

Brent Ballard

From: Brent Ballard
Sent: Friday, September 18, 2026 3:28 PM
To: ext_Dennis_Moore; 'ext_Christian_Williams'
Cc: Justin Poole; Ilka Berrios
Subject: Crane Clean Energy Center - Final RAI for Emergency Plan LAR (EPID L-2025-LLA-0162)
Attachments: Crane Clean Energy Center - EP LAR RAI-11210-R1-FINAL.pdf

Good afternoon, Dennis and Christian,

By letter dated October 31, 2025 (Agencywide Documents Access and Management System (ADAMS) Package Accession No. ML25304A097), Constellation Energy Generation, LLC, submitted a license amendment request to Renewed Facility License No. DPR-50 for the Crane Clean Energy Center. The proposed amendment would revise the site emergency plan and emergency action level scheme for an operating facility.

The NRC staff has determined that additional information is needed to complete its review. Attached is NRC staff's request for additional information (RAI).

The questions were discussed with Constellation staff during an audit (ML26188A070). As discussed during the audit, the NRC staff is requesting a response within 30 days of the date of this email, which is October 19, 2026. Please let me know if you have any questions.

Thank you,
Brent

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Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-0680

REQUEST FOR ADDITIONAL INFORMATION
BY THE OFFICE OF NUCLEAR REACTOR REGULATION
CRANE CLEAN ENERGY CENTER - LICENSE AMENDMENT TO RESTORE EMERGENCY
PLAN TO SUPPORT POTENTIAL RESTART
CONSTELLATION ENERGY GENERATION, LLC
CRANE CLEAN ENERGY CENTER
DOCKET NO. 05000289
ISSUE DATE: 09/18/2026

By application dated October, 31, 2025 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML25304A098) Constellation Energy Generation, LLC (CEG), requested the U.S. Nuclear Regulatory Commission (NRC, the Commission) review and approval of a license amendment request (LAR) to revise the Christopher M. Crane Clean Energy Center (CCEC) Renewed Facility Operating License DPR-50. Specifically, the proposed LAR would revise the CCEC site emergency plan (SEP) and Emergency Action Level (EAL) scheme and return the CCEC to the Operating Reactor Licensing Basis.

The following requests for additional information (RAI) are needed for the NRC staff to complete the technical review. The NRC staff requests as part of the submitted response, please provide a markup of the affected pages for the staff's review.

For the review of the proposed EAL scheme, NRC staff used the February 13, 2017 "EP-AA-1009, Addendum 3, Revision 2, "Emergency Action Levels for Three Mile Island (TM/) Station"" (ML17052A660) for comparison based upon ATTACHMENT 2: EVALUATION OF PROPOSED CHANGES of the October 31, 2025 submittal (ML25304A098). Specifically, Section 3.1.4 which states "In 2017 Crane updated the EAL classification methodology to that published in NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non- Passive Reactors."" and Section 3.4.3 which states:

CEG proposes to reinstate the version of the Three Mile Island EAL scheme that was in effect just prior to the 10 CFR 50.82(a)(1) certifications in 2019. The EAL scheme is based on the guidance in NEI 99-01, Revision 6. Since the shutdown in 2019, Crane has since received approval for a set of EAL's utilizing NEI 99-01, Revision 6 methodology associated with radiological events at the ISFSI. The proposed changes will combine the operational EAL's and the ISFSI EAL's into a single operational EAL scheme.

RAI 1:

Requirement:

- 10 CFR 50 Appendix E.IV.E.8.c(3) requires the capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the emergency operations facility serves more than one site.

Issue: The Crane LAR, Attachment 2, "Summary of Regulatory Commitments" states Constellation will conduct an Evaluated Exercise at Crane, currently scheduled for the first quarter of 2027, to demonstrate that no loss of EP function will result due to the proposed changes in the ERO and to demonstrate reasonable assurance that the Crane ERO can protect the public in the event of a radiological emergency. The exercise will include each of the

Emergency Response Facilities described in the Emergency Plan (i.e., MCR (Simulator), TSC, OSC, EOF and JIC).

