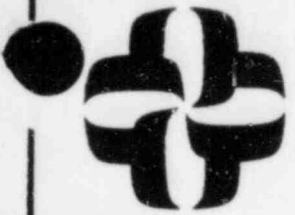


# CALCULATION/PROBLEM COVER SHEET



Calculation/Problem No: 1040-001-030  
 Title: TMI Action Items 3.2  
 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. Haverly	10-2-81
1	GENERAL MANUAL REVISIONS	Nkwoodward	1/3/83
2	GENERAL MANUAL REVISIONS	Nkwoodward	11/2/83

8312200297 831129  
 PDR ADCK 05000346  
 P PDR

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

MASTER LIST  
HARSH ENVIRONMENT  
TMI ACTION ITEMS

Index No: 302M-001  
Rev.: 2

Prepared by: N Lewis Date 11/1/83  
Checked by: Edmund D. Hall Date 11/24/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
302H-006	0	ZE4263	Accelerometer	Rel. Vlv. Rm.		
302H-006	1	ZE4263	Accelerometer	Rel. Vlv. Rm.		
302H-007	0	ZE4264	Accelerometer	Rel. Vlv. Rm.		
302H-007	1	ZE4264	Accelerometer	Rel. Vlv. Rm.		
302H-008	0	ZE4265	Accelerometer	Rel. Vlv. Rm.		
302H-008	1	ZE4265	Accelerometer	Rel. Vlv. Rm.		
302H-009	0	ZE4266	Accelerometer	Rel. Vlv. Rm.		
302H-009	1	ZE4266	Accelerometer	Rel. Vlv. Rm.		
302H-010	0	ZE4267	Accelerometer	Rel. Vlv. Rm.		
302H-010	1	ZE4267	Accelerometer	Rel. Vlv. Rm.		
302H-011	0	ZE4268	Accelerometer	Rel. Vlv. Rm.		
302H-011	1	ZE4268	Accelerometer	Rel. Vlv. Rm.		
302H-012	0	ZT4263	Charge Converter	Rel. Vlv. Rm.		
302H-012	1	ZT4263	Charge Converter	Rel. Vlv. Rm.		
302H-013	0	ZT4264	Charge Converter	Rel. Vlv. Rm.		
302H-013	1	ZT4264	Charge Converter	Rel. Vlv. Rm.		
302H-014	0	ZT4265	Charge Converter	Rel. Vlv. Rm.		
302H-014	1	ZT4265	Charge Converter	Rel. Vlv. Rm.		
302H-015	0	ZT4266	Charge Converter	Rel. Vlv. Rm.		
302H-015	1	ZT4266	Charge Converter	Rel. Vlv. Rm.		
302H-016	0	ZT4267	Charge Converter	Rel. Vlv. Rm.		
302H-016	1	ZT4267	Charge Converter	Rel. Vlv. Rm.		
302H-017	0	ZT4268	Charge Converter	Rel. Vlv. Rm.		
302H-017	1	ZT4268	Charge Converter	Rel. Vlv. Rm.		
302H-018	1	SV4608A	Solenoid Valve	Containment		
302H-019	1	SV4610A	Solenoid Valve	Containment		
302H-020	1	SV4608B	Solenoid Valve	Containment		
302H-021	1	SV4610B	Solenoid Valve	Containment		
302H-022	1	Deleted				
302H-023	1	Deleted				
302H-024	1	LE4617	Level Transmitter	Containment		

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

MASTER LIST  
HARSH ENVIRONMENT  
TMI ACTION ITEMS

Index No: 302M-062  
Rev.: 2

Prepared by: N Lewis Date 11/1/83  
Checked by: James O'Neil Date 11/2/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
302H-025	2	LE4618	Level Transmitter	Containment		
302H-026	2	LIT4617	Level Receiver		Rm. 427	
302H-027	2	Deleted				
302H-028	2	LT4594	Level Transmitter	Containment		
302H-029	2	LT4595	Level Transmitter	Containment		
302H-030	2	FT4630	Flow Transmitter		Rm. 303	
302H-031	2	FT4631	Flow Transmitter		Rm. 314	
302H-032	2	SV4632	Solenoid Valve	Containment		
302H-033	1	Deleted				
302H-034	1	Deleted				
302H-035	1	Deleted				
302H-036	1	Deleted				
302H-037	1	Deleted				
302H-038	1	Deleted				
302H-039	1	Deleted				
302H-040	1	Deleted				
302H-041	1	Deleted				
302H-042	2	RE4597AA	Radiation Element		Rm. 303	
302H-043	2	RE4597BA	Radiation Element		Rm. 314	
302H-044	2	RT4597AA	Radiation Transmitter		Rm. 304	
302H-045	2	RT4597AB	Radiation Transmitter		Rm. 304	
302H-046	2	RE4597AB	Radiation Element		Rm. 303	
302H-047	2	RE4597BB	Radiation Element		Rm. 314	
302H-048	2	RE4596A	Radiation Element	Containment		
302H-049	2	RE4596B	Radiation Element	Containment		
302H-050	2	Deleted				
302H-051	2	Deleted				
302H-052	2	PT4588	Pressure Transmitter		Rm. 426	
	2	BE16A	Motor Control Center		Rm. 515	See 2.21
	2	BF16B	Motor Control Center		Rm. 500	See 2.21
	2	BF11A	Motor Control Center		Rm. 427	See 2.21

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

MASTER LIST  
HARSH ENVIRONMENT  
TMI ACTION ITEMS

Index No: 302M-003  
Rev.: 2

Prepared by: N 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	
	2	AE5027	Gas Analyzer		Rm. 304	See 2.23
	2	AE5028	Gas Analyzer		Rm. 304	See 2.23
	2	CDF11A-1	Disconnect Switch Cabinet		Rm. 427	See 2.21
	2	JT3955	Terminal Block Box	Containment		See 2.21
	2	MV0239A	Valve Motor Operator	Containment		See 2.24
	2	PlC5S	Penetration Assembly	Containment	Annulus	See 2.21
	2	PlC5SI	Penetration Box (Connector)	Containment		See 2.21
	2	PlC5SX	Penetration Box (Terminal Block)			See 2.21
	2	PlL1LI	Penetration Box (Connector)	Containment		See 2.21
	2	PlL1LX	Penetration Box (Terminal Block)		Rm. 303	See 2.21
	2	PlL1L	Penetration Assembly	Containment	Annulus	See 2.21
	2	PlP3B	Penetration Assembly	Containment	Annulus	See 2.21
	2	PlP3BI	Penetration Box (Connector)	Containment		See 2.21
	2	PlP3BX	Penetration Box (Terminal Block)		Rm. 303	See 2.21
	2	P2C5C	Penetration Assembly	Containment	Annulus	See 2.21
	2	P2C5CI	Penetration Box (Connector)	Containment		See 2.21
	2	P2C5CX	Penetration Box (Terminal Block)			See 2.21
	2	P2C5G	Penetration Assembly	Containment	Annulus	See 2.21
	2	P2C5GI	Penetration Box (Connector)	Containment		See 2.21
	2	P2C5GX	Penetration Box (Terminal Block)		Rm. 427	See 2.21
	2	P2L4G	Penetration Assembly	Containment	Annulus	See 2.21
	2	P2L4GI	Penetration Box (Connector)	Containment		See 2.21
	2	P2L4GX	Penetration Box (Terminal Block)		Rm. 427	See 2.21
	2	P2P5F	Penetration Assembly	Containment	Annulus	See 2.21
	2	P2P5FI	Penetration Box (Connector)	Containment		See 2.21
	2	P2P5FX	Penetration Box (Terminal Block)		Rm. 427	See 2.21
	2	RC3706	Relay Cabinet		Rm. 304	See 2.21



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

MASTER LIST  
NON-HARSH ENVIRONMENT  
TMI ACTION ITEMS

Index No: 302M-004

Rev.: 2

Prepared by: N Lewis Date 11/1/83  
Checked by: TH MacDonell Date 11/4/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
	1	BE16B	Motor Control Center		Rm. 402	
	1	BF16A	Motor Control Center		Rm. 428	
	1	CI70E	Control Panel		Rm. 106A	
	1	C5716	Engineering Safety Features Panel		Rm. 505	
	1	C5717	Engineering Safety Features Panel		Rm. 505	
	1	C5755A	Post-Accident Monitoring Panel		Rm. 505	
	1	C5755C	Safety Features Actuation Panel		Rm. 505	
	1	C5755E	Reactor Protector Panel		Rm. 505	
	1	C5755G	Control Room Panel		Rm. 505	
	1	C5756C	Safety Features Actuation Panel		Rm. 505	
	1	C5756E	Reactor Protector Panel		Rm. 505	
	1	C5759B	Instrument Cabinet		Rm. 505	
	1	C5762C	Safety Features Actuation Panel		Rm. 505	
	1	C5762E	Reactor Protector Panel		Rm. 505	
	1	C5763A	Control Room Panel		Rm. 505	
	1	C5763B	Post-Accident Monitoring Panel		Rm. 505	
	1	C5763C	Safety Features Actuation Panel		Rm. 505	
	1	C5763E	Reactor Protector Panel		Rm. 505	
	1	C5765A	Control Room Panel		Rm. 505	
	1	C5765B	Control Room Panel		Rm. 505	
	1	C5765C	Control Room Panel		Rm. 505	
	1	C5765D	Control Room Panel		Rm. 505	
	1	C5798	Control Cabinet		Rm. 505	
	1	C5799	Control Cabinet		Rm. 505	
	1	D1P	125V DC Dist. Panel		Rm. 429	
	1	D2P	125V DC Dist. Panel		Rm. 428	
	1	LIT4618	Level Receiver		Rm. 402	
	1	N/A	Plant Safety Grade Final ARTS System		Later	
	1	PT4587	Pressure Transmitter		Rm. 404	
	1	RC4606	Relay Cabinet		Rm. 428	

