CALCULATION/PROBLEM COVER SHEET

Calculation/Problem No: 1040-001-011

Title: Steam System 2.8

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	NK Woodward	1/3/83
2	General Manual Revisions	NK Woodward	11/2/83

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

MASTER LIST
HARSH ENVIRONMENT
STEAM SYSTEM

Index No: 208M-001
Rev.: 2

Prepared by: M. Lewis Date: 11/1/83
Checked by: [illegible] Date: 11/2/83

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
208H-005	1	Deleted				
208H-006	1	Deleted				
208H-007	1	Deleted				
208H-008	1	Deleted				
208H-009	2	MVO1060	Valve Motor Operator		Rm. 500	
208H-010	2	MVO106A	Valve Motor Operator		Rm. 501	
208H-011	2	MVO1070	Valve Motor Operator		Rm. 501	
208H-012	2	MVO107A	Valve Motor Operator		Rm. 500	
208H-013	2	SV100C1	Solenoid Valve		Rm. 602	
208H-014	2	SV100A	Solenoid Valve		Rm. 602	
208H-014	2	SV100A	Solenoid Valve		Rm. 602	
208H-015	2	SV100B	Solenoid Valve		Rm. 602	
208H-015	2	SV100B	Solenoid Valve		Rm. 602	
208H-016	2	SV100C	Solenoid Valve		Rm. 602	
208H-016	2	SV100C	Solenoid Valve		Rm. 602	
208H-017	2	SV100D	Solenoid Valve		Rm. 602	
208H-017	2	SV100D	Solenoid Valve		Rm. 602	
208H-018	2	SV100E	Solenoid Valve		Rm. 602	
208H-018	2	SV100E	Solenoid Valve		Rm. 602	
208H-019	2	SV1011	Solenoid Valve		Rm. 601	
208H-020	2	SV101A	Solenoid Valve		Rm. 601	
208H-020	2	SV101A	Solenoid Valve		Rm. 601	
208H-021	2	SV101B	Solenoid Valve		Rm. 601	
208H-021	2	SV101B	Solenoid Valve		Rm. 601	
208H-022	2	SV101C	Solenoid Valve		Rm. 601	
208H-022	2	SV101C	Solenoid Valve		Rm. 601	
208H-023	2	SV101D	Solenoid Valve		Rm. 601	
208H-023	2	SV101D	Solenoid Valve		Rm. 601	
208H-024	2	SV101E	Solenoid Valve		Rm. 601	
208H-024	2	SV101E	Solenoid Valve		Rm. 601	
208H-025	2	SV375	Solenoid Valve		Rm. 602	

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

MASTER LIST
HARSH ENVIRONMENT
STEAM SYSTEM

Index No: 208M-002
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: Inside Primary Containment	LOCATION: Outside Primary Containment	REMARKS
208H-025	2	SV375	Solenoid Valve		Rm. 602	
208H-026	2	SV394	Solenoid Valve		Rm. 601	
208H-026	2	SV394	Solenoid Valve		Rm. 601	
208H-027	2	SV598	Solenoid Valve		Rm. 314	
208H-028	2	SV607	Solenoid Valve		Rm. 314	
208H-029	2	SVICS11A3	Solenoid Valve		Rm. 602	
208H-029	2	SVICS11A1	Solenoid Valve		Rm. 602	
208H-030	2	SVICS11A2	Solenoid Valve		Rm. 602	
208H-030	2	SVICS11A2	Solenoid Valve		Rm. 602	
208H-031	2	SVICS11B1	Solenoid Valve		Rm. 601	
208H-031	2	SVICS11B1	Solenoid Valve		Rm. 601	
208H-032	2	SVICS11B2	Solenoid Valve		Rm. 601	
208H-032	2	SVICS11B2	Solenoid Valve		Rm. 601	
	2	BE11C	Motor Control Center		Rm. 304	See 2.21
	2	BF11A	Motor Control Center		Rm. 427	See 2.21
	2	CDE11C	Disconnect Switch Cabinet		Rm. 304	See 2.21
	2	CDF11A-2	Disconnect Switch Cabinet		Rm. 427	See 2.21
	2	EV01060	Terminal Block Box		Rm. 501	See 2.21
	2	EV0106A	Terminal Block Box		Rm. 501	See 2.21
	2	EV01070	Terminal Block Box		Rm. 501	See 2.21
	2	EV0107A	Terminal Block Box		Rm. 501	See 2.21
	2	EV1001	Terminal Block Box		Rm. 602	See 2.21
	2	EV100A	Terminal Block Box		Rm. 602	See 2.21
	2	EV1011	Terminal Block Box		Rm. 601	See 2.21
	2	EV101B	Terminal Block Box		Rm. 601	See 2.21
	2	EV1545	Terminal Block Box		Rm. 314	See 2.21
	2	EV607	Terminal Block Box		Rm. 314	See 2.21
	2	JT3606	Terminal Block Box		Rm. 314	See 2.21
	2	JT3802	Terminal Block Box		Rm. 303	See 2.21
	2	JT6703	Terminal Block Box		Rm. 602	See 2.21
	2	JT6704	Terminal Block Box		Rm. 602	See 2.21
	2	JT6707	Terminal Block Box		Rm. 602	See 2.21

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

MASTER LIST
HARSH ENVIRONMENT
STEAM SYSTEM

Index No: 208M-003
Rev.: 2

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION: Inside Primary Containment	LOCATION: Outside Primary Containment	REMARKS
	2	JT6801	Terminal Block Box		Rm. 602	See 2.21
	2	JT6802	Terminal Block Box		Rm. 602	See 2.21
	2	JT6807	Terminal Block Box		Rm. 602	See 2.21
	2	MV603	Valve Motor Operator		Rm. 236	See 2.16
	2	MV603A	Valve Motor Operator		Rm. 236	See 2.16
	2	MV611	Valve Motor Operator		Rm. 208	See 2.16
	2	MV611A	Valve Motor Operator		Rm. 208	See 2.16
	2	NSV100	Push Button Switch		Rm. 602	See 2.21
	2	NSV100E	Push Button Switch		Rm. 602	See 2.21
	2	NSV101	Push Button Switch		Rm. 601	See 2.21
	2	NSV101E	Push Button Switch		Rm. 601	See 2.21
	2	NV1001	Push Button Switch		Rm. 602	See 2.21
	2	NV1011	Push Button Switch		Rm. 601	See 2.21
	2	NV375	Push Button Switch		Rm. 602	See 2.21
	2	NV394	Push Button Switch		Rm. 601	See 2.21
	2	NV598	Push Button Switch		Rm. 314	See 2.21
	2	NV607	Push Button Switch		Rm. 314	See 2.21
	2	NVICS11A	Push Button Switch		Rm. 602	See 2.21
	2	NVICS11B	Push Button Switch		Rm. 601	See 2.21

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

MASTER LIST
NON-HARSH ENVIRONMENT
STEAM SYSTEM

Index No: 208M-004
Rev.: 2

Prepared by: M. Lewis Date: 11/1/93
Checked by: [illegible] Date: 11/4/93

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION: Inside Primary Containment	LOCATION: Outside Primary Containment	REMARKS
		BF12E	Motor Control Center		Rm. 405	
	0	BF11B	Motor Control Center		Rm. 405	
	0	C5717	Engineering Safety Feature Panel		Rm. 505	
	0	C5762A	Control Cabinet		Rm. 505	
	0	C5792	Control Cabinet		Rm. 505	
	0	CDF11B	Disconnect Switch Cabinet		Rm. 405	
	0	D1	DC Motor Control Center 125/250V		Rm. 429	
	0	D1N	Distribution Panel		Rm. 429A	
	0	JT6717	Terminal Block Box		Rm. 603	
	0	PS106A	Pressure Switch		Rm. 237	
	0	PS106B	Pressure Switch		Rm. 237	
	0	PS106C	Pressure Switch		Rm. 237	
	0	PS106D	Pressure Switch		Rm. 237	
	0	PS107A	Pressure Switch		Rm. 238	
	0	PS107B	Pressure Switch		Rm. 238	
	0	PS107C	Pressure Switch		Rm. 238	
	0	PS107D	Pressure Switch		Rm. 238	
	0	PSL4930A	Pressure Switch		Rm. 237	
	0	PSL4930B	Pressure Switch		Rm. 237	
	0	PSL4931A	Pressure Switch		Rm. 238	
	0	PSL4931B	Pressure Switch		Rm. 238	
	0	RC4604	Relay Cabinet		Rm. 429	
	0	RC4605	Relay Cabinet		Rm. 428	

