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Ron Gaston
Director, Nuclear Licensing

10 CFR 50.90

NL-20-070

October 2, 2020

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

Subject: Response to Requests 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 R. Gaston (Entergy), Subject: "Indian Point Unit No. 3 - Request for Additional Information: LAR to Revise Licensing Basis for New Auxiliary Lifting Device [EPID L-2020-LLA-0051]," (ADAMS Accession No. ML20233B015), dated August 20, 2020

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 requests for additional information (RAIs) concerning the proposed license amendment. The following Enclosures to this letter provide a response to the NRC RAIs.

Enclosure 1 provides a proprietary version of the narrative RAI responses. 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 5.

Enclosure 2 provides Revision 2 to Holtec Report HI-2188625, "Structural Evaluation of HI-LIFT Device and Fuel Storage Building Walls at Indian Point Unit 3," which is referenced in the RAI responses. This enclosure, in its entirety, 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 5.

Enclosure 3 provides a non-proprietary, redacted version of the narrative RAI responses.

Enclosure 4 provides a revised set of marked-up UFSAR pages, which are referenced in the RAI responses.

Enclosure 5 provides the Holtec Affidavit in support of Enclosures 1 and 2. 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.

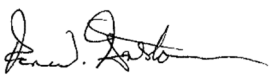
There are no new regulatory commitments in the enclosed RAI responses.

Should you have any questions or require additional information, please contact Ms. Mahvash Mirzai, IP2 and IP3 Regulatory Assurance Manager, at (914) 254-7714.

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

I declare under penalty of perjury; the foregoing is true and correct. Executed on October 2, 2020.

Respectfully,



Ron Gaston

RWG/jls

Enclosure 1: Response to Requests for Additional Information, Proprietary
Enclosure 2: Holtec Report HI-2188625, "Structural Evaluation of HI-LIFT Device and Fuel Storage Building Walls at Indian Point Unit 3," Revision 2, Proprietary
Enclosure 3: Response to Requests for Additional Information, Non-proprietary
Enclosure 4. Indian Point Nuclear Generating Unit No. 3 Revised UFSAR Markup Pages
Enclosure 5: Holtec Affidavit Pursuant to 10 CFR 2.390, dated September 30, 2020

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, NYSERDA
New York State Public Service Commission
NYS Department of Health - Radiation Control Program
NYS Emergency Management Agency

Enclosure 1

NL-20-070

Response to Requests for Additional Information
Proprietary

Enclosure 2

NL-20-070

Holtec Report HI-2188625, "Structural Evaluation of HI-LIFT Device and Fuel Storage Building Walls at Indian Point Unit 3," Revision 2

Proprietary

Enclosure 3

NL-20-070

Response to Requests for Additional Information

Non-proprietary

RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION

NON-PROPRIETARY

By letter dated March 24, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20084U773), Entergy Nuclear Operations, Inc. (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 (UFSAR). 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-1 (ESEB-Structural)

Background:

The licensee described the applicable regulatory requirements and criteria in Section 4.0 "Regulatory Evaluation," in Enclosure NL-20-021 "Evaluations of the Proposed Change," (Agencywide Documents Access and Management System (ADAMS) Accession No ML20084U773), which includes protecting the IP3 spent fuel pool (SFP) and the IP3 fuel storage building (FSB) truck bay walls from the effects of natural phenomena such as earthquake as required in General Design Criterion (GDC) 2, "Design Bases for Protection Against Natural Phenomena," of Appendix A to 10 CFR Part 50.

a) In Section 3.0 "Methodology and Analysis," HOLTEC Report, HI-2188625, Revision 1, (ADAMS Accession No ML20084U778), the licensee stated the load combinations listed in Section 2.0 "Acceptance Criteria and Load Combinations," were considered under the three loading orientations, CASE A, CASE B, and CASE C.

b) Based on HOLTEC Drawing No. 11654, "HI-LIFT Ancillary Lift Device," Revision 1, Sheet 11 of 12 in HOLTEC Report HI-2188549, Revision 1, (ADAMS No ML20084U778), the NRC staff determined an operational luffing motion angle of the HI-LIFT lifting device support-arm.

