CALCULATION/PROBLEM COVER SHEET

Calculation/Problem No: 1040-001-006

Title: Component Cooling Water System 2.3

Client: Toledo Edison Company Project: D[illegible]-Besse Unit 1

Job No: 1040-001-671

I & E Bulletin 79-01B
Equipment Qualificatior

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
COMPONENT COOLING WATER SYSTEM

Index No: 203M-001
Rev.: 2

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION: Inside Primary Containment	LOCATION: Outside Primary Containment	REMARKS
203H-005	2	LSLL3757A	Level Switch		Rm. 501	
203H-006	2	LSLL3757B	Level Switch		Rm. 501	
203H-007	2	LSLL3757C	Level Switch		Rm. 501	
203H-008	2	LSLL3758A	Level Switch		Rm. 501	
203H-009	2	LSLL3758B	Level Switch		Rm. 501	
203H-010	2	LSLL3758C	Level Switch		Rm. 501	
203H-011	2	MV13280	Valve Motor Operator		Rm. 314	
203H-012	2	MV13380	Valve Motor Operator		Rm. 314	
	2	BE11C	Motor Control Center		Rm. 304	See 2.21
	2	BE11D	Motor Control Center		Rm. 227	See 2.21
	2	BF11A	Motor Control Center		Rm. 427	See 2.21
	2	CDE11D	Disconnect Switch Cabinet		Rm. 227	See 2.21
	2	CDF11A-1	Disconnect Switch Cabinet		Rm. 427	See 2.21
	2	CDF11A-2	Disconnect Switch Cabinet		Rm. 427	See 2.21
	2	EV13280	Terminal Block Box		Rm. 314	See 2.21
	2	EV13380	Terminal Block Box		Rm. 314	See 2.21
	2	RC3703	Relay Cabinet		Rm. 314	See 2.21
	2	RC3704	Relay Cabinet		Rm. 314	See 2.21
	2	RC3705	Relay Cabinet		Rm. 314	See 2.21
	2	RC3706	Relay Cabinet		Rm. 304	See 2.21

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

MASTER LIST
NON-HARSH ENVIRONMENT
COMPONENT COOLING WATER SYSTEM

Index No.: 3M-002
Rev.: 2

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION: Inside Primary Containment	LOCATION: Outside Primary Containment	REMARKS
	0	AC101	4.16 KV Switchgear Breaker		Rm. 325	
	0	AC108	4.16 KV Switchgear Breaker		Rm. 325	
	0	AC113	4.16 KV Switchgear Breaker		Rm. 325	
	0	ACD2	Transfer Switch		Rm. 324	
	0	ACD3	Transfer Switch		Rm. 324	
	0	AD101	4.16 KV Switchgear Breaker		Rm. 323	
	0	AD108	4.16 KV Switchgear Breaker		Rm. 323	
	0	AD113	4.16 KV Switchgear Breaker		Rm. 323	
	0	BE12A	Motor Control Center		Rm. 429	
	0	C3615	Control Cabinet		Rm. 318	
	0	C3616	Control Cabinet		Rm. 319	
	0	C5715	Station Elec. Distribution Panel		Rm. 505	
	0	C5716	Engineering Safey Feature Panel		Rm. 505	
	0	C5720	Reactor & Station Aux. Panel		Rm. 505	
	0	CDE12A-1	Disconnect Switch Cabinet		Rm. 429	
	0	EV1460	Terminal Block Box		Rm. 328	
	0	EV1495	Terminal Block Box		Rm. 313	
	0	EV50950	Terminal Block Box		Rm. 328	
	0	EV50960	Terminal Block Box		Rm. 328	
	0	FIS1422C	Flow Indicating Switch		Rm. 328	
	0	FIS1422D	Flow Indicating Switch		Rm. 328	
	0	FIS1427C	Flow Indicating Switch		Rm. 328	
	0	FIS1427D	Flow Indicating Switch		Rm. 328	
	0	FIS1432C	Flow Indicating Switch		Rm. 328	
	0	FIS1432D	Flow Indicating Switch		Rm. 328	
	1	MC0751	Component Cooling Pump Rm. Vent Fan		Rm. 328	
	1	MC0752	Component Cooling Pump Rm. Vent Fan		Rm. 328	
	0	MP0431	Component Cooling Pump Motor		Rm. 328	
	0	MP0432	Component Cooling Pump Motor		Rm. 328	
	0	MP0433	Component Cooling Pump Motor		Rm. 328	
	0	MV50950	Valve Motor Operator		Rm. 328	
	0	MV50960	Valve Motor Operator		Rm. 328	

