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NRC Order No. EA-12-049

FLL-14-029

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U.S. Nuclear Regulatory Commission
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R. E. Ginna Nuclear Power Plant
Renewed Facility Operating License No. DPR-18
Docket No. 50-244

Subject: August 2014 Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)

References:
(1) NRC Order Number EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012 (ML12054A735)

(2) Letter from M. G. Korsnick (CENG) to Document Control Desk (NRC), Response to NRC Letter on Technical Issues for Resolution Regarding Communications Submittals Associated with Near Term Task Force Recommendation 9.3, dated February 22, 2013 (ML13066A710)

(3) Letter from M. C. Thadani (NRC) to J. E. Pacher (CENG), R. E. Ginna Nuclear Power Plant – Constellation Energy Nuclear Group's Response to U.S. Nuclear Regulatory Commission's Request for Information, Regarding Near Term Task Force Recommendation 9.3 (TAC No. ME9958), dated April 30, 2013 (ML13109A264)

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Order EA 12-049 (Reference 1) to Constellation Energy Nuclear Group, LLC (CENG) for R.E. Ginna Nuclear Power Plant, LLC (Ginna). Reference (1) requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Attachment (1) provides the six-month Status Report for Ginna. The report updates the milestone accomplishments since the submittal of the last status report, including any changes to the compliance method, schedule, or need for relief and the basis, if any.

In Reference (2), Ginna committed to include the status of the implementing actions identified in Section 4.12 of the Communications Assessment as part of the six-month status reports required by Section IV.C.2 of NRC Order EA-12-049. Attachment (1) includes an update of the

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status of these implementing actions. This will be the last status update for those actions. Future six-month status reports submitted in accordance with Section IV.C.2 of NRC Order EA-12-049 will not include a status of the implementing actions identified in Section 4.12 of the Communications Assessment, as these updates have negligible safety significance. Thus, this letter deletes the regulatory commitment made in Reference (2). As documented in Reference (3), the regulatory commitment to implement the Ginna improvements related to mitigating strategies (FLEX) derived from the results of the communications assessment will be completed prior to the startup of Ginna following the Fall 2015 refueling outage.

There are no regulatory commitments contained in this letter.

If there are any questions regarding this letter, please contact Bruce Montgomery, Acting Manager - Licensing, at 443-532-6533.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 26th day of August, 2014.

Respectfully,

Mary G. Korsnick

MGK/STD

Attachment (1) Six-Month Status Report (August 2014) for Mitigation Strategies for Beyond-Design-Basis External Events

cc: Regional Administrator, Region I, USNRC
NRC Project Manager, NRR – R. E. Ginna Nuclear Power Plant
NRC Senior Resident Inspector – R. E. Ginna Nuclear Power Plant
Director, Office of Nuclear Reactor Regulation
J. A. Kratchman, NRC

ATTACHMENT (1)

SIX-MONTH STATUS REPORT (AUGUST 2014)

FOR MITIGATION STRATEGIES FOR

BEYOND-DESIGN-BASIS EXTERNAL EVENTS

R. E. GINNA NUCLEAR POWER PLANT, LLC
August 26, 2014

1 Introduction

The R.E. Ginna Nuclear Power Plant, LLC (Ginna) Overall Integrated Plan (OIP) was submitted to the Nuclear Regulatory Commission (NRC) in February 2013 (Reference 1), documenting the diverse and flexible strategies (FLEX), in response to NRC Order Number EA-12-049 (Reference 2). Subsequently, a supplement to the Ginna OIP for FLEX was submitted to the NRC in March 2013 (Reference 3). This attachment provides an update of milestone accomplishments since submittal of the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and associated basis (if applicable).

Ginna developed an Interim Action Implementation Schedule, as part of an Assessment of Communications during an Extended Loss of AC Power (ELAP) (Reference 4). A commitment was made in Reference 4 to include the status of the implementing actions identified in Section 4.12 of Ginna's communications assessment as part of the six-month status reports prepared pursuant to Section IV.C.2 of NRC Order EA-12-049. The updated status of the communications assessment interim actions is provided in Section 8.

Since submittal of the last status report in February 2014 (Reference 5), Ginna FLEX strategy implementation has progressed with engineering analyses, calculations, and construction that support the mitigation strategies. As stated in Reference (5), Ginna no longer intends to utilize low leakage Reactor Coolant Pump (RCP) seals for its beyond-design-basis external event mitigation strategies. This update provides the revised strategy to address the need for Reactor Coolant System (RCS) borated makeup for the conditions with no RCS leakage, and with the highest applicable RCS leakage rate for the RCP seals and unidentified RCS leakage.

2 Milestone Accomplishments

The following milestone(s) have been completed since submittal of the last status report in February 2014 (Reference 5) and are current as of July 31, 2014.

- None

3 Milestone Schedule Status

Table 1 provides an update to Attachment 2 of the Ginna OIP (Attachment 1 - References 1 and 3). It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed.

Table 1
Status of Ginna FLEX OIP Milestones

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Commence Engineering and Design	July 2013	Started	May 2015*
Commence Procurement of Equipment	July 2013	Started	September 2015
Commence Installation of Equipment	July 2013	Started	November 2015
Submit 6-Month Status Report	August 2013	Complete	
Develop Strategies/Contract with the Regional Response Center (RRC)	November 2013	Started	March 2015
Submit 6-Month Status Report	February 2014	Complete	
Complete Engineering and Design	March 2014	Started	May 2015*
Create Maintenance and Testing Procedures	June 2014	Started	October 2015*
Submit 6-Month Status Report	August 2014	Complete	
Procedure Changes Training Material Complete	September 2014	Started	March 2015
Develop Training Plan	November 2014	Started	
Submit 6-Month Status Report	February 2015	Not Started	
Issue FLEX Support Guidelines	April 2015	Not Started	November 2015
Perform Walk-throughs or Demonstrations	May 2015	Not Started	
Provide onsite and augmented staffing assessment considering functions related to Near-Term Task Force (NTTF) Recommendation 4.2.	May 2015	Not Started	
Implement Training	June 2015	Started	
Submit 6-Month Status Report	August 2015	Not Started	
Complete Procurement of Equipment	September 2015	Not Started	
Full compliance with EA-12-049 is achieved	Fall 2015	Not Started	
Submit Completion Report	December 2015	Not Started	

* Change since submittal of last six month status report.

4 Changes to Compliance Method

The following is a list of the coping strategies that have been changed since the last six month status report with an explanation of the changes. Additional details on how Ginna's OIP complies with the guidance in NEI 12-06 are also provided:

a) In accordance with Nuclear Energy Institute (NEI) 12-06, Section 7.3.1, protection of FLEX equipment from high wind hazards can be accomplished by storing equipment in a structure that meets the plant's design basis for high wind hazards (e.g., existing safety-related structure); or in storage locations designed to or evaluated equivalent to American Society of Civil Engineers (ASCE) 7-10, Minimum Design Loads for Buildings and Other Structures, given the limiting tornado wind speeds from Regulatory Guide 1.76 (Reference 7); or in evaluated storage locations separated by a sufficient distance that minimizes the probability that a single event would damage all FLEX mitigation equipment such that at least N sets of FLEX equipment would remain deployable following the high wind event. Consistent with this guidance, Ginna will take the following approach to protect installed plant equipment and FLEX equipment from high wind hazards, specifically tornados and tornado missiles:

- For conservatism, Ginna designed the structural walls and roof of the new "robust structure" housing the "N" set of FLEX mitigation equipment, as well as communications equipment, to the Regulatory Guide 1.76 tornado wind speed and suite of tornado missiles. However, the building's entranceway and openings (e.g., as needed for ventilation) are designed to withstand the plant's design basis tornado (i.e., 132 miles per hour wind speed) and tornado missile spectrum. This is consistent with NEI 12-06, Section 7.3.1.1.a.
- Furthermore, the "+1" equipment (high and low pressure FLEX pumps, hoses and fittings; and 100 kilowatt (kW) diesel generator (DG), cables and connectors) and support equipment (fuel trailer, debris remover, and tow truck) will generally be housed in a New York State (NYS) Building Code commercial structure, in an "evaluated storage location" per NEI 12-06, Section 7.3.1.1.c. Distance separation is not applicable in this situation, since the means used to minimize the probability that a single event would damage all FLEX mitigation equipment is the use of a robust structure to house the N sets. Any stored mitigation equipment exposed to the wind will be adequately tied down to prevent it from being damaged or becoming airborne, in accordance with NEI 12-06, Section 7.3.1.1.b.
- Other plant structures and equipment (e.g., fuel or water tanks) which are needed to withstand tornados and tornado missiles will be designed/evaluated to Ginna's current licensing basis tornado: a 132 miles per hour (mph) wind speed (Updated Final Safety Analysis Report (UFSAR) Sections 2.3.2.2 & 3.3.4.1, Reference 8), and missiles consisting of an eight pound steel rod, 1-inch diameter and 3-feet long, traveling at 60% of the tornado wind speed and a 1490 pound wooden utility pole, 13.5-inch diameter and 35-feet long, traveling at 40% of the tornado wind speed (UFSAR Section 3.3.3.1). As demonstrated in a Structural Upgrade Program submittal to the NRC (Reference 9) and approved in the Safety Evaluation Report on the Structural Upgrade Program (Reference 10), wind speeds lower than approximately 150 mph cannot provide the necessary aerodynamic lift required for a utility pole to become an airborne missile (UFSAR Section 3.3.5.4.1); therefore impact considerations for the utility pole are at grade level only.

The above tornado protection design criteria are consistent with Ginna's current design basis, and therefore meets the requirements of NEI 12-06, Section 7.3.1.1.

b) As a result of the 10 CFR Part 21 report regarding the Westinghouse low leakage RCP seals (Reference 11), Ginna no longer intends to utilize low leakage RCP seals for its beyond-design-basis external event mitigation strategies. The WCAP-17601 (Reference 12) Section 5.7.1 discussion of Westinghouse Generic Case Results with safe shutdown/low leakage seals is no longer applicable. The revised strategy addresses the need for additional borated makeup for RCS inventory control for the assumed RCP Model 93 seal leakage.

To account for the additional boration requirements for the highest applicable leakage rate for the RCP seals and unidentified RCS leakage, the borated water source will be the Refueling Water Storage Tank (RWST). Ginna will no longer convert the Standby Auxiliary Feedwater Test Tank to a FLEX Boric Acid Storage Tank.

A newly installed (and isolated) charging pump powered from the 1 MW SAFW DG, taking suction from the RWST and discharging to the RCS, will be used to provide borated makeup to the RCS. This arrangement will include a discharge line routed through a protected portion of the Auxiliary Building to a newly installed Safety Injection (SI) line connection. The pump will be manually aligned as required. Due to expected Reactor Coolant Pump (RCP) seal leakage, the timeline to initiate charging is approximately one hour. The alternate FLEX strategy is to use a diesel driven portable FLEX charging pump taking suction from the RWST, connected via high pressure hose, to a staged connection in the SI system.

To provide sufficient capacity of borated water makeup to the RCS, the new charging pump will be capable of pumping 75 gallons per minute (gpm) from the RWST into the RCS at 1575 pounds per square inch (psi). A portable diesel engine driven high pressure pump will be procured to provide alternate borated makeup to the RCS. This pump will also be capable of pumping 75 gpm of borated water from the RWST to the RCS at 1575 psi.

c) Section 4.3.2 of WCAP-17601 states "There shall be no return to criticality once the loss of all AC power has occurred. To ensure that the plants remain subcritical, a limit of K_{eff} less than 0.99 (subcritical) is set. The exact needed level of subcriticality is somewhat subjective, but 0.99 was chosen because it provides some margin to account for the best estimate or generic reactor physics parameters assumed in this analysis."

- A uniform boron mixing model will be assumed in the ELAP analysis. This will be in compliance with the recommendations discussed in the Pressurized Water Reactor Owner's Group (PWROG) white paper related to the boron mixing model, and the NRC clarifications, as discussed under bullet #3 below. Ginna will take credit for boron mixing during two phase flow. As documented in the Extended Power Uprate RAI response "Supplemental Response to Requests for Additional Information Regarding Topics Described by Letters Dated August 24, 2005 and October 28, 2005," (Reference 13) RCS mass flow rate increases during two-phase flow (Reference 13, Figure 8). Additional details on the two-phase RCS mass flow increase are documented in proprietary Westinghouse Calculation CN-LIS-05-163, "SBLOCA Cooldown Calculation Results for R.E. Ginna (RGE) Extended Power Uprate and 422V+ Fuel Upgrade Program" (Reference 14). With a rather large

change in mixture density throughout the core/hot leg/SG uphill tube side relative to the downhill side (from SG heat removal), the flow velocity increases. This continues with increasing void fraction until makeup to the RCS and the decline of decay heat allows the RCS return to a subcooled state. RCS boration to support cooldown will credit the buildup of xenon, and the necessary boration will be completed with at least a one hour margin to the minimum shutdown margin (K_{eff} less than 0.99) to preclude criticality and accounting for the added time necessary for the added borated water to mix with the water in the RCS.

- A plant specific boron analysis was performed as part of CALC-2014-0002, "Cycle 38 Reactor Engineering Calculations" (Reference 15) to determine boration requirements to ensure that the core remains subcritical throughout the ELAP event for the limiting condition with respect to shutdown margin. Fifteen percent or greater uncertainties were applied to bound the boron concentration calculations for future core designs. Mitigation strategies will ensure that the core remains sub-critical (K_{eff} less than 0.99) throughout the ELAP event for the limiting condition with respect to shutdown margin, considering both no RCP seal leakage and the maximum RCP seal leakage postulated value. If no RCP leakage occurs during the ELAP event, procedures will direct the operators to establish conditions sufficient for RCS boration by opening a reactor head vent valve or a Power Operated Relief Valve.
- Ginna intends to follow the generic approach identified in the PWROG position paper on boron mixing that was submitted to the NRC on August 15, 2013 (Reference 16), subject to the clarifications in the NRC letter to the PWROG, dated January 8, 2014 (Reference 17). Specifically:
  i. Strategy timeline will complete boration with at least 1 hour margin to preclude criticality (K_{eff} less than 0.99) in the most limiting conditions.
  ii. Injection will be to the RCS cold legs.
  iii. Boration will be concluded well within 100 hours after shutdown.
  iv. Boration targets for subcriticality (K_{eff} less than 0.99) will be based on the most limiting scenario considering no RCS leakage.
  v. All steam generators will be fed until the required minimum boron injection to support subcriticality (K_{eff} less than 0.99) has been achieved.
  vi. The required timing for providing borated makeup to the primary system will consider conditions with no RCS leakage and with the highest applicable leakage rate for the RCP seals and unidentified RCS leakage.
  vii. For the condition associated with the highest applicable RCS leakage rate, adequate borated makeup will be provided such that the loop flow rate in two-phase natural circulation does not decrease below the loop flow rate corresponding to single-phase natural circulation.

d) NEI 12-06 Section 3 states "The primary FLEX objective is to develop a plant-specific capability for coping with a simultaneous ELAP and LUHS event for an indefinite period through a combination of installed plant capability, portable on-site equipment, and off-site resources. Each plant will establish the ability to cope for these baseline conditions based on the appropriate engineering analyses and procedural framework."

The Ginna procedure for responding to a station blackout is ECA-0.0, "Loss of All AC Power." (Reference 18) ECA-0.0 steps are ordered to provide the best sequence of operator actions to respond to station blackout events. ECA-0.0 directs the operators to verify the Turbine Driven Auxiliary Feedwater Pump (TDAFWP) starts and if it has not, to attempt to start the TDAFWP. As the preferred and procedurally directed source of

water to the steam generators (SGs), if the equipment is available, it will be used. This proceduralized sequence of events is consistent with Ginna's current licensing basis and, since a beyond-design-basis external event may not be readily apparent to the operators, using/crediting available plant equipment for responding to events is preferred and provides operating margin for a beyond-design-basis external event.

If the TDAFWP or Condensate Storage Tanks (CSTs) are not available, the procedural direction to use the new 1 megawatt (MW) Standby Auxiliary Feedwater (SAFW) DG to power a Standby Auxiliary Feedwater Pump (SAFWP) and feed the SGs will be a "response not obtained" step in ECA-0.0.

