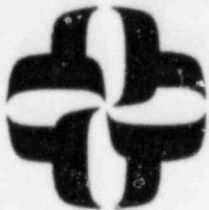


# CALCULATION/PROBLEM COVER SHEET



Calculation/Problem No: 1040-001-019  
 Title: Containment Isolation Valves 2.16  
 Client: Toledo Edison Company Project: Davis-Besse Unit 1  
 Job No: 1040-001-671 I & E Bulletin 79-01B  
Equipment Qualification

## Design Input/References:

Design Inputs are outlined in the Cover Report.

## Assumptions:

Assumptions are outlined in the Cover Report.

## Method:

Methods are outlined in the Cover Report.

## Remarks:

EDS Nuclear Report No. 02-1040-1076.

REV. NO.	REVISION	APPROVED	DATE
0	Original	Jeffrey S. Harvey	10-2-81
1	GENERAL MANUAL REVISIONS	NK Woodward	1/3/83
2	GENERAL MANUAL REVISIONS	NK Woodward	11/2/83

Facility: Davis-Pesse Unit 1  
Docket: 50-346

MASTER LIST  
HARSH ENVIRONMENT  
CONTAINMENT ISOLATION VALVES

Index No: 216M-001  
Rev.: 2

Prepared by: *N. Lewis*  
Checked by: *[Signature]*  
Date: *11/1/83*  
Date: *11/2/83*

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
216H-009	2	IMV0240A	Valve Motor Operator			
216H-010	2	IMV0240B	Valve Motor Operator			
216H-011	2	IMV0624B	Valve Motor Operator	Rm. 315		
216H-012	2	IMV1407A	Valve Motor Operator		Rm. 314	
216H-013	2	IMV1407B	Valve Motor Operator		Rm. 427	
216H-014	2	IMV1411A	Valve Motor Operator	Rm. 315		
216H-015	2	IMV1411B	Valve Motor Operator		Rm. 314	
216H-016	2	IMV1567A	Valve Motor Operator	Rm. 315		
216H-017	2	IMV1567B	Valve Motor Operator		Rm. 314	
216H-018	2	IMV20000	Valve Motor Operator	Rm. 315		
216H-019	2	IMV20010	Valve Motor Operator		Rm. 314	
216H-020	2	IMV20030	Valve Motor Operator		Rm. 303	
216H-021	2	IMV2012A	Valve Motor Operator		Rm. 427	
216H-022	2	IMV2012B	Valve Motor Operator		Rm. 314	
216H-023	2	IMV50700	Valve Motor Operator	Rm. 220		
216H-024	2	IMV50710	Valve Motor Operator		Rm. 236	
216H-025	2	IMV50720	Valve Motor Operator		Annulus	
216H-026	2	IMV50730	Valve Motor Operator		Annulus	
216H-027	2	IMV50740	Valve Motor Operator		Annulus	
216H-028	2	IMV50750	Valve Motor Operator		Annulus	
216H-029	2	IMV50760	Valve Motor Operator		Annulus	
216H-030	2	IMV50770	Valve Motor Operator		Annulus	
216H-031	2	IMV50780	Valve Motor Operator		Annulus	
216H-032	2	IMV50790	Valve Motor Operator		Annulus	
216H-033	2	IMVM002A	Valve Motor Operator		Annulus	
216H-034	2	ISV1542	Solenoid Valve	Rm. 214		
216H-035	2	ISV1544	Solenoid Valve		Rm. 314	
216H-036	2	ISV1545	Solenoid Valve		Rm. 303	
216H-037	2	ISV1719A	Solenoid Valve		Rm. 314	
216H-038	2	ISV1719B	Solenoid Valve	Rm. 220		
216H-039	2	ISV1773A	Solenoid Valve		Rm. 236	
216H-039	2	ISV1773A	Solenoid Valve	Rm. 220		
				Rm. 220		

Facility: Davis-Besse Unit 1  
Docket: 50-346

MASTER LIST  
HARSH ENVIRONMENT  
CONTAINMENT ISOLATION VALVES

Index No: 216M-002  
Rev.: 2

Prepared by: N. Lewis  
Checked by: H. J. J. J.