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

MASTER LIST
NON-HARSH ENVIRONMENT
COMPONENT COOLING WATER SYSTEM

Index No: 103M-003
Rev.: 2

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION: Inside Primary Containment	LOCATION: Outside Primary Containment	REMARKS
	1	NC0751	Push Button Switch		Rm. 328	
	1	NC0752	Push Button Switch		Rm. 328	
	0	NV1460	Push Button Switch		Rm. 328	
	0	NV1495	Push Button Switch		Rm. 312	
	0	NV50950	Push Button Switch		Rm. 328	
	0	NV50960	Push Button Switch		Rm. 328	
	0	RC3607	Relay Cabinet		Rm. 325	
	0	RC3608	Relay Cabinet		Rm. 323	
	0	SV1460	Solenoid Valve		Rm. 328	
	0	SV1495	Solenoid Valve		Rm. 312	
	1	TS5443	Temperature Switch		Rm. 328	
	1	TS5444	Temperature Switch		Rm. 328	
	0	TSH1435	Temperature Switch		Rm. 328	
	0	TSH1483	Temperature Switch		Rm. 328	
	0	TSH1484A	Temperature Switch		Rm. 328	
	0	TSH1484B	Temperature Switch		Rm. 328	

Facility: Davis-Besse Unit 1 MASTER LIST Index No: 203M-004
Docket: 50-346 Rev.: 2

COMPONENT COOLING WATER SYSTEM

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	

Facility: D[redacted]-Besse Unit 1 SYSTEM COMPONENT E[redacted]UATION WORKSHEET Index N[redacted]203H-005
Docket: 50-346 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: Component Cooling Water Plant ID No. LSLL3757A Component: Level Switch Manufacturer: Magnetrol Model Number: BS-751-QMP-XSIMD4X Function: Component Cooling Water Non-Essential Load Isolation Accuracy: Spec: N/A Demon: N/A Service: Component Cooling Surge Tank Side 1 Location: Auxiliary Bldg. Rm. 501 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [X]	Operating Time	1 Year	40 Years	O	Note 2	Analysis	None
	Temperature (°F)	267.0	Exempt	C-501	Note 1	N/A	None
	Pressure (PSIA)	15.61	Exempt	C-501	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	9.0×10^2 RADS	1.5×10^7 RADS	T	CAL-82 Note 2	Analysis	None
	Aging	40 Years	40 Years	I	CAL-82 Note 2	Analysis	None
	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No. 203H-005A
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. The harsh environment seen by this component is due to a main steam line break in the auxiliary feed pump turbine steam supply line. This switch functions to close CC1495 (the air-operated component cooling water auxiliary equipment inlet valve) when the component cooling water in the surge tank reaches the switch's low low setpoint (45 inches).

   Closure of CC1495 isolates the component cooling water non-essential loads to assure that the essential loads receive an adequate supply of component cooling water. This isolation is not necessary during high energy line break accidents because the major component cooling water essential load of the decay heat removal coolers and a minor essential load (decay heat pump bearing cooling) will not be needed in the mitigation of the accident. If switch failure was to cause an unintentional isolation of the non-essential loads, it will not be detrimental to plant safety because the equipment comprising these loads are not needed for the mitigation of accidents.

   The switch is exempt from qualification because its failure (whether it isolates the non-essential component cooling loads or not) will not degrade other safety-related functions. Failure will not mislead the operator because the switch does not provide an indication function.

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

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 203H-005B
Rev.: 2

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

Plant I.D. No.: LSLL3757A
Component: Level Switch
Manufacturer: Magnetrol
Model No.: BS-751-QMP-XS1MD4X

		THERMAL AGING		RADIATION	
Parts List *	Materials List	Qualification	Reference	Qualification	Reference
O-Ring Seal	BUNA-N	40 Years @ 104°F	CAL-82	1.5×10^7 RADS	CAL-82
Gasket	Asbestos	Not Sensitive	CAL-82	Not Sensitive	CAL-82
Switch	Melamine	45.5 Years @ 122°F	CAL-82	1.6×10^8 RADS	CAL-82
Cover	Polycarbonate	Greater than 40 Years @ 122°F	CAL-82	7.0×10^7 RADS	CAL-82
Wire Insulation	Silicone	40 Years @ 176°F	CAL-82	7.0×10^7 RADS	CAL-82

Material & Parts List Reference: ROC-25A

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to thermal aging and are not affected by radiation.