In the March 8, 2013 Ginna Overall Integrated Plan (OIP) submittal (Reference 3), Ginna identified one potential deviation/alternate approach to the guidelines in JLD-ISG-2012-01 (Reference 19) and NEI 12-06 (Reference 6). NEI 12-06 initial condition 3.2.1.3(2) states "All installed sources of emergency on-site ac power and SBO Alternate ac power sources are assumed to be not available and not imminently recoverable" and, in Section 2.1, that initial approaches to FLEX strategies will take no credit for ac power supplies. Ginna is planning to take credit for a to-be-installed 1 MW SAFW DG, which will not be connected to, and will not be connectable to, the offsite or onsite emergency ac power systems (and thus is not defined as an alternate AC source). This DG will be able to be connected to a SAFWP to provide Phase 1 makeup to a SG for Reactor Coolant System (RCS) cooling and heat removal. These modifications are due to the assumed failure of the TDAFWP and water supply in a beyond-design-basis external event (BDBEE). Additional details are provided in Reference (3) under safety strategy Maintain Core Cooling and Heat Removal (Steam Generators Available).

To elaborate on the proposed use of the "to-be installed" 1 MW SAFW DG, the resulting strategy is considered to be a method of extending Phase 1. The FLEX portion of the strategy includes a combination of the use of existing equipment, the use of newly installed and isolated equipment, and installation of new battery charger capabilities as follows:

- Use of two existing SAFWPs with a newly installed (and electrically isolated) 1 MW SAFW DG and a newly installed 160,000 gallon (usable capacity), robustly designed CST, capable of supplying greater than 15 hours of inventory. The initial installed equipment mitigation strategy is to supply, by manual operator action within 37 minutes, condensate from the tank to the SAFWP(s) to both SGs. The FLEX portion of the strategy would be to use dedicated FLEX pumps to refill the condensate tank from Lake Ontario, and continue to supply the SGs via the SAFWPs. Also, a fuel trailer would be used to resupply the 1 MW SAFW DG. While the new DG fuel tank and CST (with the planned cooldown) capabilities may be less than 24 hours, timelines being developed show that adequate response time will be available to refill the tanks during an ELAP event.
- A newly installed (and isolated) charging pump powered from the 1 MW SAFW DG, taking suction from the RWST and discharging to the RCS, will be used to provide borated RCS makeup to the RCS. This arrangement will include a discharge line routed through a protected portion of the Auxiliary Building to a newly installed Safety Injection (SI) line connection. The pump will be manually aligned as required. Due to expected Reactor Coolant Pump (RCP) seal leakage, the timeline to initiate charging is approximately one hour. The alternate FLEX strategy is to use a diesel

driven portable FLEX charging pump taking suction from the RWST, connected via high pressure hose, to a staged connection in the SI system.

- Ginna will have primary and alternate strategies to provide connections from a portable 100 kW FLEX diesel generator, or the 1 MW SAFW DG, to the AC input of the battery chargers. Connections using pre-identified cables will be performed within 8 hours so that the vital batteries will remain available for continued operation.

The primary Phase 2 coping strategy is to resupply the new CST from Lake Ontario, the Ultimate Heat Sink (UHS), using a portable diesel driven pump and hoses. Core cooling and heat removal will be sustained indefinitely, or until long term recovery actions are determined, using a SAFWP powered by the new 1 MW SAFW DG, with provisions for refilling the new CST and the 1 MW SAFW DG fuel tank.

The alternate Phase 2 strategy is to utilize a diesel driven high capacity portable pump to supply the SGs with water from the new CST should the SAFWP become unavailable. The new CST will be resupplied from Lake Ontario, the UHS, using an additional portable diesel driven pump and hoses. This strategy has the capacity to maintain the required level in the SGs with the SGs at the target pressure of 260 psig, which corresponds to about 410 degrees Fahrenheit (°F) in the cold legs of the RCS. Core cooling and heat removal will be sustained indefinitely, or until long term recovery actions are determined, using the portable diesel driven pump, with provision for refilling the new CST and portable diesel driven pump fuel tank.

In the R. E. Ginna Nuclear Power Plant- Interim Staff Evaluation Relating To Overall Integrated Plan In Response To Order EA-12-049 (Mitigation Strategies) (TAC NO. MF1152), dated February 19, 2014, (Reference 20) the NRC staff considered the design features of the SAFW DG, especially its independence from other plant systems and structures, and found that crediting the SAFW DG is an acceptable alternative to the NEI 12-06 guidance. The NRC staff also noted that Ginna has an alternate Phase 2 strategy for feeding the SGs for decay heat removal. This strategy utilizes a diesel driven portable FLEX pump, aligned to take suction from the new CST, with the capacity to maintain the required level in the SGs with the SGs at the target pressure of 260 psig, which corresponds to about 410 degrees Fahrenheit (°F) in the cold legs of the RCS. This alternate strategy does not use the SAFW DG or the SAFWPs.

The NRC staff also considered if Ginna would need a relaxation from Order EA-12-049 to credit the use of the SAFW DG. The order states, in part, that:

> *These strategies must be capable of mitigating a simultaneous loss of all alternating current (ac) power and loss of normal access to the ultimate heat sink and have adequate capacity to address challenges to core cooling, containment, and SFP cooling capabilities at all units on a site subject to this Order.*

The NRC staff found that Ginna's proposed strategies could demonstrate compliance with the order (assuming satisfactory resolution of the confirmatory items), and therefore that no relaxation to the order is required in order to credit the use of the SAFW DG.

e) As stated in the March 8, 2013 OIP submittal, following a loss of Spent Fuel Pool (SFP) cooling the SFP will heat up to a bulk temperature of 212^{0}F, at which time heat removal from the SFP will be due to boiling of the water with the steam removing the heat from the SFP. In these circumstances, a minimum water level of 5'-9" above the top of the fuel has been determined to provide adequate short term shielding. To maintain SFP

heat removal and to maintain the minimum water level of 5'-9" above the top of the fuel, the primary strategy for Phase 2 SFP cooling and makeup described in the March 8, 2013 OIP is revised as follows:

- The March 8, 2013 OIP Alternate Strategy 1 is now the Primary Strategy. That is, a portable diesel driven pump taking suction on an available water source, including Lake Ontario, will be aligned via hoses tied down at the edge of the SFP to fill the SFP to maintain greater than the minimum water level of 5'-9" above the top of the fuel.
- The March 8, 2013 OIP Alternate Strategy 2 becomes Alternate Strategy 1, which implements a strategy similar to the primary strategy above except that water is sprayed into the SFP using the discharge hoses connected to Blitz Fire nozzles.
- The March 8, 2013 OIP Primary Strategy will now be Alternate Strategy 2.

More details on these strategies can be found in the March 8, 2013 OIP submittal (Reference 3).

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

Ginna expects to comply with the order implementation date and no relief/relaxation is required at this time.

6 Open Items from Overall Integrated Plan and Interim Safety Evaluation

The following is a list of the open items from the OIP that have been added, deleted, completed, or revised since the last six month status report, with an explanation of the changes:

a) General Integrated Plan Elements PWR

Open Item 9: Establish a suitable local staging area for portable FLEX equipment to be delivered from the RRC to the site.

This item is **complete.** Suitable local staging areas have been established for portable FLEX equipment to be delivered from the Regional Response Center (RRC) to the site. Staging Area 'A' is located onsite and consists of multiple areas for portable equipment staging (see attached photo labeled Staging Area 'A'). Staging Area 'B' is located in the currently named contractor parking lot, as well as the area to the west (see attached photo labeled Staging Area 'B'). Staging Area 'C' is located on Rochester International Airport property (see attached photo labeled Staging Area 'C').

b) Safety Functions Support

Open Item 29: Implement a design change to provide connections to 480 Volt vital busses to be able to connect to RRC supplied D/Gs.

This item is **revised** to state "**Implement a strategy to provide connections to 480 Volt vital busses to be able to connect to RRC supplied D/Gs.** A design change will not be necessary to connect RRC supplied D/Gs to 480 Volt vital busses.

c) Maintain Core Cooling & Heat Removal and Maintain RCS Inventory / Long Term Subcriticality

Open Item 30: Ensure RRC can supply a water processing unit.