Date: 11/1/83  
Date: 11/1/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
216H-040	2	SV2010	Solenoid Valve			
216H-041	2	SV2011	Solenoid Valve			
216H-042	2	SV229B	Solenoid Valve		Rm. 314	
216H-043	2	SV232	Solenoid Valve		Rm. 314	
216H-044	2	SV235A	Solenoid Valve	Rm. 220		
216H-045	2	SV235B	Solenoid Valve		Rm. 236	
216H-045	2	SV235B	Solenoid Valve	Rm. 315	Rm. 314	
216H-046	2	SV236	Solenoid Valve	Rm. 315		
216H-047	2	SV5005	Solenoid Valve		Rm. 236	
216H-048	2	SV5006	Solenoid Valve		Rm. 601	
216H-049	2	SV5007	Solenoid Valve	Rm. 407		
216H-050	2	SV5008	Solenoid Valve	Rm. 410		
216H-051	2	SV6831A	Solenoid Valve			
216H-052	2	SV6831B	Solenoid Valve	Rm. 316	Rm. 427	
216H-053	2	SVMU03	Solenoid Valve		Rm. 208	
216H-054	2	SVMU38	Solenoid Valve		Rm. 208	
216H-054	2	SVMU38	Solenoid Valve		Rm. 208	
216H-055	2	SVMU66A	Solenoid Valve		Rm. 208	
216H-056	2	SVMU66B	Solenoid Valve		Rm. 208	
216H-057	2	SVMU66C	Solenoid Valve		Rm. 208	
216H-058	2	SVMU66D	Solenoid Valve		Rm. 208	
216H-059	2	IMV06110	Valve Motor Operator		Rm. 208	
216H-060	2	IMV0611A	Valve Motor Operator		Rm. 208	
216H-061	2	IMV06030	Valve Motor Operator		Rm. 208	
216H-062	2	IMV0603A	Valve Motor Operator		Rm. 236	
216H-063	2	IMVCF02A	Valve Motor Operator		Rm. 236	
216H-064	2	IMVCF02B	Valve Motor Operator	Rm. 217		
216H-065	2	IMVCF05A	Valve Motor Operator	Rm. 214		
216H-066	2	IMVCF05B	Valve Motor Operator	Rm. 217		
	2	BEL1A	Motor Control Center	Rm. 214		
	2	BEL1B	Motor Control Center		Rm. 209	See 2.21
	2	BEL1C	Motor Control Center		Rm. 304	See 2.21
					Rm. 304	See 2.21

Facility: Davis-Besse Unit 1  
Docket: 50-346

MASTER LIST  
HARSH ENVIRONMENT  
CONTAINMENT ISOLATION VALVES

Index No: 216M-003  
Rev.: 2

Prepared by: N. Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/3/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
	2	BF11A	Motor Control Center			
	2	CDE11B-1	Disconnect Switch Cabinet		Rm. 427	See 2.21
	2	CDE11B-2	Disconnect Switch Cabinet		Rm. 304	See 2.21
	2	CDE11C	Disconnect Switch Cabinet		Rm. 304	See 2.21
	2	CDF11A-1	Disconnect Switch Cabinet		Rm. 304	See 2.21
	2	CDF11A-2	Disconnect Switch Cabinet		Rm. 427	See 2.21
	2	CDYE2	Disconnect Switch Cabinet		Rm. 427	See 2.21
	2	CDYF2	Disconnect Switch Cabinet		Rm. 304	See 2.21
	2	EV0240B	Terminal Block Box		Rm. 427	See 2.21
	2	EV0624B	Terminal Block Box		Rm. 314	See 2.21
	2	EV1407B	Terminal Block Box		Rm. 427	See 2.21
	2	EV1411B	Terminal Block Box		Rm. 314	See 2.21
	2	EV1544	Terminal Block Box		Rm. 314	See 2.21
	2	EV1545	Terminal Block Box		Rm. 303	See 2.21
	2	EV1567B	Terminal Block Box		Rm. 314	See 2.21
	2	EV1719B	Terminal Block Box		Rm. 314	See 2.21
	2	EV20000	Terminal Block Box		Rm. 236	See 2.21
	2	EV20010	Terminal Block Box		Rm. 303	See 2.21
	2	EV20030	Terminal Block Box		Rm. 427	See 2.21
	2	EV2010	Terminal Block Box		Rm. 314	See 2.21
	2	EV2012B	Terminal Block Box		Rm. 314	See 2.21
	2	EV5005	Terminal Block Box		Rm. 236	See 2.21
	2	EV5008	Terminal Block Box		Rm. 601	See 2.21
	2	EV50700	Terminal Block Box		Rm. 427	See 2.21
	2	EV50730	Terminal Block Box		Rm. 500	See 2.21
	2	EV50750	Terminal Block Box		Rm. 500	See 2.21
	2	EV50780	Terminal Block Box		Rm. 501	See 2.21
	2	EV06030	Terminal Block Box		Rm. 501	See 2.21
	2	EV0603A	Terminal Block Box		Rm. 236	See 2.21
	2	EV607	Terminal Block Box		Rm. 236	See 2.21
	2	EV06110	Terminal Block Box		Rm. 314	See 2.21
	2	EV0611A	Terminal Block Box		Rm. 208	See 2.21
					Rm. 208	See 2.21



