the control room and other locations within the plant. Sound Powered Phones do not require power and are used for critical communications between the Control Room and Operators in the field. The sound-powered phones provide an alternate method for on-site communications following a LSEE that minimizes the level of communication traffic on the plant radio (Talk Around) system.

Further assessments are required to determine if sound powered phone jacks are available in all locations where Operator actions are required during an SBO.

<b>Communications Systems/Equipment</b>	<b>System/Equipment Description</b>
Sound Powered Telephone System (NOT currently required in EP plan)	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There are 8 Sound-Powered Telephone Subsystems (Channels) used on site.
900 MHz Radio System	The 900 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.

**Section 2 – Equipment Location (Current Configuration)**

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Sound Powered Telephone System	Control room at El. 451' above established flood plane of 402'. Qty of 5 locations PNL. 1PM06J PNL. 1PM05J PNL. 1PM01J PNL. 0PM02J PNL. 0PM01J  <b>Location Qty:</b> Aux. Bldg. – 45 Reactor Bldg. – 34 Turbine Bldg. – 35 Between Aux. and Cont. Bldg. – 15 Fuel Hand. Bldg. – 4 Rad. Waste Bldg. – 2 Service Bldg. – 4 Lake Screen House – 4 TSC - 3	Control Room – YES Aux. Bldg. – YES Turbine Bldg. – NO Service Bldg. – NO Lake Screen House – NO Tech. Support – NO Rad Waste Bldg. – NO Fuel Hand. Bldg. – YES  For items in the turbine building – unknown as building/structure has not been assessed to ASCE 7-10	Control Room – YES Aux. Bldg. – YES Turbine Bldg. – NO Service Bldg. – NO Lake Screen House – NO Tech. Support – NO Rad Waste Bldg. – NO Fuel Hand. Bldg. - YES	Control Room – YES Aux. Bldg. – YES Turbine Bldg. – NO Service Bldg. – NO Lake Screen House – NO Tech. Support – NO Rad Waste Bldg. – NO Fuel Hand. Bldg. - YES	SPT jack schedule located in DWG. 20E-1-3797; Panels located in DWG. 20E-1-3795

**An assessment of the Operations Radio system (transmitters, antennas and receivers) from the Control Room to all areas of the plant where critical Operations SBO actions are performed.**

System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Operations Radio System Transmitter Antennas/ Radio System Receivers	Main Control Cabinet (Turbine Bldg.)  Antennas: <b>Location: # Units</b>  U-1 and U-2 Main Control Room: 2 WEC: 1 Aux Bldg: 4 Steam Tunnel U1, U2: 2 Turbine Bldg.: 8 Rad Waste Bldg: 3 TSC: 3 CAS: 1 Gatehouse: 2	NO – main control equipment cabinets are not mounted for seismic conditions  For those items located in the Turbine Building, WEC, Gatehouse, TSC, SAS, Rad Waste Bldg.; unknown as the building/structure has not been assessed to ASCE 7-10.  Control Room -Yes Auxiliary Bldg – Yes Containment –Yes CAS: - Yes	YES - Radio System receivers, transmitters, and repeaters Elevation is El. 468' and above the established flood plane of El. 402'  Flood plane is 402'. Equipment below El. 402' in the Turbine Building would be unavailable.	NO – main control equipment cabinets located in the Turbine Bldg.  Roof Mounted Antennas (4) are not wind or missile protected.  Control Room –Yes Auxiliary Bldg – Yes Area 5/7 – Yes Containment –Yes CAS – Yes FHB – Yes Turbine Bldg – No TSC – No Rad Waste Bldg – No Gatehouse – No	Main Control Cabinet - All receivers, transmitters, and repeaters share the same central cabinet location. 3 of 3 antenna splitters are located below the established flood plane of El. 402', and 7 of 13 antennas branching off of the splitters are also below the established flood plane of El. 402'. The remaining 6 antennas are above the flood plane of El. 402'.  Installed to Seismic Cat. I standards in seismic areas per 20E-0-3000U Sheet 1 Note 1D. The 900 mHz communication equipment location listed on 20E-0-3797, 20E-0-3797A/B/C.



**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Sound Powered Telephone system	N/A	N/A	N/A	NONE
Operations Radio System Transmitter and Antennas	033W3	NONE	0DG01K Security Diesel	033W3 fed from bus 143 or 243. 0DG01K is a diesel generator located at El. 401' on a pad.
Operations Radio System Receivers	Non-ESF Busses	None	Diesel Generator with Non- ESF to ESF Bus cross tie	DGT9000 Radio phones powered from local electrical outlets (Shift Manager's Office/WEC, MCR,CAS,SAS,TSC)

## **Attachment 2 - Byron Station, Units 1 and 2 Communications During an Extended Loss of AC Power**



**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 2.

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Emergency Operations Facility	1 for Key EOF Communicator	Nuclear Accident Reporting System	Yes - EOF is greater than 25 miles from	<ul style="list-style-type: none"> <li>Facility PBX</li> </ul>	Yes - EOF is greater than 25 miles from	None	See Section 1

Attachment 2 – Byron

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?	Refer to Following Section for Additional Information
(EOF)		(NARS)	Byron.	telephone system <ul style="list-style-type: none"> <li>Local commercial telephone system</li> </ul>	Byron.		

**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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX Telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Location(s) where HPN communications are performed	1 for HPN Communicator	HPN Line (TSC and EOF)	TSC: No - Assumed not available  EOF: Yes – EOF is greater than 25 miles from Byron.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available  EOF: Yes – EOF is greater than 25 miles from Byron.	TSC: Satellite trailer with compatible cell phones  EOF: None	See Section 1

Attachment 2 – Byron

**4.1.3** 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.

<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 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>	<b>Refer to Following Section for Additional Information</b>
Control Room	1 per unit	<ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• 900 MHz Radio System</li> <li>• MCR cell phone</li> <li>• Directors Hot Line</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Sound powered phones</li> <li>• Station Radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3

Attachment 2 – Byron

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
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>	<ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• 900 MHz Radio System</li> <li>• Directors Hot Line</li> <li>• TSC cell phone</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.  Technical Conference line only works between TSC and EOF	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
Operational Support Center (OSC)	1 each for: <ul style="list-style-type: none"> <li>• Senior/Lead OSC Manager</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 In-Plant Team Coordination.</li> </ul>	<ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Local commercial Telephone system</li> <li>• Damage Control Line</li> <li>• 900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)s</li> </ul>	See Sections 1, 2 and 3



Attachment 2 – Byron

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Emergency Operations Facility (EOF)	1 each for: <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>	<ul style="list-style-type: none"> <li>• Facility PBX Telephone system</li> <li>• Local commercial telephone system</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Directors Hot Line</li> </ul>	Yes - EOF is greater than 25 miles from Byron station.	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.  Technical Conference line only works between TSC and EOF	Yes – EOF is greater than 25 miles from Byron station.	None	N/A
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>• Local Commercial Telephone system</li> </ul>	Cantera Office – EOF is greater than 25 miles from Byron station.	Face to face with EOF staff	Yes	None	N/A

Attachment 2 – Byron

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	<u>EOF:</u> EOF Cantera, IL: Satellite phone / radio system  <u>TSC:</u> - Byron, IL Satellite phone / radio system. <ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	EOF: Yes  TSC: No - Assumed not available	<ul style="list-style-type: none"> <li>• Facility PBX Telephone system</li> <li>• Local commercial telephone system</li> </ul>	EOF: Yes  TSC: No - Assumed not available	EOF: No improvement necessary.  TSC: Satellite trailer with compatible cell phones	See Section 1
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Team (FMT) Vehicle Satellite Phones / Radios	Yes –Satellite system used to transmit information to the TSC and EOF.	FMT cell phones	Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.	None	See Section 1

Attachment 2 – Byron

**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.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 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>	<b>Refer to Following Section for Additional Information</b>
Primary location where communication with Federal agencies is performed	Coordination with Federal agencies	All Exelon TSCs and EOFs <ul style="list-style-type: none"> <li>Plant/Facility PBX Telephone system</li> <li>Local Commercial Telephone system</li> </ul>	EOF: Yes  TSC: No - Assumed not available	None	N/A	EOF: No improvement necessary.  TSC: Satellite trailer with compatible cell phones	See Section 1

**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

<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 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>	<b>Refer to Following Section for Additional Information</b>
On-shift staff	Number necessary for the on-shift staff to perform Initial Phase coping actions (reflecting current staff)	<ul style="list-style-type: none"> <li>900 MHz Radio System</li> <li>Plant PBX Telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements	See Sections 2 and 3

Attachment 2 – Byron

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	and strategies)	<ul style="list-style-type: none"> <li>• Sound powered phones</li> </ul>		Exelon's redundant capabilities		required.	
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 per unit for: <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and Rescue</li> <li>• Emergency repairs</li> </ul> Site-specific number needed to implement any 2 severe accident mitigation strategies	<ul style="list-style-type: none"> <li>• 900 MHz Radio System</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

Attachment 2 – Byron

4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None - Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	None	N/A

**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the “Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information” letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team Satellite Radio/Phones system, Satellite trailer and cell

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- phones.
- c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.
    - i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
    - a. Exelon will use current station hand held radios using the “Talk Around” Frequency.
  3. This assessment has verified that expected reliance upon “multi-use” equipment is minimized.
    - a. The communications equipment selected for Exelon is a diverse communications plan. The Satellite trailer and cell phones, Station Talk Around radios, sound powered phones, face to face and bull horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their “Emergency Preparedness Resource Manual” to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone Directories and Instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.



## **Section 1 – Emergency Response Communication Systems (Current Capabilities)**

### **Satellite Phones:**

#### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Byron Station and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where planned or potential improvement lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of an LSEE.

#### **On Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency has been programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

### **Sound Powered Phones:**

Sound Powered Phones are available in specific site locations and will be used for Operations functions. The Sound Powered Phone system is located within a safety-related structure and headsets are stored inside the control room and other locations within the plant. Sound Powered Phones do not require power and are used for critical communications between the Control Room and Operators in the field. The sound-powered phones provide an alternate method for on-site communications following an LSEE that minimizes the level of communication traffic on the plant radio (Talk Around) system.

Further assessments are required to determine if sound powered phone jacks are available in all locations where Operator actions are required during an SBO.

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<b>Communications Systems/Equipment</b>	<b>System/Equipment Description</b>
Sound Powered Telephone system (NOT currently required in Emergency Plan)	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There are 8 Sound-Powered Telephone Subsystems (Channels) used on site.
900 MHz Radio System	The 900 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.

**Section 2 – Equipment Location (Current Configuration)**

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Sound Powered Telephone system	U-1 and U-2 Main Control Room primary point of communication, 1PM05J, 1PM06J, 1PM02J, 1PM08J, 2PM02J, 2PM05J, 2PM06J, 0PM01J. <b>Location: # Units</b> U-1 Aux Bldg: 46 U-2 Aux Bldg: 41 U-2 Steam Tunnel and East MSIV Room: 3 U-1 Cnmt: 33 U-2 Cnmt: 33 U-1 Area 5: 15 U-2 Area 7: 14 U-1 Turb. Bldg: 34 U-2 Turb. Bldg: 33 FHB: 4 Rad Waste Bldg: 2 Service Bldg: 4 CWPH: 4 TSC: 3	Control Room -Yes Auxiliary Bldg – Yes Containment –Yes Turbine Bldg – No Service Bldg – No CWPH – No RSH – Yes TSC – No Rad Waste Bldg – No Fuel Handling Bldg – Yes  For those items located in the Turbine Building, WEC, Gatehouse, TSC, Rad Waste Bldg, : unknown as the building/structure has not been assessed to ASCE 7-10.	Flood level is 401.9 feet with ground elevation at 401 feet. Sound Powered Phone stations below 401 elevation in the Turbine Building, and Rad Waste Bldg would be unavailable.	Control Room -Yes Auxiliary Bldg – Yes Containment –Yes Turbine Bldg – No Service Bldg – No CWPH – No RSH – No TSC – No Rad Waste Bldg – No Fuel Handling Bldg - No	8 Channel Sound Powered Channels available at U-1 and U-2 Main Control Room Panels. Listing of all Sound Powered Phone stations is available on drawings 6E-1-3797 and 6E-2-3797. Installed to Seismic Cat. I standards in seismic areas per 6E-0-3000U sh. 1 Note 1D.