Issues:

a) The NRC staff was not able to determine in the UFSAR whether the licensee described the operating range (luffing-motion angle) of the HI-LIFT lifting device support-arm loading orientations from CASE B to CASE C of the HI-LIFT lifting device.

b) The NRC staff determined the HI-LIFT lifting device support-arm luffing- motion angle by taking the angular difference of the loading orientations of CASE C and CASE B. However, the luffing-motion angle of the HI-LIFT lifting device support-arm in drawing No. 11654 does not reflect the same angle.

Request:

a) The NRC staff is requesting the licensee to augment the proposed UFSAR as appropriate to specifically reflect the operating range of the HI-LIFT lifting device support-arm by providing the luffing-motion angle.

b) The NRC staff is requesting the licensee to address this discrepancy of HI-LIFT lifting device support-arm luffing motion angle. The staff also requested the licensee to check whether this discrepancy would affect the loading conditions (CASE B and CASE C) and would adversely affect the results of the analyses.

ENTERGY RESPONSE

a) Enclosure 4 provides the requested augmentation of the proposed UFSAR pages. The augmented version specifically reflects the operating range of the HI-LIFT support arms as defined by their maximum reach over the spent fuel pool, and over the truck bay.

b) The maximum operating range of the HI-LIFT support arms is defined by their maximum reach over the spent fuel pool, and over the truck bay, not by angle. This is shown in Holtec Drawing 11654R1, Sheet 11. For convenience, analysis report HI-2188625 uses angles to configure the model, but the angles intentionally bound the maximum reach distances defined on the drawing. Therefore, there is no deficiency in design or calculation; However, clarification has been added to Holtec Report HI-2188625, "Structural Evaluation of HI-LIFT Device and Fuel Storage Building Walls at Indian Point Unit 3" in Revision 2. Enclosure 2 provides HI-2188625, Revision 2.

Details:

Holtec Drawing 11654R1 illustrates the nominal or planned reach of the HI-LIFT over the IP3 spent fuel pool, and over the truck bay. **[[** PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390 **]]**

The HI-LIFT incorporates some adjustability to accommodate as-built, as-installed conditions. Adjustability is limited by the maximum reach of the HI-LIFT support arms over the IP3 spent fuel pool and over the truck bay, and are defined in Holtec Drawing 11654R1, Sheet 11. **[[** PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390 **]]**

For convenience, the calculation package HI-2188625 has converted the maximum reach distances to angles, and rounded to a whole number, such that the angle in the analysis bounds the maximum reach defined in Drawing 11652R1, Sheet 11.

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PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390

]] This has been further clarified in HI-2188625, Revision 2.

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PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390

]] This has been further clarified in HI-2188625, Revision 2.

RAI-2 (ESEB-Structural)

Background:

GDC 1, "Quality Standards and Records," of Appendix A to 10 CFR Part 50, specifies, in part, that structures, systems, and components (SSCs) important to safety shall 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.

In HOLTEC Report, HI-2188625, Revision 1 (ADAMS Accession No. ML20084U778), the licensee submitted Subsections D4.2 "Truckbay Wall ANSYS Model Description," and D.5.2 "Spent Fuel Pool Wall ANSYS Model Description."

Issue: Based on the review, it is not clear to the NRC staff whether effects of potential concrete cracking can be represented using the specified ANSYS model element under postulated loading conditions. The specified ANSYS model elements can be extremely stiff in bending and it is generally recommended that at least three elements be used through the thickness for reasonable results. Furthermore, the boundary conditions have to be applied to all the nodes of the specified elements to achieve the correct deformation behavior.

