



# ENERGY NORTHWEST

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GO2-12-156

10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
11555 Rockville Pike  
Rockville, MD 20852

**Subject: COLUMBIA GENERATING STATION, DOCKET NO. 50-397  
ENERGY NORTHWEST'S RESPONSE TO THE MARCH 12, 2012  
INFORMATION REQUEST – COMMUNICATIONS ASSESSMENT**

- Reference: 1) Letter dated March 12, 2012, from EJ Leeds (NRC) to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident"
- 2) Letter, GO2-12-069, dated May 10, 2012, AL Javorik (Energy Northwest) to NRC, "Energy Northwest's 60 Day Response to the March 12, 2012 Information Request Related to Recommendation 9.3"
- 3) Letter, GO2-12-083, dated June 11, 2012, AL Javorik (Energy Northwest) to NRC, "Energy Northwest's 90 Day Response to the March 12, 2012 Information Request Related to Recommendation 9.3"

Dear Sir or Madam:

In Reference 1, the NRC issued the Request for Information for Near-Term Task Force Recommendations related to the Fukushima Dai-ichi accident. In Reference 2, Energy Northwest provided an alternate course of action and completion dates associated with Recommendation 9.3 for Emergency Preparedness (EP) programs. Energy Northwest committed to provide the Communications Assessment and an implementation schedule by October 31, 2012. Attachment 1 to this letter provides the response to the request for information related to recommendation 9.3, "Emergency Preparedness Communications" and includes the Communications Assessment along with the planned implementation schedule.

Attachment 2 identifies new and revised commitments resulting from the Communications Assessment. If you have any questions or require additional information, please contact Mr. Z. K. Dunham at (509) 377-4735.

AV45  
NRC

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I declare under penalty of perjury that the foregoing is true and correct. Executed on the date of this letter.

Respectfully,



D. A. Swank  
Assistant Vice President, Engineering

Attachments: As stated

cc: NRC Region IV Administrator  
NRC NRR Project Manager  
NRC Senior Resident Inspector/988C  
AJ Rapacz – BPA/1399

# ENERGY NORTHWEST'S RESPONSE TO THE MARCH 12, 2012 INFORMATION REQUEST – COMMUNICATIONS ASSESSMENT

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## Response to Request for Information Related Recommendation 9.3, “Emergency Preparedness Communications”

### NRC Request:

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 [in the NRC's 50.54(f) letter issued on March 12, 2012]. The assessment should:
  - Identify any planned or potential improvements to existing onsite communications systems and their required normal and/or backup power supplies,
  - Identify any planned or potential improvements to existing offsite communications systems and their required normal and/or backup power supplies,
  - Provide a description of any new communications system(s) or technologies that will be deployed based upon the assumed conditions described above, and
  - Provide a description of how the new and/or improved systems and power supplies will be able to provide for communications during a loss of all ac power,

### Energy Northwest Response:

On May 15, 2012, the NRC endorsed NEI 12-01 Revision 0, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities,” as an acceptable method for licensees to employ when responding to the 10 CFR 50.54(f) letter regarding Near Term Task Force (NTTF) Recommendation 9.3. Energy Northwest has utilized the guidance in NEI 12-01 in preparing the requested Communication Assessment. The assessment is provided starting on page 3 of this attachment.

### NRC Request:

2. Addressees are requested to describe any interim actions that have been taken or are planned to be taken to enhance existing communications systems power supplies until the communications assessment and resulting actions are complete.

### Energy Northwest Response:

This response was previously provided under letter GO2-12-083, dated June 11, 2012, AL Javorik (Energy Northwest) to NRC, “Energy Northwest’s 90 Day Response to the March 12, 2012 Information Request Related to Recommendation 9.3.”

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**NRC Request:**

3. Provide an implementation schedule of the time needed to conduct and implement the results of the communications assessment.

**Energy Northwest Response:**

The schedule for implementing the results of the Communications Assessment is included in Section 9.0 of the assessment. The assessment is provided starting on page 3 of this attachment.

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**COMMUNICATIONS ASSESSMENT FOR COLUMBIA GENERATING STATION**

**1.0 COMMUNICATIONS CAPABILITIES**

1.1 The primary means of onsite and offsite communication to be used during a large-scale natural event at Columbia Generating Station (Columbia) are the installed telephone and radio systems. These systems will be used until they are no longer available. However, it cannot be assumed that they will be fully available during a large-scale natural event resulting in a prolonged loss of AC power under the assumptions provided in NEI 12-01 Rev. 0, “Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities.” As such, Energy Northwest has identified those systems that will be relied upon in the event the primary means of communication are not available. These systems are identified as the “backup” systems. The table below lists the relevant communication systems available at Columbia.