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-024  
 Rev.: 2

Prepared by: [Signature] Date: 11/1/82  
 Checked by: [Signature] Date: 11/2/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	U	E-24	Sequential Test	None
Plant ID No. LE4617	Temperature	283.0	380°F	H, X	E-24	Sequential Test	None
Component: Level Transmitter	(°F)						
Manufacturer: Delaval	Pressure (PSIA)	52.0	92 psia	G, X	E-24	Sequential Test	None
Model Number: 323	Relative Humidity	100.0	100%	A	E-24	Sequential Test	None
Function: Monitors Containment Sump Level	(%)						
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 0.28 Molar	A	E-24	Sequential Test	None
Service: Containment N.R. Sump Level							
Location: Containment	Radiation	$1.7 \times 10^7$ RADS	$1.16 \times 10^8$ Rads	CAL-44	E-24	Sequential Test	None
Flood Level Elev: 572'-2"							
Above Flood Level: No	Aging	40 Years	39.6 Years Note 3	I	E-24	Sequential Test	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	572"-2"	Note 2	B	Note 2	Note 2	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-024A  
Rev.: 2

NOTES

Prepared by: J. Linn Date: 11/1/81  
Checked by: Edward Linn Date: 11/2/83

1. An activation energy of 0.78eV was used and the aging test parameter were obtained from E-24 (Wyle Lab Test Report, Section IV.).
2. The only part of the transmitter which is submerged is the vertical guide upon which rides the float. The junction box is above the flood level and would only see a mist environment, not submergence. A LOCA/MSLB test (E-24) has been performed on the transmitter and it is qualified. Therefore, since submergence of the guide is integral to its function and since it would not adversely affect the signal from the transmitter, it is felt that a submergence test is not required for this junction box.
3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to ensure that associated components will maintain functional operability in harsh environments.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-025  
Rev.: 2

Prepared by: Albina Date: 11/1/87  
Checked by: SP. [Signature] Date: 11/2/87

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 year	U	E-24	Sequential Test	None
Plant ID No. LE4618	Temperature (°F)	283.0	380°F	H, X	E-24	Sequential Test	None
Component: Level Transmitter	Pressure (PSIA)	52.0	92 psia	G, X	E-24	Sequential Test	None
Manufacturer: Delaval	Relative Humidity (%)	100.0	100%	A	E-24	Sequential Test	None
Model Number: 323	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 0.28 Molar	A	E-24	Sequential Test	None
Function: Monitors Containment Sump Level	Radiation	$1.7 \times 10^7$ RADS	$1.16 \times 10^8$ RADS	CAL-44	E-24	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	39.6 years Note 3	I	E-24	Sequential Test	None
Service: Containment N.R. Sump Level	Submergence	572"-2"	Note 2	B	Note 2	Note 1	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
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.: 302H-025A  
Rev.: 2

NOTES

Prepared by: *J. J. [Signature]* Date 11/1/92  
Checked by: *[Signature]* Date 11/1/92

1. An activation energy of 0.78eV was used and the aging test parameter were obtained from E-24 (Wyle Lab Test Report, Section IV.).
2. The only part of the transmitter which is submerged is the vertical guide upon which rides the float. The junction box is above the flood level and would only see a mist environment, not submergence. A LOCA/MSLB test (E-24) has been performed on the transmitter and it is qualified. Therefore, since submergence of the guide is integral to its function and since it would not adversely affect the signal from the transmitter, it is felt that a submergence test is not required for this junction box.
3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to ensure that associated components will maintain functional operability in harsh environments.

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

MASTER LIST  
NON-HARSH ENVIRONMENT  
TMI ACTION ITEMS

Index No: 302M-005  
Rev.: 2

Prepared by: N Lewis Date 11/1/87  
Checked by: [Signature] Date 11/4/87

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
	1	RE2024	Radiation Element		Turb. Bldg.	
	1	RE2025	Radiation Element		Turb. Bldg.	
	0	RE2387	Radiation Monitor		Rm. 407	
	0	RE2389	Radiation Monitor		Rm. 410	
	1	RE4598AA	Radiation Element		Turb. Bldg.	
	1	RE4598AB	Radiation Element		Turb. Bldg.	
	1	RE4598BA	Radiation Element		Turb. Bldg.	
	1	RE4598BB	Radiation Element		Turb. Bldg.	
	1	RT2387	Readout Module		Rm. 404	See 2.23
	0	RT2389	Readout Module		Rm. 404	
	1	RT4597BA	Radiation Transmitter		Rm. 310	
	1	RT4597BB	Radiation Transmitter		Rm. 310	
	1	RT4598AA	Radiation Transmitter		Rm. 603	
	1	RT4598AB	Radiation Transmitter		Rm. 603	
	1	RT4598BA	Radiation Transmitter		Rm. 603	
	1	RT4598BB	Radiation Transmitter		Rm. 603	
	1	TDI4950	Temperature Indicator		Rm. 505	
	1	TDI4951	Temperature Indicator		Rm. 505	
	1	Y1A	120V AC Dist. Panel		Rm. 429	
	1	Y2A	120V AC Dist. Panel		Rm. 428	



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-006  
Rev.: 0

Prepared by: H. V. Belland Date: 9.23.81  
Checked by: Kenneth D. Morley Date: 9/23/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification	Method	
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZE4263	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Accelerometer	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: Endevco	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 2273A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: PORV Flow Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: PORV Position Indication	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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. 302H-006A  
Rev.: 0

NOTES

Prepared by: W. V. Ballanels Date: 10-1-81  
Checked by: Kenneth J. Moody Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-006  
Rev.: 1

Prepared by: Jonian Gupper Date: 12-16-82  
Checked by: Paul W. Lytle Date: 12-17-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZE4263	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Accelerometer	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 2273A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: PORV Flow Detection	Radiation	$1.7 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-006A  
Rev.: 1

NOTES

Prepared by: Susan Rayburn Date 12-16-82  
Checked by: Paul W. Hughes Date 12-17-82

1. The test, which lasted 33 days, subjected the accelerometer and associated cabling to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the accelerometer to a more severe environment than that which would result from the postulated LOCA. Since the accelerometer remained functional throughout the test and subsequent to the test, it can be concluded that the accelerometer would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

2. The test subjected the accelerometers to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the accelerometer to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
4. One year operating time is used as a conservative maximum specification.



Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET

Index 302H-007A

Docket: 50-346

Rev.: 0

NOTES

Prepared by: W. J. Bellandi Date: 10.1.81.

Checked by: Kenneth D. Hardy Date: 10/1/81

- 
1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
  2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-007  
Rev.: 1

Prepared by: Spencer C. Gaffney Date: 11-4-82  
Checked by: Gaul W. Liphilus Date: 12-17-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZS4264	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Accelerometer	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 2273A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: PORV Flow Detection	Radiation	$1.7 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-007A  
Rev.: 1

NOTES

Prepared by: Sonia C. Gargano Date 11-4-82  
Checked by: David W. Suprenant Date 12-17-82

1. The test, which lasted 33 days, subjected the accelerometer and associated cabling to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the accelerometer to a more severe environment than that which would result from the postulated LOCA. Since the accelerometer remained functional throughout the test and subsequent to the test, it can be concluded that the accelerometer would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

2. The test subjected the accelerometers to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the accelerometer to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
4. One year operating time is used as a conservative maximum specification.

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

## SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-008

Rev.: 0

Prepared by: W. V. Bellamie Date: 2/23/81  
Checked by: Kenneth D. Moody Date: 7/23/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZE4265	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Accelerometer	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: Endevco	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 2273A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: Flow Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: Pressurizer Safety Valve Discharge	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-008A

Rev.: 0

NOTES

Prepared by: W.V. Belland Date: 10.1.81.  
Checked by: Kenneth D. Morley Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-008A  
Rev.: 1

NOTES

Prepared by: Sonia C. [signature] Date 11-4-82  
Checked by: Gaul W. [signature] Date 12-11-82

1. The test, which lasted 33 days, subjected the accelerometer and associated cabling to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the accelerometer to a more severe environment than that which would result from the postulated LOCA. Since the accelerometer remained functional throughout the test and subsequent to the test, it can be concluded that the accelerometer would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

2. The test subjected the accelerometers to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the accelerometer to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
4. One year operating time is used as a conservative maximum specification.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-009  
Rev.: 0

Prepared by: W. V. Bellandi Date: 9.23.81  
Checked by: Renneth D. Moody Date: 9/23/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZE4266	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Accelerometer	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: Endevco	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 2273B	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: Flow Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: Pressurizer Safety Valve Discharge	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-009A

Docket: 50-346

Rev.: 0

NOTES

Prepared by: W.V. Belland Date: 10.1.81.

