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ACCESSION NBR:8808300184 DOC.DATE: 88/08/15 NOTARIZED: YES DOCKET # FACIL:50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331 AUTH.NAME AUTHOR AFFILIATION ROTHERT,W.C. Iowa Electric Light & Power Co. RECIP.NAME RECIPIENT AFFILIATION MURLEY,T.E. Office of Nuclear Reactor Regulation, Director (Post 870411

SUBJECT: Responds to NRC Bullentin 85-003, Suppl 1 re motor-operated valve common mode failures during plant transients.

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#### Iowa Electric Light and Power Company

August 15, 1988

#### NG-88-2842

Duane Arnold Energy Center

Op. License No: DPR-49

Docket No: 50-331

Dr. Thomas E. Murley, Director Office of Nuclear Reactor Regulation U. S. Nuclear Regulatory Commission Attn: Document Control Desk Washington, DC 20555

Subject:

Reference:

Response to NRC Bulletin 85-03 Supplement 1: Motor Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings 1) IELP Letter, W. Rothert to A. Bert Davis, (NG-88-1757), "Transmittal of Response to IE Bulletin 85-03 Request for Additional Information (RAI) and IE Bulletin 85-03, Supplement 1." June 1, 1988.

2) BWR Owners' Group Report NEDC-31322, September 10, 1986.

3) BWR Owners' Group Report NEDC-31322, Supplement 1, July, 1988.

File: A-101a, A-107a

Dear Dr. Murley:

Bulletin 85-03, Supplement 1, requires that licensees review their programs under Bulletin BN 85-03 to ensure that certain safety-related valves in selected systems can overcome the maximum-expected differential pressure even if the valves are inadvertently mispositioned. Our preliminary response (Reference 1) stated that we are participants in the BWR Owners Group (BWROG) Committee that developed the methodology originally used to calculate the maximum-expected differential pressure (Reference 2) and that our plant-specific response to Supplement 1 would require us to delay our submittal pending a review of the BWROG revised calculational methodology (Reference 3).

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Dr. Thomas E. Murley August 15, 1988 NG-88-2842 Page Two

This supplemental response provides the revised maximum-expected differential pressures of selected valves calculated using the methodology of Reference 3 and contains the schedule for completion of required action items.

Please contact this office if you require further information.

IOWA ELECTRIC LIGHT AND POWER COMPANY

By William C. Rothert

Manager, Nuclear Division

Subscribed and sworn to before me on this LAR day of 1 <u>LUGUST</u>, 1988.

Notary Public in and for the State of Iowa

WCR/PMB/pjv+

cc: P. Bessette

- L. Liu
- L. Root

R. McGaughy

EILEEN M. BARBER

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J. R. Hall (NRC-NRR) A. Bert Davis (Region III) NRC Resident Office Commitment Control: Ref: 88026 Closes: 880146 880147

Attachment 1 to NG-88-2842 Page 1

### Information for Response to NRC IEB 85-03 , Supplement 1

References:	(1)	IE Bulletin 85-03, November 15, 1985
	(2)	BWR Owners Group Report NEDC-31322,
		Supplement 1, July 1988
	(3)	IELP Letter, W. Rothert to A. Davis.

(NG-88-0001) "Final Report Pursuant to IE Bulletin 85-03, January 15, 1988

Bulletin 85-03, Supplement 1, requests a written response that (a) provides the revised calculations of the maximum differential pressure (D/P) expected during opening and closing of valves for both normal and abnormal events including the assumption of inadvertently mispositioned valves and (b) contains a schedule for completion of the action items in Reference 1.

Response:

a. Iowa Electric Light and Power Company has considered selected values in the High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) systems in response to this Supplement. These values are identified in NEDC-31322 Supplement 1, "BWR Owners' Group Report On the Operational Design Basis of Selected and Safety-Related Motor Operated Values" (Reference 2).

The maximum expected D/P's during opening and closing have been recalculated for the selected valves based on the methodology developed in Reference 2. Differential pressures for all the valves covered by Bulletin 85-03 were provided in Table D of Reference 3 and are reported in Table D (Rev. 1) in this report with the following revisions:

The D/P's for valves MO-2300, MO-2311, MO-2405 and MO-2500 have been recalculated to reflect the possibility of inadvertent mispositioning. These valves are normally open and have been assumed to be mispositioned to the closed position. Therefore, only the maximum-expected D/Ps for the valve opening have been revised.

The differential pressure calculation for MO-2511, described in Reference 2, uses the same method as was utilized in our Final Report to IE Bulletin 85-03 (Reference 3). Therefore, recalculation of the maximum-expected D/P for MO-2511 is not required.

MO-2312, although not identified in Reference 2, has had its maximum-expected D/P recalculated. The low reactor pressure at which steam lines isolate, used in the differential pressure calculation, has a range of 50 to 100 psig. In order to achieve consistency with the other differential pressure calculations and a degree of conservatism, the differential pressure for MO-2312 was recalculated using a value of 50 psig, (instead of 100) for the low reactor pressure. The attached Table D (Rev. 1) reflects the revised D/P.

b. NRC Bulletin 85-03, Supplement 1, specified that operating plants which had completed their planned activities in response to the original bulletin have

until the completion of their next refueling outage to complete any additional activities resulting from the supplement. All required actions at DAEC will be completed by the end of the Cycle 9/10 refuel outage, currently scheduled to begin 29 September, 1988.

Attachment 1 to NG-88-2842 Page 3

## Final Report Pursuant to IE Bulletin 85-03\* (Rev. 1) Table D to IELP

## Valve Function and Maximum Expected DP

		MAXIMUM	EXPECTED
Valve	Valve Function	DIFFERENTIAL	PRESSURE
	Component	(PS)	(D)
ID	·	Opening	CLosing
MO-2202	HPCI Steam Supply Valve	1110	1110
MO-2238	HPCI Inboard Steam Line Isolation	1110	1110
MO-2239	HPCI Outboard Steam Line Isolation	1110	1110
MO-2247	HPCI Lube Oil Cooling Valve	45	47
MO-2290A	HPCI/RCIC Exhaust Vacuum Breaker Isolation	0	43
MO-2290B	HPCI/RCIC Exhaust Vacuum Breaker Isolation	0	43
MO-2300	HPCI Pump Suction From CST	37	22
MO-2311	HPCI Outboard Pump Discharge	1339	1316
MO-2312	HPCI Inboard Pump Discharge	1339	1316
MO-2316	HPCI Full Flow Test/Redundant Shutoff	700	700
MO-2318	HPCI Minimum Flow Bypass	1416	1429
MO-2321	HPCI Inboard Pump Suction From Torus	123	45
MO-2322	HPCI Outboard Pump Suction From Torus	123	45
<b>MO-</b> 2400	RCIC Inboard Steam Line Isolation	1110	1110
MO-2401	RCIC Outboard Steam Line Isolation	1110	1110
MO-2404	RCIC Steam Supply	1110	1110
MO-2405	RCIC Trip Throttle Valve	1110	1110
MO-2426	RCIC Lube Oil Cooling	1357	45
<b>MO-25</b> 00	RCIC Pump Suction From CST	37	23
MO-2510	RCIC Minimum Flow Bypass	1354	1428
MO-2511	RCIC Outboard Pump Discharge	1277	1312
MO-2512	RCIC Inboard Pump Discharge	1277	1312
MO-2516	RCIC Inboard Pump Suction From Torus	122	45
MO-2517	RCIC Outboard Pump Suction From Torus	122	45

\*Submitted with IELP Letter NG-88-0001 dated January 15, 1988.