From:	Guzman, Richard
To:	Gaston, Ronald William
Cc:	Couture III, Philip; Mirzai, Mahvash; Schrage, John
Subject:	Indian Point Unit No. 3 - DRAFT 2nd Round Request for Additional Information: LAR to Revise Licensing Basis for New Auxiliary Lifting Device [EPID L-2020-LLA-0051]
Date:	Tuesday, January 12, 2021 5:53:00 PM

Mr. Gaston,

By letter dated March 24, 2020 (ADAMS Accession No. ML20084U773), Entergy Nuclear Operations, Inc. (Entergy or the licensee) submitted a license amendment request (LAR) for Indian Point Nuclear Generating Unit No. 3 (IP3). The proposed amendment would incorporate, into the IP3 Licensing Basis, the installation and use of a new single failure proof auxiliary lifting device (i.e., the Holtec International HI-LIFT) to handle a dry cask storage transfer cask in the IP3 Fuel Storage Building. The change to the IP3 licensing basis would be documented via revision to the IP3 Updated Final Safety Analysis Report.

By letter dated November 9, 2020 (ADAMS Accession No. ML20314A355), Entergy submitted its response to the NRC staff's initial Request for Additional Information (RAI) dated September 24, 2020 (ML20268C235). On December 1, 2020, the NRC staff conducted a conference call with the licensee to clarify the RAI response. The NRC has completed its review of the licensee's November 9, 2020, response, and determined that it is not fully responsive to the NRC's staff RAI informational needs. Accordingly, the NRC staff is issuing a subsequent round of questions, as described in the RAI shown below. This RAI is identified as DRAFT at this time to confirm your understanding of the information needed by the NRC staff to complete its evaluation. The RAI questions below are intended to be NON-PROPRIETARY such that it can be made publicly available when ready for formal issuance. To that end, please verify that the content of the questions as presented below is in accord with the associated withholding request (Holtec affidavit dated March 5, 2020) and is appropriate for public disclosure. If necessary, please provide a mark-up of any portions below that should be redacted as appropriate.

Please also let me know your group's availability for a clarification call, if needed, to be held sometime next week (1/18-1/22) with the NRC technical staff to ensure the below RAI questions are understood by the licensee. As we discussed, I intend to send out the questions below as official following the completion of the clarification call and will specify a due date for Entergy's response by February 26, 2021, which is approximately 45 days from the date of this e-mail communication.

Thanks,

Richard V. Guzman
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========== DRAFT ==========

SECOND ROUND REQUEST FOR ADDITIONAL INFORMATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION
TO SUPPORT THE PLANT SYSTEMS REVIEW (SCPB) OF THE PROPOSED
LICENSE AMENDMENT REQUEST TO REVISE THE LICENSING BASIS FOR
INSTALLATION AND USE OF A NEW AUXILIARY LIFTING DEVICE
INDIAN POINT NUCLEAR GENERATING STATION, UNIT NO. 3
DOCKET NO. 50-286
EPID L-2020-LLA-0051

By letter dated March 24, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20084U773), Entergy Nuclear Operations, Inc., (Entergy, the licensee) submitted a license amendment request (LAR) for to revise the Indian Point Nuclear Generating Unit No. 3 (IP3) licensing basis for spent fuel cask handling. Specifically, the licensee requested approval to incorporate into the IP3 Licensing Basis the installation and use of a new single failure proof auxiliary lifting device (i.e., the Holtec International (Holtec) HI-LIFT) to handle a dry cask storage (DCS) transfer cask (i.e., the HI-TRAC) in the IP3 Fuel Storage Building (FSB). The change to the IP3 licensing would be documented in a revision to the IP3 Updated Final Safety Analysis Report (UFSAR).

The existing IP3 40-ton FSB Crane does not have the capacity to lift a fully loaded HI-TRAC (i.e., containing a multi-purpose canister (MPC-32) with 32 spent fuel bundles). Building constraints limited the potential options for increasing the load capability of the existing crane. Since 2012, the licensee has conducted DCS loading by moving spent fuel from the IP3 FSB to the Indian Point Nuclear Generating Unit No. 2 (IP2) FSB using a wet transfer method, which requires multiple transfers to transfer 32 spent fuel bundles. The proposed licensing basis change would permit the direct loading of the HI-TRAC without wet fuel transfer from IP3 to IP2 through use of the HI-LIFT as a single-failure-proof lifting device meeting the intent of guidance in American Society of Mechanical Engineers (ASME) NOG-1 2004 edition (ASME NOG-1), "Rules for Construction of Overhead and Gantry Cranes," NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," and NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants." Entergy described the HI-LIFT as a lifting device comprised of a U-shaped frame, strand jack hoisting device, hydraulic positioning cylinders, torque arms and stabilizing arm.

