		CALCULATION/PROBLE	M COVER SHEET		
7		Calculation/Problem No: 10 Title: Display Instrument		nical Specif	ication 3.1
4	7	Client: Toledo Edison Com Job No: 1040-001-671		Davis-Besse L&E Bulletin Equipment Qu	79-01B
)esign In	put/Reference	s: .			
		Design Inputs are outl	ined in the (Cover Report	
ssumpti	ons:				
		Assumptions are outlin	ed in the Cov	ver Report.	
Method:					
Method:		Mathods and outlined 4	n the Coven I	anant	
Method:		Methods are outlined 1	n the Cover H	Report.	
Method:		Methods are outlined i	n the Cover H	Report.	
Method:		Methods are outlined i	n the Cover H	Report.	
Method:		Methods are outlined i	n the Cover H	Report.	
		Methods are outlined i EDS Nuclear Report No.			
Remarks:		EDS Nuclear Report No.	02-1040-1076		DATE
	origi	EDS Nuclear Report No.	02-1040-1076	5.	DATE (0-2-81
Remarks:		EDS Nuclear Report No.	02-1040-1076	oved S. Haily	
Remarks: REV. NO.	GENERAL	EDS Nuclear Report No. REVISION	APPR APPR Define NElwood	over S. Haverly lward	10-2-81
Remarks: REV. NO.	GENERAL	EDS Nuclear Report No. REVISION NOL MANUAL REVISIONS	O2-1040-1076 APPR JAAng NKluood	over S. Haverly lward	10-2-81
Remarks: REV. NO.	GENERAL	EDS Nuclear Report No. REVISION NOL MANUAL REVISIONS	O2-1040-1076 APPR JAAng NKluood	over S. Haverly lward	10-2-81

Davis-Besse Unit 1 Facilit Docket: 50-346

Index No: JolM-001 Rev.: 2

HARSH ENVIRONMENT DISPLAY INSTRUMENTATION - TECHNICAL SPECIFICATIONS

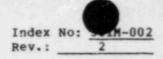
MAST

Prepared by: N. Jecus' Date: 11/1/83 Checked by: Analogut Date: 11/1/83

	1	1	1		LOCATION Inside Outside			
Worksheet	Worksheet				Outside Primary			
Index No.	Rev.	ID Number	Generic Name	Primary Containment	Containment	REMARKS		
301H-006	1 2	 Deleted			! !			
301H-007	1 2	Deleted						
			I Dieu Massamitter					
301H-008 301H-009	1 2	FTDH2A	Flow Transmitter		Rm. 236			
301H-010	1 2	FTDH2B	Flow Transmitter Flow Transmitter		Rm. 105			
		FTHP3A	· · · · · · · · · · · · · · · · · · ·		Rm. 236			
301H-011	1 2	FTHP3B	Flow Transmitter		Rm. 236			
301H-012	1 2	FTHP3C	Flow Transmitter		Rm. 208			
301H-013	1 2	FTHP 3D	Flow Transmitter		Rm. 208			
301H-014	1 0	Deleted						
301H-015	1 0	LTRC14-3	Level Transmitter	El. 3	1 1-			
301H-015	1 2	LTRC14-3	Level Transmitter	El. 3				
301H-016	2	PTSP12A1	Pressure Transmitter	El. 3	1			
301H-017	1 2	PTSP12A2	Pressure Transmitter	El. 3	I I			
301H-018	1 2	PTSP12B1	Pressure Transmitter	E1.3	1			
301H-019	1 2	PTSP12B2	Pressure Transmitter	El. 3	1 1.			
301H-020	1 0	[ZS1001	Limit Switch	1	Rm. 602			
301H-020	1	ZS1001	Limit Switch	1	Rm. 602			
301H-021	1 0	ZS1011	Limit Switch	1	Rm. 601			
301H-021	1	1251611	Limit Switch		Rm. 601			
301H-022	1 2	ZS1356	Limit Switch	1.	Rm. 314			
301H-023	1 2	IZS1357	Limit Switch	1	Rm. 314			
301H-024	1 2	ZS1358	Limit Switch	1	Rm. 314			
301H-025	1 2	2S1358A	Limit Switch		Rm. 314			
301H-026	1 2	1251467	Limit Switch	1	Rm. 113			
301H-027	1 2	IZS1469	Limit Switch	1	Rm. 113			
301H-028	1 2	1251542	Limit Switch		Rm. 314			
301H-029	1 2	1251544	Limit Switch	1	Rm. 303			
301H-030	1 2	IZS1545	Limit Switch	1	Rm. 314			
301H-031	1 0	1251719A	Limit Switch	Rm. 220	1			
301H-031	1 2	12S1719A	Limit Switch	1 Rm. 220	1			
301H-032	1 2	IZS1719B	Limit Switch	i	Rm. 236			
A the second second	1	1		1	I Shart Strip			

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





HARSH ENVIRONMENT

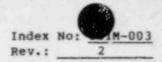
DISPLAY INSTRUMENTATION - TECHNICAL SPECIFICATIONS

Date: 1/1/83 Date: 1/2/83 Prepared by: $\frac{1}{C}$ Checked by: $\frac{1}{C}$

	1	1		I LOCA	TION	
		 Plant	 Generic Name	Inside Primary Containment	Outside Primary Containment	REMARKS
Index No. Re		I D Mumber	Generic Name	Concurrence		
301H-033	0	1251773A	Limit Switch	Rm. 220	i i	
301H-033	1 2	12S1773A	Limit Switch	Rm. 220	1	
301H-034	1 2	1252010	Limit Switch	1	Rm. 314	
301H-035	1 2	ZS2011	Limit Switch	1	Rm. 314	
301H-036	1 0	12S229B	Limit Switch	Rm. 220	1 1	
301H-036	1 2	12S229B	Limit Switch	Rm. 220	1	
301H-037	1 2	125232	Limit Switch	1	Rm. 236	
301H-038	1 2	125235A	Limit Switch	1	Rm. 314	
301H-039	1 0	12S235B	Limit Switch	Rm. 315	1 1	
301H-039	1 2	12S235B	Limit Switch	Rm. 315	1 1	
301H-040	1 2	125236	Limit Switch	1	Rm. 236	
301H-041	1 0	125375	Limit Switch	1	Rm. 602	
301H-041	1 1	125375	Limit Switch	1	Rm. 602	
301H-042	1 0	125394	Limit Switch	1	Rm. 601	
301H-042	1	125394	Limit Switch		Rm. 601	
301H-043	1 0	1255006	Limit Switch	1 Rm. 407	1	
301H-043	1 2	1255006	Limit Switch	Rm. 407	1 1	
301H-044	1 0	IZS5007	Limit Switch	Rm. 410	1 1	
301H-044	1 2	1255007	Limit Switch	Rm. 410	1 1	
301H-045	1 2	ZS5008	Limit Switch	1	Rm. 427	
301H-046	1 2	12S5715A	Limit Switch	1	Rm. 105	
301H-047	1 2	ZS5715B	Limit Switch	1	Rm. 105	
301H-048	1 2	12S5716A	Limit Switch	1	Rm. 115	
301H-049	1 2	ZS5716B	Limit Switch	Contraction of the second	Rm. 115	
301H-050	1 0	125598	Limit Switch	1	Rm. 314	
301H-050	1 1	125598	Limit Switch	Contraction of the second	Rm. 314	
301H-051	1 0	125607	Limit Switch	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Rm. 314	
301H-051	1 1	125607	Limit Switch	1	Rm. 314	
301H-052	1 0	ZS6831A	Limit Switch	Rm. 316	1	
301H-052	1 2	1256831A	Limit Switch	Rm. 316	1 1	
301H-053	1 2	2S6831B	Limit Switch		Rm. 208	
	1	1	1			

Davis-Besse Unit 1 Facility Docket: 50-346





HARSH ENVIRONMENT

DISPLAY INSTRUMENTATION - TECHNICAL SPECIFICATIONS

Prepared by: Dr. fewis Date: 11/183 Checked by: Archange Date: 11/183

1 1 1			1	1	I LOCA	TION	
 Workst			 Plant		Inside Primary	Outside Primary	
I Index		I Rev.	ID Number	Generic Name	Containment	Containment	REMARKS
		1	1	1	1	1 1	
301H-05	54	1 2	IZSDH13A	Limit Switch		Rm. 113	
301H-05	55	1 2	IZSDH13B	Limit Switch	The second second	Rm. 113	
1 301H-05	56	1 2	IZSDH14A	Limit Switch	- I	Rm. 113	
301H-05	57	1 2	ZSDH14A-1	Limit Switch	I	Rm. 113	
301H-05	58	1 2	ZSDH14B	Limit Switch	· · · ·	Rm. 113	
1 301H-05	59	1 2	ZSDH14B-1	Limit Switch	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Rm. 113	
301H-06	60	1 2	ZSICS11A	Limit Switch	1	Rm. 602	
301H-00		1 2	1ZSICS11A	Limit Switch	1.	Rm. 602	
1 301H-00	61	1 2	IZSICS11B	Limit Switch	1	Rm. 601	
301H-0		1 2	ZSICS11B	Limit Switch	1	Rm. 601	
301H-06	62	1 0	IZSMU03	Limit Switch	1	Rm. 208	
301H-0		1 1	IZSMU03	Limit Switch	1	Rm. 208	
1 301H-00		1 0	IZSMU33	Limit Switch	1	Rm. 236	
I 301H-00		1	IZSMU33	Limit Switch	1	Rm. 236	
1 301H-00	64	1 0	IZSMU38	Limit Switch	1	P.m. 208	
1 301H-0		1 1	IZSMU38	Limit Switch	1	1 Rm. 208 1	
1 301H-00		1 0	IZSMU66A	Limit Switch	1	Rm. 208	
301H-0		1 1	IZSMU66A	Limit Switch	1	Rm. 208	
1 301H-00		1 0	IZSMU66B	Limit Switch	1	Rm. 208	
1 301H-0		1 1	IZSMU66B	Limit Switch	1	Rm. 208	
1 301H-00		1 0	IZSMU66C	Limit Switch	1	Rm. 208	
1 301H-0		1 1	IZSMU66C	Limit Switch	1	Rm. 208	
301H-00	68	1 0	IZSMU66D	Limit Switch	1	Rm. 208	
301H-0	68	1 1	IZSMU66D	Limit Switch	1	1 Rm. 208 1	
I 301H-00	69	1 1	Deleted	1	1	1	
1 301H-0	70	1 2	TERC4A2	Resistance Temperature Detector	I E1. 2	I I.	
301H-0	71	1 2	ITERC4A4	Resistance Temperature Detector	E1. 2	1	
1 301H-0	72	1 2	TERC4B2	Resistance Temperature Detector	i E1. 2	1 1	
301H-0	73	1 2	TERC4B4	Resistance Temperature Detector	E1. 2	1	
1 301H-0	74	1 0	LTRC14-1	Level Transmitter	El. 3		
301H-0	74	1 2	LTRC14-1	Level Transmitter	E1. 3		
1		1	1	NO			



Index No: 301M-004 Rev.: 2

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

DISPLAY INSTRUMENTATION - TECHNICAL SPECIFICATIONS

A. X.

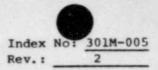
Prepared by: NLOuis Date: 11/1/183 Checked by: Date: 11/2/13

	1 1	1		I LOCA	TION	
Worksheet Index No.	 Rev.	 Plant ID Number	Generic Name	Inside Primary Containment	Outside Primary Containment	REMARKS
	1	1			Rm. 304	See 2.23
	1 2	1AE5027	Gas Analyzer Panel	집 가지 말했다. 것이 같아요?	Rm. 304	See 2.23
	1 2	AE5028	Gas Analyzer Panel	8- 210	1 Rm. 304 1	See 2.4
	1 2	LTSP9A3	Level Transmitter	Rm. 210		
	2	LTSP9A8	Level Transmitter	E1. 2	1	See 2.20
	2	LTSP9B3	Level Transmitter	Rm. 210	1	See 2.4
	1 2	LTSP9B8	Level Transmitter	E1. 2	1	See 2.20
	1 2	INC5017	Push Button Switch Box	and the second second	Rm. 515	See 2.21
	1 2	NC5018	Push Button Switch Box	1	Rm. 515	See 2.21
	1 2	INC5056	Push Button Switch Box	1	Rm. 515	See 2.21
	1 2	INC5057	Push Button Switch Box	· · · · · · · · · · · · · · · · · · ·	Rm. 515	See 2.21
	1 2	INSV100	Push Button Switch	1	Rm. 602	See 2.21
	1 2	INSV100E	Push Button Switch	1	Rm. 602	See 2.21
	1 2	INSV101	Push Button Switch	1	Rm. 601	See 2.21
	1 2	INSV101E	Push Button Switch	1	Rm. 601	See 2.21
	1 2	PTRC2A3	Pressure Transmitter	Rm. 410	1	See 2.19
	1 2	PTRC 2A4	Pressure Transmitter	Rm. 410	1 1	See 2.19
	1 2	PTRC2B3	Pressure Transmitter	Rm. 407	1	See 2.19
	1 2	IPTRC2B4	Pressure Transmitter	I RI 407	1 1	See 2.19
	1 2	IRC2701	Relay Cabinet	1	Rm. 227	See 2.21
	1 2	IRC 3703	Relay Cabinet	i	I Rm. 314 1	See 2.21
	1 2	IRC3705	Relay Cabinet	i	1 Rm. 304 1	See 2.21
	1 2	IRC3801	Relay Cabinet	i	I Rm. 303 I	See 2.21
	2	INCOOL	Keral capriler	i	1	



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





NON-HARSH ENVIRONMENT DISPLAY INSTRUMENTATION - TECHNICAL SPECIFICATIONS

100

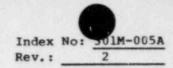
Prepared by: NLouis Date: 1/1/83 Checked by: Ancoconne Date: 1/1/83

	1	1	I Contraction of the second	LOCA'	LOCATION		
Worksheet Index No.	 Poy	 Plant ID Number	 Generic Name	Inside Primary Containment	Outside Primary Containment	REMARKS	
Index No.	Rev.	I		1	1		
	1 0	103630	Auxiliary Shutdown Pagel	1	Rm. 324		
	1 0	IC5705	Control Console	1	Rm. 505		
	1 0	105706	Control Console	1	Rm. 505		
	1 0	105709	Control Console	1	Rin. 505		
	1 0	IC5712	Control Console	1	Rm. 505		
	1 0	IC5715	Engineering Safety Features Panel	1	Rm. 505		
	1 0	IC5716	Engineering Safety Features Panel		Rm. 505		
	1 0	105717	Engineering Safety Features Panel		Rm. 505		
	1 0	105721	Feedwater Panel	(1) (1) (2) (3)	Rm. 505		
	1 0	IC5755B	Radiation Monitoring System 2	1.	Rm. 505		
	1 0	IC5755C	Safety Features Actuation Panel		Rm. 505		
	1 0	IC5755E	RPS Panel Ch. 2	1.1	Rm. 505		
	1 0	1C5755F	RPS Panel Ch. 2	이 아이 가지만	Rm. 505		
	1 0	1C5756D	Safety Features Actuation Panel	1.	Rm. 505		
	1 0	IC5756E	RPS Panel Ch. 4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Rm. 505		
	0	1C5756F	RPS Panel Ch. 4	1	Rm. 505		
	1 0	IC5759B	Non-Nuclear Instrumentation Cabinet	1	Rm. 505		
	1 0	IC5762B	Radiation Monitoring System 1	 I = 1000 million 	Rm. 505		
	1 0	1C5762C	Safety Features Actuation Panel	1	Rm. 505		
	1 0	C5762E	RPS Panel Ch. 1	1	Rm. 505		
	1 0	1C5762F	RPS Panel Ch. 1	1	Rm. 505		
	1 0	IC5763D	Safety Features Actuation Panel	[1] [1] [2] [2] [2] [2] [2] [2] [2] [2] [2] [2	Rm. 505		
	1 0	1C5763E	RPS Panel Ch. 3	1	Rm. 505		
	1 0	1C5763F	RPS Panel Ch. 3	1	Rm. 505		
	1 0	106705	Control Room A/C Panel	1	Rm. 603		
	1 0	TDI4950	RCS TSAT Meter	1	Rm. 505		
	1 0	TD14951	RCS TSAT Meter	1	Rm. 505		
	1 0	ZS1424	Limit Switch	1	Rm. 328		
	1 0	ZS1429	Limit Switch	1	Rm. 328		
	1 0	ZS1429A	Limit Switch	1	Rm. 328		
	1 0	ZS1429A	Limit Switch	1	Rm. 328		
	1	1		1.	1		



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





NON-HARSH ENVIRONMENT DISPLAY INSTRUMENTATION - TECHNICAL SPECIFICATIONS

-9

Prepared by: Nheuris Date: 11/1/83 Checked by: Manuel Date: 11/1/13

	T	1		LOCA	rion	
Worksheet Index No.	 Rev.	 Plant ID Number	 Generic Name	Inside Primary Containment	Outside Primary Containment	REMARKS
	1	1			Rm. 328	
	0	ZS1460	Limit Switch	그는 것은 것이 가지 않는 것 수 있다.		
	1 0	ZS1495	Limit Switch		Rm. 312	
	1 0	ZS1541	Limit Switch		Rm. 221	
	1 0	IZS1773B	Limit Switch		Rm. 225	
	1 0 1				Rm. 225	
	0	ZS229A	Limit Switch			
	0	ZS5005	Limit Switch		Rm. 600	
	1	1			the providence des	

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

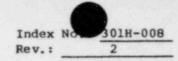
Sille-Da

Prepared by: Checked by:

Date: 9/30/83 Date: 9/30/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	1.1 Years	0	J-8 Note 4	Analysis	None
Component: Flow	Temperature (°F)	198.0	Exempt	C-236	Note 1	N/A	None
Iditur de corter i nobellio alle i	Pressure (PSIA)	15.51	Exempt	C-236	Note 1	N/A	None
1152DP5A22PB	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Low Pressure In-		N/A	N/A	N/A	N/A	N/A	None
jection 2 Flow Indication Location: Auxiliary Bldg. Rm. 236		1.97 x 10 ⁶ RADS	5.0 x 10 ⁶ RADS	Т	CAL-64 J-8	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for:	Aging	40 Years	1.87 Years Note 5	I	CAL-64 Notes 2 and 3	Analysis	None
Hot Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	None

UATION WORKSHEET SYSTEM COMPONENT E



Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-008A Rev.: 2
reputed of	te $\frac{9/30/83}{7/30/35}$ NOTES	

- 1. This component is a differential pressure (flow) transmitter that transmits low pressure injection flow signals to control room flow indicators. This component is exempt from qualification because it does not perform a safety-related function in the harsh steam environment caused by a high energy line break. Failure of the component in this environment will not degrade other safety-related functions because the transmitter does not provide a control function. This failure will not mislead the operator because the low pressure injection system is not initiated during high energy line break accidents. Any abnormal indications will be verified by monitoring alternate parameters such as decay heat pump status, low pressure injection isolation valve position, decay heat pump discharge pressure, and decay heat removal cooler outlet temperatures. 1152DP transmitters have successfully passed type testing in a saturated steam environment enveloping the specified environmental conditions.
- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 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.
- 4. One-year operating time is used as a conservative maximum specification.
- 5. The 1.87 year qualified life is the best analytically supported estimate of qualified life for this transmitter. There is significant operating experience at Davis-Besse and at other nuclear power plants to support a longer qualified life. The surveillance and maintenance program will ensure that no aging related failures occur and the surveillance and maintenance program frequency will be adjusted as necessary to ensure that the associated component will maintain functional operability.

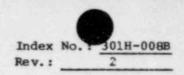
Facility: Davis-Besse Unit 1 Docket: 50-346

Prepared by:

Checked by:

Date Date:

COMPONENT MATERIALS EVALUATION SHEET



Flow Transmitter Plant I.D. No.: FTDH 2A Component: 1152DP5A22PB Model No.: Manufacturer: Rosemount

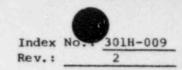
I		THERMAL AGIN	G	RADIATIO	RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference	
Housing and Cover	Aluminum	Not Sensitive		N/A	N/A	
Process Flange	316 Stainless Steel	40 Years	L	N/A	I N/A	
Blank Flange	316 Stainless Steel	40 Years		N/A	N/A	
Valve Stem and Seat	316 Stainless Steel	40 Years		N/A	I N/A	
Adjustment Screw	Steel	40 Years	1	N/A	I N/A	
Retaining Ring	Steel	40 Years	1	N/A	I N/A	
O-Rings	BUNA N	40 Years @ 104°F	CAL-64	N/A	N/A	
O-Ring (Process Flange)	Ethylene Propylene	40 Years @ 1040F	CAL-64	N/A	N/A	
Electronics Assembly	Steel	40 Years	1	N/A	I N/A	
Hardware		1	1	N/A	N/A	
Bolts	Steel	40 Years	i i	N/A	I N/A	
Nuts	Steel	40 Years	1	N/A	N/A	
Mounting Bracket	Steel	40 Years	i i	N/A	I N/A	
Circuit Boards	Electronic Assemblies	1 1.87 Years @ 104°F	CAL-64	N/A	I N/A	
Sensor Module	316 Stainless Steel	40 Years	1	N/A	I N/A	
Sensor Module Oil Fill	Silicone Oil	40 Years	i i	N/A	I N/A	
		1				

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

Prepared by:

Checked by: Stales

SYSTEM COMPONENT EVALUATION WORKSHEET



Date:

Date: 9/3

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENT	ATION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	nQualification	Method	Items
	Operating Time	l Year	 1.1 Years 	o	J-8 Note 4	Analysis	None
	Temperature (°F)	130.0	Exempt	C-105	Note 1	N/A	None
Component: Flow Transmitter			1				
Manufacturer: Rosemount	Pressure	16.06	Exempt	C-105	Note 1	N/A	None
Model Number:			1				
Function: Transmits	Relative	100.0	Exempt	A	Note 1	N/A	None
Flow Signals	(%)			<u> </u>			
	 Chemical Spray	N/A	N/A	N/A	N/ ~	N/A	None
Service: Low Pressure In-				1	1		
jection 1 Flow Indication Loca ion: Auxiliary Bldg. Rm. 105		1.9 x 10 ⁶ RADS	5.0 x 10 ⁶ RADS	T	CAL-64 J-8	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	1.87 Years Note 3,5	I	CAL-64	Analysis	None
Needed for:	ii i	Contraction of the state		1			
Hot Shutdown X	 Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Davis-Besse Unit 1	SYSTE COMPONENT EVALUATION WORKSHEET	Index No.: 301H-009A
Docket: 50-346	NOTES	Rev.: 2
Prepared by: 2 Leuis Checked by: Africation of	Date $\frac{9/30/83}{2000000000000000000000000000000000000$	

- 1. This component is a differential pressure (flow) transmitter that transmits low pressure injection flow signals to control room flow indicators. This component is exempt from qualification because it does not perform a safety-related function in the harsh steam environment caused by a high energy line break. Failure of the component in this environment will not degrade other safety-related functions because the transmitter does not provide a control function. This failure will not mislead the operator because the low pressure injection system is not initiated during high energy line break accidents. Any abnormal indications will be verified by monitoring alternate parameters such as decay heat pump status, low pressure injection isolation valve position, decay heat pump discharge pressure, and decay heat removal cooler outlet temperatures. 1152DP transmitters have successfully passed type testing in a saturated steam environment enveloping the specified environmental conditions.
- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 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.
- 4. One-year operating time is used as a conservative maximum specification.
- 5. The 1.87 year qualified life is the best analytically supported qualified life estimate for this transmitter. There is significant operating experience at Davis-Besse and at other nuclear power plants to support a longer qualified life. The surveillance and maintenance program will ensure that no aging related failures occur and the surveillance and maintenance program frequency will be adjusted as necessary to ensure that the associated component will maintain functional operability.

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

COMPONENT MATERIAL EVALUATION SHEET



Prepared by: 3 Lewis Date: 9/. Checked by: Anter Date: 77

Plant I.D. No.: FTDH 2B		Component:	Flow	Flow Transmitter		
Manufacture	r: Rosemount	Model No.: 1152		2DP5A22P8		
	1	THERMAL AG	ING I	RADIATIO	N	
Parts List	Materials List	Qualification	Reference	Qualification	Reference	
Housing and Cover	Aluminum	Not Sensitive	1 1	N/A	N/A	
Process Flange	316 Stainless Steel	40 Years	1	N/A	N/A	
Blank Flange	316 Stainless Steel	40 Years	1 1	N/A	I N/A	
Valve Stem and Seat	316 Stainless Steel	40 Years	1 1	N/A	I N/A	

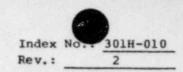
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Vensing and Course	Aluminum	Not Sensitive		N/A	N/A
Housing and Cover	316 Stainless Steel	40 Years		N/A	N/A
Blank Flange	316 Stainless Steel	40 Years		N/A	I N/A
Valve Stem and Seat	316 Stainless Steel	40 Years		N/A	I N/A
Adjustment Screw	Steel	40 Years		N/A	I N/A
	Steel	40 Years		N/A	N/A
Retaining Ring O-Rings	BUNA N	40 Years @ 104°F	CAL-64	N/A	I N/A
O-Ring (Process Flange)	Ethylene Propylene	40 Years @ 104°F	CAL-64	N/A	N/A
Electronics Assembly	Steel	40 Years		N/A	I N/A
Hardware	Dreet	1 to really	i	N/A	I N/A
Bolts	Steel	40 Years	i i	N/A	I N/A
Nuts	Steel	40 Years	i i	N/A	N/A
Mounting Bracket	Steel	40 Years		N/A	N/A
Circuit Boards	Electronic Assemblies	1.87 Years @ 104°F	CAL-64	N/A	N/A
Sensor Module	316 Stainless Steel	40 Years		N/A	I N/A
Sensor Module Oil Fill	Silicone Oil	40 Years	i i	N/A	N/A
Sensor Module off fill	STITCORE OIL	1 to really	i i		
		1	i i		1 - C - C
		1	1		
		1	1		1
		1			1
A CONTRACT OF		1			1
		1			
		1			
		1			1 1 1 1 1 1 1 1
		1			
		1			

Materials & Parts Reference List: AA, V-34B, J-8

Docket: 50-346

Prepared by: 2 Leuis Checked by: Ante On





Date: 9/. Date: 9/.

EQUIPMENT DESCRIPTION	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	1.1 Years	F	Note 1 J-8	Simultaneous Test	None
Plant ID No. FTHP3A Component: Plow Transmitter	Temperature	198.0	350.0	C-236	J-8	Simultaneous Test	None
Manufacturer: Rosemount	Pressure (PSIA)	15.51	84.7	C-236	J-8	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A I I	J-8	Simultaneous Test	None
	Chemical Spray	N/A	N/A	 N/A 	N/A	N/A	None
Flow Indication Location: Auxiliary Bldg. Rm. 236		1.97 x 10 ⁶ RADS	5.0 x 10 ⁶ RADS	т	CAL-64	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	1.87 Years Note 3	I	CAL-64 J-8 Note 2	Analysis	None
Needed for: Hot Shutdown X	 Submergence	N/A	N/A	N/A	N/A	N/A	None

		-
Facility: Davis-Besse Unit 1 Docket: 50-346 Prepared by: <i>Fleins</i> Dat Checked by: <i>FileCond</i> Dat	SYSTEM COMPONENT EVALUATION WORKSHEET NOTES	Index Nov <u>301H-0/0A</u> Rev.: <u>2</u>
Checked by: Dille Cand Dat	e <u>8/20/35</u>	

- 1. One-year operating time is used as a conservative maximum specification.
- 2. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain operability in harsh environments.
- 3. The 1.87 year qualified life is the best analytically supported qualified life estimate for this transmitter. There is significant operating experience at Davis-Besse and at other nuclear power plants to support a longer qualified life. The surveillance and maintenance program will ensure that no aging failures occur and the surveillance and maintenance program frequency will be adjusted as necessary to ensure that the associated component will maintain functional operability.

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

Date: 9/30/83 Date: 9/30/53 Prepared by:

COMPONENT MATERIA EVALUATION SHEET

301H-010B Index No. Rev.: 2

Plant I.D. No.: FTHO3A		Component:	Flow 7	Flow Transmitter	
Manufacturer:	Rosemount	Model No.:		1152	
1			а I	RADIATIO	9
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Housing and Cover	Aluminum 316 Stainless Steel	Not Sensitive 40 Years		N/A N/A	N/A N/A
Blank Flange Valve Stem and Seat	316 Stainless Steel 316 Stainless Steel	40 Years 40 Years		N/A N/A	N/A N/A
Adjustment Screw Retaining Ring	Steel Steel	40 Years 40 Years		N/A N/A	N/A N/A
O-Rings O-Ring (Process Flange)	BUNA N Ethylene Propylene	40 Years @ 104 ⁰ F 40 Years @ 104 ⁰ F	CAL-64 CAL-64	N/A N/A	N/A N/A
Electronics Assembly Hardware	Steel	40 Years	1	N/A N/A	N/A N/A
Bolts Nuts	Steel Steel	40 Years 40 Years		N/A N/A	N/A N/A
Mounting Bracket	Steel Electronic Assemblies	40 Years 1.87 Years @ 104 ⁰ F	CAL-64	N/A N/A	N/A N/A
Sensor Module Sensor Module Oil Fill	316 Stainless Steel Silicone Oil	40 Years 40 Years		N/A N/A	N/A N/A

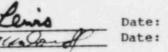
Materials & Parts Reference List: AA, V-34B, J-8

Facility: Devis-Besse Unit 1

Docket: 50-346

Prepared by:

P.3"



9/20/83

EQUIPMENT DESCRIPTION		ENVIRONMENT	Carlos Citado	DOCUMENTATION REF.		Qualification	Outstanding
Store and a second second	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Display Instrumentation	Operating Time	l Year	1.1 Years	F	Note 1 J-8	Simultaneous Test	None
Plant ID No. FTHP3B Component: Flow Transmitter	Temperature (°F)	198.0	350.0	C-236	J-8	Simultaneous Test	None
Manufacturer: Rosemount	Pressure (PSIA)	15,51	84.7	C-236	J-8	Simultaneous Test	None
Model Number: 1152 Function: Transmits Flow Signals	Relative Humidity (%)	100.0	100.0	A	J-8	Simultaneous Test	None
Service: High Pressure	 Chemical Spray 	N/A	N/A	N/A	N/A	N/A	None
Injection 2-2 Flow Indication Location: Auxiliary Bldg. Rm. 236		1.97 x 10 ⁶ RADS	5.0 x 10 ⁶ RADS	т	J-8	Sequential Test	None
Flood Level Elev: N/A Above Flood Level: N/A	 Aging 	40 Years	1.87 Years Note 3	I	Note 2 J-8 CAL-64	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown	 Submergence	N/A	N/A	N/A	N/A	N/A	None

Index 301H-011 Rev.: 2

1

SYSTEM COMPONENT ALUATION WORKSHEET

Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No. 301H-0//A Rev.: 2
	Date 9/30/83 NOTES	
Prepared by: 2 feins	Date 9/20/35	

- 1. One-year operating time is used as a conservative maximum specification.
- 2. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated components will maintain operability in harsh environments.
- 3. The 1.67 year qualified life is the best analytically supported qualified life estimate for this transmitter. There is significant operating experience at Davis-Besse and at other nuclear power plants to support a longer qualified life. The surveillance and maintenance program will ensure that no aging failures occur and the surveillance and maintenance program frequency will be adjusted as necessary to ensure that the associated component will maintain functional operability.