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No. 203H-006
Docket: 50-346 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: Component Cooling Water	Operating Time	1 Year	40 Years	O	Note 2	Analysis	None
Plant ID No. LSLL3757B	Temperature (°F)	267.0	Exempt	C-501	Note 1	N/A	Non
Component: Level Switch							
Manufacturer: Magnetrol	Pressure (PSIA)	15.61	Exempt	C-501	Note 1	N/A	None
Model Number: BS-751-QMP-XSIMD4X							
Function: Component Cooling Water Non-Essential Load Isolation	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Component Cooling Surge Tank Side 1	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501	Radiation	9.0×10^2 RADS	1.5×10^7 RADS	T	CAL-82 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-82 Note 2	Analysis	None
Needed for: Hot Shutdown [X]	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown [X]							

Facility: D[redacted]-Besse Unit 1 SYSTEM COMPONENT [redacted]LUATION WORKSHEET Index No. 203H-006A
Docket: 50-346 Rev.: 2

NOTES

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

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1. The harsh environment seen by this component is due to a main steam line break in the auxiliary feed pump turbine steam supply line. This switch functions to close various motor-operated valves in the component cooling water system when the cooling water in the surge tank reaches the switch's low low setpoint (35 inches).

   Closure of these valves isolates the component cooling water non-essential loads to assure that the essential loads receive an adequate supply of component cooling water. This isolation is not necessary during high energy line break accidents because the major component cooling water essential load of the decay heat removal coolers and a minor essential load (decay heat pump bearing cooling) will not be needed in the mitigation of the accident. If switch failure was to cause an unintentional isolation of the non-essential loads, it will not be detrimental to plant safety because the equipment comprising these loads are not needed for the mitigation of accidents.

   The switch is exempt from qualification because its failure (whether it isolates the non-essential component cooling loads or not) will not degrade other safety-related functions. Failure will not mislead the operator because the switch does not provide an indication function.

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

Facility: Davis-Besse Unit 1 COMPONENT MATERIAL EVALUATION SHEET Index No.: 203H-006B
Docket: 50-346 Rev.: 2

Prepared by: N. Lewis Date: 11/1/10
Checked by: [signature] Date: 11/2/10

Plant I.D. No.: LSLL3757B Component: Level Switch
Manufacturer: Magnetrol Model No.: BS-751-QMP-XS1MD4X

		THERMAL AGING		RADIATION	
Parts List *	Materials List	Qualification	Reference	Qualification	Reference
O-Ring Seal	BUNA-N	40 Years @ 104°F	CAL-82	1.5×10^7 RADS	CAL-82
Gasket	Asbestos	Not Sensitive	CAL-82	Not Sensitive	CAL-82
Switch	Melamine	45.5 Years @ 122°F	CAL-82	1.6×10^8 RADS	CAL-82
Cover	Polycarbonate	Greater than 40 Years @ 122°F	CAL-82	7.0×10^7 RADS	CAL-82
Wire Insulation	Silicone	40 Years @ 176°F	CAL-82	7.0×10^7 RADS	CAL-82

Material & Parts List Reference: ROC-25A

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to thermal aging and are not affected by radiation.

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No.: 203H-007
Docket: 50-346 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: Component Cooling Water	Operating Time	1 Year	40 Years	O	Note 2	Analysis	None
Plant ID No. LSLL3757C Component: Level Switch	Temperature (°F)	267.0	Exempt	C-501	Note 1	N/A	None
Manufacturer: Magnetrol Model Number: BS-751-QMP-XSIMD4X	Pressure (PSIA)	15.61	Exempt	C-501	Note 1	N/A	None
Function: Component Cooling Water Non-Essential Load Isolation	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Component Cooling Surge Tank Side 1	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501	Radiation	9.0×10^2 RADS	1.5×10^7 RADS	T	CAL-82 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-82 Note 2	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. 203H-007A
Docket: 50-346 Rev.: 2

NOTES

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

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1. The harsh environment seen by this component is due to a main steam line break in the auxiliary feed pump turbine steam supply line. This switch functions to close various motor-operated valves in the component cooling water system when the cooling water in the surge tank reaches the switch's low low setpoint (35 inches).