This item is **complete.** Ginna is a participant in the RRC reverse osmosis water (RO) purification unit. This RO purification unit will have a mechanical filtration system with an output flow capacity of 500 gallons per minute (gpm). The brackish water RO system will have an output flow capacity of 250 (gpm).

d) Maintain RCS Inventory Control / Long Term Subcriticality

Open Item 33: Implement a design change to convert the existing SAFW Test Tank to the FBAST with a permanent connection to the new pre-staged high pressure pump and connection(s) for a portable diesel driven pump.

This item is **revised** to state "**Implement a design change to connect a new pre-staged high pressure charging pump and FLEX diesel driven portable charging pump to the RWST.**" Subsequent to the March 8, 2013 OIP submittal (Reference 3) the decision was made not to replace the current Reactor Coolant Pump (RCP) seals with the low leakage seals. The FLEX Boric Acid Storage Tank (FBAST) would not have sufficient capacity to maintain RCS inventory without installing the RCP low leakage seals. To be able to maintain Reactor Coolant System (RCS) inventory and long term subcriticality after an ELAP, a design change will provide the capability to supply borated water from the RWST to the new pre-staged high pressure charging pump and a connectable portable diesel driven pump.

e) Maintain RCS Inventory Control / Long Term Subcriticality

Open Item 34: Implement a strategy to batch mix boron in the FBAST.

This item is **deleted.** The SAFW Test Tank will not be re-purposed as a FLEX Boric Acid Storage Tank (FBAST). This strategy is not necessary.

f) Maintain RCS Inventory Control / Long Term Subcriticality

Open Item 35: Implement a design change to install a pump capable of pumping 22 gallons per minute (gpm) of borated water into the RCS at 2235pounds per square inch gage (psig), or 70 gpm at 1500 psig, from the new FBAST with discharge piping connected to the Charging header.

This item is **revised** to state "**Implement a design change to install a pump capable of pumping 75 gallons per minute (gpm) of borated water from the RWST into the RCS at 1575 pounds per square inch (psi), with discharge piping connected to the Safety Injection System.**" As discussed previously under revised Open Item 33, the decision was made not to replace the RCP seals with a low leakage design. To provide sufficient capacity of borated water makeup to the RCS, a new high pressure pump will be installed, taking suction from the RWST and discharging to the Safety Injection System.

g) Maintain RCS Inventory Control / Long Term Subcriticality

Open Item 37: Implement a design change to connect a portable diesel engine driven high pressure pump to the FBAST and the Charging line, which is capable of pumping 20 gpm of borated water from the FBAST to the RCS at 2235 psig.

This item is **revised** to state "**Implement a design change to connect a portable diesel engine driven high pressure pump to the RWST and the Safety Injection System, which is capable of pumping 75 gpm of borated water from the RWST to the RCS at 1575 psi.**" As discussed previously under revised Open Item 33, the decision was made not to replace the RCP seals with a low leakage design. To provide sufficient capacity of alternate borated water makeup, the new portable diesel engine driven high pressure pump will be procured and be connectable to the RWST and Safety Injection System to provide alternate borated makeup to the RCS.

h) Maintain RCS Inventory Control / Long Term Subcriticality

Open Item 38: Ensure the RRC will supply boric acid for use with the inline blender.

This item is **revised** to state "**Ensure the RRC can supply a mobile boration unit.**" As discussed previously, the decision was made not to convert the SAFW Test Tank to the FBAST. An inline blender will not be necessary to refill the FBAST. To provide the capability for long term borated water makeup, a mobile boration unit can be supplied from the RRC.

i) Maintain Core Cooling & Heat Removal (S/Gs Not Available)

Open Item 43: Develop and implement procedures to makeup to the refueling cavity from the new CST, UHS, or FBAST to maintain refueling cavity level and boron concentration.

This item is **revised** to state "**Develop and implement procedures to makeup to the refueling cavity from the new CST, UHS, or RWST to maintain refueling cavity level and boron concentration.**" The SAFW Test Tank will not be re-purposed as a FLEX Boric Acid Storage Tank (FBAST). The RWST will replace the FBAST as a source of makeup to the refueling cavity to maintain refueling cavity level and boron concentration.

j) Maintain Core Cooling & Heat Removal (S/Gs Not Available)

Open Item 46: Implement a design change to establish provisions for refilling the FBAST with borated water.

This item is **deleted.** The SAFW Test Tank will not be re-purposed as a FLEX Boric Acid Storage Tank (FBAST). This design change is not necessary.

k) Maintain Core Cooling & Heat Removal and Maintain RCS Inventory / Long Term Subcriticality

Open Item 53: Ensure the RRC will provide additional portable pumps and equipment to spray water into containment or supply water to the Containment Recirculation Fans/ Coolers.

This item is **complete.** The RRC has a Low Pressure/Medium Flow Pump and a Low Pressure/High Flow Pump with an available selection of hoses and mechanical connections that can provide for containment spray or supply water to the Containment Recirculation Fans/ Coolers.

l) Maintain Spent Fuel Pool Cooling

Open Item 56: Revise ER-SFP.2 to provide multiple strategies for establishing a diverse means of SFP makeup for at least 30 hours without offsite supplies.

This item is **revised** to state "**Implement new FSG-11, Alternate SFP Makeup and Cooling, to provide multiple strategies for establishing a diverse means of SFP makeup and cooling for at least 72 hours.**" Rather than revising an existing procedure, a FLEX support guideline (FSG) will be used to maintain the Spent Fuel Pool Cooling function for a BDBEE.

m) Maintain Spent Fuel Pool Cooling

Open Item 59: Ensure the RRC will provide additional portable pumps and equipment to:

- **provide water from the UHS to the Standby SFP Heat Exchanger to remove heat from the SFP cooling system with the Standby SFP Recirculation Pump; or**
- **provide water to SFP Heat Exchanger A to remove heat from the SFP Cooling System with the Standby SFP Recirculation Pump or SFP Pump A, or**
- **provide a heat exchanger and equipment to provide cooling for the SFP.**

This item is **revised** to state "**Ensure the RRC will provide additional portable pumps and equipment to:**

- **provide water from the UHS to the Standby SFP Heat Exchanger to remove heat from the SFP cooling system with the Standby SFP Recirculation Pump; or**
- **provide water to SFP Heat Exchanger A to remove heat from the SFP Cooling System with the Standby SFP Recirculation Pump or SFP Pump A.**"

A heat exchanger is not needed from the RRC as the site has multiple heat exchanger options for SFP cooling, including a spare SFP cooling heat exchanger.

This item is **complete**. The RRC has a Low Pressure/Medium Flow Pump and a Low Pressure/High Flow Pump with an available selection of hoses and mechanical connections that can provide water from the UHS to the Standby SFP Heat Exchanger or to SFP Heat Exchanger A.

n) Safety Functions Support

Open Item 60: Implement a design change to install connection points needed to supply the battery chargers from the 1 MW D/G.

This item is **revised** to state "**Implement a strategy to supply the battery chargers from the 1 MW D/G using existing plant equipment connection points.**" A design change is not necessary to connect the 1 MW D/G to the battery chargers.

o) Safety Functions Support

Open Item 61: Implement a design change to install connection points needed to supply the battery chargers from the 100 kW D/G.

This item is **revised** to state "**Implement a strategy to supply the battery chargers from the 100 kW D/G using existing plant equipment connection points.**" A design change is not necessary to connect the 100 kW D/G to the battery chargers.

Table 2 provides a summary of the open items documented in the OIP and those added in a subsequent six month status report, and the status of each item.