Request:

a) The NRC staff is requesting the licensee to describe the capabilities of the specified element in use of reinforced concrete structures. It is not clear to the staff how the existing reinforcement in the SFP and truck bay walls were considered in the ANSYS model.

b) The NRC staff is requesting the licensee to justify the use of its proposed layer of elements through the thicknesses of the SFP and truck bay walls in the ANSYS models.

ENTERGY RESPONSE

a) The solid shell element (SOLSH190) element type in ANSYS is widely used for simulating shell structures with a wide range of thickness (from thin to moderately thick). The element possesses the continuum solid element topology and features eight-node connectivity with three degrees of freedom at each node: translations in the nodal x, y, and z directions. The SOLSH190 element in ANSYS better captures the stress distribution than a traditional 8-node brick element as it employs enhanced strain formulations and incorporates transverse shear deformation behavior improving the overall accuracy.

[[PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390 **]]**

b) To justify the use of single layer of SOLSH190 element through the thickness of the SFP and truck bay walls in the ANSYS model, two sensitivity simulations are performed as discussed below. **[[**

PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390

.]] The sensitivity simulations discussed here are documented in Appendix D of HI-2188625, Revision 2.

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PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390

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PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390

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RAI-3 (ESEB-Structural)

Background:

GDC 1, "Quality Standards and Records," and GDC 2 "Design Bases for Protection Against Natural Phenomena," of Appendix A to 10 CFR Part 50, specifies, in part, that SSCs important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed using generally recognized codes and standards under the effects of natural phenomena such as earthquake. In HOLTEC Report, HI-2188625, Revision 1, the licensee provided Appendix E, "Structural Qualification of Concrete Anchoring System."

Issue: While reviewing the sample calculation provided in Appendix E, the NRC staff was unable to determine whether or not the licensee considered anchor behavior effects under loads such as embedment size (overlapping), edge distance, prying, etc., per the requirements of ACI 349-85 standard in the calculations. Otherwise, the load-carrying capacity of anchors may be overestimated without the consideration of these anchor behavior effects under loading.

Request:

The NRC staff is requesting the licensee to describe whether the anchor behavior effects under loads, per the requirements of ACI 349-85, were considered in the calculations. If not, the licensee is requested to either provide justification for not considering anchor behavior effects or to revise the anchor calculations as necessary.

ENTERGY RESPONSE

The applicable anchor behavior effects such as cone overlapping and edge distances are appropriately considered in the HI-2188625, Appendix E calculations.

Details:

Anchor behavior effects for anchors under the outrigger arm:

a) Tensile capacity:

[[

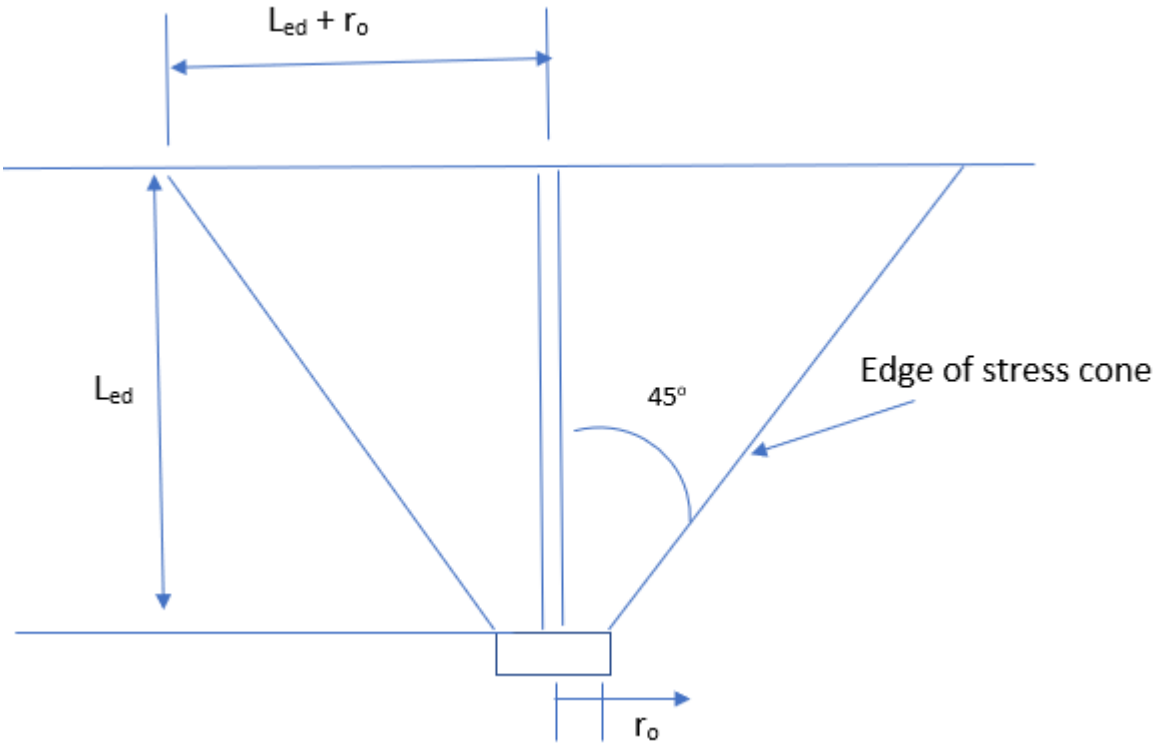
PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390

]] This has been clarified in HI-2188625, Revision 2.

Note: All anchor evaluations performed in Appendix E are based on the anchor patterns and dimensions from Appendix G of HI-2188625 and Holtec Drawing 11654. Once the

final as-built anchor configurations are available, the anchor evaluations will be appropriately updated as needed to account for anchor size, dimensions, material, embedment depth, anchor spacing, edge effects and other factors as applicable by the code.

Here:
h_{ef} is the minimum embedment depth (i.e. 18 inches per Appendix E of HI-2188625)
c is the minimum edge distance (i.e. 18 inches per Appendix E of HI-2188625)
s is the anchor spacing (i.e. 24 inches per Appendix E of HI-2188625)
h is the concrete member depth
c_1 is the edge distance in the load direction
c_2 is the edge distance perpendicular to the load direction



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PROPRIETARY INFORMATION WITHHELD PER 10 CFR 2.390

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RAI-4 (ESEB-Structural)

Background:

GDC 1, "Quality Standards and Records," of Appendix A to 10 CFR Part 50, specifies, in part, that SSCs important to safety shall 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.

In Section 3.5 "Testing," of Enclosure NL-20-021 dated March 24, 2020, the licensee stated, "The complete HI-LIFT will be load tested in the exact configuration that will be used to lift the loaded HI-TRAC." In Section E.6 "Conclusions," of Appendix E in HOLTEC Report, HI-2188625, Revision 1, the licensee also provided statements regarding anchor testing for design adequacy verification. However, there was no discussion of if, or how, the truck bay wall through bolts will be tested.

Issue: Based on the review, the NRC staff was not able to determine which ACI Code and its provision(s) the licensee will be implementing to test the grouted anchors. It is not clear to the staff whether the licensee will also test the truck bay wall through bolts.

Request:

The NRC staff is requesting the licensee to provide the applicable ACI code and its associated provision(s) for testing the grouted anchors and through bolts (if applicable). The staff is also requesting the licensee augment the UFSAR as appropriate to reflect the applicable standards for testing of anchors/bolts.

ENTERGY RESPONSE

Consistent with the design and analysis methodology for the embedded anchors on top of the pool wall presented in Holtec Report HI-2188625 Appendix E, the testing methodology will follow ACI 349-85, Appendix B. Grouted anchors will follow Section B.9 and will be tested in the installed condition. HI-LIFT Specification HI-2188549, Section 6.2 indicates that all anchors will be tested, which exceeds the requirement for testing randomly selected anchors per ACI 349-85 section B.9.4.

