



NYSERDA

ANDREW M. CUOMO
Governor

RICHARD L. KAUFFMAN
Chair

DOREEN M. HARRIS
President and CEO

April 21, 2021

Rich Guzman, Senior Project Manager
Division of Operator Reactor Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
One White Flint North, 0-9C7
11555 Rockville Pike
Rockville, MD 20852-2738

Subject: Indian Point Energy Center Unit 3 License Amendment Request

Dear Mr. Guzman:

The State of New York has reviewed the Entergy Nuclear Operations March 24, 2020 license amendment request (LAR) to incorporate the installation and use of a new auxiliary lifting device at Indian Point Generating Unit No. 3. The LAR (Entergy NL-20-0211) proposes a new Holtec HI-LIFT crane be installed in the Indian Point Unit 3 (IP3) fuel building to handle movement of HI-TRAC dry cask storage transfer casks as part of emptying the spent fuel pool for decommissioning. Despite multiple requests and State willingness to enter into any necessary protective orders, the licensee remained unwilling to share certain information it deemed proprietary; as such, the State did not have access to all of the information it needed to fully review the application. Despite this, the State is providing several recommendations for the NRC that address concerns identified in our review: balancing of the crane's support arms; the analysis of new stresses to the truck bay wall; and HI-LIFT inspection and testing. It is our hope that the NRC ensures that all calculations, evaluations, and analyses, and inspections are performed in a detailed, thorough and comprehensive manner. Subject to the specific concerns and recommendations outlined below, the State does not oppose Entergy's license amendment request.

Entergy states in the LAR that the existing crane does not have the capacity to lift a fully-loaded HI-TRAC transfer cask. Thus, the existing setup requires use of a wet transfer method to move IP3 spent fuel from the IP3 spent fuel building to the Indian Point Unit 2 (IP2) spent fuel building before it can be transferred to dry cask. Installation and use of the proposed HI-LIFT crane, if approved by the NRC, would reduce the number of fuel movements needed and shorten the time for removal of IP3 spent fuel from the spent fuel pool.

New York has reviewed the LAR as well as two sets of NRC Requests for Additional Information (RAIs) and the Entergy responses (in November 2020 and February 2021). The proposed LAR provides limited information regarding the proposed HI-LIFT crane due to the assertion that much of the design information is proprietary and, thus, is not

New York State Energy Research and Development Authority

Albany
17 Columbia Circle, Albany, NY 12203-6399
(P) 1-866-NYSERDA | (F) 518-862-1091
nyserda.ny.gov | info@nyserda.ny.gov

Buffalo
726 Exchange Street
Suite 821
Buffalo, NY
14210-1484
(P) 716-842-1522
(F) 716-842-0156

New York City
1359 Broadway
19th Floor
New York, NY
10018-7842
(P) 212-971-5342
(F) 518-862-1091

**West Valley Site
Management Program**
9030-B Route 219
West Valley, NY
14171-9500
(P) 716-942-9960
(F) 716-942-9961

available to the State or the general public. Where technical information is provided, it is presented in general terms to avoid revealing specific details. A State request to the licensee for copies of the proprietary enclosures referenced in the LAR, including the plans and specifications for the proposed crane and its installation, was denied. In the absence of the proprietary enclosures, NYSERDA together with other State agencies participated in four telephone calls with the NRC and three with Entergy and Holtec to informally discuss specific, targeted State questions.

Included in the State's review was a discussion with NRC leadership detailing the planned NRC inspection activities for the proposed HI-LIFT crane. During this call, and contingent on NRC approval of Entergy's license amendment request, NRC committed to performing multiple visits and inspections at the Holtec Facility where the HI-LIFT will be manufactured and at IP3. These inspections will be performed by NRC inspectors with relevant qualifications and will be documented in publicly available NRC inspection reports throughout the fabrication, construction, and testing process.