Table 2
Status of FLEX OIP Open Items

Ginna OIP Open Items	Status
1. Implement a design change to install permanent protected FLEX equipment connection points. (also see OI 23)	Started (8/2013)
2. Provide for onsite storage of Phase 2 FLEX components that is protected against external events by design or location. Implement a design change to provide a protected storage location for transportation (equipment and fuel) and debris removal equipment. Evaluate deployment strategies and deployment routes for hazards impact. Evaluate requirements and options and develop strategies related to the storage onsite of the FLEX portable equipment. Establish deployment routes from FLEX equipment storage locations to connection points. Develop a strategy and purchase equipment to respond to events that may require debris removal such as following a flood, tornado, or snow storm. Develop a strategy to move FLEX equipment, including providing reasonable protection from a BDBEE.	Started (2/2014)
3. Exceptions for the site security plan or other (license/site specific – 10 CFR 50.54x) requirements of a nature requiring NRC approval will be communicated in a future 6-month update following identification.	**Complete** (See the 2/2014 OIP Update)
4. Develop and implement procedures to commence feeding the steam generators (S/Gs) from Standby Auxiliary Feedwater (SAFW) powered by the new SAFW Diesel Generator (D/G) and taking suction from the new Condensate Storage Tank (CST) prior to reaching 5 ft in the existing CSTs.	Not Started
5. Develop and implement a FLEX method / procedure to refill the new SAFW CST prior to losing suction.	Not Started

Ginna OIP Open Items	Status
6. Develop and implement a program and/or procedure to keep FLEX equipment deployment pathways clear or with identified actions to clear the pathways.	Not Started
7. Determine schedule for when RRCs will be fully operational.	**Complete** (See the 8/2013 OIP Update)
8. Define criteria for the local RRC staging area by June 2013.	**Complete** (See the 2/2014 OIP Update)
9. Establish a suitable local staging area for portable FLEX equipment to be delivered from the RRC to the site.	**Complete** (This OIP Update 8/2014)
10. Develop site specific playbook for delivery of portable FLEX equipment from the RRC to the site.	Started (8/2013)
11. Perform an analysis to determine the diesel driven portable high pressure pump upper and lower head requirements to provide for a minimum of 215 gpm to a S/G without causing Reactor Coolant System (RCS) pressure to decrease to the point where nitrogen will be injected from the SI Accumulators, assuming suction is directly from the Ultimate Heat Sink (UHS).	Started (8/2014)
12. Develop and implement procedures to close Safety Injection (SI) Accumulator injection valves or vent the SI Accumulators prior to nitrogen injection into the RCS.	Not Started
13. Perform an analysis to determine the time to restore feed to a S/G if only one S/G was able to be supplied with feedwater after a trip and then feed is lost to that one S/G. This is to account for the reduction in water available for heat removal.	**Deleted** (See the 2/2014 OIP Update)
14. Implement the design change to install the 1 MW SAFW D/G, 160,000 gallon Condensate Storage Tank (CST), and enclosure meeting the reasonable protection requirements of NEI 12-06.	Started (8/2013)
15. Develop and implement procedures to feed S/Gs using a SAFW Pump powered by the new SAFW D/G and taking suction on the new 160,000 CST. Revise procedures to direct Operators to manually establish makeup to the S/Gs via this flow path if the Turbine Driven Auxiliary Feedwater (TDAFW) Pump fails to deliver water to the S/Gs.	Not Started
16. Implement a design change to protect a S/G Atmospheric Relief Valve (ARV) from Tornado Missiles to address reactor core cooling and heat removal using a high capacity portable diesel driven pump.	Not Started

Ginna OIP Open Items	Status
17. Perform an analysis to demonstrate adequate manpower, communications capability, and habitability for local operation of the S/G ARVs. If this cannot be demonstrated, implement a design change to provide for ARV control from the Control Room for seismic and tornado missile events.	Started (8/2013)
18. Develop and implement procedures/administrative controls to ensure that the new CST maintains a minimum usable volume at all times.	Not Started
19. Perform an analysis or implement a design change to qualify S/G Pressure instrumentation for a Tornado Missile event.	Started (2/2014)
20. Identify instrumentation and develop procedures to take field readings of necessary parameters, including (Pressure Indicator) PI-430 and (Level Indicator) LI-427.	Started (8/2013)
21. Implement a strategy to connect a portable air compressor at a location/ configuration to support ARV operation.	Not Started
22. Develop and implement procedures to refill the new CST from an alternate water source prior depleting the usable volume (approximately 15 hours after the event).	**Revised** (See the 2/2014 OIP Update) Not Started
23. Implement a design change as part of the installation of the new CST to install a mechanical connection that will allow the tank to be refilled from a portable diesel driven pump.	Started (8/2013)
24. Perform an analysis to establish plant conditions in Phase 1 that will allow diesel driven high capacity portable pump to be utilized as soon as plant resources are available to provide defense in depth for maintaining an adequate heat sink should SAFW fail.	Started (2/2014)
25. Implement a design change to install a new isolation valve upstream of the FLEX connection to S/G B in case a tornado missile impacts a section of unprotected piping between the SAFW Building and the connection point.	Not Started
26. Implement a strategy to provide a sustainable source of nitrogen and/or air to the Power Operated Relief Valves (PORVs) to protect RCS Integrity during a BDBEE while in Mode 4 or Mode 5, loops filled.	**Revised** (See the 2/2014 OIP Update) Started (2/2014)
27. Develop and implement procedures to provide guidance for water solid S/G cooldown using FLEX equipment.	Not Started
28. Ensure RRC can supply D/Gs capable of powering vital bus loads.	**Complete** (See the 2/2014 OIP Update)

Ginna OIP Open Items	Status
29. Implement a strategy to provide connections to 480 Volt vital busses to be able to connect to RRC supplied D/Gs.	**Revised** (This OIP Update 8/2014) Not Started
30. Ensure RRC can supply a water processing unit.	**Complete** (This OIP Update 8/2014)
31. Implement a design change to install low leakage Reactor Coolant Pump (RCP) seals. The new seals need to be able to withstand T_{hot} for an extended period of time.	**Deleted** (See the 2/2014 OIP Update)
32. Perform an analysis to validate that a FLEX Boric Acid Storage Tank (FBAST) with a boron concentration of at least 2750 parts per million (ppm) and no more than 3050 ppm, and containing a minimum usable volume of 7000 gallons, is sufficient to maintain the reactor subcritical at Beginning of Life (BOL) or End of Life (EOL) conditions with T_{ave} at or near no-load T_{ave}, and at EOL conditions with a cooldown to 350°F. (Analysis must be bounding for current and future cycles.)	**Deleted** (See the 2/2014 OIP Update)
33. Implement a design change to connect a new pre-staged high pressure charging pump and FLEX diesel driven portable charging pump to the RWST.	**Revised** (This OIP Update 8/2014) Started (8/2014)
34. Implement a strategy to batch mix boron in the FBAST.	**Deleted** (This OIP Update 8/2014)
35. Implement a design change to install a pump capable of pumping 75 gallons per minute (gpm) of borated water from the RWST into the RCS at 1575 pounds per square inch (psi), with discharge piping connected to the Safety Injection System.	**Revised** (This OIP Update 8/2014) Started (8/2013)
36. Develop and implement procedures to initiate RCS boration prior to commencing RCS cooldown to provide margin to prevent re-criticality.	Not Started
37. Implement a design change to connect a portable diesel engine driven high pressure pump to the RWST and the Safety Injection System, which is capable of pumping 75 gpm of borated water from the RWST to the RCS at 1575 psi.	**Revised** (This OIP Update 8/2014) Started (8/2014)
38. Ensure the RRC can supply a mobile boration unit.	**Revised** (This OIP Update 8/2014) Started (2/2014)
39. Perform an analysis to determine minimum RCS makeup flow sufficient for simultaneous core heat removal and boron flushing for Mode 5, loops not filled and pressurizer manway not removed.	Started (2/2014)
40. Perform an analysis to determine the transition point from gravity fill of the refueling cavity to when forced makeup is required.	Not Started