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Operations Radio System Transmitter and Antennas	900 MHz communication panels 0CQ07E (466'2"-Turb Bldg) and 0CQ13E (478'6" Turb. Bldg)  Antennas: <b>Location: # Units</b> U-1 and U-2 Main Control Room: 2 WEC: 1 Aux Bldg: 10 U-1 Area 5: 3 U-2 Area 7:3 Turbine Bldg 8 Rad Waste Bldg: 2 TSC: 3 CAS: 1 Gatehouse: 4 RSH: 2 Jack for Portable Communication: U-1 Cnmt: 1 U-2 Cnmt: 1	For those items located in the Turbine Building, WEC, Gatehouse, TSC, Rad Waste Bldg, : unknown as the building/structure has not been assessed to ASCE 7-10.  Control Room -Yes Auxiliary Bldg – Yes Area5/7 – Yes Containment –Yes CAS – Yes RSH – Yes	Flood level is 401.9 feet with ground elevation at 401 feet. Equipment below El. 401 in the Turbine Building, would be unavailable.	Roof Mounted Antennas (6) are not wind or missile protected.  Control Room -Yes Auxiliary Bldg – Yes Area 5/7 – Yes Containment –Yes CAS – Yes FHB – Yes Turbine Bldg – No RSH – No TSC – No Rad Waste Bldg No Gatehouse – No	Installed to Seismic Cat. I standards in seismic areas per 6E-0-3000U Sheet. 1 Note 1D. The 900 MHz communication equipment location listed on 6E-0-3797, 6E-0-3797A/B/C.

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Operations Radio System Receivers	Main Control Room -451' elev. (U-1/U-2/Center Desk), Remote Shut Down Panel -383' elev.(U-1/U-2), Rad Waste Panel – 383' elev. Shift Engineer's Office - 451' elev. WEC -451 elev., Security Central Alarm System -451' elev., Security Secondary Alarm System 401 elev., TSC – 435' elev.	For those items located in the WEC, Gatehouse, TSC – unknown as the building/structure has not been assessed to ASCE 7-10.  Control Room – Yes Remote Shut Down Panel – Yes Rad Waste Panel – Yes SE's Office – Yes CAS – Yes	Flood level is 401.9 feet with ground elevation at 401 feet. Equipment below El. 401 in the Turbine Building, would be unavailable. All other equipment would be available.	Control Room – Yes Remote Shut Down Panel – Yes Rad Waste Panel – Yes SE's Office – Yes CAS – Yes WEC – No TSC – No Gatehouse/Secondary Alarm System – No	Installed to Seismic Cat. I standards in seismic areas per 6E-0-3000U Sheet. 1 Note 1D. This represents the DGT9000 radio phones.

**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Sound Powered Telephone system	N/A	N/A	N/A	None
Operations Radio System Transmitter and Antennas	MCC 033W3 Cub: B1-A	None	0DG01K (Security Diesel 230kW)	From load tabulations for 0CQ12J: Left Bus 4777w, Center Bus: 7619W, Right Bus: 5142W for a total load=17,538W
Operations Radio System Receivers	Non-ESF Busses	None	Diesel Generator with Non-ESF to ESF Bus cross tie	DGT9000 Radio phones powered from local electrical outlets (Shift Manager's Office/WEC, MCR,CAS,SAS,TSC)

## **Attachment 3-- Clinton Power Station, Unit 1 Communications During an Extended Loss of AC Power**

**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

**Clinton**

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**Dates of Assessment:**  
**9/12/2012-9/13/2012 and 9/17/2012-9/19/2012**

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**Assessment Conducted By:**

<b>Mike Smith</b>	<b>Engineering Specialist III (Attachment 3, Section 2)</b>
<b>Name</b>	<b>Title</b>

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**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 3.**

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX Telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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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?	Refer to Following Section for Additional Information
Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Yes – EOF is greater than 25 miles from Clinton Station.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Yes – EOF is greater than 25 miles from Clinton Power Station.	None	N/A

**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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications (ENS )	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS )	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Location(s) where HPN communications are performed	1 for HPN Communicator	HPN Line (TSC and EOF)	TSC: No - Assumed not available EOF: Yes – EOF is	Facility PBX Telephone system Local commercial telephone system	TSC: No - Assumed not available EOF: Yes - EOF is	TSC: Satellite trailer with compatible cell phones EOF: None	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
			greater than 25 miles from Clinton Station.		greater than 25 miles from Clinton Power Station		

**4.1.3** 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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per unit	<ul style="list-style-type: none"> <li>Plant PBX Telephone system</li> <li>Local Commercial Telephone system</li> <li>Directors Hot Line</li> <li>Damage Control Line</li> <li>Operations Status Line</li> </ul> 450MHz Radio System	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Sound powered phones</li> <li>Station Radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
Technical Support Center (TSC)	1 each for: <ul style="list-style-type: none"> <li>Senior/Lead TSC Manager</li> <li>Operations Coordination</li> </ul>	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Station Radios</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	<ul style="list-style-type: none"> <li>• Maintenance Coordination</li> <li>• Engineering Coordination</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 Response Coordination.</li> </ul>	<ul style="list-style-type: none"> <li>• Directors Hot Line</li> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• 450MHz Radio System</li> </ul>		<p>redundant capabilities when communicating from an ERF to an ERF.</p> <p>The Technical Conference line only works between TSC and EOF.</p>		(talk around channel)	
Operational 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>	<ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Damage Control Line</li> <li>• 450 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)s</li> </ul>	See Sections 1, 2 and 3
Emergency Operations Facility (EOF)	<p>1 each for:</p> <ul style="list-style-type: none"> <li>• Senior/Lead Manager</li> <li>• Key Protective</li> </ul>	<ul style="list-style-type: none"> <li>• Facility PBX Telephone system</li> <li>• Local Commercial Telephone system</li> </ul>	Yes – EOF is greater than 25 miles from Clinton Power Station.	Any combination of the communications systems listed in the primary method column	Yes – EOF is greater than 25 miles from Clinton Power Station.	None	N/A

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	Measures <ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Directors Hot Line</li> <li>• State Link Phone</li> </ul>		<p>comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.</p> <p>Technical Conference Line only works between TSC and EOF.</p>			
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>• Local Commercial Telephone system</li> </ul>	Yes – JIC is greater than 25 miles from Clinton Power Station.	Face to face with EOF staff	Yes	None	N/A

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	<p>EOF: Satellite phone / radio system</p> <p>TSC:</p>	<p>EOF: Yes – EOF is greater than 25 miles from Clinton Power Station.</p>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	<p>EOF: Yes – EOF is greater than 25 miles from Clinton Power Station.</p>	<p>EOF: None</p> <p>TSC: Satellite trailer with compatible cell phones</p>	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
		- Clinton, IL Satellite phone / radio system.	TSC: No - Assumed not available.		TSC: No - Assumed not available.		
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Team Vehicle Satellite Phones / Radios	Yes – Satellite system used to transmit information to the TSC and EOF.	FMT cell phones	Assumed not available	None	N/A

**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.9.b]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	All Exelon TSCs and EOFs <ul style="list-style-type: none"> <li>Plant/Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available.  EOF: Yes – EOF is greater than 25 miles from any Exelon Station.	None	N/A	TSC: Satellite trailer with compatible cell phones  EOF: None	N/A

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**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

<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 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>	<b>Refer to Following Section for Additional Information</b>
On-shift staff	Number necessary for the on-shift staff to perform Initial Phase coping actions (reflecting current staff and strategies)	<ul style="list-style-type: none"> <li>450MHz Radio System</li> <li>Plant PBX Telephone system</li> <li>Sound powered phones</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required	See Sections 2 and 3
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 per unit for: <ul style="list-style-type: none"> <li>In-plant radiological monitoring</li> <li>Search and Rescue</li> <li>Emergency repairs</li> </ul> Site-specific number needed to implement any 2 severe accident mitigation strategies	<ul style="list-style-type: none"> <li>450 MHz Radio System</li> <li>Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required	See Sections 2 and 3



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4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None – Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	None	N/A

**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the "Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information" letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team satellite radio/phones system, satellite trailer and cell phones.
  - c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.

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- i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
- d. ENS and HPN communicators and the NRC staff.
  - i. Satellite trailer and cell phones.
- e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
  - i. Satellite trailer and cell phones, Station Talk Around Radios, face to face, bull horns.
- 2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
  - a. Exelon will use current station hand held radios using the "Talk Around" Frequency.
- 3. This assessment has verified that expected reliance upon "multi-use" equipment is minimized.
  - a. The communications equipment selected for Exelon is a diverse communications plan. The Satellite trailer and cell phones, Station Talk Around radios, sound powered phones, face to face and bull horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

- 1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
- 2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
- 3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
- 4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their "Emergency Preparedness Resource Manual" to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone directories and instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.

## **Section 1 –Emergency Response Communication Systems (Current Capabilities**

### **Off Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a Satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX.

### **On Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Satellite Phones:**

#### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Clinton Power Station and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of an LSEE.

#### **On Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where planned or potential improvement lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

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**Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency has been programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

**Sound Powered Phones:**

Sound Powered Phones are available in specific site locations and will be used for Operations functions. The Sound Powered Phone system is located within a safety-related structure and headsets are stored inside the control room and other locations within the plant. Sound Powered Phones do not require power and are used for critical communications between the Control Room and Operators in the field. The sound-powered phones provide an alternate method for on-site communications following a LSEE that minimizes the level of communication traffic on the plant radio (Talk Around) system.

Communications Systems/Equipment	System/Equipment Description
Sound Powered Telephone system Currently considered for entry condition for MU-6 and CU-4 in EP-AA-1003	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There are approximately 384 Sound-Powered Telephone Subsystems (Channels) used on site. SPJP#1 is on 800 control. SPJP#3 is on 737 Radwaste
450/800/900 MHz Radio System	The nominal 450 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, and Security.

**Section 2 – Equipment Location**

**An assessment of the Sound Powered (SP) Phone system is required. This assessment is to evaluate “Reasonably Protected” as defined above. The assessment shall validate survivability of the main control points of the system. The wiring to and from the control points DO NOT require assessment.**

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Sound Powered Telephone system	SPJP#3 is on 737 Radwaste and cannot be credited.  SPJP#1 is in the MCR on 800 MCR.	Y – MCR is in the control building which is Seismic Category I per table 3.2-1 of the USAR. USAR Section 3.7 defines Seismic Category I as a building designed to withstand an SSE.	Y – USAR 3.4 defines the probable maximum flood level as 708.9’ mean sea level. The grade level for the station is 736’ per the USAR and design criteria document DC-SD-01-CP.	Y – Seismic Category I buildings have been analyzed for Wind / Missiles per USAR.	The turbine building design criteria was based upon ACI 318 per DC-SD-01-CP. No documentation could be located which analyzed the turbine building structure per ASME 7-10. As a result, only buildings designed to withstand an SSE (Seismic Category I) structures as reflected by USAR Table 3.2-1 XXXV were used.

An assessment of the Operations Radio system (transmitters, antennas and receivers) from the Control Room to all areas of the plant where critical Operations SBO actions are performed.

System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Operations Radio System Transmitter, Receiver and Antennas	The MCR base station is on 800 control with repeater for the Aux. and Fuel Building being on 755' and 762' elevations above the flood level.	Y - see above	Y – see above	Y – see above	See above
Operations Radio System Receivers	N/A	N/A	N/A	N/A	CPS systems are a two way transceiver type system with 3 channels. Channel A for Ops, Channel B for Maintenance, and Channel C for Security.  Only Channel A was reviewed for Ops.  Ref: CPS No. 1021.01, Site Communication and EC 372704



**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			Comments
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	
Sound Powered Telephone system	N/A	N/A	N/A	None
Operations Radio System Transmitter, Receiver and Antennas	Aux Bldg. Safety Related MCC 1A1 - 1AP72E	N/A	N/A	The Safety Related buses have sources from the RAT, ERAT and emergency diesel generators. The MCC1A1 is Division 1 and not credited for SBO. This only applies to channel A base stations, repeaters and remote consoles.

## **Attachment 4-- Dresden Station, Units 2 and 3 Communications During an Extended Loss of AC Power**

**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

**Dresden Unit 2 and 3**

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**Dates of Assessment:**  
**9/19/2012**

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**Assessment Conducted By:**

<b>Jonathan Hodapp</b>	<b>Electrical Engineer III</b>
<b>Name</b>	<b>Title</b>

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<b>David Ketchledge</b>	<b>Plant Engineer</b>
<b>Name</b>	<b>Title</b>

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**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 4.