Emergency Plan Communication Systems	Type	Limiting Assumptions per NEI 12-01
Radio Communications (Area Wide)	Primary	Unavailable: requires offsite infrastructure
Radio Communications (In-Plant)	Backup	Available (partial) See Section 1.5 below
Company Telephone System • Computerized Branch Exchange	Primary	Unavailable: power supply less than 24 hours
Dedicated Telephone Circuits • Energy Northwest Emergency Center Network • Response Agency Network (Crash line) • Nuclear Regulatory Commission (NRC) Emergency Notification System (ENS)	Primary	Unavailable: requires offsite infrastructure
Sound Powered Phone System	Backup	Available See Section 1.3 below
In-Plant Public Address System	Primary	Available (partial) See Section 3.0 below
Area Wide Radio Paging	Primary	Unavailable: requires offsite infrastructure
Facsimile System	Primary	Unavailable: requires offsite infrastructure
Auto-Dialer Telephone System	Primary	Unavailable: requires offsite infrastructure
Satellite phones <sup>1</sup>	Backup	Available See Section 1.4 below

<sup>1</sup> Not discussed in Emergency Plan but available per response to INPO IER-L1-11-4

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## **1.2 Requirements**

NEI 12-01 provides the assumptions that should be used in performing the Communications Assessment. The following specific requirements will be discussed for each Backup communication system in the ensuing sections:

- a. **Power Supply Capability:** The event results in limited site access for 24 hours. The communications systems must have a power supply with the capability to supply a minimum of 24 hours of use.
- b. **Protection:** Portable equipment must be stored onsite and be reasonably protected from seismic, wind and flooding events. If a portable generator is used, onsite fuel oil must be stored in a manner protected from external events consistent with the current station design. Onsite communications infrastructure remains available provided that the credited components are reasonably protected from seismic, wind and flooding events.
- c. **Programmatic controls:** Programmatic controls must be established to maintain the equipment. Testing requirements, if any, should be specified.
- d. **Procedures:** Implementing actions must be specified in procedures.

## **1.3 Sound Powered Phone System**

**Description:** Columbia has an existing sound powered phone system. The system consists of an independent network of telephone jacks installed in the vicinity of panels, racks and other selected locations vital to operation throughout the plant. Headsets are plugged into the jacks to permit communication between remote locations.

In addition, ten portable sound powered phone kits (hereinafter referred to as "sound powered phone kits" or "kits") are being procured. The kits provide point-to-point communication to areas that have lost the primary form of communications or can be used to extend the current sound powered phone system. Each kit contains 800 feet of cable, two headsets, and junction boxes. The junction boxes allow multiple kits to be attached together to provide longer cable runs or to allow additional headsets to be connected.

- a. **Power Supply Capability:** Sound powered headsets generate the required audio signals with no battery or external AC power required.
- b. **Protection:** The infrastructure for the existing sound powered phone system is located in the following buildings / areas of the plant: Radwaste Building (includes Main Control Room), Reactor Building, Turbine Building, Diesel

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Generator Building, Service Water Pump House, Circulating Water Pump House and Central Alarm Station. The sound powered phone terminal cabinet is located in the Radwaste Building Communications Room. The jacks in each of the various buildings are connected in loops with each other but separate from the jacks in other buildings. The loops for each building are connected to the main sound powered terminal cabinet located in the Communication Equipment Room of the Radwaste Building. The various loops are connected together at the main terminal cabinet to produce a complete sound powered telephone network. The inter-connections are made via the terminal strips which permit each building's network to be isolated in case a fault develops in any of its wiring. Instructions for the isolation of affected nodes are contained in plant procedures.

The sound powered phone system raceways, components, and supports are designated Seismic Category II with the earthquake equivalent static loads specified as a horizontal acceleration of 0.20g and a vertical acceleration of 0.14g applied concurrently in the most unfavorable combination. Stresses resulting from earthquake effects were combined with stresses due to normal design loads (dead and live) to ensure that the resulting stresses were within the allowable material working stress/strain limits accepted as good practice. Equipment, components, raceway and supporting systems located in the Main Control Room or in close proximity to safety related equipment are designed and anchored such that they will not cause loss of function of nearby safety related equipment as a result of the safe shutdown earthquake.

The headsets (quantity 34) for the installed sound powered phone system are stored in clearly marked boxes at various locations inside the Turbine Building, Diesel Generator Building, Reactor Building, and Radwaste Building. Additional spare headsets (minimum of 10) are stored in the Radwaste Building sound powered phone locker (outside tool crib).

The sound powered phone kits being procured will be stored in two reasonably protected buildings (hereinafter referred to as the "FLEX buildings") constructed to meet the requirements of NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide." These buildings are addressed in Section 5.2 of this assessment. Approximately half of the kits will be stored in each building to provide diverse storage locations and ready access. A total of 10 kits will be available to support emergency activities.

NEI 12-06 Section 3.2.2 contains requirements for reliability and availability of equipment and generally requires an N+1 capability where N is the number of units onsite. NEI 12-06 states that it is acceptable to have multiple strategies to accomplish a function; and, in this case, equipment associated with each strategy does not require N+1. In the event that portions of the sound powered

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phone system become unavailable, the affected nodes can be isolated from the rest of the system to permit continued operation on the balance of the system. The sound powered phone kits will then provide the capability to communicate within any affected nodes that are disabled.