Additionally, the Crane LAR Enclosure 1A, Section N provides a description of the drill and exercise program, however, it does not provide a discussion on multi-site drill or exercises or when those are to be conducted.

Request: Provide a discussion on how the emergency exercise that is scheduled for the first quarter of 2027 demonstrates the capability to support a response to events occurring simultaneously at more than one nuclear power reactor site as required by Appendix E.IV.E.8.c(3) or alternatively conduct a multi-site exercise. In your response, provide evidence or analysis that demonstrates historical data for dual site exercises with offsite response organizations, the criteria to be used to evaluate multi-site drills or exercises and what periodicity those are intended to be conducted to ensure compliance with Appendix E requirements.

RAI 2:

Requirement:

- 10 CFR 50 Appendix E.IV.A.9 states that for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.

Issue: The Crane LAR, Attachment 2, section 2.1.2 states that an on-shift staffing analysis (OSA) utilizing the methodology in NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," was performed and concluded that the proposed changes did not result in conflicting duties for on-shift ERO personnel.

The on-shift staffing analysis was not provided or included in the LAR.

Additionally, the Crane proposed SEP, section B, "Constellation Nuclear Emergency Response Organization" does not provide a description for who would be performing the on-shift Dose Assessment function.

The Crane LAR, Section 3.2.5, "Dose Assessment" states that

"Crane will maintain a Shift Dose Assessor on-shift to perform dose assessments/projections and provide input to applicable PAR decisionmaker functions. This function will be performed by available qualified personnel (e.g., the on-shift RP Technician). Additionally, an OSA under 10 CFR 50, Appendix E, Section IV.A.9 was performed to ensure that the Dose Assessment function on shift can be performed by one of the two (2) RP staff on shift without any additional competing priorities."

The Crane LAR Attachment 2, Section 3.2.5, "Emergency plan change assessment" states that the Shift Dose Assessment Function will be annotated as being performed by the on-shift Chemistry Technician as a collateral duty in EP-CR-1000." This information is not reflected in the Crane proposed SEP, Table 5-1, Emergency Response Organization (ERO) Staffing and Augmentation Plan." These documents use different terms for use of on-shift RP Technicians.

For example, it's unclear whether Crane intends to use the on-shift RP Technicians or on-shift Chemistry Technicians for the Shift Dose Assessment Function.

If Crane intends to use on-shift RP Technicians for the Shift Dose Assessment Function, the LAR has not provided a discussion on how the Radiation Protection functions in NUREG 0654, Revision 2, Table B-1 are maintained.

Request:

- a. Provide evidence or analysis that demonstrates that the on-shift RP Technician will be able to perform the dose assessment function in addition to the other assigned emergency response functions.
- b. Provide evidence or analysis that demonstrates how the Radiation Protection functions for providing qualified radiation protection coverage for responders accessing potentially unknown radiological environments during emergency conditions, providing in plant surveys, and control dosimetry and radiologically controlled area access are maintained by one RP Technician if the second RP Technician is assigned the on-shift dose assessment function.

RAI 3:

Requirement:

- 10 CFR 50.47(b)(2) states in part
... adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.
- 10 CFR 50, Appendix E.IV.A states, in part,

The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization and the means for notification of such individuals in the event of an emergency. Specifically, the following shall be included:
 - ...2. A description of the onsite emergency response organization (ERO) with a detailed discussion of:
 - a. Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency;
 - b. Plant staff emergency assignments;
- 10 CFR 50, Appendix-E.IV.A.5 states in part
...Identification, by position and function to be performed, of other employees of the licensee with special qualifications for coping with emergency conditions that may arise.

Issue: The Crane LAR, Enclosure 1A, Table 5-1, utilizes Radiation Protection Personnel for both the On-Shift ERO staffing and the augmentation personnel for the Radiation Protection Function. These inconsistencies in the Crane LAR and proposed emergency plan create uncertainty with what Crane is proposing in the emergency plan for on-shift, and augmented Radiation Protection Personnel. Additionally, it's not clear what qualifications Radiation Protection Personnel would have that are equivalent to ANSI 3.1 qualified RP Technicians.