   Closure of these valves isolates the component cooling water non-essential loads to assure that the essential loads receive an adequate supply of component cooling water. This isolation is not necessary during high energy line break accidents because the major component cooling water essential load of the decay heat removal coolers and a minor essential load (decay heat pump bearing cooling) will not be needed in the mitigation of the accident. If switch failure was to cause an unintentional isolation of the non-essential loads, it will not be detrimental to plant safety because the equipment comprising these loads are not needed for the mitigation of accidents.

   The switch is exempt from qualification because its failure (whether it isolates the non-essential component cooling loads or not) will not degrade other safety-related functions. Failure will not mislead the operator because the switch does not provide an indication function.

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

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 203H-007B
Rev.: 2

Prepared by: [signature] Date: 4/13
Checked by: [signature] Date: 4/4/13

Plant I.D. No.: LSLL3757C
Component: Level Switch
Manufacturer: Magnetrol
Model No.: BS-751-QMP-XS1MD4X

		THERMAL AGING		RADIATION	
Parts List *	Materials List	Qualification	Reference	Qualification	Reference
O-Ring Seal	BUNA-N	40 Years @ 104°F	CAL-82	1.5×10^7 RADS	CAL-82
Gasket	Asbestos	Not Sensitive	CAL-82	Not Sensitive	CAL-82
Switch	Melamine	45.5 Years @ 122°F	CAL-82	1.6×10^8 RADS	CAL-82
Cover	Polycarbonate	Greater than 40 Years @ 122°F	CAL-82	7.0×10^7 RADS	CAL-82
Wire Insulation	Silicone	40 Years @ 176°F	CAL-82	7.0×10^7 RADS	CAL-82

Material & Parts List Reference: ROC-25A

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to thermal aging and are not affected by radiation.

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No. 203H-008
Docket: 50-346 Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Component Cooling Water	Operating Time	1 Year	40 Years	O	Note 2	Analysis	None
Plant ID No. LSLL3758A	Temperature (°F)	267.0	Exempt	C-501	Note 1	N/A	None
Component: Level Switch							
Manufacturer: Magnetrol	Pressure (PSIA)	15.61	Exempt	C-501	Note 1	N/A	None
Model Number: BS-751-QMP-XSIMD4X							
Function: Component Cooling Water Non-Essential Load Isolation	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Component Cooling Surge Tank Side 2	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501	Radiation	9.0×10^2 RADS	1.5×10^7 RADS	T	CAL-82 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-82 Note 2	Analysis	None
Needed for:							
Hot Shutdown [X]	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown [X]							

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No: 203H-008A
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. The harsh environment seen by this component is due to a main steam line break in the auxiliary feed pump turbine steam supply line. This switch functions to close CC1460 (the air-operated component cooling water valve to the emergency insrument air compressor) when the component cooling water in the surge tank reaches the switch's low low setpoint (45 inches).

   Closure of CC1460 isolates this component cooling water non-essential load to assure that the essential loads receive an adequate supply of component cooling water. This isolation is not necessary during high energy line break accidents because the major component cooling water essential load of the decay heat removal coolers and a minor essential load (decay heat pump bearing cooling) will not be needed in the mitigation of the accident. If switch failure was to cause an unintentional isolation of the compressor, it will not be detrimental to plant safety because the compressor is not needed for the mitigation of accidents.

   The switch is exempt from qualification because its failure (whether it isolates the non-essential component cooling loads or not) will not degrade other safety-related functions. Failure will not mislead the operator because the switch does not provide an indication function.

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

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 203H-008B
Rev.: 2

Prepared by: [signature] Date: 1/11/91
Checked by: [signature] Date: 1/21/91

Plant I.D. No.: LSLL3758A
Component: Level Switch
Manufacturer: Magnetrol
Model No.: BS-751-QMP-XS1MD4X

		THERMAL AGING		RADIATION	
Parts List *	Materials List	Qualification	Reference	Qualification	Reference
O-Ring Seal	BUNA-N	40 Years @ 104°F	CAL-82	1.5×10^7 RADS	CAL-82
Gasket	Asbestos	Not Sensitive	CAL-82	Not Sensitive	CAL-82
Switch	Melamine	45.5 Years @ 122°F	CAL-82	1.6×10^8 RADS	CAL-82
Cover	Polycarbonate	Greater than 40 Years @ 122°F	CAL-82	7.0×10^7 RADS	CAL-82
Wire Insulation	Silicone	40 Years @ 176°F	CAL-82	7.0×10^7 RADS	CAL-82

Material & Parts List Reference: ROC-25A

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to thermal aging and are not affected by radiation.

