

From: Tobin, Jennifer
Sent: Tuesday, October 03, 2017 4:17 PM
To: 'Walpole, Robert W'
Cc: Danna, James; Guzman, Richard; 'Louie, Richard'
Subject: Indian Point Unit 2 - Request for Additional Information - Relief Request IP2-ISI-RR-20 Regarding Weld Examination Coverage (CAC MF9843)

Mr. Walpole,

By letter dated May 30, 2017 (Accession No. ML17159A524), Entergy Nuclear Operations, Inc. (the licensee) requested relief from the requirement of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Case N-460 "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1." Relief request IP2-ISI-RR-20 pertains to examination coverage of ASME Code Class 1 piping welds and vessel/shell welds at Indian Point Unit No. 2 (IP2).

The Nuclear Regulatory Commission's (NRC) staff is reviewing your submittal and has determined that additional information is needed to complete its review. The specific request for additional information (RAI) questions are provided below. The RAI questions were provided in draft form to you via e-mail on September 6, 2017. The draft questions were sent to ensure that the questions were understandable, the regulatory basis for the questions was clear, and to determine if the information was previously docketed.

In a clarification phone call on October 3, 2017, staff discussed the draft RAI questions and determined that no clarification to the RAIs is needed. Mr. Louie confirmed that Entergy would provide a response to the RAI questions by November 3, 2017.

If you have any questions, please contact me at (301) 415-1030. A copy of this e-mail will be made publicly available in ADAMS.

Thanks,
Rich

REQUEST FOR ADDITIONAL INFORMATION
RELIEF REQUEST IP2-ISI-RR-20 REGARDING WELD EXAMINATION COVERAGE
ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR POWER PLANT, UNIT 2
DOCKET NUMBER 50-247

By letter dated May 30, 2017 (Accession No. ML17159A524), Entergy Nuclear Operations, Inc. (the licensee) requested relief from the requirement of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Case N-460 "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1." Relief request IP2-ISI-RR-20 pertains to examination coverage of ASME Code Class 1 piping welds and vessel/shell welds at Indian Point Unit No. 2 (IP2).

To complete its review, the NRC staff requests the following additional information for the piping welds listed in Tables 1 and 2 of the relief request.

1. In the submittal, the licensee described Weld No. 351 2 as an elbow to sweep-o-let to pipe weld in one sentence and as a branch connection sweep-o-let to pipe weld in another. The NRC staff has difficulty determining type/location of this weld from the descriptions provided.

(e.g., Does Weld No. 351 2 joint a sweep-o-let to a pipe to create a branch connection on a pipe? Does Weld No. 351 2 joint a sweep-o-let to an elbow to create a branch connection on an elbow? Does Weld No. 351 2 joint an elbow to a sweep-to-let?).

Provide clear descriptions, type, and/or location of this weld, and if possible, supplement with sketches and/or photographs.

2. The licensee stated that the mode of degradation for Weld Nos. 351 4, 353 4, 351 2, and 353 1 is thermal fatigue or thermal stratification, cycling, and striping (TASCS). The NRC staff assumes that the above welds are potentially susceptible to low cycle thermal fatigue. If the above welds are susceptible to high cycle thermal fatigue, please describe.
3. Confirm that the piping welds under consideration are not part of any augmented inspection program (e.g., MRP-146, and/or the Electric Power Research Institute (EPRI) interim guidance MRP 2015-025 "EPRI-MRP Interim Guidance for Management of Thermal Fatigue" (Accession Number ML15189A100)). If these piping welds are part of any augmented program, please describe.
4. For assurance of structural integrity of unexamined volume of the subject piping welds, provide cumulative fatigue usage (CFU) factor for those welds with limited coverage of less than or equal to 50 percent.
5. Provide materials of construction for the piping welds and their associated components (e.g., pipe, valve, elbow, branch connection, sweep-o-let, safe end, clad, nozzle, and weld metal) listed in Tables 1 and 2.
6. At bottom of page 8 of 10 in Attachment 1 to the relief request, the licensee stated, in part,

"this means no coverage is credited until the sound path travels from the transducer, through the clad, directly into the weld, and then into the base metal of the safe-end."

- a. Discuss in detail which components (weld, elbow, safe end, and/or nozzle) of Weld Nos. RCC21-14, RCC22-14, RCC23-14, and RCC24-14 were clad. If possible, supplement with a sketch showing that sound waves travels through clad into components (weld, elbow, safe end, and/or nozzle).
- b. Confirm that each reactor vessel cold leg nozzle contains two welds (a nickel based alloy weld connecting nozzle to safe end and a stainless steel weld connecting safe end to elbow).
- c. Confirm that the stainless steel welds connecting safe ends to elbows (Weld Nos. RCC21-14, RCC22-14, RCC23-14, and RCC24-14) are the subject of this relief request.

7. Provide normal operating pressure and temperature for each piping weld listed in Tables 1 and 2.
8. In the submittal (Table 2), the licensee categorized the piping welds as Item Nos. R1.11-3, R1.16-1, and R1.20-1. The NRC staff notes that ASME Code Case N-578-1 "Risk-Informed Requirements for Class 1, 2, or 3 Piping, Method B, Section XI, Division 1" categorization is R1.11, R1.16, and R1.20. Revise, or justify the submittal's categorization.
9. In the third 10-year (previous) ISI interval,
 - a. Were the piping welds in Tables 1 and 2 inspected? If yes, discuss the results of inspections.
 - b. Were similar piping welds with similar configurations and subject to similar degradation(s) inspected? If yes, discuss the results of inspections.
10. The NRC staff notes that the refracted longitudinal waves have shown to have better penetration capability in the cast austenitic stainless steel (CASS) and austenitic stainless steel materials, and they could be used as an extra effort to scan the far-side of examination volume ("best effort" examination). The NRC staff also notes that the "best effort" examination is not a requirement.

Given the reduced inspection coverage of the weld under consideration, discuss whether the licensee performed the "best effort" examination as an extra effort to interrogate the required examination volume of other side of the weld (far-side), particularly the root of the weld and the heat affected zone (HAZ) of the base materials typically susceptible to high stresses and potential degradation, If not, explain.
