



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 21, 2014

Mr. Lawrence J. Weber
Senior Vice President and
Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2 - PLAN FOR THE
ONSITE AUDIT REGARDING IMPLEMENTATION OF MITIGATING
STRATEGIES AND RELIABLE SPENT FUEL INSTRUMENTATION RELATED
TO ORDERS EA-12-049 AND EA-12-051 (TAC NOS. MF0766, MF0767,
MF0761, AND MF0762)

Dear Mr. Weber:

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design-Basis External Events" and Order EA-12-051, "Order to Modify Licenses With Regard To Reliable Spent Fuel Pool Instrumentation," (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML12054A736 and ML12054A679, respectively). The orders require holders of operating reactor licenses and construction permits issued under Title 10 of the *Code of Federal Regulations* Part 50 to submit for review, Overall Integrated Plans (OIPs) including descriptions of how compliance with the requirements of Attachment 2 of each order will be achieved.

By letter dated February 27, 2013 (ADAMS Accession No. ML13101A381), Indiana Michigan Power Company (the licensee) submitted its OIP for Donald C. Cook Nuclear Plant, Units 1 and 2 (CNP) in response to Order EA-12-049. By letters dated August 26, 2013, and February 27, 2014 (ADAMS Accession Nos. ML13240A308 and ML14063A042, respectively), the licensee submitted its first two six-month updates to the OIP. By letter dated August 28, 2013 (ADAMS Accession No. ML13234A503), the NRC notified all licensees and construction permit holders that the staff is conducting audits of their responses to Order EA-12-049 in accordance with NRC Office of Nuclear Reactor Regulation (NRR) Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195). This audit process led to the issuance of the CNP interim staff evaluation (ISE) and audit report (ADAMS Accession No. ML13337A325) and continues with in-office and onsite portions of this audit.

By letter dated February 27, 2013 (ADAMS Accession No. ML13071A323), the licensee submitted its OIP for CNP in response to Order EA-12-051. By letter dated June 19, 2013 (ADAMS Accession No. ML13164A381), the NRC staff sent a request for additional information (RAI) to the licensee. By letters dated July 11, 2013, August 26, 2013, and February 27, 2014 (ADAMS Accession Nos. ML13196A250, ML13247A050, and ML14063A041, respectively), the licensee submitted its RAI responses and first two six-month updates to the OIP.

L. Weber

- 2 -

The NRC staff's review to date led to the issuance of the CNP ISE and RAI dated November 13, 2013 (ADAMS Accession No. ML13310B499). By letter dated March 26, 2014 (ADAMS Accession No. ML14083A620), the NRC notified all licensees and construction permit holders that the staff is conducting in-office and onsite audits of their responses to Order EA-12-051 in accordance with NRC NRR Office Instruction LIC-111 as discussed above. By letter dated April 28, 2014 (ADAMS Accession No. ML14115A315), the NRC staff issued an audit plan to the licensee for an audit of vendor information pertaining to Order EA-12-051.

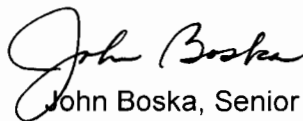
The ongoing audit process, to include the in-office and onsite portions, allows the staff to assess whether it has enough information to make a safety evaluation of the Integrated Plans. The audit allows the staff to review open and confirmatory items from the mitigation strategies ISE, RAI responses from the spent fuel pool instrumentation ISE, the licensee's integrated plans, and other audit questions. Additionally, the staff gains a better understanding of submitted information, identifies additional information necessary for the licensee to supplement its plan, and identifies any staff potential concerns. The audit's onsite portion will occur prior to declarations of compliance for the first unit at each site.

This document outlines the on-site audit process that occurs after ISE issuance as licensees provide new or updated information via periodic updates, update audit information on e-portals, provide preliminary Overall Program Documents/Final Integrated Plans, and continue in-office audit communications with staff while proceeding towards compliance with the orders.

The staff plans to conduct an onsite audit at CNP in accordance with the enclosed audit plan from June 17-19, 2014.

If you have any questions, please contact me at 301-415-2901 or by e-mail at john.boska@nrc.gov.

Sincerely,



John Boska, Senior Project Manager
Project Management Branch
Mitigating Strategies Directorate
Office of Nuclear Reactor Regulation

Docket Nos.: 50-315 and 50-316

Enclosure:
Audit plan

cc w/encl: Distribution via Listserv

Audit Plan
Donald C. Cook Nuclear Plant, Units 1 and 2

BACKGROUND AND AUDIT BASIS

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design-Basis External Events" and Order EA-12-051, "Order to Modify Licenses With Regard To Reliable Spent Fuel Pool Instrumentation," (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML12054A736 and ML12054A679, respectively). Order EA-12-049 directs licensees to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool (SFP) cooling capabilities in the event of a beyond-design-basis external event (BDBEE). Order EA-12-051 requires, in part, that all operating reactor sites have a reliable means of remotely monitoring wide-range SFP levels to support effective prioritization of event mitigation and recovery actions in the event of a BDBEE. The orders require holders of operating reactor licenses and construction permits issued under Title 10 of the *Code of Federal Regulations* Part 50 to submit for review, Overall Integrated Plans (OIPs) including descriptions of how compliance with the requirements of Attachment 2 of each order will be achieved.