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-009
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: Steam System Plant ID No. MV01060	Operating Time	1 Year	1.1 Years	F	M-28 V-24G Note 1	Simultaneous Test	None
Component: Valve Motor Operator Manufacturer: Limitorque	Temperature (°F)	249.0	250.0 Note 2	C-500	M-28 V-24G	Simultaneous Test	None
Model Number: O/N: 370174C S/N: 168172	Pressure (PSIA)	15.61	39.7	C-500	M-28 V-24G	Simultaneous Test	None
Function: Operates Steam Valve to Auxiliary Feed-water Pump Turbine 1-1	Relative Humidity (%)	100.0	100.0	A	M-28 V-24G	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Auxiliary Feed-water Pump Turbine 1-1 Steam Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 500	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [X]	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.: 208H-009A
Rev.: 2

NOTES

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

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1. The test subjected the valve motor operator to an initial transient of 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1-1/2 hours. The valve motor opertor was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in Room 500 peaks at 249°F in 31 seconds. The pressure in Room 500 peaks at 15.61 psia in 9.6 seconds. The temperature and pressure in Room 500 return to ambient conditions in 19 minutes.

   Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB (Reference C-500).

2. According to profile C-500, the peak temperature in Room 500 never exceeds the test temperature; however, the required margin is not available for 16 seconds during the 19 minute postulated harsh environment transient in Room 500. The room temperature does not exceed test temperature and the time of exposure to the harsh environment in Room 500 is short (19 minutes) compared to the test environment (16 days).

   There will be some thermal lag time for a component's surface temperature to reach the postulated condition. Since the postulated HELB steam transient is so rapid and of such a short duration, and since the postulated HELB conditions do not exceed the test report conditions, good engineering judgement allows us to state that the valve motor operator will be able to withstand the harsh environment. Based on this analysis, it is felt that qualification is justified for the valve motor operator.

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No.: 208H-010
Docket: 50-346 Rev.: 2

Prepared by: N Lewis Date: 11/1/93
Checked by: [signature] Date: 11/2/93

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam System Plant ID No. MV0106A	Operating Time	1 Year	1.1 Years	F	M-28, V-24C V-24G Note 1	Simultaneous Test	None
Component: Valve Motor Operator Manufacturer: Limitorque	Temperature (°F)	267.0	250.0 Note 2	C-501	M-28 V-24C V-24G	Simultaneous Test	None
Model Number: O/N: 386243A S/N: 217133	Pressure (PSIA)	15.61	39.7	C-501	M-28 V-24C V-24G	Simultaneous Test	None
Function: Operates Steam Valve to Auxiliary Feedwater Pump Turbine 1-1	Relative Humidity (%)	100.0	100.0	A	M-28 V-24C V-24G	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A Service: Auxiliary Feedwater Pump Turbine 1-1 Steam Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [X]	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

NOTES

Index No.: 208H-010A
Rev.: 2

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

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1. The test subjected the valve motor operator to an initial transient of 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1-1/2 hours. The valve motor opertor was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in Room 501 peaks at 267°F in 31 seconds. The pressure in Room 501 peaks at 15.61 psia in 9.5 seconds. The temperature and pressure in Room 501 return to ambient conditions in 19 minutes.

   Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB (Reference C-501).

2. According to profile C-501, the peak temperature in Room 501 exceeds the test temperature for 19.0 seconds during the 19 minute postulated harsh environment transient in Room 501. In addition, the required temperature margin is not available for 32 seconds of the 19 minute transient. The time of exposure to the postulated harsh environment in Room 501 is short (19 minutes) compared to the test (16 days).

   There will be some thermal lag time for a component's surface temperature to reach the postulated condition. Since the postulated HELB steam transient is so rapid (19.0 minutes) and of such a short duration, and since the postulated HELB conditions do not exceed the test report conditions, good engineering judgement allows us to state that the valve motor operator will be able to withstand the harsh environment. Based on this analysis, it is felt that qualification is justified for the valve motor operator (Reference C-501).

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-011
Rev.: 2

Prepared by: N Lewis Date: 11/4/83
Checked by: [signature] Date: 11/5/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam System Plant ID No. MV01070	Operating Time	1 Year	1.1 Years	F	M-28 V-24G Note 1	Simultaneous Test	None
Component: Valve Motor Operator Manufacturer: Limitorque	Temperature (°F)	267.0	250.0 Note 2	C-501	M-28 V-24G	Simultaneous Test	None
Model Number: O/N: 370174C S/N: 168171	Pressure (PSIA)	15.61	39.7	C-501	M-28 V-24G	Simultaneous Test	None
Function: Operates Steam Valve to Auxiliary Feedwater Pump Turbine 1-2	Relative Humidity (%)	100.0	100.0	A	M-28 V-24G	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Auxiliary Feedwater Pump Turbine 1-2 Steam Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [X]	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.: 208H-011A
Rev.: 2

NOTES

Prepared by: M. Lewis Date: 11/1/83
Checked by: [illegible] Date: 11/2/83

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1. The test subjected the valve motor operator to 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1-1/2 hours. The valve motor opertor was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in Room 501 peaks at 267°F in 31 seconds. The pressure in Room 501 peaks at 15.61 psia in 9.5 seconds. The temperature and pressure in Room 501 return to ambient conditions in 19 minutes.

   Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB (Reference C-500).

2. According to profile C-501, the peak temperature in Room 501 exceeds the test temperature for 19.0 seconds during the 19 minute postulated harsh environment transient in Room 501. In addition, the required temperature margin is not available for 32 seconds of the 19 minute transient. Since the time of exposure to the postulated harsh environment in Room 501 is of such short duration, and, in addition, the time where the room temperature exceeds the test temperature is so short compared to the test environment (16 days), it is felt that qualification is justified.

   There will be some thermal lag time for a component's surface temperature to reach the postulated condition. Since the postulated HELB steam transient is so rapid and of such a short duration, and since the postulated HELB conditions do not exceed the test report conditions, good engineering judgement allows us to state that the valve motor operator will be able to withstand the harsh environment. Based on this analysis, it is felt that qualification is justified for the valve motor operator.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-012
Rev.: 2

Prepared by: N Lewis Date: 11/1/88
Checked by: [signature] Date: 11/2/88

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam System Plant ID No. MV0107A	Operating Time	1 Year	1.1 Years	F	M-28 V-24C Note 1	Simultaneous Test	None
Component: Valve Motor Operator Manufacturer: Limitorque	Temperature (°F)	249.0	250.0 Note 2	C-500	M-28 V-24C	Simultaneous Test	None
Model Number: O/N: 386243A S/N: 217134	Pressure (PSIA)	15.61	39.7	C-500	M-28 V-24C	Simultaneous Test	None
Function: Operates Steam Valve to Auxiliary Feedwater Pump Turbine 1-2	Relative Humidity (%)	100.0	100.0	A	M-28 V-24C	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A Service: Auxiliary Feedwater Pump Turbine 1-2 Steam Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 500	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [X]	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.: 208H-012A
Rev.: 2

NOTES

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

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1. The test subjected the valve motor operator to 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1-1/2 hours. The valve motor opertor was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in Room 500 peaks at 249°F in 31 seconds. The pressure in Room 500 peaks at 15.61 psia in 9.6 seconds. The temperature and pressure in Room 500 return to ambient conditions in 19 minutes.

   Based on this information, it can be concluded that the laboratory test subjected the valve motor operator to an overall more severe environment than that which would result from the postulated HELB. Since the valve motor operator remained operable throughout the test and functional after the test, it can be concluded that the valve motor operator will remain functional during and after exposure to the accident environment which would result from the postulated HELB (Reference C-500).