- c. Programmatic Controls: Preventive maintenance and testing of the sound powered phone system is conducted on a regular basis as follows:
- An annual sound powered communications system line loss test is performed to verify voltages and resistances at the sound powered communication system terminal cabinet and to verify decibel levels between select locations. Additionally, a review was performed of procedures to be utilized in the event of an extended loss of AC power in order to identify areas likely to require coverage of the sound powered phone system. These areas will be incorporated into the preventative maintenance procedures.
  - A semi-annual inventory of the sound powered phone system headsets is performed. The sound powered phone kits will be added to this inventory.

An evaluation will be completed to determine if additional functional testing / preventive maintenance is required.

- d. Procedures: Use of the sound powered phone system including isolation of affected nodes, is directed by an Abnormal (ABN) plant procedure. This procedure will be revised to include the storage and use of the sound powered phone kits.

### **1.4 Satellite Phone System**

Description: This system consists of phones that communicate directly with geosynchronous satellites in orbit. Currently, this system uses portable satellite phone handsets (hereinafter referred to as "portable satellite phones") for use external to the buildings. The system will be expanded to allow use inside buildings by installing phone handsets connected to fixed base stations that take advantage of externally mounted antennas to communicate with the satellites.

- a. Power Supply Capability: Each portable satellite phone is battery powered. The batteries are rechargeable and require a four hour charging time for a drained battery. Three batteries have been allocated to each phone with each battery providing four hours of talk time. This allows one battery to be used in the phone, one battery to be carried with the phone, and one battery to be charging.

The battery chargers for the satellite phones will be stored in the FLEX buildings. These buildings are addressed in Section 5.2 of this assessment. Each building will be equipped with a portable generator to provide power in the



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event the normal power supply is unavailable. Thus, equipment connected to the building power will be generator-backed. The fuel supply plan for these generators is addressed in Section 7.1 of this assessment.

With respect to the fixed base stations being procured, each will be backed up with a dedicated uninterruptible power supply rated for greater than 24 hours.

- b. Protection: The portable satellite phones along with the spare batteries and the battery chargers are located in the Technical Support Center (TSC)/Operations Support Center (OSC), Emergency Operations Facility (EOF), Joint Information Center (JIC), and Alternate EOF. At Columbia, the OSC is located in a designated portion of the TSC. The portable satellite phones for the Main Control Room are stored in the TSC/OSC. Once the handsets and fixed base stations are installed, the portable satellite phones will become spares and will be stored in the two FLEX buildings.

The two FLEX buildings will also house four fixed base stations in each building for the Main Control Room and TSC/OSC. These base stations each provide three separate satellite phone lines per base station. These lines will be routed from each FLEX building to the Main Control Room and to the TSC/OSC by underground cabling. Antennas will be mounted on the FLEX buildings to supply clear line of sight to the satellites supporting the system. The antenna mounting will be reasonably protected from seismic, wind, and flooding events.

The fixed base stations for the EOF and JIC, as well as the Alternate EOF, will be located in the Emergency Response facilities themselves. Note that the JIC and Alternate EOF are located in the same building. Two fixed base stations will support the EOF and one fixed base station will support both the JIC and Alternate EOF. Antennas will also be mounted to these buildings to supply clear line of sight to the satellites supporting the system. The antenna mounting will be reasonably protected from seismic, wind, and flooding events.

NEI 12-06 Section 3.2.2 contains requirements for reliability and availability of equipment and generally requires an N+1 capability where N is the number of units onsite. NEI 12-06 states that it is acceptable to have multiple strategies to accomplish a function; and, in this case, equipment associated with each strategy does not require N+1. The number and location of the fixed base stations supporting the TSC/OSC and Main Control Room will be sufficient to provide the required number of lines in the event that one of the two FLEX buildings is lost. The equipment for the EOF, JIC and Alternate EOF will be located within the emergency response facilities themselves. Additionally, as stated above, once the handsets and fixed base stations are installed, the portable satellite phones will become spares. These phones will provide a redundant means for both onsite and offsite communications.

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portable satellite phones will become spares. These phones will provide a redundant means for both onsite and offsite communications.

- c. Programmatic Controls: Preventive maintenance and testing of the satellite phone system is conducted on a regular basis as follows:
- A quarterly inventory of the portable satellite phones stored in the emergency response facilities is conducted.
  - A semi-annual test of the portable satellite phones is conducted to verify functionality of the phones and that the batteries are fully charged.

Preventive maintenance and testing activities will be developed for the fixed base stations and uninterruptible power supplies.

- d. Procedures: Use of the portable satellite phones is directed by an ABN plant procedure. This procedure will be revised to include the use of the fixed base stations and proper rotation of batteries.

## 1.5 In-Plant Radio Communication System

Description: The Communications Assessment has determined that radio communication is necessary to effectively implement onsite repair strategies. Radio communication capability during a beyond design basis event currently exists via portable radio-to-radio (without the aid of a repeater or antenna system.) This capability would generally be limited to line of sight.