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell	See Section 1

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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?	Refer to Following Section for Additional Information
		(NARS)		<ul style="list-style-type: none"> <li>Local commercial telephone system</li> </ul>		phones	
Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Yes - EOF is greater than 25 miles from Dresden.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Yes - EOF is greater than 25 miles from Dresden.	Satellite trailer with compatible cell phones	See Section 1

**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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Location(s) where HPN communications	1 for HPN Communicator	HPN Line	TSC: No - Assumed not	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> </ul>	TSC: Assumed not	TSC: Satellite trailer with compatible cell	See Section 1

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are performed		(TSC and EOF)	available EOF: Yes – EOF is greater than 25 miles from Dresden Station.	<ul style="list-style-type: none"> <li>Local commercial telephone system</li> </ul>	available EOF: Yes – EOF is greater than 25 miles from Dresden Station.	phones EOF: None	
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**4.1.3** 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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per unit	<ul style="list-style-type: none"> <li>Plant PBX Telephone system</li> <li>Local Commercial Telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> <li>Director Hotline</li> <li>900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Sound powered phones</li> <li>Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
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> </ul>	<ul style="list-style-type: none"> <li>Plant PBX Telephone system</li> <li>Local Commercial Telephone system</li> <li>Damage Control Line</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Station Radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• 900 MHz Radio System</li> <li>• Director Hotline</li> </ul>		Technical Conference line only works between TSC and EOF			
Operational Support Center (OSC)	1 each for: <ul style="list-style-type: none"> <li>• Senior/Lead OSC Manager</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 In-Plant Team Coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• 900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)s</li> </ul>	N/A
Emergency Operations Facility (EOF)	1 each for: <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</li> </ul>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Director Hotline</li> </ul>	Yes - EOF is greater than 25 miles from Dresden Station.	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Yes - EOF is greater than 25 miles from Dresden Station.	None	N/A



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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	projections, formulation of PARs and plant status updates to ORO authorities).			Technical Conference Line only works between TSC and EOF			
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>Local Commercial Telephone system</li> </ul>	Yes – JIC is greater than 25 miles from Dresden Station.	Face to face with EOF staff.	Yes	None	N/A

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Primary location where field/offsite monitoring team	Field/offsite monitoring team coordination	EOF: Satellite phone / radio	EOF: Yes - EOF is greater than 25 miles from	<ul style="list-style-type: none"> <li>Facility PBX Telephone system</li> </ul>	EOF: Yes - EOF is greater than 25 miles from	EOF: No improvement	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
coordination is performed		system TSC: - Dresden NPP Morris, IL Satellite phone / radio system. <ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Local Commercial Telephone system</li> </ul>	Dresden Station. TSC : No - Assumed not available	<ul style="list-style-type: none"> <li>• Local Commercial Telephone system</li> </ul>	Dresden Station. TSC: No - Assumed not available	necessary.  TSC: Satellite trailer with compatible cell phones	
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Team Vehicle Satellite Phones / Radios	Yes – Satellite system used to transmit information to the TSC and EOF.	FMT cell phones	Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.	N/A	See Section 1

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**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.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 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>	<b>Refer to Following Section for Additional Information</b>
Primary location where communication with Federal agencies is performed	Coordination with Federal agencies	All Exelon TSCs and EOFs <ul style="list-style-type: none"> <li>Plant/Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	EOF: Yes  TSC: No - Assumed not available	None	N/A	EOF: No improvement necessary.  TSC: Satellite trailer with compatible cell phones	See Section 1

**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

<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 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>	<b>Refer to Following Section for Additional Information</b>
On-shift staff	Number necessary for the on-shift staff to perform Initial Phase coping actions (reflecting current staff and strategies)	<ul style="list-style-type: none"> <li>900 MHz Radio System</li> <li>Plant PBX telephone system</li> <li>Sound powered phones</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
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 per unit for: <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and Rescue</li> <li>• Emergency repairs</li> </ul> Site-specific number needed to implement any 2 severe accident mitigation strategies	<ul style="list-style-type: none"> <li>• 900 MHz Radio System</li> <li>• Plant PBX Telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

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4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None - Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Local Commercial Telephone system</li> </ul>	Assumed not available	None	N/A

**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the "Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information" letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team satellite radio/phones system, satellite trailer and cell phones.

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- c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.
    - i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
    - a. Exelon will use current station hand held radios using the "Talk Around" Frequency.
  3. This assessment has verified that expected reliance upon "multi-use" equipment is minimized.
    - a. The communications equipment selected for Exelon is a diverse communications plan. The Satellite trailer and cell phones, Station Talk Around radios, sound powered phones, face to face and bull horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their "Emergency Preparedness Resource Manual" to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone Directories and Instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.



## **Section 1 –Emergency Response Communication Systems (Current Capabilities)**

### **Off Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (IEMA), County EOCs, and other offsite organizations. Exelon is evaluating a Satellite communications trailer with 28 cell phone line availability. The Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Dresden and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of a LSEE. The Satellite trailer will be stored within a structure approved for FLEX.

### **On Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency has been programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

### **Sound Powered Phones:**

Sound powered phones are available in specific site locations and will be used for Operations functions. The Sound Powered Phone system is located within a safety-related structure and headsets are stored inside the control room and other locations within the plant. Sound powered phones do not require power and are used for critical communications between the Control Room and Operators in the field. The sound-powered phones provide an alternate method for on-site communications following an LSEE that minimizes the level of communication traffic on the plant radio (Talk Around) system. Further assessments are required to determine if sound powered phone jacks are available in all locations where Operator actions are required during an SBO.

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<b>Communications Systems/Equipment</b>	<b>System/Equipment Description</b>
Sound Powered Telephone system (NOT currently required in EP plan)	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There are 100 Sound-Powered Telephone Subsystems (Channels) used on site.
900 MHz Radio System	The 900 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.

**Section 2 – Equipment Location (Current Configuration)**

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Sound Powered Telephone system	Main Control Room 534' EL	Yes – The Control Room is a Class 1 Structure.	Yes - Control Room is located on 534' and the flood plane for Dresden is 528'.	Yes – The Control Room is a Class 1 Structure.	None

**An assessment of the Operations Radio system (transmitters, antennas and receivers) from the Control Room to all areas of the plant where critical Operations SBO actions are performed.**

System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Operations Radio System Transmitter and Antennas	Transmitter – U3 549' Turbine Building  Antennas – 1) 517'-6" U2 and U3 Reactor Building Floor Level	Unknown as the building/structure has not been assessed to ASCE 7-10	Yes- Transmitter and Antennas above 528' are above the established flood plane.  No- Antennas below 528' are below the flood plane.	Unknown as the building/structure has not been assessed to ASCE 7-10	Flood plane for Dresden is 528 feet.

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
	2) 517'-6" U2 and U3 Turbine Building Floor Level 3) U2 and U3 Turbine Building Roof Level 4) 517'-6" Max Recycle Area Floor 5) 517'-6" Tech Support Center Floor 6) 517'-6" Central Alarm Station Floor 7) 517'-6" U1 Turbine Building Floor 8) 529'-6" and 545' U1 Sphere 9) 534' Shift Engineer Office 10) 517'-6" Gate House 11) 517'-6" U1 Radwaste Building				
Operations Radio System Receivers	(see above)	(see above)	(see above)	(see above)	(see above)

**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Sound Powered Telephone system	N/A	N/A	N/A	Sound powered telephones are powered by sound.
Operations Radio System Transmitter and Antennas	MCC 9908-1 Security Bus	2/3-0080-710 (security diesel)	Yes	None
Operations Radio System Receivers	(see above)	(see above)	(see above)	None

## **Attachment 5-- LaSalle Station, Units 1 and 2 Communications During an Extended Loss of AC Power**

.S. Nuclear Regulatory Commission  
Response to 50.54(f) Letter  
NTTF Recommendation 9.3: EP Communications  
October 31, 2012

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**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

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**Dates of Assessment:**  
9/19/12

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**Assessment Conducted By:**

**Joe Prostko**  
Name

**landC Design Engineer**  
Title

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**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 5.

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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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?	Refer to Following Section for Additional Information
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Yes – EOF is greater than 25 miles from LaSalle Station.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Yes – EOF is greater than 25 miles from LaSalle Station.	None	See Section 1

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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial Telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Location(s) where HPN communications are performed	1 for HPN Communicator	HPN Line (TSC and EOF)	TSC: No - Assumed not available.  EOF: Yes - EOF is greater than 25 miles from LaSalle Station.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available.  EOF: Yes - EOF is greater than 25 miles from LaSalle Station.	TSC: Satellite trailer with compatible cell phones  EOF: None	See Section 1

**4.1.3** 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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room  Control Room	1 per unit	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> <li>Directors Hot Line</li> <li>900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Sound powered phones</li> <li>Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
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>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Directors Hot Line</li> <li>• 900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.  Technical Conference line only works between TSC and EOF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
Operational Support Center (OSC)	1 each for: <ul style="list-style-type: none"> <li>• Senior/Lead OSC Manager</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</li> </ul>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• 900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channels)</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	providing Unit In-Plant Team Coordination.						
Emergency Operations Facility (EOF)	1 each for: <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>	<ul style="list-style-type: none"> <li>• Facility PBX Telephone system</li> <li>• Local Commercial Telephone system</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Directors Hot Line</li> </ul>	Yes – EOF is greater than 25 miles from LaSalle Station.	Any combination of the communications systems listed in the primary method column comprises Exelon’s redundant capabilities when communicating from an ERF to an ERF.  Technical Conference line only works between TSC and EOF.	Yes – EOF is greater than 25 miles from LaSalle Station.	None	N/A
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>• Local Commercial Telephone system</li> </ul>	Yes – JIC is greater than 25 miles from LaSalle Station.	Face to face with EOF staff.	Yes	None	N/A

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

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	EOF: Satellite phone / radio system  TSC: - LaSalle, IL  Satellite phone / radio system.	TSC: No - Assumed not available.  EOF: Yes - EOF is greater than 25 miles from LaSalle Station.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No – Assumed not available.  EOF: Yes – EOF is greater than 25 miles from LaSalle Station.	TSC: Satellite trailer with compatible cell phones  EOF: None	See Section 1
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Team Vehicle satellite phones / radios	Yes –Satellite system used to transmit information to the TSC and EOF.	FMT cell phones	Assumed not available.	None	N/A

**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.9.b]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	All Exelon TSCs and EOFs <ul style="list-style-type: none"> <li>Plant/Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available.  EOF: Yes - EOF is greater than 25 miles from LaSalle Station.	None	N/A	TSC: Satellite trailer with compatible cell phones  EOF: None	N/A

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**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

<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 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>	<b>Refer to Following Section for Additional Information</b>
On-shift staff	Number necessary for the on-shift staff to perform Initial Phase coping actions (reflecting current staff and strategies)	<ul style="list-style-type: none"> <li>• 900 MHz Radio System</li> <li>• Plant PBX telephone system</li> <li>• Sound powered phones</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3
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 per unit for: <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and Rescue</li> <li>• Emergency repairs</li> </ul> Site-specific number needed to implement any 2 severe accident mitigation strategies	<ul style="list-style-type: none"> <li>• 900 MHz Radio System</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

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4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None – Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	None	N/A



**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the “Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information” letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team Satellite radio/phones system, satellite trailer and cell phones.
  - c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.

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- i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
- a. Exelon will use current station hand held radios using the “Talk Around” Frequency.
3. This assessment has verified that expected reliance upon “multi-use” equipment is minimized.
- a. The communications equipment selected for Exelon is a diverse communications plan. The Satellite trailer and cell phones, Station Talk Around radios, sound powered phones, face to face and bull horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their “Emergency Preparedness Resource Manual” to reflect communications equipment, B5B equipment and Flex Equipment

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone directories and instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.

## **Section 1 –Emergency Response Communication Systems (Current Capabilities**

### **Satellite Phones:**

#### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for LaSalle Generating Station and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of a LSEE.

#### **On Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where planned or potential improvement lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency has been programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

**Sound Powered Phones:**

Sound Powered Phones are available in specific site locations and will be used for Operations functions. The Sound Powered Phone system is located within a safety-related structure and headsets are stored inside the control room and other locations within the plant. Sound Powered Phones do not require power and are used for critical communications between the Control Room and Operators in the field. The sound-powered phones provide an alternate method for on-site communications following an LSEE that minimizes the level of communication traffic on the plant radio (Talk Around) system.

Further assessments are required to determine if sound powered phone jacks are available in all locations where Operator actions are required during an SBO.

<b>Communications Systems/Equipment</b>	<b>System/Equipment Description</b>
Sound Powered Telephone system (NOT currently required in EP plan)	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There are 2 Sound-Powered Telephone Subsystems (Channels) used on site.
450/800/900 MHz Radio System	The 900 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.

**Section 2— Equipment Location (Current Configuration)**

An assessment of the Sound Powered (SP) Phone system is required. This assessment is to evaluate “Reasonably Protected” as defined above. The assessment shall validate survivability of the main control points of the system. The wiring to and from the control points DO NOT require assessment.

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Sound Powered Telephone system	Main Control Room	Yes-The Main Control Room is located in the Auxiliary Building which is a Seismic Category I Structure UFSAR Table 3.2.1	Yes- LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Yes-The Main Control Room is located in the Auxiliary Building which is a Seismic Category I Structure UFSAR Table 3.2.1	None

An assessment of the Operations Radio system (transmitters, antennas and receivers) from the Control Room to all areas of the plant where critical Operations SBO actions are performed.

