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**Ron Gaston**  
Director, Nuclear Licensing

10 CFR 50.90

NL-21-039

May 20, 2021

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Subject: Response to Request for Additional Information - License Amendment  
Request to Revise the Indian Point Nuclear Generating Unit No. 3  
Licensing Basis to Incorporate the Installation and Use of a New Auxiliary  
Lifting Device

Indian Point Nuclear Generating Unit No. 3  
NRC Docket No. 50-286  
Renewed Facility Operating License No. DPR-64

- References:
- 1) Entergy Nuclear Operations, Inc. (Entergy) letter to U. S. Nuclear Regulatory Commission (NRC), "Proposed License Amendment to Revise the Indian Point Nuclear Generating Unit No. 3 Licensing Basis to Incorporate the Installation and Use of a New Auxiliary Lifting Device" (ADAMS Accession No. ML20084U773), dated March 24, 2020
  - 2) NRC Electronic mail from R. Guzman (NRC) to P. Couture (Entergy), Subject: "Indian Point Unit No. 3 - Subsequent Request for Additional Information: LAR to Revise Licensing Basis for New Auxiliary Lifting Device (Public Redacted Version) (EPID L-2020-LLA-0051)," (ADAMS Accession No. ML21112A267), dated April 22, 2021

In Reference 1, Entergy Nuclear Operations, Inc. (Entergy) submitted a request for a proposed amendment to Renewed Facility Operating License (FOL) DPR-64 for Indian Point Nuclear Generating Unit No. 3 (IP3). The proposed amendment requested U.S. Nuclear Regulatory Commission (NRC) 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).

In Reference 2, the NRC transmitted a request for additional information (RAI) concerning the proposed license amendment. The following Enclosures to this letter provide a response to the NRC RAI.

Enclosure 1 provides a proprietary version of the narrative RAI response. This enclosure contains information proprietary to Holtec, and is therefore supported by an affidavit signed by Holtec, the owner of the information, which is provided in Enclosure 3.

Enclosure 2 provides a non-proprietary, redacted version of the narrative RAI response.

Enclosure 3 provides the Holtec Affidavit in support of Enclosure 1. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the NRC and addresses, with specificity, the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

There are no new regulatory commitments in the enclosed RAI response.

Should you have any questions or require additional information, please contact Mr. Matthew Johnson, Nuclear Manager – IPEC Decommissioning at (914) 254-6288.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), a copy of this application, with non-proprietary enclosures, is being provided to the designated State Officials.

I declare under penalty of perjury; the foregoing is true and correct. Executed on May 20, 2021.

Respectfully,



Ron Gaston

RWG/jls

Enclosure 1: Response to Request for Additional Information, Proprietary  
Enclosure 2: Response to Request for Additional Information, Non-proprietary  
Enclosure 3: Holtec Affidavit Pursuant to 10 CFR 2.390, dated May 19, 2021

cc: NRC Region I Regional Administrator  
NRC Senior Resident Inspector, Indian Point Nuclear Generating Unit Nos. 2 and 3  
NRC Senior Project Manager, NRC/NRR/DORL  
President and CEO, NYSEDA (with Enclosures 2 and 3 only)  
New York State Public Service Commission (with Enclosures 2 and 3 only)  
NYS Department of Health - Radiation Control Program (with Enclosures 2 and 3 only)  
NYS Emergency Management Agency (with Enclosures 2 and 3 only)

**Enclosure 2**

**NL-21-039**

**Response to Request for Additional Information**

**Non-Proprietary**

## **Response to Request for Additional Information Non-Proprietary**

### **Background**

By application dated March 24, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20084U773), Entergy Nuclear Operations, Inc., (Entergy, the licensee) requested to revise the Indian Point Nuclear Generating Unit No. 3 (IP3) licensing basis for spent fuel cask handling. 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 HI-LIFT) to handle a dry cask storage transfer cask (i.e., the HI-TRAC) in the IP3 Fuel Storage Building. The change to the IP3 licensing would be documented in a revision to the IP3 Updated Final Safety Analysis Report (UFSAR).

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 were submitted to the NRC on August 11, 1980.

### **RAI 8 (SCP-B-Plant Systems): Defense-in-depth**

#### **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**

In Section 3.6.5 of the enclosure to the license amendment request dated March 24, 2020 (ADAMS Accession No. ML20084U773), Entergy provided the following non-proprietary information regarding response to an inoperable swing cylinder:

The hydraulic cylinders that operate the swing arms are mechanically load tested and procured with enhanced factors of safety to make a catastrophic mechanical failure non-credible. Seal leaks and counterbalance valve failures are possible, but they tend to be gradual failures. In this case (i.e., loss of hydraulic power), as well as swing cylinder control failure, hydraulic fluid can be manually bled from the cylinders, allowing gravitational force to pull the swing arms towards one end of travel. In the event the swing arms are at the apex position, rigging can be manually attached, and used to pull the swing arms sufficiently far for gravitational force to become effective. In either case, operators are able to throttle the fluid that is bled off from the cylinders to maintain a slow, controlled motion, such that the swing arms will be at the end of their travel. At that point, the load can then be lowered and placed in a safe condition.

