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Docket Number 50-346

License Number NPP-3

Serial Number 2233

June 30, 1994

United States Nuclear Regulatory Commission Document Control Desk  
Washington, D. C. 20555

Subject: Response to NRC Generic Letter 92-01, Revision 1, Reactor  
Vessel Structural Integrity, for the Davis-Besse Nuclear  
Power Station (TAC No. M83732)

Gentlemen:

This letter provides Toledo Edison's response for the Davis-Besse Nuclear Power Station, Unit 1 (DBNPS), to the Nuclear Regulatory Commission (NRC) Generic Letter 92-01, Revision 1, Reactor Vessel Structural Integrity, dated May 13, 1994 (Toledo Edison Log Number 4216). This letter requested confirmation on the applicability of the Topical Reports BAW-2178P, Low Upper-Shelf Toughness Fracture Mechanics Analysis of Reactor Vessels of B&W Owners Reactor Vessel Working Group for Level C & D Service Loads, and BAW-2192P, Low Upper-Shelf Toughness Fracture Analysis of Reactor Vessels of B&W Owners Group Reactor Vessel Working Group for Level A & B Conditions, to the DBNPS and verification of the information entered in the summary data files for the DBNPS.

Topical Reports BAW-2178FA and BAW-2192PA were prepared by the B&W Nuclear Technologies Company for the B&W Owners Group Reactor Vessel Working Group. The B&W Owners Group submitted BAW-2178P and BAW-2192P to the NRC by letters dated March 9, 1993 (OG-1158) and August 26, 1993 (OG-1272), respectively. By letters dated March 29, 1994 to the B&W Owners Group Reactor Vessel Working Group, the NRC provided the acceptance of the Topical Reports. The detailed information contained in the B&W Owners Group Reports BAW-2178PA and BAW-2192PA is applicable to the DBNPS.

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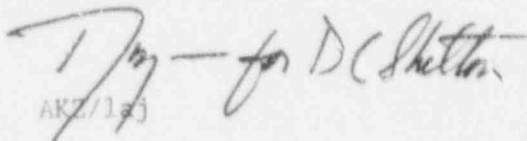
In addition, Toledo Edison has accepted the B&W Owners Group Topical Report BAW-2222, Reactor Vessel Working Group Response to Closure Letters to NRC Generic 92-01, Revision 1, which was submitted to the NRC by letter dated June 23, 1994 (CG-94-1393). This report was also prepared by the B&W Nuclear Technologies Company for the B&W Nuclear Owners Group Reactor Vessel Working Group in response to Generic Letter 92-01, Revision 1 and summarizes data from other Topical Reports.

The above topical reports provide the basis for demonstrating compliance with 10 CFR Part 50, Appendix G, Paragraph IV.A.1. Enclosure 1 provides the data summary for the Pressurized Thermal Shock (PTS) calculation and Enclosure 2 provides the data summary for the Upper-Shelf Energy (USE) calculation for the DBNPS. The tables include the data necessary to perform JSE and RT<sup>pts</sup> evaluations. Please note that certain data in both tables are different from Toledo Edison's previous letter dated July 1, 1992 (Serial Number 2060). The enclosed tables are consistent with the tables contained in the Topical Report BAW-2222. Accordingly, Toledo Edison requests NRC approval of the above as the basis for demonstrating compliance with 10 CFR Part 50, Appendix G, Paragraph IV.A.1 for the DBNPS.

On May 19, 1994, Toledo Edison informed Mr. G. West, Jr., NRC Acting Project Manager, that based on the supporting work being performed by the B&W Nuclear Technologies Company for the B&W Owners Group, the response to the Generic Letter 92-01, Revision 1 would be submitted by June 30, 1994, rather than 30 days after receipt of the NRC's request.

Should you have any questions or require additional information, please contact Mr. William T. O'Connor, Manager - Regulatory Affairs, at (419) 249-2366.

Very truly yours,

  
AKZ/laj

Enclosures

cc: J. B. Martin, Regional Administrator, NRC Region III  
S. Stasek, DB-1 NRC Senior Resident Inspector  
R. J. Stransky Jr., DB-1 NRC/NRR Project Manager  
Utility Radiological Safety Board