System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Operations Radio System Transmitter and Antennas	Operations radio Transmitters are located on 749 Elevation Auxiliary Building	Yes-The Auxiliary Building is a Seismic Category I Structure UFSAR Table 3.2.1	Yes-LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Yes-The Auxiliary Building is a Seismic Category I Structure UFSAR Table 3.2.1	N/A

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
	4B located on elevation 786 Unit 1 Reactor Building  4A located on elevation 710 Unit Reactor Building  5A located on elevation 710 Unit 2 Reactor Building  5B Located on 786 elevation Unit 2 Reactor Building	Yes- The Reactor Building is a Seismic Category I Structure UFSAR Table 3.2.1	Yes-LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Yes-The Reactor Building is a Seismic Category I Structure UFSAR Table 3.2.1	
	1A located on elevation 710 1B Diesel Generator Room	Yes- The Diesel Generator Building is a Seismic Category I Structure UFSAR Table 3.2.1	LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Yes- The Diesel Generator Building is a Seismic Category I Structure UFSAR Table 3.2.1	
	1B Located on elevation 710 2A Diesel Generator	Yes- The Diesel Generator Building is a	LaSalle is located on the upland portion of the site	Yes- The Diesel Generator Building is a Seismic	

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
	Room	Seismic Category I Structure UFSAR Table 3.2.1	which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Category I Structure UFSAR Table 3.2.1	
	6 located 687 elevation Unit 1 Turbine Building	Unknown	LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Unknown	
	8 located on elevation 710 Rad Waste Building Stairwell	Unknown	LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Unknown	



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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
	7 located elevation 710 North Service Building	Unknown	LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Unknown	
	2A Located elevation 768 Turbine Building	Unknown	LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Unknown	
	2B Located elevation 768 Turbine Building	Unknown	LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Unknown	

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Operations Radio System Receivers	Operations radio receivers are located on 749 Elevation Auxiliary Building	Yes-The Auxiliary Building is a Seismic Category I Structure UFSAR Table 3.2.1	Yes-LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Yes-The Auxiliary Building is a Seismic Category I Structure UFSAR Table 3.2.1	N/A
Operations Radio System Receivers	2 Operations radio receivers are located in Main Control Room	Yes-The Main Control Room is located in the Auxiliary Building which is a Seismic Category I Structure UFSAR Table 3.2.1	Yes- LaSalle is located on the upland portion of the site which is not on a flood plane UFSAR Section 2.5.1.2.1 Site Physiography	Yes-The Main Control Room is located in the Auxiliary Building which is a Seismic Category I Structure UFSAR Table 3.2.1	N/A

**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Sound Powered Telephone system	N/A	N/A	N/A	N/A
Operations Radio System Transmitter and Antennas	TSC UPS 1IP03E. The primary source for this power feed is MCC 231B-7	Alternate power feed for the TSC UPS is 132Y-2	Unknown	N/A
Operations Radio System Receivers	TSC UPS 1IP03E. The primary source for this power feed is MCC 231B-7	Alternate power feed for the TSC UPS is 132Y-2	Unknown	N/A

## **Attachment 6-- Limerick Station, Units 1 and 2 Communications During an Extended Loss of AC Power**

**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

**Limerick**

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**Dates of Assessment:**  
**9/19/2012**

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**Assessment Conducted By:**

<b>David R. Trexler</b>	<b>Senior Engineer/ Communications System Manager</b>
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<b>Name</b>	<b>Title</b>
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<b>Mark Crim</b>	<b>EP Manager</b>
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<b>Name</b>	<b>Title</b>
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**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.

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NEI 12-01 Revision 0 (May 2012)

4 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 6.

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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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?	Refer to Following Section for Additional Information
Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

**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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Location(s) where HPN communications are performed	1 for HPN Communicator	HPN Line (TSC and EOF)	Assumed not available	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1



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**4.1.3** 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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per unit	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> <li>450 MHz Radio System</li> <li>Directors Hot Line</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
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>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> <li>Directors Hot Line</li> <li>Technical Conference Line</li> <li>450 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.  Technical Conference line only works between TSC and EOF	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	<ul style="list-style-type: none"> <li>• 1 for each position providing Unit Response Coordination.</li> </ul>						
Operational Support Center (OSC)	1 each for: <ul style="list-style-type: none"> <li>• Senior/Lead OSC Manager</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 In-Plant Team Coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• 450 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)s</li> </ul>	See Sections 1, 2 and 3
Emergency Operations Facility (EOF)	1 each for: <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>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Directors Hot Line</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> </ul>	Coatesville, PA. Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.  Technical Conference line only works between TSC and EOF	Coatesville, PA. Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>Local commercial telephone system</li> </ul>	Coatesville, PA. Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.	Face to face with EOF staff.	Yes	Satellite trailer with compatible cell phones	See Section 1

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	<u>EOF:</u> EOF Coatesville, PA Satellite phone / radio system  <u>TSC:</u>	<u>EOF:</u> Yes The EOF uses a back-up generator that would be assumed operable in accordance with the guidance of NEI-12-	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	<u>EOF:</u> No improvement necessary.  <u>TSC:</u> Satellite trailer with compatible cell	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
		- Limerick, PA PA, stations use a plant PBX or a local commercial phone system to access a satellite phone network to communicate with the FMT. <ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>Local commercial telephone system</li> </ul>	01. As this is a satellite system it would remain operable.  TSC: No - Assumed Inoperable			phones	
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Team Vehicle satellite phones / radios	Yes – Satellite system used to transmit information to the TSC and EOF.	FMT cell phones	Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.	None	N/A

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**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.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 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>	<b>Refer to Following Section for Additional Information</b>
Primary location where communication with Federal agencies is performed	Coordination with Federal agencies	All Exelon TSCs and EOF's <ul style="list-style-type: none"> <li>• Plant/Facility PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.	None	N/A	Satellite trailer with compatible cell phones	See Section 1

**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.

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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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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 and strategies)	<ul style="list-style-type: none"> <li>• 450 MHz Radio System</li> <li>• Plant PBX telephone system</li> <li>• Sound powered phones</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3
Operational Support Center (OSC) and other site-specific locations as necessary	<p>1 each for:</p> <ul style="list-style-type: none"> <li>• On-site radiological monitoring</li> </ul> <p>2 each for:</p> <ul style="list-style-type: none"> <li>• Firefighting (1 for brigade leader and 1 for the brigade)</li> </ul> <p>2 each per unit for:</p> <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and Rescue</li> <li>• Emergency repairs</li> </ul> <p>Site-specific number needed to implement any 2 severe accident mitigation strategies</p>	<ul style="list-style-type: none"> <li>• 450 MHz Radio System</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

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4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None - Exelon procedures provide guidance on compensatory measures for inoperable PA Speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	None	N/A

**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the “Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information” letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team satellite radio/phones system, satellite trailer and cell phones.
  - c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.



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- i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
- a. Exelon will use current station hand held radios using the “Talk Around” Frequency.
3. This assessment has verified that expected reliance upon “multi-use” equipment is minimized.
- a. The communications equipment selected for Exelon is a diverse communications plan. The Satellite trailer and cell phones, Station Talk Around radios, Sound powered phones, face to face and Bull Horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their “Emergency Preparedness Resource Manual” to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone Directories and Instructions.

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**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.

## **Section 1 –Emergency Response Communication Systems (Current Capabilities)**

### **Satellite Phones:**

#### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Limerick Generating Station and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of an LSEE.

Exelon will purchase one (1) Satellite trailer with compatible cell phones for the Emergency Operations Facility (EOF) to be distributed among each of the locations/positions identified in this document where planned or potential improvement lists Cell Phone.

#### **On Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency will be programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

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<b>Communications Systems/Equipment</b>	<b>System/Equipment Description</b>
Sound Powered Telephone system (NOT currently required in EP plan)	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There are <b>no</b> Sound-Powered Telephone Subsystems (Channels) used on site.
450/507/510 MHz Radio System	The 450/507/510 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.

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**Section 2 - Equipment Location**

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Sound Powered Telephone system	Not installed at Limerick	N/A	N/A	N/A	N/A

**An assessment of the Operations Radio system (transmitters, antennas and receivers) from the Control Room to all areas of the plant where critical Operations SBO actions are performed.**

System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Operations Radio System Transmitter and Antennas  Operations	Repeaters Reactor Building Roof, North Stack Radio Room, Elevation 411'	Repeaters YES in non-seismic 2/1 structure. Equipment is not seismically mounted. Includes 72 hour battery backup.	Repeaters YES Equipment is above elevation 410'. Ground level is 217'	Repeaters YES Structure is Hardened.	Security and Maintenance Cabinets in same area. PA State Police and County radios are mounted in Seismic Structure, above flood level and protected from wind/missiles.

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Radio System Transmitter and Antennas	<p>External Antenna Mounted on Reactor Enclosure exterior wall at North Stack. Above Elevation 411.</p> <p>Internal Antennas Various locations Inside Category 1 and Category 2 structures. Mounted 2/1.</p>	<p>External Antenna YES Mounted on Seismic Cat 1 Structure</p> <p>Internal Antennas YES/NO Distributed system in both type of structures</p>	<p>External Antenna YES Mounted above flood levels</p> <p>Internal Antennas YES All Antennas are mounted above flood levels in rooms, Some rooms are underground.</p>	<p>External Antenna NO</p> <p>Internal Antennas YES Turbine, Reactor and Control enclosures are missile resistant.</p>	Ground Level is 217'
Operations Radio System Receivers	Same as above.	Same as above.	Same as above.	Same as above.	Same as above.

**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Sound Powered Telephone system	N/A	N/A	N/A	N/A
Operations Radio System Transmitter and Antennas	Repeaters Diesel Backed Safeguard Bus D12 (D124-G-D-15)  Bi-Directional Amplifiers Various Non Class 1E sources	Repeaters House Loads (124A-G-D-20)  Bi-Directional Amplifiers N/A	Repeaters 72 hours of battery backup is available for Ops Repeaters. Additional battery cabinets available.  Bi-Directional Amplifiers N/A	72 Hours of battery backup is also available for the Unit 1 and Unit 2 RO Radio Consoles, Remote Shutdown Panel Radio Consoles and OSC in standalone Walkie-Talkie Mode in event of hardwire to repeater failure.  Portables are also programmed for talk-around feature not requiring repeaters. Portables set for low power (<2 watts) requires near line of sight for operation.
Operations Radio System Receivers	Same as above	Same as above.	Same as above.	N/A

## **Attachment 7-- Oyster Creek Station, Unit 1 Communications During an Extended Loss of AC Power**



**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

**Oyster Creek**

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**Dates of Assessment:**  
**9/19/2012**

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**Assessment Conducted By:**

<b>Eric DeMonch</b>	<b>Operations lead Fukushima team</b>
<b>Name</b>	<b>Title</b>

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<b>Mohamed Dicko</b>	<b>Fukushima electrical LRE</b>
<b>Name</b>	<b>Title</b>

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<b>Reviewed/approved by M. Chanda</b>	<b>EP Manager</b>
<b>Name</b>	<b>Title</b>

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**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 1.