By letter dated February 27, 2013 (ADAMS Accession No. ML13101A381), Indiana Michigan Power Company (the licensee) submitted its OIP for Donald C. Cook Nuclear Plant, Units 1 and 2 (CNP) in response to Order EA-12-049. By letters dated August 26, 2013, and February 27, 2014 (ADAMS Accession Nos. ML13240A308 and ML14063A042, respectively), the licensee submitted its first two six-month updates to the OIP. By letter dated August 28, 2013 (ADAMS Accession No. ML13234A503), the NRC notified all licensees and construction permit holders that the staff is conducting audits of their responses to Order EA-12-049 in accordance with NRC Office of Nuclear Reactor Regulation (NRR) Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195). The purpose of the staff's audit is to determine the extent to which the licensees are proceeding on a path towards successful implementation of the actions needed to achieve full compliance with the order. This audit process led to the issuance of the CNP interim staff evaluation (ISE) and audit report (ADAMS Accession No. ML13337A325) and continues with in-office and onsite portions of this audit.

By letter dated February 27, 2013 (ADAMS Accession No. ML13071A323), the licensee submitted its OIP for CNP in response to Order EA-12-051. By letter dated June 19, 2013 (ADAMS Accession No. ML13164A381), the NRC staff sent a request for additional information (RAI) to the licensee. By letters dated July 11, 2013, August 26, 2013, and February 27, 2014 (ADAMS Accession Nos. ML13196A250, ML13247A050, and ML14063A041, respectively), the licensee submitted its RAI responses and first two six-month updates to the OIP. The NRC staff's review to date led to the issuance of the CNP ISE and RAI dated November 13, 2013 (ADAMS Accession No. ML13310B499). By letter dated March 26, 2014 (ADAMS Accession No. ML14083A620), the NRC notified all licensees and construction permit holders that the staff is conducting in-office and onsite audits of their responses to Order EA-12-051 in accordance with NRC NRR Office Instruction LIC-111 as discussed above. By letter dated April 28, 2014 (ADAMS Accession No. ML14115A315), the NRC staff issued an audit plan to the licensee for an audit of vendor information pertaining to Order EA-12-051.

Enclosure

The ongoing audit process, to include the in-office and onsite portions, allows the staff to assess whether it has enough information to make a safety evaluation of the Integrated Plans. The audit allows the staff to review open and confirmatory items from the mitigation strategies ISE, RAI responses from the spent fuel pool instrumentation (SFPI) ISE, the licensee's integrated plans, and other audit questions. Additionally, the staff gains a better understanding of submitted information, identifies additional information necessary for the licensee to supplement its plan, and identifies any staff potential concerns. The audit's onsite portion will occur prior to declarations of compliance for the first unit at each site.

This document outlines the onsite audit process that occurs after ISE issuance as licensees provide new or updated information via periodic updates, update audit information on e-portals, provide preliminary Overall Program Documents (OPDs)/Final Integrated Plans (FIPs), and continue in-office audit communications with staff while proceeding towards compliance with the orders.

Following the licensee's declarations of order compliance, the NRC staff will evaluate the OIPs as supplemented, the resulting site-specific OPDs/FIPs, and, as appropriate, other licensee submittals based on the requirements in the orders. For Order EA-12-049, the staff will make a safety determination regarding order compliance using the Nuclear Energy Institute (NEI) guidance document NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide" issued in August, 2012 (ADAMS Accession No. ML12242A378), as endorsed by NRC interim staff guidance (ISG) 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'" (ADAMS Accession No. ML12229A174) as providing one acceptable means of meeting the order requirements. For Order EA-12-051, the staff will make a safety determination regarding order compliance using the NEI guidance document NEI 12-02, "Industry Guidance for Compliance with NRC Order EA-12-051, 'To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation'" (ADAMS Accession No. ML12240A307), as endorsed, with exceptions and clarifications, by NRC ISG JLD-ISG-2012-03 "Compliance with Order EA-12-051, 'Reliable Spent Fuel Pool Instrumentation'" (ADAMS Accession No. ML12221A339) as providing one acceptable means of meeting the order requirements. Should the licensee propose an alternative strategy or other method deviating from the guidance, additional staff review will be required to evaluate if the alternative strategy complies with the applicable order.

AUDIT SCOPE

As discussed, onsite audits will be performed per NRR Office Instruction LIC-111, "Regulatory Audits," to support the development of safety evaluations. Site-specific OIPs and OPDs/FIPs rely on equipment and procedures that apply to all units at a site, therefore, audits will be planned to support the "first unit at each site." On-site audits for subsequent units at a site will be on an as-needed basis.

