

From: Wengert, Thomas
Sent: Wednesday, January 19, 2022 3:15 PM
To: Keele Jr, Riley D
Cc: Clark, Robert; REID, MARK; Dixon-Herrity, Jennifer
Subject: ANO-1 and 2 -- Final RAI #2 RE: License Amendment Requests to Allow the ECP to Remain Operable On a One-Time Basis for Up to 65 days to Perform Piping Upgrade (L-2021-LLA-0015)
Attachments: Final RAI #2 Regarding One-time ANO ECP TS Change.pdf

On December 16, 2021, the U.S. Nuclear Regulatory Commission (NRC) staff sent Entergy Operations, Inc. (the licensee) the draft Request for Additional Information (RAI) identified below. This RAI relates to proposed technical specification changes that would allow the emergency cooling pond (ECP) to remain operable on a one-time basis for up to 65 days to perform proactive upgrades to the ECP supply piping at Arkansas Nuclear One, Units 1 and 2.

The NRC staff held a conference call with the licensee staff on January 19, 2022, to clarify this request. During the call, the NRC staff agreed to make some minor wording changes to RAI SCPB-1 to further clarify the request. At the conclusion of the call, the licensee agreed to provide a response to this RAI within 30 days of this correspondence. A publicly available version of this revised, final RAI (attached) will be placed in the NRC's Agencywide Documents Access and Management System (ADAMS).

From: Wengert, Thomas
Sent: Thursday, December 16, 2021 1:58 PM
To: Keele Jr, Riley D <rkeele@entergy.com>
Cc: Clark, Robert <RCLARK@entergy.com>; REID, MARK <mreid1@entergy.com>; Dixon-Herrity, Jennifer <Jennifer.Dixon-Herrity@nrc.gov>
Subject: ANO-1 and 2 Draft RAI #2 RE: License Amendment Requests to Allow the ECP to Remain Operable On a One-Time Basis for Up to 65 days to Perform Piping Upgrade (L-2021-LLA-0015)

By letter dated February 8, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21039A756), as supplemented by letter dated September 23, 2021 (ADAMS Accession No. ML21266A413), Entergy Operations, Inc. (Entergy) requested license amendments for Arkansas Nuclear One, Unit 1 and Unit 2 (ANO-1 and ANO-2) concerning Emergency Cooling Pond (ECP) Technical Specifications (TSs) ANO-1 TS 3.7.8 and ANO-2 TS 3.7.4.1. The proposed amendments would allow the ECP to remain operable on a one-time basis for up to 65 days to perform proactive upgrades to the ECP supply piping. In its letter dated February 8, 2021, the licensee stated that this change would allow Entergy the time to perform upgrades on piping from the ECP to the Service Water System intake bays prior to a spring outage for each unit.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the submittals and has determined that additional information is required for the staff to complete its review of this application. This request for additional information (RAI) is identified as draft at this time to confirm your understanding of the information that the NRC staff needs to complete the evaluation. If the request for information is understood, please respond to this RAI within 30 days of the date of this request.

Please contact me if you would like to set up a conference call with the NRC staff to clarify this request for information.

Tom Wengert
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Hearing Identifier: NRR_DRMA
Email Number: 1496

Mail Envelope Properties (DM6PR09MB5447DE75D601BB584FF3E74E8F599)

Subject: ANO-1 and 2 -- Final RAI #2 RE: License Amendment Requests to Allow the ECP to Remain Operable On a One-Time Basis for Up to 65 days to Perform Piping Upgrade (L-2021-LLA-0015)

Sent Date: 1/19/2022 3:14:44 PM

Received Date: 1/19/2022 3:14:00 PM

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Tracking Status: None

Post Office: DM6PR09MB5447.namprd09.prod.outlook.com

Files	Size	Date & Time
MESSAGE	2935	1/19/2022 3:14:00 PM
Final RAI #2 Regarding One-time ANO ECP TS Change.pdf		164064

Options

Priority: Normal

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

REQUEST FOR ADDITIONAL INFORMATION
CONCERNING PROPOSED ONE-TIME LICENSE AMENDMENTS TO
ALLOW THE EMERGENCY COOLING POND (ECP) TO BE OPERABLE
FOR UP TO 65 DAYS TO PERFORM PIPING UPGRADES TO ECP SUPPLY PIPING
ARKANSAS NUCLEAR ONE, UNITS 1 AND 2
DOCKET NOS. 50-313 AND 50-368

By letter dated February 8, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21039A756), as supplemented by letter dated September 23, 2021 (ADAMS Accession No. ML21266A413), Entergy Operations, Inc. (Entergy, the licensee) requested license amendments for Arkansas Nuclear One, Unit 1 and Unit 2 (ANO-1 and ANO-2) concerning Emergency Cooling Pond (ECP) Technical Specifications (TSs) ANO-1 TS 3.7.8 and ANO-2 TS 3.7.4.1. The proposed amendments would allow the ECP to remain operable on a one-time basis for up to 65 days to perform proactive upgrades to the ECP supply piping. In its letter dated February 8, 2021, the licensee stated that this change would allow Entergy the time to perform upgrades on piping from the ECP to the Service Water System (SWS) intake bays prior to a spring outage for each unit. The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the submittals and has determined that additional information is needed to complete its review, as described below.

