

CALCULATION/PROBLEM COVER SHEET



Calculation/Problem No: 1040-001-024

Title: Generic 1E Electrical Components 2.21

Client: Toledo Edison Company Project: Davis-Besse Unit 1

Job No: 1040-001-671

I & E Bulletin 79-01B
Equipment Qualification

Design Input/References:

Design Inputs are outlined in the Cover Report.

Assumptions:

Assumptions are outlined in the Cover Report.

Method:

Methods are outlined in the Cover Report.

Remarks:

EDS Nuclear Report No. 02-1040-1076.

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

8312200291 831129
PDR ADOCK 05000346
P PDR

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

MASTER LIST
HARSH ENVIRONMENT

Index No. 21M-001
Rev.: 2

GENERIC IE ELECTRICAL COMPONENTS

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-012	2	AG1	Cable	Containment		
221H-013	2	AG2	Cable	Containment		
221H-014	2	B01	Cable	Containment		
221H-015	2	B02	Cable	Containment		
221H-016	2	B04	Cable	Containment		
221H-017	2	B06	Cable	Containment		
221H-018	2	B07	Cable	Containment		
221H-019	2	Various	Cable		Aux. Bldg.	
221H-020	2	B10	Cable	Containment		
221H-021	2	B11	Cable	Containment		
221H-022	2	BELL A	Motor Control Center		Rm. 209	
221H-023	2	BELL B	Motor Control Center		Rm. 304	
221H-024	2	BELL C	Motor Control Center		Rm. 304	
221H-025	2	BELL D	Motor Control Center		Rm. 227	
221H-026	2	BF11 A	Motor Control Center		Rm. 427	
221H-027	2	BF11 C	Motor Control Center		Rm. 236	
221H-028	2	BF11 D	Motor Control Center		Rm. 227	
221H-029	2	BG1	Cable	Containment		
221H-030	2	BG2	Cable	Containment		
221H-031	2	BG3	Cable	Containment		
221H-032	2	BG4	Cable	Containment		
221H-033	2	BG5	Cable	Containment		
221H-034	2	BG6	Cable	Containment		
221H-035	2	BYE2	Motor Control Center		Rm. 304	
221H-036	2	BYF2	Motor Control Center		Rm. 427	
221H-037	2	C01	Cable	Containment		
221H-038	2	C02	Cable	Containment		
221H-039	2	C10	Cable	Containment		
221H-040	2	C11	Cable	Containment		
221H-041	2	C12	Cable	Containment		
221H-042	2	C13	Cable	Containment		
221H-043	2	C14	Cable	Containment		

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Index No. 221M-002
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GENERIC IE ELECTRICAL COMPONENTS

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-044	2	C15	Cable	Containment		
221H-045	2	C20	Cable	Containment		
221H-046	2	C21	Cable	Containment		
221H-047	2	C22	Cable	Containment		
221H-048	2	C23	Cable	Containment		
221H-049	2	C24	Cable	Containment		
221H-050	2	C25	Cable	Containment		
221H-051	2	Various	Disconnect Switch		Aux. Bldg.	
221H-052	2	CDE11A	Disconnect Switch Cabinet		Rm. 304	
221H-053	2	Various	Terminal Lugs		Aux. Bldg.	
221H-054	2	Various	Fuses		Aux. Bldg.	
221H-055	2	CDE11B-1	Disconnect Switch Cabinet		Rm. 304	
221H-056	2	CDE11B-2	Disconnect Switch Cabinet		Rm. 304	
221H-057	2	CDE11C	Disconnect Switch Cabinet		Rm. 304	
221H-058	2	CDE11D	Disconnect Switch Cabinet		Rm. 227	
221H-059	2	CDF11A-1	Disconnect Switch Cabinet		Rm. 427	
221H-060	2	CDF11A-2	Disconnect Switch Cabinet		Rm. 427	
221H-061	2	CDF11C	Disconnect Switch Cabinet		Rm. 236	
221H-062	2	CDF11D	Disconnect Switch Cabinet		Rm. 227	
221H-063	2	CDYE2	Disconnect Switch Cabinet		Rm. 304	
221H-064	2	CDYF2	Disconnect Switch Cabinet		Rm. 427	
221H-065	2	CS1	Cable	Containment		
221H-066	2	CS2	Cable	Containment		
221H-067	2	CS3	Cable	Containment		
221H-068	2	CS5	Cable	Containment		
221H-069	2	CS6	Cable	Containment		
221H-070	2	EC5017	Terminal Block Box		Rm. 515	
221H-071	2	EC5018	Terminal Block Box		Rm. 515	
221H-072	2	EC5056	Terminal Block Box		Rm. 515	
221H-073	2	EC5057	Terminal Block Box		Rm. 515	
221H-074	2	EV01060	Terminal Block Box		Rm. 501	
221H-075	0	EV0106A	Terminal Block Box		Rm. 501	