The proposed emergency plan is not clear on whether Crane intends to utilize Radiation Protection Supervisors and other RP staff members to fulfill the roles for the Radiation Protection Function, whether they would also have qualifications equivalent to ANSI 3.1 qualified RP Technicians or how they would maintain proficiency.

The Crane LAR, Attachment 2, section 3.2.3 states in part

...for the purposes of this table, except as discussed below, RP Personnel consists of persons with an ANSI qualification. This includes RP Technicians or qualified RP Staff members.

The Crane LAR, Enclosure 1A, Section II.B.1 under "On-Shift Emergency Response Organization Assignments", "Radiation Protection", states that the Station Radiation Protection personnel are responsible for the handling and monitoring of radioactive materials. Included in this organization are Health Physicists, Radiation Protection Supervisors, and Technicians.

In addition, the Crane LAR, Enclosure 1A, section II.B.5, "Emergency Response Organization Positional Responsibilities" does not clearly specify what the emergency response responsibilities are for the Radiation Protection Personnel.

The Crane LAR, Enclosure 1A, Appendix 5, Table 5-1, Emergency Response Organization (ERO) Staffing and Augmentation Plan" refers to ERO staffing for the Radiation Protection function as "Radiation Protection Personnel" with a note that states

Note for the purposes of this table, RP Personnel consists of RP Technicians or qualified RP Staff members.

The Crane LAR, Enclosure 1A, Section O, "Emergency Response Training" does not provide information to determine the level of training provided to RP Technicians, Radiation Protection Supervisors or RP Staff members or provide clarification to understand which ANSI standard is being referred to Attachment 2, section 3.2.3 and how proficiency is maintained.

Request: Provide objective evidence or analysis that demonstrates that the individuals proposed by Crane such as RP Technicians, Radiation Protection Supervisors and RP Staff members to fulfill the function of Radiation Protection are ANSI 3.1 qualified RP Technicians, maintain proficiency, and can fulfill the capabilities listed in NUREG 0654, Revision 2 for the Radiation Protection Function.

In your response, clearly identify the positions and titles Crane intends to utilize to fulfill the Radiation Protection function shown in Table B-1 of NUREG 0654, Revision 2 and ensure your response addresses the requirements under 10 CFR 50, Appendix E.

RAI 4:

Requirement:

- 10 CFR 50.47(b)(12) states
Arrangements are made for medical services for contaminated injured individuals.
- 10 CFR 50.47(b)(15) states
Radiological emergency response training is provided to those who may be called on to assist in an emergency.
- 10 CFR 50, Appendix-E.IV.F.1.b states in part
...This shall include a description of specialized initial training and periodic retraining programs to be provided to each of the following categories of emergency personnel:
vi. First aid and rescue teams;
vii. Medical support personnel
- NUREG-0654 Revision 1 Section II.O.3 states
Training for individuals assigned to licensee first aid teams shall include course equivalent to Red Cross Multi-Media.

Issue: Since the changes in minimum ERO staffing caused by the update to NUREG-0654 Revision 2, there have been multiple changes made to the areas of first aid staff and onsite medical support which appear to be inconsistent or not explained.

The Crane LAR, Enclosure 1a Section O # 3 states:

Selected station personnel are trained in accordance with the Constellation Nuclear approved First Aid Program.

The Crane LAR, Enclosure 1a Section O # 4.h states:

Onsite medical personnel receive specialized training in the handling of contaminated victims and hospital interface. Offsite ambulance and hospital personnel are offered annual training in accordance with a program provided by Emergency Preparedness.

The Crane LAR, Enclosure 1a Section L # 2 states in part:

In general, physicians or nurses are not staffed at CRANE, and as such, medical treatment given to injured persons is of a "first aid" nature... Station personnel are also trained and qualified to administer first aid. At least two of these individuals are available on shift at all times...