Due to this limitation, Energy Northwest plans to credit the use of radio equipment and antennas located onsite. The existing radio system at Columbia is currently being replaced to facilitate the transition from wide-band to narrow-band operation in accordance with Federal Communications Commission (FCC) requirements. Energy Northwest is working with the selected radio system vendor to design and implement a new radio system to operate inside the nuclear power plant. The contract includes a Trunked Radio System and a Fiber Optic Distributed Antenna System (FODAS). The FODAS system is the primary audio distribution path for Columbia's communication system inside the plant. Due to manufacturing delays, delivery of the FODAS has been delayed. This delay has affected the overall schedule for design and installation of the new system since onsite testing of the equipment prior to installation is required to ensure no adverse impacts from electromagnetic interference (EMI) or radio frequency interference (RFI) on installed plant equipment and to ensure adequate system coverage throughout the plant. As such, details of the location and mounting of the radio system components and antennas will be specified as part of the plant design change. The system, or required portions thereof, will be designed to support use during an extended loss of AC power event.

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- a. **Power Supply Capability:** The radios are powered by rechargeable batteries. Battery life is heavily dependent upon the amount of talk time. Estimates of battery life will be developed and additional batteries ordered as necessary based on an estimate of minimum talk time. In any event, multiple batteries will be available for each radio in order to allow for charging during an event. Battery charging will be accomplished in the FLEX buildings. As discussed above, each building will be equipped with a portable generator to provide power in the event the normal power supply is unavailable. Thus, all equipment connected to the building power will be generator-backed. The fuel supply plan for these generators is addressed in Section 7.1 of this assessment.

The design of the new radio system and FODAS is not yet complete but the requirements of NEI 12-01 with respect to backup power supply capability will be incorporated into the required portions of the system design. The current plan is to provide the capability to provide power to the system from portable generators.

- b. **Protection:** Radios are currently stored in the TSC/OSC and other areas in the plant supporting the fire brigade and B.5.b response. Final storage locations of the radios themselves will be verified to be in reasonably protected buildings.

The design of the new radio system and specific locations of radio system components is not yet complete but will be specified to ensure the requirements of NEI 12-01 are met with respect to being reasonably protected against seismic, wind and flooding events. The infrastructure for in-plant radio communication is located entirely onsite.

NEI 12-06 Section 3.2.2 contains requirements for reliability and availability of equipment and generally requires an N+1 capability where N is the number of units onsite. NEI 12-06 states that it is acceptable to have multiple strategies to accomplish a function; and, in this case, equipment associated with each strategy does not require N+1. In the event the radio system becomes unavailable, the backup to the radio system functions will be provided as follows: 1) Communications external to plant buildings will be provided by the portable radio-to-radio capability and the portable satellite phones. As stated previously, with the installation of the satellite phone handsets and fixed base stations, these portable satellite phones will become spares and provide redundant means for both onsite and offsite communications. 2) Communications within plant buildings will be provided by the sound powered phone system and portable sound powered phone kits. The above two methods will provide diverse communications capability to the radio system.

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- c. Programmatic Controls: Preventive maintenance and testing of the radios is conducted on a regular basis as follows:
- A monthly inventory of fire brigade radios is performed.
  - A monthly test of the TSC/OSC radios is performed to verify functionality of the radios.
  - A quarterly test of radios staged for B.5.b response is performed to verify functionality of the radios and that the batteries are fully charged.
  - A quarterly test of radios staged for field team use is performed to verify functionality of the radios and that the batteries are fully charged.
  - An annual test of the radio equipment is performed to ensure compliance with FCC rules and regulations.

Inventory of the radios and batteries stored in the FLEX buildings will be conducted. Proper operation of the radios will be tested. Batteries will be verified to be fully charged.

Appropriate maintenance and testing procedures for the new radio system will be developed as part of the plant design change for installation of the new system.

- d. Procedures: Procedures governing the use of the new radio system will be developed as part of the plant design change for installation of the new system. Procedures will be revised to identify final storage locations of radios and proper rotation of batteries.

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**2.0 REQUIRED EMERGENCY COMMUNICATIONS CAPABILITIES**

The following communications capabilities will be available in the event of large-scale external event that results in an extended loss of AC power to Columbia consistent with the guidance in NEI 12-01. The Columbia-specific positions are those described in the Emergency Plan.

**2.1 Notifications to, and communications with, offsite response organizations (OROs)**

Emergency Response Facility	NEI 12-01 Function	Columbia-specific position	Communication System
Control Room	Shift Communicator	Incident Advisor	Satellite Phone <sup>2</sup> (handset w/ base unit)
EOF	Key EOF Communicator	EOF Manager	Satellite Phone <sup>2</sup> (handset w/ base unit)

**2.2 Notifications to, and communications with, the NRC Headquarters Incident Response Center and the appropriate NRC Regional Office Operations Center**

Emergency Response Facility	NEI 12-01 Function	Columbia-specific position	Communication System
Control Room	ENS Communicator	ENS Communicator	Satellite Phone <sup>2</sup> (handset w/ base unit)
TSC	ENS Communicator	Plant/NRC Liaison	Satellite Phone <sup>2</sup> (handset w/ base unit)
EOF	HPN Communicator	HPN Communicator	Satellite Phone <sup>2</sup> (handset w/ base unit)

**2.3 Communications between licensee emergency response facilities**

Emergency Response Facility	NEI 12-01 Function	Columbia-specific Position	Communication System
Control Room	Control Room	Shift Manager	Satellite Phone <sup>2</sup> (handset w/ base unit)
TSC	Senior/Lead TSC Manager	TSC Manager	Satellite Phone <sup>2</sup> (handset w/ base unit)
TSC	Operations Coordination	TSC Operations Manager	Satellite Phone <sup>2</sup> (handset w/ base unit)

<sup>2</sup> Currently, this capability is provided by a portable satellite phone. The system will be expanded to allow use inside buildings by installing phone handsets connected to fixed base stations that take advantage of externally mounted antennas to communicate with the satellites. Once this is completed, the majority of the portable satellite phones will become spares.

