

## **NRR-PMDAPEm Resource**

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**From:** Barillas, Martha  
**Sent:** Friday, October 21, 2016 3:43 PM  
**To:** Caves, John; McDaniel, Sarah A; Tanya.Hamilton@duke-energy.com  
**Cc:** Dion, Jeanne; Hon, Andrew; Alley, David; Tsao, John  
**Subject:** Harris RR I3R16 RVCH Nozzle Repair Technique, ISI Program, Third Ten-Year Interval DRAFT RAI (MF8487)  
**Attachments:** Harris RR I3R16 draft RAI MF8487.docx

Mr. Caves,

By letter dated October 19, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16294A218) as supplemented by letter dated October 21, 2016 (ADAMS Accession No. ML16295A159), Duke Energy Progress, LLC (the licensee) submitted relief request (RR) I3R-16 for Shearon Harris Nuclear Power Plant, Unit 1. The RR I3R-16 requests to use an alternate method in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, to do the repair of flaw indications detected during the Inservice Inspection (ISI) program ultrasonic examination of the reactor vessel closure head penetration nozzles 30, 40, and 51. The RR I3R-16 is for the third 10-year Inservice Inspection (ISI) interval, which is scheduled to end on May 1, 2017. To complete its review, the NRC staff has the following request for additional information attached in DRAFT form.

If a clarification call is needed to discuss the attached draft RAI, it is requested you respond by October 24, 2016. Otherwise, we request the RAI response by October 26, 2016, in order to support your request. If you do not believe you can meet this date, please provide an acceptable alternate date and justification for extending the response date.

If you need to contact me, I may be reached at (301) 415-2760 or via e-mail [Martha.Barillas@nrc.gov](mailto:Martha.Barillas@nrc.gov).

Respectfully,

Martha Barillas  
Project Manager  
Shearon Harris Nuclear Power Plant, Unit 1  
NRR/DORL/Licensing Branch II-2  
US Nuclear Regulatory Commission  
301-415-2760

**Hearing Identifier:** NRR\_PMDA  
**Email Number:** 3123

**Mail Envelope Properties** (Martha.Barillas@nrc.gov20161021154300)

**Subject:** Harris RR I3R16 RVCH Nozzle Repair Technique, ISI Program, Third Ten-Year Interval DRAFT RAI (MF8487)  
**Sent Date:** 10/21/2016 3:43:12 PM  
**Received Date:** 10/21/2016 3:43:00 PM  
**From:** Barillas, Martha

**Created By:** Martha.Barillas@nrc.gov

**Recipients:**

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"McDaniel, Sarah A" <Sarah.McDaniel@duke-energy.com>  
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Tracking Status: None

**Post Office:**

Files	Size	Date & Time
MESSAGE	1664	10/21/2016 3:43:00 PM
Harris RR I3R16 draft RAI MF8487.docx		25556

**Options**

**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**

DRAFT REQUEST FOR ADDITIONAL INFORMATION  
RELIEF REQUEST I3R-16  
ALTERNATE REPAIR OF REACTOR VESSEL CLOSURE HEAD NOZZLES 30, 40, and 51  
SHEARON HARRIS NUCLEAR POWER PLANT UNIT NO.1  
DUKE ENERGY PROGRESS, LLC  
DOCKET NO. 50-400

By letter dated October 19, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16294A218) as supplemented by letter dated October 21, 2016 (ADAMS Accession No. ML16295A159), Duke Energy Progress, LLC (the licensee) submitted relief request (RR) I3R-16 for Shearon Harris Nuclear Power Plant, Unit 1. The RR I3R-16 requests to use an alternate method in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, to do the repair of flaw indications detected during the Inservice Inspection (ISI) program ultrasonic examination of the reactor vessel closure head penetration nozzles. The RR I3R-16 is for the third 10-year Inservice Inspection (ISI) interval, which is scheduled to end on May 1, 2017. To complete its review, the NRC staff requests the following additional information.

1. Section 1 of the letter referenced above identified the affected components as "Reactor Vessel Closure Head (RVCH) Penetration Nozzles" without identifying specific nozzles. Section 4 of the letter referenced above identified nozzle numbers 30, 40 and 51 that need to be repaired. Clarify whether the relief request is applicable to only RVCH nozzle numbers 30, 40 and 51 or to all RVCH nozzles that have not been repaired.
2. In a letter dated April 29, 2015, the licensee notified the NRC that its evaluation of the impact of a residual flaw in the J-groove weld contained an error as documented in Calculation 32-9176350-001, *Shearon Harris Unit 1 CRDM/CET Nozzle As-Left J-groove Weld Analysis*. The licensee submitted calculation 32-9176350-001 to support relief request I3R-13 (ADAMS Accession No. ML13330A996). The licensee referenced calculation 32-9176350-001 in the original RR I3R-15 submittal dated April 2, 2015. Subsequently, the licensee corrected the original calculation and submitted the revised Calculation 32-9176350-002 as documented in enclosure 3 of the submittal dated April 29, 2015 (ADAMS Accession No. 15120A406). Confirm that the error in Calculation 32-9176350-001 in Relief Request I3R-13 has been removed and is not contained in Calculation 32-9176350-003 that is a part of the current Relief Request I3R-16.
3. Discuss how the roll expansion joint will be applied and measures will be taken in the repair of the three RVCH nozzles in the Fall 2016 refueling outage to minimize stresses in the region above the roll expansion so as to prevent primary stress corrosion cracking in that region.
4. During the current Fall 2016 refueling outage, the licensee discovered an indication in repaired RVCH nozzle number 23 as discussed in Event Notification (EN) 52297. Discuss the measures and/or procedures that the proposed repair in Relief Request I3R-16 will implement or were implemented to minimize the occurrence of the indication that

was discovered in nozzle number 23. If no measures have been implemented, provide justification.

5. In Relief Request I3R-15, the licensee stated that the nozzle numbers 14, 18 and 23 that were repaired in 2015 have a design life of 2.2 effective full power years. Section 5, page 11, of current Relief Request I3R-16 discussed a limiting life of 5 years for the subject nozzle numbers 30, 40 and 51. Section 6 of I3R-16 states that "...The minimum life of 5 years is predicted based on the as-left J-groove flaw evaluation. The 2.2 EFPY is based on a separate PWSCC evaluation in the exposed original Alloy 600 nozzle. The overall acceptable life of the repair design is based on the most limiting life predicted amongst the weld anomaly analysis, the as-left J-groove analysis and the PWSCC evaluation of the original Alloy 600 nozzle, which is 2.2 EFPY..." Clarify whether the design life for the subject nozzle numbers 30, 40 and 51 is 2.2 EFPY or 5 years.