The Crane LAR, Enclosure 1b Section 2.1 removed language which stated:

Medical emergencies and search and rescue operations will be the responsibility of the First Aid and Search and Rescue Teams. Specific personnel on each shift

are trained in first aid techniques to ensure such assistance will be available 24 hours per day. Assistance will be requested from outside medical support personnel or organizations as deemed necessary.

The Crane LAR, Enclosure 1b Section 5.3.1 states in part:

... The next level of first aid equipment is found at first aid stations. The medical staff can also provide Advanced Life Support and routine trauma care.

Request:

- a) Provide a discussion of "medical personnel" as defined in Enclosure 1a Section O #4.h. As necessary, update the Enclosure 1b Section 5.3.1 or 2.1 to better define this term.
- b) Provide technical justification of why the wording from Enclosure 1b Section 2.1 is being removed when similar language is found Enclosure 1a Section L #2.
- c) Provide a technical justification or analysis for the Constellation Nuclear approved First Aid Program as compared to Red Cross Multi-Media first aid training as specified in NUREG-0654 Revision 1.

RAI 5:

Requirement:

- 10 CFR 50.90 Whenever a holder of a license, including a construction permit and operating license under this part, and an early site permit, combined license, and manufacturing license under part 52 of this chapter, desires to amend the license or permit, application for an amendment must be filed with the Commission, as specified in §§ 50.4 or 52.3 of this chapter, as applicable, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications.

Issue: Multiple changes have been made without technical justification that details the reason behind the change between as indicated by red-line strikeouts or review of previously approved versions.

Examples:

- a) REP Section F "Emergency Communications" removes information related to multiple communication lines including the Private Branch Exchange. However in EALs MU7 and CU4, CEG identified Plant Telephone System providing onsite communication.
- b) REP Section N "Drill and Exercise Program" removed the entire discussion of Pre-Exercises and this removal was not identified in Enclosure 1a of the LAR.

Request: Provide technical justification for removal of these two examples. Review entire LAR and identify any other deletions that were not identified in Enclosure 1a or 1b with appropriate justifications.

RAI 6:

Requirement: 10 CFR 50.47(b)(2) On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

Issue: The Crane LAR, section 3.2.13 states,

“Crane proposes to staff an IT Lead at the EOF as Minimum Staff; however, Crane proposes to staff the position within 90 minutes of an Alert or higher rather than 60 minutes of a Site Area Emergency.”

If the IT Lead at the EOF is minimum staff, the response for this position is 30 minutes greater than the goal for activation stated in the proposed emergency plan for the EOF at 60 minutes of an Alert or higher classification. The following areas provide information regarding EOF activation in the crane proposed SEP.

Crane LAR, Enclosure 1A, Section H states, in part,

“...Activation of the EOF is mandatory within 60 minutes of declaration upon declaration of an Alert or higher classification.”

In addition, the Crane LAR, Enclosure 1A, Section H states, in part,

“...It is the goal of the organization to be capable of activating the applicable Emergency Response Facility upon achieving minimum staffing. The facility can be declared activated when the following conditions are met:

a. Minimum staffing has been achieved.

... The Director in charge may elect to activate their facility without meeting minimum staffing; if it has been determined that sufficient personnel are available to fully respond to the specific event (this would not constitute a successful minimum staff response).

Request: Provide a discussion that clarifies whether the IT Lead is considered minimum staff for activation of the EOF. In your response, address how EOF activation will be maintained at 60 minutes of an Alert or higher emergency classification if the IT Lead is required as minimum staff and how the proposed emergency response organization staffing maintains alignment with NUREG 0654, Revision 2.