The purpose of the audits is to obtain and review information responsive to the CNP OIPs, as supplemented, open and confirmatory items from the mitigation strategies ISE, RAI responses from the SFPI ISE, and to observe and gain a better understanding of the basis for the site's overall programs to ensure the licensee is on the correct path for compliance with the Mitigation

Strategies and Spent Fuel Pool Instrumentation Orders. These may include, but are not limited to:

- Onsite review and discussion for the basis and approach for detailed analysis and calculations (Orders EA-12-049, EA-12-051);
- Walk-throughs of strategies and laydown of equipment to assess feasibility, timing, and effectiveness of a given mitigating strategy or integration of several strategies (Order EA-12-049);
- Storage, protection, access, and deployment feasibility and practicality for onsite portable equipment (Order EA-12-049);
- Evaluation of staging, access, and deployment of offsite resources to include Regional Response Center (RRC) provided equipment (Order EA-12-049); and
- Review dimensions and sizing of the SFP area, placement of the SFP level instrumentation, and applicable mounting methods and design criteria (Order EA-12-051).

NRC AUDIT TEAM

Title	Team Member
Team Lead	Stephen Vaughn
Project Manager	John Boska
Technical Support	Joshua Miller
Technical Support	On Yee
Technical Support	Kerby Scales
Technical Support	Stephen Wyman

NRC AUDIT TEAM – SUPPLEMENTAL MEMBERS

Title	Team Member
Branch Chief	Stewart Bailey
Assistant Team Lead	Timothy Kolb

LOGISTICS

The audit will be conducted onsite at CNP on June 17-19, 2014. Entrance and exit briefings will be held with the licensee at the beginning and end of the audit, respectively, as well as daily briefings of team activities. Additional details will be addressed over the phone. A more detailed schedule is provided below.

A private conference room is requested for NRC audit team use with access to audit documentation upon arrival and as needed.

DELIVERABLES

An audit report/summary will be issued to the licensee within 45 days from the end of the audit.

INFORMATION NEEDS

- Materials/documentation provided in responses to open or confirmatory items and RAIs in the ISEs;
- OPD/FIP (current version), operator procedures, FLEX Support Guidelines (FSGs), operator training plans, RRC (SAFER) DC Cook Response Plan; and
- Materials/documentation for staff audit questions and/or licensee OIP identified open items as listed in the Part 2 table below

To provide supplemental input to the ongoing audit of documents submitted to the NRC and made available via e-portal, the onsite audit will have three components: 1) a review of the overall mitigating strategies for the site, including, if needed, walk-throughs of strategies and equipment laydown of select portions; 2) a review of material relating to open or confirmatory items and RAIs from the ISEs, staff audit questions, and licensee open items; and 3) additional specific issues requested by NRC technical reviewers related to preparation of a safety evaluation. Each part is described in more detail below:

Part 1 - Overall Mitigating Strategies and Program Review:

During the onsite audit, please be prepared to conduct a tabletop discussion of the site's integrated mitigating strategies and SFP instrumentation compliance program. This discussion should address the individual components of the plans, as well as the integrated implementation of the strategies including a timeline. The licensee team presenting this should include necessary representatives from site management, engineering, training, and operations that were responsible for program development, and will be responsible for training and execution.

Following the tabletop discussion, please be prepared to conduct walk-throughs of procedures and demonstrations of equipment as deemed necessary by NRC audit team members. Include representatives from engineering and operations that will be responsible for training and execution. At this time we expect, at a minimum, to walk-through the items below. Based on the tabletop presentations and audit activities, this list may change.

WALK-THROUGH LIST:

1. Walk-through a sample of strategies that will be delineated by specific NRC technical staff audit team members
2. Walk-through of portable (FLEX) diesel generator (DG) procedures, to include power supply pathways, areas where manual actions are required, and electrical isolation
3. Walk-through of building access procedures, to include any unique access control devices
4. Strategy walk-through of transfer routes from staging and storage areas to deployment locations for both onsite and offsite equipment
5. Strategy walk-through for core cooling and reactor coolant system (RCS) inventory, to include portable pumping equipment, flow paths, and water storage locations and the related reactor systems analysis and calculations
6. Walk-through of communications enhancements
7. Walk-through of SFP area, SFP instrumentation locations, and related equipment mounting areas

Part 2 – Specific Technical Review Items:

During the visit, the following audit items will be addressed from the licensee's ISEs (open items (OI), confirmatory items (CI), and SFPI RAIs; audit question list (AQ); licensee OIP, as supplemented, open items; and draft safety evaluation (SE) additional questions. Please provide documents or demonstrations as needed to respond to each item.