The through bolts (studs) in the truck bay wall transfer loads into the concrete through direct bearing, and do not utilize grout, and therefore do not require pull out testing.

Enclosure 4

NL-20-070

Indian Point Nuclear Generating Unit No. 3

Revised UFSAR Markup Pages

N14.5. The HI-TRAC top lid is installed and the bolts are tightened and the seal is tested in accordance with ANSI N14.5. The HI-TRAC side radiation levels are measured to verify compliance with Technical Specification requirements. The IP3 FSB truck bay door is opened and the loaded HI-TRAC is moved outside the IP3 FSB to the VCT on Air Pads using the Prime Mover.

The VCT travels inside the Protected Area on the approved haul route between IP3 and IP2. Prior to each transfer of spent fuel assemblies, the haul route is visually inspected and repaired as necessary.

The HI-TRAC containing the loaded STC is lowered from the VCT onto the IP2 LPT and moved into the IP2 FSB. Inside the IP2 FSB, the HI-TRAC is positioned beneath the 110-Ton Ederer Crane. A drain line containing a pressure gauge is connected to the HI-TRAC's top lid vent port and opened relieving any internal pressure. The HI-TRAC top lid bolts are removed and the HI-TRAC top lid is removed. The drain line is then attached to the vent port connection located on the lid of the STC and opened relieving any internal STC pressure. STC lid nuts and washers are removed.

The Lift Cleats (with the Lift Cleat Adapter) are attached to the STC lid (the STC Lifting Devices already are installed on the STC lid). The 110-Ton Ederer Crane is attached to the STC through the Lift Cleat Adapter. The STC lifting device arms are engaged with the STC trunnions. Under the direction of Radiation Protection personnel the STC is raised out of the HI-TRAC and positioned directly over the SFP cask loading area and lowered into the pool. IP2 Technical Specification 3.7.12 requires that boron levels in the IP2 SFP have a concentration of greater than 2000ppm which is also required for the STC spent fuel unloading activities.

With the STC in the SFP cask loading area, the STC Lifting Devices are released from the STC lifting trunnions and the STC lid is removed. The spent fuel assemblies and associated non-fuel hardware are removed from the STC and placed into the SFP racks in accordance with the requirements of the IP2 Technical Specification 3.7.13. The STC lid is positioned over the STC and installed. The lid's STC Lifting Devices are attached to the STC lifting trunnions and the STC is raised to the surface of the SFP. Any standing water in the lid is removed. Under the direction of Radiation Protection personnel the STC is raised and removed from the SFP, sprayed with demineralized water, and the water inside the STC is lowered before the STC is placed into the HI-TRAC. The STC lid studs and nuts are installed and the lid studs and nuts are tightened. The Lift Cleats are disconnected from the STC top lid and the Lift Cleats and Lift Cleat Adapter are removed. The HI-TRAC top lid is installed, the bolts are tightened, and the HI-TRAC containing the empty STC is then ready to be returned to the IP3 FSB.

Insert 1

REFERENCES FOR SECTION 9.5

1. Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment No. 246 to Facility Operating License No. DPR-64, July 13, 2012.

2. Holtec Report HI-2094289, Licensing Report on the Inter-Unit Transfer of Spent Nuclear Fuel at Indian Point Energy Center, Revision 6.

Insert 2

INSERT 1 (page 1 of 2)

9.5.7 Spent Fuel Cask Operations Using HI-LIFT Ancillary Lifting Device

By Safety Evaluation dated April XX, 2021 (Ref. 3) , the NRC issued license amendment XXX, which approved the installation and use of a specially designed ancillary lifting device (i.e., the Holtec HI-LIFT) in the IP3 Spent Fuel Building to safely lift a HI-TRAC transfer cask with a full-sized, and either empty or fully-loaded Holtec multi-purpose cannister (MPC)-32 storage cask.