Checked by: Kenneth D. Moody Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-009  
Rev.: 1

Prepared by: Janis Campbell Date: 11-4-82  
Checked by: Paul W. Stephens Date: 12-17-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZE4266	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Accelerometer	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 2273A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: Pzr. Safety Valve	Radiation	$3.87 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5 V-38A ROC-38A	N/A	None
Location: Containment Relief Valve Room							
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  
Socket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-009A  
Rev.: 1

NOTES

Prepared by: Sonia Cyprian Date 11-4-82  
Checked by: Paul W. Hoffman Date 12-15-82

1. The test, which lasted 33 days, subjected the accelerometer and associated cabling to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the accelerometer to a more severe environment than that which would result from the postulated LOCA. Since the accelerometer remained functional throughout the test and subsequent to the test, it can be concluded that the accelerometer would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

2. The test subjected the accelerometers to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the accelerometer to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
4. One year operating time is used as a conservative maximum specification.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-010  
Rev.: 0

Prepared by: W.V. Belland Date: 9-23-01  
Checked by: Kenneth D. Hardy Date: 9/23/01

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZE4267	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Accelerometer	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: Endevco	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 2273B	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: Flow Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: Pressurizer Safety Valve Position Indication	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-010A

Docket: 50-346

Rev.: 0

NOTES

Prepared by: W.V. Belland Date: 10-1-81  
Checked by: Robert L. Moody Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-010  
Rev.: 1

Prepared by: Joyia Carpenter Date: 11-4-82  
Checked by: Paul W. Lytle Date: 12-15-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZE4267	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Accelerometer	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 2273A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: Pzr. Safety Valve Flow Detection	Radiation	3.87 x 10 <sup>7</sup> RADS	2.0 x 10 <sup>8</sup> RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5 V-38A ROC-38A	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-010A  
Rev.: 1

NOTES

Prepared by: Sonia Cayuso Date 11-4-82  
Checked by: David W. Lytle Date 12-15-82

1. The test, which lasted 33 days, subjected the accelerometer and associated cabling to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the accelerometer to a more severe environment than that which would result from the postulated LOCA. Since the accelerometer remained functional throughout the test and subsequent to the test, it can be concluded that the accelerometer would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

2. The test subjected the accelerometers to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the accelerometer to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
4. One year operating time is used as a conservative maximum specification.

Rev.: 0

Prepared by: W. V. Bellows Date: 9-23-81  
Checked by: Ronald D. Hardy Date: 9/23/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZE4268	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Accelerometer							
Manufacturer: Endevco	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Model Number: 2273B	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Function: Flow Detection							
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Service: PRZR Safety Position Indication							
Location: Containment Relief Valve Room	Radiation	1.0 x 10 <sup>8</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Flood Level Elev: 572'-2"	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Above Flood Level: Yes							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Cold Shutdown <input type="checkbox"/>							

Facility: Davis-Besse Unit 1

Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-011A

Rev.: 0

NOTES

Prepared by: W. J. Bellandi Date: 10.1.81  
Checked by: Kenneth D. Moody Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-011  
Rev.: 1

Prepared by: Sanja (Aysa) [Signature] Date: 11-4-82  
Checked by: Clare W. Lypchik Date: 12-15-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZE4268	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Accelerometer	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 2273A	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: Pzr. Safety Valve Flow Detection	Radiation	3.87 x 10 <sup>7</sup> RADS	2.0 x 10 <sup>8</sup> RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5 V-38A ROC-38A	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-011A

Rev.: 1

NOTES

Prepared by: Sonia Campos Date 11-4-82  
Checked by: Paul W. Lytle Date 12-15-82

1. The test, which lasted 33 days, subjected the accelerometer and associated cabling to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the accelerometer to a more severe environment than that which would result from the postulated LOCA. Since the accelerometer remained functional throughout the test and subsequent to the test, it can be concluded that the accelerometer would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

2. The test subjected the accelerometers to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the accelerometer to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
4. One year operating time is used as a conservative maximum specification.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-012  
Rev.: 0

Prepared by: W. V. Bellanich Date: 9.23.81  
Checked by: Kenneth D. Moody Date: 9/23/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZT4263	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Charge Converter	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: TEC	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 500	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: PORV Flow Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: PORV Position Indication	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-P12A

Rev.: 0

NOTES

Prepared by: N.V. Bellamy Date: 10.1.81

Checked by: Kenneth D. Nardy Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-012  
Rev.: 1

Prepared by: Scua Ceylan Date: 11-4-82  
Checked by: Paul W. Dufresne Date: 12-15-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZT4263	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Charge Converter	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 504	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: PORV Flow Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	2.22 x 10 <sup>8</sup> RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5 ROC-38A	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  
Socket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-012A  
Rev.: 1

NOTES

Prepared by: Sonia Cuyper Date 11-4-82  
Checked by: Paul W. Hughes Date 12-15-82

- The test, which lasted 33 days, subjected the charge converter and associated transient shield to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the charge converter to a more severe environment than that which would result from the postulated LOCA. Since the charge converter remained functional throughout the test and subsequent to the test, it can be concluded that the charge converter would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

- The test subjected the charge converter to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the charge converter to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

- Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
- One year operating time is used as a conservative maximum specification.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-013  
Rev.: 0

Prepared by: M. V. Bellardi Date: 2.23.81  
Checked by: Kenneth D. Moody Date: 9/22/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZT4264	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Charge Converter	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: TEC	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 500	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: PORV Flow Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: PORV Position Indication	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-013A  
Rev.: 0

Prepared by: W.V. Belland Date: 10.1.81  
Checked by: Kenneth D. Moody Date: 10/1/81

NOTES

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.





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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-013A  
Rev.: 1

NOTES

Prepared by: Sonia Campbell Date 11-4-82  
Checked by: Paul D. Sigler Date 12-15-82

The test, which lasted 33 days, subjected the charge converter and associated transient shield to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the charge converter to a more severe environment than that which would result from the postulated LOCA. Since the charge converter remained functional throughout the test and subsequent to the test, it can be concluded that the charge converter would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

The test subjected the charge converter to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the charge converter to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.

One year operating time is used as a conservative maximum specification.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-014  
Rev.: 0

Prepared by: W. V. Bellande Date: 2-23-01  
Checked by: Kenneth O. Moody Date: 9/23/01

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specificatio..	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZT4265	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Charge Converter	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: TEC	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 500	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: Flow Transmitter	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: Pressurizer Safety Valve Position	Submergence	5.2'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-014A

Rev.: 0

NOTES

Prepared by: W.V. Belland Date: 10/1/81  
Checked by: Kenneth D. Moody Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-014  
Rev.: 1

Prepared by: Erica Campbell Date: 11-4-82  
Checked by: Paul W. Hughes Date: 12-15-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZT4265	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Charge Converter	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 504	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: Pzr. Safety Valve Flow Detection	Radiation	$1.7 \times 10^7$ RADS	$2.22 \times 10^8$ RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5 ROC-38A	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  
Socket: 50-346

# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-014A  
Rev.: 1

## NOTES

Prepared by: Sonia Carpage Date 11-4-82  
Checked by: Paul W. Lipinski Date 12-15-82

1. The test, which lasted 33 days, subjected the charge converter and associated transient shield to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the charge converter to a more severe environment than that which would result from the postulated LOCA. Since the charge converter remained functional throughout the test and subsequent to the test, it can be concluded that the charge converter would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

2. The test subjected the charge converter to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the charge converter to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
4. One year operating time is used as a conservative maximum specification.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-015  
Rev.: 0

Prepared by: W.V. Bellamly Date: 9.23.81  
Checked by: Kenneth D. Moody Date: 9/23/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZT4266	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Charge Converter	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: TEC	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 500	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: Flow Transmitter	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: Pressurizer Safety Valve Position	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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. 302H-015A  
Rev.: 0

NOTES

Prepared by: W. V. Belland Date: 10/1/81  
Checked by: Kenneth D. Hardy Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO.: 302H-015  
Rev.: 1

Prepared by: Janis Couper Date: 11-4-82  
Checked by: Paul W. Lyndes Date: 12-15-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZT4266	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Charge Converter	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 504	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: Pzr. Safety Valve Flow Detection	Radiation	$1.7 \times 10^7$ RADS	$2.22 \times 10^8$ RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5 ROC-38A	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  
Socket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-015A