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

Prepared by: Checked by:

Date: 9/30/83

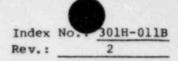
Date:

Plant I.D. N	o.: FTHP3B	Component:	Flow Transmitter	
Manufacturer	: Rosemount	Model No.:	1152	

Parts List Housing and Cover Process Flange Blank Flange Valve Stem and Seat Adjustment Screw	Materials List Aluminum J16 Stainless Steel J16 Stainless Steel	Qualification Not Sensitive 40 Years	Reference I I I AA	Qualification N/A	Reference
Process Flange Blank Flange Valve Stem and Seat	316 Stainless Steel				
Process Flange Blank Flange Valve Stem and Seat		40 Years	AA I	NT / R	
Blank Flange Valve Stem and Seat				N/A	N/A
Valve Stem and Seat		40 Years	AA	N/A	N/A
	316 Stainless Steel	40 Years	AA I	N/A	N/A
Adjustment Serew	Steel	40 Years	AA	N/A	N/A
Retaining Ring	Steel	40 Years	AA I	N/A	N/A
O-Rings	BUNA N	40 Years @ 104 ⁰ F	CAL-64	N/A	N/A
O-Ring (Process Flan		40 Years @ 104°F	CAL-64	N/A	N/A
Electronics Assembly		40 Years	1	N/A	N/A
Hardware	1 Steer	1	1 1	N/A	I N/A
Bolts	Steel	40 Years	I . T	N/A	N/A
	Steel	40 Years	1	N/A	I N/A
Nuts	Steel	40 Years	1	N/A	N/A
Mounting Bracket	Electronic Assemblies	1 1.87 Years @ 104°F	CAL-64	N/A	N/A
Circuit Boards	316 Stainless Steel	40 Years	1	N/A	I N/A
Sensor Module		40 Years	i i	N/A	N/A
Sensor Module Oil Fi					

Materials & Parts Reference List: AA, V-34B, J-8

COMPONENT MATERIALS EVALUATION SHEET



.0

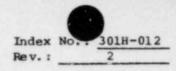
Facility: Davis-Besse Unit 1 Docket: 50-346

4 teurs

Prepared by: Checked by:

Date: 91 Date: 9

SYSTEM COMPONENT EVALUATION WORKSHEET



DOCUMENTATION REF. Qualification Outstanding ENVIRONMENT EQUIPMENT DESCRIPTION Qualification Specification Qualification Method Items || Parameter | Specification | None Note 1 Simultaneous 1.1 Years F 1 Year []Operating Display System: J-8 Test ||Time Instrumentation 11 Plant ID No. FTHP3C J-8 Simultaneous None C-208 192.0 350.0 [|Temperature] Test || (°F) Flow Component: 11 Transmitter None C-208 J-8 Simultaneous 84.7 16.25 Manufacturer: Rosemount || Pressure Test (|PSIA) Model Number: 1152 None J-8 Simultaneous 100.0 100.0 A ||Relative Test Humidity Function: Transmits Flow Signals (8) 11 Accuracy: Spec: N/A 11 N/A None N/A N/A N/A N/A [Chemical Demon: N/A ||Spray Service: High Pressure 11 Injection 1-1 11 J-8 Flow Indication || Location: Auxiliary Bldg. ||Radiation |1.97 x 106 RADS 5.0 x 106 RADS CAL-64 Sequential Test None T Rm. 208 CAL-64 11 Flood Level Elev: N/A None Analysis J-8 I 40 Years 1.87 Years Above Flood Level: N/A Aging Note 2 Note 3 Needed for: Hot Shutdown X N/A None N/A N/A N/A N/A ||Submergence| 11 Cold Shutdown

cility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index Not 301H-0/2A
cket: 50-346		Rev.: 2
2. 0 .	ala los NOTES	
ecked by: willing D	ate <u>9/30/83</u>	
ecked by: Dilla Connell D	ate <u>8/Du/35</u>	

- 1. One-year operating time is used as a conservative maximum specification.
- Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to
 assure that associated components will maintain operability in harsh environments.
- 3. The 1.87 year qualified life is the best analytically supported qualified life estimate for this transmitter. There is significant operating experience at Davis-Besse and at other nuclear power plants to support a longer qualified life. The surveillance and maintenance program will ensure that no aging failures occur and the surveillance and maintenance program frequency will be adjusted as necessary to ensure that the associated component will maintain functional operability.

Manufacturer:				ransmitter		
	Rosemount	Model No.: _		1152		
1		THERMAL AGING	RADIATION		N	
Parts List	Materials List	Qualification	Reference	Qualification	Referenc	
ousing and Cover	Aluminum	Not Sensitive		N/A	N/A	
rocess Flange	316 Stainless Steel	40 Years	1. Sec. 1. Sec. 1. S	N/A	I N/A	
lank Flange	316 Stainless Steel	40 Years		N/A	N/A	
alve Stem and Seat	316 Stainless Steel	40 Years		N/A	I N/A	
djustment Screw	Steel	40 Years		N/A	I N/A	
etaining Ring	Steel	40 Years		N/A	N/A	
-Rings	BUNA N	40 Years @ 104°F	CAL-64	N/A	N/A	
-Ring (Process Flange)	Ethylene Propylene	40 Years @ 104 ^o F	CAL-64	N/A	N/A	
lectronics Assembly	Steel	40 Years		N/A	N/A	
Hardware		1		N/A	N/A	
olts	Steel	40 Years		N/A	N/A	
uts	Steel	40 Years		N/A	N/A	
ounting Bracket	Steel	40 Years		N/A	N/A	
ircuit Boards	Electronic Assemblies	1.87 Years @ 104°F	CAL-64	N/A	N/A	
ensor Module	316 Stainless Steel	40 Years		N/A	N/A	
ensor Module Oil Fill	Silicone Oil	40 Years		N/A	N/A	
					1	

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET)ocket: 50-346

3 Leurs



Prepared by: **7 Leuis** Date: **9/3** Thecked by: <u>Stitue Const</u> Date: <u>9/3</u>

1,

EQUIPMENT DESCRIPTION	1	ENV IRONMENT		DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	1.1 Years	F	Note 1 J-8	Simultaneous Test	None
Plant ID No. FTHP3D Component: Flow Transmitter	Temperature (°F)	192.0	350.0	C-208	J-8	Simultaneous Test	None
Manufacturer: Rosemount	Pressure (PSIA)	16,25	84.7	C-208	J-8	Simultaneous Test	None
Function: Transmits	Relative Humidity (%)	100.0	100.0	A	J-8	Simultaneous Test	None
	 Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Injection 1-2 Flow Indication Location: Auxiliary Bldg.		1.97 x 10 ⁶ RADS	5.0 x 10 ⁶ RADS	T	J-8 CAL-64	Sequential Test	None
Rm. 208 Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	1.37 Years Note 3	I	Note 2 J-8 CAL-64	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown	 Submergence 	N/A	N/A	N/A	N/A	N/A	None

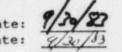
cility: Davis-Besse Unit 1 cket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No. 301H-0/3A Rev.: 2
ecked by: 2 feins	Date 9/30/82 Date 9/30/83	

- 1. One-year operating time is used as a conservative maximum specification.
- Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to
 assure that associated components will maintain operability in harsh environments.
- 3. The 1.67 year qualified life is the best analytically supported qualified life estimate for this transmitter. There is significant operating experience at Davis-Besse and at other nuclear power plants to support a longer qualified life. The surveillance and maintenance program will ensure that no aging failures occur and the surveillance and maintenance program to ensure that the associated component will maintain functional operability.

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

25

Prepared by: Checked by: Date:



Plant I.D. No.: FTHP3D	Component: Flow Transmitter	
Manufacturer: Rosemount	Model No.: 1152	
Handraccurer		

		THERMAL AGIN	G I	RADIATION	1
Parts List	Materials List	Qualification	Reference	Qualification	Reference
ousing and Cover	Aluminum	Not Sensitive		N/A	N/A
rocess Flange	316 Stainless Steel	40 Years	1	N/A	N/A
lank Flange	316 Stainless Steel	40 Years	1	N/A	N/A
alve Stem and Seat	316 Stainless Steel	40 Years	1	N/A	I N/A
ijustment Screw	Steel	40 Years	1 1	N/A	N/A
taining Ring	Steel	40 Years	1 1	N/A	N/A
-Rings	BUNA N	40 Years @ 104 ^O F	CAL-64	N/A	N/A
-Ring (Process Flange)	Ethylene Propylene	40 Years @ 104 ⁰ F	CAL-64	N/A	N/A
lectronics Assembly	Steel	40 Years	1 1	N/A	I N/A
Hardware	Decer	1	1 1-	N/A	N/A
olts	Steel	40 Years	i I	N/A	N/A
its	Steel	40 Years	i I.	N/A	N/A
ounting Bracket	Steel	40 Years	1 1	N/A	N/A
ircuit Boards	Electronic Assemblies	1.87 Years @ 104 ⁰ F	CAL-64	N/A	I N/A
ensor Module	316 Stainless Steel	40 Years	1	N/A	N/A
ensor Module Oil Fill	Silicone Oil	40 Years	i i	N/A	N/A

Materials & Parts Reference List: AA, V-34B, J-8

COMPONENT MATERIA EVALUATION SHEET

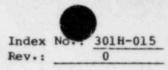




installer

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

SYSTEM COMPONENT EVALUATION WORKSHEET



6

Prepared by: W.J. Bellando Date: 9.28.3/. Checked by: Dete: 9/28/81.

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTA?	The second s	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	 1.1 Years 	Note 2	J-1 Note 3	Analysis	None
Plant ID No. LTRC14-3 Component: Level Transmitter	Temperature (°F)	283.0	300.0 	н, х I	J-1	Simultaneous Test	None
Manufacturer:Bailey Meter	(PSIA)	52.0	74.7	G, X	J-1	Simultaneous Test	None
Function: Transmits Level		100.0	 100.0 	A	J-1	Simultaneous Test	None
Accuracy: Spec: <u>+</u> .5% Demon: <u>+</u> .23% Service: Reactor Coolant Pressurizer Level Indication	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	CAL-42	Analysis	None
Location:Containment El.3	Radiation	1.7 x 107 RADS	4.0 x 10 ⁷ RADS	CAL-44	AG	Sequential Test	None
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	10.83 Years Note 1	I	CAL-38	Analysis	None
Needed for: Hot Shutdown X	 Submergence	572' - 2"	 585' - 0" 	B	J-29	N/A	None

.

	Davis-Besse Unit 1	SYSTEM COMPONENT EVALUTION WORKSHEET	Index N 301H-015A Rev.: 0
Docket:	50-346	NOTES	
	W. W. Bellande Date	10.1.81.	
Checked by	by: W.V. Bellando Date y: Hanelt D. Mordy Date	e 10/1/1	
Lietkeu Dj	· renter N. Mary	<u></u>	
	· 관문···································		

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

According to profiles G and H, containment conditions will nearly return to ambient (2.5 psig, 104°F) within 24 hours, with 3. a complete return to ambient within seven days. Ambient conditions will remain for the duration of the accident and ensuing cooldown. The 24-hour LOCA simulation test exposed the transmitter to a more severe environment than that which would result from the postulated loss of coolant accident. Since the transmitter remained operable throughout the test, it can be concluded that it will also maintain functional operability during the short term accident environment and the long-term cooldown at ambient conditions.

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

SYSTEM COMPONENT E QUATION WORKSHEET

Index No. 301H-015 Rev.: 2

Prepared by: **4 Ains** Date: **9/30/83** Checked by: Structured Date: <u>9/30/83</u>

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTAT	ION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	the state of the s	Method	Items
	 Operating Time	l Year	 1.1 Years 	Notes 1 and 3	J-36	Simultaneous Test	None
Plant ID No. LTRC14-3 Component: Level Transmitter	Temperature	283.0	 350.0 	н, х	J-36	Simultaneous Test	None
the second s	Pressure (PSIA)	52.0	85.0 	G, X	J-36	Simultaneous Test	None
Function: Transmits Level Signals	Relative Humidity (%)	100.0	100.0	A	J-36	Simultaneous Test	None
	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 8.5 to 11 	т	J-36 CAL-40 Note 2	 Simultaneous Test 	None
Location: Containment El.	Radiation	1.7 x 10 ⁷ RADS	5.0 x 10 ⁷ RADS	CAL-44	AG	 Sequential Test 	None
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	10 Years Note 4	I	CAL-66 J-36	Sequential Test	None
Needed for: Hot Shutdown X Cold Shutdown X	Submergence	572" - 2"	 585' ~ 0" 	в	J-29	N/A	None

Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: <u>301H-015A</u> Rev.: 2
	ola las NOTES	
Prepared by: 7 Leins	Date 9/30/82	
checked by:	Date 1/30/83	

- 1. The Rosemount replaces the Bailey Meter in accordance with FCR 78-525.
- 2. CAL-40 qualifies components tested in a high pH Boric Acid spray to a pH value of 5.0.
- 3. One year operating time is used as a conservative maximum specification.
- Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to
 ensure that associated component will maintain functional operability in harsh environments.

Facility: SYSTEM COMPONENT Docket: 50-346

LUATION WORKSHEET

301H-016 Index Rev.: 2

Prepared by: Nhours Date: 11/1/83 Checked by: Anton Date: 11/2/83

EQUIPMENT DESCRIPTION	i	ENVIRONMENT		DOCUMENTAT	ION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	 Operating Time	l Year	1.1 Years Note 1	Note 2	J-10 Note 1	Simultaneous Test	None
Plant ID No. PTSP12A1 Component: Pressure Transmitter	Temperature (°F)	283.0	314.0	н, х	J-10	Simultaneous Test	None
Manufacturer: Foxboro	Pressure (PSIA)	52.0	78.0	G, X	J-10	Simultaneous Test	None
S/N 266-0827	Relative Humidity (%)	100.0	100.0	Α	J-10	Simultaneous Test	None
Accuracy: Spec: 1.0% Demon: 0.94% Service: Steam Generator 2 Outlet Steam Pressure Indication	1	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-10 CAL-40 Note 3	Simultaneous Test, Analysis	None
Location: Containment El. 3	Radiation	6.35 x 10 ⁶ RADS	3.7 x 10 ⁷ RADS	AF	J-10	N/A	None
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	0.54 Years Note 5	I	CAL-74 Note 4	Analysis	None
Needed for:	 Submergence	572'-2"	589 '- 5"		ROC-16C	N/A	None

Facility: Docket: 50-346	SYSTEM COMPONENT EVENTION WORKSHEET	Index Rev.: 301H-016A
Prepared by: Nleurs Date Checked by: Date	II/I/13 II/2/03	

- According to Profiles G and H, containment conditions will return to ambient within seven days and remain there for the duration of the accident and ensuing cooldown. At the completion of the 30-day LOCA simulation test, test conditions had returned to 150°F, 5 psig. This test exposed the transmitter to an overall more severe environment than that which would result from the postulated loss of coolant accident. Since the transmitter remained operable throughout the test, it can be concluded that the transmitter will maintain functional operability during the short-term accident environment and the long-term cooldown at ambient conditions.
- 2. One-year operating time is used as a conservative maximum specification.
- 3. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
- 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 component will maintain functional operability in harsh environments.

The limiting material is the transmitter amplifier which has an aging life of 1.19/0.54 years at 104°F/120°F, respectively (Reference CAL-74). However, there is operating experience at Davis-Besse Unit 1 and in other nuclear plants to support a longer qualified life.

Although the 1.19/0.54 year qualified life is the best analytically supported life estimate, operating experience shows that a longer life is justified. The surveillance and maintenance program will detect age-related degradation and proper surveillance frequencies will be adjusted to ensure that no common mode aging failures predominate. Facility: Avis-Besse Unit 1 Docket: 50-346 COMPONENT MATER

EVALUATION SHEET



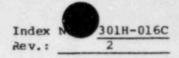
Prepared by: Nlewing Date: 11/1/87 Checked by: January Date: 11/1/87

Planc L.L	No.: PTSP12A1	Component:	Pressure Transmitter
I Manufactu	rer: Foxboro	Model No.:	E11GM*

1		THERMAL AG	ING I	RADIATIO	N
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Cover	Aluminum 214	40 Years	AA I	N/A	J-10
Screws and Nuts	Steel	40 Years	I AA I	N/A	J-10
Washers	Steel	40 Years	AA	N/A	J-10
Base Assembly	Cast Iron	40 Years	I AA I	N/A	J-10
Zero Shaft	Steel	40 Years	AA	N/A	J J-10
Sleeve	Steel	40 Years	AA	N/A	N/A
Zero Coupling Assembly	Steel	40 Years	AA	N/A	N/A
Retaining Rings	Steel	40 Years	AA	N/A	N/A
Force Bar and Base	Steel	40 Years	AA	N/A	N/A
Assembly			AL 2011 AL	N/A	I N/A
Junction Box	Cast Iron	40 Years	AA I	N/A	N/A
Coupling	Stainless Steel	40 Years	AA I	N/A	N/A
Brackets	Steel	40 Years	AA	N/A	N/A
Flexure Assemblies	Steel	40 Years	AA I	N/A	N/A
Columns	Steel	40 Years	AA	N/A	N/A
Base	Cast Iron	40 Years	AA	N/A	N/A
Cover Plate Molding	Steel	40 Years	AA I	N/A	N/A
Terminal Block Assembly	Steel	40 Years	AA	N/A	N/A
Detector Assembly	Steel	40 Years	AA	N/A	N/A
Plates	Steel	40 Years	AA	N/A	N/A
Level Assembly	Steel	40 Years		N/A	I N/A

Facility: Vis-Besse Unit 1 Docket: 50-346 COMPONENT MATERI EVALU

EVALUATION SHEET



ø

Prepared by: NLeuro Date: 11/1/2 Checked by: Annon Date: 11/24

1	Plant I.D. No.: PTSP12A1	Component: Pressure Transmitter	1
1	Manufacturer: Foxboro	Model No.: EllGM*	1

Parts List	1	THERMAL AGING		RADIATION	
	Materials List	Qualification	Reference	Qualification	Reference
Blocks	Steel	40 Years		N/A	N/A
Lever	Steel	40 Years	AA	N/A	N/A
Clamp Spring	Steel	40 Years	AA	N/A	N/A
Bushings	Steel	40 Years	AA I	N/A	I N/A
Coil Assembly	Steel	40 Years	AA	N/A	I N/A
Zero Screw Assembly	Steel	40 Years	AA I	N/A	I N/A
Spring Assemblies	Steel	40 Years	AA I	N/A	I N/A
-	Steel	40 Years	AA I	N/A	I N/A
Tubing	Steel	40 Years	AA I	N/A	I N/A
Clamps Lubricant	Silicone Oil	N/A	AA I	N/A	N/A
Transmitter Amplifier Assembly	Solid State Electronics	0.54 Years @ 120°F	CAL-74	N/A	N/A
C-Rings	Viton	40 Years @ 265°F	CAL-74	N/A	I N/A
Nylon Washer	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Cable	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Insulator	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Sealant	Silicone RTV (Silastic)	40 Years @ 302°F	CAL-74	N/A	N/A
Force Motor Assembly	Formwar Insulation	40 Years @ 122°F	CAL-74	N/A	N/A
Armature Assembly	Formvar Insulation	40 Years @ 122°F	CAL-74	N/A	N/A
Terminal Block	Phenolic	40 Years @ 230°F	CAL-74	N/A	N/A
Column	Phenolic	40 Years @ 230°F	CAL-74	N/A	I N/A

Materials & Parts List Reference: AA

* The EllGH materials list is applicable to the EllAH and EllGM transmitters because these transmitters have identical topworks, junction box, and electronics.

Note 1: Conservative value based on the fact that the transmitter amplifier assembly is the most limiting component for thermal aging (see Reference AA, CAL-38).

Facility: Docket: 50-346

SYSTEM COMPONENT CUATION WORKSHEET

301H-017 Index N Rev.: 2

. 354

10

Prepared by: Nla.

11/183		
2		

EQUIPMEN? DESCRIPTION	ENVIRONMEN'I		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	I'cems
	Operating Time	l Year	1.1 Years	Note 2	J-10 Note 1	Simultaneous Test	None
Plant ID No. PTSP12A2	Temperature	283.0	314.0	н, х	J-10	Simultaneous Test 	None
and accurber concered i	Pressure (PSIA)	52.0	78.0	G, X	J-10	Simultaneous Test	None
S/N 266-0828	Relative Humidity	100.0	100.0	A	J-10	Simultaneous Test	None
Accuracy: Spec: 1.0% Demon: 0.94%	1 1	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	À	J-10 CAL-40 Note 3	Simultaneous Test, Analysis	None
El. 3	Radiation	6.35 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	AF	J-5	 Sequential Test 	None
Flood Level Elev: 572'-2" Above Flood I avel: Yes Needed for: Hot Shutdown X		40 Years	0.54 Years Note 5	I	CAL-74 Note 4	Analysis	None
	Submergence	572" - 2"	589' - 5"	в	ROC-16C	N/A	None

Facility: Docket: 50-346 SYSTEM COMPONENT EVA	IN WORKSHEET Index N 301H-017A Rev.: 2
Prepared by: NLewis Date 11/1/93 Checked by: Manana Date 11/1/13	25

- According to Profiles G and H, containment conditions will return to ambient within seven days and remain there for the duration of the accident and ensuing cooldown. At the completion of the 30-day LOCA simulation test, test conditions had returned to 150°F, 5 psig. This test exposed the transmitter to an overall more severe environment than that which would result from the postulated loss of coolant accident. Since the transmitter remained operable toroughout the test, it can be concluded that the transmitter will maintain functional operability during the short-term accident environment and the long-term cooldown at ambient conditions.
- 2. One-year operating time is used as a conservative maximum specification.
- 3. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
- 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 component will maintain functional operability in harsh environments.

The limiting material is the transmitter amplifier which has an aging life of 1.19/0.54 years at 104°F/120°F, respectively (Reference CAL-74). However, there is operating experience at Davis-Besse Unit 1 and in other nuclear plants to support a longer qualified life.

Although the 1.19/0.54 year qualified life is the best analytically supported life estimate, operating experience shows that a longer life is justified. The surveillance and maintenance program will detect age-related degradation and proper surveillance frequencies will be adjusted to ensure that no common mode aging failures predominate. Facility: vis-Besse Unit 1 COMPONENT MATER.

ð

EVALUATION SHEET

301H-017B Index i Rev.: 2

Prepared by: NLewis Date: 11/1/93 Checked by: Brachard Date: 11/4/13

Plant I.D. No.: PTSP12A2		Component:	Pressure	Pressure Transmitter	
Manufacturer:	Foxboro	Model No.:		11GM*	
				RADIATIO	ч
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Cover	Aluminum 214	40 Years	AA	N/A	N/A
Screws and Nuts	Steel	40 Years	AA	N/A	N/A
Washers	Steel	40 Years	AA	N/A	N/A
Base Assembly	Cast Iron	40 Years	AA	N/A	N/A
Zero Shaft	Steel	40 Years	AA I	N/A	N/A
Sleeve	Steel	40 Years	AA	N/A	N/A
Zero Coupling Assembly	Steel	40 Years	AA I	N/A	N/A
Retaining Rings	Steel	40 Years	AA	N/A	N/A
Force Bar and Base	Steel	40 Years	AA	N/A	N/A
Assembly		1	1. 1.	N/A	N/A
Junction Box	Cast Iron	40 Years	AA	N/A	N/A
Coupling	Stainless Steel	40 Years	AA	N/A	N/A
Brackets	Steel	40 Years	AA	N/A	N/A
Flexure Assemblies	Steel	40 Years	AA	N/A	N/A
Columns	Steel	40 Years	i AA I	N/A	N/A
Base	Cast Iron	40 Years	AA	N/A	N/A
Cover Plate Molding	Steel	40 Years	AA	N/A	N/A
Terminal Block Assembly	Steel	40 Years	AA	N/A	N/A
Detector Assembly	Steel	40 Years	AA	N/A	N/A
Plates	Steel	40 Years	I AA I	N/A	N/A
Level Assembly	Steel	40 Years	AA I	N/A	N/A

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

EVALUATION SHEET COMPONENT MATERIA

e e



18

Nhein Prepared by: Date: Checked by: Date:

Plant I.D. N	o.: PTSP12A2	Component:	Pressure	e Transmitter	
Manufacturer: Foxboro		Model No.:		Ellom*	
	1	THERMAL AGIN	G	RADIATIO	4
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Blocks	Steel	40 Years	AA	N/A	N/A
Lever	Steel	40 Years	AA	N/A	N/A
Clamp Spring	Steel	40 Years	AA	N/A	N/A
Bushings	Steel	40 Years	AA I	N/A	I N/A
Coil Assembly	Steel	40 Years	AA	N/A	N/A
Zero Screw Assembly	Steel	40 Years	AA I	N/A	N/A
Spring Assemblies	Steel	40 Years	AA	N/A	N/A
Tubing	Steel	40 Years	AA I	N/A	N/A
Clamps	Steel	40 Years	AA I	N/A	N/A
Lubricant	Silicone Oil	N/A	AA I	N/A	N/A
Transmitter Amplifier Assembly	Solid State Electronics	0.54 Years @ 120°F	CAL-74	N/A	N/A
O-Rings	Viton	40 Years @ 265°F	CAL-74	N/A	N/A
Hylon Washer	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Cable	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Insulator	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Sealant	Silicone RTV (Silastic)	40 Years @ 302°F	CAL-74	N/A	N/A
Force Motor Assembly	Formvar Insulation	40 Years @ 122°F	CAL-74	N/A	N/A
Armature Assembly	Formvar Insulation	40 Years @ 122°F	CAL-74	N/A	N/A
Terminal Block	Phenolic	40 Years @ 230°F	CAL-74	N/A	N/A
Column	Phenolic	40 Years @ 230°F	CAL-74	N/A	N/A

Materials & Parts List Reference: AA

- * The EllGH materials list is applicable to the EllAH and EllGM transmitters because these transmitters have identical topworks, junction box, and electronics.
- Note 1: Conservative value based on the fact that the transmitter amplifier assembly is the most limiting component for thermal aging (see Reference AA, CAL-38).

Ask.

Docket: 50-346

Facility: System COMPONENT

LUATION WORKSHEET

301H-018 Index 2 Rev.:

....

Prepare: by: N Leuro Date: 11/1/83 Checked by: Analog Date: 11/2/13

EQUIPMENT DESCRIPTION	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	1.1 Years	Note 2	J-10 Note 1	Simultaneous Test	None
Component: Pressure	Temperature (°F)	283.0	314.0	н, х	J-10	Simultaneous Test	None
initial declarer i enterer i	Pressure (PSIA)	52.0	78.0	G, X	J-10	Simultaneous Test	None
S/N 266-0829	Relative Humidity	100.0	100.0	A	J-10	Simultaneous Test	None
Accuracy: Spec: 1.0% Demon: 0.94%	 Chemical Spray 	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-10 CAL-40 Note 3	Simultaneous Test, Analysis	None
Location: Containment El. 3	Radiation	5.30 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	AF	J-5	Sequential Test	None
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	0.54 Years Note 5	I	CAL-74 Note 4	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	Submergence	572" - 2"	 589' - 6"	B	ROC-16C	 N/A	None

Facility: Docket: 50-346	SYSTEM COMPONENT ETANTION WORKSHEET	Index Rev.: 2
Prepared by: Nleurs Date Checked by: Annon Date	11/1/93 11/2/13	

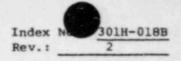
- According to Profiles G and H, containment conditions will return to ambient within seven days and remain there for the duration of the accident and ensuing cooldown. At the completion of the 30-day LOCA simulation test, test conditions had returned to 150°F, 5 psig. This test exposed the transmitter to an overall more severe environment than that which would result from the postulated loss of coolant accident. Since the transmitter remained operable throughout the test, it can be concluded that the transmitter will maintain functional operability during the short-term accident environment and the long-term cooldown at ambient conditions.
- 2. One-year operating time is used as a conservative maximum specification.
- 3. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
- 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 component will maintain functional operability in harsh environments.

The limiting material is the transmitter amplifier which has an aging life of 1.19/0.54 years at 104°F/120°F, respectively (Reference CAL-74). However, there is operating experience at Davis-Besse Unit 1 and in other nuclear plants to support a longer qualified life.

Although the 1.19/0.54 year qualified life is the best analytically supported life estimate, operating experience shows that a longer life is justified. The surveillance and maintenance program will detect age-related degradation and proper surveillance frequencies will be adjusted to ensure that no common mode aging failures predominate. Facility: Vis-Besse Unit 1 COMPONENT MATERI Docket: 50-346

3

EVALUATION SHEET



Prepared by: N Lauis Date: 11/1/17 Checked by: AlanDoned Date: 11/2/15

-

Plant I.D. No	.: PTSP1281	Component:	Pressure	Pressure Transmitter		
Manufacturer:	Foxboro	Model No.:	E	11GM*		
1		THERMAL AGIN	ig l	RADIATIO		
Parts List	Materials List	Qualification	Reference	Qualification	Reference	
Cover	Aluminum 214	40 Years	AA	N/A	N/A	
Screws and Nuts	Steel	40 Years	AA	N/A	N/A	
Washers	Steel	40 Years	AA I	N/A	N/A	
Base Assembly	Cast Iron	40 Years	AA	N/A	I N/A	
Zero Shaft	Steel	40 Years	AA I	N/A	N/A	
Sleeve I	Steel	40 Years	AA I	N/A	N/A	
Zero Coupling Assembly	Steel	40 Years	AA	N/A	N/A	
Retaining Rings	Steel	40 Years	AA	N/A	N/A	
Force Bar and Base	Steel	40 Years	AA I	N/A	I N/A	
Assembly		1	1 1	N/A	N/A	
Junction Box	Cast Iron	40 Years	AA	N/A	N/A	
Coupling	Stainless Steel	40 Years	AA	N/A	I N/A	
Brackets	Steel	40 Years	AA	N/A	N/A	
Flexure Assemblies	Steel	40 Years	AA	N/A	N/A	
Columns	Steel	40 Years	AA I	N/A	N/A	
Base 1	Cast Iron	40 Years	AA I	N/A	N/A	
Cover Plate Molding	Steel	40 Years	AA	N/A	N/A	
Terminal Block Assembly	Steel	40 Years	AA	N/A	N/A	
Detector Assembly	Steel	40 Years	AA	N/A	I N/A	
Plates	Steel	40 Years	I AA I	N/A	N/A	
Level Assembly	Steel	40 Years	I AA I	N/A	I N/A	

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

11/1/83 NLauis Date: Prepared by: Date: Checked by:

Plant I.D. N	o.: PTSP12B1	Component:	Pressure		
Manufacturer:Foxboro		Model No.:		E11GM*	
		THERMAL AGIN	g I	RADIATION	1
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Blocks	Steel	40 Years	AA	N/A	N/A
Lever	Steel	40 Years	AA	N/A	N/A
Clamp Spring	Steel	40 Years	AA	N/A	I N/A
Bushings	Steel	40 Years	AA I	N/A	N/A
Coil Assembly	Steel	40 Years	AA	N/A	I N/A
Zero Screw Assembly	Steel	40 Years	AA	N/A	N/A
Spring Assemblies	Steel	40 Years	AA	N/A	N/A
Tubing	Steel	40 Years	AA i	N/A	N/A
Clamps	Steel	40 Years	AA	N/A	N/A
Lubricant	Silicone Oil	N/A	AA	N/A	N/A
Transmitter Amplifier Assembly	Solid State Electronics	0.54 Years @ 120°F	CAL-74	N/A	N/A
0-Rings	Viton	40 Years @ 265°F	CAL-74	N/A	I N/A
Nylon Washer	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Cable	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Insulator	Nylon (Polyamide)	96 Years @ 120°F	CAL-74 !	N/A	N/A
Sealant	Silicone RTV (Silastic)	40 Years @ 302°F	CAL-74	N/A	N/A
Force Motor Assembly	Formvar Insulation	40 Years @ 122°F	CAL-74	N/A	N/A
Armature Assembly	Formvar Insulation	40 Years @ 122°F	CAL-74	N/A	N/A
Terminal Block	Phenolic	40 Years @ 230°F	CAL-74	N/A	N/A
Column	Phenolic	40 Years @ 230°F	CAL-74	N/A	I N/A

EVALUATION SHEET

COMPONENT MATERI

301H-018C

2

Index

Rev.:

Materials & Parts List Reference: AA

- * The EllGH materials list is applicable to the EllAH and EllGM transmitters because these transmitters have identical topworks, junction box, and electronics.
- Note 1: Conservative value based on the fact that the transmitter amplifier assembly is the most limiting component for thermal aging (see Reference AA, CAL~38).

Docket: 50-346

4

Facility: S-Besse Unit 1

SYSTEM COMPONENT LUATION WORKSHEET

301H-019 Index Rev.: 2

Prepared by: N Lewis Date: 11/1/28 Checked by: Arcentored Date: 11/2/13

.

EQUIPMENT DESCRIPTION	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	 Operating Time	l Year	1.1 Years	Note 2	J-10 Note 1	Simultaneous Test	None
	Temperature	283.0	314.0	н, х	J-10	Simultaneous Test	None
Component: Pressure Transmitter				1			
The second	Pressure	52.0	78.0	G, X	J-10	Simultaneous Test	None
	Relative	100.0	100.0	A	J-10	Simultaneous Test	None
Pressure Signals Accuracy: Spec: 1.0% Demon: 0.94% Service: Steam Generator 1 Outlet Steam Pressure Indication	 Chemical Spray	Boric Acid 1800 prm pH 5.(Boric Acid 1800 ppm pH 5.0	A .	J-10 CAL-40 Note 3	Simultaneous Test, Analysis	None
Location: Containment	1	5.30 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	AF	J- 5	Sequential Test	None
Flood Level Elev: 572'-2" Above Flood Level: Yes	2	40 Years	0.54 Years Note 5	I	CAL-74 Note 4	Analysis	None
Needed for: Hot Shutdown X X Cold Shutdown X	 Submergence	572" - 2"	589' - 6"	В	ROC-16C	N/A	None

Facility: Docket: 50-346	SYSTEM COMPONENT EVALUTION WORKSHEET	Index Rev.: 301H-019A
	ate $\frac{11/1/23}{11/2/13}$ NOTES	

- 1. According to Profiles G and H, containment conditions will return to ambient within seven days and remain there for the duration of the accident and ensuing cooldown. At the completion of the 30-day LOCA simulation test, test conditions had returned to 150°F, 5 psig. This test exposed the transmitter to an overall more severe environment than that which would result from the postulated loss of coolant accident. Since the transmitter remained operable throughout the test, it can be concluded that the transmitter will maintain functional operability during the short-term accident environment and the long-term cooldown at ambient conditions.
- 2. One-year operating time is used as a conservative maximum specification.
- 3. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
- 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 component will maintain functional operability in harsh environments.

The limiting material is the transmitter amplifier which has an aging life of 1.19/0.54 years at 104°F/120°F, respectively (Reference CAL-74). However, there is operating experience at Davis-Besse Unit 1 and in other nuclear plants to support a longer gualified life.

Although the 1.19/0.54 year qualified life is the best analytically supported life estimate, operating experience shows that a longer life is justified. The surveillance and maintenance program will detect age-related degradation and proper surveillance frequencies will be adjusted to ensure that no common mode aging failures predominate.