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Emergency Response Facility	NEI 12-01 Function	Columbia-specific Position	Communication System
TSC	Maintenance Coordination	TSC Maintenance Manager	Satellite Phone <sup>3</sup> (handset w/ base unit)
TSC	Engineering Coordination	TSC Technical Manager	Satellite Phone <sup>3</sup> (handset w/ base unit)
TSC	Radiological Support	TSC Radiation Protection Manager	Satellite Phone <sup>3</sup> (handset w/ base unit)
OSC	Senior/lead OSC Manager	OSC Manager	Satellite Phone <sup>3</sup> (handset w/ base unit)
OSC	Radiological Support	Health Physics (HP) Lead	Satellite Phone <sup>3</sup> (handset w/ base unit)
EOF	Senior/Lead Manager	EOF Manager	Satellite Phone <sup>3</sup> (handset w/ base unit)
EOF	Key Protective Measures	EOF Radiological Emergency Manager (REM)	Satellite Phone <sup>3</sup> (handset w/ base unit)
EOF	Operations / Technical Support	Information Coordinator	Satellite Phone <sup>3</sup> (handset w/ base unit)
JIC	Senior Manager	JIC Manager	Satellite Phone <sup>3</sup> (handset w/ base unit)

## 2.4 Communications with field/offsite monitoring teams

Emergency Response Facility	NEI 12-01 Function	Columbia-specific Position	Communication System
EOF	Field/offsite monitoring team coordination	Field Team Coordinator	Satellite Phone <sup>3</sup> (handset w/ base unit)
EOF	Field/offsite monitoring teams	Field Teams	3 Portable Satellite Phones

<sup>3</sup> Currently, this capability is provided by a portable satellite phone. The system will be expanded to allow use inside buildings by installing phone handsets connected to fixed base stations that take advantage of externally mounted antennas to communicate with the satellites. Once this is completed, the majority of the portable satellite phones will become spares.

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2.5 Communications with other Federal agencies as described in the site emergency plan

Emergency Response Facility	Function	Columbia-specific Position	Communication System
EOF	Coordination with Federal agencies	Site Support Manager	Satellite Phone <sup>4</sup> (handset w/ base unit)

2.6 Coordination and direction of onsite 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.

Emergency Response Facility	Columbia Position	Communication System
On-shift staff	<ul style="list-style-type: none"> <li>• Equipment Operators (2)</li> <li>• Health Physics technician</li> <li>• Fire Brigade (5) <sup>5</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Radios (8)</li> <li>• Sound Powered Headsets (as needed)</li> </ul>
OSC	<ul style="list-style-type: none"> <li>• Maintenance, Health Physics, and Chemistry technicians and Equipment Operators as described in the Columbia Emergency Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Radios (10)</li> <li>• Sound Powered Headsets and Kits</li> </ul>

<sup>4</sup> Currently, this capability is provided by a portable satellite phone. The system will be expanded to allow use inside buildings by installing phone handsets connected to fixed base stations that take advantage of externally mounted antennas to communicate with the satellites. Once this is completed, the majority of the portable satellite phones will become spares.

<sup>5</sup> The fire brigade is made up of Equipment Operators, Health Physics technicians, Chemistry technicians and laborers. The fire brigade is trained in firefighting and search and rescue.

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## **3.0 PUBLIC ADDRESS (PA) SYSTEM**

The assumed event will result in an initial declaration of a Site Area Emergency (at a minimum). All plant personnel will be directed to report to their assigned emergency response facilities or an assembly area, or exit the site. Once at an emergency response facility or assembly area, further communications to these individuals may be passed over the inter-facility communications links and provided via facility announcements. After the initial directions to plant personnel have been provided, the plant-paging system may be removed from service at any time as a means to extend battery life.

The primary system to notify plant personnel is the PA system. NEI 12-01 contains the following guidance relative to the PA system: Licensees should determine if the PA system is powered from a battery-backed source and would remain available to provide the initial emergency declaration and direction announcement to the plant staff. If portions of the PA system are not powered from a battery-backed source, then reasonable alternate methods should exist to provide emergency notification to the plant staff in the areas that would not receive an announcement. These methods should be capable of notifying essentially 100% of the plant staff within approximately 30 minutes. If the PA system is not powered from a battery-backed source, then some combination of the following actions should be performed: (a) Provide a battery-backed power source for all or portions of the plant-paging system, or (b) Establish reasonable alternate methods as needed to provide emergency notification to the plant staff. These methods should be capable of notifying essentially 100% of the plant staff within approximately 30 minutes.