Facility: Davis-Besse Unit 1  
Docket: 59-346

MASTER LIST  
HARSH ENVIRONMENT  
CONTAINMENT ISOLATION VALVES

Index No: 216M-004  
Rev.: 2

Prepared by: *N. Lewis*  
Checked by: *J. A. Land*

Date: 11/1/83  
Date: 11/2/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
	2	EVMU03	Terminal Block Box			
	2	EVMU38	Terminal Block Box		Rm. 208	See 2.23
	2	EVMU66	Terminal Block Box		Rm. 208	See 2.21
	2	MV01060	Valve Motor Operator		Rm. 208	See 2.21
	2	MV0106A	Valve Motor Operator		Rm. 500	See 2.8
	2	MV01070	Valve Motor Operator		Rm. 501	See 2.8
	2	MV0107A	Valve Motor Operator		Rm. 501	See 2.8
	2	MV05990	Valve Motor Operator		Rm. 500	See 2.8
	2	MV06010	Valve Motor Operator		Rm. 314	See 2.4
	2	MV06080	Valve Motor Operator		Rm. 314	See 2.4
	2	MV06120	Valve Motor Operator		Rm. 303	See 2.4
	2	MV13660	Valve Motor Operator		Rm. 303	See 2.4
	2	MV13670	Valve Motor Operator		Rm. 314	See 2.17
	2	MV13680	Valve Motor Operator		Rm. 314	See 2.17
	2	MV15170	Valve Motor Operator		Rm. 314	See 2.17
	2	MV15180	Valve Motor Operator		Rm. 236	See 2.10
	2	MV15300	Valve Motor Operator		Rm. 236	See 2.10
	2	MV15310	Valve Motor Operator		Rm. 303	See 2.14
	2	MV5010A	Valve Motor Operator		Rm. 314	See 2.14
	2	MV5010B	Valve Motor Operator	Rm. 316		See 2.23
	2	MV5010C	Valve Motor Operator		Rm. 314	See 2.23
	2	MV5010D	Valve Motor Operator	Rm. 407		See 2.23
	2	MV5010E	Valve Motor Operator		Rm. 314	See 2.23
	2	MV5011A	Valve Motor Operator		Rm. 314	See 2.23
	2	MV5011B	Valve Motor Operator		Rm. 314	See 2.23
	2	MV5011D	Valve Motor Operator		Rm. 303	See 2.23
	2	MV5011E	Valve Motor Operator	Rm. 410		See 2.23
	2	MV50370	Valve Motor Operator	Rm. 315		See 2.23
	2	MV50380	Valve Motor Operator		Rm. 314	See 2.23
	2	MV50650	Valve Motor Operator		Rm. 236	See 2.15
	2	MV50900	Valve Motor Operator		Rm. 236	See 2.15
	2	MVDH01A	Valve Motor Operator		Rm. 208	See 2.15
					Rm. 314	See 2.15
					Rm. 238	See 2.10

Facility: Davis-Besse Unit 1  
Docket: 50-346

MASTER LIST  
HARSH ENVIRONMENT  
CONTAINMENT ISOLATION VALVES

Index No: 216M-005  
Rev.: 2

Prepared by: N Lewis  
Checked by: J. McQuinn

Date: 11/1/83  
Date: 11/2/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
	2	MVDH01B	Valve Motor Operator		Rm. 208	See 2.10
	2	MVDH110	Valve Motor Operator	Rm. 220		See 2.10
	2	MVDH120	Valve Motor Operator	Rm. 220		See 2.10
	2	MVHP02A	Valve Motor Operator		Rm. 236	See 2.11
	2	MVHP02B	Valve Motor Operator		Rm. 236	See 2.11
	2	MVHP02C	Valve Motor Operator		Rm. 208	See 2.11
	2	MVHP02D	Valve Motor Operator		Rm. 208	See 2.11
	2	MVMU59A	Valve Motor Operator			See 2.13
	2	MVMU59B	Valve Motor Operator	Rm. 214		See 2.13
	2	MVMU59C	Valve Motor Operator	Rm. 214		See 2.13
	2	MVMU59D	Valve Motor Operator	Rm. 214		See 2.13
	2	NV0624B	Push Button Switch	Rm. 214		See 2.13
	2	NV1542	Push Button Switch		Rm. 427	See 2.21
	2	NV1544	Push Button Switch		Rm. 314	See 2.21
	2	NV1545	Push Button Switch		Rm. 303	See 2.21
	2	NV1719B	Push Button Switch		Rm. 314	See 2.21
	2	NV20000	Push Button Switch		Rm. 236	See 2.21
	2	NV20010	Push Button Switch		Rm. 303	See 2.21
	2	NV20030	Push Button Switch		Rm. 427	See 2.21
	2	NV2010	Push Button Switch		Rm. 314	See 2.21
	2	NV2011	Push Button Switch		Rm. 314	See 2.21
	2	NV232	Push Button Switch		Rm. 314	See 2.21
	2	NV235A	Push Button Switch		Rm. 236	See 2.21
	2	NV236	Push Button Switch		Rm. 314	See 2.21
	2	NV5008	Push Button Switch		Rm. 236	See 2.21
	2	NV598	Push Button Switch		Rm. 427	See 2.21
	2	NV06030	Push Button Switch		Rm. 314	See 2.21
	2	NV0603A	Push Button Switch		Rm. 236	See 2.21
	2	NV607	Push Button Switch		Rm. 236	See 2.21
	2	NV06110	Push Button Switch		Rm. 314	See 2.21
	2	NV0611A	Push Button Switch		Rm. 208	See 2.21
	2	NV6831B	Push Button Switch		Rm. 208	See 2.21
					Rm. 208	See 2.21