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

NLewis

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

PTSP12B2 Plant I.D. No .: Component: Pressure Transmitter EllGM* Manufacturer: Foxboro Model No.: THERMAL AGING RADIATION Parts List Materials List Qualification Reference Qualification Reference Aluminum 214 40 Years N/A N/A Cover AA Screws and Nuts Steel 40 Years AA N/A N/A Washers Steel 40 Years AA N/A N/A Cast Iron AA N/A Base Assembly 40 Years N/A Zero Shaft Steel 40 Years AA N/A N/A Sleeve Steel 40 Years AA N/A N/A Zero Coupling Assembly 40 Years AA N/A N/A Steel 40 Years Retaining Rings Steel AA N/A N/A Force Bar and Base 40 Years AA N/A Steel N/A N/A N/A Assembly Cast Iron Junction Box 40 Years AA N/A N/A Stainless Steel 40 Years AA N/A N/A Coupling Brackets Steel 40 Years AA N/A N/A Flexure Assemblies Steel 40 Years AA N/A N/A Columns Steel 40 Years AA N/A N/A N/A N/A Cast Iron 40 Years AA Base Cover Plate Molding 40 Years AA N/A N/A Steel 40 Years AA N/A N/A Terminal Block Assembly Steel 40 Years AA N/A Detector Assembly Steel N/A Plates Steel 40 Years AA N/A N/A Level Assembly 40 Years AA N/A N/A Steel

Index 301H-019B Rev.: 2

COMPONENT MATER

EVALUATION SHEET

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

COMPONENT MATERIA EVALUATION SHEET



Prepared by: Nlewis Date: 11/1/93 Checked by: Streadong Date: 11/1/93

Plant I.D. N	o.: PTSP12B2	Component:	Pressure	e Transmitter	
Manufacturer	: Foxboro	Model No.:	1	e11gm*	
	11	THERMAL AGING	G I	RADIATIO	N
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Blocks	Steel	40 Years	AA I	N/A	I N/A
Lever	Steel	40 Years	AA I	N/A	I N/A
Clamp Spring	Steel	40 Years	AA I	N/A	I N/A
Bushings	Steel	40 Years	AA I	N/A	I N/A
Coil Assembly	Steel	40 Years	AA	N/A	I N/A
Zero Screw Assembly	Steel	40 Years	AA I	N/A	I N/A
Spring Assemblies	Steel	40 Years	AA I	N/A	N/A
Tubing	Steel	40 Years	AA I	N/A	N/A
Clamps	Steel	40 Years	AA I	N/A	I N/A
Lubricant	Silicone Oil	N/A	AA	N/A	I N/A
Transmitter Amplifier	Solid State Electronics	0.54 Years @ 120°F	CAL-74	N/A	I N/A
Assembly O-Rings	Viton	40 Years @ 255°F	CAL-74	N/A	I N/A
Nylon Washer	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	I N/A
Cable	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	I N/A
Insulator	Nylon (Polyamide)	96 Years @ 120°F	CAL-74	N/A	N/A
Sealant	Silicone RTV (Silastic)	40 Years @ 302°F	CAL-74	N/A	I N/A
Force Motor Assembly	Formvar Insulation	40 Years @ 122°F	CAL-74	N/A	I N/A
Armature Assembly	Formvar Insulation	40 Years @ 122°F	CAL-74	N/A	N/A
Terminal Block	Phenolic	40 Years @ 230°F	CAL-74	N/A	N/A
Column	Phenolic	40 Years @ 230°F	CAL-74	N/A	I N/A

Materials & Parts List Reference: AA

- * The EllGH materials list is applicable to the EllAH and EllGM transmitters because these transmitters have identical topworks, junction box, and electronics.
- Note 1: Conservative value based on the fact that the transmitter amplifier assembly is the most limiting component for thermal aging (see Reference AA, CAL-38).

Facility: Daves-Besse Unit 1 SYSTEM COMPONENT Docket: 50-346

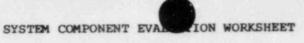
UATION WORKSHEET

301H-020 Index No Rev.: 0

Checked by: M.V. Bellands Date: 9.29 81. Date: 9/29/81

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	Note 1	Note 4	N/A	N/A	Note 3
Plant ID No, ZS100-1 Component: Limit Switch	Temperature	344.0	Note 1	C-602	N/A	N/A	Note 3
	Pressure	20.0	Note 1	 C-602 	N/A	N/A	Note 3
	Relative Humidity (%)	100.0	Note 1 	A	N/A	N/A	Note 3
Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 2 Warm-Up Isolation Valve	Spray	N/A	 N/A 	 N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	N/A	N/A	N/A	N/A	N/A	None
	Aging	40 rears	40 Years	I	Note 2	Analysis	 None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence 	N/A	 N/A 	 N/Ä 	N/A	N/A	 None

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



Index No. 301H-020A Rev.: 0

NOTES

Prepared by: W.V. Bellando Date 9.29.81. Checked by: Ken at d. Mordy Date 9/29/11

- 1. The limit switch subjected to the harsh environment is for indication only. The warm-up isolation value is only used during start-up operations and is closed during normal plant operations. The operator is aware of this condition as he will not monitor this value's position during a high energy line break accident. For this reason the operator will not be misled by failure of the limit switch in the harsh environment. Since the limit switch does not provide a control function, its failure will not degrade other safety-related functions.
- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.
- 4. One year operating time is used as a conservative maximum specification.

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

Prepared by: W.V. Balland Date: 92981. Checked by: Durt Albate, Date: 9/29/BL

Plant I.D. No.:ZS100-1 Manufacturer:NAMCO				Limit Switch D2400		
	1	THERMAL AGIN	G I	RADIATIO	N	
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference	
Contact Block	Polyester, Glass Filled	40 Years @ 50°C	W-2	N/A	N/A	
Contact Lever	Polyester, Glass Filled	40 Years @ 50°C	W-2	N/A	I N/A	
Cop & Bottom Cover Gaskets	BUNA-N-Coated Nylon	40 Years @ 43.5°C	CAL-2	N/A	I N/A	
Contact Lever	Alkyd, Mineral Filled	40 Years @ 130°C	W-2	N/A	I N/A	
Top & Bottom Cover Gaskets	Koroseal	40 Years @ 50°C	W-2	N/A	N/A	
Top & Bottom Cover Gaskets	Polyvinyl Chloride Plastic 	40 Years @ 50°C	W-2	N/A	N/A	
	i				1	

COMPONENT MATER

EVALUATION SHEET

Index

Rev. :

301H-020B

0

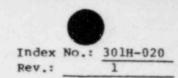
Material & Parts List Reference: V-29B, ROC-29C

Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by * radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.



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

SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: Join Cayor, Date: 12-15-52 Checked by: Jour W Spulle Date: 2.17-52

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	 Operating Time	l Year	l.1 Years	Note 2	J-30 Note 3	Simultaneous Test	None
Plant ID No. ZS100-1	Temperature	344.0	391.0	C-602	J-30	Simultaneous Test	None
Nodel Number: EA-180	Pressure (PSIA) _	20.0	133.7	C-602	J-30	Simultaneous Test	None
a series and a series of the s	Relative Humidity (%)	100.0	100.0	A	J-30 v	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 2 Warm-Up Isolation Valve	Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Radiation	N/A	 2.04 x 10 ⁸ RADS	N/A	J-30	Sequential Test, Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	19.13 Years Note 4	I	J-30 CAL-54	Sequential Test, Analysis	None
Cold Shutdown	Submergence	N/A	 N/A	N/A	N/A	N/A	None



Checked by:

SYSTEM COMPONENT EVALUATION WORKSHEET

NOTES

Index No.: 301H-020A

Rev.:

1

Facility: Davis-Besse Unit 1 50-346 Docket: Prenared by: Jour Caybur Date 12-15-82

1. This component replaces a Model D2400 in accordance with FCR 82-101.

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

3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 602 peak at 344°F and 20.0 psia in 0.5 and 2.0 seconds, respectively. The conditions return to ambient in 57 minutes.

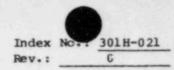
Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will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

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



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

SYSTEM COMPONENT EVALUATION WORKSHEET



Safety -

Checked by: W.V.Billando Date: 9.29.81. Date: 9/29/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	Note 1	Note 4	N/A	N/A	Note 3
Plant ID No. ZS101-1 Component: Limit Switch	Temperature (°F)	282.0	Note 1	C-601	N/A	N/A	Note 3
	 Pressure (PSIA)	17.0	Note 1	 C-601 	N/A	N/A	Note 3
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 3
Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line 1 Warm-Up Isolation Valve		N/A	N/A	 N/A 	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86 x 10 ⁴ RADS	1.0 x 10 ⁷ RADS	l T	Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	 Aging	40 Years	40 Years	I	Note 2	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 Submergence	E!/A	N/A	 N/A 	 N/A 	N/A	None

Facility: Davis-Besse Unit 1



Index No.

Rev.:

301H-021A

0

NOTES

Docket: 50-346 Prepared by: W. A Rellando Date / 1.8/ Checked by: Kannet D. Marty Date (0/1/8/

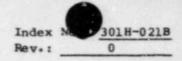
1. The limit switch subjected to the harsh environment is for indication only. The warm-up isolation value is only used during start-up operations and is closed during normal plant operations. The operator is aware of this condition as he will not monitor this value's position during a high energy line break accident. For this reason, the operator will not be misled by failure of the limit switch in the harsh environment. Since the limit switch does not provide a control function, its failure will not degrade other safety-related functions.

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

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

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

Facility: Divis-Besse Unit 1 Docket: 50-346 COMPONENT MATERI EVALUATION SHEET



Prepared by: W.V. Bellandes Date: 10.1.81. Checked by: Kennell V. Mondy Date: 10/1/81

Plant I.D.	No.: ZS101-1	Component:	Lim	it Switch	
Manufacture	er: NAMCO	Model No.:		D2400	
	1	THERMAL AGIN	ig l	RADIATION	
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block	Polyester, Glass Filled	40 Years @ 50°C	W-2	1.0 x 107 RADS	W-1
ontact Lever	Polyester, Glass Filled	40 Years @ 50°C	W-2	1.0 x 107 RADS	W-1
Top & Bottom Cover Gaskets	BUNA-N-Coated Nylon	40 Years @ 43.5°C	CAL-2	1.0 x 107 RADS	W-1
Contact Lever	Alkyd, Mineral Filled	40 Years @ 130°C	W-2	2.0 x 109 RADS	W-1
Cop & Bottom Cover Gaskets	Koroseal	40 Years @ 50°C	₩-2 	2.0 x 10 ⁹ RADS	W-1
Top & Bottom Cover Gaskets	Polyvinyl Chloride Plastic	40 Years @ 50°C	W-2	1.0 x 107 RADS	W-1
	1		1		
					i

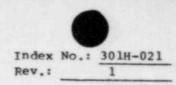
Material & Parts List Reference: V-29B, ROC-29C

Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.



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

SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: Sama Caupan Date: 12-15-82 Checked by: Dare U. Lypike Date: 12-15-82

EQUIPMENT DESCRIPTION	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding	
EQUIPMENT DESCRIPTION	Parameter	Specification	Qualification			Method	Items
	 Operating Time	l Year	1.1 Years	Note 2	J-30 Note 3	Simultaneous Test	None
Plant ID No. 25101-1 Component: Limit Switch	Temperature (°F)	282.0	391.0	 c-601 	J-30	Simultaneous Test	None
Model Number: EA-180	Pressure (PSIA)	17,0	133.7	C-601	J-30	Simultaneous Test	None
Note 1 Function: Valve Position Indication	Relative Humidity (%)	100.0	100.0	A	J-30	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A Service: Main Steam Line l Warm-Up Isolation Valve	11 1	N/A	N/A	N/A	N/A	n/a	None
Location: Auxiliary Bldg. Rm. 601		1.86 x 10 ⁴ RADS	2.04 × 10 ⁸ RADS	т	J-30	Sequential Test, Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for:	Aging	40 Years	19.13 Years Note 4	I	J-30 CAL-54	Sequential Test, Analysis	None
Not 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.: 301H-021A
Docl.et:	50-346		Rev.: 1
		NOTES	
Prepared b	1: Paul 10. Typikes Date	12-15-82	
Cherked by	" (Paul 10) Jan Men Date	12-17-82	
	Grund and and and and and and and and and a	the of the	
Cherked by	Claul W. Lynthes Val	- <u>_12-A9-92-</u>	

- 1. This component replaces a Model D2400 in accordance with FCR 82-101.
- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside room 601 peak at 282°F and 17.0 psia in 0.5 and 2.0 seconds, respectively. The conditions return to ambient in 2 hours and 30 minutes.

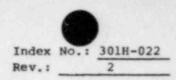
Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will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

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



Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



1 1.

Docket: 50-346

OI

Prepared by: Nlame Date: 11/1/PS Checked by: And Date: 11/2/13

EQUIPMENT DESCRIPTION	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	40 Years	Note 1	Note 3	N/A	None
Plant ID No. ZS1356 Component: Limit Switch	Temperature (°F)	221.0	Exempt	C-314	Note 2	N/A	None
	 Pressure (PSIA)	19.76	Exempt	C-314	Note 2	N/A	None
Function: Valve Position	Relative Humidity (%)	100.0	Exempt	A I	Note 2	N/A	None
Accuracy: Spec: N/A Demon: N/A Service: Containment Air Cooler 1 Service Water Outlet Isolation Valve		N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg.	1	1.0 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	1 T	CAL-76 Note 3	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-76 Note 3	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence	N/A	 N/A	 N/A	N/A	N/A	None

100

Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMP	PONENT EVALUATION WORKSHEET	Index No.: 301H-022A Rev.: 2
Prepared by: Nleuis Checked by: Smuch	Date 11/1/83 Date 11/14/13	NOTES	

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

2. This component is a limit switch which is used for valve position indication only. The harsh environment seen by the limit switch is due to a main feedline break. The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break outside containment. The operator will not monitor this valve's position indication during this accident because the containment air cooling system will not be initiated. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function.

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

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

. 18

COMPONENT MATERIALS EVALUATION SHEET



Docket: Prepared by: Date: Date: Checked by: -il

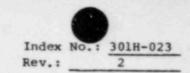
Plant I.D. I	No.: 2S1356	Component:	Lim	it Switch	
Manufacture	r:NAMCO	Model No.:		D2400X	
	1	THERMAL AGIN	IG I	RADIATIO	N
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets Contact Lever Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon **	40 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°F Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS $x x 10^{7}$ RADS 1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.

Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



Docket: 50-346

Prepared by: NLauis Date: 11/1/93 Checked by: Date: 11/1/93 Date: 11/1/93

EQUIPMENT DESCRIPTION	i e e e e e e e e e e e e e e e e e e e	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	40 Years	Note 1	Note 3	N/A	None
Plant ID No, 2S1357 Component: Limit Switch	Temperature (°F)	221.0	Exempt	C-314	Note 2	N/A	None
and the second	Pressure (PSIA)	19.76	Exempt 	c-314	Note 2	N/A	None
Function: Valve Position Indication	 Relative Humidity (%)	100.0	Exempt 	A	Note 2	N/A	None
Accuracy: Spec: N/A Demon: N/A Service: Containment Air Cooler 2 Service Water Outlet Isolation Valve	11	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314		1.0 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	T	CAL-76 Note 3	Analysis	None
	 Aging 	40 Years	40 Years	I	CAL-76 Note 3	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence 	N/A	 N/A	N/A	N/A	N/A	None

acility: Davis-Besse Un	nit 1 SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-023A
bocket: 50-346		Rev.: 2
N/louis	Date 11/1/82 Date 11/2/83	
repared by:	Date II II J	

- 1. One-year operating time is used as a conservative maximum specification.
- 2. This component is a limit switch which is used for valve position indication only. The harsh environment seen by the limit switch is due to a main feedline break. The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break outside containment. The operator will not monitor this valve's position indication during this accident because the containment air cooling system will not be initiated. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function.
- 3. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIADS EVALUATION SHEET



Prepared by: Date: Checked by: Date:

Plant I.D. No.: 251357	Component:	Limit Switch	
Manufacturer: NAMCO	Model No.:	D2400X	1

		THERMAL AGI	NG I	RADIATION	
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block	Polyester, Glass Filled	40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
Contact Lever	Polyester, Glass Filled	40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
Top & Bottom Cover Gaskets	BUNA-N-Coated Nylon ** 	40 Years @ 104°F	CAL-76	1 x 10 ⁷ RADS	I CAL-76
Contact Lever	Alkyd, Mineral Filled	Greater than	CAL-76	1 x 10 ⁹ RADS	CAL-76
	1	40 Years @ 300°F	1		1
Top & Bottom Cover Gaskets	Koroseal 	40 Years @ 140°F	CAL-76	1×10^7 RADS	I CAL-76
Top & Bottom Cover Gaskets	Polyvinyl Chloride Plastic 	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	CAL-76
					1
					1
			1		

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



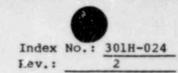
Facility: Davis-Besse Unit 1 50-346

Docket:

15

Prepared by: N Lewis Date: 11/1/93 Checked by: Hand Date: 11/1/93

SYSTEM COMPONENT EVALUATION WORKSHEET



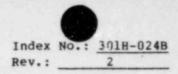
Qualification | Outstanding DOCUMENTATION REF. ENVIRONMENT EQUIPMENT DESCRIPTION Qualification |Specification|Qualification| Method Items || Parameter | Specification Note 3 N/A Nona 1 Year 40 Years Note 1 Display Operating System: IITime Instrumentation Plant ID No. ZS1358 C-314 N/A None [Temperature] 221.0 Exempt Note 2 (°F) Component: Limit Switch C-314 N/A None Note 2 ||Pressure 19.76 Exempt Manufacturer: NAMCO (| (PSIA) [Mcdel Number: EA170-31100]] 100.0 A Note 2 N/A None Exempt |Function: Valve Position ||Relative | |Humidity Indication (8) N/A Accuracy: Spec: 11 Demon: N/A 11 N/A None N/A N/A N/A N/A [|Chemical Service: Containment Air ||Spray Cooler 3 Service Water || Outlet Isolation Valve CAL-76 Location: Auxiliary Bldg. || ||Radiation |1.0 x 10⁶ RADS |1.0 x 10⁷ RADS Т Note 3 Analysis None Rm. 314 Flood Level Elev: N/A I CAL-76 Analysis None 40 Years 40 Years Above Flood Level: N/A Aging Note 3 Needed for: Hot Shutdown XI N/A None N/A N/A N/A N/A [|Submergence] Cold Shutdown | X | 11

Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COM	PONENT EVALUATION WORKSNEET	Index No.: 301H-024A Rev.: 2
Prepared by: Nheuro Checked by: Datalough	Date 11/193	NOTES	Nev.:

- 1. One-year operating time is used as a conservative maximum specification.
- 2. This component is a limit switch which is used for valve position indication only. The harsh environment seen by the limit switch is due to a main feedline break. The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break outside containment. The operator will not monitor this valve's position indication during this accident because the containment air cooling system will not be initiated. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function.
- 3. Materials evaluation conjucted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.



Facility: Davis-Besse Unit 1 Docket: 50-346 COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Checked by:

5

Date: Date: Uli

Plant I.D.	No.:ZS1358	Component:		it Switch	
Manufacture	r: NAMCO	Model No.:	EA17	70-31100	
	1	THERMAL AGIN	IG I	RADIATIO	N
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
ontact Block	Polyester, Glass Filled	40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
contact Lever	Polyester, Glass Filled	40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
op & Bottom Cover Gaskets	BUNA-N-Coated Nylon **	40 Years @ 104°F	CAL-76	1 x 10 ⁷ RADS	I CAL-76
contact Lever	Alkyd, Mineral Filled	Greater than	CAL-76	1 x 10 ⁹ RADS	I CAL-76
oncace bever	1 Angle, material content	40 Years @ 300°F	1 1		1
op & Bottom Cover	Koroseal I	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	I CAL-76
Gaskets op & Bottom Cover Gaskets	Polyvinyl Chloride Plastic	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	CAL-76
			1		
			1 1		
					1

Material & Parts List Reference: V-29B, ROC-29C

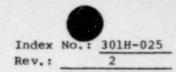
- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



.

Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



Docket: 50-346 Prepared by: Checked by:

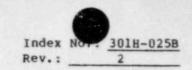
Alleuro Date: 11/1/93 Ancompt Date: 11/1/93

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	40 Years	Note 1	Note 3	N/A	None
Plant ID No. ZS1358A Component: Limit Switch	Temperature (°F)	221.0	Exempt	C-314	Note 2	N/A	None
idiful do con car in area i	Pressure (PSIA)	19.76	 Exempt 	C-314	Note 2	N/A	None
Function: Valve Position Indication	Relative Humidity (%)	100.0	Exempt 	A	Note 2	N/A	None
Accuracy: Spec: N/A Demon: N/A Service: Containment Air Cooler 3 Service Water Outlet Isolation Valve	1	N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg.		1.0 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	Т	CAL-76 Note 3	Analysis	None
	 Aging	40 Years	40 Years	I	CAL-76 Note 3	Analysis	None
Needed for: Hot 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.: <u>301H-025A</u> Rev.: 2
Prepared by: N Lewis Date Date	11/183 NOTES	
Checked by: Analon Date	a / 2/ 82	

- 1. One-year operating time is used as a conservative maximum specification.
- 2. This component is a limit switch which is used for valve position indication only. The harsh environment seen by the limit switch is due to a main feedline break. The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break outside containment. The operator will not monitor this valve's position indication during this accident because the containment air cooling system will not be initiated. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function.
- 3. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1 Docket: 50-346 COMPONENT MATERIANS EVALUATION SHEET



Prepared by: 1 the freed Date: 11/ Checked by: Thue Freed Date: 11/

D. No.: 251358A	Component:	Lim	it Switch	
arer: NAMCO	Model No.:	EA1	70-31100	
1	THERMAL AGIN	I <u>G</u>	RADIATIO	N
Materials List *	Qualification	Reference	Qualification	Reference
Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°F Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76
	urer: NAMCO	Materials List * Model No.: Materials List * Qualification Materials List * Qualification Polyester, Glass Filled 40 Years @ 266°F Polyester, Glass Filled 40 Years @ 266°F BUNA-N-Coated Nylon ** 40 Years @ 104°F Alkyd, Mineral Filled Greater than Material Filled 40 Years @ 300°F Koroseal 40 Years @ 140°F	urer: NAMCO Model No.: EA1 I THERMAL AGING I I Materials List * Qualification Reference I I Materials List * Qualification Reference I I Polyester, Glass Filled 40 Years @ 266°F CAL-76 I I Polyester, Glass Filled 40 Years @ 266°F CAL-76 I I BUNA-N-Coated Nylon ** 40 Years @ 104°F CAL-76 I I Alkyd, Mineral Filled Greater than CAL-76 I I Alkyd, Mineral Filled 40 Years @ 300°F I I I Horseal 40 Years @ 140°F CAL-76 I	Marer: NAMCO Model No.: EA170-31100 I THERMAL AGING RADIATION I Materials List * Qualification Reference Qualification I Polyester, Glass Filled 40 Years @ 266°F CAL-76 1 x 10 ⁹ RADS I Polyester, Glass Filled 40 Years @ 266°F CAL-76 1 x 10 ⁹ RADS I Polyester, Glass Filled 40 Years @ 266°F CAL-76 1 x 10 ⁹ RADS I BUNA-N-Coated Nylon ** 40 Years @ 104°F CAL-76 1 x 10 ⁷ RADS I Alkyd, Mineral Filled Greater than CAL-76 1 x 10 ⁹ RADS I Alkyd, Mineral Filled Greater than CAL-76 1 x 10 ⁷ RADS I Alvears @ 300°F I I I x 10 ⁷ RADS

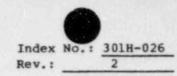
Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



30

Docket: 50-346

Prepared by: N Lewis Date: 11/1/87 Checked by: Antraconall Date: 11/1/87

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	 40 Years 	Note 3	Note 2	Analysis	None
Plant ID No. ZS1467 Component: Limit Switch	Temperature (°F)	155.0	 Exempt	c-113	Note 1	N/A	None
	Pressure (PSIA)	16.06	Exempt	C-113	Note 1	N/A	None
	Relative Humidity (%)	100.0	Exempt	A 	Note 1	N/A	None
Demon: N/A Service: Decay Heat Removal Cooler 1 Component Cooling		N/A	 N/A 	 N/A 	N/A	N/A	 None
Outlet Valve Location: Auxiliary Bldg. Rm. 113	Radiation	7.1 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	т	CAL-76 Note 2	Analysis	None
	Aging	40 Years	15.1 Years	I	CAL-76 Note 2	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown X	Submergence	N/A	. N/A	 N/A 	 N/A 	N/A	 None

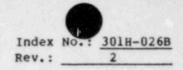
Facility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-026A
Docket: 50-346	NOTES	Rev.: 2
Prenared by: NLOINS	Date 11/1/82	
Checked by: Larenow	Date 11/2/83	
Prepared by: NLouis Checked by: Enclosed	Date 11/1/83 Date 11/2/83	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by the limit switch is due to a main feedline break. The component is exempted from qualification since operation of its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the decay heat removal system will not be initiated. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function.

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

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

Facility: Davis-Besse Unit 1 Docket: 50-346 COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Checked by: Mactinald Date: 11/1/0

Plant I.D. No.: Z	S1467	Component:	Limit Switch	1
Manufacturer: N	AMCO	Model No.:	D2400X	1
				1

	1	THERMAL AGIN	G I	RADIATIO	N
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block Contact Lever	Polyester, Glass Filled Polyester, Glass Filled	40 Years @ 266°F 40 Years @ 266°F		1×10^9 RADS 1 x 10 ⁹ RADS	CAL-76
Top & Bottom Cover Gaskets	BUNA-N-Coated Nylon **	15.1 Years @ 122°F	CAL-76 	1 x 10 ⁷ RADS	CAL-76
Contact Lever	Alkyd, Mineral Filled	Greater than 40 Years @ 300°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
Top & Bottom Cover Gaskets	Koroseal	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	CAL-76
Top & Bottom Cover Gaskets	Polyvinyl Chloride Plastic	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	CAL-76
					-

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



Docket: 50-346

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET



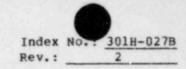
Prepared by: NLQuis Date: 11/1/93 Checked by: Date: 11/1/93 Date: 11/2/25

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	40 Years 	Note 3	Note 2	Analysis	None
Plant ID No. ZS1469 Component: Limit Switch	Temperature (°F)	155.0	Exempt	c-113	Note 1	N/A	None
	Pressure (PSIA)	16.06	 Exempt	c-113	Note 1	N/A	None
	Relative Humidity (%)	100.0	Exempt	A 	Note 1	N/A	None
Demon: N/A		N/A	 N/A 	N/A	N/A	N/A	 None
Location: Auxiliary Bldg.	Radiation	7.1 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	Т	CAL-76 Note 2	Analysis	None
1	 Aging	40 Years	15.1 Years	I	CAL-76 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 Docket: 50-346	SYSTEM COMPONENT E	VALUATION WORKSHEET	Index No.: 301H-027A Rev.: 2
Prepared by: Nheur's D.	ite 11/183	NOTES	Nev

- 1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by the limit switch is due to a main feedline break. The component is exempted from qualification since operation of its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the decay heat removal system will not be initiated. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function.
- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. One-year operating time is used as a conservative maximum specification.

COMPONENT MATERIALS EVALUATION SHEET



20

Prepared by:

Checked by:

Date: ______ Date: ____

 Plant I.D. No.:
 ZS1469
 Component:
 Limit Switch

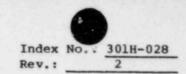
 Manufacturer:
 NAMCO
 Model No.:
 D2400X

	1	THERMAL AGIN	G I	RADIATION		
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference	
ntact Block		40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	I CAL-76	
ntact Lever	Polyester, Glass Filled	40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	CAL-76	
p & Bottom Cover askets	BUNA-N-Coated Nylon **	15.1 Years @ 122°F	CAL-76	1 x 10 ⁷ RADS	I CAL-76	
ntact Lever	Alkyd, Mineral Filled	Greater than	CAL-76	1 x 10 ⁹ RADS	I CAL-76	
iluce here.	1	40 Years @ 300°F	1 1		1	
p & Bottom Cover askets	Koroseal I	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	I CAL-76	
p & Bottom Cover askets	Polyvinyl Chloride Plastic	40 Years @ 140°F	CAL-76 	1 x 10 ⁷ RADS	CAL-76	

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.

SYSTEM COMPONENT EVALUATION WORKSHEET



Neens Prepared by: Checked by: STA

	Date:	11/11	87
4	Date:	11/48	3

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	 40 Years 	Note 3	Note 2	Analysis	None
Plant ID No. 2S1542	Temperature	221.0	Exempt	c-314	Note 1	N/A	None
			1				!
	Pressure (PSIA)	19.76	 Exempt	C-314	Note 1	N/A	None
	Relative Humidity (%)	100.0	 Exempt 	λ	Note 1	N/A	None
Demon: N/A	 Chemical Spray	N/A	 N/A 	 N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314		1.0 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	т	CAL-76 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-76 Note 2	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence	N/A	 N/A 	 N/A 	N/A	N/A	 None

acility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-028A
ocket: 50-346		Rev.: 2
	NOTES	
checked by: Marine	Date	
checked by: Analand	Date 11/2/83	

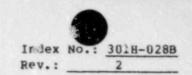
1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break. The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position because the valve's only function is to isolate containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

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

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

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

COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Date: Date: Checked by:

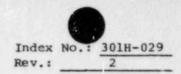
Plant I.D. No.: <u>ZS1542</u> Manufacturer: <u>NAMCO</u>		Component:		Limit Switch D2400X	
	1	THERMAL AGIN	IG I	RADIATIO	N
Parts List *	Naterials List *	Qualification	Reference	Qualification	Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°F Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: NLewis Date: 11/1/93 Checked by: 47130 Date: 11/2/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
!!	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	40 Years	Note 3	Note 2	Analysis	None
	Temperature	218.0	Exempt	C-303	Note 1	N/A	None
Component: Limit Switch							
	Pressure (PSIA)	17.16	Exempt	C-303	Note 1	N/A	None
	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Core Flooding Tank 1 Fill Line Isolation Valve	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 303	Radiation	1.16 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	Т	CAL-76 Note 2	Analysis	None
1	Aging	40 Years	40 Years	I	CAL-76 Note 2	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	None

.

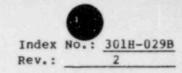
Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-029A Rev.: 2
	NOTES	

1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break. The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position because the valve's only function is to isolate containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

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

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

COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Checked by:

Date: Date:

Plant I.D.	No.: ZS1544	Component:	Limi	t Switch	1
Manufacturer: <u>NAMCO</u>		Model No.:		2400X	
	1	THERMAL AGI	NG I	RADIATIO	۱ ۱
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°F Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting JUNA-N.



SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 301H-030 Rev.: 2

.

*

Prepared by: NLouis Date: 11/1/17 Checked by: Annow Date: 11/2/19

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	 40 Years 	Note 3	Note 2	Analysis	None
Plant ID No. ZS1545 Component: Limit Switch	Temperature (°F)	221.0	 Exempt	C-314	Note 1	N/A	None
	Pressure (PSIA)	19.76	Exempt	c-314	Note 1	N/A	None
Function: Valve Position Indication Accuracy: Spec: N/A Demon: N/A	 Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Core Flooding Tank Sample Isolation Valve	 Chemical Spray 	N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0 x 10 ⁶ RADS	1.0 x 10 ^{7,} RADS	т	CAL-76 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	 40 Years 	I	CAL-76 Note 2	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence 	N/A	 N/A 	N/A	N/A	N/A	None

1 ··· · · A

Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	index No.: 301H-030A Rev.: 2
Prepared by: NLeuis Date	11/1/83 11/1/83	

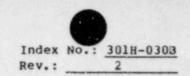
1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break. The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position because the valve's only function is to isolate containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

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

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

Prepared by: Alac Date: 14/2 Checked by: Alloc Date: 1/2

COMPONENT MATERIALS EVALUATION SHEET



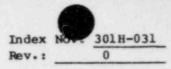
No.: 281545	Component:		it Switch	
r: <u>NAMCO</u>	Model No.:	I	D2400X	
1	THERMAL AGIN	IG I	RADIATIO	N
Materials List *	Qualification	Reference	Qualification	Reference
Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°F Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	I CAL-76 I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I <td>1 x 10⁹ RADS 1 x 10⁹ RADS 1 x 10⁷ RADS 1 x 10⁹ RADS 1 x 10⁷ RADS 1 x 10⁷ RADS 1 x 10⁷ RADS</td> <td>CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76</td>	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76
	<pre>NAMCO NAMCO Naterials List * Nateri</pre>	Model No.: Model No.: Model No.: Model No.: Materials List * Qualification Name Alkyd, Mineral Filled Alkyd, Mineral Filled Alkyd, Mineral Filled Greater than Alkyd, Mineral Filled Alkyd Years @ 100°F Koroseal 40 Years @ 140°F	NAMCO Model No.: I THERMAL AGING I Materials List * I Qualification I Polyester, Glass Filled I Polyester, Glass Filled I Polyester, Glass Filled I Polyester, Glass Filled I BUNA-N-Coated Nylon ** I Alkyd, Mineral Filled I Greater than I Alkyd, Mineral Filled I 40 Years @ 300°F I I I I	NAMCO Model No.: D2400X I THERMAL AGING RADIATIO I Materials List * Qualification Reference Qualification I Materials List * Qualification Reference Qualification I Polyester, Glass Filled 40 Years @ 266°F CAL-76 1 x 10 ⁹ RADS I Polyester, Glass Filled 40 Years @ 266°F CAL-76 1 x 10 ⁹ RADS I BUNA-N-Coated Nylon ** 40 Years @ 104°F CAL-76 1 x 10 ⁹ RADS I Alkyd, Mineral Filled Greater than CAL-76 1 x 10 ⁹ RADS I Alkyd, Mineral Filled Greater than CAL-76 1 x 10 ⁹ RADS I Alkyd, Mineral Filled Greater than CAL-76 1 x 10 ⁹ RADS I Alkyd, Mineral Filled Greater than CAL-76 1 x 10 ⁷ RADS

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.