### **3.1 PA Power Supplies**

The Columbia PA system is composed of separate public address zones. Paging microphones are located in the Main Control Room, Central Alarm Station, Secondary Alarm Station, and TSC/OSC and transmit to all zones simultaneously. Tone generators, operated from the Main Control Room or the TSC/OSC, allow an alerting tone to be broadcast over the PA system. The paging microphones have priority over all other functions of the PA system. The portion of the PA system that serves the plant (power block) is supplied from a power panel that is fed from an inverter, which is battery-backed. Per calculation and based on maximum AC loading on the inverter, the battery was designed for one hour discharge to supply continuous DC power to loads. The existing load on the inverter is approximately 65% of the maximum load providing margin to original capacity. The portion of the PA system that serves the onsite office buildings is not battery-backed for all buildings.



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## **3.2 Actions to Provide Emergency Notification to Plant Staff**

Energy Northwest will use the installed plant PA system until it is determined to be unavailable. The plant PA system is analyzed to remain operational for the minimum 30 minute notification period. Those onsite office buildings that do not have battery-backed power to the PA system will be identified. For these buildings, alternate notification methods must be employed. Plant personnel will be utilized to perform building sweeps with bull horns or a truck mounted PA system as appropriate to the area. Additionally, a policy will be developed to require building occupants to evacuate the buildings in the event of a sustained loss of AC power to the building and assemble in the designated area to facilitate notification of plant staff.

## **3.3 Procedures**

Testing and maintenance of the installed PA system is governed by existing plant procedures. Actions to implement sweeps in the event that the PA system is not available will be proceduralized.

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## 4.0 COMMUNICATIONS EQUIPMENT AT OFFSITE RESPONSE ORGANIZATION (ORO) FACILITIES

As described in the Emergency Plan, the ORO facilities that normally receive licensee notifications of an emergency declaration or a Protective Action Recommendation are listed below including the communications equipment that would remain operable during an extended loss-of-grid event.

Emergency Response Facility	Communication System
Benton County Emergency Operations Center (EOC)	Portable Satellite Phone
Franklin County EOC	Portable Satellite Phone
Washington State EOC	Portable Satellite Phone
DOE – Occurrence Notification Center (ONC)	Portable Satellite Phone
DOE – EOC	Portable Satellite Phone

- a. **Power Supply Capability:** Energy Northwest supplied the satellite phones for the county EOCs. Each phone was issued with 3 batteries and a battery charger. The other OROs had pre-existing satellite phones. Energy Northwest will verify the capability of the satellite phones at the ORO facilities to be powered for 24 hours consistent with the assumptions in NEI 12-01.
- b. **Protection:** These satellite phones are stored in state and county ORO facilities.
- c. **Programmatic Controls:** The ORO facilities will be provided with instructions for proper storage and rotation of batteries.
- d. **Procedures:** Use of the portable satellite phones to contact the ORO facilities is directed by an ABN plant procedure. Satellite phone numbers for the ORO facilities are available to the emergency response personnel.

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## 5.0 EQUIPMENT LOCATION REQUIREMENTS

5.1 NEI 12-01 provides the following guidance regarding the storage locations for communications equipment and power supplies.

- a. To be assumed available, a piece of onsite 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.
- b. 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.
- c. 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.

## 5.2 Discussion of Storage Buildings

The two FLEX buildings are being designed to provide reasonable protection to portable and supporting equipment stored therein. The buildings are being built to IBC Category 4 standards used for emergency response facilities. The buildings will be protected from winds, seismic events, and ashfall. The building elevations are above the worst case external flooding event (Probable Maximum Precipitation). Backup portable generators in the buildings will provide power when there is a loss of AC power to the site. These generators will power the charging racks for spare batteries for both the satellite phones and radios. In addition, the satellite phone base units for both the Control Room and OSC/TSC will be contained in these buildings. If needed, equipment supporting the radio system may also be located within these buildings.

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## 6.0 PERFORMANCE CHARACTERISTICS

6.1 The assessment for Columbia has confirmed that the systems and equipment identified for usage will support communications among and between:

- Licensee emergency response facilities – satellite phones <sup>6</sup>
- Field/offsite monitoring teams and the location controlling deployment of the teams – satellite phones <sup>7</sup>
- The Shift Communicator (Incident Advisor), Key TSC and EOF Communicators, and the ORO contact points – satellite phones <sup>6</sup>
- ENS and HPN communicators and the NRC staff – satellite phones <sup>6</sup>
- Onsite and in-plant teams and the location controlling deployment of the teams – radios and sound powered phones

6.2 Normal plant communications systems will be utilized until they become unavailable. Under the beyond design basis event described in NEI 12-01 the credited means of communications to be utilized will be satellite phones, sound powered phones and radios. Each of these systems will be reasonably protected and will have power supplies capable of ensuring equipment operation for a minimum of 24 hours.

6.3 Expected reliance upon “multi-use” equipment has been minimized to the extent practical. The following table lists types and quantities of communication equipment that will be available and where they will be located.

