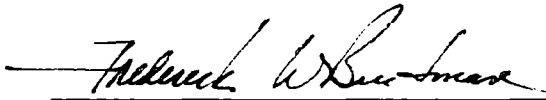


CONSUMERS POWER COMPANY
Palisades Plant
Docket 50-255 - License DPR-20

RESPONSE TO IE BULLETIN

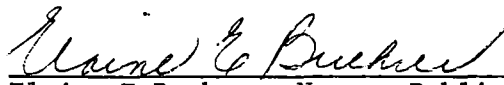
At the request of the Commission and pursuant to the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974, as amended, and the Commission's Rules and Regulations thereunder, Consumers Power Company submits our updated response to IE Bulletin 87-03 dated November 15, 1985, entitled, Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings. Consumers Power Company's response is dated January 15, 1988.

CONSUMERS POWER COMPANY



F W Buckman, Senior Vice President
Energy Supply

Sworn and subscribed to before me this 15th day of January, 1988.



Elaine E Buehrer, Notary Public
Jackson County
My commission expires October 31, 1989

LIST OF TABLES

TABLE 1	TABULATION OF MAXIMUM DIFFERENTIAL PRESSURES & TARGET THRUST WINDOWS
TABLE 2	RESULTS OF THE AS-FOUND TESTING OF THE 85-03 VALVES/OPERATORS
TABLE 3	AS-LEFT CLOSING THRUST RESULTS
TABLE 4	AS-LEFT OPENING THRUST RESULTS
TABLE 5	RESULTS OF DIFFERENTIAL PRESSURE TESTING ** CLOSING ONLY **
TABLE 6	RESULTS OF DIFFERENTIAL PRESSURE TESTING ** OPENING ONLY **

TABULATION OF MAXIMUM DIFFERENTIAL PRESSURES

& TARGET THRUST WINDOWS

VALVE	MAXIMUM DELTA P		CLOSE		OPEN	
	CLOSE	OPEN	THRUST MAX	TARGET MIN	THRUST MAX	TARGET MIN
VOP-0743	1714	1714	11583	10530	N/A	N/A
VOP-0748	1354	1354	10332	9393	N/A	N/A
VOP-0753	1714	1714	11583	10530	N/A	N/A
VOP-0754	1354	1354	10332	9393	N/A	N/A
VOP-0755	1351	1351	10332	9393	N/A	N/A
VOP-0759	1351	1351	10332	9393	N/A	N/A
VOP-0760	1711	1711	11583	10530	N/A	N/A
VOP-0798	1711	1711	11583	10530	N/A	N/A
VOP-3007	1245	1245	10221	9292	N/A	N/A
VOP-3009	1245	1245	10221	9292	N/A	N/A
VOP-3011	1245	1245	10221	9292	N/A	N/A
VOP-3013	1245	1245	10221	9292	N/A	N/A
VOP-3041	1885	1885	57305	52095	N/A	N/A
VOP-3045	1885	1885	57305	52095	N/A	N/A
VOP-3049	1885	1885	57305	52095	N/A	N/A
VOP-3052	1885	1885	57305	52095	N/A	N/A
VOP-3062	1245	1245	10221	9292	N/A	N/A
VOP-3064	1245	1245	10221	9292	N/A	N/A
VOP-3066	1245	1245	11000	9292	N/A	N/A
VOP-3068	1245	1245	10221	9292	N/A	N/A
VOP-3080	1238	1238	18000	14045	18000	14045
VOP-3081	1239	1239	15450	14045	15450	14045
VOP-3082	1235	1235	24000	22000	24000	22000
VOP-3083	1235	1235	24000	22000	24000	22000

NOTES:

A - Differential Pressure Is Reported In (PSI)

B - Thrust Is Reported In (LBS)