Audit Item Reference	Item Description
ISE OI 3.2.1.8.A AQ-16	Boron mixing - Address the clarifications in alignment with the NRC endorsement letter dated January 8, 2014 (ADAMS Accession No. ML13276A183) of the Pressurized-Water Reactor Owners Group submitted position paper, dated August 15, 2013 (ADAMS Accession No. ML13235A135 (non-public for proprietary reasons)) for the development of an adequate model for determining the mixing of boric acid in the reactor coolant system during natural circulation with the potential for two-phase flow conditions.
ISE OI 3.2.4.7.A AQ-41	Water Sources- Perform an analysis of the tornado hazards to demonstrate that factors such as separation distances, shielding by robust structures, and relative orientation would allow the strategy of supplying water to the TDAFW [turbine-driven auxiliary feedwater] pumps from the CSTs [condensate storage tank] or the FWSTs [fire water storage tanks] to be successful, considering tornado borne missiles.
ISE OI 3.2.4.10.B	Battery Duty Cycle- Verify approach used to qualify the station batteries duty cycle to 12 hours.

Audit Item Reference	Item Description
ISE CI 3.1.1.2.A	Deployment of FLEX Equipment - Review the potential for soil liquefaction that might impede vehicle movement following a seismic event.
ISE CI 3.1.1.2.B	Deployment of FLEX Equipment – Confirm final design features of the new storage building including the susceptibility to the loss of ac power. Reliance on ac power, if any, to deploy equipment is to be evaluated.
ISE CI 3.1.1.3.A	Procedural Interface Considerations (Seismic) – Confirm FLEX support guidelines provide operators with direction on how to establish alternate monitoring and control capabilities.
ISE CI 3.1.1.4.A	Offsite Resources - Confirm identification of offsite staging areas, access routes and methods of delivery of equipment to the site.
ISE CI 3.1.2.2.A	Deployment of FLEX Equipment - Confirm whether the fuel oil tanks and fuel oil transfer sites would be inundated by a flood.
ISE CI 3.2.1.6.A OIP-OI-2	Sequence of Events (SOE) Timeline - In the event that the CSTs are unavailable during the initial phase following an ELAP[extended loss of alternating current(ac) power], confirm that alternate sources of water can be aligned to feed the TDAFW pumps before the SGs[steam generators] run dry.
ISE CI 3.2.1.7.A	Cold Shutdown and Refueling - Confirm licensee will follow NEI's position paper and the NRC endorsement letter (ADAMS Accession No. ML13267A382).
ISE CI 3.2.4.2.B	Ventilation, Equipment Cooling - Confirm that adequate ventilation is provided in the battery rooms to limit the potential hydrogen buildup during battery charging to less than the hydrogen combustibility limits.
ISE CI 3.2.4.4.A	Communications – Confirm that upgrades to the site's communication system have been completed.
ISE CI 3.2.4.8.A	Electrical Power Sources - Confirm the sizing basis for the FLEX generators and their ability to start the planned individual loads identified in the FLEX strategies in Phases 2 and 3.
ISE CI 3.2.4.9.A	Fuel Consumption Data – Confirm that sufficient fuel is available on-site for operation of FLEX equipment considering the as procured equipment fuel consumption rates and duration of operation before fuel needs to be replenished from off-site sources.
ISE CI 3.2.4.10.A	Load Shedding - Confirm dc load profile, final load shedding approach including the actions necessary to complete each load shed, the equipment location (or location where the required action needs to be taken), the time to complete each action and identify which functions are lost as a result of shedding each load and any impact on defense-in-depth strategies and redundancy.
ISE CI 3.4.A	Off-Site Resources - Review how conformance with NEI 12-06, Section 12.2 guidelines 2 through 10 is being accomplished.

Audit Item Reference	Item Description
AQ 1	NEI 12-06 Section 5.3.1, Storage of Portable Equipment states that large portable equipment such as pumps and power supplies should be secured as appropriate to protect them during a seismic event (i.e., SSE level). Stored equipment and structures should be evaluated and protected from seismic interactions to ensure that unsecured and/or non-seismic components do not damage the equipment. The licensee's plan does not address the need to secure large portable equipment to protect them during a seismic event or to ensure unsecured and/or non-seismic components do not damage the equipment during a seismic event. The licensee is requested to provide details concerning the securing of large portable equipment to protect them during a seismic event or to ensure unsecured and/or non-seismic components do not damage the equipment during a seismic event.
AQ 2	The licensee's plan lists in a table a means to move FLEX equipment and means to clear debris in Phase 3, but does not provide any information on the equipment necessary to deploy the FLEX equipment or clear debris during the transition phase nor how the means for moving the FLEX equipment and clearing debris is reasonably protected from the event. The licensee is requested to identify the means for a) deploying the FLEX portable equipment such as the pumps, generators in the transition phase b) clearing debris in the transition phase and c) to describe how those means are stored and protected during the seismic event.
AQ 5	Review of the licensee's plan for the use of offsite resources, did not provide reasonable assurance that the plan will comply with NEI 12-06, Sections 5.3.4, 6.2.3.4, 7.3.4, and 8.3.4 due to the absence of identification of the local staging area and a description of the methods to be used to deliver the equipment to the site considering the seismic, flooding, high wind and extreme cold hazards. The licensee is requested to describe the methods for delivery of equipment from offsite resources to a local staging area contending with the external hazards such as seismic, flooding, high winds, and snow, ice and extreme cold.
AQ 6	Review of the licensee's plan as it relates to deployment of FLEX equipment associated with the external flooding hazards does not contain sufficient information to provide reasonable assurance that guidance and strategies developed pursuant to the plan will conform to the guidance of NEI 12-06, Section 6.2.3.2 specifically as related to a) the ability to periodically refuel the portable diesel driven pumps and generators, b) deploying debris clearing equipment and c) transport of the portable equipment from the storage locations to their deployed positions considering the flood hazard. The licensee is requested to describe a) the sources of fuel and method for refueling the deployed portable equipment considering the flood hazard b) the debris clearing equipment and c) the means to move equipment to their deployed positions