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MASTER LIST
HARSH ENVIRONMENT

Index No: 21M-003
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GENERIC IE ELECTRICAL COMPONENTS

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-076	2	EV01070	Terminal Block Box		Rm. 501	
221H-077	2	EV0107A	Terminal Block Box		Rm. 501	
221H-078	2	EV0240B	Terminal Block Box		Rm. 314	
221H-079	2	EV05990	Terminal Block Box		Rm. 314	
221H-080	2	EV06010	Terminal Block Box		Rm. 314	
221H-081	2	EV06080	Terminal Block Box		Rm. 303	
221H-082	2	EV06120	Terminal Block Box		Rm. 303	
221H-083	2	EV0624B	Terminal Block Box		Rm. 427	
221H-084	2	EV08300	Terminal Block Box		Rm. 113	
221H-085	2	EV08310	Terminal Block Box		Rm. 113	
221H-086	2	EV1001	Terminal Block Box		Rm. 602	
221H-087	2	EV100A	Terminal Block Box		Rm. 602	
221H-088	2	EV1011	Terminal Block Box		Rm. 601	
221H-089	2	EV101B	Terminal Block Box		Rm. 601	
221H-090	2	EV13280	Terminal Block Box		Rm. 314	
221H-091	2	EV13380	Terminal Block Box		Rm. 314	
221H-092	2	EV13660	Terminal Block Box		Rm. 314	
221H-093	2	EV13670	Terminal Block Box		Rm. 314	
221H-094	2	EV13830	Terminal Block Box		Rm. 236	
221H-095	2	EV1407B	Terminal Block Box		Rm. 314	
221H-096	2	EV1411B	Terminal Block Box		Rm. 314	
221H-097	2	EV1467	Terminal Block Box		Rm. 113	
221H-098	2	EV1469	Terminal Block Box		Rm. 113	
221H-099	2	EV15170	Terminal Block Box		Rm. 236	
221H-100	2	EV15180	Terminal Block Box		Rm. 236	
221H-101	2	EV15300	Terminal Block Box		Rm. 303	
221H-102	2	EV15310	Terminal Block Box		Rm. 314	
221H-103	2	EV1544	Terminal Block Box		Rm. 303	
221H-104	2	EV1545	Terminal Block Box		Rm. 314	
221H-105	2	EV1567B	Terminal Block Box		Rm. 314	
221H-106	2	EV1719B	Terminal Block Box		Rm. 236	
221H-107	2	EV20000	Terminal Block Box		Rm. 303	

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HARSH ENVIRONMENT

Index No. 41M-004
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GENERIC IE ELECTRICAL COMPONENTS

Prepared by:

M. Lewis

Date:

11/1/83

Checked by:

[Signature]

Date:

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Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-108	2	EV20010	Terminal Block Box		Rm. 427	
221H-109	2	EV20030	Terminal Block Box		Rm. 314	
221H-110	2	EV2010	Terminal Block Box		Rm. 314	
221H-111	2	EV2012B	Terminal Block Box		Rm. 236	
221H-112	2	EV27330	Terminal Block Box		Rm. 105	
221H-113	2	EV27340	Terminal Block Box		Rm. 113	
221H-114	2	EV27360	Terminal Block Box		Rm. 314	
221H-115	2	EV5005	Terminal Block Box		Rm. 601	
221H-116	2	EV5008	Terminal Block Box		Rm. 427	
221H-117	2	EV501CB	Terminal Block Box		Rm. 314	
221H-118	2	EV5010D	Terminal Block Box		Rm. 314	
221H-119	2	EV50240	Terminal Block Box		Rm. 515	
221H-120	2	EV50250	Terminal Block Box		Rm. 515	
221H-121	2	EV50370	Terminal Block Box		Rm. 236	
221H-122	2	EV50380	Terminal Block Box		Rm. 236	
221H-123	2	EV50650	Terminal Block Box		Rm. 208	
221H-124	2	EV50670	Terminal Block Box		Rm. 314	
221H-125	2	EV50700	Terminal Block Box		Rm. 500	
221H-126	2	EV50730	Terminal Block Box		Rm. 500	
221H-127	2	EV50750	Terminal Block Box		Rm. 501	
221H-128	2	EV50780	Terminal Block Box		Rm. 501	
221H-129	2	EV50900	Terminal Block Box		Rm. 314	
221H-130	2	EV54210	Terminal Block Box		Rm. 105	
221H-131	2	EV54220	Terminal Block Box		Rm. 105	
221H-132	2	EV54230	Terminal Block Box		Rm. 113	
221H-133	2	EV54240	Terminal Block Box		Rm. 115	
221H-134	2	EV54250	Terminal Block Box		Rm. 115	
221H-135	2	EV54390	Terminal Block Box		Rm. 105	
221H-136	2	EV54400	Terminal Block Box		Rm. 105	
221H-137	2	EV54420	Terminal Block Box		Rm. 115	
221H-138	2	EV607	Terminal Block Box		Rm. 314	
221H-139	2	EVDH01A	Terminal Block Box		Rm. 236	

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GENERIC IE ELECTRICAL COMPONENTS

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Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-140	2	EVDH01B	Terminal Block Box		Rm. 208	
221H-141	2	EVDH63	Terminal Block Box		Rm. 115	
221H-142	2	EVDH64	Terminal Block Box		Rm. 105	
221H-143	2	EVHP02A	Terminal Block Box		Rm. 236	
221H-144	2	EVHP02B	Terminal Block Box		Rm. 236	
221H-145	2	EVHP02C	Terminal Block Box		Rm. 208	
221H-146	2	EVHP02D	Terminal Block Box		Rm. 208	
221H-147	2	EVMU03	Terminal Block Box		Rm. 208	
221H-148	2	EVMU33	Terminal Block Box		Rm. 236	
221H-149	2	EVMU38	Terminal Block Box		Rm. 208	
221H-150	2	EVMU66	Terminal Block Box		Rm. 208	
221H-151	2	JT1715	Terminal Block Box		Rm. 115	
221H-152	2	JT2917	Terminal Block Box	Rm. 215		
221H-153	2	JT3606	Terminal Block Box		Rm. 314	
221H-154	2	JT3704	Terminal Block Box		Rm. 304	
221H-155	2	JT3712	Terminal Block Box		Rm. 314	
221H-156	2	JT3802	Terminal Block Box		Rm. 303	
221H-157	2	JT3803	Terminal Block Box		Rm. 304	
221H-158	2	JT3953	Terminal Block Box	Rm. 410		
221H-159	2	JT3954	Terminal Block Box	Rm. 410		
221H-160	2	JT5705	Terminal Block Box		Rm. 501	
221H-161	2	JT5706	Terminal Block Box		Rm. 501	
221H-162	2	JT5805	Terminal Block Box		Rm. 500	
221H-163	2	JT5806	Terminal Block Box		Rm. 500	
221H-164	2	JT6703	Terminal Block Box		Rm. 602	
221H-165	2	JT6704	Terminal Block Box		Rm. 602	
221H-166	2	JT6707	Terminal Block Box		Rm. 602	
221H-167	2	JT6801	Terminal Block Box		Rm. 601	
221H-168	2	JT6802	Terminal Block Box		Rm. 601	
221H-169	2	JT6807	Terminal Block Box		Rm. 601	
221H-170	2	Various	Fuse Block			
221H-171	2	L1P	Cable	Containment		