Rev.: 1

NOTES

Prepared by: Samia Ruyang Date 11-4-82  
Checked by: Paul W. Zepke Date 12-15-82

- The test, which lasted 33 days, subjected the charge converter and associated transient shield to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the charge converter to a more severe environment than that which would result from the postulated LOCA. Since the charge converter remained functional throughout the test and subsequent to the test, it can be concluded that the charge converter would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

- The test subjected the charge converter to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the charge converter to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

- Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
- One year operating time is used as a conservative maximum specification.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-016  
Rev.: 0

Prepared by: W. V. Billings Date: 2/22/86  
Checked by: Kenneth O. Mandy Date: 9/23/91

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZT4267	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Charge Converter	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: TEC	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 500	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: Flow Transmitter	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: Pressurizer Safety Valve Position	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-016A

Rev.: 0

NOTES

Prepared by: N.V. Belland Date: 10-1-81

Checked by: Renneth D. Moody Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-016  
Rev.: 1

Prepared by: Teria Cooper Date: 11-4-82  
Checked by: Paul W. Spitzer Date: 12-17-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZT4267	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Charge Converter	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 504	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: Pzr. Safety Valve Flow Detection	Radiation	$1.7 \times 10^7$ RADS	$2.22 \times 10^8$ RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	5.4 Years Note 3	I	J-31 Note 3	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5 ROC-38A	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  
Ticket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-016A  
Rev.: 1

NOTES

Prepared by: Sara Cuyper Date 11-4-82  
Checked by: Paul W. Lipke Date 12-17-82

- The test, which lasted 33 days, subjected the charge converter and associated transient shield to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the charge converter to a more severe environment than that which would result from the postulated LOCA. Since the charge converter remained functional throughout the test and subsequent to the test, it can be concluded that the charge converter would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

- The test subjected the charge converter to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the charge converter to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

- Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
- One year operating time is used as a conservative maximum specification.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-017  
Rev.: 0

Prepared by: N.V. Belland Date: 9-23-81  
Checked by: Kenneth D. Moody Date: 9/27/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	Note 1	U	N/A	N/A	Note 2
Plant ID No. ZT4268	Temperature (°F)	283.0	Note 1	H, X	N/A	N/A	Note 2
Component: Charge Converter	Pressure (PSIA)	52.0	Note 1	G, X	N/A	N/A	Note 2
Manufacturer: TEC	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Model Number: 500	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Function: Flow Transmitter	Radiation	1.7 x 10 <sup>7</sup> RADS	Note 1	CAL-44	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Service: Pressurizer Safety Valve Position	Submergence	572'-2"	636'-0"	B	M-32	N/A	None
Location: Containment Relief Valve Room							
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.: 302H-017A  
Rev.: 0

NOTES

Prepared by: W.V. Belland Date: 10-1-81  
Checked by: Kenneth D. Hooty Date: 10/1/81

1. The valve flow monitoring system is composed of charge converters, accelerometers, and associated wiring, cabling, and connectors. Its purpose is to monitor flow past the pilot-operated relief valve and the pressurizer safety valves. These valves provide overpressurization protection for the primary system if heat removal capability is lost. The harsh environment seen by the VFMS is due to a postulated LOCA. The relief valves would not be required to relieve primary system pressure as a result of the LOCA since an overpressurization transient would not occur, thereby precluding the use of the VFMS. The VFMS would not be used to mitigate the postulated LOCA; therefore, failure of this component would not impact safety-related functions or mislead the operator.
2. Environmental testing of the valve flow monitoring system is presently being conducted. Recommendations from the manufacturer, based upon this testing, are forthcoming. This component is scheduled for modification or replacement during the first refueling outage subsequent to component on-site availability.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-017  
Rev.: 1

Prepared by: Sonia B. Papp Date: 11-4-82  
Checked by: Paul D. Lytle Date: 12-17-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 4	J-31 Note 1	Simultaneous Test	None
Plant ID No. ZT4268	Temperature (°F)	283.0	510.0	H, X	J-31	Simultaneous Test	None
Component: Charge Converter	Pressure (PSIA)	52.0	99.7	G, X	J-31	Simultaneous Test	None
Manufacturer: TEC	Relative Humidity (%)	100.0	100.0	A	J-31	Simultaneous Test	None
Model Number: 504	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-31 Note 2	Simultaneous Test	None
Function: Pzr. Safety Valve Flow Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	2.22 x 10 <sup>8</sup> RADS	CAL-44	J-31	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Ageing	40 Years	5.4 Years Note 3	I	J-31 CAL-53	Sequential Test, Analysis	None
Service: Valve Flow Monitoring System	Submergence	572'-2"	636"-0"	B	M-5 ROC-38A	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.: 302H-017A  
Rev.: 1

NOTES

Prepared by: Sonia Casper Date 11-4-82  
Checked by: James W. Lybster Date 12-17-82

1. The test, which lasted 33 days, subjected the charge converter and associated transient shield to two transients. The first transient reached a maximum of 510°F and 99.7 psia and lasted for 400 seconds. The second transient reached a maximum of 510°F and 99.7 psia and lasted for 30 hours. The temperature and pressure were then maintained at 170°F and 34.7 psia for the rest of the test. The temperature in containment peaks at 282°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. The conditions in containment return to ambient after 7 days.

Based on this information, it can be concluded that the test subjected the charge converter to a more severe environment than that which would result from the postulated LOCA. Since the charge converter remained functional throughout the test and subsequent to the test, it can be concluded that the charge converter would remain functional during and after exposure to the environment that would result from the postulated LOCA (Reference G, H, X).

2. The test subjected the charge converter to 60 minutes of spray at a pH of 4.5 and a concentration of 13,000 to 14,000 ppm, followed by a spray of higher pH (due to the addition of sodium phosphate), which was continued until the end of the test period, 32 days, 22 hours. The concentration and pH of boric acid at Davis-Besse is initially approximately 5.0. Upon recirculation, the pH is 7.0 or greater due to the addition of trisodium phosphate.

The test subjected the charge converter to a more severe chemical spray environment, since the initial spray has a lower pH than that at Davis-Besse (due to the higher concentration) and since the test lasted over 32 days.

3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain functional operability in harsh environments.
4. One year operating time is used as a conservative maximum specification.



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

# SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-018  
Rev.: 1

Prepared by: Suzanne C. Gannon Date: 12-16-82  
Checked by: Charles W. Gannon Date: 12-17-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	F	Note 1	Simultaneous Test	None
Plant ID No.: SV4608A	Temperature (°F)	283.0	346.0	H, X	Note 1	Simultaneous Test	None
Component: Solenoid Valve	Pressure (PSIA)	52.0	133.0	G, X	Note 1	Simultaneous Test	None
Manufacturer: Valcor	Relative Humidity (%)	100.0	100.0	A	Note 1	Simultaneous Test	None
Model Number: 52600-6042-1	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	CAL-40 Note 2	Simultaneous Test	None
Function: RCS High Point Vent	Radiation	1.7 x 10 <sup>7</sup> RADS	2.0 x 10 <sup>8</sup> RADS	CAL-44	Note 1	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	Note 1	Sequential Test	None
Service: RCS High Point Vent	Submergence	572'-2"	Note 3	B	Note 3	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.: 302H-J18A  
Rev.: 1

NOTES

Prepared by: James Guyana Date 12-16-82  
Checked by: Paul W. Synthes Date 12-17-82

- 
1. The component remained functional throughout and after the test, therefore, it can be concluded that the valve will remain functional during the short-term accident environment and the long-term cooldown at ambient conditions (References G, H, and X). Test report documentation is currently being finalized. A draft copy has been reviewed and the final worksheets will be made up when the final test report becomes available. Environmental parameters shown here are actual test valves taken from the draft copy of the test report.
  2. Revision 1 of CAL-40 qualifies components tested in a high pH concentration boric acid spray to conditions present at Davis-Besse Unit 1.
  3. Components located at RCS hot leg high points and therefore will not be subject to submergence.

Index No.: 302H-019  
Rev.: 1

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	F	Note 1	Simultaneous Test	None
Plant ID No.: SV4610A	Temperature (°F)	283.0	346.0	H, X	Note 1	Simultaneous Test	None
Component: Solenoid Valve	Pressure (PSIA)	52.0	133.0	G, X	Note 1	Simultaneous Test	None
Manufacturer: Valcor	Relative Humidity (%)	100.0	100.0	A	Note 1	Simultaneous Test	None
Model Number: 52600-6042-1	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	CAL-40 Note 2	Simultaneous Test	None
Function: RCS High Point Vent	Radiation	$1.7 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	Note 1	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	Note 1	Sequential Test	None
Service: RCS High Point Vent	Submergence	572'-2"	Note 3	B	Note 3	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.: 302H-019A  
Rev.: 1

NOTES

Prepared by: Suzie Cooper Date 12-16-82  
Checked by: Paul W. Lythgoe Date 12-17-82

1. The component remained functional throughout and after the test, therefore, it can be concluded that the valve will remain functional during the short-term accident environment and the long-term cooldown at ambient conditions (References G, H, and X). Test report documentation is currently being finalized. A draft copy has been reviewed and the final worksheets will be made up when the final test report becomes available. Environmental parameters shown here are actual test valves taken from the draft copy of the test report.
2. Revision 1 of CAL-40 qualifies components tested in a high pH concentration boric acid spray to conditions present at Davis-Besse Unit 1.
3. Components located at RCS hot leg high points and therefore will not be subject to submergence.