Audit Item Reference	Item Description
AQ 7	The licensee's plan for deployment of the portable equipment considering high wind hazards, did not provide reasonable assurance that the plan conforms to the guidance of NEI 12-06, Section 7.3.2 because there is insufficient information regarding a) the specific debris removal equipment and means for moving the portable FLEX equipment and b) protection of the means for debris removal and/or movement of the portable equipment. The licensee is requested to identify the type of equipment to be used for debris removal, the type of equipment to be used to move the portable pumps, generators and other FLEX components and to identify how this equipment is protected from high winds to assure its availability.
AQ 8	The licensee's plan for implementation of the strategies to deploy portable equipment in the context of snow, ice and extreme cold did not provide reasonable assurance that the plan conforms to the guidance of NEI 12-06, Section 8.3.2, consideration 2 and 3, because: 1) there is insufficient information to conclude that equipment is available for the removal of snow and ice as needed and to obtain and transport equipment from storage to its location for deployment; and 2) whether the ultimate heat sink (UHS) flow path could be affected by extreme cold weather which would require an evaluation on the effects on deployment of equipment. Licensee is requested to identify the type of equipment to be used for snow removal, the type of equipment to be used to move the portable pumps, generators and other FLEX components and to identify how this equipment is protected from snow, ice and extreme cold to assure its availability. The licensee is also requested to address whether the extreme cold weather could affect the strategies which employ the use of the UHS, Lake Michigan.
AQ 13	The licensee's plan requires monitoring of the CST in the case where only one CST is available following a tornado event and the one tank is simultaneously feeding the TDAFW pumps in both units. However, the CST level instrumentation is not listed as credited for the coping evaluation in phase 1 (page 14 of 88). Level monitoring is required in order to initiate makeup to the operating CST from an alternate source or provide an alternate suction source to the TDAFW pumps. Licensee is requested to provide additional information describing how the CST level will be monitored, at what point the decision is made to align alternate water sources to the CST or TDAFW pumps and to confirm that there is sufficient time to deploy the FLEX equipment to maintain core cooling.
AQ-17	The licensee's plan for maintaining SFP cooling does not provide reasonable assurance that the plan conforms to NEI 12-06, Table 3.2 because an evaluation of the SFP area for steam and condensation, as well as a vent path strategy has not been performed. The licensee is requested to describe how the SFP area will be vented of steam to preclude potential equipment problems due to high humidity and accessibility by personnel.

