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NL-17-074

June 27, 2017

U.S. Nuclear Regulatory Commission  
Document Control Desk  
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Rockville, MD 20852-2738

**SUBJECT:** Supplemental Information Regarding Reply to Request for Additional Information SET 2017-01 for the Review of the Indian Point Nuclear Generating Unit Nos. 2 and 3 License Renewal Application (LRA) (CAC Nos. MD5407 and MD5408)  
Docket Nos. 50-247 and 50-286 (License Nos. DPR-26 and DPR-64)

**REFERENCES:**

- 1) USNRC letter, "Summary of Telephone Conference Call Held on May 25, 2017 Between the U.S. Nuclear Regulatory Commission and Entergy Nuclear Operations, Inc., Concerning Additional Information Pertaining to the Indian Point, License Renewal Application (TAC. NOS. MD5407/MD5408)," dated June 20, 2017 (ML17157B542)
- 2) Entergy letter, "Reply to Request for Additional Information for the Review of the Indian Point Nuclear Generating Unit Nos. 2 and 3, License Renewal Application, SET 2017-01 (CAC Nos. MD5407 and MD5408)," dated May 8, 2017 (NL-17-052) (ML17132A175)
- 3) USNRC letter, "Indian Point Power Station – NRC Problem Identification and Resolution Inspection Report 05000247/2013012 and 05000286/2013012," dated December 19, 2013 (ML13353A175)
- 4) Entergy letter, "Licensee Event Report # 2013-004-00, "Technical Specification (TS) Prohibited Condition Due to an Inoperable Essential Service Water (SW) Header as a Result of Pin Hole Leaks in Code Class 3 SW Piping," dated November 12, 2013 (NL-13-142) (ML13319B082)

Dear Sir or Madam:

The U.S. Nuclear Regulatory Commission (NRC) and Entergy Nuclear Operations, Inc. (Entergy), held a telephone conference call on May 25, 2017 (Reference 1) to discuss Entergy's response to Request for Additional Information RAI 3.0.3-10-1a provided in Entergy letter dated May 8, 2017 (Reference 2). During the conference call, the NRC staff requested clarification of the following topics:

1. Information regarding the structural integrity of mixing nozzle SWN-74 on the Essential Service Water System where several pin-hole leaks were identified in 2008. The event was described in NRC Inspection Report 247/2013-12 (Reference 3).

ADD  
NRR

2. Clarification of Note 3<sup>1</sup> as mentioned in Entergy's response to RAI 3.0.3-10-1a regarding the extent of improper material used in the Service Water System.
3. Confirmation that the recently implemented engineering report IP-RPT-16-00046, "IPEC Service Water Piping Weld Repair Process and Re-Inspection Frequency Guidelines," is being credited by the Service Water Integrity Program.

Attachment 1 provides the information requested above.

There are no new commitments being made in this submittal.

If you have any questions, or require additional information, please contact Mr. Robert Walpole at 914-254-6710.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 6/27, 2017.

Sincerely,



AJV/rl

Attachment: 1. Supplemental Information Regarding Reply to Request for Additional Information SET 2017-01

cc: Mr. Daniel H. Dorman, Regional Administrator, NRC Region I  
Mr. Sherwin E. Turk, NRC Office of General Counsel, Special Counsel  
Mr. William Burton, NRC Senior Project Manager, Division of License Renewal  
Mr. Richard V. Guzman, NRR Senior Project Manager  
Ms. Bridget Frymire, New York State Department of Public Service  
Mr. John B. Rhodes, President and CEO NYSERDA  
NRC Resident Inspector's Office

<sup>1</sup> From Reference 2, Attachment 1, Page 8 of 16, Note 3, "The piping was declared inoperable because of an inability to accurately characterize degradation associated with the affected socket weld fittings. The cause of the pin-hole leaks in this event was improper material use in the service water piping..."

**ATTACHMENT 1 TO NL-17-074**

**Supplemental Information Regarding Reply to Request for Additional Information SET 2017-01**

**ENTERGY NUCLEAR OPERATIONS, INC.  
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3  
DOCKET NOS. 50-247 AND 50-286**

During the May 25, 2017 conference call, the NRC staff requested Entergy to provide the following information as a supplement to RAI SET 2017-01 (Reference 2).

#### Request 1

The NRC staff requested Entergy to verify whether the issue from 2008 was for lack of structural integrity, or whether the leak did not meet an applicable configuration specified in the code case. If the issue was a lack of structural integrity, the staff asked that information comparable to that provided in the previous RAI response be provided for the 2008 event. The staff also asked the applicant to provide assurances, if there was a lack of piping structural integrity, that the causes of any other event where loss of structural integrity had previously occurred are bounded by those included in the previous RAI response and that changes made to the predictive monitoring process for the previous occurrences provide reasonable assurance that similar losses of structural integrity will not recur.