2. According to profile C-500, the peak temperature in Room 500 never exceeds the test temperature; however, the required margin is not available for 16 seconds during the 19 minute postulated harsh environment transient in Room 500. Since the room temperature does not exceed test temperature and since the time of exposure to the harsh environment in Room 500 is short (19 minutes) compared to the test environment (16 days), it is felt that qualification is justified.

   There will be some thermal lag time for a component's surface temperature to reach the postulated condition. Since the postulated HELB steam transient is so rapid and of such a short duration, good engineering judgement allows us to state that the valve motor operator will be able to withstand the harsh environment. Based on this analysis, it is felt that qualification is justified for the valve motor operator.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-013
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	15 Seconds	1.1 Years	K	J-18 Note 1	Simultaneous Test	None
Plant ID No. SV1001 Component: Solenoid Valve	Temperature (°F)	344.0	346.0 Note 1	C-602	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320A185F	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
Function: Steam Generator Isolation	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 2 Warm-Up Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

NOTES

Index No.: 208H-013A
Rev.: 2

Prepared by: [signature] Date: 11/1/93
Checked by: [signature] Date: 11/2/93

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1. According to Profile C-602, the 344°F temperature peak occurs 0.40 seconds following a main steam line rupture. 0.1 seconds later, the temperature is reduced to 210°F. Considering this short-term temperature peak, the surface temperature of the solenoid valve will not become much greater than 210-215°F, leaving an adequate margin between the temperature specification and qualification values.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-014
Rev.: 2

Prepared by: [signature] Date: 11/1/93
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EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
Plant ID No. SV100A Component: Solenoid Valve	Temperature (°F)	344.0	Exempt	C-602	Note 1	N/A	None
Manufacturer: ASCO Model Number: HTX8320A20V	Pressure (PSIA)	20.0	Exempt	C-602	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Main Steam Line 2 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

NOTES

Index No.: 208H-014A
Rev.: 2

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-014B
Rev.: 2

Prepared by: _____ Date: 11/1/93
Checked by: _____ Date: 11/2/93

Plant I.D. No.: SV100A
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HTX8320A20V

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-014
Rev.: 2

Prepared by: [signature] 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: Steam	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
Plant ID No. SV100A Component: Solenoid Valve	Temperature (°F)	344.0	346.0	C-602	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320 Note 1	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Main Steam Line 2 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86 x 10^3 RADS	2.0 x 10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-014A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

---

1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 344°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 20.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 1 hour. The test temperature exceeds the postulated accident room temperature. Only for 1.25 seconds of the 1-hour transient is the required 15°F margin between test temperature and room temperature not available.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-602)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-015
Rev.: 2

Prepared by: [signature] Date: 11/1/85
Checked by: [signature] Date: 11/2/85

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
Plant ID No. SV100B Component: Solenoid Valve	Temperature (°F)	344.0	Exempt	C-602	Note 1	N/A	None
Manufacturer: ASCO Model Number: HTX8320A20V	Pressure (PSIA)	20.0	Exempt	C-602	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Main Steam Line 2 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-015A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/93
Checked by: [signature] Date: 11/2/93

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-015B
Rev.: 2

Prepared by: _____ Date: 11/4/88
Checked by: _____ Date: 11/4/88

Plant I.D. No.: SV100B
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HTX8320A20V

Parts List	Materials List	THERMAL AGING Qualification	THERMAL AGING Reference	RADIATION Qualification	RADIATION Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208E-015
Rev.: 2

Prepared by: _____ Date: 11/1/82
Checked by: _____ Date: 11/2/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Steam	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
Plant ID No. SV100B Component: Solenoid Valve	Temperature (°F)	344.0	346.0	C-602	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320 Note 1	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Main Steam Line 2 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-015A
Rev.: 2

NOTES

Prepared by: _____ Date: 11/10
Checked by: _____ Date: 11/2/10

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 344°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 20.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 1 hour. The test temperature exceeds the postulated accident room temperature. Only for 1.25 seconds of the 1-hour transient is the required 15°F margin between test temperature and room temperature not available.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-602)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-016
Rev.: 2

Prepared by: _____ Date: 11/1/83
Checked by: _____ Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SV100C Component: Solenoid Valve Manufacturer: ASCO Model Number: HTX8320A20V Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 2 Isolation Valve Location: Auxiliary Bldg. Rm. 602 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
	Temperature (°F)	344.0	Exempt	C-602	Note 1	N/A	None
	Pressure (PSIA)	20.0	Exempt	C-602	Note 1	N/A	None
	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
	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.: 208H-016A
Rev.: 2

NOTES

Prepared by: D Lee Date: 11/1/93
Checked by: [signature] Date: 11/2/93

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-016B
Rev.: 2

Prepared by: [signature] Date: 11/1/85
Checked by: [signature] Date: 11/2/85

Plant I.D. No.: SV100C
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HTX8320A20V

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-016
Rev.: 2

Prepared by: [signature] 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: Steam	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
Plant ID No. SV100C Component: Solenoid Valve	Temperature (°F)	344.0	346.0	C-602	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320 Note 1	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Main Steam Line 2 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86 x 10^3 RADS	2.0 x 10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-016A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 344°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 20.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 1 hour. The test temperature exceeds the postulated accident room temperature. Only for 1.25 seconds of the 1-hour transient is the required 15°F margin between test temperature and room temperature not available.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-602)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-017
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: Steam	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
Plant ID No. SV100D Component: Solenoid Valve	Temperature (°F)	344.0	Exempt	C-602	Note 1	N/A	None
Manufacturer: ASCO Model Number: HTX8320A20V	Pressure (PSIA)	20.0	Exempt	C-602	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Main Steam Line 2 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-017A
Rev.: 2

NOTES

Prepared by: [signature] Date: 4/1/83
Checked by: [signature] Date: 4/4/83

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

Facility: Davis-Besse Unit 1 COMPONENT MATERIALS EVALUATION SHEET Index No.: 208H-017B
Docket: 50-346 Rev.: 2

Prepared by: [signature] Date: 11/1/93
Checked by: [signature] Date: 11/2/93

Plant I.D. No.: SV100D Component: Solenoid Valve
Manufacturer: ASCO Model No.: HTX8320A20V

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3C

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-017
Rev.: 2

Prepared by: [signature] Date: 11/1/03
Checked by: [signature] Date: 11/6/03

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
Plant ID No. SV1000 Component: Solenoid Valve	Temperature (°F)	344.0	346.0	C-602	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320 Note 1	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
Function: Steam Generator Isolation	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Main Steam Line 2 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86 x 10^3 RADS	2.0 x 10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-017A
Rev.: 2

NOTES

Prepared by: _____ Date: 11/18/82
Checked by: _____ Date: 11/21/82

1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 344°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 20.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 1 hour. The test temperature exceeds the postulated accident room temperature. Only for 1.25 seconds of the 1-hour transient is the required 15°F margin between test temperature and room temperature not available.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-602)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-018
Rev.: 2

Prepared by: [signature] 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: Steam	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
Plant ID No. SV100E Component: Solenoid Valve	Temperature (°F)	344.0	Exempt	C-602	Note 1	N/A	None
Manufacturer: ASCO Model Number: HTX8320A20V	Pressure (PSIA)	20.0	Exempt	C-602	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Main Steam Line 2 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-018A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-018B
Rev.: 2

Prepared by: T Lam Date: 11/1/8
Checked by: [signature] Date: 11/2/87

Plant I.D. No.: SV100E
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HTX8320A20V

Parts List	Materials List	THERMAL AGING Qualification	Reference	RADIATION Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-018
Rev.: 2

Prepared by: _____ Date: 11/1/83
Checked by: _____ Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SV100E Component: Solenoid Valve Manufacturer: ASCO Model Number: NP8320 Note 1 Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 2 Isolation Valve Location: Auxiliary Bldg. Rm. 602 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
	Temperature (°F)	344.0	346.0	C-602	J-18	Simultaneous Test	None
	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

NOTES

Index No.: 208H-018A
Rev.: 2

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 344°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 20.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 1 hour. The test temperature exceeds the postulated accident room temperature. Only for 1.25 seconds of the 1-hour transient is the required 15°F margin between test temperature and room temperature not available.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-602)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-019
Rev.: 2