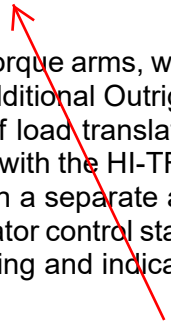
The HI-LIFT is a wall mounted, removable device that is rated for 100 tons. The HI-LIFT will only be used to lift the HI-TRAC / MPC-32 within the IP3 spent fuel building. The HI-LIFT is designed to meet the single-failure-proof criteria of NUREG-0554 and NUREG-0612 through compliance with ASME NOG-1, 2004. Associated lifting devices and interfacing lift points also satisfy the guidance of NUREG-0612 in order to ensure the entire fuel handling lift system complies with the single-failure proof guidance of NUREG-0612 for each heavy load lift in or around the spent fuel pool (SFP), or in or around a cask loaded with spent fuel, or a lift of a cask loaded with spent fuel. All heavy lifts will use safe load paths in compliance with NUREG 0612, and operator training will also conform to the recommendations of the regulatory guidance.

The HI-LIFT provides the required hoisting capability through the use of a strand jack to lift and lower the load. The strand jack is a commercial component used worldwide in the construction industry with proven reliability. The HI-LIFT strand jack uses 48 strands to support the HI-TRAC and lift yoke. The strands are much thicker than cable and will not lead to a slack rope condition. A cable management system (i.e., a recoiler), maintains cable alignments as the load is raised and lowered. The strand jack uses two sets of wedge locks and a reciprocating hydraulic cylinder to lift and lower the load. While the load is raised, the lower wedge lock set holds the load in place until the load is taken by the upper wedge lock set. The reverse occurs during load lowering.

The strand jack is supported by a center beam that transfers the load outwards to two support arms, forming an inverted U-shaped frame. The U-frame is supported with a pinned connection to steel base frames (mountingfFeet) mounted to the top surface of the structural SFP wall. Pivoting the U-frame about the bottom pins provides a translation motion with a range sufficient enough to reach a canister processing location (“washdown area”) adjacent to the truck bay, and a cask loading position in the spent fuel pool.

Translational motion is provided by the HI-LIFT frame and support arms. The HI-LIFT frame moves the strand jack unit horizontally by pivoting through a defined travel path via the bottom pins attached to the support arms. The travel path encompasses the truck bay washdown area and the cask loading area of the SFP. The length of the support arms limits the travel path of the HI-LIFT and prevents cask movement over spent fuel stored in the SFP racks.

Support arm motion is powered by hydraulic cylinders, which react against the torque arms, which in turn react against brackets mounted to the south wall of the truck bay. An additional Outrigger Arm provides stability and bracing for loading perpendicular to the direction of load translation. Below the strand jack, the lifting strands connect to a yoke designed to engage with the HI-TRAC using swinging lift arms. An electrically driven hydraulic power unit is located in a separate area to power the hydraulic action of the strand jack and hydraulic cylinders. An operator control station is also located here to allow control of the unit, monitoring of the lift, and alarming and indication functions for operators.



HI-LIFT support arm travels within a limited allowable envelope. Luffing angles for support arms can be derived from the allowable envelope limits. The HI-LIFT is adjusted and shimmed at installation to ensure compliance with the defined travel path.

INSERT 1 (page 2 of 2)

The HI-LIFT frame is mounted to the top surface of the SFP wall, adjacent to the cask-loading pit and the torque arms are anchored to the fuel building wall directly across from the SFP wall (i.e., the south truck bay wall). The HI-LIFT will be supported entirely by the six-foot thick south SFP wall. Loads from the torque arms on the south truck bay wall will be limited to vertical reactions, through the use of a roller system.