Ginna OIP Open Items	Status
41. For Mode 5, Loops Not Filled, and Pressurizer Manway Not Removed, RCS Heat Removal will be by RCS Bleed and Feed. Items under consideration are: • Establish RCS feed path using low pressure pump capable of [To Be Determined] gpm at > 50 psig and a maximum discharge pressure of 410 psig to the RCS. • Establish sufficient RCS bleed path (PORVs, Reactor Head Vents) • Implement a strategy to provide a connection point for Instrument Air to Containment (OI 47) • Establish feed to available S/Gs Partial strategy for consideration - Fill available S/Gs to provide limited heat sink function and additional time before boiling of the coolant occurs. Existing procedural guidance for Water Solid S/G Cooldown provides guidance that can be modified for use with a high flow portable diesel driven pump to maintain the limited heat sink function. • If Water Solid S/G Cooldown is effective to maintain core cooling and heat removal, secure RCS Bleed and Feed and maintain Pressurizer Level.	Started (2/2014)
42. Perform an analysis to determine RCS vent path requirements for Mode 5 with PORV vent path.	Started (2/2014)
43. Develop and implement procedures to makeup to the refueling cavity from the new CST, UHS, or RWST to maintain refueling cavity level and boron concentration.	**Revised** (This OIP Update 8/2014) Not Started
44. Perform a boron mixing analysis for the effects on RCS boron concentration by providing unborated water to the refueling cavity via the transfer canal from the Auxiliary Building to Containment.	**Deleted** (See the 2/2014 OIP Update)
45. Evaluate the viability of feed and bleed for available S/Gs to provide a limited heat sink function and additional time before boiling of the coolant occurs as a parallel mitigating strategy during Modes 5 & 6. This analysis must address reflux condensation and its potential effects on reactor shutdown margin.	Started (2/2014)
46. Implement a design change to establish provisions for refilling the FBAST with borated water.	**Deleted** (This OIP Update 8/2014)
47. Implement a strategy to provide a connection point for Instrument Air to Containment.	**Revised** (See the 2/2014 OIP Update) Started (2/2014)
48. Perform an evaluation to determine a method for recirculation cooling of the RCS if the Auxiliary Building Sub-basement is flooded by Tornado Missiles damaging non-protected tanks on the Auxiliary Building Operating Floor.	Started (2/2014)

Ginna OIP Open Items	Status
49. Perform an analysis to determine the containment pressure profile during an ELAP / Loss of Ultimate Heat Sink (LUHS) event and determine the mitigating strategies necessary to ensure the instrumentation and controls in containment which are relied upon by the Operators are sufficient to perform their intended function.	**Revised** (See the 2/2014 OIP Update) Started (2/2014)
50. Perform an analysis of the containment function to determine the mitigating strategy acceptance criteria for an ELAP / LUHS event.	Started (8/2014)
51. Implement a strategy to determine containment pressure after a Tornado Missile event.	**Revised** (See the 8/2013 OIP Update) Started (2/2014)
52. Develop the Phase 3 strategy after the containment pressure analysis is completed as described in Maintain Containment, PWR Portable Equipment Phase 2.	Not Started
53. Ensure the RRC will provide additional portable pumps and equipment to spray water into containment or supply water to the Containment Recirculation Fans / Coolers.	**Complete** (This OIP Update 8/2014)
54. Implement a strategy to provide for a protected makeup connection to the Spent Fuel Pool (SFP) cooling piping to provide makeup to the SFP that exceeds SFP boil-off and provide a means to supply SFP makeup without accessing the SFP walkway.	**Revised** (See the 2/2014 OIP Update) Started (2/2014)
55. Provide the necessary connecting hoses and/or equipment to work with existing pumps and water sources for filling the SFP.	Started (2/2014)
56. Implement new FSG-11, Alternate SFP Makeup and Cooling, to provide multiple strategies for establishing a diverse means of SFP makeup and cooling for at least 72 hours.	**Revised** (This OIP Update 8/2014) Not Started
57. Perform an analysis to determine if a vent pathway from the SFP is needed for steam and condensate to minimize the potential for steam to cause access and equipment problems in the Auxiliary Building. (also see OI 62)	Started (2/2014)
58. SFP Water Level instrument numbers will be provided upon detailed design completion.	**Complete** (See the 2/2014 OIP Update)
59. Ensure the RRC will provide additional portable pumps and equipment to: • provide water from the UHS to the Standby SFP Heat Exchanger to remove heat from the SFP cooling system with the Standby SFP Recirculation Pump; or • provide water to SFP Heat Exchanger A to remove heat from the SFP Cooling System with the Standby SFP Recirculation Pump or SFP Pump A.	**Complete** (This OIP Update 8/2014) **Revised** (This OIP Update 8/2014)

Ginna OIP Open Items	Status
60. Implement a strategy to supply the battery chargers from the 1 MW D/G using existing plant equipment connection points.	**Revised** (This OIP Update 8/2014) Started (2/2014)
61. Implement a strategy to supply the battery chargers from a 100 kW D/G using existing plant equipment connection points.	**Revised** (This OIP Update 8/2014) Started (2/2014)
62. Perform GOTHIC calculations consistent with NUMARC 87-00, *Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors*, to determine the effects of a loss of HVAC during an ELAP for the following areas: • Intermediate Building, TDAFW Pump and ARV/ (Safety Valve (SV) areas • Auxiliary Building, Refueling Water Storage Tank (RWST) area • Battery Rooms, Relay Room, and Control Room • Standby Auxiliary Feedwater Building	Started (8/2013)
63. Perform an analysis to evaluate the Battery Room low temperature for an ELAP event, assuming -16°F air temperature to determine if, and when, Battery Room heating is required.	Started (2/2014)
64. Implement a strategy for accessing the UHS for all BDBEEs and to meet required deployment times. This must also address how debris in the UHS or other raw water sources will be filtered / strained and how the resulting debris will effect core cooling.	**Revised** (See the 2/2014 OIP Update) Started (2/2014)
65. Implement a strategy to provide for transferring diesel fuel from the D/G A and D/G B Fuel Oil Storage Tanks (FOSTs) to a fuel transfer vehicle.	**Revised** (See the 2/2014 OIP Update) Started (2/2014)
66. Perform an analysis to provide a basis that the Offsite D/G FOSTs are reasonably protected from BDBEEs.	Started (8/2014)
67. Develop the strategy to transfer fuel from protected fuel storage locations to FLEX equipment.	Started (8/2014
68. Develop strategies to provide for emergency lighting to support Operator actions after a BDBEE.	Started (2/2014)
69. Develop a strategy to protect onsite consumables for use after a BDBEE.	Started (2/2014)
70. Develop and implement procedures to establish battery room ventilation within 72 hours of the event to prevent exceeding the unacceptable hydrogen concentration limit of 2%, once the GOTHIC analysis has been completed as discussed in Phase 2.	Not Started

Ginna OIP Open Items	Status
71. Table 3 lists Phase 3 Response Equipment / Commodities that are being considered for pre-staging at an offsite location. These include: • Radiation Protection Equipment • Commodities – Food, Potable Water • Diesel Fuel • Heavy Equipment – Transportation, Debris Removal • Boric Acid • Portable Lighting • Portable Toilets	**Deleted** (See the 2/2014 OIP Update)
72. Install wide range SFP level instrumentation in accordance with NRC Order EA-12-051.	Started (8/2013)
73. Implement a strategy to provide cooling water to the RHR Heat Exchangers using a portable diesel driven pump.	Started (2/2014)
74. Any additional non-safety equipment will be identified and evaluated for suitability in the mitigation strategies	Started (2/2014)

Table 3 provides a summary of the open and confirmatory items documented in the Ginna Interim Staff Evaluation (ISE) (Reference 20) and the status of each item following the issuance of the ISE.

