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Writer's Direct Dial Number:

September 14, 1982  
5211-82-216

Office of Nuclear Reactor Regulation  
Attn: J. F. Stolz, Chief  
Operating Reactor Branch No. 4  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Seismic Qualification of Emergency Feedwater System

Enclosed please find a summary of 47 EFW valves (and operators) which have been found to be structurally and operationally adequate when subjected to Safe Shutdown Earthquake (SSE) stresses along with normal operational loads. Our letters of September 29, 1981 (L1L 269), December 8, 1981 (L1L 354), and July 7, 1982 (82-150) were submitted in response to your letters of February 10, 1982 (GL-81-14) and April 5, 1982 respectively. The criteria for the analysis was as follows:

- \* A Static analysis was performed for all valves
- \* Seismic inputs were twice the OBE
- \* Simultaneously applied loadings were:
  - \* Seismic loads in perpendicular directions
  - \* Operating loads (e.g., stem loads) were applicable
  - \* Design pressure, where applicable
- \* Stresses were conservatively compared to lower ASME allowable (e.g., ASME Code S values) when adequacy was clear. Otherwise allowable stresses were taken to be the minimum specified yield strength of the material.
- \* Limitorque actuators were considered seismically qualified in accordance with IEEE 344-75 as indicated in Limitorque Corporation Report B0037 (1/11/80).

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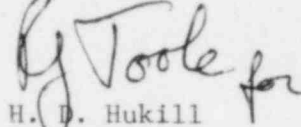
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\* Operability during the seismic event was determined by calculating the seismically induced deformations of valve and operator parts which may impede valve operation and comparing these calculated deformations to the available part clearances.

A similar table which includes the remainder of the valves to be analyzed will be provided at the end of September 1982.

Sincerely,



H. D. Hukill  
Director, TMI-1

HDH:CJS:vjf

Enclosure

cc: R. C. Haynes  
E. Jacobs

TABLE 1

## EFW VALVE SEISMIC QUALIFICATION SUMMARY

Valve Designator	Valve Type	Operator	Vendor	SSE(= 20BE) Horiz(g)/Vert(g) (Acceptance Criteria)		Adequacy Struct/Oper	
EFV-2A	Gate	Limitorque	Walworth	1.28	.42	yes	yes
EFV-2B	Gate	Limitorque	Walworth	.84	.22	yes	yes
MSV-2A	Gate	Limitorque	Walworth	.66	.34	yes	yes
MSV-2B	Gate	Limitorque	Walworth	.70	.36	yes	yes
MSV-8A	Gate	Limitorque	Walworth	.82	.56	yes	yes
MSV-8B	Gate	Limitorque	Walworth	1.40	.38	yes	yes
MSV-10A	Gate	Limitorque	Walworth	.76	.36	yes	yes
MSV-10B	Gate	Limitorque	Walworth	.74	.36	yes	yes
COV-10A	Gate	Limitorque	Walworth	.90	.60	yes	yes
COV-10B	Gate	Limitorque	Walworth	.90	.60	yes	yes
COV-14A	Gate	Limitorque	Walworth	.48	.02	yes	yes
COV-14B	Gate	Limitorque	Walworth	2.68	.58	yes	yes
EFV-4	Gate	Limitorque	Walworth	1.92	.58	yes	yes
EFV-5	Gate	Limitorque	Walworth	1.78	.46	yes	yes
ASV-4	Globe Stop Chk.	Limitorque	Walworth	1.52	.42	yes	yes
COV-111A	Gate	Limitorque	Walworth	2.40	1.60	yes	yes
COV-111B	Gate	Limitorque	Walworth	2.40	1.60	yes	yes
MSV-9A	Swing Check	None	Walworth	.70	.36	yes	yes
MSV-9B	Swing Check	None	Walworth	.70	.36	yes	yes
COV-16A	Swing Check	None	Walworth	.06	.00	yes	yes
COV-16B	Swing Check	None	Walworth	1.26	.40	yes	yes
EFV-3	Swing Check	None	Walworth	.94	.66	yes	yes
MSV-22A	Relief	None	Lonergan	.94	.36	yes	yes
MSV-22B	Relief	None	Lonergan	.94	.36	yes	yes

TABLE 1 (Cont.)

## EFW VALVE SEISMIC QUALIFICATION SUMMARY

Value Designator	Valve Type	Operator	Vender	SSE(= 20BE) Horiz(g)/Vert(g) (Acceptance Criteria)		Adequacy Struct/Oper	
EFV-1 A	Butterfly	Limitorque	Pratt	.86	.44	yes	yes
EFV-1B	Butterfly	Limitorque	Pratt	.76	.36	yes	yes
EFV-12A	Tilt Disc Chk.	None	Crane	1.64	.42	yes	yes
EFV-12B	Tilt Disc Chk.	None	Crane	2.62	.34	yes	yes
EFV-13	Tilt Disc Chk.	None	Crane	1.02	.48	yes	yes
EFV-11A	Swing Check	None	Crane	1.58	.46	yes	yes
EFV-11B	Swing Check	None	Crane	.84	.32	yes	yes
MSV-69	Check	None	Dresser	2.40	1.60	yes	yes
EFV-19A	Check	None	Dresser	2.40	1.60	yes	yes
EFV-19B	Check	None	Dresser	2.40	1.60	yes	yes
EFV-21	Check	None	Dresser	2.40	1.60	yes	yes
COV-175A	Check	None	Dresser	2.40	1.60	yes	yes
COV-175B	Check	None	Dresser	2.40	1.60	yes	yes
MSV-6	Globe Cont.	Diaphragm	Fisher	1.30	.64	yes	yes
MSV-13A	Globe Cont.	Diaphragm	Fisher	2.40	1.60	yes	yes
MSV-13B	Globe Cont.	Diaphragm	Fisher	2.40	1.60	yes	yes
EFV-8A	Globe Cont.	Diaphragm	Fisher	2.40	1.60	yes	yes
EFV-8B	Globe Cont.	Diaphragm	Fisher	2.40	1.60	yes	yes
EFV-8C	Globe Cont.	Diaphragm	Fisher	2.40	1.60	yes	yes
EFV-30A	Globe Cont.	Diaphragm	Fisher	3.00	.70	yes	yes
EFV-30B	Globe Cont.	Diaphragm	Fisher	2.68	.46	yes	yes
MSV-4A	Globe Cont.	Diaphragm	Fisher	.74	.38	yes	yes
MSV-4B	Globe Cont.	Diaphragm	Fisher	.76	.36	yes	yes