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July 2, 1992  
C311-92-2086

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

Gentlemen:

Subject: Three Mile Island Nuclear Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
GPUN Response to Generic Letter (GL) 92-01  
Revision 1, "Reactor Vessel Structural Integrity"

On March 6, 1992, NRC issued Generic Letter 92-01, Revision 1, "Reactor Vessel Structural Integrity" and requested licensees to provide certain information regarding Appendixes H and G to 10 CFR Part 50, and Generic Letter 88-11 within 120 days of the date of the issuance.

On June 17, 1992, a report entitled "Response to Generic Letter 92-01" (BAW-2166) was submitted by the B & W Owners Group (B&WOG) on behalf of the B & W Owners Group Reactor Vessel Working Group. The report provides the information requested in Generic Letter 92-01 for B&W Owners Group (B&WOG) plants, including Three Mile Island Nuclear Generating Station Unit 1. We have reviewed the report and concur with its content; however, the following information is provided for additional clarification of the status of the TMI-1 reactor vessel.

The B&WOG report utilized Regulatory Guide (R.G.) 1.99 Rev. 2, paragraph C.1.2 as the basis for responding to item 2a of the Generic Letter. The report established the WF-25 circumferential weld to have the lowest Charpy Upper Shelf Energy (Cv-USE), and is therefore defined to be the limiting weld. Application of paragraph C.2.2 of the Regulatory Guide to the B&WOG surveillance data indicates that the TMI-1 vessel contains two additional welds which exhibit similar degradation behavior of the Cv-USE. These weld materials are SA-1526 and WF-70 which are longitudinal and circumferential welds, respectively.

Review of the B&WOG surveillance Cv-USE data for the weld wires from which these three welds were made would indicate that prediction of the Cv-USE per R.G. 1.99 Rev. 2, paragraph C.1.2 would yield a very conservative lower bound to the actual data. Application of R.G. 1.99 Rev. 2, paragraph C.2.2 for predicting the Cv-USE also conservatively bounds the surveillance data and yields the following results:

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Status of TMI-1 Cv-USE per R.G. 1.99 Rev. 2, para. C.2.2			
Weld Metal	SA - 1526	WF - 25	WF - 70
Weld Orientation	Longitudinal	Circumferential	Circumferential
Initial Cv-USE	70 Ft-Lbs	70 Ft-Lbs	70 Ft-Lbs
Percent Copper			
Actual Chemistry	0.35 %	0.35 %	0.35 %
Effective Copper based on R.G. 1.99 Para. C.2.2	0.256 %	0.256 %	0.29 %
Cv-USE per R.G. 1.99 Rev. 2, paragraph C.2.2			
EFPY at Cv-USE < 50 Ft-Lbs	14 EFPY	13 EFPY	9 EFPY
Dec. 16, 1991 (8.1 EFPY)	51.7 Ft-Lbs	51.4 Ft-Lbs	50.2 Ft-Lbs
@ EOL (2014) 26.17 EFPY	47.4	47.1	45.7
@ 32 EFPY (2021)	46.5	46.2	44.7

These results indicate that the Cv-USE for circumferential weld WF-70 may fall below the 50 Ft-Lbs level in the fourth quarter of this year. This class of weld metals exhibits an apparent saturation of the irradiation induced degradation. Thus, the Cv-USE decrease tends to level off at higher fluences. As stated in the B&WOG report, an analysis per 10 CFR 50, App. G, Section V.C.3 is scheduled for 1993 as an owners group activity.

The following information supports extension of the submittal date for a TMI-1 plant specific analysis until 1993. The B&WOG Reactor Vessel Integrity Program has already completed and submitted such analysis to the NRC for two Lead Plants. The analysis for one of these plants, submitted by B&WOG report BAW-2148P Rev. 1, evaluated the Cv-USE of weld metal WF-70. It is apparent that this analysis would bound the TMI-1 plant specific analysis results for the WF-70 circumferential weld.

A comparison of the analytical inputs utilized in BAW-2148 versus the TMI-1 vessel is presented to illustrate this point. This comparison permits a conclusion that the Lead Plant analysis results can be expected to bound the results for the TMI-1 WF-70 weld.

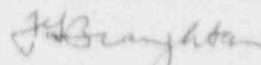
Comparison of Low Cv-USE Evaluation Analysis Inputs		
	B&WOG Lead Plant	TMI-1
Weld Metal	WF-70	WF-70
Fluence @ 1/4T	9.34E18	4.0E18 @ EOL
Weld Orientation	Longitudinal	Circumferential
Design Pressure (psig)	2485	2500
Vessel ID (Inches)	173	171
Vessel Wall Thickness (Inches)	8.44	8.438
Cold Leg Operating Temp. (°F)	530	555

This comparative table indicates that the only major difference in the inputs for the B&WOG Lead plant analysis and one which would be performed for TMI-1 is the weld orientation. However, the primary loading due to pressure for the circumferential weld orientation would be approximately one half of the value contained in the Lead Plant analysis for the longitudinal weld. Thus, the Lead Plant analysis bounds the results of analysis for TMI-1.

The B&WOG report plus the supplementary information contained herein provides the status of TMI-1 compliance with the requirements of Appendices G and H to 10 CFR Part 50. TMI-1 has also implemented significant flux reductions by prudent fuel management and is an active participant in the B&WOG Reactor Vessel Integrity Program to maintain vigilance of the status of the vessel embrittlement. TMI-1 has completed its 10 year ISI of the vessel utilizing the B&W enhanced inspection technique to demonstrate the absence of significant flaws within the vessel wall. Based on the above, adequate margin of safety against fracture exists for the TMI-1 reactor vessel.

If you have any questions concerning the information provided, please contact Mr. Michael Laggart, Manager, Corporate Nuclear Licensing at (201) 316-7968.

Sincerely,



T. G. Broughton  
Vice President and Director, TMI-1

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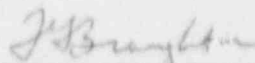
cc: Administrator, Region I  
TMI-1 Senior Project Manager  
TMI Senior Resident Inspector

METROPOLITAN EDISON COMPANY  
JERSEY CENTRAL POWER AND LIGHT COMPANY  
PENNSYLVANIA ELECTRIC COMPANY  
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION

Three Mile Island Nuclear Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289

Response to the Generic Letter 92-01, Revision 1  
Reactor Vessel Structural Integrity

This letter is submitted to provide clarification of the status of the TMI-1 Reactor Vessel. This information is in addition to the B&W Owners Group response (BAW-2166) to Generic Letter 92-01, Revision 1, 10 CFR 50.54(f) Request - "Reactor Vessel Structural Integrity." All statements contained in this response have been reviewed, and all such statements made and matter set forth therein are true and correct to the best of my knowledge.



T. G. Broughton  
Vice President and Director, TMI-1

Signed and sworn before me this

2nd day of July, 1992.



Notary Public

Notarial Seal  
Erin M. Flowers, Notary Public  
Londonderry Twp., Dauphin County  
My Commission Expires Sep<sup>r</sup> 11, 1993

Member, Pennsylvania Association of Notaries