The anchor system connects the mechanical and steel structural portions of the ancillary to the reinforced concrete structure of the fuel building. Steel baseplates are machined to match the actual locations of the field installed concrete undercut anchors on the spent fuel pool wall and leveled and grouted in place. The baseplates provide threaded holes for attachment of the primary lifting device subcomponents. Attachment to the truck bay wall is made by through drilling, and using studs, with washers and nuts, rather than undercut anchors.

The HI-LIFT is capable of:

1. Connecting to a suitable lift yoke, which engages with the lifting trunnions of a HI-TRAC 100D overpack, while the HI-TRAC is loaded with an empty or loaded MPC-32 canister, and placed in position at ground level in the washdown area.
2. Lifting the HI-TRAC from the washdown area of the IP3 spent fuel building to a height sufficient to clear the wall and curb on the south side of the IP3 spent fuel pool wall.
3. Translating the HI-TRAC northwards, over the spent fuel pool wall.
4. Lowering the HI-TRAC into the pool in a slow and controlled manner. The location in the pool must be within the working range of the spent fuel handling machine and must not cause violations of minimum water cover requirements.
5. Lifting the loaded HI-TRAC out of the spent fuel pool, translating, and lowering the HI-TRAC to the wash-down area in a slow and controlled manner.
6. Disengaging from the HI-TRAC and retreating clear of subsequent loading activities.

The structural evaluation of the HI-LIFT was performed using the finite element method to calculate normal beam stresses in the structural members for all load cases per ASME NOG-1. The finite element model of the HI-LIFT is built in ANSYS 17.1. The HI-LIFT was designed to satisfy the stress limits of ASME NOG-1 under normal and seismic conditions.

The structural evaluation of the spent fuel pool wall and the truck bay wall demonstrate that these components are structurally adequate per ACI 318-63 to support the loads imparted by the HI-LIFT (Ref. 4). The building walls are evaluated under the three load combinations, LC1, LC2 and LC3 to withstand the bounding loads imparted by the HI-LIFT. In addition to the loads from the HI-LIFT, the SFP wall also includes the hydrostatic pressure and hydro dynamic loads, as applicable

The results of the structural analysis (Ref. 4) indicate that all the evaluated safety factors are greater than 1.0, thus qualifying the HI-LIFT, spent fuel building walls, and the anchoring system as structurally adequate under all applicable load combinations. Additionally, all safety factors for the mechanical components of the HI-LIFT are greater than 2.0 under the normal load case, thus satisfying the single failure proof criteria. Based on these results, the HI-LIFT and the supporting wall structures are structurally adequate for the intended use.

INSERT 2

3. Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment No. XXX to Facility Operating License No. DPR-64, dated April XX, 2021.

4. Holtec Report HI-2188625, "Structural Evaluation of HI-LIFT Device and Spent Fuel Building Walls at Indian Point Unit 3," Revision 0.

9.12.5 Safety Evaluation

The controls implemented to address NUREG- 0612 Phase 1 elements make the risk of a load drop very unlikely. The use of increased safety factors for load path elements makes the risk of a load drop extremely unlikely and acceptably low. In the event of a postulated load drop, the consequences are acceptable, as demonstrated by system analyses or the load drop analysis. Restrictions on load height, load weight, and medium under the load are reflected in plant procedures. The risk associated with the movement of heavy loads is evaluated and controlled by station procedures.

INSERT 3 (page 1 of 2)

9.12.4.4 HI-LIFT Ancillary Lifting Device for Spent Fuel Casks

The Holtec HI-LIFT ancillary lifting device is used in the IP3 Spent Fuel Building to safely lift a HI-TRAC transfer cask with a full-sized, and either empty or fully-loaded MPC-32 storage cask. (also described in Section 9.5.7)

The HI-LIFT is designed to meet the single-failure-proof criteria of NUREG-0554 and NUREG-0612 through compliance with ASME NOG-1, 2004. Associated lifting devices and interfacing lift points also satisfy the guidance of NUREG-0612 in order to ensure the entire fuel handling lift system complies with the single-failure proof guidance of NUREG-0612 for each heavy load lift in or around the Spent Fuel Pool, or in or around a cask loaded with spent fuel, or a lift of a cask loaded with spent fuel. All heavy lifts will use safe load paths in compliance with NUREG 0612, and operator training will also conform to the recommendations of the regulatory guidance.