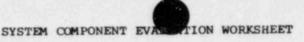


SYSTEM COMPONENT EVALUATION WORKSHEET



Checked by: W.V.Belland Date: 9.29.81. Date: 9/29/01

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	Note 1	Note 3	N/A	N/A	Note 2
Plant ID No. ZS1719A Component: Limit Switch	Trmperature (°F)	283.0	Note 1	G, X	N/A	N/A	Note 2
	Pressure (PSIA)	52.0	Note 1	н, х	N/A	N/A	 Note 2
Accuracy: Spec: N/A	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
	 Chemical Spray 	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A .	N/A	Note 2
Location: Containment Rm. 220	Radiation	1.7 x 10 ⁷ RADS	Note 1	CAL-44	N/A	N/A	 Note 2
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	Note 1	I	N/A	N/A	Note 2
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence	572'-2"	578'-6"	l B	J-12	N/A	None



Index 80301H-031A

NOTES

Prepared by: W.J. Seclardy Date 929 81. Date 9/19/8 Checked by: Kenneth N. Mordy

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a loss of coolant accident.

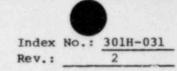
The limit switch is used to monitor the valve position of RC1719A (an air-operated containment vent header isolation valve). This valve is an isolation valve for containment penetration 16. A second isolation valve for this penetration, RC1719B, is located outside containment and would not be subjected to the harsh environment. During a LOCA, both valves would move to (or remain in) their fail-safe closed position upon receiving an SFAS signal.

Failure of limit switch ZS1719A will not mislead the operator due to the availability of ZS1719B on the second isolation valve. This limit switch would not be affected by the postulated LOCA conditions and would be monitored by the operator to determine the status of penetration 16. Failure of limit switch 1719A would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion, interim operation is justified.

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

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

SYSTEM COMPONENT EVALUATION WORKSHEET



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

Prepared by: Checked by:

.1

NLeurs Date: 11/1/93 Amalone Date: 11/1/93

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	1.1 Years	Note 2	Note 3 J-30	Simultaneous Test	None
Plant ID No. ZS1719A Component: Limit Switch	Temperature (°F)	283.0	391.0	н, х	J-30	Simultaneous Test	None
	Pressure (PSIA)	52.0	133.7	G, X	J-30	Simultaneous Test	None
Note 1 Function: Valve Position	Relative Humidity (%)	100.0	 100.0 	A	J-30	Simultaneous Test	None
	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0 	A	J-30 CAL-40 Note 5	Simultaneous Test, Analysis	None
ocation: Containment Rm. 220	 Radiation	1.7 x 10 ⁷ RADS	 2.04 x 10 ⁸ RADS Note 4	 CAL-44	J-30	Sequential Test, Analysis	None
	Aging	40 Years	8.43 Years Note 4	I	J-30 CAL-54	Sequential Test, Analysis	None
Hot Shutdown X	 Submergence 	572'-2"	577'-11"	B	J-12	N/A	None

Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMP	CONENT EVALUATION WORKSHEET	Index No.: 3013-031A Rev.: 2
	Date 11/1/83	NOTES	
Prepared by: Nours I Checked by: Imalant	Date 11/1/83		

1. This component replaces a Model D2400 in accordance with FCR 82-101.

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

3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 seconds, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 140°F and 17.7 psia; and after approximately 4 days, conditions are 124°F and 16.5 psia. The conditions returned to ambient in 7 days.

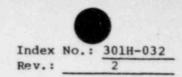
Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference G&H.)

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

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

0

Pacility: Davis-Besse Unit 1 Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: Nlacin Date: 11/1/82 Thecked by: Date: 11/1/82 Date: 11/1/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTA:	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification		Method	Items
	 Operating Time	l Year	40 Years	Note 3	Note 2	Analysis	None
Plant ID No. ZS1719B Component: Limit Switch	Temperature (°F)	198.0	Exempt	C-236	Note 1	N/A	None
	 Pressure (PSIA)	15.51	Exempt	C-236	Note 1	N/A	None
Function: Valve Position Indication Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	 Chemical Spray 	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236	 Radiation	1.97 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	 T	CAL-76 Note 2	Analysis	None
	Aging	40 Years	40 Years	I	CAL-76 Note 2	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 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.: 301H-032A Rev.: 2
Prepared by: Nhouis Checked by: Asumon	Date 11/1/97 Date 11/4/82	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

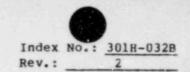
The limit switch is used to monitor the valve position of RC1719B (an air-operated containment vent header isolation valve). This valve is an isolation valve for containment penetration 16. The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function.

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

3. One year operating time is used as a cor ervative maximum specification.

.

COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Date: Checked by: Date:

Plant I.D. No.:ZS1719B			Limit Switch		
NAMCO	Model No.:	D24	400X-ST		
1	THERMAL AGI	NG I	RADIATIO	N	
Materials List *	Qualification	Reference	Qualification	Reference	
Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 104°F Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 	
	NAMCO Materials List * Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal	NAMCO Model No.: Model No.: Materials List * Qualification Polyester, Glass Filled 40 Years @ 266°F Polyester, Glass Filled 40 Years @ 266°F BUNA-N-Coated Nylon ** 40 Years @ 106°F Alkyd, Mineral Filled Greater than 40 Years @ 300°F Koroseal 40 Years @ 140°F	NAMCO Nodel No.: D2 Materials List * Image: Calibratic calibration Image: Calibratic calibraticalibratic calibratic calibratic calibra	NAMCO Nodel No.: D2400X-ST Image: Model No.: Image: D2400X-ST Image: Materials List * Image: Data of the material	

Material & Parts List Reference: V-298, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



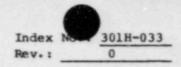
the second

· . •

the same

3

Facility: Devis-Besse Unit 1 Docket: 50-346 SYSTEM COMPONENT



Prepared by: W. & Blllands Date: 3.2. 6. Checked by: Kenett P. Words Date: 9/14/21

1

.....

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	Note 1	Note 3	N/A	N/A	Note 2
Component: Limit Switch	Temperature (°F)	283.0	Note 1	G, X	N/A	N/A	Note 2
	Pressure (PSIA)	52.0	Note 1	н, х	N/A	N/A	Note 2
	Relative Humidity (%)	100.0	Note 1	 A 	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Drain Tank Header Isolation Valve	1	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Location: Containment Pm. 220	Radiation	1.7 x 10 ⁷ RADS	Note 1	CAL-44	N/A	N/A	Note 2
Flood Level Elev: 572'~2" Above Flood Level: No	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u> ;	Submergence	572"-2"	566'-3" Note 1,4	l i B	J-13	N/A	Note 2

984

SYSTEM COMPONENT EVENTION WORKSHEET

NOTES

Index 301H-033A Rev.: 0

Prepared by: NI Bellande Date 929.81. Checked by: Kenneth D. Movedy Date 9/29.

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a loss of coolant accident.

The limit switch is used to monitor the valve position of RC1773A (an air-operated reactor coolant drain tank header isolation valve). This valve is an isolation valve for containment penetration 32. A second isolation valve for this penetration, RC1773D, is located outside containment in a non-harsh area and would not be subjected to the postulated LOCA conditions. During a LOCA, both valwes would move to (or remain in) their fail-safe closed position upon receiving an SFAS signal.

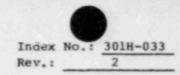
Failure of limit switch ZS1773A will not mislead the operator due to the availability of ZS1773B on the second isolation valve. This limit switch would not be affected by the postulated LOCA conditions and would be monitored by the operator to determine the status of penetration 32. Failure of limit switch 1773A would not degrade other safety-related functions since it does not provide a control function. Eased on the above discussion, interim operation is justified.

- 2. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.
- 3. One year operating time is used as a conservative maximum specification.
- 4. The flood level elevation is based on DBA-LOCA conditions. Under this condition the level switch will become submerged at 10.9 minutes post-LOCA (see CAL-49). This is a worst-case value based on a postulated DBA LOCA. For smaller LOCAs, component submergence will occur further into the accident, if it occurs at allo.



Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



Docket: 50-346

1 C . .

Checked by: NLewis Date: 11/1/93 Checked by: Structor Date: 11/1/93

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTA	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	
	 Operating Time	l Year	 l.l Years 	Note 2	Note 3 J-30	Simultaneous Test	None
Plant ID No. ZS1773A Component: Limit Switch	Temperature	283.0	391.0	н, х I	J-30	Simultaneous Test	None
	Pressure (PSIA)	52.0	133.7	G, X	J-30	Simultaneous Test	None
Note 1 Function: Valve Position Indication	Relative Humidity (%)	200.0	 100.0 	A	3-30	Simultaneous Test	None
ccuracy: Spec: N/A Demon: N/A ervice: Reactor Coolant Drain Tank Header Isolation Valve	1	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-30 CAL-40 Note 5	Simultaneous Test, Analysis	None
ocation: Containment Rm. 220	Radiation	1.7 x 10 ⁷ RADS	 2.04 x 10 ⁸ RADS Note 4	CAL-44	J-30	Sequential Test, Analysis	None
lood Level Elev: 572'-2" bove Flood Level: No leeded for:	Aging	40 Years	8.43 Years Note 4	I	J-30 CAL-54	Sequential Test, Analysis	None
Hot Shutdown X	Submergeace	572"-2"	 577'-11" 	A B	J-12	N/A	None

Facility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	index No.: 301H-033A
Docket: 50-346	1	Rev.: 2
NIA:	NOTES	
Prepared by: NLeurs Checked by: Huanomel	Date (1/1/1)	
Checked by: Amardonel	Date	

1. This component replaces a Model D2400 in accordance with FCR 82-101.

- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 seconds, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 140°F and 17.7 psia; and after approximately 4 days, conditions are 124°F and 16.5 psia. The conditions returned to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference G&H.)

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



.

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

SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: Nieins Date: 11/1/83 Checked by: Emmonnell Date: 11/1/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	ION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	 40 Years 	Note 3	Note 2	Analysis	None
Plant ID No. ZS2010 Component: Limit Switch	Temperature	221.0	Exempt	C-314	Note 1	N/A	None
	Pressure	19,76	 Exempt 	C-314	Note 1	N/A	None
	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	 Cherical Spray	N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0 x 10 ⁶ RADS	1 1.0 x 10 ⁷ RADS	T	CAL-76 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-76 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 COMPON Docket: 50-346	NENT EVALUATION WORKSHEET	Index No.: 301H-034A Rev.: 2
Prepared by: Nheins Date 11/1/83 Checked by: Annone Date 11/2/03	NOTES	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

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

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

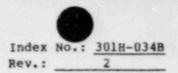


Gaskets

Gaskets

Top & Bottom Cover

Pacility: Davis-Besse Unit 1 Docket: 50-346 COMPONENT MATERIALS EVALUATION SHEET



CAL-76

 1×10^7 RADS

CAL-76

Prepared by: Ata Date: 11/1 checked by: Smac Drald Date: 11/2

Limit Switch Component: Plant I.D. No.: 2S2010 D2400X Model No.: NAMCO Manufacturer: RADIATION THERMAL AGING Qualification Reference | Reference | Materials List * Qualification Parts List * 1 x 10⁹ RADS CAL-76 CAL-76 40 Years @ 266°F Polyester, Glass Filled Contact Block 1 x 10⁹ RADS CAL-76 CAL-76 40 Years @ 266°F Polyester, Glass Filled Contact Lever 1×10^7 RADS CAL-76 40 Years @ 104°F CAL-76 BUNA-N-Coated Nylon ** Top & Bottom Cover Gaskets 1 x 10⁹ RADS CAL-76 Greater than CAL-76 Alkyd, Mineral Filled Contact Lever 40 Years @ 300°F 1 x 10⁷ RADS CAL~76 40 Years @ 140°F CAL-76 Koroseal Top & Bottom Cover

40 Years @ 140°F

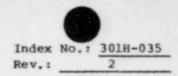
Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.

Polyvinyl Chloride Plastic|



SYSTEM COMPONENT EVALUATION WORKSHEET



17

ł,

Prepared by: NLuis Date: 11/1/83 Checked by: Anumbruff Date: 11/1/83

-

03

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTA	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	 Operating Time	l Year	40 Years 	Note 3	Note 2	Analysis	None
Plant ID No. ZS2011 Component: Limit Switch	Temperature (°F)	221.0	Exempt	C-314	Note 1	N/A	None
	Pressure (PSIA)	19.76	 Exempt	C-314	Note 1	N/A	None
	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Service: Containment Instrumentation Air Isolation Valve	 Chemical Spray	N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0 x 10 ⁶ RADS	1 11.0 x 10 ⁷ RADS	т	CAL-76 Note 2	Analysis	None
	 Aging	40 Years	40 Years	I	CAL-76 Note 2	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 Submergence 	N/A	 N/A	N/A	N/A	N/A	None

	•
Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: <u>301H-035A</u>
Docket: 50-346 NOTES	Rev.:2
Prepared by: NLouis Date 11/1/83	
Checked by: Like One Date 11/3/13	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

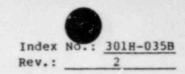
The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

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

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

Facility: Davis-Besse Unit 1

COMPONENT MATERIALS EVALUATION SHEET



Docket: 50-346

Date: Prepared by: Date: Checked by: -

Plant 3.D. I	No.: ZS2011	Component:	Lim	it Switch	
Manufacture	r:NAMCO	Model No.:		D2400X	
	1	THERMAL AGIN	IG I	RADIATIO	N
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets	Polyester, Glass Filled Folyester, Glass Filled BUNA-N-Coated Mylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°P Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76

Material & Parts List Reference: V-29B, ROC-29C

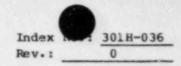
- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



12

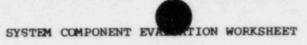
Facility: Sis-Besse Unit 1 Docket: 50-346

ALUATION WORKSHEET SYSTEM COMPONENT



Prepared by: N. J. Ballande Date: 9.22.31. Checked by: Naneth N. Mondy Date: 9/14/81

EQUIPMENT DESCRIPTION	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	Note 1	Note 3	N/A	N/A	Note 2
Plant ID No. ZS229B Component: Limit Switch	Temperature	283.0	Note 1	G, X	N/A	N/A	Note 2
Somponence. Dimite owreen				1			
Manufacturer: NAMCO Model Number: D2400X	Pressure (PSIA)	52.0	Note 1	н, х	N/A	N/A	Note 2
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Service: Pressurizer Quench Tank Outlet	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Location: Containment Rm. 220	Radiation	1.7 x 10 ⁷ RADS	Note 1	CAL-44	N/A	N/A	Note 2
Flood Level Elev: 572'-2" Above Flood Level: No	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Needed for: Hot Shutdown X Cold Shutdown X	Submergence	572'-2"	566'-3" Note 1, 4	B	J-14	N/A	Note 2



Index 800 301H-036A

NOTES

Prepared by: W.J. Bellando Date 9.29.81. Checked by: Remet Al. Morth Date 9/29/81

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a loss of coolant accident.

The limit switch is used to monitor the valve position of RC229B (an air-operated pressurizer quench tank outlet isolation valve). This valve is an isolation valve for containment penetration 48. A second isolation valve for this penetration, RC229A, is located staide containment in a non-harsh area and would not be subjected to the postulated LOCA conditions. During a LOCA, both valves would move to (or remain in) their fail-safe closed position upon receiving an SFAS signal.

Failure of limit switch ZS229B will not mislead the operator due to the availability of ZS229A on the second isolation valve. This limit switch would not be affected by the postulated LOCA conditions and could be monitored by the operator to determine the status of penetration 48. Failure of limit switch 229B would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion, interim operation is justified.

- 2. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.
- 3. One year operating time is used as a conservative maximum specification.
- 4. The flood level elevation is based on DBA-LOCA conditions. Under this condition the level switch will become submerged at 10.9 minutes post-LOCA (see CAL-49). This is a worst-case value based on a postulated DBA LOCA. For smaller LOCAs, component submergence will occur further into the accident, if it occurs at all.



Docket: 50-346



Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET



Index No.: 301H-036 Rev.: 2

Prepared by: Nhouse Date: 11/1/83 Checked by: Surachist Date: 11/1/83

EQUIPMENT DESCRIPTION	<u> </u>	ENVIRONMENT		DOCUMENTATION REF.		Qualification	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Outstanding It as
	 Operating Time 	1 Year	1.1 Years	Note 2	 Note 3 J-30	 Simultaneous Test	None
Plant ID No. 28229B Component: Limit Switch	 Temperature (°F) 	283.0	391.0	 н, х 	J-30	Simultaneous Test	None
Model Number: EA-180	Pressure (PSIA)	52.0	133.7 	G, X	J30	Simultaneous Test	None
Indication	Relative Humidity (%)	100.0	100.0	A	J-30	Simultaneous Test	None
		Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-30 CAL-40 Note 5	Simultaneous Test, Analysis	None
ocation: Containment Rm. 220 lood Level Elev: 572'-2"	1 1	1.7 x 10 ⁷ RADS	2.04 x 10 ⁸ RADS Note 4	CAL-44	J-30 '	Sequential Test, Analysis	None
bove Flood Level: No eeded for:	Aging	40 Years	8.43 Years Note 4	I	J-30 CAL-54	Sequential Test, Analysis	None
Hot Shutdown X	Submergence	572'-2"	577'-11"	B	J-12	N/A	None

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-036A
Docket: $50-346$ Prepared by: Nheins Date $\frac{11/1/93}{Date \frac{11/2/13}}$ NOTES	Rev.:2

1. This component replaces a Model D2400 in accordance with FCR 82-101.

- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 seconds, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 140°F and 17.7 psia; and after approximately 4 days, conditions are 124°F and 16.5 psia. The conditions returned to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference G&H.)

- 4. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
- 5. Calculation 40 qualifies components tested in a high pH boric acid spray to a pH value of 5.



Docket: 50-346

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET



.

Prepared by: N Lewis Date: 11/1/83 Checked by: Ama Date: 11/1/83 Date: 11/1/13

EQUIPMENT DESCRIPTION	ENVIRONMENT		DOCUMENTA	TION REF.	Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	 Operating Time	l Year	40 Years	Note 3	Note 2	Analysis	None
Plan ID No. ZS232	Temperature	198.0	Exempt	C-236	Note 1	N/A	None
	Pressure (PSIA)	15.51	Exempt	 c-236	Note 1	N/A	None
	Relative Humidity	100.0	Exempt	A A 	Note 1	N/A	None
Service: Pressurizer Quench Tank Inlet Isolation Valve		N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236	Radiation	1.97 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	 Т	CAL-76	Analysis	None
1	Aging	40 Years	40 Years	I	CAL-76 Note 2	Analysis	None
Needed for: Hot Shutdown X	 Submergence	N/A	N/A	 N/A	К/А	N/A	None

Facility: Davis-Besse Unit 1	SYSTEM COM	PONENT EVALUATION WORKSHEET	Index No.: 301H-037A
Docket: 50-346	Date 11/1/93	NOTES	Rev.: 2
Prepared by: Nhais Checked by: Smalond	Date 11/1/12		

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

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

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



Index No.: <u>301H-037B</u> Rev.: 2

题

Prepared by: Checked by:

Date: 4/1/6,

Plant	I.D. No.: 25232	Component:	Limit Switch	1
Manufa	cturer: NAMCO	Model No.:	D2400X	1

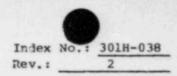
Materials List * 	Qualification 40 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°F	Reference CAL-76 CAL-76 CAL-76 	Qualification 1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS	Reference CAL-76 CAL-76 CAL-76
NA-N-Coated Nylon **	40 Years @ 266°F 40 Years @ 104°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
kyd, Mineral Filled		1		
1	Greater than 40 Years @ 300°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
roseal I	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	I CAL-76
lyvinyl Chloride Plastic 	40 Years @ 140°F	CAL-76 	1 x 10 ⁷ RADS	CAL-76
				-
	1			

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



SYSTEM COMPONENT EVALUATION WORKSHEET



đ.

Prepared by: NLeuis Date: 11/1/93 Checked by: Annaber Date: 11/1/93

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	n Qualification	Method	Items
System: Display Instrumentation	Operating Time	l Year	40 Years 	Note 3	Note 2	Analysis	None
Plant ID No. ZS235A	Temperature	221.0	Exempt	C-314	Note 1	N/A	None
Component: Limit Switch	(°F) 				1		
	Pressure (PSIA)	19.76	Exempt	C-314	Note 1	N/A	None
	Relative	100.0	Exempt	A	Note 1	N/A	None
*	 Chemical Spray	N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	 Radiation	1.0 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	Т	CAL-76 Note 2	Analysis	 None
Flood Level Elev: N/A Above Flood Level: N/A	 Aging	40 Years	40 Years	I	CAL-76	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 Submergence 	N/A	N/A	 N/A 	 N/A	N/A	None

•		•
Facility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-038A
		Rev.: 2
Docket: 50-346	I, NOTES	
A//. *	11/102	
Prepared by: Nheiro Data	11/1/83	
Checked by: Surpont Date	1/2/13	
the state of the s		

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

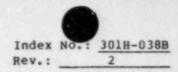
The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

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

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

50-346

COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Checked by:

Date: Date: 7/2/82

RADIATION ficatio:4	Reference
ficatio ₄	Reference
09 RADS	1
09 PADS	CAL-76
	CAL-76
107 RADS	CAL-76
109 RADS	CAL-76
107 RADS	I CAL-76
10 ⁷ RADS	CAL-76
	10' RADS

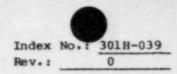
Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radistion. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



.....

Facility: Davis-Besse Unit 1 Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: W.V. Bellandu Date: 9.29.81. Checked by: Date: 9/29/81.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	Note 1	Note 3	N/A	N/A	Note 2
Plant ID No. ZS235B Component: Limit Switch	Temperature (°F)	283.0	Note 1	н, х	N/A	N/A	Note 2
	Pressure (PSIA)	52+0	Note 1	G, X	N/A	N/A	Note 2
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Service: Pressurizer Quench Tank Sample	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Location: Containment	Radiation	1.7 x 10 ⁷ RADS	Note 1	CAL-44	N/A	N/A	Note 2
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	Note 1	I	N/A	N/A	 Note 2
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 Submergence	572*-2*	577'-11"	 B	J-12	N/A	 None

 Facility:
 Dis-Besse Unit 1
 SYSTEM COMPONENT EVATION WORKSHEET
 Index
 301H-039A

 Docket:
 50-346
 NOTES

 Prepared by:
 W.V. Bellandy
 Date
 2.29.81

 Checked by:
 Notes
 Date
 2.29.81

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a loss of coolant accident.

The limit switch is used to monitor the valve position of SS235B (an air-operated pressurizer quench tank sample isolation valve). The valve is an isolation valve for containment penetration 68A. A second isolation valve for this penetration, SS235A, is located outside containment and would not be subjected to the harsh environment. Both valves are closed during normal plant operations.

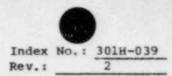
Failure of limit switch ZS235B will not mislead the operator due to the availability of ZS235A on the second isolation valve. This limit switch would not be affected by the postulated LOCA conditions and would be monitored by the operator to determine the status of penetration 68A. Failure of limit switch 235B would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion, interim operation is justified.

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

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



SYSTEM COMPONENT EVALUATION WORKSHEET



¢Ø

۵

*

Prepared by: Nheine Date: 11/1/13 Checked by: Anten Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
^	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	 Operating Time	l Year	1.1 Years	Note 2	J-30 Note 3	 Simultaneous Test 	None
Plant ID No. ZS235B Component: Limit Switch	Temperature	283.0	391.0	н, х	J-30	Simultaneous Test	None
	Pressure (PSIA)	52.0	133.7	G, X	J-30	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	J-30	Simultaneous Test 	None
	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-30 CAL-40 Note 5	Simultaneous Test, Analysis	None
Location: Containment	Radiation	1.7 x 10 ⁷ RADS	2.04 x 10 ⁸ RADS Note 4	CAL-44	J-30	Sequential Test, Analysis	None
Flood Level Elev: 572'-2" Above Flood Level: Yes Needed for:	Aging	40 Years	8.43 Years Note 4	I	J-30 CAL-54	Sequential Test, Analysis 	None
Hot Shutdown X	Submergence	572'-2"	577'-11"	В	J-12	N/A	None

Pacility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No. 301H-039A Rev.: 2
Docket: 50-346	e 11/1/83 NOTES	
Checked by: Burnet Date	e <u>111-103</u>	

1. This component replaces a Model D2400X in accordance with FCR 82-101.

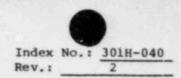
- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 seconds, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 148°F and 18.7 psia. The conditions returned to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference G&H.)

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.

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

SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: NLewis Date: 11/1/93 Checked by: Ancount Date: 11/1/93

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	40 Years	Note I	Note 2	Analysis	None
Plant ID No. ZS236	Temperature (°F)	198.0	Exempt	c-236	Note 1	N/A	None
	Pressure (PSIA)	15.51	Exempt	C-236	Note 1	N/A	None
the second se	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Demon: N/A Service: Containment	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236	Radiation	1.97 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	т	CAL-76 Note 2	Analysis	None
	Aging	40 Years	40 Years	I	CAL-76 Note 2	Analysis	None
Needed for: Hot 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.: 301H-040A
Docket: 50-346	Date 11/1/82 NOTES	Rev.: 2
Prepared by: Nheins Checked by: Machan M	Date $\frac{11/1/8}{11/21/13}$	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

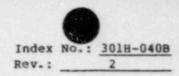
The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

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

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



COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Checked by:

Date:

Plant I.D. Manufacture		Component: Model No.:		it Switch D2400X	
	1	THERMAL AGIN	NG I	RADIATIO	N
Parts List *	Materials List *	Qualification	Reference	Qualification] Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°F Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	I CAL-76 I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76

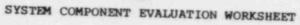
Material & Parts List Reference: V-29B, ROC-29C

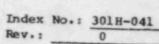
- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



.







Prepared by: W. J. Buller Checked by:

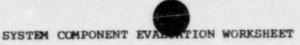
11

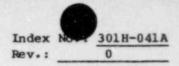
Date:	9.29.81	
Date:	9/29/21	

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.			
	Parameter	Specification	Qualification	Specification	Qualification	Qualification Method	Outstanding
System: Display I Instrumentation	Operating Time	1 Year	Note 1	Note 4	N/A	N/A	Note 3
Plant ID No. 28375 Component: Limit Switch	 Temperature (°F)	344.0	Note 1	C-602	N/A	N/A	Note 3
Model Number: D2400X	Picasure (PSIA)	20.0	Note 1	C-602	N/A	N/A	Note 3
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 3
Gervice: Main Steam Line 2 Warm-Up Drain Isolation Valve	Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	N/A	N/A	N/A	N/A	N/A	None
lood Level Elev: N/A bove Flood evel: N/A eeded for:	Aging	40 Years	40 Years	I	Note 2	Analysis	None
Hot Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	None

Prepared by: N.V. Belland

Checked by: Klant





154

NOTES

 The limit switch subjected to the harsh environment is for indication only. The warm-up drain isolation value is only used during start-up and cooldown operations and would be closed during normal plant operations.

The operator is aware of this condition as he will not monitor the valve's position during a high energy line break accident. For this reason, the operator will not be misled by the failure of the limit switch in the harsh environment. Since the limit switch does not provide a control function, its failure will not degrade other safety-related functions. Based on this discussion, interim operation is justified.

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

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

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

Date 9.29.81

Date 1/29

50-346

Checked by:

4

æ

Prepared by: N.V. Bellinko Date: 9.29.81. 0. TAllate, Date: 9/29/81

Limit Switch Component: **ZS375** Plant I.D. No .: D2400X NAMCO Model No .: Manufacturer:

RADIATION THERMAL AGING Reference Reference Qualification Qualification Materials List * Parts List * 1 x 107 RADS 40 Years @ 50°C W-2 W-1 Polyester, Glass Filled Contact Block 1×10^7 RADS W-2 W-1 40 Years @ 50°C Polyester, Glass Filled Contact Lever 1 x 107 RADS W-1 W-2, 40 Years @ 43.5°C BUNA-N-Coated Nylon Top & Bottom Cover CAL-2 Gaskets 2 x 10⁹ RADS W-1 Alkyd, Mineral Filled 40 Years @ 130°C W-2 Contact Lever 2 x 10⁹ RADS W-1 40 Years @ 50°C W-2 Koroseal Top & Bottom Cover Gaskets 1.0 x 107 RADS W-2 2-1 40 Years @ 50°C Polyvinyl Chloride Plastic Top & Bottom Cover Gaskets

Material & Parts List Reference: V-29B, ROC-29C

18

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.

π.

Index No.: 301H-041B 0 Rev .:

COMPONENT MATERIAS EVALUATION SHIET

Facility: Davis-Besse Unit 1

Docket:



SYSTEM COMPONENT EVALUATION WORKSHEET



Index No.: 301H-041 Rev.: 1

.8

0.620

Prepared by: Checked by:

۰,

14

-

Saul 10 Lipitus Date: 12-15-82 Daul 10 Lipitus Date: 12-17-82

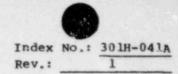
EQUIPMENT DESCRIPTION	11	ENVIRONMENT		DOCUMENTATION REF.		1	
1	Parameter	Specification	Qualification	Specification	Dualification	Qualification	Outstanding
System: Display Instrumentation Plant ID No. 28375	Operating Time	l Year	l.l Years	Note 2	J-30 Note 3	Method Simultaneous Test	Items None
	Temperature (°F) 	344.0	391.0	C-602	J-30	Simultaneous Test	None
Marial and	Pressure (PSIA)	20.0	133.7	C-602	J-30	Simultaneous Test	None
Indication	Relative Humidity _(%)	100.0	100.0	A	J-30	Simultaneous Test	None
ervice: Main Steam Line 2 Warm-Up Drain Isolation Valve	Spray	N/A	N/A	R/A	N/A	N/A	None
1	Radiation	N/A	2.04 x 10 ⁸ RADS	N/A	 J~30 1	Sequential Pest, Analysis	None
bove Flood Level: N/A	Aging	40 Years	19.3 Years Note 4	I	J-30 J CAL-54 T	Sequential est, Analysis	None
Fot Shutdown $ \underline{x} $ [] Cold Shutdown $ \underline{x} $ []	Submergence	N/A	N/A	N/A	N/A	N/A	None

.



SYSTEM COMPONENT EVALUATION WORKSHEET

Pacility: Davis-Besse Unit 1 Doclet: 50-346 HEET



35

NOTES

Prepared by: Sour Cupre Date 12-15-82. Checked by: Paul 12 Martley Date 12-17-82

- 1. This component replaces a Model D2400 in accordance with FCR 82-101.
- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 602 peak at 344°F and 20.0 psia in 0.5 seconds and 2.0 seconds, respectively. The conditions return to ambient in 57 minutes.

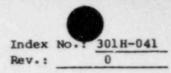
Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will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

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



Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



.

Docket: 50-346

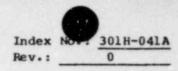
-8.3

Prepared by: W. & Bullando Date: 9.29.81. Thecked by: Date: 9/29/01

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	Note 1	Note 4	N/A	N/A	Note 3
Plant ID No. 28375 Component: Limit Switch	Temperature (°F)	344.0	Note 1	C-602	N/A	N/A	Note 3
	Fressure (PSIA)	20.0	Note 1	C-602	N/A	N/A	Note 3
	Relative Humidity (%)	100.0	Note 1	х	N/A	N/A	Note 3
Demon: N/A Service: Main Steam Ling 2 Warm-Up Drain Isolation Valve	Spray	N/A	 N/A 	N/A	N/A	N/A	 None
Iocation: Auxiliary Bldg. Rm. 602	Radiation	N/A	N/A	N/A	N/A	N/A	None
Above Flood Level: N/A	Aging	40 Years	40 Years	I	Ncta 2	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence 	N/A	N/A	N/A	N/A	N/A	None

1

SYSTEM COMPONENT EVALUATION WORKSHEET



NOTES

Prepared by: N.V. Belland Date 9. 29.81 Date 5/29/81 Checked by: Klanely D. Morthy

1. The limit switch subjected to the harsh environment is for indication only. The warm-up drain isolation value is only used during start-up and cooldown operations and would be closed during normal plant operations.

The operator is aware of this condition as he will not monitor the valve's position during a high energy line break accident. For this reason, the operator will not be misled by the failure of the limit switch is the harsh environment. Since the limit switch does not provide a control function, its failure will not degrade other safety related functions. Based on this discussion, interim operation is justified.

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

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

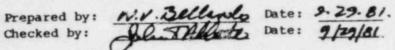
4. One year operating time is used as a conservative maximum specification.

.



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

.



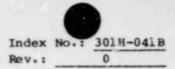
Plant I.D. No.:	ZS375	Component:	Limit Switch	
Manufacturer:	NAMCO	Model No.:	D2400x .	

