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NL-13-099

July 25, 2013

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

SUBJECT: Response to Request for Additional Information Regarding Relief Request IP2-
ISI-RR-16 for Reactor Vessel Weld Examination (TAC NO. MF0696)
Indian Point Unit Number 2
Docket No. 50-247
License No. DPR-26

REFERENCES: 1. NRC Letter to Entergy, Request for Additional Information Regarding
Relief Request IP2-ISI-RR-16 for Reactor Vessel Weld Examination
(TAC NO. MF0696), dated June 27, 2013.
2. Entergy Letter NL-13-040 to NRC, Relief Request IP2-ISI-RR-16:
Extend the Inservice Inspection Interval for the Reactor Vessel Weld
Examination, dated February 20, 2013.

Dear Sir or Madam:

Entergy Nuclear Operations, Inc., (Entergy) is hereby providing the attached response to the NRC request for additional information, Reference 1, associated with the proposed Relief Request to extend the Inservice Inspection Interval for the Reactor Vessel Weld Examination, Reference 2.

A copy of this response and the associated attachment is being submitted to the designated New York State official in accordance with 10 CFR 50.91.

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NRR

There are no new commitments being made in this submittal. If you have any questions or require additional information, please contact Mr. Robert Walpole, Manager, Licensing.

Sincerely,

A handwritten signature in black ink, appearing to read "Rob Walpole", with a long, sweeping flourish extending to the right.

RW/sp

Attachment: Response to Request for Additional Information Regarding Relief
Request IP2-ISI-RR-16 for Reactor Vessel Weld Examination

cc: Mr. Douglas Pickett, Senior Project Manager, NRC NRR DORL
Mr. William Dean, Regional Administrator, NRC Region 1
NRC Resident Inspectors
Mr. Francis J. Murray, Jr., President and CEO, NYSERDA
Ms. Bridget Frymire, New York State Dept. of Public Service

ATTACHMENT TO NL-13-099

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
REGARDING RELIEF REQUEST IP2-ISI-RR-16 FOR REACTOR
VESSEL WELD EXAMINATION

ENERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
DOCKET NO. 50-247

Response To Request For Additional Information

By letter dated February 20, 2013, Entergy Nuclear Operations, Inc., (Entergy), submitted Relief Request No. 16, IP2-ISI-RR-16 for Indian Point Nuclear Generating Unit Number 2 (IP2). This relief request would extend the reactor vessel weld inspection to Refueling Outage 22 which is scheduled for spring 2016. By letter of June 27, 2013 the Nuclear Regulatory Commission requested additional information on that request. The questions and the responses are addressed below.

Question 1

Please provide any additional information that might support a hardship consideration under 50.55a(a)(3)(ii). This information should include any hardship associated with repairing the cavity liner and performing the required RPV weld inspection in the same 2014 outage. The Nuclear Regulatory Commission's staff has determined that the 50.55a(a)(3)(i) approach is not supported by WCAP-16168-NP-A, Revision 2, "Risk-Informed Extension of Reactor Vessel Inservice Inspection Interval [ISI]," because the requested ISI will exceed the 20 year interval justified by the WCAP.

Response to Question 1

Adding the reactor pressure vessel (RPV) welds to the 2R21 outage and keeping the reactor cavity repairs in the outage would create a hardship due to the fact that the length of the outage would be extended by about 3 days. There would be no change to the length of the 2R22 outage. It would also increase the overall dose by approximately 8.132 rem. These hardships are discussed below.

Relief request 16 was requested by August 2013 was to allow time to shift activities in the 2R21 and 2R22 outages to minimize dose and outage schedules if the relief were not granted. The major activities to be considered are those requiring removal of the core barrel (i.e., RPV weld inspections (the subject of RR 16), cold leg nozzle inspection (the subject of RR 17), and some of the relicensing MRP-227A inspections), the repair of the cavity liner to greatly reduce or eliminate leaks that make it difficult to maintain a high water level, and the performance of the split pin replacement. The split pin replacement planned for 2R22 will dictate the outage schedule (about 30 days) so the plan was to repair the cavity liner in 2R21 and perform the three inspections that required core barrel removal in 2R22. The relief requests were required to support that plan.

If the RPV weld inspections were to be done in 2R21 then the scope of 2R21 would be subject to re-evaluation. The likely change would be to move the reactor cavity repair to 2R22 and, move the RPV weld and cold leg nozzle inspections in 2R21. This would not change the duration of 2R22 but would increase 2R21 by about 3 days (moving the reactor cavity repair decreases 2R21 from 25 days to 23 days but adding the two inspections increases 2R21 from 23 days to 28 days since they cannot be done in parallel). The performance of the RPV and cold leg nozzle inspections would be performed so as to minimize the time the core barrel is out of the core. The inspection uses an upper and a lower inspection tool. The lower inspection tool can inspect the lower vessel welds and the BMIs while the upper tool can inspect the upper vessel welds and the nozzle welds.

The core barrel would have to be removed again in 2R22. The MRP-227A inspection has a preparation lead time of about one year and therefore cannot be done in 2R21. The dose consequences of core barrel removal in 2R22 are expected to be reduced when the reactor cavity liner is repaired based on the ability to maintain a higher water level.

The dose increase is due in large part to the need to remove the core barrel during both outages and to the increased outage time. The core barrel is not fully submerged in the reactor cavity so the ability to increase the water level by up to 6 inches after repair of the reactor cavity liner has a significant effect on doses. The reactor cavity water level is estimated to be 94' 2" before leak repair and 94' 8" after repair (the dose rate is 30 mr/hr versus 6 mr/hr).

Entergy has estimated that the dose change due to the revised sequence of activities would be approximately 8.132 rem. The expected increase in the 2R21 schedule would be about 3 days.

The NRC staff has determined that the 50.55a(a)(3)(i) approach is not supported by WCAP-16168-NP-A, Revision 2. The above discussion supports a hardship approach. Although WCAP-16168-NP-A, Revision 2, addressed a maximum inspection interval of 20 years, this determination was conservatively established and provides support for a longer interval. The response to questions 1 and 2 in Entergy Letter NL-08-177 to NRC, dated December 23, 2008 (ML090050020), calculated Indian Point specific change-in-risk consistent with the approach in the WCAP. The two cases used were "ISI Every 10 Years" and "10-Year ISI Only" which represented "Upper Bound" and "Lower Bound" values. The results using the Indian Point specific input demonstrated that if no further inspections were performed for the extended life of the plant (60 years), the change-in-risk, compared with performing a RPV weld inspection every 10 years, would still be a factor of 5 below the risk criteria of Regulatory Guide 1.174.

Question 2

Our letter of March 6, 2009 (ADAMS Accession No. ML090360460), stated that the reactor vessel welds were last inspected in 1995. Please summarize the results of any Unit 2 reactor vessel welds that have been inspected since 1995.

Response to Question 2

None of the IP2 reactor vessel welds in relief request 16 have been inspected since 1995.