Table 3
Status of Interim Safety Evaluation (ISE) Open and Confirmatory Items

ISE Open Items	Status
None	

ISE Confirmatory Items	Status
1. **ISE Confirmatory Item 3.1.1.A** – Confirm that the licensee addresses the results of the seismic and flooding re-evaluations pursuant to the NRC's 50.54(f) letter of March 12, 2012.	Started (8/2014)
2. **ISE Confirmatory Item 3.1.1.1.A** – Protection, seismic - confirm that large portable FLEX equipment such as pumps and power supplies would be secured as appropriate to protect them during a seismic event and that stored equipment and structures would be evaluated and protected from seismic interactions to ensure that unsecured and/or non-seismic components do not damage the equipment.	Started (8/2014)

ISE Confirmatory Items	Status
3. **ISE Confirmatory Item 3.1.1.3.A** – Procedural Interfaces – seismic - confirm that a reference source for the plant operators is provided that provides approaches to obtaining necessary instrument readings to support the implementation of the coping strategies.	Started (8/2014)
4. **ISE Confirmatory Item 3.1.4.2.A** – Snow, ice and extreme cold - confirm that potential loss of access to the UHS and flow path due to extreme low temperatures, e.g., due to ice blockage or formation of frazil ice, is assessed and resolved.	Started (8/2014)
5. **ISE Confirmatory Item 3.2.1.A** – Confirm resolution of open item to develop and implement procedures to close SI accumulator injection valves or vent the SI accumulators prior to nitrogen injection into the RCS.	Not Started
6. **ISE Confirmatory Item 3.2.1.B** – Confirm evaluation of the recommendation to consider the prioritization of staging portable equipment that may be required to isolate/vent the accumulators when certain cooldown maneuvers are necessitated.	Not Started
7. **ISE Confirmatory Item 3.2.1.1.A** – Confirm completion of timelines used in conjunction with the thermal hydraulic analysis to document the duration of each phase for each critical function, and the basis for the duration.	Started (8/2014)
8. **ISE Confirmatory Item 3.2.1.2.A** – RCP seals - Confirm that, if RCP seals are changed to non-Westinghouse seals, the acceptability of the use of non-Westinghouse seals is addressed, and the RCP seal leakage rates for use in the ELAP analysis are provided with acceptable justification.	Started (8/2014)
9. **ISE Confirmatory Item 3.2.1.2.B** – High temperature RCP seal concern - If applicable, confirm justification that (1) the integrity of the associated O-rings will be maintained at the temperature conditions experienced during the ELAP event, and (2) the seal leakage rate of 21 gpm/seal used in the ELAP is adequate and acceptable.	Started (8/2014)
10. **ISE Confirmatory Item 3.2.1.8.A** – The licensee informed the NRC staff of its intent to abide by the generic approach described in the PWROG August 15, 2013 position paper related to modeling the timing and uniformity of boric acid mixing within the RCS under natural circulation conditions potentially involving two-phase flow. Confirm that the additional conditions discussed in the NRC endorsement letter are satisfied, and that boration requirements are met.	Started (8/2014)

ISE Confirmatory Items	Status
11. **ISE Confirmatory Item 3.2.1.9.A** – Confirm design information and supporting analysis developed for portable equipment that provides the inputs, assumptions, and documented analyses that the mitigation strategy and support equipment will perform as intended.	Started (8/2014)
12. **ISE Confirmatory Item 3.2.3.A** – Containment analysis - Confirm completion of containment analysis and incorporation of results into mitigation strategies.	Started (8/2014)
13. **ISE Confirmatory Item 3.2.4.2.A** – Ventilation - confirm completion of GOTHIC calculations and incorporation of results into mitigation strategies.	Started (8/2014)
14. **ISE Confirmatory Item 3.2.4.4.A** – Emergency lighting - confirm development of lighting strategies.	Started (8/2014)
15. **ISE Confirmatory Item 3.2.4.4.B** – Communications - confirm completion of upgrades.	Started (8/2014)
16. **ISE Confirmatory Item 3.2.4.5.A** – Protected Area Access - confirm that strategies are in place to allow access to protected areas as needed to execute mitigation strategies.	Started (8/2014)
17. **ISE Confirmatory Item 3.2.4.8.A** – Confirm that the final electrical design has the necessary electrical isolations and protections.	Started (8/2014)
18. **ISE Confirmatory Item 3.3.1.A** – Confirm sufficient quantities of FLEX equipment to meet N+1.	Started (8/2014)

7 Potential Interim Safety Evaluation Impacts

There are no potential impacts to the Interim Safety Evaluation as this time.

8 Communications Assessment Interim Actions Status

Table 4 provides a listing of the implementing actions documented in the Assessment of Communications during an ELAP (Reference 4). It provides the status of each action, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed. Beginning with the February 2015 update, Ginna will no longer include the status of the communications assessment interim actions as discussed in the cover letter.

Table 4
Status of Communications Assessment Interim Actions

Communications Assessment Implementing Actions	Target Completion Date	Status	Revised Target Completion Date
Fixed Satellite Phone System and Antennas			
1. Determine the status of existing fixed satellite phone system and antennas in terms of suitability of being "Reasonably protected"	12/31/2013	**Complete** (See the 8/2013 OIP Update)	
2. Install fixed satellite antennas/dishes to support the use of fixed satellite phones at all onsite locations (Control Room, Technical Support Center (TSC), and Operational Support Center (OSC)).	8/31/2014	**Revised** (This OIP Update 8/2014) Started (8/2014)	Prior to refueling outage startup Fall 2015*
3. Stage portable satellite dishes to support the use of fixed satellite phones at all onsite locations (Control Room, TSC, and OSC).	Prior to refueling outage startup Fall 2015	**New** (This OIP Update 8/2014) Not Started	
NAB, TSC and Service Buildings			
1. Determine whether or not the Nuclear Assurance Building (NAB), TSC and Service Building are "reasonably protected."	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
Portable Satellite Phones			
1. Stage portable satellite phones	Complete	**Complete** (See the 8/2013 OIP Update)	

Communications Assessment Implementing Actions	Target Completion Date	Status	Revised Target Completion Date
2. Stage portable satellite phone batteries and chargers in the applicable Emergency Response Organization (ERO) Facilities.	10/31/2013	**Complete** (See the 2/2014 OIP Update)	
3. Update work instructions for portable satellite phone inventory.	10/31/2013	**Complete** (See the 2/2014 OIP Update)	
4. Develop/update preventive maintenance and testing procedures for portable satellite phones, batteries and chargers.	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
5. Include information on portable satellite phone locations and usage in procedures.	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
6. Stage off-site portable off-site satellite phones.	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
7. Procure and install a high power UPS or similar modification providing backup power for the battery chargers for portable satellite phones.	12/31/2014	**Deleted** (This OIP Update 8/2014)	

Communications Assessment Implementing Actions	Target Completion Date	Status	Revised Target Completion Date
Fixed Satellite Phones			
1. Procure and install fixed satellite phones, additional antennas, and uninterruptable power supplies for the TSC/OSC, Control Room, Emergency Operations Facility (EOF), Joint Information Center (JIC), and Wayne and Monroe Counties Emergency Operations Centers (EOCs) and Warning Points (WPs). Include the capability to power the portable satellite phone battery chargers.	12/31/2014	Not Started	Prior to refueling outage startup Fall 2015*
2. Develop/update preventative maintenance and testing procedures for fixed satellite phones.	8/31/2014	Not Started	Prior to refueling outage startup Fall 2015*
3. Include information on fixed satellite phone locations and usage in procedures.	12/13/2013	**Complete** (See the 2/2014 OIP Update)	
4. Provide instructions for use of fixed satellite phones at each location.	12/31/2014	Not Started	Prior to refueling outage startup Fall 2015*

Communications Assessment Implementing Actions	Target Completion Date	Status	Revised Target Completion Date
Communication with ORO Facilities			
1. Provide each Offsite Response Organization (ORO) identified in Section 4.3 of the Communications Assessment with instructions for proper storage and rotation of satellite phone batteries.	8/31/2013	**Complete** (See the 2/2014 OIP Update)	
2. Install fixed satellite dish at Wayne and Monroe Counties Emergency Operations Centers (EOCs) and Warning Points (WPs)	Prior to refueling outage startup Fall 2015	**New** (This OIP Update 8/2014) Not Started	
Portable Generators			
1. Develop portable generator fueling plan to ensure ability to provide power for a minimum of 24 hours.	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
2. Develop procedures to maintain and test the portable generators.	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
3. Update work instructions to inventory portable generators and ensure adequate volume of fuel.	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
4. Develop preventive maintenance procedure for portable generators fuel supply.	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
5. Determine a process for relocating portable generators to the appropriate locations to power the necessary equipment.	12/31/2013	**Complete** (See the 2/2014 OIP Update)	
Training			
1. Evaluate training needs specific to the use of portable and fixed satellite phones, and radios during an ELAP event.	10/31/2015	Not Started	

Communications Assessment Implementing Actions	Target Completion Date	Status	Revised Target Completion Date
2. Develop and implement training on the use of backup generators.	10/31/2015	Not Started	
3. Revise EPIP-1-18 as described in Section 4.11 of Reference 4 Brief appropriate personnel on the contents of this procedure.	10/31/2013	**Complete** (See the 2/2014 OIP Update)	
APC Back-UPS ES 750			
1. Determine whether APC Back-UPS ES 750 is high enough above ground elevation in the On-Site Telephone Building to be protected from flooding.	12/31/2013	**Deleted** (See the 2/2014 OIP Update)	
Portable Radios			
1. Procure and install a high power UPS or similar modification providing backup power for the radio system repeaters.	10/31/2015	Not Started	
2. Complete estimates of portable radio battery life and procure additional batteries as necessary based on an estimate of minimum talk time to ensure 24 hours of operation.	10/31/2013	**Complete** (See the 2/2014 OIP Update)	
3. Procure and stage portable radio repeaters(s) with generator(s) to extend range of portable radios	Prior to refueling outage startup Fall 2015	**New** (This OIP Update 8/2014) Not Started	

* Change since submittal of last six month status report.