Equipment	Location	Quantity
Sound powered phones	Turbine Building	9 headsets
	Diesel Generator Building	3 headsets
	Reactor Building	16 headsets
	Radwaste Building	6 headsets
	Radwaste Building (spares)	10 headsets and cables
	FLEX Buildings	10 kits

<sup>6</sup> Currently, this capability is provided by portable satellite phones. The system will be expanded to allow use inside buildings by installing phone handsets connected to fixed base stations that take advantage of externally mounted antennas to communicate with the satellites.

<sup>7</sup> The field teams use portable satellite phones. The field team coordinator currently uses a portable satellite phone that will be replaced by a handset connected to a fixed base station.

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Equipment	Location	Quantity
Satellite phones	Control Room	3 handsets w/ base unit <sup>8</sup>
	TSC/OSC	8 handsets w/ base unit <sup>8</sup>
	EOF	6 handsets w/ base unit <sup>8</sup>
	EOF (for field teams)	3 portable satellite phones
	JIC	1 handset w/ base unit <sup>8</sup>
	Alternate EOF	2 handsets w/ base unit <sup>8</sup>
	FLEX Buildings (spares)	18 portable satellite phones
Radios	TSC/OSC	10
	Fire brigade turnout stations	12
	Security checkpoint	16
	FLEX Buildings	10 (minimum)

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<sup>8</sup> Currently, this capability is provided by portable satellite phones. The system will be expanded to allow use inside buildings by installing phone handsets connected to fixed base stations that take advantage of externally mounted antennas to communicate with the satellites. Once this is completed, the majority of the portable satellite phones will become spares.

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## **7.0 OTHER ASSESSMENT CONSIDERATIONS**

### **7.1 Backup AC Power Sources**

As discussed in Section 1.0 above, portable backup AC power sources (generators) for communications systems and components have been credited as operable to provide power to battery chargers for the satellite phones and portable radios.

As part of the response to the NRC Order to Modify Licenses with regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (EA-12-049), plans for fueling the portable generators are being developed.

### **7.2 Batteries**

For battery-operated equipment, a sufficient number of onsite and charged batteries will be available to support operation of required equipment. This number has been determined with consideration given to the following items.

- A sufficient number of charged batteries for the radios and portable satellite phones will be available at the start of an event to support performance of the required emergency response functions listed in Section 2.0.
- The vendor's stated minimum reliable period for a fully-charged battery will be used to determine the number of batteries required to support 24 hours of operation of the associated equipment. This is discussed in Section 1.4.a for the satellite phones. The talk-time estimates and battery requirements for radio usage are still being evaluated as discussed in Section 1.5.a.
- Onsite battery charging capability will be available and has been credited to recharge batteries for portable satellite phones and radios. Sufficient quantities of charged batteries will be available to maintain continuous communication capability for 24 hours of operation. This is discussed in Section 1.4.a for the satellite phones and Section 1.5.a for the radios.

### **7.3 Procedures**

As discussed in Sections 1.0 and 3.0 above, the actions taken by emergency responders to facilitate the use of a particular means of communication will be described in procedures.

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## **8.0 QUALITY, MAINTENANCE-RELATED, AND TRAINING REQUIREMENTS**

### **8.1 Quality Requirements**

The design and construction of the FLEX buildings are addressed in section 5.2 above. Communications equipment is procured in accordance with standard Energy Northwest purchasing procedures.

### **8.2 Programmatic Controls**

As described in Section 1.0 above, programmatic controls have been or will be applied to all communications-related equipment to ensure availability and reliability, including the performance of periodic inventory checks and operability testing.

### **8.3 Training**

Response personnel receive periodic training. Annual refresher training is provided to emergency response personnel. Training needs specific to the use of sound powered phones, satellite phones, and radios during an extended loss of AC power event will be evaluated.

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**9.0 IMPLEMENTATION SCHEDULE**

The above assessment has determined how Columbia will provide the required communications capability during a beyond design basis event consistent with the assumptions specified in NEI 12-01. The table below identifies those actions not yet complete and provides the target completion dates.

Implementing Actions	Completion Date
<b>Sound Powered Phones:</b>	
Develop and procure sound powered phone kits	12/31/2012
Stage sound powered phone kits in FLEX buildings	12/31/2014
Expand line loss test procedure with additional jacks/locations	12/31/2012
Update inventory procedure to include sound powered phone kits	12/05/2012
Identify any preventive maintenance/testing required for sound powered phone kits	12/31/2012
Review existing functional test procedure for sound powered system headsets for any enhancements	12/31/2012
Revise communication procedure(s) to include the use of the sound powered phone kits	12/31/2012
<b>Satellite Phones:</b>	
Design, procure, and install fixed base station units, antennas, and uninterruptable power supplies for the TSC/OSC, Control Room, EOF, JIC, and Alternate EOF	12/31/2014
Stage spare satellite phones, batteries, and chargers in FLEX buildings	12/31/2014
Update work instructions for satellite phone inventory with final location of portable phones, batteries, and chargers	01/31/2015
Develop preventive maintenance and testing procedures for the fixed base station units and uninterruptable power supplies	12/31/2014
Develop procedure on portable satellite phone battery rotation	01/15/2013
Include information on fixed base station locations and usage in procedures	12/31/2014
<b>Radios:</b>	
Determine radio system coverage requirements for an extended loss of AC power event	11/28/2012
Develop design to support coverage requirements and meet requirements for power supplies and reasonable protection	12/12/2012
Incorporate design into overall radio upgrade project	01/12/2013
Complete Phase 1 of radio upgrade project	09/30/2013
Develop estimates of required radio talk time	01/30/2013
Determine battery life based on talk time estimates and procure additional batteries as required	03/20/2013