The design of the HI-LIFT and associated operating procedures provide assurance that operational error and mishandling events will not result in an increase in the probability or consequences of an accident previously analyzed. For HI-LIFT motion control, all safety features are implemented per applicable NOG-1 requirements. Compared with a conventional overhead crane, the HI-LIFT moves over a more limited travel path and operates at lower speeds reducing the opportunities for errors and mishandling events.

The physical design of HI-LIFT prohibits motion over the area of the SFP with racks containing spent fuel. The HI-LIFT is designed so that its hoisting frame can only travel along one axis of motion. It must swing down from its starting position, to lift the HI-TRAC from the truck bay and swing in the opposite direction along the same axis to lower the HI-TRAC into the cask loading area of the SFP. NOG-1 and NUREG-0612 guidelines have been incorporated into HI-LIFT written site operating procedures and training to minimize the risk of operation errors. In addition, the HI-LIFT machine controls utilize interlocks and safety features to mitigate operational errors.

The HI-LIFT complies with the applicable guidelines in NUREG 0612, Section 5.1.1, as described below:

Guideline 1 - Safe Load Paths

The physical design of HI-LIFT prohibits motion over the area of the SFP with racks containing spent fuel. The HI-LIFT is designed so that its hoisting frame can only travel along one axis of motion. It must swing down from its starting position, to lift the HI-TRAC from the truck bay and swing in the opposite direction along the same axis to lower the HI-TRAC into the cask loading area of the SFP.

INSERT 3 (page 2 of 2)

Guideline 2 – Load Handling Procedures

IP3 procedures for the handling of heavy loads have been revised to address HI-LIFT and related heavy load lifts associated with dry cask storage operations. HI-LIFT procedures utilized for cask lifts include: identification of required equipment, inspections and acceptance criteria required before load movement; the steps and proper sequence to be followed in handling the load; defining the safe load path; and other precautions. A specific cask loading and handling procedure provides additional details for controlled movement during cask handling operations.

Guideline 3 - HI-LIFT Operator Training

Training specific to the HI-LIFT has been developed in accordance with the requirements listed within the IP3 UFSAR and NUREG 0612.

Guideline 4 - Special Lifting Devices

The HI-LIFT will interface with the HI-TRAC transfer cask through a suitable lift yoke that meets the requirements within the HI-STORM 100 FSAR.

Guideline 6 - HI-LIFT Inspection, Testing and Maintenance

The HI-LIFT will be inspected, tested and maintained in accordance with ANSI B30.2-1976 and applicable sections of ASME NOG-1. Concrete anchors relying on other than direct bearing or compression for load transfer into concrete will be tested in accordance with applicable sections of ACI 349-1985.

Guideline 7 - HI-LIFT Design

The HI-LIFT is designed to meet the single-failure-proof criteria of NUREG-0554 and NUREG-0612 through compliance with ASME NOG-1.

Enclosure 5

NL-20-070

Holtec Affidavit Pursuant to 10 CFR 2.390
dated September 30, 2020

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Enclosure 5 to NL-20-070

AFFIDAVIT PURSUANT TO 10 CFR 2.390

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 are Enclosures 1 and 2 to Entergy Letter NL-20-070, which contain 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).

(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 and 4.b 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

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.

AFFIDAVIT PURSUANT TO 10 CFR 2.390

(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

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 30th day of September, 2020.

Kimberly Manzione
Licensing Manager
Holtec International

Korin M. Fagan
KORIN M FAGAN
Notary Public, State of New Jersey
My Commission Expires
February 15, 2024

Subscribed and sworn before me this 30 day of September, 2020.