1	THERMAL AGIN	IG I	RADIATION	
Materials List *	List * Qualification		Qualification	Reference
Polvester, Glass Filled	40 Years @ 50°C	W-2	1 x 107 RADS	W-1
		W-2	1×10^7 RADS	W-1
		W-2,	1 x 107 RADS	1 W-1
I Down in coacea injion				1
Alkyd Mineral Filled	40 Years @ 130°C	a construction of the second se	2 x 10 ⁹ RADS	W-1
		W-2	2 x 10 ⁹ RADS	W-1
		1		1
Polyviny) Chloride Plastic	40 Years @ 50°C	W-2	1.0 x 107 RADS	W-1
i Poryvinyr Chroride Haberet		1		1
1		1 1		
1		1 1		1
1				1
		i i		1
1		1 1		
		1 1		1
		i i		1
1		1 1		1
	Materials List * Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	Materials List * Qualification Polyester, Glass Filled 40 Years @ 50°C Polyester, Glass Filled 40 Years @ 50°C BUNA-N-Coated Nylon 40 Years @ 43.5°C Alkyd, Mineral Filled 40 Years @ 130°C Koroseal 40 Years @ 50°C	Materials List * Qualification Reference Polyester, Glass Filled 46 Years @ 50°C W-2 Polyester, Glass Filled 40 Years @ 50°C W-2 BUNA-N-Coated Nylon 40 Years @ 43.5°C W-2, Alkyd, Mineral Filled 40 Years @ 130°C W-2 Koroseal 40 Years @ 50°C W-2,	Materials List * Qualification Reference Qualification Polyester, Glass Filled 40 Years @ 50°C W-2 1 x 107 RADS Polyester, Glass Filled 40 Years @ 50°C W-2 1 x 107 RADS BUNA-N-Coated Nylon 40 Years @ 43.5°C W-2, 1 x 107 RADS Alkyd, Mineral Filled 40 Years @ 130°C W-2 2 x 109 RADS Koroseal 40 Years @ 50°C W-2 2 x 109 RADS

Material & Parts List Reference: V-29B, ROC-29C

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.

COMPONENT MATERIALS EVALUATION SHEET



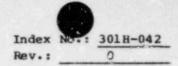
836

.



Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



Docket: 50-346

. ME

. in 13

3

4

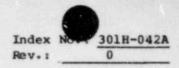
Prepared by: W.V.Bellando Date: 9.29.81. Checked by: Dete: 9/29/04

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTAT	And the same of th	Qualification	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification	Method	
	Operating Time	l Year	Note 1	Note 4	N/A	N/A	Note 3
Plant ID No. ZS394 Component: Limit Switch	Temperature (°F)	282.0	Note 1	C-601	N/A	N/2	Note 3
Manufacturer: NAMCO Model Number: D2400X	Pressure (PSIA)	17.0	Note 1	C-601	N/A	N/A	Note 3
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	 Note 3
Demon: N/A Service: Main Steam Line 1 Warm-Up Drain Isolation Valve	Spray	N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	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	Note 2	Analysis	 None
Needed for: Hot Shutdown X Cold Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	 None

Prepared by: W.I. Bellande

Checked by: Kenneti D. Mondy Date 9/29/8





NOTES

 The limit switch subjected to the harsh environment is for indication only. The warm-up drain isolation value is only used during start-up and cooldown operations and would be closed during normal plant operations.

The operator is aware of this condition as he will not monitor the valve's position during a high energy line break accident. For this reason, the operator will not be misled by the failure of the limit switch in the harsh environment. Since the limit switch does not provide a control function, its failure will not degrade other safety-related functions. Based on this discussion, interim operation is justified.

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

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

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

Date 9.29.81



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

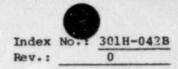
Prepared by: W. Bellands Date: 9.29.81. Checked by: Delen Thente. Date: 9/29/81

Plant I.D. No.: Manufacturer:	ZS394 NAMCO	Component: Model No.:		it Switch D2400X	
	1	THERMAL AGIN	G I	RADIATION	
Farts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact LeverITop & Bottom CoverIGasketsIContact LeverITop & Bottom CoverIGasketsI	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 50°C 40 Years @ 50°C 40 Years @ 43.5°C 40 Years @ 130°C 40 Years @ 50°C 40 Years @ 50°C	W-2 W-2 W-2, CAL-2 W-2 W-2 W-2 W-2	1 x 107 RADS 1 x 107 RADS 1 x 107 RADS 2 x 109 RADS 2 x 109 RADS 1.0 x 107 RADS	W-1 W-1 W-1 W-1 W-1

Material & Ports List Reference: V-29B, ROC-29C

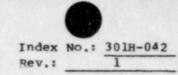
* Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.

COMPONENT MATERIALS EVALUATION SHEET





SYSTEM COMPONENT EVALUATION WORKSHEET



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

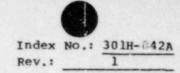
Prepared by: Sour Cauge to: Date: 12-15-E2 Checked by: Soul 10 Lipite Date: 12-11-82

EQUIPMENT DESCRIPTION	I ENVIRONMENT			DOCUMENTA	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification Qualification		Method	Items
	Operating Time	l Year	1.1 Years	Note 2	J-30 Note 3	Simultaneous Test	None
Plant ID No. ZS394 Component: Limit Switch	Temperature (°F)	282.0	391.0	c-601	J-30	Simultaneous Test	None
	Pressure (PSIA)	17.0	133.7	C-601	J-30	Simultaneous Test	None
Punction: Valve Position Indication	Relative Humidity	100.0	100.0	A	J-30	Simultaneous Test	None
Demon: N/A Service: Main Steam Line l Warm-Up Drain Isolation Valve	Spray	N/A	 N/A 	N/A	N/A	N/A	None
Rm. 601	Radiation	N/A	 2.04 x 10 ⁸ RADS	 N/A	J-30	Sequential Test, Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	19.13 Years Note 4	I	J-30 CAL-54	Sequential Test, Analysis	None
Fot Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	None

.....



SYSTEM COMPONENT EVALUATION WORKSHEET



NOTES

Prepared by: Source Caugaser Date 12-15-82 Checked by: Quel 10 Sole Was Date 12-12-82

1. This component replaces a Model D2400X in accordance with FCR 82-101.

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

3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 601 peak at 282°F and 17.0 psia in 0.5 seconds and 2.0 seconds, respectively. The conditions return to ambient in 2 hours and 30 minutes.

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

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

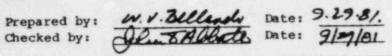


Facility: Davis-Besse Unit 1 50-346

Docket:

64

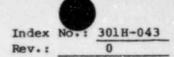
0



. . .

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTA		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	I Items
	Operating Time	l Year	Note 1	Note 3	N/A	N/A	Note 2
Component: Limit Switch	Temperature (°F)	283.0	Note 1	н, х I	N/A	N/A	Note 2
	Pressure	52.0	Note 1	G, X	N/A	N/A	Note 2
	Relative Humidity (%)	100.0	Note 1	д 	N/A	N/A	Note 2
Demon: N/A Service: Containment	 Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
Location: Containment Rm. 407	Radiation	1.7 x 10 ⁷ RADS	Note 1	CAL-44	N/A	N/A	Note 2
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	Note 1	I	N/A	N/A	 Note 2
Weeded for: Hot Shutdown X Cold Shutdown X	 Submergence	572'-2"	603' - 0"	B	J-16	N/A	 None

SYSTEM COMPONENT EVALUATION WORKSHEET



4.1

 Facility:
 Devis-Besse Unit 1
 SYSTEM COMPONENT EVALUATION WORKSHEET
 Index
 301H-043A

 Docket:
 50-346
 NOTES
 NOTES

 Prepared by:
 M.I.Bellandw
 Date
 9.27.8!.
 Date
 1/21/8!

 Checked by:
 Notes
 Date
 9.27.8!.
 Date
 1/21/8!

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a loss of coolant accident.

The limit switch is used to monitor the valve position of CV5006 (an air-operated containment purge inlet isolation valve). The valve is an isolation valve for containment penetration 33. A second isolation valve for this penetration, CV5005, is located outside containment and would not be subjected to the harsh environment. Both valves are closed during normal plant operations.

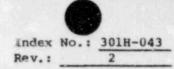
Failure of limit switch 5006 will not mislead the operator due to the availability of ZS5005 on the second isolation valve. This limit switch would not be affected by the postulated LOCA conditions and would be monitored by the operator to determine the status of penetration 33. Failure of limit switch 5006 would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion, interim operation is justified.

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

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



SYSTEM 'OMPONENT EVALUATION WORKSHEET



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

Prepared by: Checked by:

8

-

Nhains Date: 11/1/82 Baracont Date: 11/0/13

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Display Instrumentation	Operating Time	l Year	1.1 Years	Note 2	J-30 Note 3	Simultaneous Test	None
Plant ID No. ZS5006 Component: Limit Switch	Temperature	283.0	391.0	н, х	J-30	Simultaneous Test	None
	Pressure (PSIA)	52.0	133.7	G, X	J-30	Simultaneous Test	None
Function: Valve Position Indication	Relative Humidity (%)	100.0	 100.0 	A	J-30	Simultaseous Test	None
Demon: N/A Service: Containment	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-30 CAL-40 Note 5	Simultaneous Test, Analysis	None
Cocation: Containment Rm. 407	Radiation	1.7 x 10 ⁷ RADS	 2.0 x 10 ⁸ RADS Note 4	CAL-44	J-30	Sequential Test, Analysis	None
	Aging	40 Years	8.43 Years Note 4	I	J-30 CAL-54	Sequential Test, Analysis	None
Heeded for: Hot Shutdown $\left \frac{x}{x}\right $ Cold Shutdown $\left \frac{x}{x}\right $	 Submergence	572'-2"	577'-11"	В	J-12	N/A	None

*

Facility: Davis-Besse Unit 1 Docket: 50-346 Prepared by: Nheirs Checked by: Date Date Date Date Date Date Date Date	Standard and an international standard and and and and and and
--	--

1. This component replaces a Model D2400X in accordance with FCR 82-101.

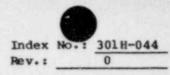
- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 seconds, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 140°F and 17.7 psia; and after approximately 4 days, conditions are 124°F and 16.5 psia. The conditions returned to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference G&H.)

- 4. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
- 5. Calculation 40 qualifies components tested in a high pH boric acid spray to a pH valves of 5.



SYSTEM COMPONENT EVALUATION WORKSHEET



۵

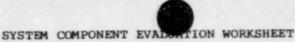
Prepared by: W.V. Bellando Date: 9.29.81. Checked by: Delus Alberte, Date: 9/29/AL

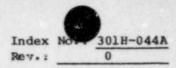
EQUIPMENT DESCRIPTION	ii .	ENVIRONMENT		DOCUMENTA:	And the second se	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	Note 1	Note 3	N/A	N/A	Note 2
Plant ID No. 2850.7 Component: Limit Switch	Temperature	283.0	Note 1	н, х	N/A	N/A	Note 2
Manufacturer: NAMCO Model Number: D2400XR-SR	 Pressure (PSIA)	52+0	Note 1 -	G, X	N/A	N/A	Note 2
	Relative Humidity (%)	100.0	Note 1	і А 	N/A	N/A	Note 2
Demon: N/A Service: Containment	 Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	ь Г Г	N/A	N/A	Note 2
Location: Containment Rm. 410	Radiation	1.7 x 10 ⁷ RADS	Note 1	CAL-44	N/A	N/A	Note 2
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	Note 1	I	N/A	N/A	 Note 2
Needed for: Hot Shutdown X	 Submergence	572'-2"	605'-11"	 B 	J-16	N/A	None

Prepared by: W.I.Belland

Checked by:

D. Movely





NOTES

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a loss of coolant accident.

The limit switch is used to monitor the valve position of CV5007 (an air-operated containment purge outlet isolation valve). The valve is an isolation valve for containment penetration 34. A second isolation valve for this penetration, CV5008, is located outside containment and would not be subjected to the harsh environment. Both valves are closed during normal plant operations.

Failure of limit switch 5007 will not mislead the operator due to the availability of 255008 on the second isolation valve. This limit switch would not be affected by the postulated LOCA conditions and would be monitored by the operator to determine the status of penetration 34. Failure of limit switch 5007 would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion, interim operation is justified.

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

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

Date 2.29.8/.

Date



Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



÷

Docket: 50-346

Ŵ,

0

A.P.

80

Prepared by: Nlouis Date: 11/1/1) Checked by: Structure Date: 11/1/1)

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	 Operating Time	l Year	1.1 Years	Note 2	J-30 Note 3	Simultaneous Test	None
Plant ID No. ZS5007 Component: Limit Switch	Temperature (°F)	283.0	391.0	н, х	J-30	Simultaneous Test	None
	Pressure (PSIA)	52.0	133.7	G, X	J-30	Simultaneous Test	None
Function: Valve Position Indication Accuracy: Spec: N/A	Relative Humidity (%)	100.0	100.0	A	J-30	Simultaneous Test	None
Demon: N/A Service: Containment	 Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm ph 5.0	A	J-30 CAL-40 Note 5	Simultaneous Test, Analysis	None
ocation: Contairment Rm. 410	Radiation	1.7 x 10 ⁷ RADS	 2.0 x 10 ⁸ RADS Note 4	CAL-44	J-30	Sequential Test, Analysis	None
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	8.43 Years Note 4	ĭ	J-30 CAL-54	Sequential Test, Analysis 	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence 	572'-2"	577'-11"	8	J-12	N/A	None

U		
Facility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-044A
Docket: 50-346	같은 아이들은 것이 아이들을 잘 하는 것 같은 것은 것이 집안에서 가지 않는다.	Rev.: 2
	NOTES	
Prepared by: Nours	Date 11/1/83	
Checked by: Shadont	Date ulsin	
Checked by: The Cont	vale <u>MIMU</u>	

1. This component replaces a Model D2400X in accordance with FCR 82-101.

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

3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 seconds, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 140°F and 17.7 psia; and after approximately 4 days, conditions are 124°F and 16.5 psia. The conditions returned to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELD. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference G&H.)

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

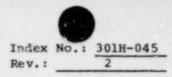
5. Calculation 40 qualifies components tested in a high pH boric acid spray to a pH valves of 5.



Facility: Davis-Besse Unit 1 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

.



Docket:

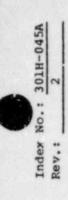
Prepared by: Checked by:

NLouis Date: 4/1/93 Samo

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	the second se	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
-1	Operating Time	l Year	40 Years	F	Note 1	Analysis	None
Plant ID No. ZS5008	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: NAMCO Model Number: D2400X-R-SR	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
	Relative Humidity (%)	N/A	N/Z	Note 2	N/A	N/A	None
Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 427	Radiation	3.12 × 10 ⁵ RADS	1.0 x 10 ⁷ RADS	т	CAL-76 Note 1	Analysis	None
	Aging	40 Years	40 Years	I	CAL-76 Note 1	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence	N/A	N/A	 N/A	N/A	N/A	 None

•	100
	ET
	E
	S
	RK
	0
	-
	ð
-	IT
620	A
	E
-	in.
	22
	LN
	E
	õ
	W
	8
	S
	SY
	. 1
	-
	it
	n
	e
	50
	36
	19
1	3 1.
1	2 a
	0 5
	Facility: Davis-B Docket: 50-346
	X
	t it
	11 ke
	30
	A

NOTES



P

. #1 3.12

Date 11 7 Prepared by: Nlouis

Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation. 1.

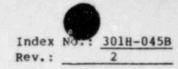
2. The only harsh environment seen is increased radiation due to recirculated fluids.

4 4

1

3

COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Checked by:

hite

Martine Date: Date:

Plant I.D. Manufacture		Component: Model No.:		it Switch DOX-R-SR	
	1	THERMAL AGIN	IG I	RADIATIO	N
Parts List*	Materials List*	Qualification	Reference	Qualification	Reference
Contact Block	Polyester, Glass Filled	40 Years @ 266°F 40 Years @ 266°F	CAL-76 CAL-76	1×10^9 RADS 1×10^9 RADS	CAL-76
Contact Lever Top & Bottom Cover Gaskets	BUNA-N-Coated Nylon **	40 Years @ 104°F	CAL-76	1 x 10 ⁷ RADS	CAL-76
Contact Lever	Alkyd, Mineral Filled	Greater than 40 Years @ 300°F	CAL-76	1 x 10 ⁹ RADS	I CAL-76
rop & Bottom Cover Gaskets	Korosea&	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	I CAL-76
rop & Bottom Cover Gaskets	Polyvinyl Chloride Plastic	40 Years @ 140°F	CAL-76 	1 x 10 ⁷ RADS	CAL-76
					1943
					10.0
					1

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.



ಷ್ಟ

Prepared by: Nheine Date: 1/1/ Checked by: Banadon M Date: 1/14



Index No.: 301H-046 Rev.: 2

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
Section and a section of the section	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	40 Years	Note 1	Note 2	Analysis	None
Plant ID No. 2S5715A Component: Limit Switch	Temperature (°F)	130.0	Exempt	c-105	Note 3	N/A	None
 Manufacturer: Microswitch 	Pressure (PSIA)	16.06	 Exempt 	c-105	Note 3	N/A	None
	Relative Humidity (%)	100.0	Exempt	A	Note 3	N/A	None
Demon: N/A Service: ECCS Room	Chemical Spray	N/A	 N/A 	N/A	N/A	N/A	 None
Location: Auxiliary Sldg. Rm. 105	Radiation	1.9 x 10 ⁶ RADS	2.0 x 10 ⁶ RADS Note 3	Т	CAL-77 Note 2	Analysis	None
1	 Aging	40 Years	9 Years	I	CAL-77 Note 2	Analysis	None
Needed for: Hot Shutdown X	 Submergence	N/A	 N/A	 N/A 	N/A	N/A	None

A

Facility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301E-046A
	SIGILIT CONTONENT ETHEORIZON ROBOLESS	Rev.: 2
	I NOTES	
Prepared by: Nleurs Checked by: Anaport	Date 11/1/83	
Prepared by:	Date n/1/1/12	
checked by:	Date 11/2013	

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

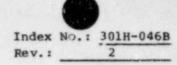
2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

3. This component is a limit switch providing indication of isolation damper position. This limit switch provides no control function. The isolation damper would not have to operate to mitigate the HELB which creates the harsh environment in Room 105 (main feedwater line break in Room 303). The dampers only close to mitigate a LOCA; therefore, it is concluded that the limit switch is exempt from qualification for the harsh steam environment.

The high radiation in Room 105 occurs as a result of post-LOCA recirculation of containment fluids which begins 40 minutes after the LOCA when the ECCS switches over to the recirculation mode (Reference FSAR, pg. 6-13). The dampers are closed by the safety features actuation system in 75 seconds after a LOCA (Reference K). The safety features system which signals the dampers to close also signals the ECCS to switch to recirculation mode. Once closed, the dampers will remain closed and local recirculation fans will provide cooling to Room 105.

The normal operating dose for Room 105 is 5×10^2 RADS (Reference T), much less than the radiation qualification value for the limit switch. Since the limit switch's radiation qualification value exceeds the normal operating radiation dose for Room 105 and since the limit switch will have already operated prior to its exposure to the accident radiation dose, it can be concluded that the switch is qualified in this application. The switch is exempt from qualification for the harsh steam environment and operates before its exposure to the accident radiation dose. The limit switch only functions to provide damper position after a LOCA. Once the dampers close, the operators will have 40 minutes to verify damper position. Subsequent limit switch failure will not impact any other safety-related functions or mislead the operator.

COMPONENT MATERIALS EVALUATION SHEET



Docket: 50-

Prepared by: Checked by: N Leuro Date: 11

Date: 11/1/92

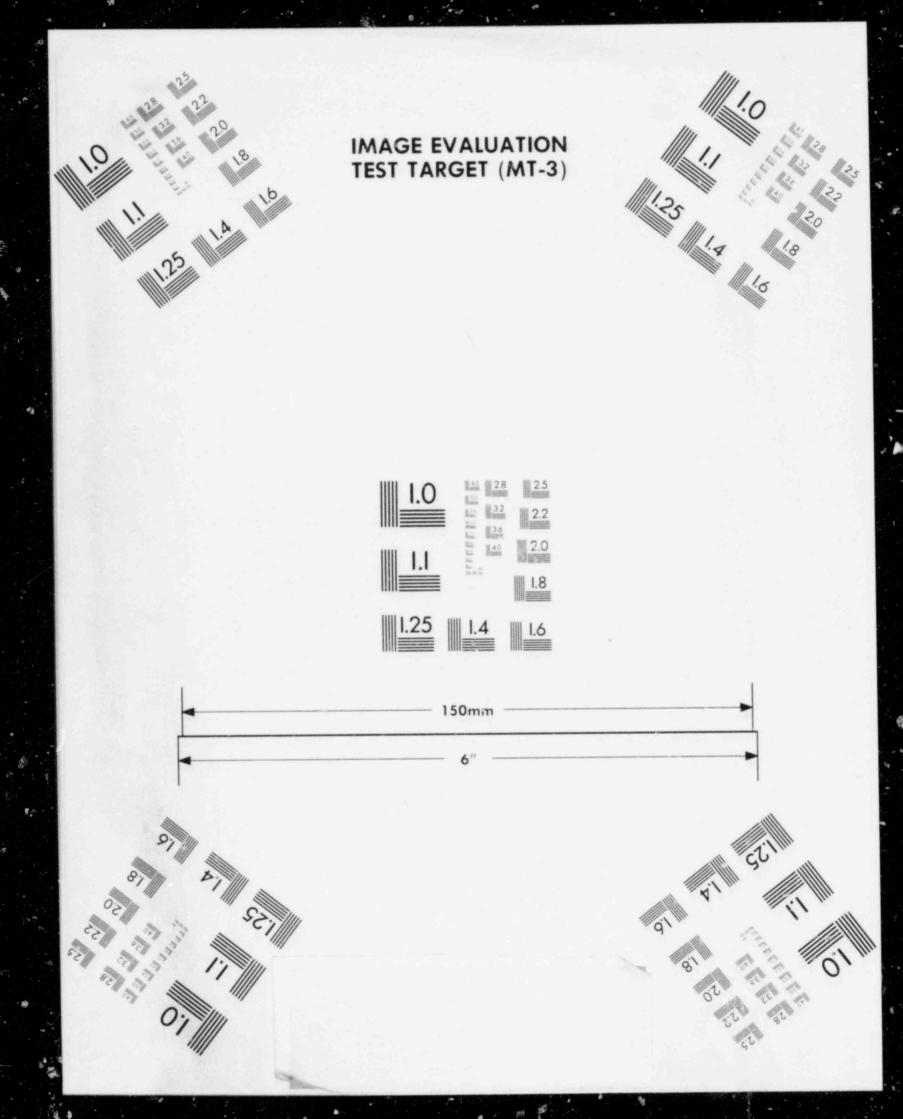
1	Plant I.D. No.: ZS5715A	Component: Limit Switch	1
1	Manufacturer: Microswitch	Model No.: ILS3	1
			1

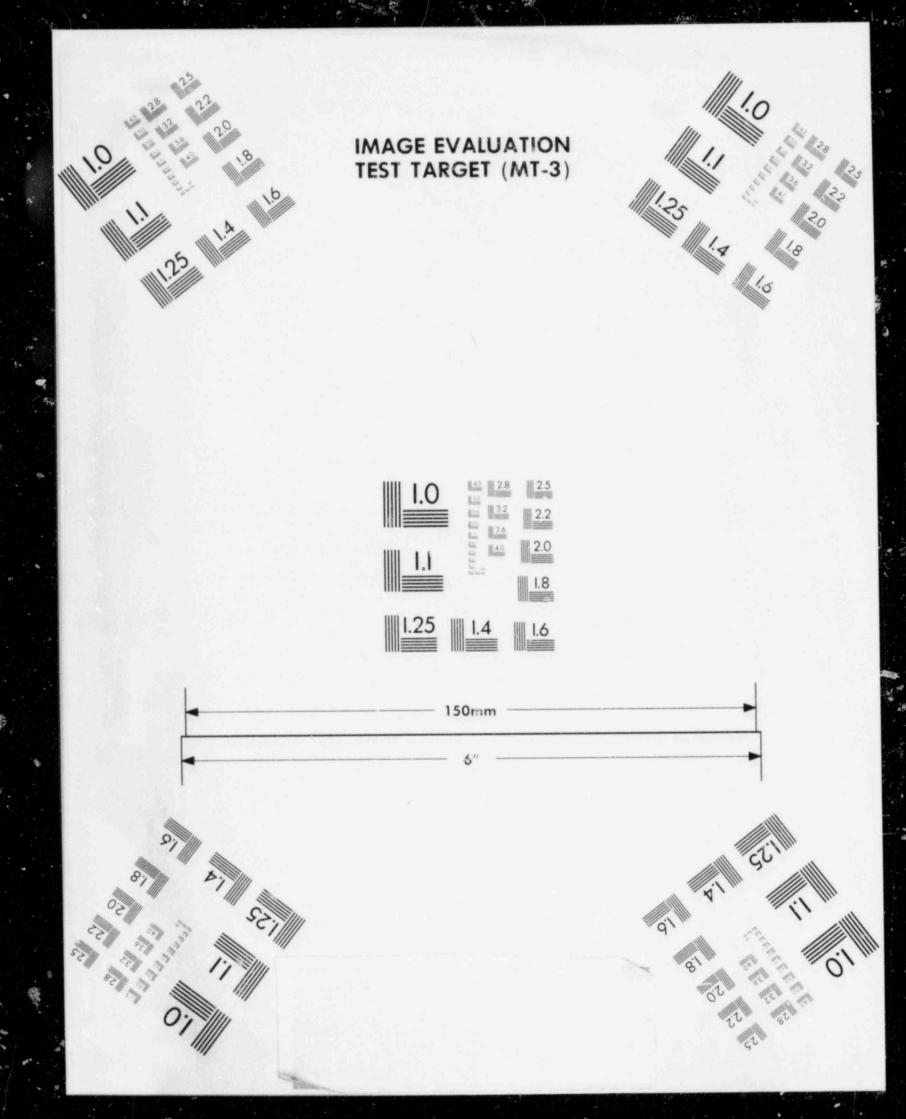
Materials List	Qualification	Reference	Qualification	Reference
BUNA N Rubber				1
	15.1 Yrs. @ 122°F	CAL-77	1.5 x 107 RADS	CAL-77
BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5 x 107 RADS	CAL-77
.015 Thick Black Varnished	Not Sensitive	CAL-77	Not Sensitive	CAL-77
	9 Yrs. @ 122°F	CAL-77		CAL-77
Glass Filled Acetal	9 Yrs. @ 122°F	CAL-77		CAL-77
	15.1 Yrs. @ 122°F	CAL-77	1.5 x 107 RADS	CAL-77
Heat Resistant Phenolic Black	40 Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
ARC Resistant Phenolic Black	40 Yrs. @ 230°F	CAL-77		CAL-77
Teflon Filled Phenolic Black	40 Yrs. @ 230°F	CAL-77	1.0 x 10' RADS	CAL-77
.015 Thick Black Varnished	Not Sensitive	CAL-77	Not Sensitive	CAL-77
BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5 x 10' RADS	CAL-77
	Fiberglass ClothAcetal Copolymer 1-4 BlackGlass Filled AcetalType 20, 1-3 NaturalBUNA N RubberHeat Resistant PhenolicBlackARC Resistant PhenolicBlackTeflon Filled PhenolicBlack.015 Thick Black VarnishedFiberglass Cloth	Fiberglass ClothAcetal Copolymer 1-4 Black9 Yrs. @ 122°FGlass Filled Acetal9 Yrs. @ 122°FType 20, 1-3 NaturalBUNA N Rubber15.1 Yrs. @ 122°FHeat Resistant PhenolicBlackARC Resistant Phenolic40 Yrs. @ 230°FBlackTeflon Filled PhenolicBlack.015 Thick Black VarnishedFiberglass Cloth	Fiberglass Cloth9 Yrs. @ 122°FCAL-77Acetal Copolymer 1-4 Black9 Yrs. @ 122°FCAL-77Glass Filled Acetal9 Yrs. @ 122°FCAL-77Type 20, 1-3 Natural9 Yrs. @ 122°FCAL-77BUNA N Rubber15.1 Yrs. @ 122°FCAL-77Heat Resistant Phenolic40 Yrs. @ 230°FCAL-77Black40 Yrs. @ 230°FCAL-77Black40 Yrs. @ 230°FCAL-77Black9 Yrs. @ 230°FCAL-77Chick Black VarnishedNot SensitiveCAL-77	Fiberglass Cloth9 Yrs. @ 122°FCAL-772.0 x 106 RADSAcetal Copolymer 1-4 Black9 Yrs. @ 122°FCAL-772.0 x 106 RADSGlass Filled Acetal9 Yrs. @ 122°FCAL-772.0 x 106 RADSType 20, 1-3 Natural9 Yrs. @ 122°FCAL-771.5 x 107 RADSBUNA N Rubber15.1 Yrs. @ 122°FCAL-771.5 x 107 RADSHeat Resistant Phenolic40 Yrs. @ 230°FCAL-771.0 x 107 RADSBlack40 Yrs. @ 230°FCAL-771.0 x 107 RADSBlack40 Yrs. @ 230°FCAL-771.0 x 107 RADSBlackNot SensitiveCAL-771.0 x 107 RADSBlack015 Thick Black VarnishedNot SensitiveCAL-77Not Sensitive

Materials and Parts Reference List: V28-A

Lat

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





erna

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 301H-047 Rev.: 2

Prepared by: Checked by:

Date: 1/95 Date: 1/2/0

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	 9 Years 	Note 1	Note 2	Analysis	None
Plant ID No. ZS5715B	Temperature (°F)	130.0	Exempt	C-105	Note 3	N/A	None
	Pressure (PSIA)	16.06	 Exempt	C-105	Note 3	N/A	None
1	Relative Humidity	100.0	Exempt	A	Note 3	N/A	None
Carlo and a second s	(%) Chemical Spray	N/A	N/A	 N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 105	Radiation	1.9 × 10 ⁶ RADS	2.0 x 10 ⁶ RADS Note 3	Т	Cal-77 Note 2	Analysis	None
hai na sala titu kigi na di	 Aging 	40 Years	9 Years	I	Cal-77 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 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: <u>301H-047A</u> Rev.: 2
Prepared by: NLouis Checked by: Semilard	Date 11/1/83 Date 11/2/18	Nev.:

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

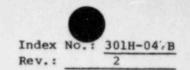
2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

3. This component is a limit switch providing indication of isolation damper position. This limit switch provides no control function. The isolation damper would not have to operate to mitigate the HELB which creates the harsh environment in Room 105 (main feedwater line break in Room 303). The dampers only close to mitigate a LOCA; therefore, it is concluded that the limit switch is exempt from qualification for the harsh steam environment.

The high radiation in Room 105 occurs as a result of post-LOCA recirculation of containment fluids which begins 40 minutes after the LOCA when the ECCS switches over to the recirculation mode (Reference FSAR, pg. 6-13). The dampers are closed by the safety features actuation system in 75 seconds after a LOCA (Reference K). The safety features system which signals the dampers to close also signals the ECCS to switch to recirculation mode. Once closed, the dampers will remain closed and local recirculation fans will provide cooling to Room 105.

The normal operating dose for Room 105 is 5×10^2 RADS (Reference T), much less than the radiation qualification value for the limit switch. Since the limit switch's radiation qualification value exceeds the normal operating radiation dose for Room 105 and since the limit switch will have already operated prior to its exposure to the accident radiation dose, it can be concluded that the switch is qualified in this application. The switch is exempt from qualification for the harsh steam environment and operates before its exposure to the accident radiation dose. The limit switch only functions to provide damper position after a LOCA. Once the dampers close, the operators will have 40 minutes to verify damper position. Subsequent limit switch failure will not impact any other safety-related functions or mislead the operator.

COMPONENT MATERIALS EVALUATION SHEET



NIO Prepared by: Date: Checked by: Date: 11

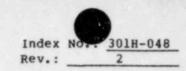
Plant I.D.	No.: ZS5715B	Component:	Limit	t Switch	
Manufacture	er: Microswitch	Model No.:	I	LS3	
	1	THERMAL AGIN	G I	RADIATION	
Parts List *	Materials List	Qualification	Reference	Qualification	Reference
Seal-Ring	BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5 x 10 ⁷ RADS	CAL-77
Seal-Ring	BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5 x 107 RADS	CAL-77
Insulator	.015 Thick Black Varnished Fiberglass Cloth	Not Sensitive	CAL-77	Not Sensitive	CAL-77
Plunger-Actuator	Acetal Copolymer 1-4 Black	9 Yrs. @ 122°F	CAL-77	2.0×10^6 RADS	CAL-77
Plunger-Actuator	Glass Filled Acetal Type 20, 1-3 Natural	9 Yrs. @ 122°F	CAL-77	2.0 x 10 ⁶ RADS	CAL-77
Seal-Ring	BUNA N Rubber i	15.1 Yrs. @ 122°F	CAL-77	1.5 x 10 ⁷ RADS	CAL-77
Cover-Switch Case	Heat Resistant Phenolic Black	40 Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
Case-Switch	ARC Resistant Phenolic Black	40 Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
Button-Actuator	Teflon Filled Phenolic Black	40 Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
Insulator	.015 Thick Black Varnished Fiberglass Cloth	Not Sensitive	CAL-77	Not Sensitive	CAL-77
Seal-Ring	BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5 x 10 ⁷ RADS	CAL-77

Materials and Parts Reference List: V28-A

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

Docket: 50-346

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: 11 Jerui Date: 1/1/13 Checked by: Account Date: 1/-183

EQUIPMENT DESCRIPTION	II ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	9 Years	Note 1	Note 2	Analysis	None
Plant ID No. 285716A Component: Limit Switch	Temperature	177.0	Exempt	c-115	Note 3	N/A	None
	Pressure (PSIA)	15.60	Exempt	c-115	Note 3	N/A	 None
1	Relative Humidity (%)	100.0	Exempt		Note 3	N/A	 None
Demon: N/A Service: ECCS Room	 Chemical Spray 	N/A	N/A	 N/A 	N/A	N/A	 None
Location: Auxiliary Bldg. Rm. 115	 Radiation 	2.67 x 10 ⁶ RADS	 2.0 x 10 ⁶ RADS Note 3	T T	Cal-77 Note 2	Analysis	None
	 Aging 	40 Years	9 Years	I	Cal-77 Note 2	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 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.: <u>301H-048A</u> Rev.: 2
Prepared by: Nhours Da Checked by: Sural Da	te 11/1/82 NOTES	

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

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

3. This component is a limit switch providing indication of isolation damper position. This limit switch provides no control function. The isolation damper would not have to operate to mitigate the HELB which creates the harsh environment in Room 115 (main feedwater line break in Room 303). The dampers only close to mitigate a LOCA; therefore, it is concluded that the limit switch is exempt from gualification for the harsh steam environment.