Prepared by: [signature] Date: 6/1/83
Checked by: [signature] Date: 6/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SV1011 Component: Solenoid Valve Manufacturer: ASCO Model Number: NP8320A185E Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 1 Warm-Up Isolation Valve Location: Auxiliary Bldg. Rm. 601 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Operating Time	15 Seconds	1.1 Years	K	J-18 Note 1	Simultaneous Test	None
	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
	Aging	40 Years	40 Years	I	J-41	Sequential Test	None
	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.: 208H-019A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/4/83

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1. According to Profile C-602, the 344°F temperature peak occurs 0.40 seconds following a main steam line rupture. 0.1 seconds later, the temperature is reduced to 210°F. Considering this short-term temperature peak, the surface temperature of the solenoid valve will not become much greater than 210-215°F, leaving an adequate margin between the temperature specification and qualification values.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-020
Rev.: 2

Prepared by: [signature] 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: Steam Plant ID No. SV101A Component: Solenoid Valve Manufacturer: ASCO Model Number: HTX8320A20V Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 1 Isolation Valve Location: Auxiliary Bldg. Rm. 601 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown | X | Cold Shutdown | |	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
	Temperature (°F)	282.0	Exempt	C-601	Note 1	N/A	None
	Pressure (PSIA)	17.0	Exempt	C-601	Note 1	N/A	None
	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
	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.: 208H-020A
Rev.: 2

NOTES

Prepared by: _____ Date: 11/1/93
Checked by: _____ Date: 11/2/93

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-020B
Rev.: 2

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

Plant I.D. No.: SV101A
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HTX8320A20V

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-020
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: Steam Plant ID No. SV101A Component: Solenoid Valve Manufacturer: ASCO Model Number: NP8320 Note 1 Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 1 Isolation Valve Location: Auxiliary Bldg. Rm. 601 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
	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.: 208H-020A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/88
Checked by: [signature] Date: 11/2/88

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 282°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 17.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 2.3 hours.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-601)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-021
Rev.: 2

Prepared by: [signature] Date: 11/1/85
Checked by: [signature] Date: 11/5/85

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SV101B Component: Solenoid Valve Manufacturer: ASCO Model Number: HTX8320A20V Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 1 Isolation Valve Location: Auxiliary Bldg. Rm. 601 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown | X | Cold Shutdown | |	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
	Temperature (°F)	282.0	Exempt	C-601	Note 1	N/A	None
	Pressure (PSIA)	17.0	Exempt	C-601	Note 1	N/A	None
	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
	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.: 208H-021A
Rev.: 2

NOTES

Prepared by: D Lee Date: 11/1/93
Checked by: [signature] Date: 11/2/93

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-021B
Rev.: 2

Prepared by: _____ Date: 11/6/2
Checked by: _____ Date: 11/24/92

Plant I.D. No.: SV101B
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HTX8320A20V

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-021
Rev.: 2

Prepared by: _____ Date: 11/1/83
Checked by: _____ Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
Plant ID No. SV101B Component: Solenoid Valve	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320 Note 1	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Main Steam Line 1 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-021A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 282°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 17.6 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 2.3 hours.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-601)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-022
Rev.: 2

Prepared by: D Jun Date: 11/9/82
Checked by: [illegible] Date: 11/9/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
Plant ID No. SV101C Component: Solenoid Valve	Temperature (°F)	282.0	Exempt	C-601	Note 1	N/A	None
Manufacturer: ASCO Model Number: HTX8320A20V	Pressure (PSIA)	17.0	Exempt	C-601	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Main Steam Line 1 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-022A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/3/83

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

Facility: Davis-Besse Unit 1 COMPONENT MATERIAL EVALUATION SHEET Index No.: 208H-022B
Docket: 50-346 Rev.: 2

Prepared by: [signature] Date: 4/1/93
Checked by: [signature] Date: 4/2/93

Plant I.D. No.: SV101C Component: Solenoid Valve
Manufacturer: ASCO Model No.: HTX8320A20V

Parts List	Materials List	THERMAL AGING Qualification	Reference	RADIATION Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 240°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-022
Rev.: 2

Prepared by: N Lee 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: Steam	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
Plant ID No. SV101C Component: Solenoid Valve	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320 Note 1	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	J-18	Simultaneous Test	None
Service: Main Steam Line 1 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-022A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 282°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 17.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 2.3 hours.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-601)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-023
Rev.: 2

Prepared by: D Shu Date: 11/1/93
Checked by: [signature] Date: 11/4/93

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
Plant ID No. SV101D Component: Solenoid Valve	Temperature (°F)	282.0	Exempt	C-601	Note 1	N/A	None
Manufacturer: ASCO Model Number: HTX8320A20V	Pressure (PSIA)	17.0	Exempt	C-601	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Main Steam Line 1 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-023A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/07
Checked by: [signature] Date: 11/2/07

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-023B
Rev.: 2

Prepared by: [signature] Date: 1/11/83
Checked by: [signature] Date: 1/21/83

Plant I.D. No.: SV101D
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HTX8320A20V

Parts List	Materials List	THERMAL AGING Qualification	Reference	RADIATION Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-023
Rev.: 2

Prepared by: [signature] Date: 4/1/86
Checked by: [signature] Date: 11/2/88

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
Plant ID No. SV101D Component: Solenoid Valve	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320 Note 1	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Main Steam Line 1 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-023A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 282°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 17.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 2.3 hours.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-601)

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No.: 208R-024
Docket: 50-346 Rev.: 2

Prepared by: D Lee Date: 11/1/83
Checked by: [illegible] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	40 Seconds	Exempt	Z	Note 1	N/A	None
Plant ID No. SV101E Component: Solenoid Valve	Temperature (°F)	282.0	Exempt	C-601	Note 1	N/A	None
Manufacturer: ASCO Model Number: HTX8320A20V	Pressure (PSIA)	17.0	Exempt	C-601	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Main Steam Line 1 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-024A
Rev.: 2

NOTES

Prepared by: N Lee Date: 1/1/93
Checked by: D Shelton Date: 4/2/93

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1. This solenoid valve supplies control air to the main steam line isolation valve (MSIV). The solenoid valve is exempt from qualification because its failure will perform the intended safety-related function of closing the MSIV. In the event of an accident (HELB or LOCA), the solenoid valve is de-energized causing the MSIV to move to its fail-safe closed position. Should the solenoid fail, it will de-energize and close the MSIV. Since it is unnecessary to operate the isolation valve after it closes, failure of the solenoid valve will not degrade other safety-related functions.

   The MSIV's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the MSIV's position indicating (limit) switches. Since the solenoid valve is part of a separate control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

Facility: Davis-Besse Unit 1 COMPONENT MATERIAL EVALUATION SHEET Index No.: 208H-024B
Docket: 50-346 Rev.: 2

Prepared by: N Lim Date: 11/1/82
Checked by: [signature] Date: 11/2/82

Plant I.D. No.: SV101E Component: Solenoid Valve
Manufacturer: ASCO Model No.: HTX8320A20V

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc	Viton	40 Years @ 265°F	CAL-80	3.0×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3E, V-3F, CAT-3A, ROC-3A, ROC-3G

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-024
Rev.: 2

Prepared by: [signature] 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: Steam	Operating Time	40 Seconds	1.1 Years	Z	J-18 Note 2	Simultaneous Test	None
Plant ID No. SV101E Component: Solenoid Valve	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
Manufacturer: ASCO Model Number: NP8320 Note 1	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Main Steam Line 1 Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-024A
Rev.: 2

NOTES

Prepared by: _____ Date: 11/1/83
Checked by: _____ Date: 11/4/83

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 282°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 17.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 2.3 hours.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-601)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-025
Rev.: 2

Prepared by: [signature] 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: Steam	Operating Time	15 Seconds	Exempt	K	Note 1	Analysis	None
Plant ID No. SV375 Component: Solenoid Valve	Temperature (°F)	344.0	Exempt	C-602	Note 1	N/A	None
Manufacturer: ASCO Model Number: HT8320A108	Pressure (PSIA)	20.0	Exempt	C-602	Note 1	N/A	None
Function: Steam Generator Isolation	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Main Steam Line 2 Warm-Up Drain Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No.: 208H-025A
Docket: 50-346 Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/91
Checked by: [signature] Date: 11/4/91

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1. This solenoid valve controls the air supply to MS375 (an air-operated main steam line warm-up drain isolation valve). The only safety-related function performed by this valve is the isolation of a steam generator during both a loss of coolant accident and a high energy line break accident.