Section 1.3, “General Design Criteria,” of the IP3 UFSAR states that the licensee conducted a study of the method of compliance with NRC regulations contained in 10 CFR Part 50, including the General Design Criteria (GDC) of Appendix A to 10 CFR Part 50, and that the results of the compliance study were updated to reflect changes made to the configuration since the study was completed. The study was conducted in accordance with the provisions of NRC Confirmatory Order of February 11, 1980, and submitted to the NRC on August 11, 1980.

The Nuclear Regulatory Commission (NRC) staff has determined that additional information is needed to complete its review, as described in the request for additional information (RAI) shown below.

RAI-6 (SCPB-Plant Systems): Qualification of Components

Regulatory Basis:

- In accordance with 10 CFR Part 50, Appendix A, GDC 1, “Quality standards and records,” specifies that structures, systems, and components (SSCs) important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. Where generally recognized codes and standards are used, they shall be identified and evaluated to determine their applicability.
- Section 10 of NUREG-0554, “Single-Failure-Proof Cranes for Nuclear Power Plants,” specifies quality measures addressing the design, fabrication, installation, testing, and operation be applied to crane handling systems for safe handling of critical loads.

Request:

By letter dated November 9, 2020 (ADAMS Accession No. ML20314A355), Entergy provided a response to a request to clarify qualification of the strand jack component of the HI-LIFT (RAI-1(b) (SCPB-Plant Systems)), which stated that the strand jack would be procured as a commercial item and dedicated under the Holtec NQA-1 quality assurance program using inspections and tests (Method 1 of Subpart 2.14 of ASME NQA-1). The staff had also requested that Entergy specify critical characteristics of the strand jack and how each characteristic would be evaluated against the related acceptance criteria if commercial-grade dedication would be used for qualification. The response identified only functional performance related to the ability to lift/lower/hold sufficient load as critical characteristics and specified a proof load test in accordance with ASME B30.1-2015, paragraph 1-7.4.2(b) as the means of demonstrating the critical characteristics would be met. The guidelines of Section 10 of NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants," specify quality measures addressing the design, fabrication, installation, testing, and operation be applied to crane handling systems for safe handling of critical loads, but the identified characteristics and testing do not address strand jack characteristics associated with design and fabrication identified in Holtec Report HI-2188459, "HI-LIFT Specification for IPEC Unit 3." The response noted that the specifications for the strand jack in HI-2188549, Section 4 have been augmented to invoke ASME B30.1-2015, but the B30.1 standard states that the manufacturer establishes many of the design criteria applicable to strand jacks. Please identify characteristics, including design criteria established by the manufacturer in accordance with ASME B30.1, associated with the design and fabrication of the strand jack that are considered critical to the strand jack safety function and specify the tests or inspections that will be used to verify the critical characteristics have been met. If strand jack design features described in HI-2188549 are excluded from the list of critical characteristics, please provide information justifying the exclusion of the design feature from the list of critical characteristics based on its importance to the strand jack safety function of stopping and holding the dry storage cask system components.

RAI-7 (SCPB-Plant Systems): Qualification of Components

Regulatory Basis:

- 10 CFR Part 50, Appendix A, GDC 4, “Environmental and Dynamic Effects Design Bases,” specifies appropriate protection for SSCs important to safety against dynamic effects, including the effects of missiles that may result from equipment failures.

Request:

By letter dated November 9, 2020 (ADAMS Accession No. ML20314A355), Entergy provided a response to a request to address strand jack failure modes and effects related to a statement in Attachment 2 (Holtec Report HI-2188459) to the Enclosure for the license amendment request, which stated that no more than one strand could be disengaged by a single mechanical or hydraulic failure. (RAI-3 (SCPB-Plant Systems)). The response stated:

> The ASME NOG-1 Compliance Matrix, (i.e., HI-2188549, Appendix A) has been updated to clarify the statement: "*The load is shared among all strands and wedges such that any single mechanical failure of a strand or wedge does not result in any significant loss of load capacity, and would not impact the load holding ability of the strand jack*".

As indicated, this modified statement replaced the original statement in HI-2188549, Appendix A. However, the original statement (and similar statements related to strand disengagement) also appear in the NUREG-0554 Compliance Matrix (i.e., HI-2188549, Appendix C, Section 4.9, Items 2 through 4), and these statements were not modified or removed by the RAI response.

Additional descriptions of strand jack functions and operations provided in the response did not adequately demonstrate how the strand jack would continue to hold the load following hydraulic or control system component failures. Thus, the modified statement appears to relax the acceptance criteria applied to the strand jack design, and yet the response did not resolve the original request for additional information regarding the consequences of single failures affecting the strand jack hydraulic system and its associated control system. Please clarify the design criteria in HI-2188549 that apply to the strand jack system and explain how the criteria satisfy the requirements of GDC-4 to protect equipment important to safety from the effects of equipment failures in the strand jack system. Also, please provide a complete failure modes and effects analysis for the strand jack hydraulic system and its associated control system, along with supporting engineering diagrams, that show how the design criteria established in HI-2188549 would be satisfied.

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