RESULTS OF AS FOUND TESTING OF
THE 85-03 VALVES/OPERATORS

VALVE TAG NO.	AS FOUND CLOSING CST	THRUST TOTAL	CLOSE TQ. SW.	AS FOUND OPENING CRACK	THRUST CST	OPEN TQ. SW.
VOP-0743	9720	11480	2.5	4572	N/A	2.5
VOP-0748	10108	11356	2.0	4608	N/A	2.0
VOP-0753	11596	12278	2.5	4667	N/A	2.5
VOP-0754	6360	8640	2.0	3710	N/A	2.125
VOP-0755	8509	11443	2.5	5513	N/A	2.5
VOP-0759	12311	13106	2.5	5020	N/A	2.5
VOP-0760	7780	9990	2.5	5930	N/A	2.5
VOP-0798	9893	13119	2.5	6572	N/A	2.5
VOP-3007	10528	12449	1.0	(2)	10203	1.0
VOP-3009	(2)	(2)	1.5	(2)	N/A	N/A
VOP-3011	10115	10321	1.25	6916	N/A	1.75
VOP-3013	7324	7824	3.0	3756	N/A	3.5
VOP-3041	45256	48631	1.0	37800	N/A	N/A
VOP-3045	43000	45750	1.0	< 40000	N/A	1.0
VOP-3049	53250	60843	1.0	< 47500	N/A	N/A
VOP-3052	52740	53000	2.0	< 27650	N/A	N/A
VOP-3062	15830	16780	1.5	1000	N/A	2.0
VOP-3064	(2)	(2)	1.5	(2)	N/A	1.5
VOP-3066	17372	18653	2.5	10194	N/A	1.0
VOP-3068	26085	26296	2.0	13360	N/A	2.0
VOP-3080	15640	18268	2.0	12054	17310	2.0
VOP-3081	19531	23508	2.0	15909	23508	2.0
VOP-3082(1)	13329	17212	2.0	8620	12514	2.0
VOP-3083(1)	9320	13297	>2.0	6720	10412	>2.0

NOTES:

1. These Operators Experience Torque Only. The Valves Are Designated With An Internal Stem Nut Which Transmits Thrust To The Valve. Actual Operator Torque Is Within The Operators Torque Rating.
2. These Values Were Obtained Using B&W's Spring Pack Calibration Data. Due to actuator orientation problems MOVTA's equipment could not be utilized.
3. As Found Cracking (Unseating) Thrust Values Preceeded By Less Than Symbols "<", Indicated That The Unseating Load Is Less Than The Spring Pack Preload.
4. Closing Thrust Values For VOP-3062, 3066, & 3068 Exceeded Both The Operator And Valve Allowables.
5. CST = Thrust at the control switch trip.

AS LEFT CLOSING THRUST RESULTS

OPERATOR TAG NUMBER	CLOSING		CLOSING THRUST		CLOSE TQ. SW. SETTING
	THRUST MAX	TARGET MIN	AS LEFT CST	TOTAL	
VOP-0743	11583	10530	10903	12383	2.0
VOP-0748	10332	9393	10330	11260	3.0
VOP-0753	11583	10530	11059	12559	1.75
VOP-0754	10332	9393	9640	10640	< 3.0
VOP-0755	10332	9393	9430	10232	3.0
VOP-0759	10332	9393	9550	10738	2.75
VOP-0760	11583	10530	11248	12481	2.75
VOP-0798	11583	10530	11120	12070	2.25
VOP-3007	10221	9292	10172	12393	< 2.5
VOP-3009	10221	9292	10216	12695	< 2.25
VOP-3011	10221	9292	9294	11439	< 2.5
VOP-3013	10221	9292	9606	11622	< 2.5
VOP-3041	57305	52095	52124	55432	1.5
VOP-3045	57305	52095	54131	57357	1.5
VOP-3049	57305	52095	54828	59337	1.25
VOP-3052	57305	52095	52124	53205	1.75
VOP-3062	10221	9292	9342	10928	2.75
VOP-3064	10221	9292	10200	13041	> 2.75
VOP-3066	11000	9292	10778	12492	1.0
VOP-3068	10221	9292	9725	10948	1.75
VOP-3080	18000	14045	16119	18387	1.75
VOP-3081	15450	14045	14050	16080	2.0
VOP-3082(4)	24000	22000	24000	26340	1.5
VOP-3083(4)	24000	22000	23387	24666	2.25

NOTES:

1. CST = THRUST AT THE CONTROL SWITCH TRIP &
TOTAL = CST THRUST + INERTIA
2. AS LEFT TORQUE SWITCH SETTINGS PRECEDED BY "<" or ">"
SYMBOLS, INDICATED THAT THE ACTUAL SETTING IS EITHER A
LITTLE HIGHER OR LOWER THAN THE REPORTED VALUE
3. THE TOTAL THRUST ON VOP-3007, 3009, 3064 & 3066 EXCEEDS THE
VALVE MFG.'S RATING. HOWEVER DIAGNOSTIC TESTING SHOWED NO
EVIDENCE OF VALVE DAMAGE. IT IS BELIEVED THAT THE VENDORS
12000# DISC LIMIT IS CONSERVATIVE.
4. THESE OPERATORS EXPERIENCE TORQUE ONLY. THE VALVES ARE
DESIGNED WITH AN INTERNAL STEM NUT WHICH TRANSMITS THRUST TO
THE VALVE. ACTUAL OPERATOR TORQUE IS WITHIN THE OPERATORS
TORQUE RATING.