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GENERIC IE ELECTRICAL COMPONENTS

Index No: 11M-006
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Prepared by: JJ. Lewis Date: 11/1/83
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Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-172	2	L1Q	Cable	Containment		
221H-173	2	L1T	Cable	Containment		
221H-174	2	L4P	Cable	Containment		
221H-175	2	LXP	Cable	Containment		
221H-176	2	N/A	Splice Kit	Containment		
221H-177	2	NC0311	Push Button Switch		Rm. 115	
221H-178	2	NC0312	Push Button Switch		Rm. 115	
221H-179	2	NC0313	Push Button Switch		Rm. 113	
221H-180	2	NC0314	Push Button Switch		Rm. 105	
221H-181	2	NC0315	Push Button Switch		Rm. 105	
221H-182	2	NC0621	Push Button Switch		Rm. 314	
221H-183	2	NC0622	Push Button Switch		Rm. 208	
221H-184	2	NC5017	Push Button Switch		Rm. 515	
221H-185	2	NC5018	Push Button Switch		Rm. 515	
221H-186	2	NC5056	Push Button Switch		Rm. 515	
221H-187	2	NC5057	Push Button Switch		Rm. 515	
221H-188	2	Various	Timing Relay			
221H-189	2	Various	Relay			
221H-190	2	NP0421	Push Button Switch		Rm. 105	
221H-191	2	NP0422	Push Button Switch		Rm. 115	
221H-192	2	NSV100	Push Button Switch		Rm. 602	
221H-193	2	NSV100E	Push Button Switch		Rm. 602	
221H-194	2	NSV101	Push Button Switch		Rm. 601	
221H-195	2	NSV101E	Push Button Switch		Rm. 601	
221H-196	2	NV0624B	Push Button Switch		Rm. 427	
221H-197	2	NV08300	Push Button Switch		Rm. 113	
221H-198	2	NV08310	Push Button Switch		Rm. 113	
221H-199	2	NV1001	Push Button Switch		Rm. 602	
221H-200	2	NV1011	Push Button Switch		Rm. 601	
221H-201	2	NV1156	Push Button Switch		Rm. 314	
221H-202	2	NV1357	Push Button Switch		Rm. 314	
221H-203	2	NV1358	Push Button Switch		Rm. 314	

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HARSH ENVIRONMENT

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GENERIC IE ELECTRICAL COMPONENTS

Prepared by:

N. Lewis

Date:

11/1/83

Checked by:

W. McDonald

Date:

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Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-204	2	NV13660	Push Button Switch		Rm. 314	
221H-205	2	NV13670	Push Button Switch		Rm. 314	
221H-206	2	NV13680A	Push Button Switch		Rm. 314	
221H-207	2	NV13680B	Push Button Switch		Rm. 314	
221H-208	2	NV13830	Push Button Switch		Rm. 236	
221H-209	2	NV1467	Push Button Switch		Rm. 113	
221H-210	2	NV1469	Push Button Switch		Rm. 113	
221H-211	2	NV15170	Push Button Switch		Rm. 236	
221H-212	2	NV15180	Push Button Switch		Rm. 236	
221H-213	2	NV1542	Push Button Switch		Rm. 314	
221H-214	2	NV1544	Push Button Switch		Rm. 303	
221H-215	2	NV1545	Push Button Switch		Rm. 314	
221H-216	2	NV1719B	Push Button Switch		Rm. 236	
221H-217	2	NV20000	Push Button Switch		Rm. 303	
221H-218	2	NV20010	Push Button Switch		Rm. 427	
221H-219	2	NV20030	Push Button Switch		Rm. 314	
221H-220	2	NV2010	Push Button Switch		Rm. 314	
221H-221	2	NV2011	Push Button Switch		Rm. 314	
221H-222	2	NV232	Push Button Switch		Rm. 236	
221H-223	2	NV235A	Push Button Switch		Rm. 314	
221H-224	2	NV236	Push Button Switch		Rm. 236	
221H-225	2	NV27360	Push Button Switch		Rm. 314	
221H-226	2	NV375	Push Button Switch		Rm. 602	
221H-227	2	NV394	Push Button Switch		Rm. 601	
221H-228	2	NV5008	Push Button Switch		Rm. 427	
221H-229	2	NV5010B	Push Button Switch		Rm. 314	
221H-230	2	NV5010D	Push Button Switch		Rm. 314	
221H-231	2	NV5010E	Push Button Switch		Rm. 314	
221H-232	2	NV5011A	Push Button Switch		Rm. 303	
221H-233	2	NV5011E	Push Button Switch		Rm. 314	
221H-234	2	Deleted				
221H-235	2	Deleted				

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HARSH ENVIRONMENT

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GENERIC IE ELECTRICAL COMPONENTS

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Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-236	2	NV50370	Push Button Switch		Rm. 236	
221H-237	2	NV50380	Push Button Switch		Rm. 236	
221H-238	2	NV50650	Push Button Switch		Rm. 208	
221H-239	2	NV50670	Push Button Switch		Rm. 314	
221H-240	2	NV50900	Push Button Switch		Rm. 314	
221H-241	2	NV54210	Push Button Switch		Rm. 105	
221H-242	2	NV54220	Push Button Switch		Rm. 105	
221H-243	2	NV54230	Push Button Switch		Rm. 113	
221H-244	2	NV54240	Push Button Switch		Rm. 115	
221H-245	2	NV54250	Push Button Switch		Rm. 115	
221H-246	2	NV5715	Push Button Switch		Rm. 105	
221H-247	2	NV598	Push Button Switch		Rm. 314	
221H-248	2	NV607	Push Button Switch		Rm. 314	
221H-249	2	NV6831B	Push Button Switch		Rm. 208	
221H-250	2	NVDH01A	Push Button Switch		Rm. 236	
221H-251	2	NVDH01B	Push Button Switch		Rm. 208	
221H-252	2	NVDH13A	Push Button Switch		Rm. 113	
221H-253	2	NVDH13B	Push Button Switch		Rm. 113	
221H-254	2	NVDH14A	Push Button Switch		Rm. 113	
221H-255	2	NVDH14B	Push Button Switch		Rm. 113	
221H-256	2	NVDH63	Push Button Switch		Rm. 115	
221H-257	2	NVDH64	Push Button Switch		Rm. 105	
221H-258	2	NVICS11A	Push Button Switch		Rm. 602	
221H-259	2	NVICS11B	Push Button Switch		Rm. 601	
221H-260	2	NVMU03	Push Button Switch		Rm. 208	
221H-261	2	NVMU33	Push Button Switch		Rm. 236	
221H-262	2	NVMU38	Push Button Switch		Rm. 208	
221H-263	2	NVMU66A	Push Button Switch		Rm. 208	
221H-264	2	NVMU66B	Push Button Switch		Rm. 208	
221H-265	2	NVMU66C	Push Button Switch		Rm. 208	
221H-266	2	NVMU66D	Push Button Switch		Rm. 208	

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HARSH ENVIRONMENT

Index No: DM-009
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GENERIC LE ELECTRICAL COMPONENTS