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No. 203H-009
Docket: 50-346 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: Component Cooling Water	Operating Time	1 Year	40 Years	O	Note 2	Analysis	None
Plant ID No. LSLL3758B Component: Level Switch	Temperature (°F)	267.0	Exempt	C-501	Note 1	N/A	None
Manufacturer: Magnetrol Model Number: BS-751-CMP-XSIMD4X	Pressure (PSIA)	15.61	Exempt	C-501	Note 1	N/A	None
Function: Component Cooling Water Non-Essential Load Isolation	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Component Cooling Surge Tank Side 2							
Location: Auxiliary Bldg. Rm. 501	Radiation	9.0×10^2 RADS	1.5×10^7 RADS	T	CAL-82 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-82 Note 2	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. 203H-009A
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. The harsh environment seen by this component is due to a main steam line break in the auxiliary feed pump turbine steam supply line. This switch functions to close various motor-operated valves in the component cooling water system when the cooling water in the surge tank reaches the switch's low low setpoint (35 inches).

   Closure of these valves isolates the component cooling water non-essential loads to assure that the essential loads receive an adequate supply of component cooling water. This isolation is not necessary during high energy line break accidents because the major component cooling water essential load of the decay heat removal coolers and a minor essential load (decay heat pump bearing cooling) will not be needed in the mitigation of the accident. If switch failure was to cause an unintentional isolation of the non-essential loads, it will not be detrimental to plant safety because the equipment comprising these loads are not needed for the mitigation of accidents.

   The switch is exempt from qualification because its failure (whether it isolates the non-essential component cooling loads or not) will not degrade other safety-related functions. Failure will not mislead the operator because the switch does not provide an indication function.

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

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 203H-009B
Rev.: 2

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

Plant I.D. No.: LSLL3758B
Component: Level Switch
Manufacturer: Magnetrol
Model No.: BS-751-QMP-XS1MD4X

		THERMAL AGING		RADIATION	
Parts List *	Materials List	Qualification	Reference	Qualification	Reference
O-Ring Seal	BUNA-N	40 Years @ 104°F	CAL-82	1.5×10^7 RADS	CAL-82
Gasket	Asbestos	Not Sensitive	CAL-82	Not Sensitive	CAL-82
Switch	Melamine	45.5 Years @ 122°F	CAL-82	1.6×10^8 RADS	CAL-82
Cover	Polycarbonate	Greater than 40 Years @ 122°F	CAL-82	7.0×10^7 RADS	CAL-82
Wire Insulation	Silicone	40 Years @ 176°F	CAL-82	7.0×10^7 RADS	CAL-82

Material & Parts List Reference: ROC-25A

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to thermal aging and are not affected by radiation.

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Index No.: 203H-010
Docket: 50-346 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: Component Cooling Water	Operating Time	1 Year	40 Years	O	Note 2	Analysis	None
Plant ID No. LSLL3758C	Temperature (°F)	267.0	Exempt	C-501	Note 1	N/A	None
Component: Level Switch							
Manufacturer: Magnetrol	Pressure (PSIA)	15.61	Exempt	C-501	Note 1	N/A	None
Model Number: BS-751-QMP-XSIMD4X							
Function: Component Cooling Water Non-Essential Load Isolation	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Component Cooling Surge Tank Side 2	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501	Radiation	9.0×10^2 RADS	1.5×10^7 RADS	T	CAL-82 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-82 Note 2	Analysis	None
Needed for: Hot Shutdown [X]	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown [X]							

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

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1. The harsh environment seen by this component is due to a main steam line break in the auxiliary feed pump turbine steam supply line. This switch functions to close various motor-operated valves in the component cooling water system when the cooling water in the surge tank reaches the switch's low low setpoint (35 inches).