In the section of the proprietary HI-LIFT Specification for IPEC Unit 3, HI-2188549, addressing  
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Consistent with regulatory guidance in NUREG-0554, heavy load handling systems should be designed to stop and hold the load following a loss of power and equipment failure. The NRC staff considers the described conditions to be credible combinations of events for the HI-LIFT design. In order to satisfy defense-in-depth principles related to maintaining handling system reliability commensurate with the frequency and consequences of challenges, additional information is necessary to understand the consequences of challenges that could cause or result from uneven operation of the hydraulic cylinders and the expected operator actions to compensate for those conditions.

- Establish the maximum acceptable threshold regarding uneven operation of the hydraulic cylinders, where the HI-LIFT structure, in its most limiting orientation(s), remains capable of supporting its full rated load and describe how this threshold was determined.
- Please describe if and how the crane's control system can detect, correct for, and/or alert operators in the case of uneven operation of the hydraulic cylinders. Describe any defense in depth measures that provide assurance that any uneven operation of the hydraulic cylinders will not result in reaching the threshold mentioned above.

#### **Entergy Response:**

##### **Response to Bullet 1:**

Maximum acceptable threshold limits regarding uneven operation of the hydraulic cylinders were established by performing sensitivity analyses of the HI-LIFT, utilizing the ANSYS model of the HI-LIFT discussed in Section F.1 of HI-2188625, Revision 2, "Structural Evaluation of HI-LIFT Device and Fuel Storage Building Walls at Indian Point Unit 3." Revision 1 of HI-2188625 was submitted as Attachment 4 to the original March 24, 2020 license amendment request (LAR) (ADAMS Accession No. ML20084U773). Revision 2 was submitted as Enclosure 2 in the October 2, 2020 RAI response (ML20276A322). The discussion in Section F.1 of HI-2188625 is the same in both revisions. The sensitivity analyses are performed for the HI-LIFT to support the full rated load under the two most limiting orientations: [[

]].

All other aspects of the analytical model are kept consistent with those documented in HI-2188625, Revision 2. Subsequently, a maximum threshold limit for uneven operation is established by ensuring that all HI-LIFT load bearing components maintain compliance with ASME NOG-1 allowable stresses under normal and seismic load cases. The established maximum threshold limit in terms of hydraulic cylinder rod displacement is approximately  
[[

In other words, one cylinder rod can extend approximately  $[\ ]$  more than the other cylinder  $[\ ]$ . while maintaining compliance with all ASME NOG-1 allowable stresses for the HI-LIFT. The load bearing spent fuel building walls are also re-evaluated under the bounding loads from the above discussed sensitivity analyses and demonstrated to meet all applicable limits specified in ACI 318-63, "Building code requirements for reinforced concrete."

The HI-LIFT control system will be designed to detect, correct for, and/or alert operators in the case of uneven operations at a portion of the maximum threshold limit listed above. The sensitivity simulations discussed here are documented in HI-2188625, Revision 3.

### **Response to Bullet 2:**

Installation and commissioning activities will ensure the HI-LIFT and control systems are properly functioning before the first cask is lifted. The HI-LIFT will be adjusted at installation to provide close alignment of cylinders. Control sensors are calibrated, primary and redundant control systems are verified through functional testing, and HI-LIFT mechanical elements are verified through load testing. Therefore, the initial configuration and condition of the equipment establishes the baseline for subsequent monitoring, in-service inspection, and preventative maintenance activities.

The hydraulic swing cylinder primary control system will use a flow balancing system with the ability to vary the flow to each cylinder, using variable speed pumps or similar system. Position indication sensors will be installed to detect the positions of each cylinder rod, to provide ongoing feedback to the control system. The primary control system logic constantly compares the relative positions of each cylinder rod, and adjusts the flow to each cylinder accordingly to maintain relative positions of each cylinder rod within a preset limit of approximately  $[\ ]$

$[\ ]$ . If the primary control system reaches its preset limit for relative cylinder position, it will stop motion, and alert the operator at the control console. If the primary controls reach this limit and stop motion, operators will initiate troubleshooting procedures to diagnose and repair components of the system before resuming travel. The manual hydraulic fluid bleed-off procedure (described in HI-2188549, Revision 2, Section 7.1.3) may be employed if needed to reposition the HI-LIFT and lifted load without the use of electronic controls.

To provide protection from primary control system failure, a redundant control system will monitor cylinder rod positions. If rod positions reach a preset limit of approximately  $[\ ]$ , the redundant control system will provide an alarm to operators and disconnect electrical power to the hydraulic pumps, which removes hydraulic pressure to the system, causing counterbalance valves to close, and cylinders to stop and hold position. If the redundant controls reach this limit and stop motion, operators will initiate troubleshooting procedures to diagnose and repair components of the system before resuming travel. As stated above, the manual hydraulic fluid bleed-off procedure (described in HI-2188549, Revision 2, Section 7.1.3) may be employed if needed to reposition the HI-LIFT and lifted load without the use of electronic controls.