Audit Item Reference	Item Description
AQ-18	<p>NEI 12-06 in Section 3.2.2 guideline (3) states that plant procedures/guidance should specify actions necessary to assure that equipment functionality can be maintained (including support systems or alternate method) in an ELAP/LUHS or can perform without ac power or normal access to the UHS.</p> <p>Cooling functions provided by such systems as auxiliary building cooling water, service water, or component cooling water may normally be used in order for equipment to perform their function. It may be necessary to provide an alternate means for support systems that require ac power or normal access to the UHS, or provide a technical justification for continued functionality without the support system.</p> <p>The licensee's plan did not provide any information as to the need for additional strategies (if any) that would be needed to provide cooling functions for equipment to assure that coping strategy functionality could be maintained.</p> <p>The licensee is requested to provide information as to whether equipment functionality can be maintained in regards to cooling functions for permanent equipment, such as the TDAFW pump, used to support FLEX strategies.</p>
AQ-20	<p>Review of the licensee's plan regarding personnel habitability/accessibility did not contain sufficient information to provide reasonable assurance that the plan conforms to the guidance of NEI 12-06, Section 3.2.2 Guideline (11), because no specific information is provided on maintaining habitability conditions in a) the TDAFW pump room, b) spent fuel operating deck area and c) other critical areas where operators may have to go for strategy deployment and operation. Licensee is requested to discuss the habitability conditions where local operator actions is required to deploy, connect and/or manually operate equipment or valves and provisions for operator protection from potentially high temperatures and humidity.</p>
AQ-21	<p>NEI 12-06, rev. 0, as endorsed by JLD-ISG-2012-01, rev. 0, in Section 3.2.2, guideline (12) states that Plant procedures/guidance should consider loss of heat tracing effects for equipment required to cope with an ELAP. Alternate steps, if needed, should be identified to supplement planned action.</p> <p>Heat tracing is used at some plants to ensure cold weather conditions do not result in freezing important piping and instrumentation systems with small diameter piping. Procedures/guidance should be reviewed to identify if any heat traced systems are relied upon to cope with an ELAP. For example, additional condensate makeup may be supplied from a system exposed to cold weather where heat tracing is needed to ensure control systems are available. If any such systems are identified, additional backup sources of water not dependent on heat tracing should be identified.</p> <p>The licensee plan did not address the loss of heat tracing in the integrated plan. The licensee screened in for extreme cold, ice and snow and thus there is a need for the licensee to address loss of heat tracing effects on FLEX strategies.</p> <p>The licensee is requested to provide a discussion on the effects of the loss of heat tracing in regards to the effects on installed plant equipment required to cope with an ELAP such as for example outdoor water storage tanks and the boric acid storage tank and supply piping, including alternate steps, if needed, to supplement planned actions.</p>

Audit Item Reference	Item Description
AQ-27	On page 64 of 88, in the section of its integrated plan containing the SOE timeline, the submittal notes direct current (dc) load shed starting in 30 minutes and dc load shed completed at 1 hour. Provide the basis for the minimum dc bus voltage that is required to ensure proper operation of all required electrical equipment.
AQ-29	Provide information on the adequacy of the ventilation provided in the battery room to protect the batteries from the effects of extreme high and low temperatures.
AQ-30	Provide a discussion of battery room ventilation to prevent hydrogen accumulation while recharging the batteries in phase 2 or 3. In your response, include a description of the exhaust path if it is different from the design basis.
AQ-32	Provide a summary of the sizing calculation for the FLEX generators to show that they can supply the loads assumed in phases 2 and 3.
AQ-36	Pages 48 and 50 of the integrated plan state that, "It may be desirable to open the control room complex doors..." in different phases of an ELAP event; however, there are no time-sensitive actions specified in the integrated plan which support main control room habitability and/or equipment survivability. Has a plant-specific, thermal hydraulic calculation been performed to determine what the maximum control room temperature would be based on the NEI 12-06 conditions? If so, please provide a summary of the calculation, the actions credited in it, and its results concluding that control room limits will be maintained in all phases of the ELAP event. If not, please provide the basis and justification for concluding that actions supporting main control room ventilation for habitability and/or equipment survivability will not be required on a time-sensitive basis during the course of an ELAP event.
AQ-39	Provide Single Line Diagrams showing the proposed connections of Phase 2 and 3 electrical equipment on the e-Portal.
AQ-40	Describe how electrical isolation will be maintained such that (a) Class 1E equipment is protected from faults in portable/FLEX equipment and (b) multiple sources do not attempt to power electrical buses.
AQ-43	The licensee takes credit for repositioning equipment to mitigate a flood/seiche condition. The staff requests the licensee provide information on how much warning time would be available and how much time is required to reposition equipment.
AQ-44	The licensee identifies 3 strategies for supplying water to the SFP. The staff requests additional information on how water will be added to the SFP, to include a) an assessment of whether the installed piping will survive an ELAP event and b) ability to add water if direct access to the SFP is unobtainable.
AQ-49	The licensee's plan states that during modes 1-4 with steam generators available the BASTs are the primary source for boration of the RCS. Connection points for the new high pressure FLEX pumps are described for accessing the BASTs. The licensee's plan further states that an alternate source for borated water are the RWSTs. Describe the method for connecting the high pressure FLEX pumps to the RWSTs and the injection path to the RCS.
AQ-50	Provide the dc load profile with the required loads for the mitigating strategies to maintain core cooling, containment, and SFP cooling.

Audit Item Reference	Item Description
AQ-51	Provide a detailed discussion on the loads that will be shed from the dc bus, the equipment location (or location where the required action needs to be taken), and the required operator actions needed to be performed and the time to complete each action. In your response, explain which functions are lost as a result of shedding each load and discuss any impact on defense-in-depth and redundancy.
AQ-53	Discuss the habitability conditions for operators who have to operate the steam generator power-operated relief valves (PORVs).
SFPI RAI 3	Please provide the following: a) The design criteria that will be used to estimate the total loading on the mounting device(s), including static weight loads and dynamic loads. Describe the methodology that will be used to estimate the total loading, inclusive of design basis maximum seismic loads and the hydrodynamic loads that could result from pool sloshing or other effects that could accompany such seismic forces. b) A description of the manner in which the level sensor (and stilling well, if appropriate) will be attached to the refueling floor and/or other support structures for each planned point of attachment of the probe assembly. Indicate in a schematic the portions of the level sensor that will serve as points of attachment for mechanical/mounting or electrical connections. c) A description of the manner by which the mechanical connections will attach the level instrument to permanent SFP structures so as to support the level sensor assembly.
SFPI RAI 5	For each of the mounting attachments required to attach SFP Level equipment to plant structures, please describe the design inputs, and the methodology that was used to qualify the structural integrity of the affected structures/equipment.