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
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**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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications (ENS )	Assumed not available	<ul style="list-style-type: none"> <li>•Plant PBX telephone system</li> <li>•Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>•Plant PBX telephone system</li> <li>•Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Location(s) where HPN communications are performed	1 for HPN Communicator	HPN Line (TSC and EOF)	TSC: Assumed not available EOF: Assumed not available	<ul style="list-style-type: none"> <li>•Facility PBX telephone system</li> <li>•Local commercial telephone system</li> </ul>	TSC: Assumed not available EOF: Assumed not available	TSC and EOF: Satellite trailer with compatible cell phones	See Section 1

**4.1.3** 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.

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per unit	<ul style="list-style-type: none"> <li>• Plant PBX Telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• 450 MHz Radio System</li> <li>• Directors Hotline</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)</li> </ul>	Oyster Creek requires additional review due to the abandonment of the sound powered phone system.  See Sections 1, 2 and 3
Technical Support Center (TSC)          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>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• 450 MHz Radio System</li> <li>• Directors Hotline</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Operations Support Center (OSC)	1 each for: <ul style="list-style-type: none"> <li>• Senior/Lead OSC Manager</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 In-Plant Team Coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• 450 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)s</li> </ul>	See Sections 1, 2 and 3
Emergency Operations Facility (EOF)	1 each for: <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>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Directors Hotline</li> </ul>	EOF : Toms' River, NJ: Assumed not available.	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	EOF: Toms' River, NJ: Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>• Local commercial telephone system</li> </ul>	JIC : Toms' River, NJ: Assumed not available.	Face to face with EOF staff	Yes	Satellite trailer with compatible cell phones	See Section 1

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	<p><u>EOF:</u>            EOF Tom's River, NJ            Satellite phone / radio system</p> <p><u>TSC:</u>            - Oyster Creek NJ            Satellite phone / radio system.</p> <ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	<p><u>EOF:</u>            Yes</p> <p>The EOF's use a back-up generator that would be assumed operable in accordance with the guidance of NEI-12-01. As this is a satellite system it would remain operable.</p> <p><u>TSC:</u>            No            Assumed Inoperable</p>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	<p><u>EOF:</u>            No improvement necessary.</p> <p><u>TSC:</u>            Satellite trailer with compatible cell phones</p>	See Section 1
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Team (FMT) Vehicle Satellite Phones / Radios	Yes – Satellite system used to transmit information to the TSC and EOF.	FMT cell phones	Assumed not available due to off site infrastructure is presumed out of service within 25 miles from Oyster Creek station.	None	N/A

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**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.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 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>	<b>Refer to Following Section for Additional Information</b>
Primary location where communication with Federal agencies is performed	Coordination with Federal agencies	All Exelon TSCs and EOFs <ul style="list-style-type: none"> <li>Plant/Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available due to off site infrastructure is presumed out of service within 25 miles from Oyster Creek station.	None	N/A	Satellite trailer with compatible cell phones	See Section 1

**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

<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 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>	<b>Refer to Following Section for Additional Information</b>
On-shift staff	Number necessary for the on-shift staff to perform Initial Phase coping actions (reflecting current staff and strategies)	<ul style="list-style-type: none"> <li>450 MHz Radio System</li> <li>Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3



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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Operations 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 per unit for: <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and Rescue</li> <li>• Emergency repairs</li> </ul> Site-specific number needed to implement any 2 severe accident mitigation strategies	<ul style="list-style-type: none"> <li>• 450 MHz Radio System</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

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4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None – Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	None	N/A

**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the “Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information” letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team satellite radio/phones system, satellite trailer and cell phones.
  - c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.

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- i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
- a. Exelon will use current station hand held radios using the “Talk Around” Frequency.
3. This assessment has verified that expected reliance upon “multi-use” equipment is minimized.
- a. The communications equipment selected for Exelon is a diverse communications plan. The Satellite trailer and cell phones, Station Talk Around radios, sound powered phones, face to face and Bull Horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their “Emergency Preparedness Resource Manual” to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone directories and instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.

## **Section 1 –Emergency Response Communication Systems (Current Capabilities)**

### **Satellite Phones:**

#### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Oyster Creek and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of an LSEE.

Exelon will purchase one (1) Satellite trailer with compatible cell phones for the Emergency Operations Facility (EOF) to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

#### **On Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency has been programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

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**Sound Powered Phones:**

This system has been abandoned in place and further evaluation is necessary to determine if the system can be restored.

Also, further assessments are required to determine if sound powered phone jacks are available in all locations where Operator actions are required during an SBO.

<b>Communications Systems/Equipment</b>	<b>System/Equipment Description</b>
Sound Powered Telephone system (NOT currently required in EP plan)	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There are no Sound-Powered Telephone Subsystems (Channels) used on site.  <b>Oyster Creek requires additional review due to the abandonment of the sound powered phone system.</b>
450/800/900 MHz Radio System	The 450 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.

**Section 2 – Equipment Location**

An assessment of the Sound Powered (SP) Phone system is required. This assessment is to evaluate “Reasonably Protected” as defined above. The assessment shall validate survivability of the main control points of the system. The wiring to and from the control points DO NOT require assessment.

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Sound Powered Telephone system	MCR	N/A	N/A	N/A	Oyster Creek requires additional review due to the abandonment of the sound powered phone system.

An assessment of the Operations Radio system (transmitters, antennas and receivers) from the Control Room to all areas of the plant where critical Operations SBO actions are performed.

System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Operations Radio System Transmitter and Antennas	MCR for radio console, Upper cable spreading room for the repeater	Yes the console and repeater are in the Turbine bldg. that meets ASCE 7-10	Yes The MCR is at 48' elevation and upper cable spreading room is above the MCR. Flood plain is 23'6"	Yes the console and repeater are in the Turbine bldg. that meets ASCE 7-10 Y	The repeater is located in the upper cable spreading in the Turbine bldg. The power is from vital ac.
Operations Radio System Receivers	MCR for radio console, Upper cable spreading	Yes the console and repeater	The MCR is at 48' elevation and upper cable	Yes the console and repeater	The repeater is located in the upper cable spreading in the Turbine bldg.



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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
	room for the repeater	are in the Turbine bldg. that meets ASCE 7-10	spreading room is above the MCR. Flood plain is 23'6"	are in the Turbine bldg. that meets ASCE 7-10	The power is from vital ac.

**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Sound Powered Telephone system	N/A	N/A	N/A	Oyster Creek requires additional review due to the abandonment of the sound powered phone system.
Operations Radio System Transmitter and Antennas	MP-P-1D via Aux. Transformer or startup Transformer	MP-P-1D via Emergency diesel generator #2	Portable generator	Portable generator on site. Need to develop the procedure to connect to the repeater
Operations Radio System Receivers	MP-P-1D via Aux. Transformer or startup Transformer	MP-P-1D via Emergency diesel generator #2	Portable generator	Portable generator on site. Need to develop the procedure to connect to the repeater

## **Attachment 8-- Peach Bottom Station, Units 2 and 3 Communications During an Extended Loss of AC Power**

**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

**Peach Bottom Atomic Power Station (PBAPS)**

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**Dates of Assessment:**  
**09/17/2012**

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**Assessment Conducted By:**

<b>Jesse Lucas</b>	<b>LRE – Peach Bottom Fukushima</b>
<b>Name</b>	<b>Title</b>

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<b>Doug Striebig</b>	<b>EP Coordinator</b>
<b>Name</b>	<b>Title</b>

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<b>Nick Alexakos</b>	<b>EP Manager</b>
<b>Name</b>	<b>Title</b>

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**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 8.**

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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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?	Refer to Following Section for Additional Information
Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Yes - EOF is greater than 25 miles from Peach Bottom.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Yes - EOF is greater than 25 miles from Peach Bottom.	None	N/A

**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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Location(s) where HPN communications are performed	1 for HPN Communicator	HPN Line (TSC and EOF)	TSC: No - Assumed not available EOF: Yes - EOF is greater	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available EOF: Yes – EOF is greater	TSC: Satellite trailer with compatible cell phones	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
			than 25 miles from Peach Bottom.		than 25 miles from Peach Bottom.	EOF: None	

**4.1.3** 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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per unit	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> <li>450 MHz Radio System</li> <li>Directors Hot Line</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
Technical Support Center (TSC)	1 each for: <ul style="list-style-type: none"> <li>Senior/Lead TSC Manager</li> <li>Operations Coordination</li> </ul>	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Station radios</li> </ul>	See Sections 1, 2 and 3



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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	<ul style="list-style-type: none"> <li>• Maintenance Coordination</li> <li>• Engineering Coordination</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 Response Coordination.</li> </ul>	<ul style="list-style-type: none"> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• 450MHz Radio System</li> <li>• Directors Hot Line</li> </ul>		<p>Exelon’s redundant capabilities when communicating from an ERF to an ERF.</p> <p>Technical Conference line only works between TSC and EOF.</p>		(talk around channel)	
Operational 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>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• 450 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon’s redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
Emergency Operations Facility (EOF)	<p>1 each for:</p> <ul style="list-style-type: none"> <li>• Senior/Lead Manager</li> <li>• Key Protective</li> </ul>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Yes – EOF is greater than 25 miles from Peach Bottom	Any combination of the communications systems listed in the primary method	Yes – EOF is greater than 25 miles from Peach Bottom	None	N/A

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	Measures <ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Directors Hot Line</li> </ul>		column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.  Technical Conference line only works between TSC and EOF.			
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>• Local commercial telephone system</li> </ul>	Yes - JIC is greater than 25 miles from Peach Bottom.	Face to face with EOF staff.	Yes	None	N/A

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	<u>EOF:</u> EOF Coatesville, PA  Satellite phone / radio system	<u>EOF:</u> Yes  The EOF uses a back-up generator that would be assumed operable in	<ul style="list-style-type: none"> <li>• Facility PBX Telephone system</li> <li>• Local commercial telephone system</li> </ul>	TSC:  Assumed not available	EOF:  No improvement necessary.   TSC:	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
		<p><u>TSC:</u>            - Delta, PA            PA, stations use a plant PBX or a local commercial phone system to access a satellite phone network to communicate with the FMT.</p> <ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	<p>accordance with the guidance of NEI-12-01. As this is a satellite system it would remain operable.</p> <p>TSC:            No            Assumed Inoperable</p>			<p>Satellite trailer with compatible cell phones</p>	
<p>Primary location from which field / offsite monitoring teams are deployed</p>	<p>1 for each field/offsite monitoring team</p>	<p>Field Monitoring Team Vehicle            Satellite Phones / Radios</p>	<p>Yes – Satellite system used to transmit information to the TSC and EOF.</p>	<p>FMT cell phones</p>	<p>Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.</p>	<p>None</p>	<p>N/A</p>

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**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.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 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>	<b>Refer to Following Section for Additional Information</b>
Primary location where communication with Federal agencies is performed	Coordination with Federal agencies	All Exelon TSCs and EOFs <ul style="list-style-type: none"> <li>• Plant/Facility PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	EOF: Yes - EOF is greater than 25 miles from Peach Bottom  TSC: No - Assumed not available	None	N/A	EOF:  No improvement necessary.  TSC:  Satellite trailer with compatible cell phones	See Section 1

**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.

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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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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 and strategies)	<ul style="list-style-type: none"> <li>• 450 MHz Radio System</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3
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 per unit for: <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and Rescue</li> <li>• Emergency repairs</li> </ul> Site-specific number needed to implement any 2 severe accident mitigation strategies	<ul style="list-style-type: none"> <li>• 450 MHz Radio System</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

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4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None - Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial Telephone system</li> </ul>	Assumed not available	None	N/A

**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the “Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information” letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security

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- i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team satellite radio/phones system, satellite trailer and cell phones.
  - c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.
    - i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
  - a. Exelon will use current station hand held radios using the “Talk Around” Frequency.
3. This assessment has verified that expected reliance upon “multi-use” equipment is minimized.
  - a. The communications equipment selected for Exelon is a diverse communications plan. The satellite trailer and cell phones, Station Talk Around radios, face to face and bull horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators. Methods to extract the fuel will be developed.
2. Assess battery-operated equipment:



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- a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their “Emergency Preparedness Resource Manual” to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone Directories and instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon’s Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon’s telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.

## **Section 1 –Emergency Response Communication Systems (Current Capabilities)**

### **Satellite Phones:**

#### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Peach Bottom and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of an LSEE.

#### **On Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency has been programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however should work in most areas of the plant and protected area.

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Communications Systems/Equipment	System/Equipment Description
<p>Sound Powered Telephone system (NOT currently required in EP plan)</p>	<p>There are no Sound-Powered Telephone Subsystems (Channels) used on site.</p> <p>PBAPS requires further evaluation to determine if an existing patch cord panel used for point to point sound powered or normal phones for testing purposes can be modified for use as a sound powered phone system.</p>
<p>Radio System (450 MHz nominal)</p>	<p>The 450 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.</p> <p>A fixed base radio system with multiple channels provides primary/backup outside communication capability.</p> <p>A separate group of fixed radio channels provides primary/backup communications between in-plant user groups. These channels function through a distributed antenna system located on-site to ensure proper coverage of the area.</p> <p>The fixed base radio repeaters, antenna system, and radio consoles are powered from a variety of emergency AC buses (diesel backup) and dedicated alternate battery supplies.</p> <p>This system consists of 3 main parts; the radio consoles, the transmitter/receiver repeaters, and the portable hand-held radios. The radio consoles are located in various locations throughout the site such as, the Secondary Alarm Station (SAS), Central Alarm Station (CAS), Emergency Operations Facility (EOF), Technical Support Center (TSC) and the Control Room. Each transmitter / receiver repeater provides one communications channel (frequency) at PBAPS.</p> <p>There are 5 user radio channels connected to the Distributed Antenna System at PBAPS:</p> <ul style="list-style-type: none"> <li>- Operations 1 (451 / 456.150)</li> <li>- Emergency Planning (451 / 456.075)</li> <li>- Security 1 (451 / 456.025)</li> <li>- ACS / Fire (451 / 456.1875)</li> <li>- Maintenance (451 / 456.250)</li> </ul>

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<b>Communications Systems/Equipment</b>	<b>System/Equipment Description</b>
	<p>These radio channels are provided by repeaters connected to the distributed antenna system. Radio repeaters are located in the Unit 2 Turbine Bldg., Fan Room, Elev. 195'.</p> <p>The portable radios are low-power on transmit to prevent interference with plant equipment. The radio signals within the plant are carried via a system of interconnect coax and antennas. This distributed antenna system consists of coax, splitters, and antennas which are connected to the antenna combiner network. The antenna combiner network is located in the Unit 2 Turbine Bldg., Fan Room, Elev. 195'.</p> <p>Existing portions of the radio system are on emergency AC power or internal batteries to ensure operation in an emergency. (Ref. E-1314 sheet 1A)</p>

**Section 2 – Equipment Location (Current Configuration)**

An assessment of the Sound Powered (SP) Phone system is required. This assessment is to evaluate “Reasonably Protected” as defined above. The assessment shall validate survivability of the main control points of the system. The wiring to and from the control points DO NOT require assessment.