The high radiation in Room 115 occurs as a result of post-LOCA recirculation of containment fluids which begins 40 minutes after the LOCA when the ECCS switches over to the recirculation mode (Reference FSAR, pg. 6-13). The dampers are closed by the safety features actuation system in 75 seconds after a LOCA (Reference K). The safety features system which signals the dampers to close also signals the ECCS to switch to recirculation mode. Once closed, the dampers will remain closed and local recirculation fans will provide cooling to Room 105.

The normal operating dose for Room 115 is 5×10^2 RADS (Reference T), much less than the radiation qualification value for the limit switch. Since the limit switch's radiation qualification value exceeds the normal operating radiation dose for Room 115 and since the limit switch will have already operated prior to its exposure to the accident radiation dose, it can be concluded that the switch is qualified in this application. The switch is exempt from qualification for the harsh steam environment and operates before its exposure to the accident radiation dose. The limit switch only functions to provide damper position after a LOCA. Once the dampers close, the operators will have 40 minutes to verify damper position. Subsequent limit switch failure will not impact any other safety-related functions or mislead the operator.

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 301H-048B Rev.: 2

Prepared by: Date: Checked by: Date:

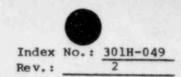
.

Model No.: THERMAL AGIN Malification 1 Yrs. @ 122°F 1 Yrs. @ 122°F Crs. @ 122°F Ars. @ 122°F 1 Yrs. @ 122°F 1 Yrs. @ 122°F		LS3 RADIATION Qualification 1.5 \times 10 ⁷ PADS 1.5 \times 10 ⁷ PADS Not Sensitive 2.0 \times 10 ⁶ RADS 2.0 \times 10 ⁶ RADS 1.5 \times 10 ⁷ RADS	Reference CAL-77 CAL-77 CAL-77 CAL-77 CAL-77 CAL-77
Alification 1 Yrs. @ 122°F 1 Yrs. @ 122°F 2 Sensitive Ars. @ 122°F Ars. @ 122°F 1 Yrs. @ 122°F	Reference CAL-77 CAL-77 CAL-77 CAL-77 CAL-77 CAL-77	Qualification 1.5 x 10^7 PADS 1.5 x 10^7 ADS Not Sensitive 2.0 x 10^6 RADS 2.0 x 10^6 RADS	Reference CAL-77 CAL-77 CAL-77 CAL-77 CAL-77 CAL-77
1 Yrs. @ 122°F 1 Yrs. @ 122°F 5 Sensitive Ars. @ 122°F Ars. @ 122°F 1 Yrs. @ 122°F	CAL-77 CAL-77 CAL-77 CAL-77 CAL-77 CAL-77	1.5 \times 10 ⁷ PADS 1.5 \times 10 ⁷ ADS Not Sensitive 2.0 \times 10 ⁶ RADS 2.0 \times 10 ⁶ RADS	CAL-77 CAL-77 CAL-77 CAL-77 CAL-77 CAL-77
1 Yrs. @ 122°F Sensitive Ars. @ 122°F Ars. @ 122°F	CAL-77 CAL-77 CAL-77 CAL-77 CAL-77	1.5 x 10^7 (ADS Not Sensitive 2.0 x 10^6 RADS 2.0 x 10^6 RADS	CAL-77 CAL-77 CAL-77 CAL-77 CAL-77
Sensitive (rs. @ 122°F (rs. @ 122°F 1 Yrs. @ 122°F	CAL-77 CAL-77 CAL-77 CAL-77	Not Sensitive 2.0 x 10^{6} RADS 2.0 x 10^{6} RADS	CAL-77 CAL-77 CAL-77
Krs. @ 122°F Krs. @ 122°F 1 Yrs. @ 122°F	CAL-77 CAL-77 CAL-77	Not Sensitive 2.0 x 10^{6} RADS 2.0 x 10^{6} RADS	 CAL-77 CAL-77
(rs. @ 122°F 1 Yrs. @ 122°F	CAL-77	2.0 x 10 ⁶ RADS	CAL-77
1 Yrs. @ 122°F	1		1
	CAL-77	1.5 x 107 RADS	
			CAL-77
Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
Yrs @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
: Sensitive	CAL-77	Not Sensitive	CAL-77
1 Yrs. @ 122°F	CAL-77	1.5 x 10 ⁷ RADS	CAL-77
*	Yrs @ 230°F t Sensitive .1 Yrs. @ 122°F	Yrs @ 230°F CAL-77 t Sensitive CAL-77 	Yrs @ 230°F CAL-77 1.0 x 10 ⁷ RADS t Sensitive CAL-77 Not Sensitive

Materials and Parts Reference List: V28-A

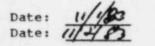
* Only non-metallic parts are listed. Metallic parts are not considered sensitive to thermal aging and are not affected by radiation.

SYSTEM COMPONENT EVALUATION WORKSHEET



50-346

Prepared by: Checked by: gara



EQUIPMENT DESCRIPTION		ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	9 Years	Note 1	Note 2	Analysis	None
Plant ID No. 2S5716B	Temperature (°F)	177.0	Exempt	C-115	Note 1	N/A	None
	Pressure (PSIA)	15.60	Exempt	C-115	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
Location: Auxiliary Bldg.	Radiation	2.67 x 10 ⁶ RADS	2.0 x 10 ⁶ RADS Note 3	т	Cal-77 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	 Aging	40 Years	9 Years	I	Cal-77 Note 2	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 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.: 301H-049A Rev.: 2
	11/1/83 11/1/83	
Checked by: Mitadom Date	4/2/13	

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

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

3. This component is a limit switch providing indication of isolation damper position. This limit switch provides no control function. The isolation damper would not have to operate to mitigate the HELB which creates the harsh environment in Room 115 (main feedwater line break in Room 303). The dampers only close to mitigate a LOCA; therefore, it is concluded that the limit switch is exempt from qualification for the harsh steam environment.

The high radiation in Room 115 occurs as a result of post-LOCA recirculation of containment fluids which begins 40 minutes after the LOCA when the ECCS switches over to the recirculation mode (Reference FSAR, pg. 6-13). The dampers are closed by the safety features actuation system in 75 seconds after a LOCA (Reference K). The safety features system which signals the dampers to close also signals the ECCS to switch to recirculation mode. Once closed, the dampers will remain closed and local recirculation fans will provide cooling to Room 105.

The normal operating dose for Room 115 is 5×10^2 RADS (Reference T), much less than the radiation qualification value for the limit switch. Since the limit switch's radiation qualification value exceeds the normal operating radiation dose for Room 115 and since the limit switch will have already operated prior to its exposure to the accident radiation dose, it can be concluded that the switch is qualified in this application. The switch is exempt from qualification for the harsh steam environment and operates before its exposure to the accident radiation dose. The limit switch only functions to provide damper position after a LOCA. Once the dampers close, the operators will have 40 minutes to verify damper position. Subsequent limit switch failure will not impact any other safety-related functions or mislead the operator.

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 301H-049B Rev.: 2

Prepared by: Checked by:

Date: 11/1 Date: 1/1

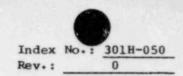
Plant I.D.	No.: ZS5716B	Component:	Limi	t Switch	
Manufacture	er: Microswitch	Model No.:	1	LS3	
	1	THERMAL AGIN	G I	RADIATION	
Parts List *	Materials List	Qualification	Reference	Qualification	Reference
Seal-Ring	BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5 x 10 ⁷ RADS	CAL-77
Seal-Ring	BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5 x 107 RADS	CAL-77
Insulator	.015 Thick Black Varnished Fiberglass Cloth	Not Sensitive	CAL-77	Not Sensitive	CAL~77
Plunger-Actuator	Acetal Copolymer 1-4 Black	9 Yrs. @ 122°F	CAL-77	2.0 x 10 ⁶ RADS	CAL-77
Plunger-Actuator	Glass Filled Acetal Type 20, 1-3 Natural	9 Yrs. @ 122°F;	CAL-77	2.0 x 10 ⁶ RADS	CAL-77
Seal-Ring	BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5×10^7 RADS	CAL-77
Cover-Switch Case	Heat Resistant Phenolic Black	40 Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
Case-Switch	ARC Resistant Phenolic Black	40 Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ FADS	CAL-77
Button-Actuator	Teflon Filled Phenolic Black	40 Yrs. @ 230°F	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
Insulator	.015 Thick Black Varnished Fiberglass Cloth	Not Sensitive	CAL-77	Not Sensitive	CAL-77
Seal-Ring	BUNA N Rubber	15.1 Yrs. @ 122°F	CAL-77	1.5 x 10 ⁷ RADS	CAL-77

Materials and Parts Reference List: V28-A

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

0

Facility: Davis-Besse Unit 1 Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: W. V. Belland Date: 102.81. Checked by: Rand A. Mondy Date: 10/2/21

EQUIPMENT DESCRIPTION	ENVIRONMEN'T		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	Note 1	Note 2	N/A	N/A	Note 3
Plant ID No. 28598 Component: Limit Switch	Temperature (°F)	221.0	Note 1	C-3).4	N/A	N/A	Note 3
	Pressure (PSIA)	19.76	 Note 1 	C-314	N/A	N/A	Note 3
the second se	Relative Humidity (%)	100.0	Note 1 	A	N/A	N/A	Note 3
Accuracy: Spec: N/A Demon: N/A Service: Steam Generator 2 Sample Isolation Valve		N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	T	Note 4	Analysis	 None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	II	Note 4	Analysis	None
Needed for: Hot 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.: 301H-050A
Docket:	50-346		Rev.: 0
		NOTES	
Prepared b	v: W.V. Hellande Date	1.231	
Checked by	: Kenneth N. Mong Date	ID/del	
	1 denter of the second	if o 11	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The limit switch is used to monitor the valve position of SS598 (an air-operated steam generator sample isolation valve). The valve's function is to isolate the steam generator from the sampling system in the event of a loss of coolant accident. The valve would not be required to perform essential safety-related functions in the harsh environment caused by the high energy line break.

Failure of limit switch ZS598 in the harsh environment would not mislead the operator since he would not be monitoring the position of valve SS598 during the high energy line break of concern. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion interim operation is justified.

- 2. One year operating time is used as a conservative maximum specification.
- 3. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.
- 4. Materials evaluation conducted; materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Prepared by: WV. Bellando Date: 2.29.8/. Checked by: Date: 9/29/8/

Plant I.D.	No.: 28598	Component:	Lim	it Switch	
Manufacture	er: NAMCO	Model No .:	l	D2400X	
	1	THERMAL AGIN	ig l	RADIATION	1
Parts List*	Materials List*	Qualification	Reference	ualification	Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon	40 Years @ 50°C 40 Years @ 50°C 40 Years @ 43.5°C	W-2 W-2 CAL-2	1×107 RADS 1×107 RADS 1×107 RADS	W-1 W-1 W-1
Contact Lever Top & Bottom Cover Gaskets	Alkyd, Mineral Filled Koroseal	40 Years @ 130°C 40 Years @ 50°C	W-2 W-2	2×10^9 RADS 2×10^9 RADS	W-1 W-1
Top & Bottom Cover Gaskets	Polyvinyl Chloride Plastic	40 Years @ 50°C	W-2	1.0 x 107 RADS	W-1
					-

EVALUATION SHEET

301H-050B

0

Index

Rev.:

10

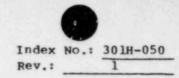
COMPONENT MATER

Material & Parts List Reference: V-29B, ROC-29C

Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by * radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.



Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET



Docl:et: 50-346

Prepared by: Squa Caupage Date: 12-15-52 Checked by: Okul W alpather Date: 12-17-52

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	1.1 Years	Note 2	J-30 Note 3	Simultaneous Test	None
Plant ID No. ZS598	Temperature (°F)	221.0	391.0	C-314	J-30	Simultaneous Test	None
	Pressure (PSIA)	19.76	133.7	C-314	J-30	Simultaneous Test	None
and the second se	 Relative Humidity (%)	100.0	100.0	A I	J-30	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A Service: Steam Generator 2 Sample Isolation Valve		N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0 x 10 ⁶ RADS	 2.04 x 10 ⁸ RADS	Т	J-30	Sequential Test, Analysis	 None
a service and a service of the servi	Aging	40 Years	 19.13 Years Note 4	I	J-30 CAL-54	 Sequential Test, Analysis 	None
Fot Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	 None

No.: 301H-050	Index No.	SYSTEM COMPONENT EVALUATION WORKSHEET	Davis-Besse Unit 1	Facility:
1	Rev.:		50-346	Docl:et:
		NOTES	0	
		Date 12-15-52	y: Sina Cargence 1	Prepared b
		Date 12-17-82	1: There 10. Matiles 1	Checked by
		Date $12 - 15 - 52$ Date $13 - 17 - 82$	19: Sour Laugene	Prepared b Checked by

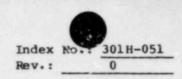
- 1. This component replaces a Model D2400X in accordance with FCR 82-101.
- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 314 peak at 221°F and 19.76 psia in 1.55 seconds and 0.086 seconds, respectively. The conditions return to ambient in 6.7 minutes.

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

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



SYSTEM COMPONENT EVALUATION WORKSHEET



EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	 Note 1 	Note 4	N/A	N/A	Note 3
Plant ID No. 28607 Component: Limit Switch	Temperature (°F)	221.0	 Note i	C-314	N/A	N/A	Note 3
	Pressure (PSIA)	19.76	Note 1	C-314	N/A	N/ A	Note 3
Function: Valve Position Indication	Relative Humidity (%)	100.0	 Note 1 	A A 	N/A	N/A	Note 3
Accuracy: Spec: N/A Demon: N/A Service: Steam Generator 1 Sample Isolation Valve		E'A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314		1.0 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	т	Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	II	Note 2	Analysis	None
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 Submergence	N/A	 N/A	 N/A	N/A	N/A	None

	-			4	
Facility:	Dess-Besse Unit 1	SYSTEM COMPONENT	EVA TION WORKSHEET	Index n	301H-051A
Docket:	50-346			Rev.:	0
			NOTES		
Prepared b	v: W. I. Relland, Date	9.29.81.			
Checked by	: W. I. Relland Date	9/29/2/			
	v				

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The limit switch is used to monitor the valve position of SS607 (an air operated steam generator sample isolation valve). The valve's function is to isolate the steam generator from the sampling system in the event of a loss of coolant accident. The valve would not be required to perform essential safety-related functions in the harsh environment caused by the high energy line break.

Failure of limit switch ZS607 in the harsh environment would not mislead the operator since he would not be monitoring the position of valve SS607 during the high energy line break of concern. Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion interim operation is justified.

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

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

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

Checked by: W.V. Beleast Date: 9.29.81. Checked by: Dec. 546622 Date: 9/29/81

Plant I.D. No Manufacturer		Component: Model No.:		it Switch D2400X	
	I	THERMAL AGIN	G I	RADIATION	
Parts List*	Materials List*	Qualification	Reference	Qualification	Reference
Contact Block	Polyester, Glass Filled	40 Years @ 50°C	W-2	1 x 107 RADS	W-1
Contact Lever	Polyester, Glass Filled	40 Years @ 50°C	W-2	1 x 107 RADS	W-1
Top & Bottom Cover Gaskets	BUNA-N-Coated Nylon	40 Years @ 43.5°C	CAL-2	1 x 107 RADS	W-1
Contact Lever	Alkyd, Mineral Filled	40 Years @ 130°C	W-2	2 x 10 ⁹ RADS	W-1
Top & Bottom Cover Gaskets	Koroseal	40 Years @ 50°C	W-2	2 x 10 ⁹ RADS	W-1
Top & Bottom Cover Gaskets	Polyvinyl Chloride Plastic	40 Years @ 50°C	W-2	1.0 x 10 ⁷ RADS	W-1
					1

COMPONENT MATER

EVALUATION SHEET

301H-051B

0

Index

Rev .:

Material & Parts List Reference: V-29B, ROC-29C

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.



Docl:et: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET



Index No.: 301H-051 Rev.: 1

1-

Prepared by: Section Grand to Date: 12-15-82 Checked Iv: Puul 10 Circles, Date: 12-17-82

TT

EQUIPMENT DESCRIPTION	11	ENVIRONMENT		DOCUMENTA	TON DEP		· · · · · · · · · · · · · · · · · · ·
	Parameter	Specification	Qualification	Specification	Qualification	Qualification Method	Outstanding
	Operating Time	l Year	1.1 Years	Note 2	J-30 Note 3	Simultaneous Test	Items None
Component: Limit Switch	 Temperature (°F) 	221.0	391.0	C-314	J-30	Simultaneous Test	None
	Pressure (PSIA) 	19.76	133.7	C-314	J-30	Simultaneous Test	None
	Relative	100.0	100.0	A	J-30	Simultaneous Test	None
Demon: N/A Service: Steam Generator 1 Sample Isolation Valve		N/A	N/A	N/A	N/A	N/A	None
		1.0 x 10 ⁶ RADS	2.04 x 10 ⁸ RADS	T	J-30	Sequential Test, Analysis	None
Nove Flood Level: N/A	Aging	40 Years	19.13 Years Note 4	I	JJ CAL-54	Sequential Sest, 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.: 301H-051A
Docliet:	50-346		Pev.: 1
		NOTES	
Prepared 1	by: Seine Company Dat	e 1275-82	
Checked by	1: Jane 10 Sheets Dat	e <u>12+5-82</u> e <u>12-17-92</u>	
	general sa kymone		

1. This component replaces a Model D2400X in accordance with FCR 82-101.

- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 314 peak at 221°F and 19.76 psia in 1.55 seconds and 0.086 seconds, respectively. The conditions return to ambient in 6.7 minutes.

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

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

0

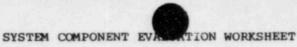
Facility: Davis-Besse Unit 1 Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET



Index No.: <u>301H-052</u> Rev.: 0

Prepared by: N.V. Bellindo Date: 9.29.81. Checked by: Dents Alleta. Date: 9/29/01

EQUIPMENT DESCRIPTION	ii	ENVIRONMENT		DOCUMENT	DOCUMENTATION REF.		1
	Parameter	Specification	Qualification	Specification	Qualification	Qualification Method	Outstanding
System: Display I Instrumentation	Operating Time	l Year	Note 1	 Note 3 	N/A	N/A	Note 2
Plant ID No. ZS6831A Component: Limit Switch	 Temperature (°F)	283.0	Note 1	Н, Х	 N/A	N/A	Note 2
Manufacturer: NAMCO Model Number: D2400X	 Pressure (PSIA)	52.0	Note 1	 G, X 	N/A	N/A	Note 2
	Relative Humidity (%)	100.0	Note 1	A		N/A	Note 2
Service: Demineralize Water to Containment Isolation Valve	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Note 1	A	N/A	N/A	Note 2
	1 1	1.7 x 10 ⁷ RADS	Note 1	CAL-44	N/A	N/A	Note 2
Flood Level Elev: 572'-2" Above Flood Level: Yes	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Hot Shutdown	 Submergence	N/4	N/A	N/A	N/A	N/A	None



Index 801H-052A

NOTES

Prepared by: W.V. Bellands Date 9.29.81. Checked by: Remost N. Move Date 9/29/81

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a loss of coolant accident.

The limit switch is used to monitor the valve position of DW6831A (an air-operated demineralizer water to containment isolation valve). The valve is an isolation valve for containment penetration 21. A second isolation valve for this penetration, DW6831B, is located outside containment and would not be subjected to the harsh environment. Both valves are closed during normal plant operations.

Failure of limit switch ZS6831A will not mislead the operator due to the availability of ZS6831B on the second isolation valve. This limit switch would not be affected by the postulated LOCA conditions and would be monitored by the operator to determine the status of penetration 21. Failure of limit switch 6831A would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion, interim operation is justified.

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

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



SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: <u>301H-052</u> Rev.: 2

Prepared by: 1 Jan Date: 11/1/82 Checked by: Mar Druld Date: 11/1/82

EQUIPMENT DESCRIPTION	!!	ENVIRONMEN	r			1	
1	Parameter	specification	n Qualification	DOCUMENTA	TION REF.	Qualification	Outota
System: Display	[[Operating	l 1 Year	T	T	Qualification	n Method	Outstanding Items
Instrumentation Plant ID No. 256831A	Time 		1.1 Years	Note 2	Note 3 J-30	Simultaneous Test	None
Component: Limit Switch	Temperatur (°F)	el 283.0	391.0	н, х	J-30	Simultaneous	N
Manufacturer: NAMCO	ii	1	+			Test	None
Model Number: EA-180 Note 1 Function: Valve Position	Pressure (PSIA)	52.0 	133.7	G, X	J-30	Simultaneous Test	None
	Relative	100.0		I			
Accuracy: Spec: N/A Demon: N/A	Humidity	1	100.0	A	J-30	Simultaneous Test	None
	 Chemical Spray 	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	J-30 CAL-40 Note 5	Simultaneous Test, Analysis	None
lood Level Elev: 572'-2"		1.7 x 10 ⁷ RADS	2.04 x 10 ⁸ RADS	CAL-44	J-30 1	Sequential Nest, Analysis	
eeded for:	Aging	40 Years	8.43 Years Note 4	I	J-30	Sequential	None
Hot Shutdown x	Submergence				I	est, Analysis	
Cold Shutdown X	ou Miergence	572'-2"	586'-0"	в	M-9	N/A	None

Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: <u>301H-052A</u> Rev.: 2
Prepared by: 12 to D	ate $\frac{u/1/6}{u/2/8-3}$ NOTES	

1. This component replaces a Model D2400X in accordance with FCR 82-101.

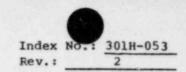
- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 seconds, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 140°F and 17.7 psia; and after approximately 4 days, conditions are 124°F and 16.5 psia. The conditions returned to ambient in 7 days.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference G&H.)

- 4. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to assure that associated component will maintain functional operability in harsh environments.
- 5. Calculation 40 qualifies components tested in a high pH boric acid spray to a pH valves of 5.

E

SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: Noeiro Date: 11/1/83 Checked by: Stranger Date: 11/1/83

EQUIPMENT DESCRIPTION		ENVIRONMENT		DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	40 Years 	Note 3	Note 2	Analysis	None
Plant ID No. ZS6831B Component: Limit Switch	Temperature (°F)	192.0	Exempt	C-208	Note 1	N/A	None
	Pressure (PSIA)	16.25	 Exempt	C-208	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
Location: Auxiliary Bldg. Rm, 208	Radiation	1.97 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	Т	CAL-76 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for:	Aging	40 Years	 40 Years 	I	CAL-76 Note 2	Analysis	 None
Hot Shutdown	Submergence	N/A	 N/A 	 N/A 	N/A	N/A	 None

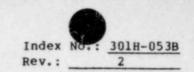
Facility:	Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-053A
Docket:	50-346		Rev.: 2
Prepared by	: NLouis	Date 11/1/91	
Checked by	Sundand	Date 11/3/03	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. One year operating time is used as a conservative maximum specification.

COMPONENT MATERIALS EVALUATION SHEET



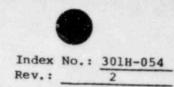
Prepared by: Date: 11 Checked by:

1	Plant I.D. No.:	ZS6831B	Component:	Limi	it Switch	
1	Manufacturer:	NAMCO	Model No.:	I	02400X	
1	1	1	THERMAL AGI	NG I	RADIATION	1
1	Parts List*	Materials List*	Qualification	Reference	Qualification	Reference
	Contact Block Contact Lever Top & Bottom Cover Gaskets Contact Lever Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	49 Years @ 266°F 40 Years @ 266°F 40 Years @ 104°F Greater than 40 Years @ 300°F 40 Years @ 140°F 46 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation colerance from more limiting BUNA-N.

SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: NLewis Date: 11/1 Checked by: Mun Date: 11/2

TT

EQUIPMENT DESCRIPTION	ENVIRONMENT		DOCUMENTATION REF.		Qualification		
1	Parameter	Specification	Qualification	Specification	Qualification	Method	Outstanding Items
System: Display I Instrumentation	Operating Time	l Year	40 Years	Note 3	Note 1	Analysis	None
Plant ID No. ZSDH13A Component: Limit Switch	 Temperature (°F)	155.0	 Exempt	C-113	Note 1	N/A	None
Manufacturer: NAMCO Model Number: D2400X	Pressure (PSIA)	16.06	 Exempt	c-113	Note 1	N/A	None
Function: Valve Position Indication Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	 Exempt 	A	Note 1	N/A	None
	Chemical	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 113		7.1 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	T	CAL-76 Note 2	Analysis	None
Needed for:	Aging	40 Years	15.1 Years	I	CAL-76 Note 2	Analysis	None
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 Docket: 50-346	Index No.: <u>301H-054A</u> Rev.: 2
Prepared by: Nheurs Date 11/1/29 NOTES	
Checked by: Annow Date 11/4/3	

1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident since it only performs a safety-related function during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. One-year operating time is used as a conservative maximum specification.

Facility: Davis-Besse Unit 1

COMPONENT MATERIALS EVALUATION SHEET



50-346 Docket:

Date: Prepared by: Checked by:

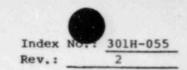
Date:

Plant I.D. No.: ZSDH13A Component:					
r: NAMCO	Model No.:		D2400X		
1	THERMAL AGIN	<u> </u>	RADIATIO		
Materials List *	Qualification	Reference	Qualification	Reference	
Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon **	40 Years @ 266°F 40 Years @ 266°F 15.1 Years @ 122°F	CAL-76 CAL-76 CAL-76	1×10^9 RADS 1×10^9 RADS 1×10^7 RADS	CAL-76 CAL-76 CAL-76	
Alkyd, Mineral Filled	Greater than 40 Years @ 300°F	CAL-76	1 x 10 ⁹ RADS	CAL-76	
Koroseal	40 Years @ 140°F	CAL-76	1×10^7 RADS	CAL-76	
				-	
	r: NAMCO Materials List * Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled	r: NAMCO Model No.: Model No.: THERMAL AGING Materials List * Qualification Polyester, Glass Filled 40 Years @ 266°F Polyester, Glass Filled 40 Years @ 266°F BUNA-N-Coated Nylon ** 15.1 Years @ 122°F Alkyd, Mineral Filled Greater than 40 Years @ 300°F Koroseal 40 Years @ 140°F	r: NAMCO Model No.: Model No.: Materials List * Qualification Reference Polyester, Glass Filled 40 Years @ 266°F CAL-76 Polyester, Glass Filled 40 Years @ 266°F CAL-76 BUNA-N-Coated Nylon ** 15.1 Years @ 122°F CAL-76 Alkyd, Mineral Filled Greater than CAL-76 40 Years @ 300°F Koroseal 40 Years @ 140°F CAL-76	NAMCO Model No.: D2400X I THERMAL AGING RADIATION Materials List * Qualification Reference Qualification Reference Qualification Polyester, Glass Filled 40 Years @ 266°F CAL-76 1 x 10 ⁹ RADS Polyester, Glass Filled 40 Years @ 266°F CAL-76 1 x 10 ⁹ RADS BUNA-N-Coated Nylon ** 15.1 Years @ 122°F CAL-76 1 x 10 ⁷ RADS Alkyd, Mineral Filled Greater than CAL-76 1 x 10 ⁹ RADS 40 Years @ 300°F 40 Years @ 140°F CAL-76 1 x 10 ⁷ RADS	

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.

SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: Nherio Date: 11/1 Checked by: Anala Date: 11/1

EQUIPMENT DESCRIPTION	i .	ENVIRONMENT		DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	 40 Years 	Note 3	Note 1	Analysis	None
Plant ID No. ZSDH13B Component: Limit Switch	Temperature (°F)	155.0	Exempt	c-113	Note 1	N/A	None
	Pressure	16.06	Exempt	c-113	Note Ì	N/A	 None
Accuracy: Spec: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	 Chemical Spray 	N/A	 N/A 	N/A	N/A	N/A	 None
Location: Auxiliary Hldg. Rm. 113	Radiation	7.1 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	Т	CAL-76 Note 2	Analysis	None
	 Aging 	40 Years	15.1 Years	I	CAL-76 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.: 301H-055A
Docket: 50-346		Rev.: 2
Prepared by: Nleuis Date	11/193 NOTES	
Checked by: Sacadon Date	1/0/13	
checked by. States and bace	11++ P	

1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

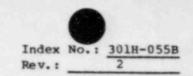
The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident since it only performs a safety-related function during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. One-year operating time is used as a conservative maximum specification.

Gaskets

Prepared by: Date: Date: Checked by :

COMPONENT MATERIALS EVALUATION SHEET



Plant I.D.	No.: ZSDH13B	Component:	Lim	it Switch	
Manufacture	r: NAMCO	Model No.:		D2400X	
1	1	THERMAL AGIN	<u> </u>	RADIATIO	N
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block	Polyester, Glass Filled	40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
Contact Lever	Polyester, Glass Filled	40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
Top & Bottom Cover Gaskets	BUNA-N-Coated Nylon **	15.1 Years @ 122°F	CAL-76	1 x 10 ⁷ RADS	CAL-76
Contact Lever	Alkyd, Mineral Filled	Greater than 40 Years @ 300°F	CAL-76	1 x 10 ⁹ RADS	CAL-76
Top & Bottom Cover Gaskets	Koroseal	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	CAL-76
Top & Bottom Cover	Polyvinyl Chloride Plastic	40 Years @ 140°F	CAL-76	1×10^7 RADS	CAL-76

Material & Parts List Reference: V-29B, ROC-29C

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.

** Thermal aging life and radiation tolerance from more limiting BUNA-N.

Facility: s-Besse Unit 1 SYSTEM COMPONENT Docket: 50-346

CUATION WORKSHEET

Rev.: 2

Checked by: MLau

Date: 11 AP Date: 11/2/13

02

EQUIPMENT DESCRIPTION	II	ENVIRONMENT		DOCUMENTA	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	40 Years	Note 3	Note 2	Analysis	None
Plant ID No. ZSDH14A Component: Limit Switch	Temperature (°F)	155.0	Exempt	c-113	Note 1	N/A	None
Manufacturer: NAMCO Model Number: D2400X	Pressure (PSIA)	16.06	Exempt	c-113	Note 1	N/A	None
Function: Valve Position Indication Accuracy: Spec: N/A Demon: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	 Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 113		7.1 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	т	CAL-76 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for:	Aging	40 Years	15.1 Years	I	CAL-76 Note 2	Analysis	None
Hot Shutdown X	 Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET	Index NO 301H-056A Rev.: 2
Prepared by: Nhewing Date 11/1/93 Checked by: Succeeding Date 11/1/93 Date 11/1/93	

1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident since it only performs a safety-related function during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. One-year operating time is used as a conservative maximum specification.

Prepared by: Date: Checked by: Date:

Plant I.D. No.: ZSDH14A		Component:	Lim	it Switch	
Manufacture	er: NAMCO	Model No.:		D2400X	
	1	THERMAL AGIN	G I	RADIATION	
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets Contact Lever Top & Bottom Cover Gaskets Top & Bottom Cover	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 266°F 15.1 Years @ 122°F Greater than 40 Years @ 300°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76	1 x 10 ⁹ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁹ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS 1 x 10 ⁷ RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76
Gaskets					
terial & Parts List Ref	erence: V-29B, ROC-29C				

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 301H-056B

2

Rev.:

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.

 Facility:
 Sesse Unit 1
 SYSTEM COMPONENT

 Docket:
 50-346
 50-346

LUATION WORKSHEET

301H-057 Index Rev.: 2

Prepared by: NLeuis Checked by:

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Display Instrumentation	Operating Time	l Year	40 Years	Note 3	Note 2	Analysis	None
Plant ID No. ZSDH14A-1 Component: Limit Switch	Temperature	155.0	Exempt	c-113	Note 1	N/A	None
	Pressure (PSIA)	16.06	Exempt	c-113	Note 1	N/A	None
Function: Valve Position Indication	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	 Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg.		7.1 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	т	CAL-76 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for:	Aging	40 Years	15.1 Years	I	CAL-76 Note 2	Analysis	None
Hot Shutdown	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index 800 301H-057A
Prepared by: Nheuris Dat Checked by: Sacond Dat	e <u>11/1/17</u> e <u>11/2/13</u>	

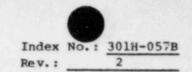
1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident since it only performs a safety-related function during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. One-year operating time is used as a conservative maximum specification.