Table 1. Davis-Besse -- Data Summary for Pressurized Thermal Shock Calculation

Beltline Material	Heat No.	IS Neut. Fluence at EOL/EFPY	IRT <sub>NDT</sub> F	Method of Determin. IRT <sub>NDT</sub>	Chemistry Factor	Method of Determin. CF	%Cu	%Ni
Nozzle Belt Forging	ADB 203 (123Y317)	1.50E+18 <sup>1</sup>	+50 <sup>2</sup> ( $\sigma_1=0$ )	Plant Specific	26	RG1.99 Table 2	0.04 <sup>7</sup>	0.68 <sup>7</sup>
Upper Shell Forging	AKJ 233 (123X244)	1.07E+19 <sup>1</sup>	+20 <sup>2</sup> ( $\sigma_1=0$ )	Plant Specific	26	RG1.99 Table 2	0.04 <sup>7</sup>	0.77 <sup>7</sup>
Lower Shell Forging	BCC 241 (5P4086)	1.07E+19 <sup>1</sup>	+50 <sup>2</sup> ( $\sigma_1=0$ )	Plant Specific	15.5 <sup>4</sup>	Calculated	0.02 <sup>7</sup>	0.81 <sup>7</sup>
WF-232 NB to US Circ. Weld (ID 9%)	8T3914	1.50E+18 <sup>1</sup>	-5 <sup>3</sup> ( $\sigma_1=19.7$ )	Generic	160.6	RG1.99 Table 1	0.18 <sup>8</sup>	0.64 <sup>8</sup>
WF-233 NB to US Circ. Weld (OD 91%)	T29744	N/A	-5 <sup>3</sup> ( $\sigma_1=19.7$ )	Generic	207.44 <sup>5</sup>	Calculated	0.23 <sup>8</sup>	0.68 <sup>8</sup>
WF-182-1 US to LS Circ. Weld	821T44	1.07E+19 <sup>1</sup>	+2 <sup>2</sup> ( $\sigma_1=0$ )	Plant Specific	162.09 <sup>6</sup>	Calculated	0.24 <sup>8</sup>	0.63 <sup>8</sup>

Table 1. (cont.) Davis-Besse -- Data Summary for Pressurized Thermal Shock Calculation

NOTES:

1. Values obtained from BAW-2108, Revision 1.<sup>46</sup>
2. Values determined from data in Material Test Report/Weld Test Data.
3. Mean value from data in BAW-1803, Revision 1.<sup>42</sup>
4. Chemistry Factor for forging BCC 241 was determined using DB1 surveillance data as reported in BAW-2125.<sup>17</sup>
5. Chemistry Factor for weld metal WF-233 was determined using Kori Unit 1 surveillance data as reported in BAW-1803, Revision 1.
6. Chemistry Factor for weld metal WF-182-1 was determined using DB1 surveillance data as reported in BAW-2125.
7. Values obtained from BAW-1820.<sup>25</sup>
8. Values obtained from BAW-2121P.<sup>30</sup>

Table 2. Davis-Besse -- Data Summary for Upper-Shelf Energy Calculation

Beltline Material	Heat No.	Material Type	1/4T USE at EOL	1/4T Neutron Fluence at EOL	Unirrad. USE	Method of Determin. Unirrad. USE
Nozzle Belt Forging	ADE 203 (123X317)	A 508-2	122.6	$8.40\text{E}+17^2$	132	Direct <sup>3</sup> (Matl. Cert.)
Upper Shell Forging	AVJ 233 (123X244)	A 508-2	125.0	$5.99\text{E}+18^2$	140	Direct <sup>3</sup> (Surv. Matl.)
Lower Shell Forging	BCC 241 (5P4086)	A 508-2	110.4	$5.99\text{E}+18^2$	122	Direct <sup>3</sup> (Surv. Matl.)
WF-232 NB to US Circ. Weld (ID 9%)	8T3914	Linde 80 SAW	EMA <sup>1</sup>	N/A	EMA <sup>1</sup>	Generic <sup>4</sup>
WF-233 NB to US Circ. Weld (OD 91%)	T29744	Linde 80 SAW	EMA <sup>1</sup>	$8.40\text{E}+17^2$	EMA <sup>1</sup>	Generic <sup>5</sup>
WF-182-1 US to LS Circ. Weld	821T44	Linde 80 SAW	EMA <sup>1</sup>	$5.99\text{E}+18^2$	EMA <sup>1</sup>	Direct <sup>3</sup> (Suppl. Test Report)

Table 2. (cont.) Davis-Besse -- Data Summary for Upper-Shelf Energy Calculation

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NOTES:

1. USE issue covered by the approved equivalent margins analysis in the Topical Reports BAW-2192P, Revision 1<sup>44</sup> and BAW-2178P<sup>45</sup>.
2. Values obtained from BAW-2192P, Revision 1.
3. Unirradiated USE is determined from transverse oriented specimens.
4. Unirradiated USE is determined using data from other plants with similar materials to the beltline material.