Audit Item Reference	Item Description
SE #1	<p>1. (RCS Venting) The generic analysis in WCAP-17601-P strictly addressed ELAP coping time without consideration of the actions directed by a site's mitigating strategies. WCAP-17792-P extends these analytical results through explicit consideration of mitigating strategies involving RCS makeup and boration. In support of the RCS makeup and boration strategies proposed therein, a generic recommendation is made that Pressurized-Water Reactors vent the RCS while makeup is being provided. Please provide the following information in regard to this topic:</p> <ul style="list-style-type: none"> a. Will the mitigating strategy include venting of the RCS? b. If so, please provide the following information: <ul style="list-style-type: none"> i. The vent path to be used and the means for its opening and closure. ii. The criteria for opening the vent path. iii. The criteria for closing the vent path. iv. Clarification as to whether the vent path could experience two-phase or single-phase liquid flow during an ELAP. If two-phase or liquid flow is a possibility, please clarify whether the vent path is designed to ensure isolation capability after relieving two-phase or liquid flow. v. If relief of two-phase or liquid flow is to be avoided, please discuss the availability of instrumentation or other means that would ensure that the vent path is isolated prior to departing from single-phase steam flow. vi. If a pressurizer PORV is to be used for RCS venting, please clarify whether the associated block valve would be available (or the timeline by which it could be repowered) in the case that the PORV were to stick open. If applicable, please further explain why opening the pressurizer PORV is justified under ELAP conditions if the associated block valve would not be available. vii. If a pressurizer PORV is to be used for RCS venting, please clarify whether FLEX RCS makeup pumps and FLEX steam generator makeup pumps will both be available prior to opening the PORV. If they will not both be available, please provide justification. c. If RCS venting will not be used, please provide the following information: <ul style="list-style-type: none"> i. The expected RCS temperature and pressure after the necessary quantity of borated makeup has been added to an unvented RCS. ii. Adequate justification that the potential impacts of unvented makeup will not adversely affect the proposed mitigating strategy (e.g., FLEX pump discharge pressures will not be challenged, plant will not reach water solid condition, adequate boric acid can be injected, increased RCS leakage will not adversely affect the integrated plan timeline, etc.).

Audit Item Reference	Item Description
SE #2	NSAL-14-1 - On February 10, 2014, Westinghouse issued Nuclear Safety Advisory Letter (NSAL)-14-1, informing licensees of plants with standard Westinghouse RCP seals that 21 gpm may not be a conservative leakage rate for ELAP analysis. This value had been previously used in the ELAP analysis referenced by many Westinghouse Pressurized-Water Reactors, including the generic reference analysis in WCAP-17601-P. Therefore, please clarify whether the assumption of 21 gpm of seal leakage per RCP (at 550 degrees F, 2250 psia) remains valid in light of the issues identified in NSAL-14-1. In so doing, please identify the specifics of the seal leak off line design and #1 seal faceplate material relative to the categories in NSAL-14-1 and identify the corresponding presumed leakage rate from NSAL-14-1 that is deemed applicable.
SE #3	RVLIS - Clarify whether the reactor vessel level instrumentation system (RVLIS) indication provides a measure of collapsed level that can be used with Figures 3.3-1 through 3.3-3 of WCAP-17792-P. If the RVLIS system does not provide an indication of collapsed level, then clarify how the required timing for RCS makeup will be determined and provide justification.
SE #4	Time to reflux cooling - Please clarify whether procedural guidance for the timing of providing makeup to the reactor coolant system is based on analysis in WCAP-17792-P, pages 3-10 through 3-16. If so, provide adequate justification for basing the timing of primary makeup on the assumption that reactor coolant pump seal leakage rates that are less than the maximum expected value under ELAP conditions will not increase.
SE #5	Please provide adequate basis that calculations performed with the NOTRUMP code (e.g., those in WCAP-17601-P, WCAP-17792-P) are adequate to demonstrate that criteria associated with the analysis of an ELAP event (e.g., avoidance of reflux cooling, promotion of boric acid mixing) are satisfied. NRC staff confirmatory analysis suggests that the need for implementing certain mitigating strategies for providing core cooling and adequate shutdown margin may occur sooner than predicted in NOTRUMP simulations.
SE #6	Licensee indicates the use of a lift pump that supplies to SFP and SG booster pump. In addition, two SG booster pumps will be used to supply make-up to each Unit's SGs. Provide mechanical design calc/hydraulic analysis to determine adequate pressure/flow/capacity for all demands. Explain how flow will be controlled since a single lift pump is supplying the SFP and two SG booster pumps. Walkdown of hose deployment and staging for these pumps.