Rev.: 1

Checked by: Paul M. Patis Date: 12-17-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	F	Note 1	Simultaneous Test	None
Plant ID No.: SV4608B	Temperature (°F)	283.0	346.0	H, X	Note 1	Simultaneous Test	None
Component: Solenoid Valve	Pressure (PSIA)	52.0	133.0	G, X	Note 1	Simultaneous Test	None
Manufacturer: Valcor	Relative Humidity (%)	100.0	100.0	A	Note 1	Simultaneous Test	None
Model Number: 52600-6042-1	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	CAL-40 Note 2	Simultaneous Test	None
Function: RCS High Point Vent	Radiation	1.7 x 10 <sup>7</sup> RADS	2.0 x 10 <sup>8</sup> RADS	CAL-44	Note 1	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	Note 1	Sequential Test	None
Service: RCS High Point Vent	Submergence	572'-2"	Note 3	B	Note 3	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.: 302H-020A  
Rev.: 1

NOTES

Prepared by: Suzia Cayman Date 12-16-82  
Checked by: Paul W. Lynch Date 12-17-82

1. The component remained functional throughout and after the test, therefore, it can be concluded that the valve will remain functional during the short-term accident environment and the long-term cooldown at ambient conditions (References G, H, and X). Test report documentation is currently being finalized. A draft copy has been reviewed and the final worksheets will be made up when the final test report becomes available. Environmental parameters shown here are actual test valves taken from the draft copy of the test report.
2. Revision 1 of CAL-40 qualifies components tested in a high pH concentration boric acid spray to conditions present at Davis-Besse Unit 1.
3. Components located at RCS hot leg high points and therefore will not be subject to submergence.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-021  
Rev.: 1

Prepared by: Spina C. C. C. Date: 11-4-82  
Checked by: Paul W. W. Date: 12-7-82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	F	Note 1	Simultaneous Test	None
Plant ID No.: SV4610B	Temperature (°F)	283.0	346.0	H, X	Note 1	Simultaneous Test	None
Component: Solenoid Valve	Pressure (PSIA)	52.0	133.0	G, X	Note 1	Simultaneous Test	None
Manufacturer: Valcor	Relative Humidity (%)	100.0	100.0	A	Note 1	Simultaneous Test	None
Model Number: 52600-6042-1	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	CAL-40 Note 2	Simultaneous Test	None
Function: RCS High Point Vent	Radiation	$1.7 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	Note 1	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	Note 1	Sequential Test	None
Service: RCS High Point Vent	Submergence	572'-2"	Note 3	B	Note 3	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: 50-345

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-021A  
Rev.: 1

NOTES

Prepared by: Janis C. Cooper Date 11-4-82  
Checked by: Paul W. Spuckler Date 12-17-82

1. The component remained functional throughout and after the test, therefore, it can be concluded that the valve will remain functional during the short-term accident environment and the long-term cooldown at ambient conditions (References G, H, and X). Test report documentation is currently being finalized. A draft copy has been reviewed and the final worksheets will be made up when the final test report becomes available. Environmental parameters shown here are actual test valves taken from the draft copy of the test report.
2. Revision 1 of CAL-40 qualifies components tested in a high pH concentration boric acid spray to conditions present at Davis-Besse Unit 1.
3. Components located at RCS hot leg high points and therefore will not be subject to submergence.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-026  
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: TMI Action Items	Operating Time	1 Year	1.1 Years	U	E-24	Note 1 Analysis	None
Plant ID No. LIT4617	Temperature (°F)	N/A	N/A	Note 1	N/A	Analysis	None
Component: Level Receiver	Pressure (PSIA)	N/A	N/A	Note 1	N/A	Analysis	None
Manufacturer: Delaval	Relative Humidity (%)	N/A	N/A	Note 1	N/A	Analysis	None
Model Number: 323	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Monitors Containment Sump Level	Radiation	$1.86 \times 10^3$ RADS	$1.1 \times 10^3$ RADS	T	E-24	Sequential Test	Note 2
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	17 Years	I	E-24	Sequential Test	Note 2
Service: Containment N.R. Sump Level	Submergence	N/A	N/A	N/A	N/A	N/A	N/A
Location: 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  
Socket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-026A

Rev.: 2

NOTES

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

1. Only harsh environment seen is increased radiation due to recirculated fluids.
2. Wyle Lab Test Report (E-24) states that the receiver was irradiated to a TID of  $1.1 \times 10^3$  RADS. Reference T of the Vendor File states that for the given location (Room 427) and accident dose of  $1.36 \times 10^3$  RADS would be experienced in one day, in addition to  $9.0 \times 10^2$  RADS end-of-life background radiation dose.

The receiver is one of two redundant level sensing units, the second (Plant ID # LIT4618) is located in room 402 (non-harsh). Additionally, two containment sump wide range level transmitters also provide containment sump level information (Plant ID Nos. LT4594 and LT4595).

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-028  
Rev.: 2

Prepared by: J Lewis Date: 9/30/87  
Checked by: J M. Smith Date: 9/30/87

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	J-36	Simultaneous Test	None
Plant ID No. LT4594	Temperature (°F)	283.0	350.0	H, X	J-36	Simultaneous Test	None
Component: Level Transmitter	Pressure (PSIA)	52.0	85.0	G, X	J-36	Simultaneous Test	None
Manufacturer: Rosemount	Relative Humidity (%)	100.0	100.0	A	J-36	Simultaneous Test	None
Model Number: 1153	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 8.5 to 11	T	J-36 CAL-40 Note 3	Simultaneous Test	None
Function: Monitors Containment Water Level	Radiation	1.7 x 10 <sup>7</sup> RADS	5.0 x 10 <sup>7</sup> RADS	CAL-44	J-36	Sequential Test	None
Accuracy: Spec: 5.0% Demon: .42%	Aging	40 Years	10 Years Note 4	I	CAL-66 J-36	Sequential Test	None
Service: Containment Wide Range Level	Submergence	572'-2"	Note 2	B	Note 2	N/A	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1  
Socket: 5C-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-028A

Rev.: 2

NOTES

Prepared by: J. Lewis Date: 9/30/83  
Checked by: [Signature] Date: 9/30/83

- 
- . One year operating time is used as a conservative maximum specification.
  - . This component's function is to monitor containment water level. Component submergence will occur after component has performed its function. Component failure will not mislead operator since containment flooding is indicated by this transmitter until it becomes submerged. In addition, operating experience has shown that Rosemount transmitters installed at MI-II operated satisfactorily for approximately one month while submerged.
  - . CAL-40 qualifies components tested in a high pH Boric Acid spray to a pH value of 5.
  - . Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.



SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by: J Lewis Date: 9/30/83  
Checked by: [Signature] Date: 9/30/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	J-36	Simultaneous Test	None
Plant ID No. LT4595	Temperature (°F)	283.0	350.0	H, X	J-36	Simultaneous Test	None
Component: Level Transmitter							
Manufacturer: Rosemount							
Model Number: 1153							
Function: Monitors Containment Water Level	Pressure (PSIA)	52.0	85.0	G, X	J-36	Simultaneous Test	None
Accuracy: Spec 5.0% Repeatability: .42%	Relative Humidity (%)	100.0	100.0	A	J-36	Simultaneous Test	None
Service: Containment Wide Range Level	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 8.5 to 11	T	J-36 CAL-40 Note 3	Simultaneous Test	None
Location: Containment	Radiation	$1.7 \times 10^7$ RADS	$5.0 \times 10^7$ RADS	CAL-44	J-36	Sequential Test	None
Flood Level Elev: 572'-2"	Aging	40 Years	10 Years Note 4	I	CAL-66 J-36	Sequential Test	None
Above Flood Level: No							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>	Submergence	572'-2"	Note 2	B	Note 2	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-029A  
Rev.: 2

NOTES

Prepared by: J Lewis Date 9/30/83  
Checked by: Abraham Date 9/30/83

1. One year operating time is used as a conservative maximum specification.
2. This component's function is to monitor containment water level. Component submergence will occur after component has performed its function. Component failure will not mislead operator since containment flooding is indicated by this transmitter until it becomes submerged. In addition, operating experience has shown that Rosemount transmitters installed at TMI-II operated satisfactorily for approximately one month while submerged.
3. CAL-40 qualifies components tested in a high pH Boric Acid spray to a pH value of 5.0.
4. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.