RAI 7:

Requirement:

- 10 CFR 50.47(b)(3) Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.
- 10 CFR 50.47(b)(12) Arrangements are made for medical services for contaminated injured individuals.
- Appendix E to Part 50 (IV)(E)(5-7)

Issue: Section 5.4 of Enclosure 1b specifically identifies primary and backup hospitals for contaminated injured individuals and that “A Letter of Agreement is established for UPMC Pinnacle Harrisburg Hospital and Penn State Milton S. Hershey Medical Center to provide assistance in support of the Radiological Emergency Plan at Crane Clean Energy Center.”

Additionally, this same section provides a discussion of release of emergency medical services by Dauphin County to help transport these individuals.

However, Appendix 2 to Enclosure 1b states that the Memorandum of Understanding (MOU) / Letters of Agreement (LOA) are still under development and have not been finalized yet for all supporting agencies to include, medical, firefighting, law enforcement, etc.

Request: Provide a discussion that describes the MOUs and LOAs by Constellation, and provide a copy, and ensure that the language identified in Enclosure 1b is accurate.

RAI 8:

Requirement:

10 CFR 50.47(b)(7) Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

Issue:

- a) The Crane LAR, Enclosure 1A, Section E states, in part,

“The Alert and Notification System (ANS) for Crane relies on the Integrated Public Alert Warning System (IPAWS)-WEA (Wireless Emergency Alerts) and IPAWS-EAS (Emergency Alert System) as the primary means of alerting and notifying the public, respectively, and an independent electronic Mass Notification System (MNS) as the backup means.

... The Integrated Public Alert Warning System (IPAWS) is operated by local governmental agencies and maintained by FEMA.

The Crane LAR and proposed SEP provides information that relies on individuals having electronic communication devices in order to receive information during declared emergencies, however the emergency plan does not specify what procedures or coordination methods have been established for those individuals within the EPZ that do not have electronic communication devices (i.e., Plain communities).

- b) The Crane LAR, Enclosure 1A, Section P.3 states, in part:

The Emergency Preparedness Managers are assisted by regional corporate and Station Emergency Preparedness staff. Specific responsibilities include the following:

Facilities and Equipment

- Provide maintenance and administration of the Alert and Notification System (ANS).

As stated in Enclosure 1A, Section E, “The Integrated Public Alert Warning System (IPAWS) is operated by local governmental agencies and maintained by FEMA.” Therefore, it is not clear

what role Crane Emergency Preparedness Managers would have with respect to maintenance and administration of the ANS.

Request:

- a) Provide a discussion on what procedures have been established for coordinated dissemination of information have been established to address those communities that do not rely upon electronic devices for receiving information during emergencies.
- b) Provide a technical justification of the expectations for continued Crane maintenance and administration of the ANS.

RAI 9:

Requirement:

10 CFR 50.72(a)(4) The licensee shall activate the Emergency Response Data System (ERDS) as soon as possible but not later than one hour after declaring an Emergency Class of alert, site area emergency, or general emergency. The ERDS may also be activated by the licensee during emergency drills or exercises if the licensee's computer system has the capability to transmit the exercise data.

Issue: The Crane LAR, Enclosure 1A, Section F states, in part,

“Emergency Response Data System (ERDS): ERDS will continuously supply the NRC with selected plant data points on a near real time basis. The selected data points are transmitted automatically to the NRC at approximately 1-minute intervals.)”

The Crane proposed SEP provides information regarding the Emergency Response Data System (ERDS), however, the description indicates that an action is needed in order provide the information to the NRC. The information provided does not specify under what conditions ERDS is activated and who is responsible for activating ERDS.

Request: Provide a discussion on what procedures have been established to activate ERDS and how Crane will ensure that ERDS data will be available to meet the requirements under 50.72(a)(4).

RAI 10:

Requirement:

10 CFR 50.47(b)(6) Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public

10 CFR 50, Appendix E, IV.E.9.d Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility. Such communications shall be tested monthly.

Issue: The Crane LAR, Enclosure 1A, Section N.2 “Drills” states in part that

Quarterly - The capability to notify the NRC Region, FEMA Region, American Nuclear Insurers (ANI) and federal emergency response organizations as listed in the Emergency Response Facilities (ERF) Telephone Directory are demonstrated from the EOF. Also, computer and critical communications equipment shall be functionally tested.