#### Response 1

Entergy has reviewed the circumstances surrounding the 2008 event that occurred at IP2 where multiple indications of through-wall leaks were discovered on the containment fan cooler unit (FCU) service water discharge piping for the radiation monitoring system. This condition was documented in CR-IP2-2008-04268. These leaks were identified on September 17, 2008 while conducting a field walkdown of the ASME Section XI Class 3, 300 series stainless steel portions of the Service Water System. Based upon a reasonable expectation of operability (REO), it was concluded that the leaks were structurally insignificant and that the affected piping remained operable pending the results of further non-destructive examinations (NDE).

On September 19, 2008, it was determined that since all five (5) indications were on socket welded fittings they could not be characterized due to their configuration. As such, the FCU radiation monitor piping was declared inoperable, and all affected piping was isolated and tagged out for repairs.

On September 29, 2008, while conducting dye penetration NDE of the repaired welds, three (3) additional through-wall indications were discovered on the piping near mixing nozzle SWN-74. Two leaks were found on the pipe between a coupling and the mixing nozzle and one was found in the couple to pipe weld on the mixing nozzle side of the coupling. This portion of the system had been tagged out of service since September 19, 2008. This condition was documented in CR-IP2-2008-04425.

On October 10, 2008, during further NDE of the weld repairs, a leak at the base of the mixing nozzle SWN-74 was identified. As mentioned previously, this portion of the system had been tagged out since September 19, 2008 and remained inoperable due to the repair activities. NDE was performed on the body of SWN-74. This condition was documented in CR-IP2-2008-04576. Because the measured thickness at the bottom and side walls of the mixing nozzle were significantly less than the design thickness of 0.250 inches, a formal structural evaluation was not performed, and the mixing nozzle was considered to be inoperable. SWN-74 was then removed from the system, weld repairs were performed, and the component was re-installed. The follow-up NDE was performed with satisfactory results as documented in CR IP2-2013-4576. Because SWN-74 is a component, ASME Code Case N-513, which applies to the

temporary acceptance of through-wall flaws in moderate energy Class 2 or 3 piping was not used.

In summary, all nine (9) leaks identified on the containment fan cooler unit (FCU) service water discharge piping for the radiation monitoring system piping, socket welded fittings, and the mixing nozzle SWN-74, either did not meet the applicable configuration specified in ASME Code Case N-513, and/or were identified after the system had been declared inoperable and isolated for repairs.

#### Request 2

Provide information regarding the extent of "improper material" used in the service water system, and if all of the "improper material" has not been replaced, provide information to justify that no changes need to be made to the Service Water Integrity program such that aging effects are adequately managed so that intended functions will be maintained.

#### Response 2

The phrase "improper material use" in Note 3<sup>1</sup> of Entergy's response to RAI 3.0.3-10-1a was intended to refer to the inability to characterize degradation associated with the configuration of socket welded fittings. Specifically, NDE via the ultrasonic test (UT) method of socket welded joints is not feasible, and evaluation of flows in socket welded joints is specifically excluded from the scope of ASME Code Case N-513. Stainless steel 300 series material remains in use in the Service Water System and is allowed by the IPEC Service Water piping specifications. However, in this application, it led to pinhole leaks in the socket welded fittings. The containment FCU service water discharge piping for the radiation monitoring system was declared inoperable because of an inability to accurately characterize degradation associated with the affected socket welded fittings. Because of their geometry, defect characterization could not be completed in the socket welded fittings as required by ASME Code Case N-513; which resulted in having to consider the piping unable to perform its intended function. The cause of the pinhole leaks resulting in piping inoperability in this event was corrosion pitting.

The service water piping to the radiation monitors is small-bore piping (i.e., 1 and 2 inch diameter). The small-bore 300 series stainless steel radiation monitoring system piping was later replaced with an erosion-corrosion resistant material made of 6 percent molybdenum stainless steel (i.e., AL-6XN). Over the years, Entergy has been proactively replacing small-bore 300 series stainless steel service water piping to 6 percent molybdenum stainless steel at both IP2 and IP3.

Requirements for NDE of 300 series stainless steel piping are already included in the scope of the Service Water Integrity program. In addition, periodic inspections by Engineering and Operations are performed, and repair or replacement are implemented, if required. Thus, no changes to the program are deemed necessary.

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<sup>1</sup> From Reference 2, Attachment 1, Page 8 of 16, Note 3, "The piping was declared inoperable because of an inability to accurately characterize degradation associated with the affected socket weld fittings. The cause of the pin-hole leaks in this event was improper material use in the service water piping..."

Request 3

Confirm that the recently implemented engineering report IP-RPT-16-00046, to prevent recurrence of events related to inadequate repairs, is being credited by the Service Water Integrity program.

Response 3

The Generic Letter 89-13 Program (i.e. Service Water Integrity Program) is referenced in Section 1.3, "Scope and Objective" of engineering report IP-RPT-16-00046, as follows:

"This report provides formal standardized IPEC Service Water piping weld repair reinspection frequencies for GL 89-13 Program inspections based on the various repair options (replacements using full penetration or partial penetration welds, grind-out and wall restorations, overlays, etc.)."