Rev. : 2

9/30/17

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	J-36	Simultaneous Test	None
Plant ID No. FT4630	Temperature (°F)	218.0	350.0	C-303	J-36	Simultaneous Test	None
Component: Flow Transmitter							
Manufacturer: Rosemount	Pressure (PSIA)	17.16	85.0	C-303	J-36	Simultaneous Test	None
Model Number: 1153	Relative Humidity (%)	100.0	100.0	A	J-36	Simultaneous Test	None
Function: Monitors Flow							
Accuracy: Spec: 5.0% Demon: .42%	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Auxiliary Feedwater to Steam Generator 1							
Location: Auxiliary Bldg. Rm. 303	Radiation	1.16 x 10 <sup>6</sup> RADS	5.0 x 10 <sup>7</sup> RADS	T	J-36	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	22.23 Years Note 2	I	CAL-66 J-36	Sequential Test	None
Needed for:	Submergence	N/A	N/A	N/A	N/A	N/A	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-030A

Rev.: 2

NOTES

Prepared by: T. Lewis Date: 9/19/82  
Checked by: Michael Date: 9/30/83

- 
- . One year operating time is used as a conservative maximum specification.
  - . Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.

Rev.: 2

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	J-36	Simultaneous Test	None
Plant ID No. FT4631	Temperature (°F)	221.0	350.0	C-314	J-36	Simultaneous Test	None
Component: Flow Transmitter							
Manufacturer: Rosemount	Pressure (PSIA)	19.76	85.0	C-314	J-36	Simultaneous Test	None
Model Number: 1153	Relative Humidity (%)	100.0	100.0	A	J-36	Simultaneous Test	None
Function: Monitors Flow							
Accuracy: Spec: 5.0% Demon: .42%	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Auxiliary Feedwater to Steam Generator 2	Radiation	1.0 x 10 <sup>6</sup> RADS	5.0 x 10 <sup>7</sup> RADS	T	J-36	Sequential Test	None
Location: Auxiliary Bldg. Rm. 314	Aging	40 Years	22.23 Years Note 2	I	CAL-66 J-36	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-031A

Rev.: 2

NOTES

Prepared by: J. Lewis Date: 9/29/83  
Checked by: [Signature] Date: 10/30/83

1. One year operating time is used as a conservative maximum specification.
2. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-032  
Rev.: 2

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

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Post-Accident Sampling	Operating Time	1 Year	1.1 Years	F	Note 1	Simultaneous Test	None
Plant ID No.: SV4632	Temperature	283.0	346.0	H, X	Note 1	Simultaneous Test	None
Component: Solenoid Valve	(°F)						
Manufacturer: Valcor	Pressure (PSIA)	52 ?	133.0	G, X	Note 1	Simultaneous Test	None
Model Number: 52600-6042-1	Relative Humidity (%)	100.0	100.0	A	Note 1	Simultaneous Test	None
Function: Post-Accident Sampling							
Accuracy: Spec: N/A Demon: N/A	Chemical	Boric Acid 1800 ppm	Boric Acid 1800 ppm	A	CAL-40	Simultaneous Test	None
Service: Post-Accident Sampling Valve	Spray	pH 5.0	pH 5.0		Note 2		
Location: Containment	Radiation	$3.87 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	Note 1	Sequential Test	None
Flood Level Elev: 572'-2"							
Above Flood Level: No	Aging	40 Years	40 Years	I	Note 1	Sequential Test	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	572'-2"	Note 3	B	Note 3	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-032A  
Rev.: 2

NOTES

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

1. The component remained functional throughout and after the test, therefore, it can be concluded that the valve will remain functional during the short-term accident environment and the long-term cooldown at ambient conditions (References G, H, and X). Test report documentation is currently being finalized. A draft copy has been reviewed and the final worksheets will be made up when the final test report becomes available. Environmental parameters shown here are actual test valves taken from the draft copy of the test report.
2. Revision 1 of CAL-40 qualifies components tested in a high pH concentration boric acid spray to conditions present at Davis-Besse Unit 1.
3. This valve is used to sample the Reactor Coolant System for post-accident sampling. This valve is not a containment isolation valve. During a design basis LOCA, this valve may become submerged. In the case of a smaller LOCA, submergence may not occur. During a DBA LOCA, this valve would not be utilized for obtaining RCS samples. Failure of this valve during a LOCA would not impact any other safety functions or mislead the operator. This solenoid valve has a circuit for solenoid coil operation and a separate valve position indication circuit. The effects of possible failures of these two circuits due to submergence are summarized below:

Coil leads or coil shorted due to submergence

- a. Reduced current flow through coil causes solenoid valve to close and become inoperable. If valve is already closed, it will stay closed.
- b. Circuit fuse may blow due to overcurrent; valve will close and remain inoperable. Essential bus will not be affected as fuse will clear the fault.

Solenoid valve position switch controls shorted due to submergence

- a. Both sets of indicator lights would be energized.
- b. Circuit fuse may blow due to overcurrent. All indicator lights would go out. Essential bus will not be affected as fuse will clear the fault.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-042  
 Rev.: 2

Prepared by: N. Lewis Date: 11/1/83  
 Checked by: [Signature] Date: 11/4/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	Note 4	Sequential Test Analysis	None
Plant ID No. RE4597AA							
Component: Radiation Element	Temperature (°F)	218.0	Note 2	C-303	N/A	N/A	None
Manufacturer: Kaman Sciences	Pressure (PSIA)	17.16	Note 2	C-303	N/A	N/A	None
Model Number: KMG-HRH							
Function: Radiation Monitoring	Relative Humidity (%)	100.0	Note 2	A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	N/A
Service: Post-Accident Sampling							
Location: Auxiliary Bldg. Rm. 303	Radiation	$4.7 \times 10^5$ RADS	$1.0 \times 10^5$ RADS	T, AR	J-32 Notes 3 & 4	Sequential Test	Note 5
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	9.1 Years Note 6	I	J-32 Note 4	Sequential Test	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-042A

Rev. : 2

NOTES

Prepared by: N Lewis Date 11/1/83  
Checked by: James D. Smith Date 11/2/83

1. One-year operating time is used as a conservative maximum.
2. The harsh environment seen by this component is due to a main feedline break. The radiation transmitter is only used to monitor radiation in the Containment Building following a postulated LOCA and would not be required to monitor radiation during the main feedline break of concern.
3. The test report indicates that the GM detectors, iodine filters, assembly O-rings, and electronic flow control components were irradiated to a maximum value of  $5 \times 10^3$  rads. Due to shielding, this is the dosage that these components see when the monitor itself sees  $1 \times 10^5$  rads (Reference ROC-48A).
4. Materials and/or components sensitive to thermal and radiation aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
5. This radiation element is used to monitor the containment atmosphere following a postulated LOCA. Failure of this component would not prevent sampling and analysis of the containment atmosphere since grab samples can be taken for this purpose. Based on the above, failure of this component would not prevent sampling, impact safety-related functions, nor mislead the operator.
6. The qualified lives for the various parts of the Noble Gas Assembly, the Beta Scintillation Detector, Gamma Scintillation Detector, the Particulate Moving Filter Sampler Assembly, and the Fixed Iodine Sampler Assembly were determined. An activation energy of 0.78 eV represents an average value and is conservative. Whenever possible (i.e., when the material used was specified), tabulated Ea's were used.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-042B  
Rev.: 2

NOTES

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

Component	Ea (eV)	Part Number	Aging Time (hours)	Aging Temperature (°K)	Qualified Life (@ 104°F)
Gasket	0.78	912531-000	913	373	10.9 years
Terminal Block	0.75	823791-H011	913	373	9.1
Wire	2.0	823867-020	100	373	Greater than 40 years
O-Ring Seal	1.2	821142-Z231	602.7	358	18.5
Terminal Ring	0.78	823230-018	913	373	10.9
Solenoid Cover	0.78	912768-001	913	373	10.9
Gasket					
BUNA-N O-Ring	0.86	821142-B031	602.7	358	40
Neoprene O-Ring	0.87	821142-B140	913	373	36.5

The limiting material is the phenolic terminal blocks with a life of 9.1 years. The above data was in part obtained by comparing part numbers with Reference J-32, Appendix E (Acton Test Report for Model KMG-HRM), which lists materials used and their corresponding activation energies.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-043  
Rev.: 2

Prepared by: N Lewis Date: 11/1/83  
Checked by: ATL W. D. Smith Date: 4/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	Note 4	Sequential Test Analysis	None
Plant ID No. RE4597BA	Temperature (°F)	221.0	Note 2	C-314	N/A	N/A	None
Component: Radiation Element							
Manufacturer: Kaman Sciences	Pressure (PSIA)	19.76	Note 2	C-314	N/A	N/A	None
Model Number: KMG-HRH	Relative Humidity (%)	100.0	Note 2	A	N/A	N/A	None
Function: Radiation Monitoring							
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	N/A
Service: Post-Accident Sampling							
Location: Auxiliary Bldg. Rm. 314	Radiation	$6.7 \times 10^5$ RADS	$1.0 \times 10^5$ RADS	T, AR	J-32 Notes 3 & 4	Sequential Test	Note 5
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	9.1 Years Note 6	I	J-32 Note 4	Sequential Test	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-043A  
Rev.: 2