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
Sound Powered Phone System	N/A	N/A	N/A	N/A	Peach Bottom does not have a Sound Powered Phone System
Radio System: Radio Consoles	Main Control Room – El. 165' (U2 and U3)	Yes – The Main Control Room is a Class 1 Structure	Yes – Control Room is located on El. 165' and the flood plane for PBAPS is 135'	Yes – The Main Control Room is a Class 1 Structure	Power Supplies located in Cable Spreading Room. Backup batteries located in 1 <sup>st</sup> Floor Admin Building.
Radio System: Transmitter / Receiver Repeaters	Fan Room – Turbine Bldg. El. 195' (U2)	No – The Turbine Building is not a Class I Structure	Yes – Fan Room is located on El. 195' and the flood plane for PBAPS is 135'	No – The Turbine Building is not a Class I Structure	Power Supplies and Cabinets are in Fan Room, except 00C450 is in Cable Spreading Room.
Radio System: Distributed Antenna System	Fan Room – Turbine Bldg. El. 195' (U2)	No – The Turbine Building is not a Class I Structure	Yes – Fan Room is located on El. 195' and the flood plane for PBAPS is 135'	No – The Turbine Building is not a Class I Structure	00Y007 is in the Fan Room.

**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			Comments
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	
Radio System: Radio Consoles	20Y096 (1US4) and 30Y096 (3US4)	20Y096 (1US4) and 30Y096 (3US4)	Yes 20D346 and 30D346  30 min at 100 kw load	Buses are cross-tied, swap to alternate bus if either fails  00C854 – Main Control Room Command Console 00C855 – Control Room Chief Operators Console 00S802 – LAN Communication Cabinet
Radio System: Transmitter / Receiver Repeaters	20Y050 (20D037) 00C1017 (20Y50) 00D398 (00Y007) 00D400 (00Y007)	Inverter 20D037 normal supply is 2BD018, alternate supply is E124-R-C	2BD018 is 250 Vdc ; 00D398, 00D400 are Battery Cabinets	00C450 – Radio Cabinet 00C1016 – Radio Repeater OPS1 00C1014 – Radio Repeater OPS2 00S698 – Radio Channel EP Repeater
Radio System: Distributed Antenna System	00Y007 (3PS4-W-C)	N/A	3PS4 is cross-tied to two sources	Antenna Bi-Directional Amplifier 0-22-6ATB001

## **Attachment 9-- Quad Cities Station, Units 1 and 2 Communications During an Extended Loss of AC Power**



**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

**Quad Cities Station**

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**Dates of Assessment:**  
**09/19/12 thru 10/27/12**

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**Assessment Conducted By:**

<b>Russ Black</b>	<b>Senior Cyber Security Engineer</b>
<b>Name</b>	<b>Title</b>

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<b>Dustin Damhoff</b>	<b>Fukushima LRE</b>
<b>Name</b>	<b>Title</b>

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<b>Stephen Merrell</b>	<b>Quad Cities EP Manager</b>
<b>Name</b>	<b>Title</b>

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**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 1.

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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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?	Refer to Following Section for Additional Information
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Yes – EOF is greater than 25 miles from Quad Cities Station.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Yes - EOF is greater than 25 miles from Quad Cities Station.	N/A	See Section 1

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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Location(s) where HPN communications are performed	1 for HPN Communicator	HPN Line (TSC and EOF)	TSC: Assumed not available EOF: Yes – EOF is greater than 25 miles from Quad Cities Station.	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: Assumed not available. EOF: Yes - EOF is greater than 25 miles from Quad Cities Station.	TSC: Satellite trailer with compatible cell phones EOF: None	See Section 1

**4.1.3** 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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room  Control Room	1 per unit	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> <li>Directors Hotline</li> <li>900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Sound powered phones</li> <li>Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
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>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• Operations Status Line</li> <li>• Director Hotline</li> <li>• Technical Conference Line</li> <li>• State Link Phone</li> <li>• 900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.  Technical Conference Line only works between TSC and EOF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Operational Support Center (OSC)	1 each for: <ul style="list-style-type: none"> <li>• Senior/Lead OSC Manager</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 In-Plant Team Coordination.</li> </ul>	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Damage Control Line</li> <li>• 900 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>• Satellite trailer with compatible cell phones</li> <li>• Station radios (talk around channel)s</li> </ul>	See Sections 1, 2 and 3
Emergency Operations Facility (EOF)	1 each for: <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>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Operations Status Line</li> <li>• Technical Conference Line</li> <li>• Directors Hotline</li> <li>• State Link Phone</li> </ul>	Yes – EOF Is greater than 25 miles from Quad Cities Station.	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.  Technical Conference Line only works between TSC and EOF.	Yes – EOF is greater than 25 miles from Quad Cities Station.	None	N/A

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>Local commercial telephone system</li> </ul>	Yes – JIC is greater than 25 miles from Quad Cities Station.	Face to face with EOF staff	Yes	None	N/A

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	<u>EOF</u> EOF Cantera, IL: Satellite phone / radio system  <u>TSC:</u> - Quad Cities, IL: Satellite phone / radio system.  <ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available.  EOF: Yes - EOF is greater than 25 miles from Quad Cities Station.	<ul style="list-style-type: none"> <li>Facility PBX Telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available.  EOF: Yes – EOF is greater than 25 miles from Quad Cities Station.	TSC: Satellite trailer with compatible cell phones  EOF: None	See Section 1



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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Team Vehicle satellite phones / radios	Yes – A satellite system used to transmit information to the TSC and EOF.	FMT cell phones	Assumed not available due to off site infrastructure is presumed out of service within 25 miles from the station.	TSC: Satellite trailer with compatible cell phones  EOF: None	N/A

**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.9.b]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	All Exelon TSCs and EOFs <ul style="list-style-type: none"> <li>• Plant/Facility PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	TSC – No Assumed not available.  EOF: Yes – EOF is greater than 25 miles from Quad Cities Station.	None	N/A	TSC: Satellite trailer with compatible cell phones  EOF: None	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.

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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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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 and strategies)	<ul style="list-style-type: none"> <li>• 900 MHz Radio System</li> <li>• Plant PBX telephone system</li> <li>• Sound powered phones</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3
Operational Support Center (OSC) and other site-specific locations as necessary	<p>1 each for:</p> <ul style="list-style-type: none"> <li>• On-site radiological monitoring</li> </ul> <p>2 each for:</p> <ul style="list-style-type: none"> <li>• Firefighting (1 for brigade leader and 1 for the brigade)</li> </ul> <p>2 each per unit for:</p> <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and Rescue</li> <li>• Emergency repairs</li> </ul> <p>Site-specific number needed to implement any 2 severe accident mitigation strategies</p>	<ul style="list-style-type: none"> <li>• 900 MHz Radio System</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

4.2 Plant Paging (Announcement) System

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Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None – Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	None	N/A

**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the “Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information” letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team satellite radio/phones system, satellite trailer and cell phones.
  - c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.

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- i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
- a. Exelon will use current station hand held radios using the “Talk Around” Frequency.
3. This assessment has verified that expected reliance upon “multi-use” equipment is minimized.
- a. The communications equipment selected for Exelon is a diverse communications plan. The Satellite trailer and cell phones, Station Talk Around radios, sound powered phones, face to face and Bull Horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their “Emergency Preparedness Resource Manual” to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone directories and instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.

## **Section 1 –Emergency Response Communication Systems (Current Capabilities)**

### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Quad Cities Station and 28 compatible cell phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of an LSEE.

### **On Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency has been programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

### **Sound Powered Phones:**

Sound Powered Phones are available in specific site locations and will be used for Operations functions. The Sound Powered Phone system is located within a safety-related structure and headsets are stored inside the control room and other locations within the plant. Sound Powered Phones do not require power and are used for critical communications between the Control Room and Operators in the field. The sound-powered phones provide an alternate method for on-site communications following a LSEE that minimizes the level of communication traffic on the plant radio (Talk Around) system.

Further assessments are required to determine if sound powered phone jacks are available in all locations where Operator actions are required during an SBO.

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**Face-to-face Communications:**

Following an LSEE, face-to face communications between the Control Room and TSC/OSC personnel will not be available due to the distance between and location of the TSC/OSC in reference to the Control Room.

<b>Communications Systems/Equipment</b>	<b>System/Equipment Description</b>
Sound Powered Telephone system (NOT currently required in EP plan)	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There are 120 Sound-Powered Telephone Subsystems (Channels) used on site.
900 MHz Radio System	The 900 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.



**Section 2 – Equipment Location (Current Configuration)**

**An assessment of the Sound Powered (SP) Phone system is required. This assessment is to evaluate “Reasonably Protected” as defined above. The assessment shall validate survivability of the main control points of the system. The wiring to and from the control points DO NOT require assessment.**

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Sound Powered Telephone system	Main control room 623' elevation of Service building	Yes – The Control Room is a Class 1 Structure.	Yes – The Control Room is located above the max flood elevation.	Yes – The Control Room is a Class 1 Structure.	Jacks located throughout the site. Max Flood EL 603

**An assessment of the Operations Radio system (transmitters, antennas and receivers) from the Control Room to all areas of the plant where critical Operations SBO actions are performed.**

System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Operations Radio System Transceiver  Operations Radio system Antennas	Transceiver is in the penthouse on top of the Service building roof.  Active antennas are located:	Building has not been seismically assessed	Yes, Above Max Flood Elevation	No	Operations, Security, and EP use the same equipment.  Max Flood EL 603  References: Calc. QDC-9900-S-1404 Dwg. 4E-6818H rev A

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			Comments
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	
	1. Roof of the RX Building, SW corner  2. U1 Rx Bldg., 595' by X-1 hatch 3. U2 Rx Bldg., 595' by X-1 hatch 4. U1 Turb. Bldg., 611' above the Cond. Pit  5. U2 Turb. Bldg., 611' above the Cond. Pit  6. Rad. Waste, just on the other side of the High Rad. Door/gate.  7. U1 Turb. Bldg., 595', H13 Line by the stairs to TB Mezz 611'	1. Rx Bldg Seismic, mounting requires modification to meet seismic criteria 2. Yes, Seismic II/I  3. Yes, Seismic II/I  4. Turb. Bldg Seismic, mounting requires modification to meet seismic criteria 5. Turb. Bldg Seismic, mounting requires modification to meet seismic criteria 6. Unknown, Bldg has not been seismically assessed, mounting requires modification to meet seismic criteria  7. Turb. Bldg Seismic, mounting requires modification to meet seismic criteria	1. Yes, Above Max Flood Elevation  2. No  3. No  4. Yes, Above Max Flood Elevation  5. Yes, Above Max Flood Elevation  6. No  7. No	1. No  2. Yes, Class 1 Structure  3. Yes, Class 1 Structure  4. Yes, Not located near exterior wall  5. Yes, Not located near exterior wall  6. No  7. Yes, Not located near exterior wall	N/A

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System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Operations Radio System Amplifier and Repeater	Amplifier and repeater cabinet located on the 13 line of the 611' elevation of the Turbine Building between columns F and G.	Turb Bldg. Seismic, component located in cabinet which requires further evaluation to determine seismic acceptability	Yes - Above Max Flood Elevation	Yes - Not located near exterior wall	N/A

**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Sound Powered Telephone system	N/A	N/A	N/A	N/A
Operations Radio System Transceiver	Power to the main unit in the Penthouse on top of the Service building comes from local distribution panel D which is fed from the 480V MCC in the penthouse. Ultimate power source is 13.8Kv system through transformer T42R-3.	N/A	N/A	4E-903B rev Q 4E-907A rev F  T42R-3 is at Grade (595), max flood EL 603, thus vulnerable to flooding
Operations Radio System Amplifier and Repeater	Power to the amplifier and repeater is from MCC 28-2-1 ckt 5.		Station Emergency Diesel Generator.	4E-2334 rev AC, 4E-2676A rev AF, 4E-6818B (SGI), 4E-7504C rev X

## **Attachment 10-- Three Mile Island Station, Unit 1 Communications During an Extended Loss of AC Power**

**Station Response - NRC Request for Information (Current Station Emergency Communication Systems)**

**Three Mile Island Station**

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**Dates of Assessment:**  
**9/19-12 – 9/21/12**

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**Assessment Conducted By:**

<b>Earl Showalter</b>	<b>Electrical Design Engineer -TMI</b>
<b>Name</b>	<b>Title</b>

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<b>Curtis Armer</b>	<b>System Engineer Communications - TMI</b>
<b>Name</b>	<b>Title</b>

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**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 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, the sections referred to in the Additional Information column (column 8) are included at the end of Attachment 10.