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Implementing Actions	Completion Date
Procure portable generators to provide power to radio system	09/30/2013
Stage portable generators in FLEX buildings	12/31/2014
Identify final storage locations of radios and ensure locations are diverse and reasonably protected. Stage radios in final locations.	12/31/2014
Stage batteries and battery chargers in FLEX buildings	12/31/2014
Update work instructions for radio inventory with final location of radios, batteries, and chargers	01/31/2015
Develop procedure on radio battery rotation	01/15/2013
Develop preventive maintenance and testing procedures for new radio system equipment required for an extended loss of AC power event	12/15/2013
Develop procedure on radio system use for radios required for an extended loss of AC power event	12/15/2013
<b>PA System:</b>	
Identify those onsite office buildings that do not have a battery-backed PA system	07/01/2013
Identify personnel to perform alternate notification (e.g., bull horn sweeps) of onsite office buildings if PA system is not available	01/15/2013
Develop procedure for performing alternate notifications to ensure staff can be notified within 30 minutes	07/09/2013
Develop policy requiring building occupants to automatically evacuate buildings and assemble in designated areas for an extended loss of AC power event	01/15/2013
Evaluate upgrading power supplies to PA system in onsite office buildings that are not battery-backed	10/30/2013
<b>Communication with ORO Facilities:</b>	
Provide each ORO identified in Section 4.0 with instructions for proper storage and rotation of satellite phone batteries	01/30/2013
Verify the capability of the satellite phones at the ORO facilities to be powered for 24 hours consistent with the assumptions in NEI 12-01	01/30/2013
<b>FLEX Buildings:</b>	
Design, procure and install FLEX buildings to include portable generator-backed power supply to meet requirements of NEI 12-06	06/30/2014
<b>Portable Generators:</b>	
Develop portable generator fueling plan to ensure ability to provide power for a minimum of 24 hours	05/23/2013
<b>Training:</b>	
Evaluate training needs specific to the use of sound powered phones, satellite phones, and radios during an extended loss of AC power event	03/15/2013

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**List of Commitments**

The following table identifies the regulatory commitments in this document. Any other statements in this submittal, including intended or planned actions, are provided for information purposes and are not considered to be regulatory commitments.

Commitment	Scheduled Completion Date
Complete all Implementing Actions identified in Section 9.0 of the Communication Assessment prior to startup from the second refueling outage following issuance of NRC Order EA-12-049, “Order to Modify Licenses with regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events.”	Prior to startup from Refueling Outage 22
Include the status of the Implementing Actions identified in Section 9.0 of the Communication Assessment as part of the six-month status reports prepared pursuant to Section IV.C.2 of NRC Order EA-12-049. The status reports are due at six month intervals following submittal of the overall integrated plan prepared pursuant to Section IV.C.1 of the order, which is due by February 28, 2013.	August 31, 2013, February 28, 2014, August 31, 2014, and February 28, 2015

**Discussion:**

As requested in the NRC’s 50.54(f) letter issued on March 12, 2012, an implementation schedule was provided for those portions of the Communications Assessment not yet completed. The detailed schedule for implementation is not considered a commitment. Rather, Energy Northwest commits to have the Implementing Actions implemented prior to startup from the second refueling outage following issuance of NRC Order EA-12-049. Energy Northwest also commits to provide the status of these actions as part of the six-month status reports required by NRC Order EA-12-049.

In letter GO2-12-083, “Energy Northwest’s 90 Day Response to the March 12, 2012 Information Request Related to Recommendation 9.3,” Energy Northwest provided three commitments that are enveloped by actions described in this Communication Assessment. Energy Northwest proposes to replace these commitments with the first commitment in the table above. The affected commitments are listed below:

- Procure portable sound powered phone kits by 12/31/2012. *Current status – this action is complete with the exception of purchasing adapters that are necessary when plugging the sound powered phone kits into jacks installed in the plant.*

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- Stage batteries and chargers in a building that has a protected backup generator by 06/30/2013. *Current status – As indicated in the Communications Assessment, the completion of the FLEX buildings is now scheduled for 2014.*
- Evaluate installation of fixed satellite communications within Columbia's emergency response facilities by 12/31/2012. *Current status – As indicated in the Communications Assessment, Energy Northwest has evaluated the capabilities of the portable satellite phones and plans to install handsets and fixed base stations for the emergency response facilities to provide enhanced communications capability. The installation is scheduled to be completed in 2014.*