



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

March 10, 2016

Mr. David B. Hamilton  
Site Vice President  
FirstEnergy Nuclear Operating Company  
Mail Stop A-PY-A290  
P.O. Box 97, 10 Center Road  
Perry, OH 44081-0097

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT NO. 1 - REQUEST FOR  
ADDITIONAL INFORMATION RELATED TO EMERGENCY ACTION LEVEL  
SCHEME CHANGE LICENSE AMENDMENT REQUEST (CAC NO. MF7046)  
(L-15-257)

Dear Mr. Hamilton:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated October 29, 2015, FirstEnergy Nuclear Operating Company (FENOC) submitted a request to revise the emergency action level scheme for the Perry Nuclear Power Plant, Unit 1, to be based upon Revision 6 to the Nuclear Energy Institute (NEI) document NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors."

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter.

A draft request for additional information was transmitted to your staff by email dated March 1, 2016. A clarification call with FENOC was held on March 4, 2016. As a result of that call, the NRC staff has deleted two questions because sufficient information already exists on the docket. Additionally, three questions have been combined into one because they are similar in nature. During the call, it was agreed that you would provide a response within 45 days from the date of this letter.

D. Hamilton

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The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-1627.

Sincerely,

A handwritten signature in black ink, appearing to read "Kimberly J. Green". The signature is written in a cursive style with a large, stylized initial "K".

Kimberly J. Green, Senior Project Manager  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-440

Enclosure:  
Request for Additional Information

cc w/encl: Distribution via ListServ



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

REQUEST FOR ADDITIONAL INFORMATION

FIRSTENERGY NUCLEAR OPERATING COMPANY

PERRY NUCLEAR POWER PLANT, UNIT NO. 1

DOCKET NO. 50-440

CAC NO. MF7046

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated October 29, 2015, FirstEnergy Nuclear Operating Company (FENOC) requested approval for an emergency action level (EAL) scheme change for the Perry Nuclear Power Plant, Unit 1 (PNP) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15316A508) to one based upon Revision 6 to the Nuclear Energy Institute (NEI) document NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors" (ADAMS Accession No. ML12326A805).

The NRC staff is currently reviewing the submittal and has determined that the following information is needed in order to complete its review:

**RAI PNP-1**

Section 2.5, "Technical Bases Information," of the Emergency Action Level (EAL) Bases Document (Procedure Number PSI-0019) states: "A Plant-Specific basis section that provides Perry-relevant information concerning the EAL. This is followed by a Generic basis section that provides a description of the rationale for the EAL as provided in NEI 99-01 Rev. 6." The potential exists for decision-makers to be confused between these two sections if the information appears to be inconsistent. Please justify using a Perry-specific and an NEI 99-01 basis section when it is acceptable to just have one basis section that is specific to the plant, or revise accordingly to eliminate potential confusion by user.

**RAI PNP-2**

Section 2.6, "Operating Mode Applicability (ref. 4.1.2)," includes "Storage Operations" as an operating mode. Additionally, EAL EU1.1 utilizes Storage Operations as the Mode of Applicability. However, NEI 99-01 guidance for this EAL is applicable beginning at the point in which the loaded storage cask is sealed.

- Please explain how the proposed EAL, EU1.1 can be accurately assessed at all times once a loaded storage cask is sealed or revise Section 2.6 and EU1.1 accordingly.

Enclosure

**RAI PNP-3**

For EAL RU1.2, the Perry Basis states: "Shift management utilizes emergency response procedures to notify risk counties and to obtain necessary water samples." Considering that licensees typically perform gaseous and liquid release sampling as required by the Offsite Dose Calculation Manual (ODCM), it is not clear to the staff the purpose of the referenced statement. Please provide a more detailed explanation of the statement or revise accordingly.

**RAI PNP-4**

For EAL RA2.2, the information in the NEI 99-01 Basis section does not contain all of the actual information from NEI 99-01 relative to applying this initiating condition (IC) up to the point that irradiated fuel is sealed in a storage cask. Please explain why this information was omitted, or revise accordingly.

**RAI PNP-5**

For EAL RA3.2, mode applicability is only indicated for modes 3, 4, and 5 vice all modes as provided by NRC endorsed guidance. EAL HA5.1, which has the same safe shutdown rooms/areas, is applicable for all modes. Please provide justification for this difference between or revise accordingly. Note: In addition to consistency between RA3.2 and HA5.1, consideration should be given to potential changes that could result in additional modes of applicability to RA3.2 and HA5.1. This could be addressed by either modes of applicability or a discussion located in the EAL basis for RA3.2 and HA5.1.