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

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?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for Key TSC Communicator	Nuclear Accident Reporting System	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell	See Section 1



Attachment 10 – Three Mile Island

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?	Refer to Following Section for Additional Information
		(NARS)		<ul style="list-style-type: none"> <li>Local commercial telephone system</li> </ul>		phones	
Emergency Operations Facility (EOF)	1 for Key EOF Communicator	Nuclear Accident Reporting System (NARS)	Yes, EOF is greater than 25 miles from Three Mile Island Station	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Yes, EOF is greater than 25 miles from Three Mile Island Station	Satellite trailer with compatible cell phones	See Section 1

**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.IV.D and E.9.d]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per Control Room for Shift Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1
Technical Support Center (TSC)	1 for ENS Communicator	NRC Communications (ENS)	Assumed not available	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local Commercial telephone system</li> </ul>	Assumed not available	Satellite trailer with compatible cell phones	See Section 1

Attachment 10 – Three Mile Island

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Location(s) where HPN communications are performed	1 for HPN Communicator	HPN Line (TSC and EOF)	TSC: No - Assumed not available  EOF: Yes - EOF is greater than 25 miles from Three Mile Island Station	<ul style="list-style-type: none"> <li>Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available  EOF: EOF is greater than 25 miles from Three Mile Island Station	Satellite trailer with compatible cell phones	See Section 1

**4.1.3** 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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
Control Room	1 per unit	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Sound Powered Phones</li> <li>Station Radios (talk around</li> </ul>	See Sections 1, 2 and 3

Attachment 10 – Three Mile Island

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
		<ul style="list-style-type: none"> <li>Director's Hotline</li> <li>456 MHz Radio System</li> </ul>		an ERF to an ERF.		channel)	
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>	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> <li>Operations Status Line</li> <li>Technical Conference Line (between TSC and EOF)</li> <li>Director's Hotline</li> <li>456 MHz Radio System</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Station radios (talk around channel)</li> </ul>	See Sections 1, 2 and 3
Technical Support Center (TSC)	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>						
Operational Support Center (OSC)	1 each for: <ul style="list-style-type: none"> <li>Senior/Lead OSC Manager</li> <li>Radiological Support</li> </ul> Additional response	<ul style="list-style-type: none"> <li>Plant PBX telephone system</li> <li>Local commercial telephone system</li> <li>Damage Control Line</li> </ul>	Assumed not available	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant	Assumed not available	<ul style="list-style-type: none"> <li>Satellite trailer with compatible cell phones</li> <li>Station radios (talk around</li> </ul>	See Sections 1, 2 and 3

Attachment 10 – Three Mile Island

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
	coordination links for multi-unit sites: <ul style="list-style-type: none"> <li>• 1 for each position providing Unit In-Plant Team Coordination.</li> </ul>	<ul style="list-style-type: none"> <li>• 456 MHz Radio System</li> </ul>		capabilities when communicating from an ERF to an ERF.		channel)s	
Emergency Operations Facility (EOF)  Emergency Operations Facility (EOF)	1 each for: <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>	<ul style="list-style-type: none"> <li>• Facility PBX telephone system</li> <li>• Local commercial telephone system</li> <li>• Operations Status Line</li> <li>• Technical Conference Line (between TSC and EOF)</li> <li>• Director's Hotline</li> </ul>	EOF: Yes - EOF is greater than 25 miles from Three Mile Island Station	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an ERF to an ERF.	EOF: Yes - EOF is greater than 25 miles from Three Mile Island Station	None	See Section 1
Joint Information Center (JIC)	1 for Senior Manager	<ul style="list-style-type: none"> <li>• Local commercial telephone system</li> </ul>	Coatesville, PA: Yes, JIC is greater than 25 miles from Three Mile Island Station	Face to face with EOF staff	Yes	Satellite trailer with compatible cell phones	See Section 1

Attachment 10 – Three Mile Island

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

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	<u>EOFs:</u> EOF Coatesville, PA Satellite phone / radio system  <u>TSC:</u> - TMI, PA  PA, stations use a plant PBX or a local commercial phone system to access a satellite phone network to communicate with the FMT.  <ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	TSC: No - Assumed not available  EOF: Yes - EOF is greater than 25 miles from Three Mile Island Station	<ul style="list-style-type: none"> <li>• Facility PBX Telephone system</li> <li>• Local commercial telephone system</li> </ul>	TSC: Assumed not available  EOF: Yes - EOF as it is greater than 25 miles from Three Mile Island Station	TSC: Satellite trailer with compatible cell phones  EOF: No improvement necessary.	See Section 1
Primary location from which field / offsite monitoring teams are deployed	1 for each field/offsite monitoring team	Field Monitoring Teams: Satellite phones / radios	TSC: No - Assumed not available	FMT cell phones	TSC: No - Assumed not available	TSC: Satellite trailer with compatible cell phones	See Section 1

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Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
			EOF: Yes - EOF is greater than 25 miles from Three Mile Island Station		EOF: Yes - EOF is greater than 25 miles from Three Mile Island Station	EOF: None	

**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.9.b*]

Emergency Response Facility	Minimum Communications Links	Primary Method Described in site E-Plan	Primary Method Available following Assumed LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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	TSC and EOF <ul style="list-style-type: none"> <li>Plant/Facility PBX telephone system</li> <li>Local commercial telephone system</li> </ul>	TSC: No - Assumed not available  EOF: Yes - EOF is greater than 25 miles from Three Mile Island Station	None	NA	TSC: Satellite trailer with compatible cell phones  EOF: None	See Section 1

**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.

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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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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 and strategies)	<ul style="list-style-type: none"> <li>• 456 MHz Radio System</li> <li>• Plant PBX telephone system</li> <li>• Sound powered phones</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3
Operational Support Center (OSC) and other site-specific locations as necessary	<p>1 each for:</p> <ul style="list-style-type: none"> <li>• On-site radiological monitoring</li> </ul> <p>2 each for:</p> <ul style="list-style-type: none"> <li>• Firefighting (1 for brigade leader and 1 for the brigade)</li> </ul> <p>2 each per unit for:</p> <ul style="list-style-type: none"> <li>• In-plant radiological monitoring</li> <li>• Search and Rescue</li> <li>• Emergency repairs</li> </ul> <p>Site-specific number needed to implement any 2 severe accident mitigation strategies</p>	<ul style="list-style-type: none"> <li>• 456 MHz Radio System</li> <li>• Plant PBX telephone system</li> </ul>	See Sections 2 and 3	Any combination of the communications systems listed in the primary method column comprises Exelon's redundant capabilities when communicating from an OSC to in field responders.	See Sections 2 and 3	Evaluation is necessary to determine any site specific improvements required.	See Sections 2 and 3

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4.2 Plant Paging (Announcement) System

Emergency Response Facility	Minimum Communications Links	Is this system available following assumed LSEE?	Planned or Potential Improvement Identified?	Refer to Following Section for Additional Information
N/A	See assumptions and discussion in NEI 12-01.	Assumed not available	None - Exelon procedures provide guidance on compensatory measures for inoperable PA speakers to meet requirements for site evacuation. Example, bull horns and battery operated radios may be used to notify site personnel when an emergency is declared, reclassified, or terminated.	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 LSEE?	Backup Method(s) Described in site E-Plan	Backup Method(s) Available following Assumed LSEE?	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.	Nuclear Accident Reporting System (NARS)	Assumed not available	<ul style="list-style-type: none"> <li>• Plant PBX telephone system</li> <li>• Local commercial telephone system</li> </ul>	Assumed not available	None	N/A



**Considerations for performing the communications assessment and identifying enhancements:**

**4.4 NOTIFICATION OF THE EMERGENCY RESPONSE ORGANIZATION (ERO)**

This area was previously assessed; information for all ten Exelon stations was provided to the NRC via the “Ninety-Day Response to Recommendation 9.3 of 10CFR50.54 (f) Request for Information” letter dated June 11, 2012.

No further assessment activities are required for this assessment area.

**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 adequacy of equipment storage and locations is ongoing, and is yet to be finalized. The Interim Staff Guidance for FLEX equipment was issued, by the NRC on August 30, 2012. All equipment storage locations will be assessed to the guidance below:

1. To be assumed operable, a piece of on-site communications equipment 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 equipment itself does not need to be seismically qualified.
2. Equipment should be stored, or otherwise available, in locations that can be readily accessed when needed. To the degree practical, consider potential constraints to equipment access or movement when selecting a storage location.
3. When selecting storage locations, consider 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).

The above 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:**

1. This assessment has confirmed that once the communications enhancements have been implemented, the systems and equipment identified for usage will support communications among and between:
  - a. Licensee emergency response facilities, including Security
    - i. Satellite trailer and cell phones, station Talk Around radios.
  - b. Field/offsite monitoring teams and the location controlling deployment of the teams (e.g., the EOF)
    - i. Field/offsite Monitoring Team satellite radio/phones system, satellite trailer and cell phones.

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- c. The Shift Communicator, Key TSC and EOF Communicators, and the ORO contact points.
    - i. Satellite trailer and cell phones will be assigned to each Shift Communicator, TSC and EOF Communicators. Currently State and County agencies do not have satellite communications capability from their contact point locations.
  - d. ENS and HPN communicators and the NRC staff.
    - i. Satellite trailer and cell phones.
  - e. On-site and In-plant teams and the location controlling deployment of the teams (e.g., the OSC).
    - i. Satellite trailer and cell phones, Station Talk Around radios, face to face, bull horns.
2. This assessment has verified that the radio system used by the ERO personnel possesses the necessary design and operating characteristics to adequately support emergency communications.
- a. Exelon will use current station hand held radios using the “Talk Around” Frequency.
3. This assessment has verified that expected reliance upon “multi-use” equipment is minimized.
- a. The communications equipment selected for Exelon is a diverse communications plan. The Satellite trailer and cell phones, Station Talk Around radios, sound powered phones, face to face and bull horns used by ERO personnel possess the necessary design and operating characteristics to adequately support emergency communications.

**4.7 OTHER ASSESSMENT CONSIDERATIONS:**

1. Portable backup AC power source(s) for communications systems and components have been assessed, and in accordance with final rulemaking:
  - a. Portable generators have been dedicated and readily available onsite to provide AC power for portable radios and satellite phone batteries.
  - b. Sufficient power source fuel is available on-site to support the dedicated portable diesel generators.
2. Assess battery-operated equipment:
  - a. Enhancements have been identified and will be captured in a communications strategy document that will meet the requirements of 4.7.
3. Any manual actions that will need to be taken by emergency responders to facilitate the use of communications links if their use becomes necessary will be captured in a communications strategy document.
4. Exelon has contacted the Institute of Nuclear Power Operations (INPO) to identify communications equipment that may be obtained from industry sources. INPO replied as follows:
  - a. During an emergency, contact INPO and request communications equipment needs. INPO will work with the industry to acquire the requested communications equipment.
  - b. INPO in the near future will update their “Emergency Preparedness Resource Manual” to reflect communications equipment, B5B equipment and Flex Equipment.

This information will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone directories and instructions.

**4.8 QUALITY AND MAINTENANCE-RELATED REQUIREMENTS:**

1. Exelon's Emergency Plan (EP-AA-1000) and its Implementing Procedures (EP-AA-124 and EP-AA-124-1001) will provide the controls and specific requirements for implementing the programmatic controls.
2. Supporting contracts and Master Service Agreements are periodically verified (most on an annual basis) for Exelon's telecommunications services. Contracts and Master Service Agreements are stored in the Exelon Passport and Documentum Systems.
3. The guidance contained in INPO 10-007, Equipment Important to Emergency Response, for applicability to the communications systems, related power sources, and infrastructure has been reviewed as part of this assessment and has validated current communications system applicability.

**4.9 NATIONAL COMMUNICATIONS SYSTEM (NCS) SERVICE:**

Exelon has arrangements in place to utilize the services offered by the NCS. These services include the Government Emergency Telecommunications Service (GETS). GETS cards have been made available to Exelon key positions in station and corporate leadership.

**4.10 COMMUNICATIONS PROVIDER EMERGENCY SERVICES:**

Exelon is in the process of evaluating our current phone provider's emergency service.