   Closure of these valves isolates the component cooling water non-essential loads to assure that the essential loads receive an adequate supply of component cooling water. This isolation is not necessary during high energy line break accidents because the major component cooling water essential load of the decay heat removal coolers and a minor essential load (decay heat pump bearing cooling) will not be needed in the mitigation of the accident. If switch failure was to cause an unintentional isolation of the non-essential loads, it will not be detrimental to plant safety because the equipment comprising these loads are not needed for the mitigation of accidents.

   The switch is exempt from qualification because its failure (whether it isolates the non-essential component cooling loads or not) will not degrade other safety-related functions. Failure will not mislead the operator because the switch does not provide an indication function.

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

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COMPONENT MATERIALS EVALUATION SHEET

Index No.: 203H-010B
Rev.: 2

Prepared by: [signature] Date: 11/1/87
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Plant I.D. No.: LSLL3758C
Component: Level Switch
Manufacturer: Magnetrol
Model No.: BS-751-QMP-XS1MD4X

		THERMAL AGING		RADIATION	
Parts List *	Materials List	Qualification	Reference	Qualification	Reference
O-Ring Seal	BUNA-N	40 Years @ 104°F	CAL-82	1.5×10^7 RADS	CAL-82
Gasket	Asbestos	Not Sensitive	CAL-82	Not Sensitive	CAL-82
Switch	Melamine	45.5 Years @ 122°F	CAL-82	1.6×10^8 RADS	CAL-82
Cover	Polycarbonate	Greater than 40 Years @ 122°F	CAL-82	7.0×10^7 RADS	CAL-82
Wire Insulation	Silicone	40 Years @ 176°F	CAL-82	7.0×10^7 RADS	CAL-82

Material & Parts List Reference: RCC-25A

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to thermal aging and are not affected by radiation.

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 203H-011
Rev.: 2

Prepared by: J Lewis Date: 11/1/83
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EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Component Cooling Water System	Operating Time	35 Seconds	16 Days	K	M-28 V-24G Note 1	Simultaneous Test	None
Plant ID No. MV13280	Temperature (°F)	221.0	250.0	C-314	M-28 V-24G	Simultaneous Test	None
Component: Valve Motor Operator							
Manufacturer: Limitorque	Pressure (PSIA)	19.76	39.7	C-314	M-28 V-24G	Simultaneous Test	None
Model Number: SMB-000							
O/N: 366321M							
S/N: 170407	Relative Humidity (%)	100.0	100.0	A	M-28 V-24G	Simultaneous Test	None
Function: Component Cooling System Inlet to CRD Booster Pump No.1							
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: CC CRD Booster Pump No. 1 Suction Valve							
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	2.0×10^7 RADS	T	M-28 V-24G	Sequential Test	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]	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown [ ]							

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cket: 50-346 Rev.: 2

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epared by: N Lewis Date: 11/1/83
ecked by: [signature] Date: 11/2/83

The test subjected the valve motor operator to a transient of 250°F and 39.7 psia for 30 minutes, followed by a cooldown to 120°F in 1.5 hours. The valve motor operator was then exposed to a second transient of 250°F and 39.7 psia for 22 hours, then a cooldown to 200°F and 24.7 psia which was maintained for 15 days. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in 0.086 seconds. The temperature and pressure in Room 314 return to ambient conditions after 8 minutes.

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

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 103H-012
Rev.: 2

Prepared by: J. 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: Component Cooling Water System Plant ID No. MV13380 Component: Valve Motor Operator Manufacturer: Limitorque Model Number: SMB-000 P/N: 366321M S/N: 170406 Function: Component Cooling System Inlet to CRD Booster Pump No.2 Accuracy: Spec: N/A Demon: N/A Service: CC CRD Booster Pump No. 2 Suction Valve Location: Auxiliary Bldg. Rm. 314 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown [X] Cold Shutdown [ ]	Operating Time	35 Seconds	16 Days	K	M-28 V-24G Note 1	Simultaneous Test	None
	Temperature (°F)	221.0	250.0	C-314	M-28 V-24G	Simultaneous Test	None
	Pressure (PSIA)	19.76	39.7	C-314	M-28 V-24G	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	M-28 V-24G	Simultaneous Test	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	1.0×10^6 RADS	2.0×10^7 RADS	T	M-28 V-24G	Sequential Test	None
	Aging	40 Years	40 Years	I	CAL-93	Sequential Test Analysis	None
	Submergence	N/A	N/A	N/A	N/A	N/A	None

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SYSTEM COMPONENT EVALUATION WORKSHEET

NOTES

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