**RAI PNP-6**

For the following sets of EALs, a table is provided for each EAL; however, each table contains the same information. It is not required that two separate tables be provided. Please justify using two separate tables that contain the same information, or revise accordingly.

- a. EALs RA3.2 and HA5.1 are applicable to the same areas (Tables R-2 and H-2)
- b. EALs CU5.1 and SU7.1 are applicable for the same communication methods (Tables C-4 and S-3)
- c. EALs CA6.1 and SA8.1 are subject to the same hazardous events (Tables C-5 and S-4)

**RAI PNP-7**

The intent of EALs CA2.1, SS1.1, SG1.1 and SG1.2 is to make the appropriate emergency classification upon a loss of ALL power sources. However, the list as developed eliminates the possibility of alternative AC power sources energizing an essential bus, thus negating the need for declaring the applicable EAL. Please remove the table of AC power sources, or provide further justification.

**RAI PNP-8**

For EAL CU3.1, the proposed EAL contains the condition, "...due to the loss of decay heat removal capability" which is not consistent with NRC endorsed guidance. This additional condition could impact the timeliness of declaration for events where decay heat removal is not completely lost. Please explain how EAL CU3.1 will be consistently assessed in a timely manner.

**RAI PNP-9**

For EAL CA3.1, the proposed EAL contains the condition, "...due to a loss of RCS cooling," which is not consistent with NRC endorsed guidance. This additional condition could impact the timeliness of declaration for events where decay heat removal is not completely lost. Please explain how EAL CA3.1 will be consistently assessed in a timely manner.

**RAI PNP-10**

For EAL CU4.1, the provided EAL threshold for vital DC bus ED-1-A is 114 volts DC while the minimum design voltage is 114.4 volts DC. In your "Difference Justification," you indicated that you rounded to the nearest readable value (2 volts). Please provide additional justification for selecting a voltage that is below the design voltage as the EAL threshold or revise accordingly.

**RAI PNP-11**

For EALs CA6.1 and SA8.1, the EAL appropriately includes VISIBLE DAMAGE to a SAFETY SYSTEM component or structure as EAL criteria. However, these EALs indicate that Tables C-6 and S-5 are listings of SAFETY SYSTEMS components or structures. It is not clear to the staff how Table C-6 or Table S-5, which are listings of areas/buildings, could be used to accurately assess the respective EALs. Please provide justification for including Table C-6 or Table S-5 as assessment criteria, or revise accordingly.

**RAI PNP-12**

For EAL CA6.1, the Perry Basis (Page 104 of 238 of PSI-0019) includes a reference to Table H-6 which does not seem appropriate for EAL CA6.1. Please provide justification for the Table H-6 discussion or revise accordingly.

**RAI PNP-13**

For EAL HS1.1, the Perry Basis discussion regarding the Security Shift Supervisor is different than that for HU1.1 and HA1.1. Additionally, the Perry Basis discussion for HG1.1 does not have a reference to Security Shift Supervision. Please explain why a consistent Perry Basis discussion is not used for common elements in the security-related EALs or revise accordingly.

#### **RAI PNP-14**

For EALs HU4.1 and HU4.2, the areas listed in Table H-1 seem to be vague or too all-encompassing. Please explain if the listed areas are all the areas that contain equipment needed for safe operation, safe shutdown and safe cool-down, and if these areas can be fine-tuned to limit consideration for these EALs.

#### **RAI PNP-15**

For EALs SU6.1, SU6.2, SA6.1 and SS6.1, a power level (<4%) was added to the EALs. The intent of NEI 99-01, Revision 6, is to align the above EAL classifications with site-specific EOP criteria of a successful reactor shutdown. The consistency between EALs and EOPs would benefit the decision makers by providing consistent criteria. The power level provided in the NEI 99-01, Revision 6, developer notes is an example that represents a typical EOP indication for a generic power plant. Please consider either using either the same EOP reactor shutdown criteria that the operators in either the EOPs or operator training, or consider using wording similar to NEI 99-01, Revision 6, guidance.

#### **RAI PNP-16**

For the Fission Product Reactor Coolant System Barrier, the Threshold refers to radiation and area temperature entry conditions.

- Please explain why the EAL does not specifically indicate whether max safe or max normal conditions should be used as assessment criteria or revise accordingly.
- Please provide evidence that adequate indications can be readily assessed to perform an assessment of RCS barrier loss due to an RCS leak based on radiation and/or temperature indications.

#### **RAI PNP-17**

For the Fission Product Containment Barrier, please provide evidence that adequate indications can be readily assessed to perform an assessment of the containment barrier due to an RCS leak based on radiation and/or temperature indications.

D. Hamilton

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Sincerely,

*/RA/*

Kimberly J. Green, Senior Project Manager  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-440

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Request for Additional Information

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