**4.11 PERSONNEL TRAINING:**

Appropriate training will be developed for and provided to response personnel pertaining to location, purpose and use of the equipment.

## **Section 1 –Emergency Response Communication Systems (Current Capabilities**

### **Satellite Phones:**

#### **Off Site Communications:**

Following a Large Scale External Event (LSEE), satellite phone technology will be the primary method for communicating with offsite agencies such as NRC, State agencies (PEMA, IEMA, NJ), County EOCs, and other offsite organizations. Exelon is evaluating a satellite communications trailer with 28 cell phone line availability. The Satellite trailer will be stored within a structure approved for FLEX. This Satellite trailer is also equipped with a diesel generator for power operation. Exelon will purchase one (1) Satellite trailer for Three Mile Island Station and 28 compatible Cell Phones to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone. Cell phones will have spare batteries and battery chargers available for at least 24 hours of operation from the onset of an LSEE.

Exelon will purchase one (1) Satellite trailer with compatible cell phones for the Emergency Operations Facility (EOF) to be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

#### **On Site Communications:**

Following an LSEE, satellite phone technology will be the primary method for communicating with on-site Emergency Response Facilities (Control Room, TSC and OSC). Cell phones will be distributed among each of the locations/positions identified in this document where the Planned or Potential Improvement Identified column lists Cell Phone.

Exelon is in the process of evaluating what modifications will be necessary for installation of this system.

### **Talk Around Radio Frequency:**

Exelon will use current station hand held radios using the “Talk Around” Frequency. This frequency will be programmed on station handheld radios and will operate without the use of radio repeaters. The “Talk Around” frequency has limitations in respect to penetration of thick walls such as reactor building walls, however will work in most areas of the plant and protected area.

**Sound Powered Phones:**

Sound Powered Phones are available in specific site locations and will be used for Operations functions. The Sound Powered Phone system is located within a safety-related structure and headsets are stored inside the control room and other locations within the plant. Sound Powered Phones do not require power and are used for critical communications between the Control Room and Operators in the field. The sound-powered phones provide an alternate method for on-site communications following a LSEE that minimizes the level of communication traffic on the plant radio (Talk Around) system.

Further assessments are required to determine if sound powered phone jacks are available in all locations where Operator actions are required during an SBO.

Communications Systems/Equipment	System/Equipment Description
Sound Powered Telephone system (NOT currently required in EP plan)	The function of each Sound-Powered Telephone Subsystem (Channels) is to provide an independent, reliable communications system for plant personnel. Operation of this subsystem requires no outside power source, making it a highly dependable system. There is one Sound-Powered Telephone Subsystems (Channels) used on site.
Red Page Phones	The function is to provide communications to locations needed to bring the unit to cold shutdown during LOOP. Power is provided to the red page phone system from VBB which is powered from a Safety Related station battery and inverter.
450/800/900 MHz Radio System	The 456 MHz Radio System consists of hand-held and console radio communications, using a distributed antenna system operated by Operations, Maintenance, Security, Radiation Protection and Emergency Preparedness.

**Section 2 – Equipment Location (Current Configuration)**

An assessment of the Sound Powered (SP) Phone system is required. This assessment is to evaluate “Reasonably Protected” as defined above. The assessment shall validate survivability of the main control points of the system. The wiring to and from the control points DO NOT require assessment.

System/Equipment	Primary System Component Location (Identify location of SP Station Jack / Switchboard)	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Sound Powered Telephone system	Main Control Room  Remote Shutdown Panel	YES  The Control Tower and the Intermediate Building are Seismic Buildings	Yes  The Control Tower and the Intermediate Building are protected from Design Basis Floods (313.3' elevation)	Yes  The Control Tower and the Intermediate Building are protected for High Winds and Missiles	Also connects to Emergency FW Area in Intermediate Building Tested by 1303-13.3
Red Page Phone System	Main Control Room and Remote Shutdown Panel	Unknown  All buildings containing this system are Seismic Buildings except for one phone in the Aux. Building at 331' elevation. This phone could be removed or be normal switched out of service so that the rest of the system would be available post seismic event.	YES  All buildings containing this system are protected from Design Basis Floods (313.3' elevation)	Unknown  All buildings containing this system are protected from High Winds and Missiles except for one phone in the Aux. Building at 331' elevation. This phone could be removed or be normal switched out of service so that the rest of the system would be available post event.	Red Phones are at safety related buses (1D, 1E, 1P and 1S), Intake Pump and Screen house, D/G “A” and “B”, Intermediate Building near EFW, DH vaults “A” and “B”, Aux. Building 305', Aux. Building 331' Tested by 1303-13.3

**An assessment of the Operations Radio system (transmitters, antennas and receivers) from the Control Room to all areas of the plant where critical Operations SBO actions are performed.**

System/Equipment	Primary System Component Location	Equipment protected from the below hazards			
		Protected from Seismic as defined in this document	Protected from Flooding as defined in this document	Protected from Wind / Missiles	Comments
Operations 1 and Security Radio System Repeater and Distributed Antennas	Repeaters are on 322' elevation of Turbine Building behind the elevator	NO Unknown since Turbine Building has not been assessed to ASCE-7-10.	Unknown Repeater is protected (above flood elevation) but effect on flooding of the portion of the distributed antenna that is below flood level is not known	NO Repeater is shielded on three sides but not on the East side.	N/A
Maintenance/Radcon Radio System Repeater and Distributed Antennas	Repeater is on 322' elevation of Turbine Building behind the elevator	NO Unknown since Turbine Building has not been assessed to ASCE-7-10.	Unknown Repeater is protected (above flood elevation) but effect on flooding of the portion of the distributed antenna that is below flood level is not known	NO Repeater is shielded on three sides but not on the East side.	N/A
Operations 2 with External Antenna only	Pretreatment Building at 307' elevation	NO Unknown since Pretreatment Building has not been assessed to ASCE-7-10.	NO Repeater below flood elevation in non-flood protected building. Could be raised above flood level.	NO	This repeater covers the area outside the TMI concrete buildings (Reactor, Control, FH, Auxiliary, Diesel Generator and Intermediate Buildings).
Operations 3 and 4 Repeater and Distributed Antennas	Repeaters are on 322' elevation of Turbine Building behind the elevator	NO Unknown since Turbine Building has not been assessed to ASCE-7-10.	Unknown Repeater is protected (above flood elevation) but effect on flooding of the portion of the distributed antenna that is below flood level is not known	NO Repeater is shielded on three sides but not on the East side.	N/A

**Section 3 - Communication Equipment Power Sources**

System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Sound Powered Telephone system	N/A	N/A	N/A	N/A
Red Page Phone System	VBB Station battery of Class 1E AC feeds 1B inverter which feeds VBB	None	None in present design and plans	Flex alternate AC will supply power to inverter. Duration of Station battery under ELAP is still being calculated.
Operations 1 and Security Radio System Repeater and Distributed Antennas	SED-SEC-3 Breaker 17	None	SED-SEC-3 is powered from an inverter and its battery and the inverter is powered from a transfer switch which is powered from plant power or the Security diesel generator	Power supply is not seismic, is not protected from high winds and missiles and is not protected from design basis floods.
Maintenance/Radcon Radio System Repeater and Distributed Antennas	SED-SEC-4 Breaker 9	None	SED-SEC-4 is powered from a transfer switch which is powered from plant power or the Security diesel generator	Power supply is not seismic, is not protected from high winds and missiles and is not protected from design basis floods.



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System/Equipment	Equipment Power Source(s)			
	Primary Power Supply (List the power source)	Alternate Power Supply (List the power source)	Backup power availability (e.g., batteries, portable generators, etc.) Yes/No If batteries Indicate Hours	Comments
Operations 2 with External Antenna only	AB-E breaker 13 AB-E is powered from 1C ESV CC which is backed by class 1E diesel generators	None	NO	Power supply is seismic, is protected from high winds and missiles and is protected from design basis floods.
Operations 3 and 4 Repeater and Distributed Antennas	SED-SEC-4 Breaker 9	None	SED-SEC-4 is powered from a transfer switch which is powered from plant power or the Security diesel generator	Power supply is not seismic, is not protected from high winds and missiles and is not protected from design basis floods.

**Attachment 11 – Milestone Schedule for EP Communications Equipment Installation**

Station	Fall 2013	Spring/Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016
			Install prior to startup from outage...			
Braidwood		Receive Satellite trailer and cell phones		<b>A2R18</b>		
Byron		Receive Satellite trailer and cell phones		<b>B1R20</b>		
Clinton		Receive Satellite trailer and cell phones	<b>C1R15</b>			
Dresden		Receive Satellite trailer and cell phones				<b>D3R24</b>
LaSalle		Receive Satellite trailer and cell phones			<b>L1R16</b>	
Limerick		Receive Satellite trailer and cell phones			<b>LiR16</b>	
Oyster Creek		Receive Satellite trailer and cell phones				<b>OC1R26</b>
Peach Bottom		Receive Satellite trailer and cell phones				<b>P2R21</b>
Quad Cities		Receive Satellite trailer and cell phones			<b>Q2R23</b>	
TMI		Receive Satellite trailer and cell phones		<b>T1R21</b>		

- Equipment will be installed during the 2<sup>nd</sup> outage (shown in bold)
- Non-outage work is not shown; it will be completed prior to the installation outage.

**Attachment 12 – Summary of Regulatory Commitments**

The following table identifies commitments made in this document. Any other actions discussed in this submittal represent intended or planned actions. They are described to the NRC for information only and are not regulatory commitments.

Commitment	Committed Date/Outage	Commitment Type	
		One-Time Action (Yes/No)	Programmatic (Yes/No)
1. Exelon Generation Company, LLC (EGC) will install EP communications equipment as described in Attachment 1 (Planned or Potential Improvement Identified column) at the Braidwood Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	A2R18 (Fall 2015)	Yes	No
2. EGC will install EP communications equipment as described in Attachment 2 (Planned or Potential Improvement Identified column) at the Byron Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	B1R20 (Fall 2015)	Yes	No
3. EGC will install EP communications equipment as described in Attachment 3 (Planned or Potential Improvement Identified column) at the Clinton Power Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	C1R15 (Spring 2015)	Yes	No

**Attachment 12 – Summary of Regulatory Commitments**

Commitment	Committed Date/Outage	Commitment Type	
		One-Time Action (Yes/No)	Programmatic (Yes/No)
4. EGC will install EP communications equipment as described in Attachment 4 (Planned or Potential Improvement Identified column) at the Dresden Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	D3R24 (Fall 2016)	Yes	No
5. EGC will install EP communications equipment as described in Attachment 5 (Planned or Potential Improvement Identified column) at the LaSalle Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	L1R16 (Spring 2016)	Yes	No
6. EGC will install EP communications equipment as described in Attachment 6 (Planned or Potential Improvement Identified column) at the Limerick Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	LiR16 (Spring 2016)	Yes	No
7. EGC will install EP communications equipment as described in Attachment 7 (Planned or Potential Improvement Identified column) at the Oyster Creek Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	OC1R26 (Fall 2016)	Yes	No

**Attachment 12 – Summary of Regulatory Commitments**

Commitment	Committed Date/Outage	Commitment Type	
		One-Time Action (Yes/No)	Programmatic (Yes/No)
8. EGC will install EP communications equipment as described in Attachment 8 (Planned or Potential Improvement Identified column) at the Peach Bottom Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	P2R21 (Fall 2016)	Yes	No
9. EGC will install EP communications equipment as described in Attachment 9 (Planned or Potential Improvement Identified column) at the Quad Cities Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	Q2R23 (Spring 2016)	Yes	No
10. EGC will install EP communications equipment as described in Attachment 10 (Planned or Potential Improvement Identified column) at the Three Mile Island Station, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	T1R21 (Fall 2015)	Yes	No
11. EGC will install EP communications equipment as described in Attachment 7 (Planned or Potential Improvement Identified column) at the Tom's River EOF, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	OC1R26 (Fall 2016)	Yes	No

**Attachment 12 – Summary of Regulatory Commitments**

Commitment	Committed Date/Outage	Commitment Type	
		One-Time Action (Yes/No)	Programmatic (Yes/No)
12. EGC will install EP communications equipment as described in Attachment 6 (Planned or Potential Improvement Identified column) at the Coatesville EOF, and complete appropriate training to response personnel and corporate ERO members pertaining to location, purpose and use of the communications equipment.	LiR16 (Spring 2016)	Yes	No
13. Information detailing specialized equipment available from member utilities and supplier participants in an emergency will be made available to EP Managers and Logistics Coordinators via Emergency Response Facilities phone directories and instructions.	10/31/2014	No	Yes
14. Create communications strategy document that will meet the requirements of NEI 12-01 step 4.7.	12/31/2014	No	Yes