The State's due diligence review was limited to the non-proprietary versions of the LAR and RAI responses, public literature, and telephone discussions with NRC, Entergy and Holtec. The NRC has asserted that many of the State's concerns were addressed by Entergy in the proprietary versions of the LAR and RAI responses; the State appreciates the NRC's review of these concerns but remains unable to independently confirm that its concerns were resolved. The State offers the following observations, with affiliated recommendations for further NRC inquiry:

1. The hydraulic system is assumed to always keep the support arms in perfect balance. The State is unable to independently confirm that the hydraulic system has been fully evaluated. We note that:
 - a. An item can be considered single-failure-proof either by virtue of being designed with considerable safety margin or by use of independent redundant systems, such that a single failure does not cause the system to fail and will not result in a crane dropping a load or cause a system failure during a critical lift.
 - b. Entergy's assertion that the hydraulic system is designed to be single-failure-proof is based on a mistaken belief that the counterbalance valves cannot fail.
 - c. According to public literature, the counterbalance valves have a history of failing (which generally results in the load being lowered). It is our understanding that no consideration has been given to potential failures of these valves and the effect on holding a load.
 - d. The two concerns related to the hydraulic system are whether the support arms remain perfectly balanced even in the event of foreign material in the hydraulic fluid or a failure of any component in the hydraulic system including the counterbalance valves.

Recommendation 1: The NRC should ensure that the hydraulic system, including the counterbalance valves, has been fully evaluated for all potential failures including piping and fitting failures, debris in the hydraulic

fluid, and counterbalance valve failures, and that all physical configurations of the system have been analyzed for hydraulic system operation and potential failure.

2. In conjunction with item 1, the State cannot independently confirm that consideration has been given to the stresses that would result should the two support arms not be exactly balanced. Should one support arm lead the other, the resulting stresses would be different than in a balanced configuration (for both operation and seismic events). There are many reasons why the hydraulic cylinders and support arms could be unbalanced including different piping losses in the hydraulic piping, clogging or debris in the hydraulic system, slight imbalances in the load center of mass, slight variations in load distribution between jack strands, and out-of-plumbness of fabricated structures.

Recommendation 2: The NRC should ensure that the worst-case alignment difference between the support arms has been included in all calculations related to the HI-LIFT design and operation.

3. The State cannot independently confirm that the structural analyses for the HI-LIFT considered the foundations of supporting structures (in particular the foundation of the truck bay wall). Supporting a cask over the spent fuel pool will create a significant uplift force on the truck bay wall. It is unclear whether this force has been analyzed or whether any defects in the truck bay wall foundation could compromise the ability of the wall to resist these uplift forces.

Recommendation 3: The NRC should ensure that the analysis of the truck bay wall considers the wall foundation as well as any uplift forces.

4. Entergy has provided a list of required inspections and maintenance. The inspections include items that are normally not visible without disassembly. In addition, the items to be inspected are not easily accessible. According to the Entergy RAI responses, many of the inspections must be done with each cask loading evolution. Entergy noted that the strand jack assembly could be removed to facilitate these required inspections. The concerns are the difficulty of gaining sufficient access to perform these inspections so they will be adequately performed, and adequacy of the inspections and tests following each break and make of connections to the strand jack assembly associated with off center beam strand jack assembly inspection.

Recommendation 4: The NRC should ensure that procedures have been provided for all inspections and tests, that the procedures are complete, and that complete and thorough inspections and tests are performed.

In summary, we do not oppose this proposal. The State strongly supports the timely removal of spent fuel from the IP3 spent fuel pool and transfer into dry cask storage. If implemented safely and successfully, this proposal has the potential to enhance the speed and performance of those operations. However, safety is key and we urge the NRC to ensure that all calculations, evaluations, and analyses, and inspections are performed in a detailed, thorough and comprehensive manner.

If you have any questions or would like a more detailed technical explanation of our concerns, you may contact me at (518) 862-1090 x3274.

Sincerely,

A handwritten signature in cursive script that reads "Alyse Peterson".

Alyse Peterson, P.E.
Senior Advisor

cc: Doug Tifft, NRC