Prepared by:
Checked by:

N. Lewis
MacDonald

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-267	2	P2C5G	Penetration Assembly	Containment	Annulus	
221H-268	2	Deleted				
221H-269	2	Deleted				
221H-270	2	Deleted				
221H-271	2	Deleted				
221H-272	2	PlC2L	Penetration Assembly	Containment	Annulus	
221H-273	2	Deleted				
221H-274	2	PlP3B	Penetration Assembly	Containment	Annulus	
221H-275	2	P3P4C	Penetration Assembly	Containment	Annulus	
221H-276	2	P2P5F	Penetration Assembly	Containment	Annulus	
221H-277	2	Deleted				
221H-278	2	PlP2M	Penetration Assembly	Containment	Annulus	
221H-279	2	PlL1L	Penetration Assembly	Containment	Annulus	
221H-280	2	P2L4G	Penetration Assembly	Containment	Annulus	
221H-281	2	P3L4S	Penetration Assembly	Containment	Annulus	
221H-282	2	P4L1G	Penetration Assembly	Containment	Annulus	
221H-283	2	Deleted				
221H-284	2	Deleted				
221H-285	2	P2C5GI	Penetration Box (Connector)	Containment		
221H-286	2	Deleted				
221H-287	2	Deleted				
221H-288	2	Deleted				
221H-289	2	Deleted				
221H-290	2	PlC2LI	Penetration Box (Connector)	Containment		
221H-291	2	Deleted				
221H-292	2	PlP3BI	Penetration Box (Connector)	Containment		
221H-293	2	P3P4CI	Penetration Box (Connector)	Containment		
221H-294	2	P2P5FI	Penetration Box (Connector)	Containment		
221H-295	2	Deleted				
221H-296	2	PlP2MI	Penetration Box (Connector)	Containment		
221H-297	2	PlL1LI	Penetration Box (Connector)	Containment		

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GENERIC IE ELECTRICAL COMPONENTS

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N. Lewis

Date:

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Checked by:

James D. [unclear]

Date:

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Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-298	2	P2L4GI	Penetration Box (Connector)	Containment		
221H-299	2	P3L4SI	Penetration Box (Connector)	Containment		
221H-300	2	P4L1GI	Penetration Box (Connector)	Containment		
221H-301	2	Deleted				
221H-302	2	Deleted				
221H-303	2	P2C5GX	Penetration Box (Terminal Block)		Rm. 427	
221H-304	2	Deleted				
221H-305	2	Deleted				
221H-306	2	Deleted				
221H-307	2	Deleted				
221H-308	2	PLC2LX	Penetration Box (Terminal Block)		Rm. 303	
221H-309	2	Deleted				
221H-310	2	PLP3BX	Penetration Box (Terminal Block)		Rm. 303	
221H-311	2	P3P4CX	Penetration Box (Terminal Block)		Rm. 427	
221H-312	2	P2P5FX	Penetration Box (Terminal Block)		Rm. 427	
221H-313	2	Deleted				
221H-314	2	PLP2MX	Penetration Box (Terminal Block)		Rm. 303	
221H-315	2	PLL1LX	Penetration Box (Terminal Block)		Rm. 303	
221H-316	2	P2L4GX	Penetration Box (Terminal Block)		Rm. 427	
221H-317	2	P4L1GX	Penetration Box (Terminal Block)		Rm. 314	
221H-318	2	Deleted				
221H-319	2	Deleted				
221H-320	2	RC2701	Relay Cabinet		Rm. 227	
221H-321	2	RC2825	Relay Cabinet		Rm. 208	
221H-322	2	RC2826	Relay Cabinet		Rm. 209	