   This solenoid valve is exempt from qualification because its failure will perform the safety-related function of insuring steam generator isolation. Failure of the solenoid valve will cause its associated air-operated valve to move to (or more likely remain in) its normally closed, fail-safe position. This action performs the desired safety-related function of isolating the main steam line from the condenser. This isolation is a normal operating condition because the valve is only opened during main steam line warmup and cooldown.

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H J25B
Rev.: 2

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

Plant I.D. No.: SV375
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HT8320A108

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Disc	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3F, CAT-3A, ROC-3A

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-025
Rev.: 2

Prepared by: _____ Date: 11/10
Checked by: _____ Date: 11/8/88

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SV375 Component: Solenoid Valve Manufacturer: ASCO Model Number: NP8320 Note 1 Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 2 Warm-Up Drain Isolation Valve Location: Auxiliary Bldg. Rm. 602 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Operating Time	15 Seconds	1.1 Years	K	J-18 Note 2	Simultaneous Test	None
	Temperature (°F)	344.0	346.0	C-602	J-18	Simultaneous Test	None
	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	9.0×10^2 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test Analysis	None
	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.: 208H-025A
Rev.: 2

NOTES

Prepared by: _____ Date: 11/1/87
Checked by: _____ Date: 11/4/87

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 345°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 344°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 20.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 1 hour. The test temperature exceeds the postulated accident room temperature. Only for 1.25 seconds of the 1-hour transient is the required 15°F margin between test temperature and room temperature not available.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-602)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-026
Rev.: 2

Prepared by: [signature] Date: 11/16/83
Checked by: [signature] Date: 11/21/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	15 Seconds	Exempt	K	Note 1	Analysis	None
Plant ID No. SV394 Component: Solenoid Valve	Temperature (°F)	282.0	Exempt	C-601	Note 1	N/A	None
Manufacturer: ASCO Model Number: HT8320A108	Pressure (PSIA)	17.0	Exempt	C-601	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Main Steam Line 1 Warm-Up Drain Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	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.: 208H-026A
Rev.: 2

NOTES

Prepared by: [signature] Date: 1/1/89
Checked by: [signature] Date: 1/20/89

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1. This solenoid valve controls the air supply to MS394 (an air-operated main steam line warm-up drain isolation valve). The only safety-related function performed by this valve is the isolation of a steam generator during both a loss of coolant accident and a high energy line break accident.

   This solenoid valve is exempt from qualification because its failure will perform the safety-related function of insuring steam generator isolation. Failure of the solenoid valve will cause its associated air-operated valve to move to (or more likely remain in) its normally closed, fail-safe position. This action performs the desired safety-related function of isolating the main steam line from the condenser. This isolation is a normal operating condition because the valve is only opened during main steam line warmup and cooldown.

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-026B
Rev.: 2

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11-2-83

Plant I.D. No.: SV394
Component: Solenoid Valve
Manufacturer: ASCO
Model No.: HT8320A108

Parts List	Materials List	THERMAL AGING Qualification	Reference	RADIATION Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Disc	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3F, CAT-3A, ROC-3A

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-076
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: Steam Plant ID No. SV394 Component: Solenoid Valve Manufacturer: ASCO Model Number: NP8320 Note 1 Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 1 Warm-Up Drain Isolation Valve Location: Auxiliary Bldg. Rm. 601 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Operating Time	15 Seconds	1.1 Years	K	J-18 Note 2	Simultaneous Test	None
	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test Analysis	None
	Submergence	N/A	N/A	N/A	N/A	N/A	None

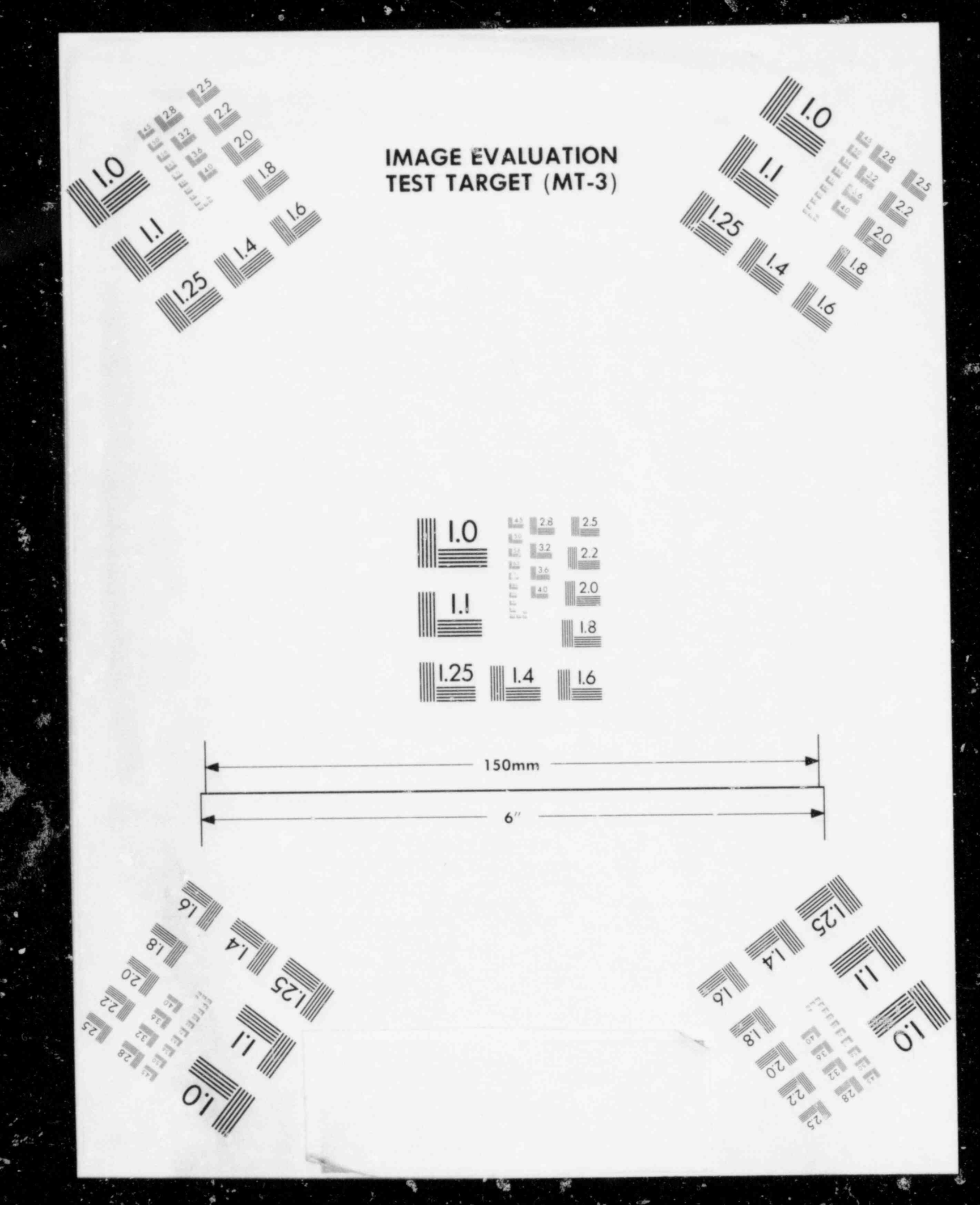
IMAGE EVALUATION
TEST TARGET (MT-3)
1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
150mm
6"