Facility: Davis-Besse Unit 1

COMPONENT MATERIALS EVALUATION SHEET



50-346 Docket:

Prepared by: Checked by:

Date: 11./18] Date:

Plant I.D.	No.: ZSDH14A-1	Component:	Lim	Limit Switch	
Manufacturer: NAMCO		Model No.:		D2400X	
		THERMAL AGIN	G I	RADIATIO	N
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets Top & Bottom Cover Gaskets	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylop ** Alkyd, Mineral Filled Koroseal Polyvinyl Chloride Plastic	40 Years @ 266°F 40 Years @ 266°F 15.1 Years @ 122°F Greater than 40 Years @ 300°F 40 Years @ 140°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76	1×10^{9} RADS 1×10^{9} RADS 1×1^{0} RADS 1×10^{9} RADS 1×10^{7} RADS 1×10^{7} RADS 1×10^{7} RADS	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76 CAL-76

Material & Parts List Reference: V-29B, ROC-29C

* Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.

** Thermal aging life and radiation tolerance from more limiting BUNA-N.

Facility: 50-346

s-Besse Unit 1 SYSTEM COMPONENT

LUATION WORKSHEET

Index i 301H-058 Rev.: 2

Prepared by: Nous Date: 11/1/P Checked by: Successford Date: 11/1/P

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Display Instrumentation	Operating Time	l Year	40 Years	Note 3	Note 2	Analysis	None
Plant ID No. ZSDH14B Component: Limit Switch	Temperature (°F)	155.0	Exempt	c-113	Note 1	N/A	None
Manufacturer: NAMCO Model Number: D2400X	Pressure (PSIA)	16.06	 Exempt	c-113	Note 1	N/A	None
Function: Valve Position Indication Accuracy: Spec: N/A	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
Demon: N/A Service: Decay Heat Removal Cooler 1 Outlet Valve	 Chemical Spray	N/A	N,/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 113		7.1 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	т	CAL-76 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for:	Aging	40 Years	15.1 %ears	I	CAL-76 Note 2	Anelysis	None
Hot Shutdown X	 Submergence	N/A	N,/A	N/A	N/A	N/A	None

Facility: Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET	Index N 301H-058A Rev.: 2
Prepared by: Nlewing Date 11/1/P3 NOTES Checked by: Salar Date 11/1/P3 Date 11/1/P3	

1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

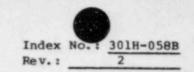
The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident since it only performs a safety-related function during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. One-year operating time is used as a conservative maximum specification.

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

Prepared by: Date: Checked by: Date:

COMPONENT MATERIALS EVALUATION SHEET



Plant I.D. No.: ZSDH14B		Component:	Lim	it Switch		
Manufacturer: NAMCO		Model No.:		D2400X		
		THERMAL AGIN	G I	RADIATIO	N	
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference	
Contact Block	Polyester, Glass Filled	40 Years @ 266'F	CAL-76	1 x 10 ⁹ RADS	CAL-76	
Contact Lever	Polyester, Glass Filled	40 Years @ 266°F	CAL-76	1 x 10 ⁹ RADS	CAL-76	
Top & Bottom Cover Gaskets	BUNA-N-Coated Nylon **	15.1 Years @ 122°F	CAL-76	1 x 10 ⁷ RADS	CAL-76	
Contact Lever	Alkyd, Mineral Filled	Greater than 40 Years @ 300°F	CAL-76	1 x 10 ⁹ RADS	CAL-76	
Top & Bottom Cover Gaskets	Koroseal	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	CAL-76	
Top & Bottom Cover Gaskets	Polyvinyl Chloride Plastic	40 Years @ 140°F	CAL-76	1 x 10 ⁷ RADS	CAL-76	
					i	

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Netallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.

Facility: Desse Unit 1 Docket: 50-346

Nhee

you.

SYSTEM COMPONENT

0,

LUATION WORKSHEET

301H-059 Index N Rev.: 2

Prepared by: Checked by:

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	40 Years	Note 3	Note 2	Analysis	None
Plant ID No. ZSDH14B-1 Component: Limit Switch	Temperature (°F)	155.0	Exempt	c-113	Note 1	N/A	None
	Pressure (PSIA)	16.06	Exempt	c-113	Note 1	N/A	None
Function: Valve Position Indication	Relative Humidity (%)	100.0	Exempt	A	Note 1	N/A	None
	Chemical Spray	N/A	 N/A 	N/A	N/A	N/A	None
Location: Auxiliary Bldg.	Radiation	7.1 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	т	CAL-76 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for:	Aging	40 Years	15.1 Years	I	CAL-76 Note 2	Analysis	None
Hot Shutdown	Submergence	N/A	 N/A	 N/A	N/A	N/A	None

Pacility: Docket: 50-346	SYSTEM COMPONENT EVALUTION WORKSHEET	Index N 301H-059A Rev.: 2
Prepared by: Nleurs Checked by: Successful	Date 11/1/93 Date 4/2/13	

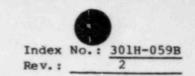
1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The component is exempted from qualification since its associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident since it only performs a safety-related function during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function.

- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 3. One-year operating time is used as a conservative maximum specification.

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

COMPONENT MATERIALS EVALUATION SHEET



Prepared by: Checked by:

Date: 11/1/83

Plant I.D. Manufacture		Component: Model No.:		Limit Switch D2400X	
		THERMAL AGIN	G I	RADIATIO	N
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Contact Block Contact Lever Top & Bottom Cover Gaskets Contact Lever Top & Bottom Cover	Polyester, Glass Filled Polyester, Glass Filled BUNA-N-Coated Nylon **	40 Years @ 266°F 40 Years @ 266°F 15.1 Years @ 122°F Greater than 40 Years @ 300°F 40 Years @ 140°F	CAL-76 CAL-76 CAL-76 CAL-76 CAL-76	1×10^{9} RADS 1×10^{9} RADS 1×10^{7} RADS 1×10^{9} RADS 1×10^{7} RADS	CAL-76 CAL-76 CAL-76 CAL-76
Gaskets Top & Bottom Cover Gaskets	Polyvinyl Chloride Plastic	40 %ears @ 140°F	CAL-76	1 x 10 ⁷ RADS	CAL-76

Material & Parts List Reference: V-29B, ROC-29C

- * Only non-metallic parts are listed. Metallic parts are not considered sensitive to Thermal Aging and are not affected by radiation. The materials of these parts differ according to the date of manufacture. Since we are unable to determine the components manufacture date, all possible materials have been listed.
- ** Thermal aging life and radiation tolerance from more limiting BUNA-N.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 301H-060 Rev.: 2

Prepared by: Nheuis' Date: 11/1/83. Thecked by: Anin Com Date: 11/2/83.

EQUI PMENT DESCRIPTION	ENV I RONMENT			DOCUMENTA	FION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	 Operating Time	l Year	1.1 Years	Note 2	J-30 Note 3	Simultaneous Test	None
Plant ID No. ZSICS11A Component: Limit Switch	Temperature	344.0	391.0	C-602	J-30	Simultaneous Test	None
	Pressure (PSIA)	20.0	133,7	c-602	J-30	Simultaneous Test	None
	Relative Humidity	100.0	100.9	A	J-30	Simultaneous Test	None
and the second	 Chemical Spray	N/A	N/A	 N/A 	N/A	N/A	 None
Location: Auxiliary Bldg. Rm. 602		1.86 x 10 ⁴ RADS	2.04 x 10 ⁸ RADS	T	J -30	Sequential Test, Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	 Aging	40 Years	19.1 Years Note 4	II	J-30 CAL-54	Sequential Test, Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence 	N/A	N/A	 N/A	 N/A	N/A	None



'acility: Davis-Besse Unit 1 Nocket: 50-346 Index No.: 301H-060A Rev.: 2

NOTES

SYSTEM COMPONENT EVALUATION WORKSHEET

hecked by: Neuro Date 11/1/83.

This component replaces a Model LSB2B4N in accordance with FCR 82-101.

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

1. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 seconds, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 140°F and 17.7 psia; and after approximately 4 days, conditions are 124°F and 16.5 psia. The conditions returned to ambient in 7 days.

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

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: 50-346

s-Besse Unit 1 SYSTEM COMPONENT LUATION WORKSHEET

301H-060 Index N Rev.: 2

Prepared by: Nhee Checked by: states

Date: 11/1/87 Date: 11/4/13

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	36 Years	Note 5	Note 3	Analysis	Note 1
Plant ID No. ZSICS11A Component: Limit Switch	Temperature (°F)	344.0	Note 2	C-602	N/A	N/A	Note 1
	Pressure (PSIA)	20.0	Note 2	C-602	N/A	N/A	Note 1
	Relative Humidity (%)	100.0	Note 2	A	N/A	N/A	Note 1
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602		1.86 x 10 ⁴ RADS	1.0 x 10 ⁷ RADS	т	CAL-77 Note 3	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A Needed for:	Aging	40 Years	36 Years Note 1	I	CAL-77 Note 3	Analysis	Note 1
Hot Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-060A
Prepared by: Nheins Date 11/1/22 NOTES	Rev.: 2

- 1. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.
- 2. This limit switch functions to provide valve indications only and serves no control function. Failure of the limit switch will not affect operation of the atmospheric vent valves. Failure of the atmospheric vent valves' solenoid valve in the harsh environment would cause the atmospheric vent valves to move to their fail-safe closed position. Failure of the limit switches will cause loss of valve position indication only. Once the environmental conditions have returned to normal, operation of the vent valve is necessary for plant cooldown. This can be accomplished by manual operation and repair of the limit switch. Failure of the limit switch will not impact safety-related functions. Based on the above discussion, interim plant operation is justified until component replacement can be accomplished.
- 3. Materials evaluation conducted; materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 4. With grease lubricants, the effect of exposure to continuous operating temperature is for the lubricant to dry out. The continuous exposure thermal aging temperature is 104°F which is well within the operating range capability of hydrocarbon grease. This limit switch will have to be periodically inspected in accordance with the plant maintenance and replacement schedules. At this time, the limit switch lubricant will be inspected for evidence of breakdown and new lubricant will be
- 5. One-year operating time is used as a conservative maximum specification.

Facility: Unis-Besse Unit 1 COMPONENT MATERI Docket: 50-346

COMPONENT MATERIA PEVALUATION SHEET

301H-060B Index N Rev.: 2

Prepared by: NLewis Date: 1/1/19 Checked by: Suradonal Date: 11/1/19

Plant I.D.	No.: ZSICS11A	Component:	Lim	it Switch	
Manufacture	er: Microswitch	Model No.:	1	LSB2B4N	
	1	THERMAL AGING	G I	RADIATION	
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Top Rotary Shaft	440F Stainless Steel	Not Sensitive	CAL-77	Not Affected	CAL-77
Seal	Viton A	40 Years @ 265°F	CAL-77	4.0 x 107 RADS	CAL-77
Cover	ARC Resistant Phenolic	40 Years @ 230°F	CAL-77	1.0 x 10 ⁸ RADS	CAL-77
Case	ARC Resistant Phenolic	40 Years @ 230°F	CAL-77	1.0 x 10 ⁸ RADS	1 CAL-77
Seal	Neoprene	36 Years @ 104.°F	CAL-77	7.0 x 107 RADS	1 CP -77
Seal	BUNA-N	40 Years @ 104 °F		1.5 x 10 ⁷ RADS	CAL-77
Housing	Glass-Filled Thermo	Greater than 40 Years @ 122°F	CAL-77	1.0 x 10 ⁹ RADS	CAL-77
Cover	Glass-Filled Thermo Polyester	Greater than 40 Years @ 122°F	CAL-77	1.0 x 10 ⁹ RADS	CAL-77
Carrier	ARC Resistant Phenolic	40 Years @ 230°F	CAL-77	1.0 x 10 ⁸ RADS	CAL-77
Lubricant	Hydrocarbon Grease Epoxy Based Adhesive	Note 4	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
					1
					1
			1		1
	and the second				

Material & Parts List Reference: V-28-B

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

1.1

SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by:

Date: Date:

Index No.: 301H-061 Rev.: 2

EQUIPMENT DESCRIPTION		ENVIRONMENT		 DOCUMENTAL	1		1
	Parameter	Specification	Qualification	DOCUMENTAT	CION REF.	Qualification	Outstanding
	Operating Time	1 Year	S6 Years	Note 5	Note 3	Method , nalysis	Items Note 1
Plant ID No. ZSICS11B	 Temperature	1	1				
component: Limit Switch	1 (°F)	282.0	Note 2	C-601	N/A	N/A	Note 1
Manufacturer: Microswitch)		1	1		i		
odel Number: JSB2B4N	Pressure (PSIA)	1 17.0	Note 2	C-601	N/A I	N/A I	Note 1
unction: Valve Position	1	1		i	1		
	Relative Humidity	100.0	Note 2	A	N/A	N/A	Note 1
Demon: N/A	(8)		1				
#1 Atmospheric Vent Valve	 Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
ocation: Auxiliary Bldg.					5.1.2.1.1		
Rm. 601 lood Level Elev: N/A	Radiation	1.86 x 10 ⁴ RADS	1.0 x 10 ⁷ RADSI	т	CAL-77 Note 3	Analysis	None
Alle Black a	Aging 	40 Years 	36 Years Note 1	I	CAL-77 Note 3	Analysis	Note 1
Hot Shutdown X			1	i	10000 3		
Cold Shutdown IXI II	Submergence	N/A	N/A I	N/A	N/A I	N/A	None



Facility: 50-346	SYSTEM COMPONENT EVALUTION WORKSHEET	Index No. 301H-061A Rev.: 2
Prepared by: NLouis Date 11/1 Checked by: Ancardon Date 11/1	/P) NOTES:	

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

- 2. This limit switch functions to provide valve indications only and serves no control function. Failure of the limit switch will not affect operation of the atmospheric vent valves. Failure of the atmospheric vent valves' solenoid valve in the harsh environment would cause the atmospheric vent valves to move to their fail-safe closed position. Failure of the limit switches will cause loss of valve position indication only. Once the environmental conditions have returned to normal, operation of the vent valve is necessary for plant cooldown. This can be accomplished by manual operation and repair of the limit switch. Failure of the limit switch will not impact safety-related functions. Based on the above discussion, interim plant operation is justified until component replacement can be accomplished.
- 3. Materials evaluation conducted; materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
- 4. With grease lubricants, the effect of exposure to continuous operating temperature is for the lubricant to dry out. The continuous exposure thermal aging temperature is 104°F which is well within the operating range capability of hydrocarbon grease. This limit switch will have to be periodically inspected in accordance with the plant maintenance and replacement schedules. At this time, the limit switch lubricant will be inspected for evidence of breakdown and new lubricant will be added as necessary.
- 5. One-year operating time is used as a conservative maximum specification.

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

NL Prepared by: Checked by:

Date: Date:

11/2

reff

COMPONENT MATERI

VALUATION SHEET

Index No 01H-061B Rev.: 2

Plant I.D.	No.: ZSICSIIA	Component:	Lim	it Switch	
Manufacture	er: Microswitch	Model No.:		LSB2B4N	
	1	THERMAL AGIN	G I	RADIATION	
Parts List *	Materials List *	Qualification	Reference	Qualification	Reference
Top Rotary Shaft Seal	440F Stainless Steel Viton A	Not Sensitive 40 Years @ 265°F	CAL-77 CAL-77	Not Affected 4.0×10^7 RADS	CAL-77
Cover	ARC Resistant Phenolic	40 Years @ 230°F	CAL-77	1.0 x 10 ⁸ RADS	CAL-77
Case	ARC Resistant Phenolic	40 Years @ 230°F	CAL-77	1.0 x 10 ⁸ RADS	CAL-77
Seal	Neoprene	36 Years @ 104 °F	CAL-77	7.0 x 107 RADS	CAL-77
Seal	BUNA-N	40 Years @ 104 "F		1.5 x 107 RADS	CAL-77
Housing	Glass-Filled Thermo Polyester	Greater than 40 Years @ 122°F	CAL-77	1.0 x 10 ⁹ RADS	CAL-77
Cover	Glass-Filled Thermo Polyester	Greater than 40 Years @ 122°F	CAL-77	1.0 x 10 ⁹ RADS	CAL-77
Carrier	ARC Resistant Phenolic	40 Years @ 230°F	CAL-77	1.0×10^8 RADS	CAL-77
Lubricant	Hydrocarbon Grease Epoxy Based Adhesive	Note 4	CAL-77	1.0 x 10 ⁷ RADS	CAL-77
					1
					-
					1
	1		1		1
					1

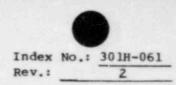
Material & Parts List Reference: V-28-B



Davis-Besse Unit 1 Pacility: 50-346)ocket:

'hecked by:

SYSTEM COMPONENT EVALUATION WORKSHEET



prepared by:

Aniero (

Nheins, Date: 11/1/83 Date: 11/2/13

EQUIPMENT DESCRIPTION 11 ENV IRONMENT Qualification DOCUMENTATION REF. Outscanding Qualification Specification Qualification || Parameter Specification Method Items System: Display ||Operating 1 Year 1.1 Years Note 2 J-30 Simultaneous None Instrumentation IITime Test 11 Plant ID No. ZSICS11B 282.0 391.0 [[Temperature] C-601 J-30 Simultaneous None (°F) Component: Limit Switch || Test Manufacturer: NAMCO 11 ||Pressure 17.0 133.7 C-601 J-30 Simultaneous None Model Number: EA-180 ||(PSIA) Test Note 1 11 Function: Valve Position || Indication ||Relative 100.0 100.0 J-30 A simultaneous None Humidity Test Accuracy: Spec: N/A (8) Demon: N/A 11 Service: Steam Generator ||Chemical N/A N/A N/A N/A N/A None #1 Atmospheric ||Spray Vent Valve Location: Auxiliary Bldg. || Sequential 11.86 x 104 RADS 2.04 x 108 RADS ||Radiation Rm. 601 т J-30 Test, Analysis None Flood Level Elev: N/A Above Flood Level: N/A 40 Years 19.1 Years T-30 Aging I Sequential None Note 4 CAL-54 Test, Analysis Needed for: Hot Shutdown X ||Submergence| N/A N/A N/A N/A N/A None Cold Shutdown X 11 11

Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-061A Rev.: 1
Prepared by: Nheuris Date	NOTES	Rev
	e 11/4/h	

1. This component replaces a Model LSB2B4N in accordance with FCR 82-101.

- 2. One-year operating time is used as a conservative maximum.
- 3. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure inside containment peak at 283°F and 52.0 psia in 17 minutes and 50 second²¹, respectively. At 24 hours and 55 minutes, conditions are 148°F and 18.7 psia; at 26 hours and 55 minutes, conditions are 140°F and 17.7 psia; and after approximately 4 days, conditions are 124°F and 16.5 psia. The conditions returned to ambient in 7 days.

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

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



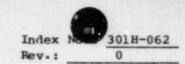
Facility: Davis-Besse Unit 1

Docket:

50-346

Prepared by: N.V. Bellande Date: 2.23.8%. Checked by: Delet Date: 2/29/01

EQUIPMENT DESCRIPTION	ENV IRONMENT			DOCUMENTATION REF.		Qualification	Outstanding	
-	Parameter	Specification	Qualification	Specification	Qualification	Method N/A	Items	
	Operating	30 Seconds 	Note 1	ĸ	N/A	N/A	Note 2	
Plant ID No. ZSMUO3 Component: Limit Switch	Temperature (°F)	192.0	Note 1	C-208	N/A	N/A	Note 2	
	Pressure (PSIA)	16.25	Note 1	C-208	N/A	N/A	Note 2	
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2	
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Letdown Isolation Valve	1	N/A	N/A	N/A	N/A	N/A	i sone	
Location: Auxiliary Bldg.	1	1.97 x 10 ⁶ RADS	Note 1	Т	N/A	N/A	Note 2	
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2	
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 Submergence	N/A	N/A	 N/A 	N/A	N/A	 None 	



SYSTEM COMPONENT JUATION WORKSHEET

11

Facility: Basse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index N. 01H-062A Rev.: 0
Prepared by: W.J. Bellynlo Date Checked by: Rennett W. Mong Date	10.2.81. 10/2/81	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

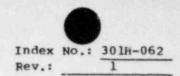
This component's associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function. Based on the above discussion, interim operation is justified.

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



Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



Docl.et: 50-346

Prepared by: Jeuna Coupon Date: 12+5=52 Checked by: Course 10 Lynder Date: 12+12-22 Gue 10 lybokes

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items	
	Operating Time	l Year	1.1 Years	ĸ	J-30 Note 2	Simultaneous Test	None	
Plant ID No. ZSMUO3	Temperature (°F)	192.0	391.0	C-208	J-30	Simultaneous Test	None	
	Pressure (PSIA)	16.25	133.7	C-208	J-30	Simultaneous Test	None	
Function: Valve Position Indication	Relative Humidity (%)	100.0	100.0	A	J-30	Simultaneous Test	Note 2	
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Letdown Isolation Valve	1 1	N/A	N/A	N/A	N/A	N/A	None	
Location: Auxiliary Bldg.	1	1.97 x 10 ⁶ RADS	2.04 x 10 ⁸ RADS	т	J-30	Sequential Test, Analysis	None	
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	19.13 Years Note 3	I	J-30 CAL-54	Sequential Test, Analysis	None	
lot 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.: 301H-062A
Doclet:	50-346		Kev.: 1
		NOTES	
Prepared h Checked by	y: Jour Caryour Date	12-15-82	
	(Forman Charling an		

- 1. This component replaces a Model SA1-33in accordance with FCR 82-101.
- 2. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 208 peak at 192°F and 16.25 psia in 7.1 seconds and 1.55 seconds, respectively. The conditions return to ambient in 20 minutes.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and _ ter exposure to the accident environment that would result from the postulated HELB. (Reference C-208.)

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.



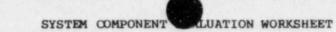
Facility: Davis-Besse Unit 1

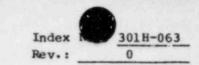
Docket: 50-346

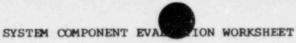
Prepared by: W.V. Bellands Date: 3.23.81. Checked by: Date: 9/29/31

11

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	the second se	Method	Items	
	Operating	30 Seconds 	Note 1	K	N/A	N/A	Note 2	
Plant ID No. ZSMU33 Component: Limit Switch	Temperature (°F)	198.0	Note 1	C-236	N/A	N/A	Note 2	
	Pressure (PSIA)	15.51	Note 1	C-236	N/A	N/A	Note 2	
Function: Valve Position Indication	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2	
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Normal Warm-Up Isolation Valve	1	N/A	N/A	N/A	N/A	N/A	None	
Location: Auxiliary Bldg. Rm. 236		1.97 x 10 ⁶ RADS	Note 1	т	N/A	N/A	Note 2	
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2	
Needed for: Hot Shutdown <u>X</u> Cold Shutdown <u>X</u>	 Submergence	N/A	N/A	N/A	N/A	N/A	None	







Facility: Dates-Besse Unit 1 Docket: 50-346 Index No. 301H-063A Rev.: 0

NOTES

Prepared by: N.J. Bellardy Date 2.29.81. Checked by: Romall al. Monty Date \$12/81.

1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The limit switch is used to monitor the valve position of MU33 (an air-operated reactor coolant normal MU isolation valve). In the event of a high energy line break, the solenoid valve would be exposed to the harsh environment. If the valve fails, it would move to its fail-safe position and could be manually operated to add make-up to the reactor coolant.

Failure of the limit switch ZSMU33 in the harsh environment would not mislead the operator since he would be aware of the valve's position from its manual operation.

Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion, interim operation is justified.

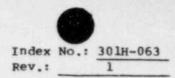
2. This component is scheduled for replacement during the first refueling outage subsequent to component on-site availability.



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

SYSTEM COMPONENT EVALUATION WORKSHEET

.



Prepared by: Since Carpon Date: 12-15-92 Checked by: Chance 10 Aprilles Date: 12-12-92

.

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	1.1 Years	K	J-30 Note 2	Simultaneous Test	None
Plant ID No. ZSMU33 Component: Limit Switch	Temperature (°F)	198.0	391.0	C-236	J-30	Simultanecus Test	None
	Pressure (PSIA)	15.51	133.7	C-236	J-30	Simultaneous Test	None
a state a second s	Relative	100.0	100.0	А	J-30	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Normal Warm-Up Isolation Valve	1 1	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236	Radiation	1.97 x 10 ⁶ RADS	2.04 x 10 ⁸ RADS	т	J-30	Sequential Test, Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	19.13 Years Note 3	I	J-30 CAL-54	Sequential Test, Analysis	None
Fot 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.: 301H-063A
Doclet:	50-346		Rev.: 1
Prepared b	y: Seria Gugaro Date	NOTES	<u> </u>
Checked by	19: Jour Cargo Date	e 12-11-92	

1. This component replaces a Model SA1-33 in accordance with FCR 82-101.

2. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 236 peak at 198°F and 15.51 psia in 18.5 seconds and 1.7 seconds, respectively. The conditions return to ambient in 6.7 minutes.

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

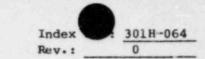
Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to
assure that associated component will maintain functional operability in harsh environments.

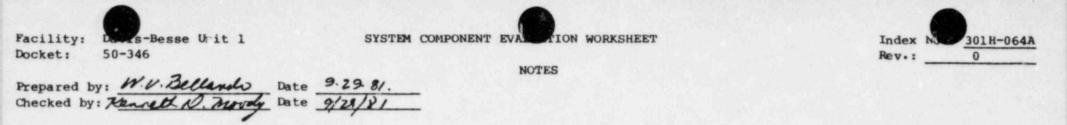
Facility: Bavis-Besse Unit 1 Docket: 50-346

Prepared by: W.V.Belland, Date: 7.29.81. Checked by: Date: 9/29/81.

EQUIPMENT DESCRIPTION	1	ENVIRONMENT		DOCUMENTATION REF.		Qualification Outstandi	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	17 Seconds 	Note 1	ĸ	N/A	N/A	Note 2
Plant ID No. ZSMU38 Component: Limit Switch	Temperature (°F)	192.0	Note 1	C-208	N/A	N/A	Note 2
	Pressure (PSIA)	16.25	Note 1	C-208	N/A	N/A	 Note 2
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Pump Seal Return Isolation Valve	1	N/A	N/A	N/A	N/A	N/A	 None
Location: Auxiliary Bldg.	1	1.97 x 10 ⁶ RADS	Note 1	T	N/A	N/A	 Note 2
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Needed for: Hot Shutdown X	 Submergence	N/A	N/A	 N/A	N/A	 N/A	 None







1. The component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

The limit switch is used to monitor the valve position of MU38 (an air-operated reactor coolant pump seal return isolation valve). In the event of a high energy line break, the solenoid valve would be exposed to the harsh environment. If the valve fails, it would move to its fail-safe position and could be manually operated.

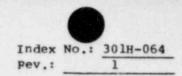
Failure of the limit switch ZSMU38 in the harsh environment would not mislead the operator since he would be aware of the valve's position from its manual operation.

Failure of the limit switch would not degrade other safety-related functions since it does not provide a control function. Based on the above discussion, interim operation is justified.

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



Facility: Davis-Besse Unit 1 Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET



Qualification | Outstanding |

Prepared by: Checked by: Chec

Checked by: Chaul U	Aquale Date:	12-17-82				
EQUIPMENT DESCRIPTION	11	ENVIRONMENT		DOCUMENT	TATION REF.	
	Parameter	Specification	Qualification	Specificatio	on Qualification	
System: Display	llOperating	l l Year	1 1.1 Years	K	J-30	

CALTEMENT DESCRIPTION 1		PIAA T WOMMERIAT	and the second se	DOC ORBAIN.		Anartiteacton	Ourstandin
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	1.1 Years	ĸ	J-30 Note 2	Simultaneous Test	None
Plant ID No. ZSMU38 Component: Limit Switch	Temperature (°F)	192.0	391.0	C-208	J-30	Simultaneous Test	None
	Pressure (PSIA)	16,25	133.7	 C-208 	J-30	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	і А І	J-30	Simultaneous Test	None
Service: Reactor Coolant Pump Seal Return Isolation Valve		N/A	N/A	 N/A 	N/A	N/A	None
contion: Auxiliary Bldg.	1	1.97 x 10 ⁶ RADS	2.04 × 10 ⁸ RADS	Т	J-30	Sequential Test, Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	19.13 Years Note 3	I	J-30 CAL-54	Sequential Test, Analysis	None
Fot 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.: 301H-064
Docl.et:	50-346		Rev.: 1
		NOTES	
Prepared h	by: Soun Caryage Date	12-15-82	
Checked by	1: The ID Jun Ja, Date	12-17-87	
Checked by	1: Faul 10 Jun Las Date	12-17-82	

1. This component replaces a Model SA1-33 in accordance with FCR 82-101.

2. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of °20°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 208 peak at 192°F and 16.25 psia in 7.1 seconds and 1.55 seconds, respectively. The conditions return to ambient in 20 minutes.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference C-208.)

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.

Docket: 50-346

Facility: Devis-Besse Unit 1

SYSTEM COMPONENT ALUATION WORKSHEET

301H-065 Index Rev.: 0

Prepared by: W.V. Bellondo Date: 3.19.81 Checked by: Alitholato Date: 9/29/81

EQUIPMENT DESCRIPTION	1	ENV IRONMENT		DOCUMENTAT	TION REF.	Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items	
	Operating	17 Seconds 	Note 1	ĸ	N/A	N/A	Note 2	
Plant ID No. ZSMU66A Component: Limit Switch	Temperature	192.0	Note 1	C-208	N/A	N/A	Note 2	
	Pressure (PSIA)	16.25	Note 1	C-208	N/A	N/A	Note 2	
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2	
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Pump 2-1 Seal Injection Isolation Valve		N/A	N/A	N/A	N/A	N/A	None	
Location: Auxiliary Bldg. Rm. 208		1.97 x 106 RADS	Note 1	Т	N/A	N/A	Note 2	
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2	
Needed for: Hot Shutdown X Cold Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	None	

Facility: Besse Unit 1	SYSTEM COMPONENT EVALUTION WORKSHEET	Index
Docket: 50-346	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	Rev.: 0
	NOTES	
Prepared by: N.V. Bellench Date Checked by: Renneth D. Marky Date	10.2.8	
Charled by Dec. H. D. W. Date	11/2/11	
checked by: Manual W. Many Date	10/01	
/	••	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

This component's associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function. Based on the above discussion, interim operation is justified.

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



Facility: Davis-Besse Unit 1 SYSTEM COMPONENT EVALUATION WORKSHEET Doclet: 50-346



Index No.: 301H-055 Rev.: 1

Prepared by: Sicure (aug r: Date: 12-15-52 Checked by: Anul 18 Aprilier Date: 12-17-92 ----

EQUIPMENT DESCRIPTION	11	ENVIRONMENT		DOCUMENTA	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	 l.l Years 	ĸ	J-30 Note 2	Simultaneous Test	None
Component: Limit Switch	Temperature	192.0	391.0	C-208	 J-30	Simultaneous Test	None
Model Number: EA-180 Note 1	 Pressure (PSIA) 	16.25	133.7	C-208	J-30	Simultaneous Test	None
	Relative	100.0	100.0	Α	J-30	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Pump 2-1 Seal Injection Isolation Valve		N/A	N/A	N/A	N/A	N/A	None
1		1.97 x 10 ⁶ RADS	2.04 x 10 ⁸ RADS	т	J-30	Sequential Test, Analysis	None
Needed for:	Aging	40 Years	19.1 Years Note 3	I	J-30 CAL-54	Sequential Test, Analysis	None
Cold Shutdown	Submergence	N/A	N/A	N/A	N/A	N/A	None

SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-065A
	Rev.: 1
NOTES	
te 12-17-82	

- 1. This component replaces a Model SA1-33 in accordance with FCR 82-101.
- 2. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 208 peak at 192°F and 16.25 psia in 7.1 seconds and 1.55 seconds, respectively. The conditions return to ambient in 20 minutes.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference C-208.)

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: Vis-Besse Unit 1 Docket: 50-346 SYSTEM COMPONENT EVALUATION WORKSHEET



Rev.: 0

Prepared by: M.V. Belland, Date: 9.29.81 Checked by: Hunt Alata Date: 9/29/61

EQUIPMENT DESCRIPTION	<u></u>	ENVIRONMENT		1 DOCIDERING			1
i	Parameter	Specification	Qualification	DOCUMENTA Specification	Qualification	Qualification	Outstanding
System: Display Instrumentation	Operating Time	17 Seconds	Note 1	K I	N/A	Method N/A	Items Note 2
Plant ID No. ZSMU66B Component: Limit Switch	 Temperature (°F)	192.0	Note 1	C-208	N/A	N/A	Note 2
	 Pressure (PSIA) _	16.25	Note 1	C-208	N/A	N/A	Note 2
	 Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Demon: N/A Service: Reactor Coolant Pump 2-2 Seal Injection Isolation Valve		N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 208 Flood Level Elev: N/A	2	1.97 x 10 ⁶ RADS	Note 1	T	N/A	N/A	Note 2
Above Flood Level: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Hot Shutdown $ X $ Cold Shutdown $ X $	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Docket: 50-346	SYSTEM COMPONENT EVENION WORKSHEET	Index
	NOTES	
Prepared by: W.V. Bellando Date Checked by: Kommetter. Mordy Date	10.2-81.	
Checked by: Knowth a. Moray Date	10/2/81	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

This component's associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function. Based on the above discussion, interim operation is justified.