This does not meet the NRC requirements for monthly testing of communications to the NRC Regional Office Operations Center. The NRC has issued Information Notices (IN 85-44 and IN-86-97) that clarified what communication tests were necessary including any communication with the Regional Operations Center is completed through the HQ Operations Center.

Request:

- a) Provide discussion of how the quarterly test with the NRC region is being conducted.
- b) Provide technical justification for how quarterly testing meets the intent of NRC regulations and information notices.

RAI 11:

Requirement:

- 10 CFR 50.47(b)(4) requires a standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.
- Section IV.B.1 of Appendix E to 10 CFR Part 50 states that the means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring.
- 10 CFR 50.90 Whenever a holder of a license, including a construction permit and operating license under this part, and an early site permit, combined license, and manufacturing license under part 52 of this chapter, desires to amend the license or permit, application for an amendment must be filed with the Commission, as specified in §§ 50.4 or 52.3 of this chapter, as applicable, fully describing the changes desired, and following as far as applicable, the form prescribed for original applications.

Issue: Enclosure 1C EP-AA-1009 Addendum 3 Revision 3 "Emergency Action Levels for Crane Clean Energy Center" contains red-line strikeouts for changes made to the submitted EALs. These changes compared the proposed changes to previous versions. However, Constellation did not provide any justification for changes that were added or deleted. Additionally, some deletions and additions were not identified by Constellation as changes. Further, some proposed changes did not appear to be changes from the previous emergency plan. Several examples are listed below:

- a. Section 1.7 "Definitions" added in Confinement Boundary but did not identify as new add
- b. EAL Matrix (Hot): RG1, RS1, RA1 – added in "using actual meteorology are available" to the last note bullet.
- c. Renaming of RU3 as RU4 in the submitted document
- d. Removal of one of the four ICs (IC3) from RA1 which was found in Revision 2 but is not found in proposed Revision 3. The IC removed stated:

Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses greater than EITHER of the following at or beyond the site boundary

- a. 10 mRem TEDE for 60 minutes of exposure OR
- b. 50 mRem CDE Thyroid for 60 minutes of exposure

- e. EAL Matrix (Hot): RG2 – Shows the Note has been updated however, the updated wording is present in the Rev 2 version.
- f. EAL Matrix (Hot): FS1 – FS1 is listed twice as the second FS1 should be FA1.
- g. EAL Matrix (Hot): Containment Loss Column – Row 4 Containment Integrity or Bypass 1.c – wording has been removed and uses the same wording as found in #2.
- CGS RAI-1 EAL Matrix (Hot): MA4 Note changed from "The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded." to "If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6."
- h. EAL Matrix (Hot): HS2 shows a change in the EAL which was already present in the Rev 2 EAL Scheme.
- i. EAL Matrix (Cold): CA5 shows a change in the EAL which was already present in the Rev 2 EAL Scheme
- CGS RAI-2 CT4 Basis (continued): Appears the start of the sentence is missing as the second paragraph starts with "and 1.b – Containment integrity..."
- j. HU3 – Removed the Note – Escalation of the emergency classification level would be via IC CA2 or MA5
- k. HU4 – Note states "...deemed appropriate by the Shift Manager or Emergency Director in < 15 mins of the event." This modifies the note as previous version's note was less than or equal to 15 minutes while this note is just less than.

Request: Review entire application to accurately identify proposed changes. Provide technical justification for all the proposed changes. For those changes that were additions or deletions that were added without identifying them, ensure appropriate technical justification is provided.

RAI 12:

Requirement:

- 10 CFR 50.47(b)(4) requires a standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.
- Section IV.B.1 of Appendix E to 10 CFR Part 50 states that the means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be

used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring.

Issue: Multiple EALs reference CCEC's emergency operating procedures (EOPs) either in the EAL (i.e. HA2 and HS2) or cited within the references. These EOPs may be using previous site name (Three Mile Island) such as OP-TM-EOP-020, whereas other references are being updated like EP-CR-1000. It is not clear if the EOPs cited or referenced in the EALs will be updated or remain the same.