Note that the control system limits presented above will be confirmed during factory acceptance testing and commissioning activities, and will be adjusted as needed to ensure appropriate margin is maintained with regard to threshold limits.

In the event of minor seal leakage affecting the cylinders or counterbalance valve, the control system would receive feedback that one cylinder is beginning to lag, and it can increase flow to the lagging cylinder and/or reduce flow to the opposite cylinder to compensate. [[

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Inspections, monitoring and preventative maintenance will ensure leaks never exceed the ability of the control system to compensate. To provide objectivity to inspections, the maximum acceptable total leak rate will be 1% of the pump flow capacity taken at the maximum normal cylinder operating pressure [[ ]] which occurs when the swing arms are fully extended over the pool.

The requirement to conduct in-service inspections of the hydraulic components is listed in Table 6.1 of HI-2188549, Revision 2. Requirements for visual detection of external leaks will be augmented to specify a limiting leak rate of 1% of the hydraulic pump flow capacity. Table 6.1 will be augmented to add in-service inspection for internal leaks, to occur monthly, or after four (4) cask loading cycles, whichever occurs first. Internal leaks will be inspected by pressurizing the stationary cylinder with hydraulic fluid to the maximum normal cylinder operating pressure and measuring fluid flow into the cylinder required to maintain the pressure. Other test arrangements may be used as long as they demonstrate equivalent accuracy.

**Enclosure 3**

**NL-21-039**

**Holtec Affidavit Pursuant to 10 CFR 2.390  
dated May 19, 2021**

**AFFIDAVIT PURSUANT TO 10 CFR 2.390**

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I, Kimberly Manzione, being duly sworn, depose and state as follows:

- (1) I have reviewed the information described in paragraph (2) which is sought to be withheld, and am authorized to apply for its withholding.
- (2) The information sought to be withheld is information provided in Enclosure 1 to Entergy Letter NL-21-039. This enclosure contains Holtec Proprietary information.
- (3) In making this application for withholding of proprietary information of which it is the owner, Holtec International relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4) and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10CFR Part 9.17(a)(4), 2.390(a)(4), and 2.390(b)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).

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- (4) Some examples of categories of information which fit into the definition of proprietary information are:
- a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by Holtec's competitors without license from Holtec International constitutes a competitive economic advantage over other companies;
  - b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.
  - c. Information which reveals cost or price information, production, capacities, budget levels, or commercial strategies of Holtec International, its customers, or its suppliers;
  - d. Information which reveals aspects of past, present, or future Holtec International customer-funded development plans and programs of potential commercial value to Holtec International;
  - e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs 4.a, 4.b, and 4.e above.

- (5) The information sought to be withheld is being submitted to the NRC in confidence. The information (including that compiled from many sources) is of a sort customarily held in confidence by Holtec International, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by Holtec International. No public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for

**AFFIDAVIT PURSUANT TO 10 CFR 2.390**

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maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

- (6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within Holtec International is limited on a "need to know" basis.
- (7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his designee), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside Holtec International are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.
- (8) The information classified as proprietary was developed and compiled by Holtec International at a significant cost to Holtec International. This information is classified as proprietary because it contains detailed descriptions of analytical approaches and methodologies not available elsewhere. This information would provide other parties, including competitors, with information from Holtec International's technical database and the results of evaluations performed by Holtec International. A substantial effort has been expended by Holtec International to develop this information. Release of this information would improve a competitor's position because it would enable Holtec's competitor to copy our technology and offer it for sale in competition with our company, causing us financial injury.

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- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to Holtec International's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of Holtec International's comprehensive spent fuel storage technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology, and includes development of the expertise to determine and apply the appropriate evaluation process.

The research, development, engineering, and analytical costs comprise a substantial investment of time and money by Holtec International.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

Holtec International's competitive advantage will be lost if its competitors are able to use the results of the Holtec International experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to Holtec International would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive Holtec International of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

**AFFIDAVIT PURSUANT TO 10 CFR 2.390**

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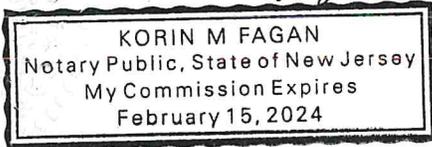
STATE OF NEW JERSEY     )  
  )     ss:  
COUNTY OF CAMDEN     )

Kimberly Manzione, being duly sworn, deposes and says:

That she has read the foregoing affidavit and the matters stated therein are true and correct to the best of her knowledge, information, and belief.

Executed at Camden, New Jersey, this 19th day of May, 2021.

*Korin M. Fagan*



*Kimberly Manzione*

Kimberly Manzione  
Licensing Manager  
Holtec International

Subscribed and sworn before me this 19th day of May, 2021.