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



SYSTEM COMPONENT EVALUATION WORKSHEET

DOCUMENTATION DED

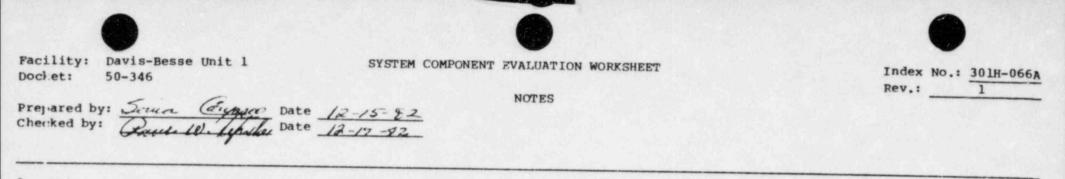
.



Index No.: 301H-066 Rev.: 1

Prepared by: Serie (Frypace Date: 12-15-52 Checked by: Shut in Lynning Date: 12-15-52 |EQUIPMENT DESCRIPTION || ENVIRONMENT | Parameter | Specification |

I	ENVIRONMENT		DOCUMENTATION REF.		Qualification	Outstanding	
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
Instrumentation	Operating Time 	1 Year	 l.l Years 	ĸ	J-30 Note 2	Simultaneous Test	None
Plant ID No. ZSMU66B Component: Limit Switch	 Temperature (°F)	192.0	391.0	C-208	J-30	Simultaneous Test	None
Model Number: EA-180 Note 1	Pressure (PSIA)	16,25	133.7	C-208	J-30	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	J-30	Simultaneous Test	None
Service: Reactor Coolant Fump 2-2 Seal Injection Isolation Valve		N/A	N/A	N/A	N/A	N/A	None
1		1.97 x 10 ⁶ RADS	2.04 x 10 ⁸ RADS	T	J-30	Sequential Test, Analysis	None
Needed for:	Aging	40 Years	19.13 Years Note 3	I	J-30 CAL-54	Sequential Test, Analysis	None
Cold Shutdown X	Submergence	N/A	N/A	N/A	N/A	N/A	None



1. This component replaces a Model SA1-33 in accordance with FCR 82-101.

2. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 208 peak at 192°F and 16.25 psia in 7.1 seconds and 1.55 seconds,

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated NELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated NELB. (Reference C-208.)

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.



Docket: 50-346

Facility: Desis-Besse Unit 1 SYSTEM COMPONENT LUATION WORKSHEET

301H-067 Index N Rev.: 0

Prepared by: N. 1. Bellando Date: 9.29.81. Checked by: Kencelt D. Morty Date: 9/29/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	17 Seconds	Note 1	ĸ	N/A	N/A	Note 2
Plant ID No. ZSMU66C	Temperature (°F)	192.0	Note 1	C-208	N/A	N/A	Note 2
	Pressure (PSIA)	16.25	Note 1	C-208	N/A	N/A	Note 2
Function: Valve Position Indication	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Accuracy: Spec: N/A Demon: N/A Service: Reactor Coolant Pump 1-1 Seal Injection Isolation Valve		N/A	N/A	N/A	N/A	N/A	 None
Location: Auxiliary Bldg. Rm. 208		1.97 x 106 RADS	Note 1	T	N/A	N/A	Note 2
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
Needed for: Hot Shutdown X	 Submergence	N/A	N/A	 N/A	N/A	N/A	None

Facility: Docket:	Davis-Besse Unit 1 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-067A Rev.: 0
Prepared by	y: N.V. Bellento Date	10.2.3!	
Checked by	y: N.V. Bellento Date : Nonreth N. Montpoate	10/2/81	

1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

This component's associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function. Based on the above discussion, interim operation is justified.

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



SYSTEM COMPONENT EVALUATION WORKSHEET



Index No.: 301H-067 Rev.: 1

Docl.et: 50-346

Prepared by: Secure Caupar Date: 12-15-82 Checked by: Caul 10 - Thick, Date: 12-17-82

TT

EQUIPMENT DESCRIPTION		ENVIRONMENT		DOCUMENTA	DOCUMENTATION REF.		
	Parameter	Specification	Qualification	Specification	Qualification	Qualification Method	Outstanding
	Operating Time	l Year	1.1 Years	ĸ	J-30 Note 2	Simultaneous Test	None
Component: Limit Switch	Temperature (°F)	192.0	391.0	C-208	J-30	Simultaneous Test	None
	Pressure (PSIA)	16.25	133.7	C-208	J-30	Simultaneous Test	None
	Relative Humidity	100.0	100.0	A	J-30	Simultaneous Test	None
Service: Reactor Coolant Fump 1-1 Seal Injection Isolation Valve		N/A	N/A	N/A	N/A	N/A	None
		1.97 x 10 ⁶ RADS	2.04 x 10 ⁸ RADS	T	J-30	Sequential Test, Analysis	None
Needed for:		40 Years	19.13 Years Note 3	I	J-30 CAL-54	Sequential Test, Analysis	None
Fot 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.: 301H-067A
Doclet:	50-346		Rev.: 1
		NOTES	
Prepared h	1: Saul Waynes D	ate 12-15-22	
Checked by	1: Aul 10 direction Di	ate 12-17-82	

1. This component replaces a Model SA1-33 in accordance with FCR 82-101.

2. The test subjected the limit switch to 3 transients. The first transient lasted for 4 hours and 20 minutes, with maximum temperature of 391°F and a maximum pressure of 133.7 psia, ending with a return to ambient. The second transient immediately followed the first, lasting for 4 hours and 16 minutes, with maximum temperature of 391°F and maximum pressure of 133.7 psia, ending with a return to ambient. The limit switch was maintained at ambient for 18 hours and 19 minutes, and then was subjected to the third transient, which reached a maximum temperature of 320°F and a maximum pressure of 89.7 psia, and lasted for 2 hours and 55 minutes. At 26 hours and 55 minutes, the conditions are 258°F and 89.7 psia. After approximately 4 days, the temperature and pressure was 200°F and 64.7 psia and remained stable for the duration of the test (25 days). The temperature and pressure in Room 208 peak at 192°F and 16.25 psia in 7.1 seconds and 1.55 seconds, respectively. The conditions return to ambient in 20 minutes.

Based on this information, it can be concluded that the laboratory test subjected the limit switch to an overall more severe environment than that which would result from the postulated HELB. Since the limit switch remained functional throughout the test, it can be concluded that the limit switch will remain functional during and after exposure to the accident environment that would result from the postulated HELB. (Reference C-208.)

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.

SYSTEM COMPONENT ALUATION WORKSHEET

Index 301H-068 Rev.: 0

Prepared by: W.V. Bellapelu Date: 9.29. 8! Checked by: Alut Aluta Date: 9/29/81

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	Note 1	L	N/A	N/A	Note 2
Plant ID No. ZSMU66D Component: Limit Switch	Temperature (°F)	192.0	Note 1	C-208	N/A	N/A	Note 2
	Pressure (PSIA)	16.25	Note 1	 C-208	N/A	N/A	Note 2
	Relative Humidity (%)	100.0	Note 1	A	N/A	N/A	Note 2
Service: Reactor Coolant Pump 1-2 Seal Injection Isolation Valve	 Chemical	N/A	N/A	 N/A 	N/A	N/A	 None
Location: Auxiliary Bldg. Rm. 208		1.97 x 10 ⁶ RADS	Note 1	T	N/A	N/A	Note 2
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Note 1	I	N/A	N/A	Note 2
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.: 301H-068A
Docket:	50-346		Rev.: 0
	. W. K. Bellande Dat	NOTES	
Checked by	: Renneth M. Mordy Dat	e 10/2/21	
	/		

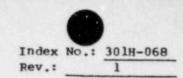
1. This component is a limit switch which is used for valve position indication only. The harsh environment seen by this component is due to a main feedline break.

This component's associated valve would not be required to mitigate a high energy line break. The operator will not monitor this valve's position indication during the accident because the valve's only safety-related function is the isolation of containment during a loss of coolant accident. For this reason, limit switch failure will not mislead the operator. Failure of the limit switch would not degrade other safety-related functions since it does not provide any control function. Based on the above discussion, interim operation is justified.

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

1-----

SYSTEM COMPONENT EVALUATION WORKSHEET



Prepared by: Sirva Capaco Date: 12-15-9; Checked by: Chang in Aprilla, Date: 12-11-92

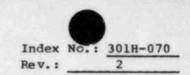
n	Date:	12-15-92	
las	Date:	12-15-92	

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	ION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification			Items
	Operating Time	l Year	l.l Years	ĸ	J-30 Note 2	Simultaneous Test	None
Plant ID No. ZSMU66D	Temperature (°F)	192,0	391.0	C-208	J-30	Simultaneous Test	None
Model Number: EA-180 Note 1	Pressure (PSIA)	16.25	133.7	C-208	J-30	Simultaneous Test	None
Accuracy: Spec: N/A	Relative Humidity (%)	100.0	100.0	A	J-30	Simultaneous Test	None
Demon: N/A Service: Reactor Coolant 		N/A	N/A	N/A 	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 208		1.97 x 10 ⁶ RADS	2.04 x 10 ⁸ RADS	т	J-30	Sequential Test, Analysis	None
Flood 'el Elev: N/A Above 1 1000 Level: N/A Needed for:	Aging	40 Years	19.13 Years Note 3	I	J-30 CAL-54	Sequential Test, Analysis	None
Fot Shutdown X Cold Shutdown	Submergence	N/A	N/A	N/A	N/A	N/A	None

50-34	Besse Unit 1 16 Line (augure Date une 10 contract Date	SYSTEM COMPO = <u>12-15-82</u> <u>18-17-82</u>	ONENT EVALUATION	WORKSHEET	Index No.: 301 Rev.: 1	H-068A
temperature o immediately f of 133.7 psia then was subju- and lasted for approximately (25 days). Th respectively. Based on this environment th the test, it c environment th. Materials and/	A days, the temperat A days, the temperat the temperature and pr The conditions retu information, it can b an that which would n an be concluded that at would result from	ch to 3 transients. m pressure of 133.7 asting for 4 hours a rn to ambient. The cansient, which reac ites. At 26 hours a ure and pressure wa essure in Room 208 p rned to ambient in 2 be concluded that the result from the post the limit switch wi the postulated HELB	The first trans. psia, ending with and 16 minutes, wi limit switch was hed a maximum tem nd 55 minutes, th s 200°F and 64.7 peak at 192°F and 20 minutes. he laboratory test culated HELB. Sin 11 remain function (Reference C-2	ient lasted for 4 h h a return to ambie ith maximum tempera maintained at ambi mperature of 320°F be conditions are 22 psia and remained s 16.25 psia in 7.1 t subjected the lim nce the limit switc onal during and aft	hours and 20 minutes, with maximu ent. The second transient ture of 391°F and maximum pressu ent for 18 hours and 19 minutes, and a maximum pressure of 89.7 p. 58°F and 89.7 psia. After stable for the duration of the te seconds and 1.55 seconds, hit switch to an overall more sev th remained functional throughout er exposure to the accident e and replarement schedules to ts.	re and Sia, St



SYSTEM COMPONENT EVALUATION WORK SHEET



Prepared by: 1. Kin's Date: 4/1/P3 Thecked by: Annow Date: 4/1/P3

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	24 Hours	Note 1	ROC-34A	N/A	N/A
Plant ID No. TERC4A2 Component: Resistance Temperature Detector	Temperature (°F)	283.0	325.0	н, х	AG	Simultaneous Test	None
Manufacturer: Rosemount	 Pressure (PSIA)	52.0	74.7	G, X	AG	Simultaneous Test	None
a ser den ser de la della ser ser la ser de la ser	 Relative Humidity (%)	100.0	100.0	A	AG	Simultaneous Test	None
	 Chemical Spray 	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	 CAL-42 	Analysis	None
Location: Containment El. 2	 Radiation	3.87 x 10 ⁷ RADS	3.8 x 10 ⁸ RADS	CAL-44	J-3	Sequential Test	None
	 Aging	40 Years	40 Years	I	CAL-89 Note 2	Analysis	None
Needed for: Hot Shutdown X Cold Shutdown X	 Submergence	572"-2"	572'-0" Note 3	B	ROC-34D	N/A	None

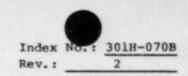
Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: <u>301H-070A</u> Rev.: 2
	NOTES	Nev.,
Prenared by: 11. Kein's Checked by: Anne Conn	Date 11/13	
Checked by: Annebra	Date 11/2/83	

- 1. One-hour operating time is used as a conservative specification for the initiation of the reactor protection system following a loss of coolant accident.
- 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



Date: 11/1/33 Prepared by: 17, Funs Checked by:

Plant I.D. No.: TERC4A2	Component: Resistance Temperature Detector	1
Manufacturer: Rosemount	Model No.: 177HW-2	1

1	THERMAL AGI	NG	RADIATIO	N
Materials List	Qualification	Reference	Qualification	Reference
Felted Micro-Quartz	Not Sensitive	CAL-89	N/A	N/A
Fiber-Glass	Not Sensitive	CAL-89	N/A	N/A
S.S., Asbestos	Not Sensitive	CAL-89	N/A	N/A
Nickel-Based Lubricant	Not Sensitive	CAL-89	N/A	N/A
Porcelain	Not Sensitive *	CAL-89	N/A	N/A
Epoxy	40 Years @ 147°F	CAL-89	N/A	N/A
Silicon Grease	Not Sensitive *	CAL-89	N/A	N/A
S.S., Glass	Not Sensitive	CAL-89	N/A	N/A
Inorganic Ceramic Cement	Not Sensitive	CAL-89	N/A	N/A
Aluminum	Not Sensitive	CAL-89	N/A	N/A
Aluminum	Not Sensitive	CAL-89	N/A	N/A
Brass	Not Sensitive	CAL-89	N/A	N/A
Brass	Not Sensitive	CAL-89	N/A	N/A
Metallic	Not Sensitive	CAL-89	N/A	1 N/A
Platinum	Not Sensitive	CAL-89	N/A	N/A
Stainless Steel	Not Sensitive	CAL-89	N/A	N/A
Stainless Steel	Not Sensitive	CAL-89	N/A	N/A
Stainless Steel	Not Sensitive	CAL-89	N/A	N/A
Nickel-Clad Copper	Not Sensitive	CAL-89	N/A	N/A
Inorganic Fiber, Mica	Not Sensitive	CAL-89	N/A	N/A
	40 Years @ 172°F	CAL-89	N/A	N/A
	Felted Micro-Quartz Fiber-Glass S.S., Asbestos Nickel-Based Lubricant Porcelain Epoxy Silicon Grease S.S., Glass Inorganic Ceramic Cement Aluminum Brass Brass Metallic Platinum Stainless Steel Stainless Steel	Materials ListQualificationFelted Micro-QuartzNot SensitiveFiber-GlassNot SensitiveS.S., AsbestosNot SensitiveNickel-Based LubricantNot SensitivePorcelainNot Sensitive *Epoxy40 Years @ 147°FSilicon GreaseNot Sensitive *S.S., GlassNot SensitiveInorganic Ceramic CementNot SensitiveAluminumNot SensitiveBrassNot SensitiveBrassNot SensitiveMetallicNot SensitivePlatinumNot SensitiveStainless SteelNot SensitiveStainless SteelNot SensitiveNickel-Clad CopperNot SensitiveInorganic Fiber, MicaNot Sensitive	Materials ListQualificationReferenceFelted Micro-QuartzNot SensitiveCAL-89Fiber-GlassNot SensitiveCAL-89S.S., AsbestosNot SensitiveCAL-89Nickel-Based LubricantNot SensitiveCAL-89PorcelainNot Sensitive *CAL-89Epoxy40 Years @ 147°FCAL-89Silicon GreaseNot Sensitive *CAL-89Inorganic Ceramic CementNot SensitiveCAL-89AluminumNot SensitiveCAL-89BrassNot SensitiveCAL-89BrassNot SensitiveCAL-89BrassNot SensitiveCAL-89BrassNot SensitiveCAL-89BrassNot SensitiveCAL-89BrassNot SensitiveCAL-89BrassNot SensitiveCAL-89Stainless SteelNot SensitiveCAL-89Stainless SteelNot SensitiveCAL-89Nickel-Clad CopperNot SensitiveCAL-89Inorganic Fiber, MicaNot SensitiveCAL-89	Materials ListQualificationReferenceQualificationFelted Micro-QuartzNot SensitiveCAL-89N/AFiber-GlassNot SensitiveCAL-89N/AS.S., AsbestosNot SensitiveCAL-89N/ANickel-Based LubricantNot SensitiveCAL-89N/APorcelainNot Sensitive *CAL-89N/AEpoxy40 Years @ 147°FCAL-89N/ASilicon GreaseNot Sensitive *CAL-89N/AInorganic Ceramic CementNot SensitiveCAL-89N/AAluminumNot SensitiveCAL-89N/AAluminumNot SensitiveCAL-89N/ABrassNot SensitiveCAL-89N/ABrassNot SensitiveCAL-89N/ABrassNot SensitiveCAL-89N/ABrassNot SensitiveCAL-89N/ABrassNot SensitiveCAL-89N/AStainless SteelNot SensitiveCAL-89N/AStainless SteelNot SensitiveCAL-89N/AStainless SteelNot SensitiveCAL-89N/AStainless SteelNot SensitiveCAL-89N/AStainless SteelNot SensitiveCAL-89N/ANickel-Clad CopperNot SensitiveCAL-89N/AInorganic Fiber, MicaNot SensitiveCAL-89N/A

Material & Parts List Reference: AA, V-34A, ROC-34E

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 301H-071 Rev.: 2

Prepared by: U. Kein Date: 1.1.183 Checked by:

EQUIPMENT DESCRIPTION	!!	ENVIRONMENT		DOCUMENT	ATION REF.		1
	Parameter	Specification	Qualification	Specification	Qualification	Qualification Method	Outstanding
System: Reactor Protection	Operating Time	l Year	24 Hours	Note 1	ROC-34A	N/A	Items None
Plant ID No. TERC4A4 Component: Resistance Temperature Detector	Temperature (°F) 	283.0	325.0	н, х I	 AG 	 Simultaneous Test	None
Manufacturer: Rosemount Model Number: 177HW-2	Pressure (PSIA)	52.0	74.7	G, X	AG	Simultaneous Test	None
Temperature	Relative Humidity (%)	100.0	100.0	А	AG	Simultaneous Test	None
Service: RCP 2-2 Discharge Cold Leg Wide Range Temp. Indication	Chemical Spray	Boric Acid 1800 ppm pH 3.0	Boric Acid 1800 ppm pH 5.0	А	CAL-42	Analysis	None
El. 2 'lood Level Elev: 572'-2"		3.87 x 10 ⁷ RADS	3.8 x 10 ⁸ RADS	CAL-44	J-3	Sequential Test	None
bove Flood Level: No eeded for:	Aging	40 Years 	40 Years	I	CAL-89	Analysis	None
Hot Shutdown X Cold Shutdown X	Submergence	572'-2"	572'-0" Note 3	В	ROC-34D	N/A	None

0

•		•
Facility: Davis-Besse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-071A
Docket: 50-346		Rev.: 2
· · ·	//NOTES	
Prepared by: M. Feuro	Date 11/1/83	
Prepared by: N. Kens Checked by: Anarchy	Date 11/1/19	

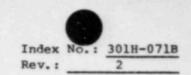
- 1. One-hour operating time is used as a conservative specification for the initiation of the reactor protection system following a loss of coolant accident.
- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Insulation

Head-O-Ring

50-346

COMPONENT MATERIALS EVALUATION SHEET



N/A

N/A

N/A

N/A

CAL-89

CAL-89

Prepared by: 1. Checked by:

Date: 1/1

Inorganic Fiber, Mica

Ethylene Propylene

Plant I.D. H	No.: TERC4A4	Component:	Resistance Ter	perature Detector	
Manuf acture	r: Rosemount	Model No.:		77HW-2	
	1	THERMAL AGIN	NG I	RADIATIO	4
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Q-Felt	Felted Micro-Quartz	Not Sensitive	CAL-89	N/A	N/A
Varglass Tubing	Fiber-Glass	Not Sensitive	CAL-89	N/A	I N/A
Flexitallic Gasket	S.S., Asbestos	Not Sensitive	CAL-89	N/A	N/A
Never Seez	Nickel-Based Lubricant	Not Sensitive	CAL-89	N/A	N/A
Terminal block	Porcelain	Not Sensitive *	CAL-89	N/A	N/A
Epoxy	Epoxy	40 Years @ 147°F	CAL-89	N/A	N/A
0-Ring Lubricant	Silicon Grease	Not Sensitive *	CAL-89	N/A	I N/A
Header	S.S., Glass	Not Sensitive	CAL-89	N/A	N/A
PBX Solvent & Cement	Inorganic Ceramic Cement	Not Sensitive	CAL-89	N/A	N/A
Housing	Aluminum	Not Sensitive	CAL-89	N/A	N/A
Connection Head	Aluminum	Not Sensitive	CAL-89	N/A	N/A
Screws	Brass	Not Sensitive	CAL-89	N/A	N/A
Washer	Brass	Not Sensitive	CAL-89	N/A	N/A
Connector Plate	Metallic	Not Sensitive	CAL-89	N/A	N/A
Sensor Assembly	Platinum	Not Sensitive	CAL-89	N/A	N/A
The nnowell	Stainless Steel	Not Sensitive	CAL-89	N/A	N/A
Mounting Nut	Stainless Steel	Not Sensitive	CAL-89	N/A	N/A
Lead Extension	Stainless Steel	Not Sensitive	CAL-89	N/A	N/A
Wire	Nickel-Clad Copper	Not Sensitive	CAL-89	N/A	N/A

Not Sensitive

40 Years @ 172°F

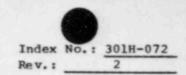
Material & Parts List Reference: AA, V-34A, ROC-34E

SYSTEM COMPONENT EVALUATION WORKSHEET

Prepared by: 11. Juns Checked by: Emined

Date: 11/1/ Date: 11/2

EQUIPMENT DESCRIPTION	11	ENVIRONMENT		DOCUMENTA	TION REF.	Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating	l Year	24 Hours	Note 1	ROC-34A	N/A	None
Plant ID No. TERC4B2 Component: Resistance Temperature Detector	Temperature (°F)	283.0	325.0	н, х	AG	Simultaneous Test	None
Manufacturer: Rosemount	Pressure (PSIA)	52.0	74.7	G, X	AG	Simultaneous Test	None
	Relative Rumidity (%)	100.0	100.0	A	AG	Simultaneous Test	None
	 Chemical Spray 	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	CAL-42	Analysis	None
Location: Containment El. 2	Radiation	3.87 x 10 ⁷ RADS	3.8 x 10 ⁸ RADS	 CAL-44	J-3	Sequential Test	None
Flood Level Elev: 572'-2" Above Flood Level: No Needed for:	Aging	40 Years	40 Years	I	CAL-89 Note 2	Analysis	None
Hot Shutdown X	Submergence	572"-2"	571'-10" Note 3	В	ROC-34D	N/A	None



•		•
Facility: Davis-Besse Unit 1 Docket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: <u>301H-072A</u> Rev.: <u>2</u>
Prepared by: 11. Junio Date Checked by: Jimanon Date	1/2/53	

- 1. One-hour operating time is used as a conservative specification for the initiation of the reactor protection system following a loss of coolant accident.
- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 301H-072B Rev.: 2

ocket: 50-346

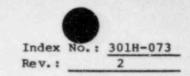
Prepared by: <u>n. femis</u> Date: <u>11</u> Checked by: <u>AnomeDuply</u> Date: <u>11</u>

Plant I.D. 1	No.: TERC4B2	Component:	Resistance Te	mperature Detector	
Manuf acture:	r: Rosemount	Model No.:	1	77HW-2	
	1	THERMAL AGI	NG I	RADIATIO	N
Parts List	Materials List	Qualification	Reference	Qualification	Reference
0-Felt	Felted Micro-Quartz	Not Sensitive	CAL-89	N/A	N/A
Varglass Tubing	Fiber-Glass	Not Sensitive	CAL-89	F/A	N/A
Flexitallic Gasket	S.S., Asbestos	Not Sensitive	CAL-89	N/A	I N/A
Never Seez	Nickel-Based Lubricant	Not Sensitive	CAL-89	N/A	N/A
Terminal Block	Porcelain	Not Sensitive *	CAL-89	N/A	N/A
Epoxy	Epoxy	40 Years @ 147°F	CAL-89	N/A	N/A
0-Ring Lubricant	Silicon Grease	Not Sensitive *	CAL-89	N/A	N/A
Header	S.S., Glass	Not Sensitive	CAL-89	N/A	I N/A
PBX Solvent & Cement	Inorganic Ceramic Cement	Not Sensitive	CAL-89	N/A	N/A
Housing	Aluminum	Not Sensitive	CAL-89	N/A	N/A
Connection Head	Aluminum	Not Sensitive	CAL-89	N/A	N/A
Screws	Brass	Not Sensitive	CAL-89	N/A	N/A
Nasher	Brass	Not Sensitive	CAL-89	N/A	N/A
Connector Plate	Metallic	Not Sensitive	CAL-89	N/A	N/A
Sensor Assembly	Platinum	Not Sensitive	CAL-89	N/A	N/A
The rmowell	Stainless Steel	Not Sensitive	CAL-89	N/A	N/A
Nounting Nut	Stainless Steel	Not Sensitive	CAL-89	N/A	1 N/A
Lead Extension	Stainless Steel	Not Sensitive	CAL-89	N/A	N/A
Vire	Nickel-Clad Copper	Not Sensitive	CAL-89	N/A	I N/A
Insulation	Inorganic Fiber, Mica	Not Sensitive	CAL-89	N/A	N/A
Head-O-Ring	Ethylene Propylene	40 Years @ 172°F	CAL-89	N/A	I N/A

Material & Parts List Reference: AA, V-34A, ROC-34E

Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET



Docket: 50-346

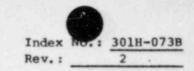
Prepared by: <u>11. Kuis</u> Date: <u>11/1/83</u> Checked by: <u>AmeroDored</u> Date: <u>11/2/83</u>

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTAT	TION REF.	Qualification	Outstanding
-	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
the second s	Operating Time	l Year	24 Hours	Note 1	ROC-34A	N/A	None
Plant ID No. TERC4B4 Component: Resistance Temperature Detector	Temperature (°F)	283.0	325.0	н, х	AG	Simultaneous Test	None
trained and a set of the set of t	Pressure (PSIA)	52.0	74.7	G, X	AG	Simultaneous Test	None
Temperature	Relative Humidity (%)	100.0	100.0	A	AG	Simultaneous Test	None
	 Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	CAL-42	Analysis	None
Location: Containment	Radiation	3.87 x 10 ⁷ RADS	3.8 x 10 ⁸ RADS	CAL-44	J-3	Sequential Test	None
Flood Level Elev: 572'-2" Above Flood Level: No Needed for:	Aging	40 Years	40 Years	I	CAL-89 Note 2	Analysis	None
Hot Shutdown X	 Submergence	572'-2"	571'-10" Note 3	В	ROC-34D	N/A	None

01H-073A
2

- 1. One-hour operating time is used as a conservative specification for the initiation of the reactor protection system following a loss of coolant accident.
- 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

COMPONENT MATERIALS EVALUATION SHEET



Prepared by: N. Juis Date: 11/1/83 Checked by: Static Cond Date: 11/1/83

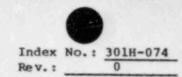
1	Plant I.D. No.: TERC4B4	Component:	Resistance Temperature Detector	
1	Manufacturer: Rocemount	Model No.:	177HW-2	

	1	THERMAL AGIN	NG	RADIATION		
Parts List	Materials List	Qualification	Reference	Qualification	Reference	
-Felt	Felted Micro-Quartz	Not Sensitive	CAL-89	N/A	N/A	
arglass Tubing	Fiber-Glass	Not Sensitive	CAL-89	N/A	N/A	
lexitallic Gasket	S.S., Asbestos	Not Sensitive	CAL-89	N/A	N/A	
lever Seez	Nickel-Based Lubricant	Not Sensitive	CAL-89	N/A	I N/A	
'erminal Block	Porcelain	Not Sensitive *	CAL-89	N/A	N/A	
poxy	Epoxy	40 Years @ 147°F	CAL-89	N/A	N/A	
-Ring Lubricant	Silicon Grease	Not Sensitive *	CAL-89	N/A	N/A	
leader	S.S., Glass	Not Sensitive	CAL-89	N/A	N/A	
BX Solvent & Cement	Inorganic Ceramic Cement	Not Sensitive	CAL-89	N/A	N/A	
lousing	Aluminum	Not Sensitive	CAL-89	N/A	N/A	
Connection Head	Aluminum	Not Sensitive	CAL-89	N/A	I N/A	
crews	Brass	Not Sensitive	CAL-89	N/A	N/A	
lasher	Brass	Not Sensitive	CAL-89	N/A	N/A	
Connector Plate	Metallic	Not Sensitive	CAL-89	N/A	N/A	
ensor Assembly	Platinum	Not Sensitive	CAL-89	N/A	N/A	
'hermowell	Stainless Steel	Not Sensitive	CAL-89	N/A	N/A	
lounting Nut	Stainless Steel	Not Sensitive	CAL-89	N/A	I N/A	
ead Extension	Stainless Steel	Not Sensitive	CAL-89	N/A	N/A	
lire	Nickel-Clad Copper	Not Sensitive	CAL-89	N/A	N/A	
Insulation	Inorganic Fiber, Mica	Not Sensitive	CAL-89	N/A	N/A	
lead-O-Ring	Ethylene Propylene	40 Years @ 172°F	CAL-89	N/A	I N/A	

Material & Parts List Reference: AA, V-34A, ROC-34E



SYSTEM COMPONENT EVALUATION WORKCHEET



Prepared by: N. fewis Date: 1/33 Checked by: Strikeband Date: 1/2/81

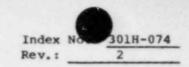
EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	and a state of the	Qualification		Items
	 Operating Time 	l Year	1.1 Years	 Note 2	J-1 Note 3	Analysis	None
Plant ID No. LTRC14-1 Component: Level Transmitter	Temperature (°F)	283.0	300.0	н, х	J-1	Simultaneous Test	None
Manufacturer:Bailey Meter	(PSIA)	52.0	74.7	G, X	J-1	Simultaneous Test	None
 Function: Transmits Level Signals 	Relative Humidity (%)	100.0	100.0	A	J-1	Simultaneous Test	None
Accuracy: Spec: <u>+</u> .5% Demon: <u>+</u> .23% Service: Reactor Coolant Pressurizer Level Indication		Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0 	 A 	 CAL-42 	Analysis	None
Location: Containment El. 3	 Radiation	1.7 x 10 ⁷ RADS	4.0 x 10 ⁷ RADS	CAL-44	 AG	Sequential Test	None
Flood Level Elev: 572'-2" Above Flood Level: Yes Needed for:	 Aging 	40 Years	10.83 Years Note 1	II	CAL-38	Analysis	None
Hot Shutdown	 Submergence 	572' - 2"	 585' - 0" 	B	J-29	N/A	None

Facility: Davis-Bosse Unit 1	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No.: 301H-074A
Docket: 50-346		Rev.: 0
· · P ·	// NOTES	
Prepared by: N. Lewo Checked by: Usianong	Date 11/1/83	
Checked by: Usica Cond	Date 11/2/83	

- 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. According to profiles G and H, containment conditions will nearly return to ambient (2.5 psig, 104°F) within 24 hours, with a complete return to ambient within seven days. Ambient conditions will remain for the duration of the accident and ensuing cooldown. The 24-hour LOCA simulation test exposed the transmitter to a more severe environment than that which would result from the postulated loss-of-coolant accident. Since the transmitter remained operable throughout the test, it can be concluded that it will also maintain functional operability during the short-term accident environment and the long-term cooldown at ambient conditions.

Docket: 50-346

Facility: Davis-Besse Unit 1 SYSTEM COMPONENT E-LUATION WORKSHEET



Prepared by: Nheine Date: W/1/83 Checked by: Amalen Date: 1/3/13

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	n Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
	Operating Time	l Year	1.1 Years	Notes 1 and 3	J-36	Simultaneous Test	None
Plant ID No. LTRC14-1 Component: Level Transmitter	Temperature (°F)	283.0	350.0	н, х	J-36	Simultaneous Test	None
	Pressure (PSIA)	52.0	85.0 	G, X	J-36	Simultaneous Test	None
 Function: Transmits Level Signals 	Relative Humidity (%)	100.0	 100.0 	A	J-36	Simultaneous Test	None
	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 8.5 to 11	т	J-36 CAL-40 Note 2	Simultaneous Test	None
Location: Containment El.	Radiation	1.7 x 10 ⁷ RADS	5.0 x 10 ⁷ RADS	CAL-44	AG	Sequential Test	None
Flood Level Elev: 572'-2" Above Flood Level: Yes		40 Years	l 10 Years Note 4	I	CAL-66 J-36	Sequential Test	None
Hot Shutdown X	Submergence	572 ' - 2"	 585' - 0" 	B	J-29	N/A	None

Vacility: Davis-Besse Unit 1 Nocket: 50-346	SYSTEM COMPONENT EVALUATION WORKSHEET	Index No. 301H-074A Rev.: 2
Checked by: Nheurs Date	te 11/1/83 te 11/1/83	

- 1. The Rosemount replaces the Bailey Meter in accordance with FCR 78-525.
- 2. CAL-40 qualifies components tested in a high pH Boric Acid spray to a pH value of 5.0.
- 3. One year operating time is used as a conservative maximum specification.
- 4. Materials and/or components sensitive to thermal aging will be replaced as per maintenance and replacement schedules to ensure that associated component will maintain functional operability in harsh environments.