Request: Clarify and confirm EOP titles and or planned changes. Update EAL scheme as appropriate to reflect any changes as needed.

RAI 13:

Requirement:

- 10 CFR 50.47(b)(4) requires a standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.
- Section IV.B.1 of Appendix E to 10 CFR Part 50 states that the means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring.

Issue: EAL E-HU1 indicates the damage to the loaded cask confinement boundary as indicated by an on-contact radiation reading greater than (2 times the site-specific cask specific technical specification allowable radiation level) on the surface of the spent fuel cask.

Constellation provided the values of

a. 240 mrem/hour gamma on the vertical concrete surfaces.

OR

b. 10 mrem/hour neutron on the vertical concrete surfaces.

OR

c. 900 mrem/hour (neutron + gamma) on the top.

These values correspond to NAC International, Inc.'s MAGNASTOR Amendment 9 Revision 2 certificate of compliance for maximum surface dose rate. Should there be any different design casks on site, these values may be different and potentially cause an EAL classification because of different allowable surface dose rates.

Request: Provide a discussion on whether Crane only has MAGNASTOR Amendment 9 Revision 2 casks onsite or provide the additional certificates of compliance for any other cask designs and confirm if E-HU1 values are still valid for emergency level classification. If values are different provide an updated E-HU1 and justification for the changes.

RAI 14:

Requirement:

- 10 CFR 50.47(b)(4) requires a standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.
- Section IV.B.1 of Appendix E to 10 CFR Part 50 states that the means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring.
- 10 CFR 50.155(b)(1) requires mitigation strategies for beyond-design-basis external events—Strategies and guidelines to mitigate beyond-design-basis external events from natural phenomena that are developed assuming a loss of all ac power concurrent with either a loss of normal access to the ultimate heat sink or, for passive reactor designs, a loss of normal access to the normal heat sink.

Issue: The proposed EALs CU1, CA1, MA1, MS1, and MG1 are based on NEI 99-01, Revision 6 and identify specific onsite power sources. However, the primary point of emphasis for EALs CA1, MS1, MG1 is a complete loss of power, and identification of the standard emergency or station blackout generators even if mitigative strategies using other power sources are effective. This issue was described in Emergency Preparedness Frequently Asked Question (EPFAQ) 2015-015 (ML16166A191).

The EAL and/or Technical Basis section may specify the use of a non-safety-related power source provided the source is maintained in a formal maintenance program and able to power the bus loads associated with ECCS and decay heat removal functions. This includes sources that support implementation of strategies required by 10 CFR 50.155, "Mitigation of beyond-design-basis events."

Request: Provide an analysis or technical justification to demonstrate that a loss of all onsite and offsite AC power does not result in a Site Area Emergency or General Emergency based on the loss of the listed power sources when other power sources may be available to power to the Vital AC safeguards buses or implement the guidance in EPFAQ 2015-015.

RAI 15:

Requirement:

- 10 CFR 50.47(b)(4) requires a standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.
- Section IV.B.1 of Appendix E to 10 CFR Part 50 states that the means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring.

Issue: Administrative discrepancies have surfaced during the review of the EALs that preclude accurate review of the application, in some cases the discrepancies are associated with references or setpoints.

- a) FC3: The unit of measure in the basis has a square followed by Ci/gm which appears to be different than the IC #2 which states Coolant activity > 300uCi/gm Dose Equivalent I-131.
- b) OP-TM-EOP-002: The title for this EOP lists this as Loss of 25°F Subcooling Margin, however some EALs (example CT4 and MU8) reference it as Loss of 250F Subcooling Margin.
- c) MA3 Basis: In the 3rd paragraph there is a paragraph return which could create confusion as indicative of the ideas not being connected.

Request: Clarify and identify the units of measurement, titles of references, or wording to eliminate any potential confusion.