

October 8, 2010
L-10-278

10 CFR 50.90

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
Supplemental Information Related to a Request to Incorporate the Use of
Alternative Methodologies for the Development of RPV P-T Curves, and Request
for Exemption from Certain Requirements Contained in 10 CFR 50.61 and
10 CFR 50, Appendix G (TAC NOS. ME1127 AND ME1128)

By letter dated April 15, 2009 [Agencywide Documents Access and Management System (ADAMS) Accession No. ML091130228], as supplemented by letter dated December 18, 2009 (ADAMS Accession No. ML093570103), the FirstEnergy Nuclear Operating Company (FENOC) submitted to the Nuclear Regulatory Commission (NRC) a license amendment request and an exemption request for the Davis-Besse Nuclear Power Station (DBNPS). The proposed amendment would incorporate the use of alternate methodologies for the development of the reactor pressure vessel pressure-temperature (P-T) limit curves into the DBNPS Technical Specifications. The proposed exemption would exempt DBNPS from certain requirements contained in 10 CFR 50.61 and 10 CFR Part 50, Appendix G.

By letter dated July 14, 2010 (ADAMS Accession No. ML101940393), the NRC staff requested additional information (RAI) on the proposed amendment to complete its review. FENOC letter dated August 26, 2010 provided the response to the RAI.

On September 3, 2010, a teleconference was held between the FENOC and NRC staffs to discuss the RAI response. During the teleconference clarifications of the RAI responses and the December 18, 2009 submittal were discussed, and are provided in the attachment.

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There are no regulatory commitments contained in this submittal. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager - Fleet Licensing, at (330) 761-6071.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 8, 2010.

Sincerely,


Kendall W. Byrd
Director, Site Performance Improvement

Attachment:

Supplemental Response To Request For Additional Information

cc: NRC Region III Administrator
NRC Project Manager
NRC Resident Inspector
Executive Director, Ohio Emergency Management Agency,
State of Ohio (NRC Liaison)
Utility Radiological Safety Board

Supplemental Response To Request For Additional Information
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On September 3, 2010, a teleconference was conducted between the FirstEnergy Nuclear Operating Company (FENOC) and the Nuclear Regulatory Commission (NRC) staffs to discuss a Request for Additional Information (RAI) submitted by FENOC on August 26, 2010. During the teleconference, clarifications to the RAI responses and the associated license amendment request dated December 18, 2009 were discussed. The NRC staff questions are in bold, followed by the FENOC responses.

NRC Staff Question 1

The response to Question #3 of the RAI refers to a 28.77°F temperature differential between the reactor coolant and the limiting location in the reactor vessel wall. Was this temperature differential based on a 50°F/hour step change heatup or a 75°F/hour step change heatup?

Response

The temperature differential was controlled more by the heat transfer characteristics of the fluid and metal than the heatup rate, and was essentially the same for both the 50 degrees Fahrenheit (°F)/hour step change heatup and the 75°F/hour step change heatup.

NRC Staff Question 2

What is the basis for the margin term of 4.57°F added to the temperature differential between the reactor coolant and limiting (1/4t) location in the vessel wall?

Response

The 4.57°F term is a correction factor to reflect the difference in the temperature differential analysis performed with the adjusted reference temperature (ART) values used in the April 15, 2009 submittal and the revised ART values used in the December 18, 2009 submittal. The temperature differential would be slightly different for the two different ART values, at the reactor coolant temperature corresponding to each ART value. The 4.57°F term is the difference between the ART values determined by the two different methods for the limiting material. The 4.57°F would bound the actual difference between the temperature differential values for the two different ART values.

NRC Staff Question 3

Confirm that the 28.77°F temperature differential is from the reactor coolant to the 1/4t location versus the 3/4t location and that the 1/4t location is the controlling location for the DBNPS reactor vessel during heatup with respect to allowable pressure.

Response

The 28.77°F temperature differential is the reactor coolant to the 1/4t location versus the 3/4t location. The 1/4t location is the controlling location for the DBNPS reactor vessel during heatup with respect to allowable pressure.

NRC Staff Question 4

Confirm that the chemistry factors used to calculate the ART for welds WF-182-1 and WF-233 were determined from the RG 1.99, Rev. 2 tables rather than using the minimum chemistry factor of 167 required by the staff safety evaluation of BAW-2308.

Response

The chemistry factors were determined using the Regulatory Guide 1.99, "RADIATION EMBRITTLEMENT OF REACTOR VESSEL MATERIALS," Revision 2 tables.

NRC Staff Question 5

Page 10 of 16 of Enclosure A to the December 18, 2009 submittal provides an uncorrected maximum pressure value of 625 psig below 235°F. This is different from the currently approved P-T curves for Davis Besse. Is the 625°F [correct unit is psig] value from the new PTLR that has not yet been submitted to the NRC?

Response

Yes, the 625 pounds per square inch (psig) value is the uncorrected value for the maximum pressure below 235°F from the new PTLR. However, in the new PTLR the pressure appearing on the P-T curves will be the corrected pressure (corrected for the actual measurement location), which is lower.

References

1. Letter from Barry S. Allen to NRC dated April 15, 2009, Subject: "Davis-Besse Nuclear Power Station, Unit No. 1, Docket No. 50-346, License No. NPF-3, License Amendment Request to Incorporate the Use of Alternate Methodologies for the Development of Reactor Pressure Vessel Pressure-Temperature Limit Curves, and Request for Exemption from Certain Requirements Contained in 10 CFR 50.61 and 10 CFR 50, Appendix G" (ADAMS Accession No. ML091130228).
2. Letter from Barry S. Allen to NRC dated December 18, 2009, Subject: "Davis-Besse Nuclear Power Station, Unit No. 1, Docket No. 50-346, License No. NPF-3, Supplemental Information Related to a License Amendment Request to Incorporate the Use of Alternate Methodologies for the Development of Reactor Pressure Vessel Pressure-Temperature Limit Curves, and Request for Exemption from Certain Requirements Contained in 10 CFR 50.61 and 10 CFR 50, Appendix G (TAC No. ME1127 – License Amendment Request, ME-1128 Exemption Request)" (ADAMS Accession No. ML093570103).
3. Letter from Barry S. Allen to NRC dated August 26, 2010, Subject: "Davis-Besse Nuclear Power Station, Docket No. 50-346, License No. NPF-3, Response to a Request for Additional Information Related to a License Amendment Request to Incorporate the Use of Alternative Methodologies for the Development of RPV P-T Curves, and Request for Exemption from Certain Requirements Contained In 10 CFR 50.61 and 10 CFR 50, Appendix G (TAC NOS. ME1127 and 1128)."