Facility: Davis-Besse Unit 1  
Docket: 50-346

MASTER LIST  
HARSH ENVIRONMENT  
CONTAINMENT ISOLATION VALVES

Index No: 216M-006  
Rev.: 2

Prepared by: N. Lewis Date: 11/1/83  
Checked by: John Over Date: 11/2/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
	2	NVMU03	Push Button Switch			
	2	NVMU38	Push Button Switch		Rm. 208	See 2.21
	2	NVMU66A	Push Button Switch		Rm. 208	See 2.21
	2	NVMU66B	Push Button Switch		Rm. 208	See 2.21
	2	NVMU66C	Push Button Switch		Rm. 208	See 2.21
	2	NVMU66D	Push Button Switch		Rm. 208	See 2.21
	2	SV1001	Solenoid Valve		Rm. 208	See 2.21
	2	SV100A	Solenoid Valve		Rm. 602	See 2.8
	2	SV100B	Solenoid Valve		Rm. 602	See 2.8
	2	SV100C	Solenoid Valve		Rm. 602	See 2.8
	2	SV100D	Solenoid Valve		Rm. 602	See 2.8
	2	SV100E	Solenoid Valve		Rm. 602	See 2.8
	2	SV1011	Solenoid Valve		Rm. 602	See 2.8
	2	SV101A	Solenoid Valve		Rm. 601	See 2.8
	2	SV101B	Solenoid Valve		Rm. 601	See 2.8
	2	SV101C	Solenoid Valve		Rm. 601	See 2.8
	2	SV101D	Solenoid Valve		Rm. 601	See 2.8
	2	SV101E	Solenoid Valve		Rm. 601	See 2.8
	2	SV1356A	Solenoid Valve		Rm. 601	See 2.8
	2	SV1356B	Solenoid Valve		Rm. 314	See 2.17
	2	SV1357A	Solenoid Valve		Rm. 314	See 2.17
	2	SV1357B	Solenoid Valve		Rm. 314	See 2.17
	2	SV1358A	Solenoid Valve		Rm. 314	See 2.17
	2	SV1358B	Solenoid Valve		Rm. 314	See 2.17
	2	SV375	Solenoid Valve		Rm. 314	See 2.17
	2	SV394	Solenoid Valve		Rm. 602	See 2.8
	2	SV598	Solenoid Valve		Rm. 601	See 2.8
	2	SV607	Solenoid Valve		Rm. 314	See 2.8
	2	SVICS11A1	Solenoid Valve		Rm. 314	See 2.8
	2	SVICS11A2	Solenoid Valve		Rm. 602	See 2.8
	2	SVICS11B1	Solenoid Valve		Rm. 602	See 2.8
	2	SVICS11B2	Solenoid Valve		Rm. 601	See 2.8
	2	SVMU33	Solenoid Valve		Rm. 601	See 2.8
					Rm. 236	See 2.25

Facility: Davis-Besse Unit 1  
Docket: 50-346

MASTER LIST  
NON-HARSH ENVIRONMENT  
CONTAINMENT ISOLATION VALVES

Index No: 216M-007  
Rev.: 2

Prepared by: Dr. Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
	0	BE11E	Motor Control Center			
	1	BE12E	Motor Control Center		Rm. 402	
	0	BF11B	Motor Control Center		Rm. 100	
	1	C5721	Control Room Panel		Rm. 405	
	0	CDF11B	Disconnect Switch Cabinet		Rm. 505	
	0	EV0645B	Terminal Block Box		Rm. 405	
	0	EV1773B	Terminal Block Box		Rm. 402	
	0	EV20020	Terminal Block Box		Rm. 225	
	0	EV229A	Terminal Block Box		Rm. 402	
	0	MV0645B	Valve Motor Operator		Rm. 225	
	0	MV20020	Valve Motor Operator		Rm. 402	
	0	MV5011C	Valve Motor Operator		Rm. 402	
	0	MVDH9A	Valve Motor Operator		Rm. 402	
	0	MVDH9B	Valve Motor Operator		Rm. 225	
	0	NV1773B	Push Button Switch		Rm. 225	
	0	NV229A	Push Button Switch		Rm. 225	
	0	NV5005	Push Button Switch		Rm. 225	
	0	NV1541	Push Button Switch		Rm. 600	
	0	SV1541	Solenoid Valve		Rm. 221	
	0	SV1773B	Solenoid Valve		Rm. 221	
	0	SV229A	Solenoid Valve		Rm. 225	
	0	SV5005	Solenoid Valve		Rm. 225	
					Rm. 600	

Facility: Davis-Besse Unit 1  
Docket: 50-346

## MASTER LIST

Index No: 216M-008  
Rev.: 2

Prepared by: N. Lewis  
Checked by: J. McDonald

Date: 11/1/83

Date: 11/2/02

CONTAINMENT ISOLATION VALVES

[illegible]



Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by: N Lewis  
Checked by: [Signature]  
Date: 11/1/83  
Date: 11/2/83