9 References

The following references support the updates to the OIP described in this attachment.

1. Letter from M. G. Korsnick (CENG) to Document Control Desk (NRC), "Overall Integrated Plan for Mitigation Strategies for Beyond-Design-Basis External Events," dated February 28, 2013 (FLL-13-007).
2. NRC Order Number EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012.
3. Letter from M. G. Korsnick (CENG) to Document Control Desk (NRC), "Supplement to Overall Integrated Plan for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 8, 2013 (FLL-13-015).
4. Letter from M .G. Korsnick (CENG) to Document Control Desk (NRC), "Response to NRC Letter on Technical Issues for Resolution Regarding Communication Submittals Associated with Near-Term Task Force Recommendation 9.3," dated February 22, 2013 (FLL-13-011).
5. Letter from M. G. Korsnick (CENG) to Document Control Desk (NRC), "February 2014 Six-Month Status Report in response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 27, 2014 (FLL-14-004).
6. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," dated August 2012.
7. NRC Regulatory Guide 1.76, "Design-Basis Tornado and Tornado Missiles for Nuclear Power Plants," Revision 1
8. Updated Final Safety Analysis Report, Revision 24
9. Letter from R. W. Kober (RG&E) to Director of Nuclear Regulation (NRC), "Structural Upgrade Program SEP Topics, II-2.A, III-2, III-4.A and III-7.B," dated July 13, 1984
10. Letter from C. Stahle (NRC) to R. W. Kober (RG&E), "Safety Evaluation Report on the Structural Upgrade Program," dated March 24 1987
11. Letter from J. A. Gresham (Westinghouse) to Document Control Desk (NRC), "Notification of the Potential Existence of Defects Pursuant to 10 CFR Part 21," dated July 26, 2013 (ML13211A168)
12. WCAP-17601-P, "Reactor Coolant System Response to the Extended Loss of AC Power Event for Westinghouse, Combustion Engineering and Babcock & Wilcox NSSS Designs," Revision 0
13. Letter from M. G. Korsnick (CENG) to Document Control Desk (NRC), "Supplemental Response to Requests for Additional Information Regarding Topics Described by Letters Dated August 24, 2005 and October 28, 2005," dated January 11, 2006 (ML060180262)
14. CN-LIS-05-163, "SBLOCA Cooldown Calculation Results for R.E. Ginna (RGE) Extended Power Uprate and 422V+ Fuel Upgrade Program," Revision 0 (Proprietary)

15. CALC-2014-0002, "Cycle 38 Reactor Engineering Calculations," Revision 0

16. Westinghouse Response to NRC Generic Request for Additional Information (RAI) on Boron Mixing in Support of the Pressurized Water Reactor Owners Group (PWROG), August 15, 2013 (Proprietary) (ML13235A135)

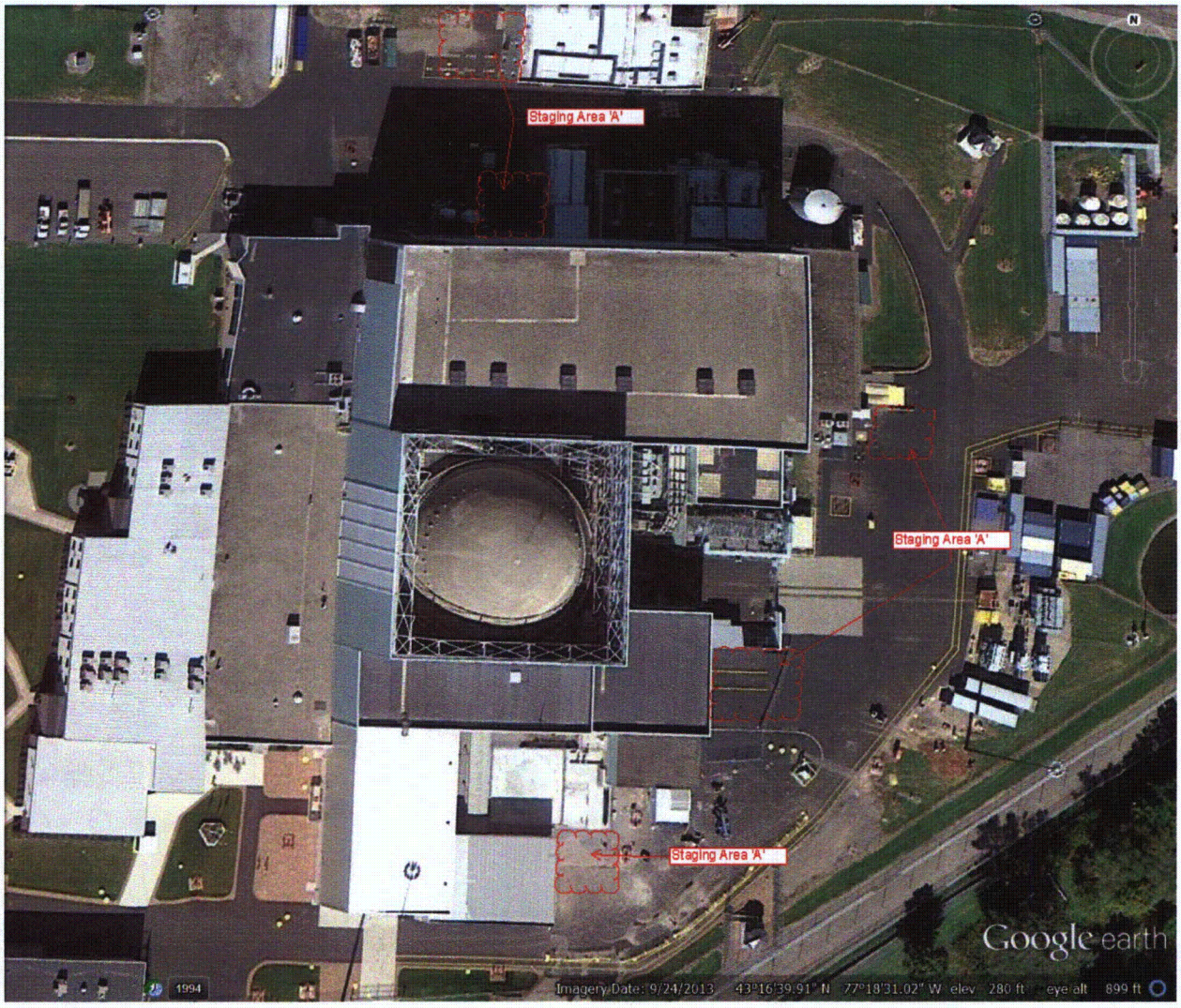
17. Letter from J. Davis (NRC) to J. Stringfellow (PWROG) regarding request to endorse the Westinghouse position paper entitled "Westinghouse Response to NRC Generic Request for Additional Information (RAI) on Boron Mixing in Support of the Pressurized Water Reactor Owners Group (PWROG)," made available in your letter dated August 16, 2013, dated January 8, 2014 (ML13276A183)

18. ECA-0.0, "Loss of All AC Power," Revision 03800

19. U.S.NRC JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0 (ML12229A174)

20. Letter from J. S. Bowen (NRC) to M. G. Korsnick (CENG), "R. E. Ginna Nuclear Power Plant – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC No. MF1152)," dated February 19, 2014 (ML14007A704)

Staging Area 'A'



Staging Area 'B'

Staging Area 'C'