NOTES

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

1. One-year operating time is used as a conservative maximum.
2. The harsh environment seen by this component is due to a main feedline break. The radiation transmitter is only used to monitor radiation in the Containment Building following a postulated LOCA and would not be required to monitor radiation during the main feedline break of concern.
3. The test report indicates that the GM detectors, iodine filters, assembly O-rings, and electronic flow control components were irradiated to a maximum value of  $5 \times 10^3$  rads. Due to shielding, this is the dosage that these components see when the monitor itself sees  $1 \times 10^5$  rads (Reference ROC-48A).
4. Materials and/or components sensitive to thermal and radiation aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
5. This radiation element is used to monitor the containment atmosphere following a postulated LOCA. Failure of this component would not prevent sampling and analysis of the containment atmosphere since grab samples can be taken for this purpose. Based on the above, failure of this component would not prevent sampling, impact safety-related functions, nor mislead the operator.
6. The qualified lives for the various parts of the Noble Gas Assembly, the Beta Scintillation Detector, Gamma Scintillation Detector, the Particulate Moving Filter Sampler Assembly, and the Fixed Iodine Sampler Assembly were determined. An activation energy of 0.78 eV represents an average value and is conservative. Whenever possible (i.e., when the material used was specified), tabulated Ea's were used.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NC 302H-043B

Rev. : 2

NOTES

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

Component	Ea (eV)	Part Number	Aging Time (hours)	Aging Temperature (°K)	Qualified Life (@ 104°F)
Gasket	0.78	912531-000	913	373	10.9 years
Terminal Block	0.75	823791-H011	913	373	09.1
Wire	2.0	823867-020	100	373	Greater than 40 years
O-Ring Seal	1.2	821142-Z231	602.7	358	18.5
Terminal Ring	0.78	823230-018	913	373	10.9
Solenoid Cover	0.78	912768-001	913	373	10.9
Gasket					
BUNA-N O-Ring	0.86	821142-B031	602.7	358	40
Neoprene O-Ring	0.87	821142-B140	913	373	36.5

The limiting material is the phenolic terminal blocks with a life of 9.1 years. The above data was in part obtained by comparing part numbers with Reference J-32, Appendix E (Aeton Test Report for Model KMG-HRM), which lists materials used and their corresponding activation energies.

Index No. 302H-044  
Rev. : 2

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	Note 3	Sequential Test/Analysis	None
Plant ID No. RT4597AA	Temperature (°F)	208.0	Note 2	C-314	N/A	N/A	None
Component: Radiation Transmitter		15.83	Note 2	C-314	N/A	N/A	None
Manufacturer: Kaman Sciences		100.0	Note 2	A	N/A	N/A	None
Model Number: KEM		Relative Humidity (%)					
Function: Radiation Monitoring							
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	N/A
Service: Post-Accident Sampling							
Location: Auxiliary Bldg. Rm. 304	Radiation	$4.53 \times 10^3$ RADS	$1.6 \times 10^3$ RADS	AM	J-33 Note 3	Sequential Test	Note 4
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	10 Years	I	Note 3 E-24	Sequential Test	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-044A  
Rev.: 2

NOTES

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

1. One-year operating time is used as a conservative maximum.
2. The harsh environment seen by this component is due to a main feedline break. The radiation transmitter is only used to monitor radiation in the Containment Building following a postulated LOCA and would not be required to monitor radiation during the main feedline break of concern.
3. Materials and/or components sensitive to thermal and radiation aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
4. This transmitter is used to monitor the containment atmosphere following a postulated LOCA. Failure of this component would not prevent sampling and analysis of the containment atmosphere since grab samples can be taken for this purpose. Based on the above, failure of this component would not prevent sampling, impact safety-related functions, nor mislead the operator.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-045  
 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: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	Note 3	Sequential Test/Analysis	None
Plant ID No. RT4597AB	Temperature (°F)	218.0	Note 2	C-314	N/A	N/A	None
Component: Radiation Transmitter	Pressure (PSIA)	17.16	Note 2	C-314	N/A	N/A	None
Manufacturer: Kaman Sciences	Relative Humidity (%)	100.0	Note 2	A	N/A	N/A	None
Model Number: KEM	Chemical Spray	N/A	N/A	N/A	N/A	N/A	N/A
Function: Radiation Monitoring	Radiation	$4.08 \times 10^3$ RADS	$1.6 \times 10^3$ RADS	AM	J-33 Note 3	Sequential Test	Note 4
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	10 Years	I	Note 3 E-24	Sequential Test	None
Service: Post-Accident Sampling	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 304							
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. 302H-045A

Rev. : 2

NOTES

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

1. One-year operating time is used as a conservative maximum.
2. The harsh environment seen by this component is due to a main feedline break. The radiation transmitter is only used to monitor radiation in the Containment Building following a postulated LOCA and would not be required to monitor radiation during the main feedline break of concern.
3. Materials and/or components sensitive to thermal and radiation aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
4. This transmitter is used to monitor the containment atmosphere following a postulated LOCA. Failure of this component would not prevent sampling and analysis of the containment atmosphere since grab samples can be taken for this purpose. Based on the above, failure of this component would not prevent sampling, impact safety-related functions, nor mislead the operator.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-046  
 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: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	Note 4	Sequential Test/Analysis	None
Plant ID No. RE4597AB	Temperature (°F)	218.0	Note 2	C-303	N/A	N/A	None
Component: Radiation Element	Pressure (PSIA)	17.16	Note 2	C-303	N/A	N/A	None
Manufacturer: Kaman Sciences	Relative Humidity (%)	100.0	Note 2	A	N/A	N/A	None
Model Number: KMG-HRN	Chemical Spray	N/A	N/A	N/A	N/A	N/A	N/A
Function: Radiation Monitoring	Radiation	$4.7 \times 10^5$ RADS	$1.0 \times 10^5$ RADS	T, AR	J-32 Notes 3 & 4 J-40	Sequential Test	Note 5
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	9.1 Years Note 6	I	J-32 Note 5 J-40	Sequential Test	None
Service: Post-Accident Sampling	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 303	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO. 302H-046A  
Rev.: 2

NOTES

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

1. One-year operating time is used as a conservative maximum.
2. The harsh environment seen by this component is due to a main feedline break. The radiation transmitter is only used to monitor radiation in the Containment Building following a postulated LOCA and would not be required to monitor radiation during the main feedline break of concern.
3. The test report indicates that the GM detectors, iodine filters, assembly O-rings, and electronic flow control components were irradiated to a maximum value of  $5 \times 10^3$  rads. Due to shielding, this is the dosage that these components see when the monitor itself sees  $1 \times 10^5$  rads (Reference ROC-48A).
4. Materials and/or components sensitive to thermal and radiation aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
5. This radiation element is used to monitor the containment atmosphere following a postulated LOCA. Failure of this component would not prevent sampling and analysis of the containment atmosphere since grab samples can be taken for this purpose. Based on the above, failure of this component would not prevent sampling, impact safety-related functions, nor mislead the operator.
6. The qualified lives for the various parts of the Noble Gas Assembly, the Beta Scintillation Detector, Gamma Scintillation Detector, the Particulate Moving Filter Sampler Assembly, and the Fixed Iodine Sampler Assembly were determined. An activation energy of 0.78 eV represents an average value and is conservative. Whenever possible (i.e., when the material used was specified), tabulated Ea's were used.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-046B

Rev.: 2

NOTES

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

Component	Ea (eV)	Part Number	Aging Time (hours)	Aging Temperature (°K)	Qualified Life (@ 104°F)
Gasket	0.78	912531-000	913	373	10.9 years
Terminal Block	0.75	823791-H011	913	373	09.1
Wire	2.0	823867-020	100	373	Greater than 40 years
O-Ring Seal	1.2	821142-Z231	602.7	358	18.5
Terminal Ring	0.78	823230-018	913	373	10.9
Solenoid Cover	0.78	912768-001	913	373	10.9
Gasket					
BUNA-N O-Ring	0.86	821142-B031	602.7	358	40
Neoprene O-Ring	0.87	821142-B140	913	373	36.5

The limiting material is the phenolic terminal blocks with a life of 9.1 years. The above data was in part obtained by comparing part numbers with Reference J-32, Appendix E (Aeton Test Report for Model KMG-HRM), which lists materials used and their corresponding activation energies.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-047  
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: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 1	Note 4	Sequential Test/Analysis	None
Plant ID No. RE4597BB	Temperature (°F)	221.0	Note 2	C-314	N/A	N/A	None
Component: Radiation Element							
Manufacturer: Kaman Sciences	Pressure (PSIA)	19.76	Note 2	C-314	N/A	N/A	None
Model Number: KMG-HRN	Relative Humidity (%)	100.0	Note 2	A	N/A	N/A	None
Function: Radiation Monitoring							
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	N/A
Service: Post-Accident Sampling							
Location: Auxiliary Bldg. Rm. 314	Radiation	$6.6 \times 10^5$ RADS	$1.0 \times 10^5$ RADS	T, AR	J-32 Notes 3 & 4 J-40	Sequential Test	Note 5
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	9.1 Years Note 6	I	J-32 Note 4 J-40	Sequential Test	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 302H-047A  
Rev.: 2

