



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 30, 2018

LICENSEE: Entergy Nuclear Operations, Inc.

FACILITY: Indian Point Unit Nos 2 and 3

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALLS HELD ON NOVEMBER 30, 2017 AND DECEMBER 19, 2017, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND ENTERGY NUCLEAR OPERATIONS, INC., CONCERNING REQUESTS FOR ADDITIONAL INFORMATION PERTAINING TO THE INDIAN POINT LICENSE RENEWAL APPLICATION (TAC. NOS. MD5407/MD5408)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Nuclear Operations, Inc. (the applicant) held telephone conference calls on November 30, 2017, and December 19, 2017, to discuss and clarify the staff's requests for additional information (RAIs) and audit information concerning the Indian Point, license renewal application. The telephone conference calls were useful in clarifying the intent of the staff's RAIs and audit information.

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a summary of the key issues addressed during the conference calls with the applicant.

The applicant had an opportunity to comment on this summary.

Sincerely,

/RA/

William Burton, Senior Project Manager
License Renewal Project Branch
Division of Materials and License Renewal
Office of Nuclear Reactor Regulation

Docket Nos.: 50-247 and 50-286

Enclosures:

1. List of Participants
2. Summary of Key Issues

cc w/encls: See next page

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NUCLEAR REGULATORY COMMISSION AND ENTERGY NUCLEAR
OPERATIONS, INC., CONCERNING REQUESTS FOR ADDITIONAL
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ADAMS Accession No. ML18002A256

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TELEPHONE CONFERENCE CALL
INDIAN POINT
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS
NOVEMBER 30, 2017 AND DECEMBER 19, 2017

November 30, 2017 Conference Call

PARTICIPANTS

Charlie Caputo

Alan Cox

Tom Orlando

Jim Gavula

Bill Holston

Brian Allik

AFFILIATION

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Entergy

Nuclear Regulatory Commission (NRC)

NRC

NRC

December 19, 2017 Conference Call

PARTICIPANTS

Robert Walpole

Alan Cox

Tom Orlando

Charles Caputo

Steve Bloom

William Burton

Eric Oesterle

Jim Gavula

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Nuclear Regulatory Commission (NRC)

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NRC

NRC

NRC

TELEPHONE CONFERENCE CALL
INDIAN POINT
LICENSE RENEWAL APPLICATION
NOVEMBER 30, 2017 AND DECEMBER 19, 2017

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Nuclear Operations, Inc. (Entergy) held telephone conference calls on November 30 and December 19, 2017, to discuss and clarify the staff's requests for additional information (RAIs) and audit information concerning the Indian Point license renewal application.

By letter dated May 8, 2017, Entergy provided responses (ADAMS Accession No. ML17132A175) to the NRC staff's Request for Additional Information (RAI) SET 2017-01 (ADAMS Accession No. ML17046A231). After reviewing Entergy's RAI responses, the NRC staff conducted a supplemental, onsite regulatory audit from August 1 – 3, 2017, to gain a better understanding of Entergy's RAI responses, and new plant-specific operating experience related to the Service Water Integrity aging management program. The NRC staff's audit report can be found at ADAMS Accession No. ML17250A244.

By letter dated November 8, 2017, Entergy provided supplemental information in response to the onsite regulatory audit (ADAMS Accession No. ML17321A079). After reviewing the supplemental information, the NRC staff held a teleconference with Entergy on November 30, 2017, to clarify Entergy's responses to Audit Items 3 and 6. The specific discussion topics are provided below.

Audit Item 3: Entergy's response states that the galvanic corrosion rates of carbon steel are expected to be similar when coupled to superaustenitic stainless steels (AL-6XN and Avesta 254 SMO) and 300-series stainless steels, because the corrosion potentials for superaustenitic stainless steels and 300-series stainless steels are similar. The staff notes that the magnitude of the difference in corrosion potential alone is not sufficient to predict the risk of galvanic corrosion, because there are a number of factors that affect the severity of galvanic corrosion (e.g., ratio of cathodic to anodic areas, temperatures, flow rates, conductivity of the electrolytes). Consequently, additional considerations may be needed if the various materials (AL-6XN, Avesta 254 SMO, and 300-series stainless steel) are combined into a single population. In order to be consistent with other IP AMPs, it is not clear to the staff whether the sample selection for galvanic corrosion will focus on the bounding or lead components that are most susceptible to aging based on time in service and severity of operation.