AS LEFT OPENING THRUST RESULTS

OPERATOR TAG NUMBER	OPEN THRUST TARGET		OPENING THRUST AS LEFT		OPEN TQ. SW. SETTING
	MAX	MIN	UNSEATING	CST	
VOP-0743	N/A	N/A	< 6460	N/A	1.75
VOP-0748	N/A	N/A	5114	N/A	2.0
VOP-0753	N/A	N/A	7531	N/A	2.25
VOP-0754	N/A	N/A	5900	N/A	< 3.0
VOP-0755	N/A	N/A	5072	N/A	3.0
VOP-0759	N/A	N/A	4788	N/A	2.75
VOP-0760	N/A	N/A	7196	N/A	2.75
VOP-0798	N/A	N/A	7313	N/A	2.0
VOP-3007	N/A	N/A	6545	N/A	2.5
VOP-3009	N/A	N/A	6559	N/A	2.25
VOP-3011	N/A	N/A	5848	N/A	< 2.5
VOP-3013	N/A	N/A	6145	N/A	2.25
VOP-3041	N/A	N/A	<PL 39600	N/A	1.75
VOP-3045	N/A	N/A	<PL 37200	N/A	2.0
VOP-3049	N/A	N/A	<PL 43400	N/A	2.0
VOP-3052	N/A	N/A	<PL 39000	N/A	2.0
VOP-3062	N/A	N/A	6846	N/A	2.75
VOP-3064	N/A	N/A	7108	N/A	> 2.75
VOP-3066	N/A	N/A	7452	N/A	1.5
VOP-3068	N/A	N/A	6310	N/A	1.75
VOP-3080	18000	14045	10120	16395	1.75
VOP-3081	15450	14045	9760	15110	2.0
VOP-3082(4)	24000	22000	18053	22860	1.75
VOP-3083(4)	24000	22000	14260	24010	2.25

NOTES:

- 1 CST = THRUST AT THE CONTROL SWITCH TRIP &
TOTAL = CST THRUST + INERTIA
- 2 AS LEFT UNSEATING THRUST VALUES PRECEDED BY "<", INDICATES
THAT THE UNSEATING THRUST WAS LESS THAN THE SPRING PACK PRELOAD.
- 3 AS LEFT TORQUE SWITCH SETTINGS PRECEDED BY "<" OR ">"
SYMBOLS, INDICATE THAT THE ACTUAL SETTING IS EITHER A
LITTLE LOWER OR HIGHER THAN THE REPORTED SETTING.
- 4 THESE OPERATORS EXPERIENCE TORQUE ONLY. THE VALVES ARE
DESIGNED WITH AN INTERNAL STEM NUT WHICH TRANSMITS THRUST
TO THE VALVE. ACTUAL OPERATOR TORQUE IS WITHIN THE OPERATORS
TORQUE RATING.

RESULTS OF DIFFERENTIAL PRESSURE TESTING

** CLOSING ONLY **

VALVE TAG NO.		MAXIMUM DELTA-P DESIGN	ACTUAL DELTA-P TESTED	THRUST MEASURED TEST DP	THRUST REQ. @ MAX DP	THRUST AT CST	MARGIN (CST-DP)	RUNNING LOAD THRUST
MO-0743	**	1714	1524	7600	7742	10580	2838(8)	<PL 6460
MO-0748	**	1354	1239	5940	6454	10120	3666	400
MO-0753	**	1714	1524	10700	11211	10700	-511(8)	<PL 6600
MO-0754	**	1354	1249	6100	6539	9510	2971(8)	<PL 880
MO-0755	**	1351	1249	5730	6092	9120	3028(8)	<PL 1300
MO-0759	**	1351	1244	7060	7607	9380	1773(8)	<PL 700
MO-0760	**	1711	1526	8940	9386	11240	1854(8)	<PL 5260
MO-0798	**	1711	1527	8680	9015	11080	2065(8)	<PL 5900
MO-3007		1245	NOTE 3					
MO-3009		1245	NOTE 3					
MO-3011		1245	NOTE 3					
MO-3013		1245	NOTE 3					
MO-3041		1885	NOTE 2					
MO-3045		1885	NOTE 2					
MO-3049		1885	NOTE 2					
MO-3052		1885	NOTE 2					
MO-3062	*	1245	1240					
MO-3064	*	1245	1240					
MO-3066	*	1245	1240					
MO-3068	**	1245	1240	NOTE 6				
MO-3080	**	1238	1050	5220	5362	15531	10169	5285
MO-3081		1239	NOTE 4					
MO-3082	**	1235	1050	10395	11185	10395	-790	5913
MO-3083		1235	NOTE 5					

