NRR-PMDAPEm Resource

From: Beltz, Terry
Sent: Thursday, September 11, 2014 12:49 PM
To: 'Rippy, L. Randal'
Cc: 'Loeffler, Richard A.'; Pelton, David; Sheng, Simon
Subject: Monticello Nuclear Generating Plant - Final Requests for Additional Information re: Request RR-008 (TAC No. MF3551)

Dear Mr. Rippy:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated February 28, 2014 (Agencywide Documents Access and Management System Accession No. ML14064A191), Northern States Power Company – a Minnesota corporation (NSPM), doing business as Xcel Energy, submitted request RR-008. In RR-008, NSPM proposes an alternative to visually inspect all accessible surfaces on both the top and underside of core shroud support plate welds H8 and H9, without disassembly of fuel cells or jet pump assemblies, for all refueling outages in each of the three periods in the Fifth Ten-Year Inservice Inspection Interval at the Monticello Nuclear Generating Plant

The NRC staff in the Vessel and Internals Integrity Branch of the Office of Nuclear Reactor Regulatory has identified areas where additional information is needed to complete its review. Draft requests for additional information (RAI) were provided to NSPM on August 27, 2014. A teleconference was held between NSPM and the NRC staff on September 11, 2014, to provide clarification of the draft RAIs.

The final RAIs are provided below. As discussed during the teleconference, NSPM is prepared to provide its response to the RAIs by October 3, 2014.

Please let me know if you have any questions or concerns.

Sincerely,

TERRY A. BELTZ, SENIOR PROJECT MANAGER
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738
Mail Stop: O-8D15

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REQUESTS FOR ADDITIONAL INFORMATION

REGARDING REQUEST RR-008

FOR THE FIFTH TEN-YEAR INSERVICE INSPECTION INTERVAL

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

(TAC NO. MF3551)

By letter dated February 28, 2014 (Agencywide Documents Access Management System (ADAMS) Accession No. ML14064A191), Northern States Power Company – a Minnesota corporation (NSPM), doing business as Xcel Energy, submitted a proposed alternative (Request RR-008) to visually inspect all accessible surfaces on both the top and underside of core shroud support plate welds H8 and H9, for all refueling outages in each of the three periods in the Fifth Ten-Year Inservice Inspection Interval for the Monticello Nuclear Generating Plant.

The NRC staff has identified areas where additional information is needed to complete its review. The final requests for additional information are provided below.

Note: The requests for additional information refer to information provided in Enclosure 2 of Request RR-008: "Monticello Shroud Support Structure Flaw Evaluation Review and Support Plate Weld Inspection Recommendations."

RAI-1

Section 5.1, "Shroud Support Plate Welds H8 and H9," states that, "This evaluation also inherently assumes that all lateral bending moments on the core shroud are supported by the shroud support legs." Based on this assumption, all lateral bending moments on the core shroud will not be transferred to the shroud support plate through Weld H8.

Please provide justification.

RAI-2

Section 5.1.1 regarding the H8/H9 evaluation following the 2011 inspections states that, "Since the most significant loads are the vertical seismic loads and the reactor internal pressure difference (RIPD) across the support plate, the loading in the H8 and H9 welds was assumed to be in pure shear." It appears that the vertical seismic loads (due to core shroud, coolant, jet pumps, etc.) and the RIPD across the support plate would create net moment, not just pure shear, at the H8 and H9 locations.

Please revise your analysis by considering loading due to both moment and shear, unless there is additional justification to support that loading due to the moment creates negligible stresses at the H8 and H9 locations.

RAI-3

Section 5.1.1 further states that, "Based on the maximum shear stress failure theory, the shear flow stress was taken as one-half the tensile flow stress of the Alloy 600 base material. Therefore, the shear flow stress is 34.95 ksi [2]."

To avoid the need for providing Reference 2, please justify the use of a tensile flow stress of 69.9 ksi in the application.

RAI-4

Section 5.1.2 regarding the H8/H9 evaluation following the 2013 inspections states that, "The results indicate that sufficient structural margin for Case 1 was available with only 18% of the topside weld material being intact with a remaining ligament of 1/2 the wall thickness."

The corresponding evaluation results for Case 1 that are provided in Table 5 do not seem to support 18%. Please elaborate.

RAI-5

Section 5.2.1 regarding the H10 evaluation following the 2011 inspections states that, “It should be noted that the shear term in the calculation of P_b was conservatively taken to the bottom of the shroud support legs (weld H11) versus weld H10. This is consistent with the BWRVIP-38 methodology.”

Section 5.2.2 regarding the H10 evaluation following the 2013 inspections states that, “To remove excess conservatism, the shear term moment arm in the calculation of P_b was reduced from the distance to the bottom of the shroud support legs (weld H11) to the H10 weld location.”

Please justify your current P_b calculation, as it is not obvious that the BWRVIP-38 approach on the shear arm is unnecessarily conservative.

RAI-6

Section 5.3 regarding applied conservatisms states under Item 4 that, “In order to ensure that the findings in SC 12-20 would not affect the Reference [4] evaluation after it was issued, the RLB AC [recirculation line break Acoustic] loads were conservatively doubled in the evaluation. This was not necessary, as the AC vertical load of 2,220 kips is identical to what was developed by evaluating the AC RIPD due to depressurization of the annulus region in Reference [2]. Since the MOC code was not used to develop this load, SC 12-20 would not apply.”

Please provide justification for not including the RLB AC loads in the current analysis, and explain how Reference 4 considered the RLB AC loads in its evaluation of Welds H8 and H9.

RAI-7

Although Weld H10 in core shroud support legs is not listed as components for the relief request, the structural integrity of Weld 10 will affect Welds H8 and H9 significantly. The proposed alternative in RR-008 for the Welds H8 and H9 inspection will cover some limited areas of these welds to validate the analytical evaluations documented in Section 5.1 of Enclosure 2, and to take actions if the inspection shows unexpected results.

Please discuss what inspection will be performed on H10 in the next 8 years to confirm the H10 evaluations documented in Section 5.2 of Enclosure 2.

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From: Beltz, Terry

Created By: Terry.Beltz@nrc.gov

Recipients:
"'Loeffler, Richard A.'" <Richard.Loeffler@xenuclear.com>
Tracking Status: None
"Pelton, David" <David.Pelton@nrc.gov>
Tracking Status: None
"Sheng, Simon" <Simon.Sheng@nrc.gov>
Tracking Status: None
"'Rippy, L. Randal'" <Randal.Rippy@xenuclear.com>
Tracking Status: None

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