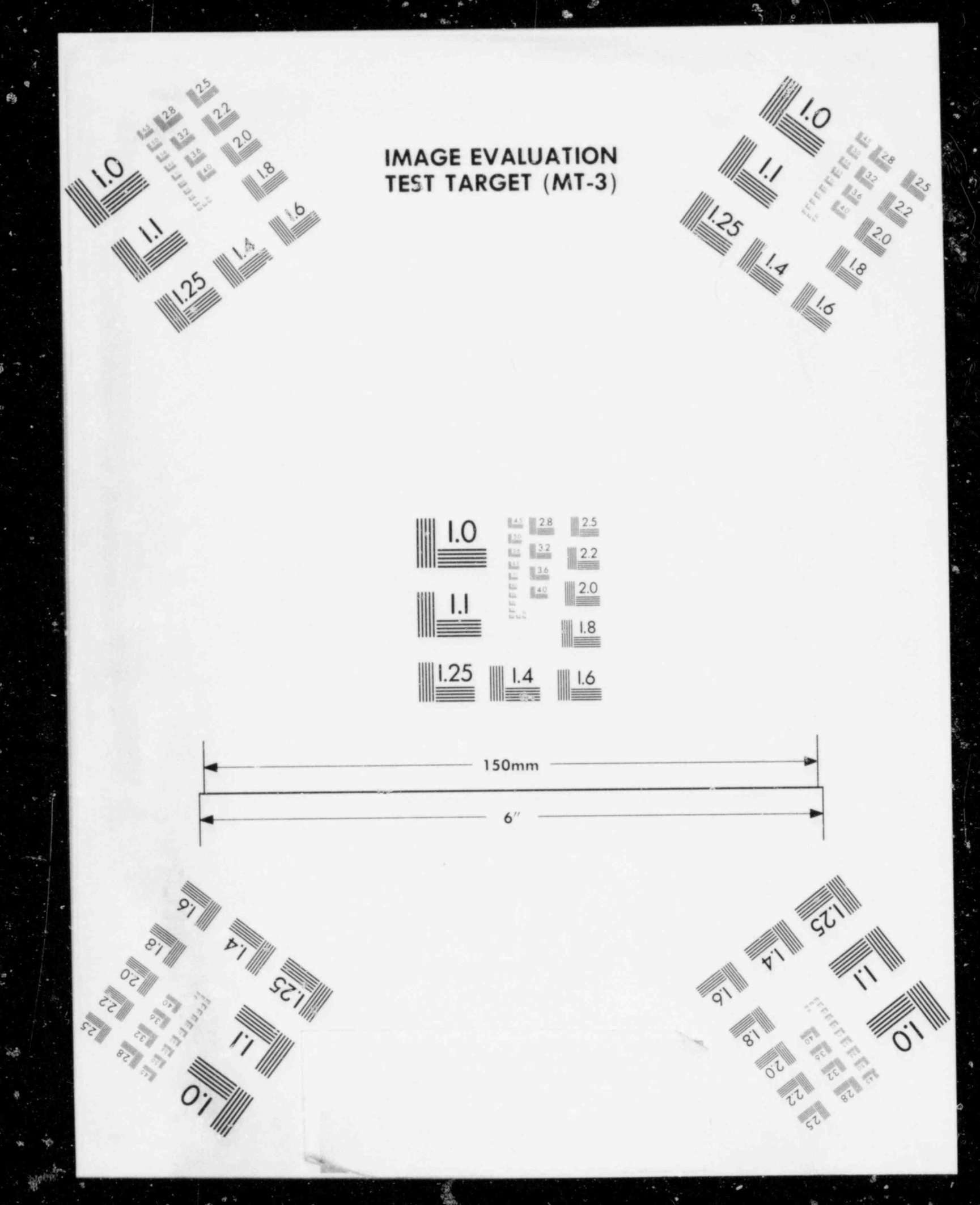
IMAGE EVALUATION
TEST TARGET (MT-3)
1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
150mm
6"

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-026A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This component replaces HTX8320A20V in accordance with FCR 83-052.

2. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in the Auxiliary Building peaks at 282°F in 1.0 seconds. The pressure in the Auxiliary Building peaks at 17.0 psia in 2 seconds. The conditions in the Auxiliary Building return to ambient in 2.3 hours.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated LOCA. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated LOCA. (Reference J-18, C-601)

Facility: Davis Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No.: 208H-027
Docket: 50-346 Rev.: 2

Prepared by: _____ Date: _____
Checked by: _____ Date: _____

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	15 Seconds	Exempt	K	Note 1	Analysis	None
Plant ID No. SV598	Temperature (°F)	221.0	Exempt	C-314	Note 1	N/A	None
Component: Solenoid Valve							
Manufacturer: ASCO	Pressure (PSIA)	19.76	Exempt	C-314	Note 1	N/A	None
Model Number: HT8320A108							
Function: Steam Generator Isolation	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Steam Generator 2 Sample Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	1.2×10^6 RADS	T	CAL-80 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80 Note 2	Analysis	None
Needed for:							
Hot Shutdown [X]	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown [ ]							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-027A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/4/83
Checked by: [signature] Date: 11/8/83

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1. This solenoid valve controls the air supply to SS598 (an air-operated steam generator sample isolation valve). The only safety-related function performed by this valve is the isolation of a steam generator during both a loss of coolant accident.

   This solenoid valve is exempt from qualification because its failure will perform the safety-related function of insuring steam generator isolation. Failure of this solenoid valve will cause SS598 to move to its fail-safe closed position. This action performs the desired safety-related function of isolating the steam generator from the sampling system.

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

Facility: Davis-Besse Unit 1 COMPONENT MATERIALS EVALUATION SHEET Index No.: 208H-027B
Docket: 50-346 Rev.: 2

Prepared by: [signature] Date: 11/1/93
Checked by: [signature] Date: 11/5/93

Plant I.D. No.: SV598 Component: Solenoid Valve
Manufacturer: ASCO Model No.: HT8320A108

Parts List	Materials List	THERMAL AGING Qualification	Reference	RADIATION Qualification	Reference
Body & End Cap	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Gasket, Body	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Disc	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3F, CAT-3A, ROC-3A

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-028
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam	Operating Time	15 Seconds	Exempt	K	Note 1	Analysis	None
Plant ID No. SV607 Component: Solenoid Valve	Temperature (°F)	221.0	Exempt	C-314	Note 1	N/A	None
Manufacturer: ASCO Model Number: HT8320A108	Pressure (PSIA)	19.76	Exempt	C-314	Note 1	N/A	None
Function: Steam Generator Isolation Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Steam Generator 1 Sample Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	1.2×10^6 RADS	T	CAL-80	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 3	I	CAL-80	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Da[redacted]-Besse Unit 1 SYSTEM COMPONENT [redacted]LUATION WORKSHEET Index No.: 208H-028A
Docket: 50-346 Rev.: 2

NOTES

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

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1. This solenoid valve controls the air supply to SS607 (an air-operated steam generator sample isolation valve). The only safety-related function performed by this valve is the isolation of a steam generator during both a loss of coolant accident.

   This solenoid valve is exempt from qualification because its failure will perform the safety-related function of insuring steam generator isolation. Failure of this solenoid valve will cause SS607 to move to its fail-safe closed position. This action performs the desired safety-related function of isolating the steam generator from the sampling system.

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure cannot affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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.

Facility: [redacted]is-Besse Unit 1 COMPONENT MATERIAL EVALUATION SHEET Index No. 208H-028B
Docket: 50-346 Rev.: 2

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

Plant I.D. No.: SV607 Component: Solenoid Valve
Manufacturer: ASCO Model No.: HT8320A108

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Body & End Cap	Brass	Not Sensitive		Not Affected	
Spring, Disc	Stainless Steel	Not Sensitive		Not Affected	
Spring, Core	Stainless Steel	Not Sensitive		Not Affected	
Sol. Base Sub-Assembly	Metallic	Not Sensitive		Not Affected	
Core Tube	Stainless Steel	Not Sensitive		Not Affected	
Core & Plugnut	Stainless Steel	Not Sensitive		Not Affected	
Shading Coil	Copper	Not Sensitive		Not Affected	
Gasket, Body	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Disc	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Disc Holder	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Core Guide	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3B, V-3F, CAT-3A, ROC-3A

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

Facility: Davis-Besse Unit 1 — SYSTEM COMPONENT EVALUATION WORKSHEET — Index No.: 208H-029
Docket: 50-346 — Rev.: 2

Prepared by: [signature] Date: 6/11/82
Checked by: [signature] Date: 6/12/82

EQUIPMENT DESCRIPTION	ENVIRONMENT Parameter	Specification	Qualification	DOCUMENTATION REP. Specification	Qualification	Qualification Method	Outstanding Items
System: Steam Plant ID No. SVICS11A1	Operating Time	1 Year	Note 3	Note 2	N/A	N/A	Note 1
Component: Solenoid Valve Manufacturer: ASCO	Temperature (Degrees F)	344.0	Note 3	C-602	N/A	N/A	Note 1
Model Number: HT831655 Function: Valve Control	Pressure (PSIA)	20.0	Note 3	C-602	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Note 3	A	N/A	N/A	Note 1
Service: Steam Generator 2 Atmospheric Steam Vent Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [X]	Aging	40 Years	17 Years Note 5	I	CAL-80 Note 4	Analysis	None
	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.: 208H-029A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.