Index No.: 216H-009  
Rev.: 2

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	1 Year	1.1 Years	F	M-26 V-24E, V-24G Note 1	Simultaneous Test	None
Plant ID No. MV0240A	Temperature (°F)	283.0	300.0 Note 2	H, X	M-26 V-24E, V-24G	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	52.0	84.7	G, X	M-26 V-24E, V-24G	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24E, V-24G	Simultaneous Test	None
Model Number: SMB-000-2 O/N: 375060D	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	M-26 V-24E, V-24G CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Operates PRZR Sample Isolation Valve	Radiation	$1.7 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	M-26 V-24E, V-24G	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Reactor Coolant Pressurizer Sample Valve	Submergence	572' -2"	566'	B	M-10	N/A	None
Location: Containment							
Flood Level Elev: 572' -2"							
Above Flood Level: Yes							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-009A  
Rev.: 2

Prepared by: N Lewis Date 11/1/83  
Checked by: [Signature] Date 11/2/83

NOTES

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 92 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 and 50 seconds, respectively. At 1 hour the conditions are 214.7°F and 32.2 psia; at 3 hours the conditions are 204°F and 29.46 psia; at 5 hours the conditions are 193.2°F and 27.08 psia; and at 24 hours the conditions are 143°F and 18.03 psia. The conditions return to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated LOCA. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference G, H, and X).

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.

Facility: Davis-Besse Unit 1  
Docket: 50-346

# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-010  
Rev.: 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

[Signature]

Date:

1/2/84

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	1 Year	1.1 Years	F	M-28 V-24G Note 1	Simultaneous Test	None
Plant ID No. MV0240B	Temperature (°F)	221.0	250.0	C-314	M-28 V-24G	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	19.76	39.7	C-314	M-28 V-24G	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-28 V-24G	Simultaneous Test	None
Model Number: SMB-000	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
O/N: 375060D	Radiation	1.0 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>7</sup> RADS	T	M-28 V-24G	Sequential Test	None
S/N: 190252	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Function: Pressurizer Sample Outlet Isolation Valve	Submergence	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Pressurizer Sample Outlet Isolation Valve							
Location: Auxiliary Bldg. Rm. 314							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-010A

Rev.: 2

Prepared by: N. Lewis

Date

11/1/83

NOTES

Checked by: J. McCann

Date

11/2/83

1. The test subjected the valve motor operator to a transient of 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1.5 hours. The valve motor operator was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .086 seconds. The temperature and pressure in Room 314 return to ambient conditions after 8 minutes.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained operable throughout the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference C-314)

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-011  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	1 Year	40 Years	F	M-28 V-24G	Simultaneous Test	None
Plant ID No. MV0624B	Temperature (°F)	N/A	N/A	Note 1	N/A	N/A	None
Component: Valve Motor Operator	Pressure (PSIA)	N/A	N/A	Note 1	N/A	N/A	None
Manufacturer: Limitorque	Relative Humidity (%)	N/A	N/A	Note 1	N/A	N/A	None
Model Number: SMB-000 O/N: 381748A S/N: 214576	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Containment Isolation Valve for Penetration 72	Radiation	$3.12 \times 10^5$ RADS	$2.0 \times 10^7$ RADS	T	M-28 V-24G	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Penetration 72 Containment Isolation Valve	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 427 Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							



Facility: Davis-Besse Unit 1

Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-011A

Rev.: 12

Prepared by: N Lewis Date 11/1/83  
Checked by: [Signature] Date 11/2/83

NOTES

- 
1. The only harsh environment seen is increased radiation due to recirculated fluids.

Facility: Davis-Besse Unit 1  
Docket: 50-346

# SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

Index No.: 216H-012  
Rev.: 2

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	25 Seconds	30 Days	K	M-26 V-24C V-24E Note 1	Simultaneous Test	None
Plant ID No. MV1407A	Temperature (°F)	283.0	300.0	H, X	M-26 V-24C V-24E	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	52.0	84.7	G, X	M-26 V-24C V-24E	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24C V-24E	Simultaneous Test	None
Model Number: SMB-00-10 O/N: 370756A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	M-26 V-24C V-24E CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Operates CCW Outlet Containment Isolation Valve	Radiation	$1.7 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	M-26 V-24C V-24E	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Component Cooling Water Outlet Isolation Valve	Submergence	572'-2"	593'-0"	B	M-9	N/A	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level Yes							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-012A  
Rev.: 2

Prepared by: N. Lewis  
Checked by: Strickland

Date: 11/1/83  
Date: 11/2/83

NOTES

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 92 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 and 50 seconds, respectively. At 1 hour the conditions are 214.7°F and 32.2 psia; at 3 hours the conditions are 204°F and 29.46 psia; at 5 hours the conditions are 193.2°F and 27.08 psia; and at 24 hours the conditions are 143°F and 18.03 psia. The conditions return to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated LOCA. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference G, H, and X).

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.