During the teleconference, Entergy stated that a sample will be selected that focuses on the bounding or lead components most susceptible to the aging mechanism.

Audit Item 6: Although Entergy developed new acceptance criteria for maintaining containment integrity due to potential service water leaks, the associated report (IP-RPT-17-00062) is not included as part of the Service Water Integrity Program. This is inconsistent with other aspects of the program where commitments were made to enhance the program to include other recently developed guidance documents. (See Audit Item 5 and the corresponding commitment associated with IP-RPT-16-00046).

During the teleconference, Entergy stated that IP-RPT-17-00062 will be included as part of the Service Water Integrity Program.

By letter dated December 14, 2017, Entergy provided additional information to clarify the areas identified in the audit report and that were discussed during the November 30, 2017, teleconference.

The NRC staff reviewed the responses in Entergy's December 14, 2017, letter and held a teleconference with Entergy on December 19, 2017, to discuss final clarifications related to external carbon fiber repair and the definition of "significant" as it relates to additional volumetric non-destructive (NDE) to identify loss of material. The specific discussion topics are provided below.

1. For the weld location PAB-204 external carbon fiber repair, Entergy stated that (based on the proposed end date of April 30, 2025 for the renewed license for Indian Point Unit 3), the internal surface of the carbon fiber reinforced epoxy is not expected to be in contact with raw water prior to the end of the renewed license term. Entergy based its statement on a conservatively assumed corrosion rate of approximately 0.012 inches per year starting at the minimum measured wall thickness of 0.121 inches. However, LER 386/2002-001 describes a leaking service water pipe that did not provide sufficient structural integrity after 27 years, yielding a corresponding corrosion rate of approximately 0.014 inches per year. It is not clear to the staff that there is no need to manage aging effects associated with carbon-fiber wrap exposed to raw water. The staff and Entergy discussed potential periodic inspections to ensure that either the fiber-wrap is adhering to steel base metal or that loss of material in the welds has not gone through-wall.

Entergy stated that it will perform a volumetric examination at the location identified with the minimum wall thickness in 2016 to confirm that the carbon steel piping is not degrading at a rate that will result in exposure of the internal surface of the carbon fiber-reinforced epoxy to raw water prior to the end of the renewed license term. The volumetric examination will be performed prior to 12/31/21.

2. For the enhancement to the Service Water Integrity program associated with galvanic corrosion at flanged joints where insulating kits are not installed, Entergy stated that additional volumetric NDE will be performed if visual inspection identify "significant" loss of material. However, the applicant does not define "significant."

During the teleconference, Entergy stated that it would consider clarifying the corrective actions in response to findings of visual inspections. In clarifying the criteria, Entergy indicated that it would consider the response to RAI 3.0.3-8 in letter dated December 16, 2014, regarding the response to findings of visual inspections.

3. The staff discussed information that they would need to complete their evaluation of aging effects associated with the internal coating on the steam jet air ejector piping discussed in the recent annual update letter. The staff noted that the coating is exposed to steam, an environment not covered in AMP XI.M42. Entergy stated that they would provide the type of coating material and a basis for why loss of coating integrity would not need to be managed (i.e., basis for no downstream flow effects, basis for no safety-related components in the vicinity that could be impacted by through-wall leakage). LRA BTable 3.3.2-19-4-IP2 will be updated.

On January 11, 2018, the NRC staff held a brief call with Entergy to clarify the timing of the volumetric examination. The staff noted that conducting a volumetric wall thickness inspection in the vicinity of weld PAB 204 "prior to 12/31/21," could result in the inspection being conducted without a sufficient incubation period. The intent of conducting the examination is to be able to project the wall thickness to the end of the period of extended operation. Given the variability in wall lose rate throughout the service water system, the staff believes that the inspection should occur in the 2020 or 2021 time frame. Entergy agreed to perform the inspection in the 2020 or 2021 time frame.