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

3. This solenoid valve de-energizes following a high energy line break to remove ICS (Integrated Control System) control from the atmospheric vent valve. This action is required to assure that adverse ICS action will not cause the vent valve to move to an open position. Failure of the solenoid in the harsh steam environment would not be detrimental to plant safety because the vent valve will move to its desired fail-safe position. Once the environmental conditions have returned to normal, operation of the vent valve is necessary for plant cooldown. This can be accomplished through manual operation of the vent valve or repair of the solenoid valve.

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure can not affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

5. 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.

Facility: Davis-Besse Unit 1 COMPONENT MATERIALS EVALUATION SHEET Index No.: 208H-029B
Docket: 50-346 Rev.: 2

Prepared by: N Lee Date: 11/10/87
Checked by: [illegible] Date: 11/10/87

Plant I.D. No.: SVICS11A1 Component: Solenoid Valve
Manufacturer: ASCO Model No.: HT831655

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Gaskets	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Body	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Bonnet	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Adapter	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Retaining Rings	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Screw	Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Insert	Acetal (Delrin)	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Pilot Seat Cartridge	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Disc	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Diaphragm Assemblies	BUNA-N, Brass	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3F, CAT-3A, ROC-3A

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-029
Rev.: 2

Prepared by: [illegible] Date: 1/23
Checked by: [illegible] Date: 2/13

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SVICS11A1	Operating Time	1 Year	1.1 Years	Note 2	J-18 Note 3	Simultaneous Test	None
Component: Solenoid Valve Manufacturer: ASCO	Temperature Degrees F)	344.0	346.0	C-602	J-18	Simultaneous Test	None
Model Number: NP8316__E Note 1 Function: Valve Control	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Steam Generator 2 Atmospheric Steam Vent Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	2.0×10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown | X | Cold Shutdown | X |	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.: 208H-029A
Rev.: 2

NOTES

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

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1. This component replaces HT831655 in accordance with FCR 82-125.

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

3. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in Room 602 peaks at 344°F in 2.0 seconds. The pressure in Room 602 peaks at 20.[illegible] psia in 0.44 seconds. The conditions in Room 602 return to ambient in 57 minutes. At the peak temperature of 344°F, only 2°F margin is available. However, only for 0.16 seconds of the postulated 57-minute HELB transient is the required margin not provided.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated HELB. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference J-18, C-602)

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure can not affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-030
Rev.: 2

Prepared by: _____ Date: 11/4/88
Checked by: _____ Date: 11/4/88

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SVICS11A2	Operating Time	1 Year	Note 3	Note 2	N/A	N/A	Note 1
Component: Solenoid Valve Manufacturer: ASCO	Temperature Degrees F)	344.0	Note 3	C-602	N/A	N/A	Note 1
Model Number: HT831655 Function: Valve Control	Pressure (PSIA)	20.0	Note 3	C-602	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Note 3	A	N/A	N/A	Note 1
Service: Steam Generator 2 Atmospheric Steam Vent Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 5	I	CAL-80 Note 4	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [X]	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.: 208H-030A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/83
Checked by: [signature] Date: 11/2/83

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1. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.

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

3. This solenoid valve de-energizes following a high energy line break to remove ICS (Integrated Control System) control from the atmospheric vent valve. This action is required to assure that adverse ICS action will not cause the vent valve to move to an open position. Failure of the solenoid in the harsh steam environment would not be detrimental to plant safety because the vent valve will move to its desired fail-safe position. Once the environmental conditions have returned to normal, operation of the vent valve is necessary for plant cooldown. This can be accomplished through manual operation of the vent valve or repair of the solenoid valve.

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure can not affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

5. 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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-030B
Rev.: 2

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

Plant I.D. No.: SVICS11A2 Component: Solenoid Valve

Manufacturer: ASCO Model No.: HT831655

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Gaskets	BUNA-N	40 Years @ 104°F	CAL-80	1.5 x 10^7 RADS	CAL-80
Body	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Bonnet	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Adapter	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Retaining Rings	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Screw	Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Insert	Acetal (Delrin)	17 Years @ 104°F	CAL-80	1.2 x 10^6 RADS	CAL-80
Pilot Seat Cartridge	Acetal	17 Years @ 104°F	CAL-80	1.2 x 10^6 RADS	CAL-80
Disc	BUNA-N	40 Years @ 104°F	CAL-80	1.5 x 10^7 RADS	CAL-80
Diaphragm Assemblies	BUNA-N, Brass	40 Years @ 104°F	CAL-80	1.5 x 10^7 RADS	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0 x 10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3F, CAT-3A, ROC-3A

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-030
Rev.: 2

Prepared by: [illegible] Date: [illegible]
Checked by: [illegible] Date: [illegible]

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SVICS11A2	Operating Time	1 Year	1.1 Years	Note 2	J-18 Note 3	Simultaneous Test	None
Component: Solenoid Valve Manufacturer: ASCO	Temperature Degrees F)	344.0	346.0	C-602	J-18	Simultaneous Test	None
Model Number: NP8316__E Note 1 Function: Valve Control	Pressure (PSIA)	20.0	124.7	C-602	J-18	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Steam Generator 2 Atmospheric Steam Vent Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	1.86 x 10^3 RADS	2.0 x 10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown | X | Cold Shutdown | X |	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.: 208H-030A
Rev.: 2

NOTES

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

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1. This component replaces HT831655 in accordance with FCR 82-125.

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

3. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). 'Reference J-18)

   The temperature in Room 602 peaks at 344°F in 2.0 seconds. The pressure in Room 602 peaks at 20.0 psia in 0.44 seconds. The conditions in Room 602 return to ambient in 57 minutes. At the peak temperature of 344°F, only 2°F margin is available. However, only for 0.16 seconds of the postulated 57-minute HELB transient is the required margin not provided.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated HELB. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference J-18, C-602)

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure can not affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-031
Rev.: 2

Prepared by: D Lee Date: 11/4/83
Checked by: [illegible] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SVICS11B1	Operating Time	1 Year	Note 3	Note 2	N/A	N/A	Note 1
Component: Solenoid Valve Manufacturer: ASCO	Temperature (°F)	282.0	Note 3	C-601	N/A	N/A	Note 1
Model Number: HT831655 Function: Valve Control	Pressure (PSIA)	17.0	Note 3	C-601	N/A	N/A	Note 1
Accuracy: Spec: N/A Demonm: N/A	Relative Humidity (%)	100.0	Note 3	A	N/A	N/A	Note 1
Service: Steam Generator 1 Atmospheric Steam Vent Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 5	I	CAL-80 Note 4	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [X]	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No.: 208H-031A
Docket: 50-346 Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/93
Checked by: [signature] Date: 11/2/93

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1. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.

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

3. This solenoid valve de-energizes following a high energy line break to remove ICS (Integrated Control System) control from the atmospheric vent valve. This action is required to assure that adverse ICS action will not cause the vent valve to move to an open position. Failure of the solenoid in the harsh steam environment would not be detrimental to plant safety because the vent valve will move to its desired fail-safe position. Once the environmental conditions have returned to normal, operation of the vent valve is necessary for plant cooldown. This can be accomplished through manual operation of the vent valve or repair of the solenoid valve.

