

Raymond A. Lieb  
Vice President, Nuclear419-321-7676  
Fax: 419-321-7582November 14, 2013  
L-13-328

10 CFR 50.55a

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

## SUBJECT:

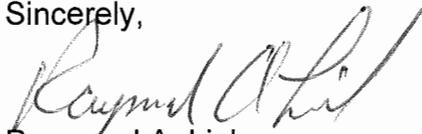
Davis-Besse Nuclear Power Station  
Docket No. 50-346, License No. NPF-3  
Response to Request for Additional Information on 10 CFR 50.55a Request RR-A36  
(TAC No. MF0750)

By correspondence dated February 27, 2013 (Accession No. ML13059A315), FirstEnergy Nuclear Operating Company (FENOC) submitted 10 CFR 50.55a Request RR-A36 for the Davis-Besse Nuclear Power Station.

By electronic mail dated September 30, 2013, the Nuclear Regulatory Commission (NRC) requested additional information to complete its review of Request RR-A36. FENOC's response to this request, which is due by November 15, 2013, is attached.

There are no regulatory commitments contained in this submittal. If there are any questions or additional information is required, please contact Mr. Thomas A. Lentz, Manager – Fleet Licensing, at (330) 315-6810.

Sincerely,

  
Raymond A. Lieb

Attachment: Response to September 30, 2013 Request for Additional Information

cc: NRC Region III Administrator  
NRC Resident Inspector  
NRC Project Manager  
Utility Radiological Safety Board

Response to September 30, 2013 Request for Additional Information  
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By correspondence dated February 27, 2013, FirstEnergy Nuclear Operating Company (FENOC) submitted a 10 CFR 50.55a Request for Nuclear Regulatory Commission (NRC) review and approval. By electronic mail dated September 30, 2013, NRC staff requested additional information to complete its review. The requested information is presented in bold type, followed by the FENOC response.

- 1. The recordable indications found by ultrasonic testing (UT) in welds RC-RPV-WR-34 and RC-RPV-WR-35 are described as embedded and indicative of slag. Describe the process used to confirm that the defects are embedded and that they are caused by slag and not caused by lack of fusion defects or some other fabrication flaw types.**

Response:

The examination procedure for these welds was qualified by performance demonstration to detect and size flaws in accordance with ASME Section XI, Appendix VIII, Supplements 4 and 6. The UT techniques included beam angles of 45 degree L-wave, 45 degree S-wave and 70 degree L-wave applied from two opposed perpendicular and two opposed parallel beam directions. This combination of beam angles and beam directions is effective for detection and characterization of flaws in vessel welds. The techniques are capable of measuring the upper and lower extremities of detected flaws within the tolerances of ASME Section XI, Appendix VIII. The measured position of the flaw within the weld thickness establishes whether the flaws are embedded or surface connected. The reported depth measurements for the flaws identified on these welds show that the flaws are not surface connected and that a ligament exists between the flaw boundary and the weld surfaces. As such, the identified flaws are embedded and associated with original fabrication versus service induced.

The evaluation reports state that the indications are indicative of slag inclusions. This characterization was based on the response observed in the UT data during analysis, as well as responses obtained from the other transducers and beam directions. When dispositioning indications, ASME Section XI, IWB-3500 acceptance standards assume the flaws are planar (that is, crack-like). For these welds, all of the indications evaluated met the applicable ASME Section XI acceptance standards.

**2. Address whether the indications in welds RC-RPV-WR-34 and RC-RPV-WR-35 are visible on the radiographs of the welds made during construction.**

Response:

Historically, the ability to identify small flaws on decades-old radiographs can be challenged by aging affects and film quality. ASME Section XI, Appendix VIII performance demonstration initiative (PDI) qualified UT examination procedures are more sensitive and better at sizing and characterizing flaws than past examination methodologies. As such, the construction-era radiographs for these welds were not reviewed. However, if the UT-identified indications were visible on the construction-era radiographs, the current disposition of the UT examination results would remain the same.

**3. Describe the visual testing camera system and lighting used to conduct the enhanced visual resolution demonstrations (EVT-1) tests on the RC-RPV-WR-54/55-W-IR and RC-RPV-WR-54/55-Y-IR nozzle inner radii.**

Response:

A pole mounted remote underwater video camera system was used to perform the EVT-1 examinations. Prior to performing the examinations, the camera's resolution, acuity, sensitivity and illumination were verified by resolving a 1 mil (0.001 inch) wide target on a certified EVT-1 sensitivity, resolution and contrast standard (SRCS). These verifications were performed under the same conditions as the EVT-1 examinations. Camera system details are listed below.

Equipment used during the EVT-1 examinations:

- Camera: Ahlberg Mega Rad color video camera
- Lighting: two 35 watt lights attached to the video camera
- Video recording: ACCURATE™ in-vessel visual inspection (IVVI) computer program
- Viewing: Samsung flat screen liquid crystal display (LCD) high definition color monitors

**4. Describe the cleaning process used in the EVT-1 examinations for RC-RPV-WR-54/55-W-IR and RC-RPV-WR-54/55-Y-IR. If the nozzles were cleaned, discuss whether the nozzle inner radii were examined prior to cleaning, after cleaning, or both.**

Response:

In accordance with the remote underwater visual examination procedure, surfaces to be examined shall be sufficiently free from deleterious materials such as crud deposits and any other conditions that could impair the detection of relevant indications. The Davis-Besse Nuclear Power Station is a pressurized water reactor, which uses a purified reactor coolant. As a result, qualified technicians determined that pre-examination surface cleaning was not required; therefore, cleaning was not performed.