NOTES

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

1. One-year operating time is used as a conservative maximum.
2. The harsh environment seen by this component is due to a main feedline break. The radiation transmitter is only used to monitor radiation in the Containment Building following a postulated LOCA and would not be required to monitor radiation during the main feedline break of concern.
3. The test report indicates that the GM detectors, iodine filters, assembly O-rings, and electronic flow control components were irradiated to a maximum value of  $5 \times 10^3$  rads. Due to shielding, this is the dosage that these components see when the monitor itself sees  $1 \times 10^5$  rads (Reference ROC-48A).
4. Materials and/or components sensitive to thermal and radiation aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
5. This radiation element is used to monitor the containment atmosphere following a postulated LOCA. Failure of this component would not prevent sampling and analysis of the containment atmosphere since grab samples can be taken for this purpose. Based on the above, failure of this component would not prevent sampling, impact safety-related functions, nor mislead the operator.
6. The qualified lives for the various parts of the Noble Gas Assembly, the Beta Scintillation Detector, Gamma Scintillation Detector, the Particulate Moving Filter Sampler Assembly, and the Fixed Iodine Sampler Assembly were determined. An activation energy of 0.78 eV represents an average value and is conservative. Whenever possible (i.e., when the material used was specified), tabulated Ea's were used.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-047B  
Rev.: 2

NOTES

Prepared by: A. Lewis Date 11/1/83  
Checked by: S. MacDonald Date 11/2/83

<u>Component</u>	<u>Ea (eV)</u>	<u>Part Number</u>	<u>Aging Time (hours)</u>	<u>Aging Temperature (°K)</u>	<u>Qualified Life (@ 104°F)</u>
Gasket	0.78	912531-000	913	373	10.9 years
Terminal Block	0.75	823791-H011	913	373	09.1
Wire	2.0	823867-020	100	373	Greater than 40 years
O-Ring Seal	1.2	821142-Z231	602.7	358	18.5
Terminal Ring	0.78	823230-018	913	373	10.9
Solenoid Cover	0.78	912768-001	913	373	10.9
Gasket					
BUNA-N O-Ring	0.86	821142-B031	602.7	358	40
Neoprene O-Ring	0.87	821142-B140	913	373	36.5

The limiting material is the phenolic terminal blocks with a life of 9.1 years. The above data was in part obtained by comparing part numbers with Reference J-32, Appendix E (Aeton Test Report for Model KMG-HRM), which lists materials used and their corresponding activation energies.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-048  
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 6	E-15 Note 1	Simultaneous Test	None
Plant ID No. RE4596A	Temperature (°F)	283.0	355.0	H, X	E-15	Simultaneous Test	None
Component: Radiation Element (Detector Assembly)	Pressure (PSIA)	52.0	91.7	G, X	E-15	Simultaneous Test	None
Manufacturer: General Atomic	Relative Humidity (%)	100.0	100.0	A	E-15	Simultaneous Test	None
Model Number: RD-23	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-15 CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Radiation Detection	Radiation	$1.7 \times 10^7$ RADS	$2.0 \times 10^8$ RADS	CAL-44	E-15 Note 3	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Yrs @ 122°F	I	CAL-95 Note 4	Sequential Test	None
Service: Radiation Monitoring	Submergence	572'-2"	Note 5	B	Note 5	N/A	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: Yes							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-048A  
Rev.: 2

NOTES

Prepared by: N. Lewis Date 11/1/83  
Checked by: William Donnell Date 11/2/83

1. Testing consisted of three separate LOCA simulations of which credit is taken for the second and third transient only (due to lack of qualification data for the shrink tubing enveloping conditions of the first transient). Combining the two profiles, the detector was exposed to the following conditions:

Elapsed Time	Temperature (°F)	Pressure (psia)
4 hours	355	54.7 - 84.7
3 hours	335	54.7
11 hours	315	91.7
3 hours	265	54.7
84 hours	205	58.7
10 days	150	20.7

The temperature in containment peaks at 283° in 17 seconds. The pressure in containment peaks at 52.0 psia in 50 seconds. The pressure in containment peaks at 52.0 psia in 50 seconds. The conditions in containment return to ambient in 7 days.

Based on this information, it can be concluded that the test subjected the radiation detector to an overall more severe environment than that which would result from a postulated LOCA. Since the radiation detector remained functional during and after exposure to the harsh environment, it can be concluded that the radiation detector will remain functional during and after exposure to the harsh environment which would result from the postulated LOCA (References G, H, and X).

2. Revision 1 of CAL-40 qualifies components tested in a high pH chemical spray to a pH of 5.0.
3. Analysis of radiation qualification is based on radiation-resistant materials used in construction of radiation detector unit.
4. The General Atomic RD-23 detector assembly is composed of a Reuter Stokes detector and quartz cloth insulation, which are inorganic and not aging sensitive (E-15), Rockbestos cable, which has a qualified life of 40 years at 107°F (E-15), and Raychem WCSF heat shrinkable tubing, with a qualified life of 40 years at 122°F (CAL-95).
5. This component will be located above the flood level as per PCR 80-50.
6. One year operating time is used as a conservative maximum specification.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-049  
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: TMI Action Items	Operating Time	1 Year	1.1 Years	Note 6	E-15 Note 1	Simultaneous Test	None
Plant ID No. RE4596B	Temperature (°F)	283.0	355.0	H, X	E-15	Simultaneous Test	None
Component: Radiation Element (Detector Assembly)	Pressure (PSIA)	52.0	91.7	G, X	E-15	Simultaneous Test	None
Manufacturer: General Atomic	Relative Humidity (%)	100.0	100.0	A	E-15	Simultaneous Test	None
Model Number: RD-23	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-15 CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Radiation Detection	Radiation	1.7 x 10 <sup>7</sup> RADS	2.0 x 10 <sup>8</sup> RADS	CAL-44	E-15 Note 3	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Yrs @122°F	I	CAL-95 Note 4	Sequential Test	None
Service: Radiation Monitoring	Submergence	572'-2"	Note 5	B	Note 5	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.: 302H-049A  
Rev.: 2

NOTES

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

1. Testing consisted of three separate LOCA simulations of which credit is taken for the second and third transient only (due to lack of qualification data for the shrink tubing enveloping conditions of the first transient). Combining the two profiles, the detector was exposed to the following conditions:

Elapsed Time	Temperature (°F)	Pressure (psia)
4 hours	355	54.7 - 84.7
3 hours	335	54.7
11 hours	315	91.7
3 hours	265	54.7
84 hours	205	58.7
10 days	150	20.7

The temperature in containment peaks at 283° in 17 seconds. The pressure in containment peaks at 52.0 psia in 50 seconds. The pressure in containment peaks at 52.0 psia in 50 seconds. The conditions in containment return to ambient in 7 days.

Based on this information, it can be concluded that the test subjected the radiation detector to an overall more severe environment than that which would result from a postulated LOCA. Since the radiation detector remained functional during and after exposure to the harsh environment, it can be concluded that the radiation detector will remain functional during and after exposure to the harsh environment which would result from the postulated LOCA (References G, H, and X).

2. Revision 1 of CAL-40 qualifies components tested in a high pH chemical spray to a pH of 5.0.
3. Analysis of radiation qualification is based on radiation-resistant materials used in construction of radiation detector unit.
4. The General Atomic RD-23 detector assembly is composed of a Reuter Stokes detector and quartz cloth insulation which are inorganic and not aging sensitive (E-15) Rockbestos cable, which has a qualified life of 40 years at 107°F (E-15), and Raychem WCSF heat shrinkable tubing, with a qualified life of 40 years at 122°F (CAL-95).
5. This component will be located above the flood level as per FCR 80-50.
6. One year operating time is used as a conservative maximum specification.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-052  
Rev.: 2

Prepared by: J Lewis Date: 9/29/83  
Checked by: Eric D. Smith Date: 9/30/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: TMI Action Items	Operating Time	1 Year	22.3 Years	Note 1	J-36	Sequential Test	None
Plant ID No. PT4588	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Component: Pressure Transmitter							
Manufacturer: Rosemount	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: 1153AD	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Function: Monitors Containment Atmosphere							
Accuracy: Spec: 5.0% Demon: .42%	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Containment Pressure							
Location: Rm. 426	Radiation	$4.17 \times 10^5$ RADS	$5.0 \times 10^7$ RADS	T	J-36	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	22.3 Years Note 3	I	CAL-66 J-36	Sequential Test	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Davis-Besse Unit 1

Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 302H-052A

Rev.: 2

Prepared by:

Y Lewis

Date

9/30/87

Checked by:

AM MacDonell

Date

9/30/87

NOTES

1. One-year operating time is used as a conservative maximum specification.
2. The only harsh environment seen is increased radiation due to recirculated fluids.
3. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.