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure can not affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

5. 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.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 208H-031B
Rev.: 2

Prepared by: [signature] Date: 11/1/93
Checked by: [signature] Date: 11/2/93

Plant I.D. No.: SVICS11B1 Component: Solenoid Valve

Manufacturer: ASCO Model No.: HT831655

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Gaskets	BUNA-N	40 Years @ 104°F	CAL-80	1.5 x 10^7 RADS	CAL-80
Body	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Bonnet	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Adapter	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Retaining Rings	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Screw	Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Insert	Acetal (Delrin)	17 Years @ 104°F	CAL-80	1.2 x 10^6 RADS	CAL-80
Pilot Seat Cartridge	Acetal	17 Years @ 104°F	CAL-80	1.2 x 10^6 RADS	CAL-80
Disc	BUNA-N	40 Years @ 104°F	CAL-80	1.5 x 10^7 RADS	CAL-80
Diaphragm Assemblies	BUNA-N, Brass	40 Years @ 104°F	CAL-80	1.5 x 10^7 RADS	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0 x 10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3F, CAT-3A, ROC-3A

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No.: 208H-031
Docket: 50-346 Rev.: 2

Prepared by: [illegible] Date: 7/1/83
Checked by: [illegible] Date: 7/21/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SVICS11B1	Operating Time	1 Year	1.1 Years	Note 2	J-18 Note 3	Simultaneous Test	None
Component: Solenoid Valve Manufacturer: ASCO	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
Model Number: NP8316__E Note 1 Function: Valve Control	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
Accuracy: Spec: N/A Demonm: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Steam Generator 1 Atmospheric Steam Vent Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86 x 10^3 RADS	2.0 x 10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Sequential Test	None
Needed for: Hot Shutdown | X | Cold Shutdown | X |	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.: 208H-031A
Rev.: 2

NOTES

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

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1. This component replaces HT831655 in accordance with FCR 82-125.

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

3. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in Room 601 peaks at 282°F in 2.0 seconds. The pressure in Room 601 peaks at 17.0 psia in 0.44 seconds. The conditions in Room 601 return to ambient in 2 hours and 30 minutes.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated HELB. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference J-18, C-601)

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure can not affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-032
Rev.: 2

Prepared by: [illegible] Date: [illegible]
Checked by: [illegible] Date: [illegible]

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SVICS11B2	Operating Time	1 Year	Note 3	Note 2	N/A	N/A	Note 1
Component: Solenoid Valve Manufacturer: ASCO	Temperature (°F)	282.0	Note 3	C-601	N/A	N/A	Note 1
Model Number: HT831655 Function: Valve Control	Pressure (PSIA)	17.0	Note 3	C-601	N/A	N/A	Note 1
Accuracy: Spec: N/A Demonm: N/A	Relative Humidity (%)	100.0	Note 3	A	N/A	N/A	Note 1
Service: Steam Generator 1 Atmospheric Steam Vent Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86×10^3 RADS	1.2×10^6 RADS	T	CAL-80 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	17 Years Note 5	I	CAL-80 Note 4	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [X]	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.: 208H-032A
Rev.: 2

NOTES

Prepared by: [signature] Date: 11/1/93
Checked by: [signature] Date: 11/2/93

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1. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.

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

3. This solenoid valve de-energizes following a high energy line break to remove ICS (Integrated Control System) control from the atmospheric vent valve. This action is required to assure that adverse ICS action will not cause the vent valve to move to an open position. Failure of the solenoid in the harsh steam environment would not be detrimental to plant safety because the vent valve will move to its desired fail-safe position. Once the environmental conditions have returned to normal, operation of the vent valve is necessary for plant cooldown. This can be accomplished through manual operation of the vent valve or repair of the solenoid valve.

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure can not affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.

4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

5. 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.

Facility: Davis-Besse Unit 1 COMPONENT MATERIAL EVALUATION SHEET Index No.: 208H-032B
Docket: 50-346 Rev.: 2

Prepared by: A Lan Date: 11/1/83
Checked by: J Macdonald Date: 11/2/83

Plant I.D. No.: SVICS11B2 Component: Solenoid Valve
Manufacturer: ASCO Model No.: HT831655

Parts List	Materials List	THERMAL AGING Qualification	Reference	RADIATION Qualification	Reference
Gaskets	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Body	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Bonnet	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Adapter	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Retaining Rings	Brass	Not Sensitive	CAL-80	Not Affected	CAL-80
Screw	Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Disc	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Spring, Core	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Sol. Base Sub-Assembly	Metallic	Not Sensitive	CAL-80	Not Affected	CAL-80
Insert	Acetal (Delrin)	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Pilot Seat Cartridge	Acetal	17 Years @ 104°F	CAL-80	1.2×10^6 RADS	CAL-80
Disc	BUNA-N	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Diaphragm Assemblies	BUNA-N, Brass	40 Years @ 104°F	CAL-80	1.5×10^7 RADS	CAL-80
Core Tube	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Core & Plugnut	Stainless Steel	Not Sensitive	CAL-80	Not Affected	CAL-80
Shading Coil	Copper	Not Sensitive	CAL-80	Not Affected	CAL-80
Class H Coil: *		40 Years @ 140°F	CAL-80	2.0×10^7 RADS	CAL-80
Outerwrap	Fiberglass				
Varnish	Silicone				
Lead Wire Insulation	Silicone Rubber, Glass Braid				
Magnet Wire Insulation	Enamel				
Insulation	Nomex				
Insulation	Iso-Mica Epoxy				
Insulation	Silicone Resin Mica				

Material & Parts List Reference: V-3A, V-3F, CAT-3A, ROC-3A

* Coil is scheduled for replacement in accordance with manufacturer's recommendations.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 208H-032
Rev.: 2

Prepared by: [signature] Date: 1/13
Checked by: [signature] Date: 1/17/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Steam Plant ID No. SVICS11B2	Operating Time	1 Year	1.1 Years	Note 2	J-18 Note 3	Simultaneous Test	None
Component: Solenoid Valve Manufacturer: ASCO	Temperature (°F)	282.0	346.0	C-601	J-18	Simultaneous Test	None
Model Number: NP8316__E Note 1 Function: Valve Control	Pressure (PSIA)	17.0	124.7	C-601	J-18	Simultaneous Test	None
Accuracy: Spec: N/A Demonm: N/A	Relative Humidity (%)	100.0	100.0	A	J-18	Simultaneous Test	None
Service: Steam Generator 1 Atmospheric Steam Vent Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86 x 10^3 RADS	2.0 x 10^7 RADS	T	J-18 J-41	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	J-18 J-41	Analysis	None
Needed for: Hot Shutdown [X] Cold Shutdown [X]	Submergence	N/A	N/A	N/A	N/A	N/A	None

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NOTES

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

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1. This component replaces HT831655 in accordance with FCR 82-125.

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

3. The solenoid valve test consisted of the following: Exposure to steam at 346°F and 124.7 psia for 3 hours, followed by a cooldown to 140°F. A second transient followed with 3 hours at 346°F and 124.7 psia, followed by a cooldown to 320°F and 89.7 psia which lasted for 3 hours, followed by 3-1/2 days exposure to 250°F and 29.7 psia, followed by exposure to 200°F and 14.7 psia for the duration of the test (26 days). (Reference J-18)

   The temperature in Room 601 peaks at 282°F in 2.0 seconds. The pressure in Room 601 peaks at 17.0 psia in 0.44 seconds. The conditions in Room 601 return to ambient in 2 hours and 30 minutes.

   Based on this information, it can be concluded that the laboratory test subjected the solenoid valve to an overall more severe environment than that which would result from the postulated HELB. Since the solenoid valve remained operable throughout the test and functional after the test, it can be concluded that the solenoid valve will remain functional during and after exposure to the accident environment which would result from the postulated HELB. (Reference J-18, C-601)

   The air-operated valve's position indicating lights are powered by a 120 v.a.c. essential instrument bus. These lights are operated by the valve's position indicating (limit) switches. Since the solenoid valve is part of a separate 125 v.d.c. control circuit, its failure can not affect the operation of these devices. Solenoid failure will not mislead the operator because valve position indication will be unaffected.