Part 3 – Specific Topics for Discussion:

1. Draft of CNP OPD/FIP
2. Reactor systems analyses to include a discussion of applicability to WCAP-17601-P, boron mixing, WCAP-17792-P, and Nuclear Safety Advisory Letter (NSAL) 14-1

3. Training
4. Portable (FLEX) equipment maintenance and testing
5. RRC (SAFER) Response Plan for CNP

Proposed Schedule

Onsite Day 1, Tuesday, June 17, 2014

0800 Check in at site; Badging

0930 Entrance meeting

0945 Licensee presentation of strategies

1230 Lunch

1330 NRC Audit Team Activities:

- Technical area break-out discussions between NRC and licensee staff in the areas of reactor systems, electrical, balance-of-plant/structures, SFPI, and others
- Review documents relating to open or confirmatory items, RAIs, codes, analyses, etc.

1600 NRC Audit Team meeting

1630 Team lead daily debrief/next day planning with licensee

Onsite Day 2, Wednesday, June 18, 2014

0800 Check in at site; meet with Senior Resident/Resident

0830 Dosimetry and whole body count for RCA entrance

0900 NRC Mitigating Strategies/SFPI walk-throughs with licensee:

1200 Lunch

1300 Continue NRC Audit Team Activities

1600 NRC Audit Team meeting

1630 Team lead daily debrief/next day planning with licensee

Onsite Day 3, Thursday, June 19, 2014

0800 Continue NRC Audit Team Activities

1200 Lunch

1300 Continue NRC Audit Team Activities

- 1400 NRC Audit Team meeting
- 1500 NRC/Licensee pre-exit meeting
- 1530 NRC/Licensee exit meeting
- 1600 Audit closeout/departure

The NRC staff's review to date led to the issuance of the CNP ISE and RAI dated November 13, 2013 (ADAMS Accession No. ML13310B499). By letter dated March 26, 2014 (ADAMS Accession No. ML14083A620), the NRC notified all licensees and construction permit holders that the staff is conducting in-office and onsite audits of their responses to Order EA-12-051 in accordance with NRC NRR Office Instruction LIC-111 as discussed above. By letter dated April 28, 2014 (ADAMS Accession No. ML14115A315), the NRC staff issued an audit plan to the licensee for an audit of vendor information pertaining to Order EA-12-051.

The ongoing audit process, to include the in-office and onsite portions, allows the staff to assess whether it has enough information to make a safety evaluation of the Integrated Plans. The audit allows the staff to review open and confirmatory items from the mitigation strategies ISE, RAI responses from the spent fuel pool instrumentation ISE, the licensee's integrated plans, and other audit questions. Additionally, the staff gains a better understanding of submitted information, identifies additional information necessary for the licensee to supplement its plan, and identifies any staff potential concerns. The audit's onsite portion will occur prior to declarations of compliance for the first unit at each site.

This document outlines the on-site audit process that occurs after ISE issuance as licensees provide new or updated information via periodic updates, update audit information on e-portals, provide preliminary Overall Program Documents/Final Integrated Plans, and continue in-office audit communications with staff while proceeding towards compliance with the orders.

The staff plans to conduct an onsite audit at CNP in accordance with the enclosed audit plan from June 17-19, 2014.

If you have any questions, please contact me at 301-415-2901 or by e-mail at john.boska@nrc.gov.

Sincerely,
/RA/
 John Boska, Senior Project Manager
 Project Management Branch
 Mitigating Strategies Directorate
 Office of Nuclear Reactor Regulation

Docket Nos.: 50-315 and 50-316

Enclosure:

Audit plan

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC

MSD R/F

RidsNrrDorLpl 2-1Resource

RidsNrrPMDCCook Resource

RidsNrrLASLent Resource

RidsAcrsAcnw_MailCTR Resource

RidsRgn3MailCenter Resource

JBoska, NRR/MSD

JBowen, NRR/MSD

SVaughn, NRR/DIRS

TKolb, NRR/DIRS

ADAMS Accession No. ML14140A064

* via email

OFFICE	NRR/DIRS/IPAB/AET*	NRR/MSD/LA	NRR/MSD/MESB/BC	NRR/MSD/MRSB/BC
NAME	SVaughn	SLent	SBailey	SWhaley (SBailey for)
DATE	05/20/14	05/20/14	05/21/14	05/21/14
OFFICE	NRR/MSD/MSPB/BC	NRR/MSD/MSPB/PM		
NAME	JBowen (JBoska for)	JBoska		
DATE	05/21/14	05/21/14		