Regulatory Basis

Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36, "Technical Specifications," requires, in part, that the operating license of a nuclear production facility include TSs. The regulations in 10 CFR 50.36(c)(2) require, in part, that the TSs include limiting conditions for operation (LCOs), which are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When an LCO for a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs, until the condition can be met.

ANO-1 and ANO-2 are not licensed to 10 CFR 50, Appendix A, "General Design Criteria (GDC) for Nuclear Power Plants." Both plants were originally designed to comply with the "Proposed General Design Criteria for Nuclear Power Plant Construction Permits," published in July 1967. The ANO-1 and ANO-2 Safety Analysis Reports provide comparisons with the Atomic Energy Commission GDC published as Appendix A to 10 CFR 50 in 1971.

The following GDCs are applicable:

GDC-5, "Shared Structures, Systems, and Components (SCCs)" and GDC-44, "Cooling Water." Entergy provided a detailed discussion of GDC-5 and GDC-44 in Section 4.1, "Applicable Regulatory Requirements/Criteria" in the LAR.

The NRC staff used the following guidance to evaluate the LAR:

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 18, Revision 3, "Human Factors Engineering," provides

the NRC staff's guidance for the review important actions and human performance for applicants.

NUREG-1764, "Guidance for the Review of Changes to Human Actions," Revision 1, issued September 2007 (ADAMS Accession No. ML072640413), is used by the NRC staff to risk-inform the review of changes to manual actions.

Regulatory Guide 1.174, "An Approach to Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Revision 3, issued January 2018 (ADAMS Accession No. ML17317A256), describes an approach that is acceptable to the NRC staff for developing risk-informed applications for a licensing basis change that considers engineering issues and applies risk insights.

Request for Additional Information (RAI)¹

RAI STSB-8

In RAI STSB-4.b of the initial request for additional information, the NRC staff requested the licensee's response concerning the following issue:

Please specify the delay time or explain the term "delay."

In its letter dated September 23, 2021, the licensee stated, in part:

Entergy response considers inability to meet one of the regulatory commitments as a missed surveillance and will invoke either ANO-1 Technical Specifications SR 3.0.3 or ANO-2 Technical Specification SR 4.0.3 guidance. ...

The NRC staff notes that because the subject compensatory actions are not TS surveillances, TS SR 3.0.3/4.0.3 cannot be invoked for such actions. On failure to meet the compensatory actions, appropriate ECP-related TS LCO Conditions (i.e., LCO 3.7.8 for ANO-1 and LCO 3.7.4.1 for ANO-2) must be entered and Action(s) taken accordingly.

Please confirm your understanding and revise the previous response to RAI STSB-4.b, as necessary.

¹ The RAI numbering scheme is based on a continuation of the RAI numbering shown in the licensee's letter dated September 23, 2021.

RAI STSB-9

The licensee’s proposed TS change modifies ANO-1 TS 3.7.8 and ANO-2 TS 3.7.4.1 with the addition of the following NOTE:

LCO The ECP shall be OPERABLE.

-----NOTE-----

The ECP may be considered OPERABLE on a one-time basis for up to 65 days during upgrade of the ECP supply piping to the SWS intake bays provided:

- a. A loss of Lake Dardanelle event is not in progress, and
- b. A temporary pumping system is capable of supplying the SWS from the ECP. The temporary pumping system may be unavailable for testing or necessary maintenance provided its availability is restored within 72 hours, and
- c. The regulatory commitments described in the ANO License Amendment Request (LAR) correspondence letter 0CAN022102 Enclosure Attachment 4 are implemented.

Regarding the proposed Note c above, the NRC staff notes that regulatory commitments can be revised without NRC prior approval and, therefore, may not be relied upon by the staff as a basis for approval.

Consider alternative language for implementing compensatory measures as obligations under this LCO Note.

RAI SCPB-1

In Section 3.2, “Justification,” of the LAR, the licensee stated that the temporary ECP supply system is a commercial-grade, nonsafety-related system being installed as a compensatory measure, and that the system will consist of high density polyethylene (HDPE) and carbon steel suction and discharge piping. The licensee also stated that the temporary piping and equipment will be restrained to limit movement and stresses due to wind, seismic, and thermal expansion within ASME Code or Plastic Pipe Institute limits. However, the above statements do not identify the specific piping standards that will be used by the licensee in the design of the temporary system.

Please identify the specific standards for the HDPE piping, carbon steel piping, and the interconnection that will be applied in the design of the temporary ECP supply system.

RAI EMIB-3

In the response to RAI EMIB-1 in the licensee's letter dated September 23, 2021, concerning how the minimum system flow requirements would be determined and why they would be sufficient to support the intended safety function of the ECP temporary pumping system, the licensee provided the following response:

In a conference call on August 18, 2021, the NRC Staff clarified that they were requesting information on how the full flow test will be performed. To perform the test, ANO will install the temporary pumping system into two SW pump bays and test the temporary system while the SW pumps are running, close the Lake Sluice gates and start the temporary pump. The test will verify the system minimum flow using flow meters, validate level control requirements are achieved in the SW Bays, and the system functions properly.

However, the intent of RAI EMIB-1 is to understand the licensee's basis for establishing that the pump design characteristics (e.g., capacity/flow rate) will meet the system functional requirements, not the performance of the pump testing.

Please describe how the minimum system flow requirements of the ECP temporary pumping system will be determined and why they will be sufficient to support the intended safety function.