Facility: Davis-Besse Unit 1  
Docket: 50-346

# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-013  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/3/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	25 Seconds	30 Days	F	M-26 V-24E Note 1	Simultaneous Test	None
Plant ID No. MV1407B	Temperature (°F)	221.0	295.0	C-314	M-26 V-24E	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	19.76	84.7	C-314	M-26 V-24E	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24E	Simultaneous Test	None
Model Number: SMB-00-10 O/N: 370756A S/N: 191383	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Component Cooling Outlet Isolation Valve from Cmt.	Radiation	1.0 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>8</sup> RADS	T	M-26 V-24E	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Component Cooling Outlet Isolation Valve	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-013A  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

NOTES

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 9.2 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .086 seconds. The conditions in Room 314 return to ambient after 8 minutes.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated HELB. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference C-314)



Facility: Davis-Besse Unit 1  
Docket: 50-346

# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-014  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	25 Seconds	30 Days	K	M-26 V-24C, E Note 1	Simultaneous Test	None
Plant ID No. MV1411A	Temperature (°F)	283.0	300.0	H, X	M-26 V-24C, E	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	52.0	84.7	G, X	M-26 V-24C, E	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24C, E	Simultaneous Test	None
Model Number: SMB-00-10 O/N: 370756A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	M-26 V-24C, E CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Operates CCW Inlet Containment Isolation Valve	Radiation	1.7 x 10 <sup>7</sup> RADS	2.0 x 10 <sup>8</sup> RADS	CAL-44	M-26 V-24C, E	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Component Cooling Isolation Valve to Containment	Submergence	572'-2"	597'-0"	B	M-9	N/A	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: Yes							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-014A  
Rev.: 2

Prepared by: N Lewis  
Checked by: [Signature]

Date 11/1/83  
Date 11/2/83

NOTES

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 92 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 and 50 seconds, respectively. At 1 hour the conditions are 214.7°F and 32.2 psia; at 3 hours the conditions are 204°F and 29.46 psia; at 5 hours the conditions are 193.2°F and 27.08 psia; and at 24 hours the conditions are 143°F and 18.03 psia. The conditions return to ambient in 7 days.  
  
Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated LOCA. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference G, H, and X).
2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-015  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: J. J. Anderson Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	25 Seconds	30 Days	F	M-26 V-24C Note 1	Simultaneous Test	None
Plant ID No. MV1411B	Temperature (°F)	221.0	295.0	C-314	M-26 V-24C	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	19.76	84.7	C-314	M-26 V-24C	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24C	Simultaneous Test	None
Model Number: SMB-00-10 O/N: 370756A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Component Cooling Inlet Isolation Valve	Radiation	1.0 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>8</sup> RADS	T	M-26 V-24C	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Component Cooling Inlet Isolation Valve	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by: N. Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

NOTES

Index No.: 216H-015A  
Rev.: 2

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 92 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .086 seconds. The conditions in Room 314 return to ambient after 8 minutes.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated HELB. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference C-314)

Facility: Davis-Besse Unit 1  
Docket: 50-346

# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-016  
Rev.: 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

[Signature]

Date:

11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	35 Seconds	30 Days	K	M-26 V-24C, V-24E Note 1	Simultaneous Test	None
Plant ID No. MV1567A	Temperature (°F)	283.0	300.0	H, X	M-26 V-24C, V-24E	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	52.0	84.7	G, X	M-26 V-24C, V-24E	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24C, V-24E	Simultaneous Test	None
Model Number: SMB-00-10 O/N: 366321L	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	M-26 V-24C, V-24E CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Operates CCW Inlet CRD Isolation Valve	Radiation	1.7 x 10 <sup>8</sup> RADS	2.0 x 10 <sup>8</sup> RADS	CAL-44	M-26 V-24C, V-24E	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Component Cooling Inlet Isolation Valve to Control Rod Drive	Submergence	572' -2"	580'	B	M-9	N/A	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: Yes							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							



Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by: N Lewis  
Checked by: [Signature]

Date: 11/1/83  
Date: 11/2/83

NOTES

Index No.: 216H-016A  
Rev.: 2

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 92 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 and 50 seconds, respectively. At 1 hour the conditions are 214.7°F and 32.2 psia; at 3 hours the conditions are 204°F and 29.46 psia; at 5 hours the conditions are 193.2°F and 27.08 psia; and at 24 hours the conditions are 143°F and 18.03 psia. The conditions return to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated LOCA. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference G, H, and X).

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.