NOTES

- 1 * INDICATES DP TESTING & ** INDICATES DP TESTING WITH MOVATS EQUIPMENT ATTACHED.
- 2 DP TEST COULD NOT BE PERFORMED, VALVES ARE ELECTRICALLY LOCKED OPEN.
- 3 DP TESTING WAS NOT PERFORMED, SINCE THE VALVES ARE IDENTICAL TO THE TESTED REDUNDANT HPSI VALVES (MO-3062, 64, 66 & 68).
- 4 DP TESTING WAS NOT PERFORMED, SINCE THIS VALVE IS IDENTICAL TO MO-3080, WHICH WAS TESTED.
- 5 DP TESTING WAS NOT PERFORMED, SINCE THIS VALVE IS IDENTICAL TO MO-3082, WHICH WAS TESTED.
- 6 MOVATS DATA WAS NOT OBTAINED ON THIS VALVE DUE TO AN EQUIPMENT MALFUNCTION.
- 7 <PL INDICATES THAT THE RUNNING LOAD IS LESS THAN THE REPORTED SPRING PACK PRELOAD.
- 8 VALVES LISTED FOR MARGIN ARE OVERLY CONSERVATIVE SINCE PRELOAD WAS USED IN PLACE OF RUNNING LOAD TO CALCULATE MARGIN.

RESULTS OF DIFFERENTIAL PRESSURE TESTING
 ** OPENING ONLY **

VALVE TAG NO.		MAXIMUM DELTA-P DESIGN	ACTUAL DELTA-P TESTED	THRUST MEASURED TEST DP	THRUST REQ. @ MAX DP	THRUST AT CRACKING	RUNNING LOAD THRUST
MO-0743	**	1714	1524	< PL	< PL	< PL	<PL 6460
MO-0748	**	1354	1239	4494	4865	5580	500
MO-0753	**	1714	1524	6900	6937	6900	<PL 6600
MO-0754	**	1354	1249	4470	4772	4600	900
MO-0755	**	1351	1249	4170	4404	4600	<PL 1300
MO-0759	**	1351	1244	4800	5153	4960	<PL 700
MO-0760	**	1711	1526	5820	5888	6060	<PL 5260
MO-0798	**	1711	1527	6080	6102	6080	<PL 5900
MO-3007		1245	NOTE 3				
MO-3009		1245	NOTE 3				
MO-3011		1245	NOTE 3				
MO-3013		1245	NOTE 3				
MO-3041		1885	NOTE 2				
MO-3045		1885	NOTE 2				
MO-3049		1885	NOTE 2				
MO-3052		1885	NOTE 2				
MO-3062	*	1245	1240				
MO-3064	*	1245	1240				
MO-3066	*	1245	1240				
MO-3068	*	1245	1240	NOTE 6			
MO-3080	**	1238	1050	124	-53	6211	1120
MO-3081		1239	NOTE 4				
MO-3082	**	1235	1050	10395	10963	8154	7169
MO-3083		1235	NOTE 5				

NOTES

- 1 * INDICATES DP TESTING & ** INDICATES DP TESTING WITH MOVATS EQUIPMENT ATTACHED.
- 2 DP TEST COULD NOT BE PERFORMED, VALVES ARE ELECTRICALLY LOCKED.
- 3 DP TESTING WAS NOT PERFORMED, SINCE THE VALVES ARE IDENTICAL TO THE REDUNDANT HPSI VALVES (MO-3062, 64, 66 & 68).
- 4 DP TESTING WAS NOT PERFORMED, SINCE THIS VALVE IS IDENTICAL MO-3080, WHICH WAS TESTED.
- 5 DP TESTING WAS NOT PERFORMED, SINCE THIS VALVE IS IDENTICAL MO-3082, WHICH WAS TESTED.
- 6 MOVATS DATA WAS NOT OBTAINED ON THIS VALVE DUE TO AN EQUIPMENT MALFUNCTION
- 7 <PL INDICATES THAT THE RUNNING LOAD IS LESS THAN THE REPORTED SPRING PACK PRELOAD.

ATTACHMENTS

- A. System Evaluations Determining Maximum Differential Pressure
- B. Differential Pressure Test Basis
- C. MOVATS - Switch Adjustment Policies And Justifications
- D. Palisades Methodology Document
- E. Palisades Long Term Operability Program