Facility: Davis-Besse Unit 1  
Docket: 50-346

# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-017  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	35 Seconds	30 Days	F	M-26 V-24C Note 1	Simultaneous Test	None
Plant ID No. MV1567B	Temperature (°F)	221.0	295.0	C-314	M-26 V-24C	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	19.76	84.7	C-314	M-26 V-24C	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24C	Simultaneous Test	None
Model Number: O/N: 366321L	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Component Cooling Inlet Valve to CRD	Radiation	1.0 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>8</sup> RADS	T	M-26 V-24C	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Component Cooling Inlet Valve to CRD	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by: N Lewis  
Checked by: J. H. Anderson

Date 11/1/83  
Date 11/2/83

NOTES

Index No.: 216H-017A  
Rev.: 2

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 92 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .086 seconds. The conditions in Room 314 return to ambient after 8 minutes.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated HELB. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference C-314)

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-018  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: M. J. Smith Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	1 Year	1.1 years	F	M-28 V-24C Note 1	Simultaneous Test	None
Plant ID No. MV20000	Temperature (°F)	218.0	250.0	C-303	M-28 V-24C	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	17.16	39.7	C-303	M-28 V-24C	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-28 V-24C	Simultaneous Test	None
Model Number: SMB-000 O/N: 381749A S/N: 214611	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Containment Isolation Valve for Penetration 71A	Radiation	1.16 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>7</sup> RADS	T	M-28 V-24C	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Penetration 71A Containment Isolation Valve	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 303 Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 16H-018A

Rev.: 2

Prepared by: N Lewis  
Checked by: E. Markham

Date 11/1/83  
Date 11/2/83

NOTES

1. The test subjected the valve motor operator to a transient of 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1.5 hours. The valve motor operator was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in Room 303 peaks at 218°F in 1.5 seconds. The pressure in Room 303 peaks at 17.16 psia in .038 seconds. The temperature and pressure in Room 303 return to ambient conditions after 19 minutes.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained operable throughout the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference C-303)

Facility: Davis-Besse Unit 1  
Docket: 50-346

# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-019  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	1 Year	40 Years	F	M-28 V-24C	Simultaneous Test	None
Plant ID No. MV20010	Temperature (°F)	N/A	N/A	Note 1	N/A	N/A	None
Component: Valve Motor Operator	Pressure (PSIA)	N/A	N/A	Note 1	N/A	N/A	None
Manufacturer: Limitorque	Relative Humidity (%)	N/A	N/A	Note 1	N/A	N/A	None
Model Number: O/N: 381749A S/N: 214612	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Containment Isolation Valve for Penetration 72A	Radiation	3.12 x 10 <sup>5</sup> RADS	2.0 x 10 <sup>7</sup> RADS	T	M-28 V-24C	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Penetration 72A Containment Isolation Valve	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 427							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							



Facility: Davis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-019A  
Rev.: 2

NOTES

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

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1. The only harsh environment seen is increased radiation due to recirculated fluids.

Facility: Davis-Besse Unit 1  
Docket: 50-346

## SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO.: 216H-020  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: STW Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	1 Year	1.1 Years	F	M-28 V-24G Note 1	Simultaneous Test	None
Plant ID No. MV20030	Temperature (°F)	221.0	250.0	C-314	M-28 V-24G	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	19.76	39.7	C-314	M-28 V-24G	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-28 V-24G	Simultaneous Test	None
Model Number: SMB-000 O/N: 392414B S/N: 230158	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Containment Isolation Valve for Penetration 74A	Radiation	$1.0 \times 10^6$ RADS	$2.0 \times 10^7$ RADS	T	M-28 V-24G	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Penetration 74A Containment Isolation Valve	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-020A  
Rev.: 2

NOTES

Prepared by: N Lewis Date: 11/1/83  
Checked by: H. J. Anderson Date: 11/2/83

1. The test subjected the valve motor operator to a transient of 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1.5 hours. The valve motor operator was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .086 seconds. The temperature and pressure in Room 314 return to ambient conditions after 8 minutes.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained operable throughout the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference C-314)

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-021  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: E McDonald Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	25 Seconds	30 Days	F	M-26 V-24E Note 1	Simultaneous Test	None
Plant ID No. MV2012A	Temperature (°F)	283.0	300.0 Note 2	H, X	M-26 V-24E	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	52.0	84.7	G, X	M-26 V-24E	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24E	Simultaneous Test	None
Model Number: SMB-00-10 O/N: 372235A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	M-26 V-24E CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Operates Containment Normal Sump Isolation Valve	Radiation	1.7 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>8</sup> RADS	CAL-44	M-26 V-24E	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Containment Normal Sump Isolation Line Valve	Submergence	572'-2"	578'-6"	B	M-7	N/A	None
Location: Containment							
Flood Level Elev: 562'-2"							
Above Flood Level: Yes							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-021A  
Rev.: 2

Prepared by: N Lewis

Date

11/1/83

NOTES

Checked by: [Signature]

Date

11/2/83

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 92 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 and 50 seconds, respectively. At 1 hour the conditions are 214.7°F and 32.2 psia; at 3 hours the conditions are 204°F and 29.46 psia; at 5 hours the conditions are 193.2°F and 27.08 psia; and at 24 hours the conditions are 143°F and 18.03 psia. The conditions return to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated LOCA. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference G, H, and X).

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.

Facility: Davis-Besse Unit 1  
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# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-022  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: J Macdonald Date: 11/2/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	25 Seconds	30 Days	K	M-26 V-24G Note 1	Simultaneous Test	None
Plant ID No. MV2012B	Temperature (°F)	198.0	295.0	C-236	M-26 V-24G	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	15.51	84.7	C-236	M-26 V-24G	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-26 V-24G	Simultaneous Test	None
Model Number: SMB-00-10 O/N: 372235A S/N: 180781	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Containment Normal Sump Isolation Valve	Radiation	1.97 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>8</sup> RADS	T	M-26 V-24G	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Containment Normal Sump Isolation Valve	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							



Facility: Davis-Besse Unit 1  
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-022A  
Rev.: 2

NOTES

Prepared by: N. Lewis Date 11/1/83  
Checked by: [Signature] Date 11/2/83

1. The test subjected the valve motor operator to a transient of 300°F and 84.7 psia for 32 minutes, followed by a cooldown to 120°F in 3.2 hours. The valve motor operator was then subjected to a second transient of 300°F and 44.7 psia, which was maintained for 92 hours, then a cooldown to 200°F and 24.7 psia, which was maintained for 24 days. The temperature in Room 236 peaks at 198°F in 19 seconds. The pressure in Room 236 peaks at 15.51 psia in 1.6 seconds. The conditions in Room 236 return to ambient after 6.7 minutes.

Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from a postulated HELB. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference C-236)

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# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-023  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: M. S. S. S. Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	30 Seconds	16 Days	K	M-28 Note 1	Simultaneous Test	None
Plant ID No. MV50700	Temperature (°F)	109.0	250.0	C-Annulus	M-28 V-24C	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	15.32	39.7	C-Annulus	M-28 V-24C	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-28 V-24C	Simultaneous Test	None
Model Number: SMB-000-5 O/N: 370756E S/N: 188841	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Containment Vacuum Relief Valve Penetration	Radiation	$1.7 \times 10^6$ RADS	$2.0 \times 10^7$ RADS	CAL-44	M-28 V-24C	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Containment Vacuum Relief Valve Penetration	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Annulus							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							

Facility: Davis-Besse Unit 1  
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SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by: N. Lewis Date 11/1/83  
Checked by: [Signature] Date 11/2/83

NOTES

Index No.: 216H-023A  
Rev.: 2

1. The test subjected the valve motor operator to a transient of 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1.5 hours. The valve motor operator was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in the containment annulus peaks at 109°F in 22 seconds. The pressure in the containment annulus peaks at 15.32 psia in 5 seconds. The temperature and pressure in the containment annulus return to ambient conditions in 6.7 minutes.

Based on the above, it is felt that the test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained functional during the test, it can be concluded that the valve motor operator would remain functional during and after exposure to the harsh environment which would result from the postulated HELB. (Reference C-Annulus)

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# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-024  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: [Signature] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	30 Seconds	16 Days	K	M-28 V-24C Note 1	Simultaneous Test	None
Plant ID No. MV50710	Temperature (°F)	109.0	250.0	C-7nnulus	M-28 V-24C	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	15.32	39.7	C-Annulus	M-28 V-24C	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-28 V-24C	Simultaneous Test	None
Model Number: SMB-000-5 O/N: 370756E S/N: 188842	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Operates Containment Vacuum Relief Valve Penetration	Radiation	1.7 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>7</sup> RADS	CAL-44	M-28 V-24C	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Service: Containment Vacuum Relief Valve Penetration	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Annulus							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input type="checkbox"/>							

Facility: Wis-Besse Unit 1  
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-024A  
Rev.: 2

Prepared by: W Lewis  
Checked by: W Lewis

Date 11/1/83  
Date 11/2/83

NOTES

1. The test subjected the valve motor operator to a transient of 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1.5 hours. The valve motor operator was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in the containment annulus peaks at 109°F in 22 seconds. The pressure in the containment annulus peaks at 15.32 psia in 5 seconds. The temperature and pressure in the containment annulus return to ambient conditions in 6.7 minutes.

Based on the above, it is felt that the test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained functional during the test, it can be concluded that the valve motor operator would remain functional during and after exposure to the harsh environment which would result from the postulated HELB. (Reference C-Annulus)

Facility: Davis-Besse Unit 1  
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 216H-025  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: DM Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation	Operating Time	30 Seconds	16 Days	K	M-28 V-24C Note 1	Simultaneous Test	None
Plant ID No. MV50720	Temperature (°F)	109.0	250.0	C-Annulus	M-28 V-24C	Simultaneous Test	None
Component: Valve Motor Operator	Pressure (PSIA)	15.32	39.7	C-Annulus	M-28 V-24C	Simultaneous Test	None
Manufacturer: Limitorque	Relative Humidity (%)	100.0	100.0	A	M-28 V-24C	Simultaneous Test	None
Model Number: SMB-000-5	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
O/N: 370756E	Radiation	1.7 x 10 <sup>6</sup> RADS	2.0 x 10 <sup>7</sup> RADS	CAL-44	M-28 V-24C	Sequential Test	None
S/N: 188843	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Function: Operates Containment Vacuum Relief Valve Penetration	Submergence	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Containment Vacuum Relief Valve							
Location: Annulus							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input type="checkbox"/>							