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

MASTER LIST
HARSH ENVIRONMENT

Index No: 41M-011
Rev.: 2

GENERIC 1E ELECTRICAL COMPONENTS

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

Worksheet Index No.	Rev.	Plant ID Number	Generic Name	LOCATION		REMARKS
				Inside Primary Containment	Outside Primary Containment	
221H-323	2	RC3701	Relay Cabinet		Rm. 314	
221H-324	2	RC3702	Relay Cabinet		Rm. 314	
221H-325	2	RC3703	Relay Cabinet		Rm. 314	
221H-326	2	RC3704	Relay Cabinet		Rm. 314	
221H-327	2	RC3705	Relay Cabinet		Rm. 314	
221H-328	2	RC3706	Relay Cabinet		Rm. 304	
221H-329	2	RC3801	Relay Cabinet		Rm. 303	
221H-330	2	RC4601	Relay Cabinet		Rm. 427	
221H-331	2	RC4602	Relay Cabinet		Rm. 427	
221H-332	2	PLC5S	Penetration Assembly	Containment	Annulus	
221H-333	2	P2C5C	Penetration Assembly	Containment	Annulus	
221H-334	2	Deleted				
221H-335	2	PLC5SI	Penetration Box	Containment		
221H-336	2	Deleted				
221H-337	2	P2C5CI	Penetration Box	Containment		
221H-338	2	P2C5CX	Penetration Box		Rm. 427	
221H-339	2	LLP	Cabling	Containment		
221H-340	2	LLQ	Cabling	Containment		
221H-341	2	JT3955	Terminal Block Box	Containment		
221H-342	2	BE16A	Motor Control Center		Rm. 515	
221H-343	2	BF16B	Motor Control Center		Rm. 500	
221H-344	2	EV06030	Terminal Block Box		Rm. 236	
221H-345	2	EV0603A	Terminal Block Box		Rm. 236	
221H-346	2	EV06110	Terminal Block Box		Rm. 208	
221H-347	2	EV0611A	Terminal Block Box		Rm. 208	
221H-348	2	NV06030	Push Button Switch		Rm. 236	
221H-349	2	NV0603A	Push Button Switch		Rm. 236	
221H-350	2	NV06110	Push Button Switch		Rm. 208	
221H-351	2	NV0611A	Push Button Switch		Rm. 208	
221H-352	2	N/A	Lubricants for 1E Equipment	Containment	Aux. Bldg.	
221H-353	2	Various	Electric Conductor Seal Assembly	Containment	Annulus	
221H-354	2	Various	Electrical Penetration Assembly	Containment	Annulus	

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-012
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	F	E-1 Note 1 ROC-30B	Simultaneous Test	None
Plant ID No. AG1	Temperature (°F)	283.0	346.0	H, X	E-1 ROC-30B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	127.7	G, X	E-1 ROC-30B	Simultaneous Test	None
Manufacturer: Okonite	Relative Humidity (%)	100.0	100.0	A	E-1 ROC-30B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-1 ROC-30B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	2.0×10^8 RADS	CAL-44	E-1 ROC-30B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-90 E-1 ROC-30B	Sequential Test	None
Service: Electrical Control	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-012A
Rev.: 2

NOTES

Prepared by: N. Harris Date: 11/1/83
Checked by: J. Madson Date: 11/4/83

1. The test subjected the cabling to an initial transient of 346°F and 127.7 psia for 3 hours, followed by a cooldown to 140°F in 2 hours. The cabling was then subjected to a second transient of 346°F and 127.7 psia for 3 hours, followed by a cooldown to 335°F and 109.7 psia, which was maintained for 3 hours; then a cooldown to 315°F and 83.7 psia, which was maintained for 4 hours; then a cooldown to 265°F and 42.7 psia, which was maintained for 81 hours. The cabling was then subjected to a 212°F steam environment for 100 days. The temperature in containment peaks at 280°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 3 hours, the conditions are 204°F and 29.46 psia. At 5 hours, the conditions are 193.2°F and 27.08 psia. At 8 hours, the conditions are 24.5 psia and 184°F. At 11 hours, the conditions are 22.2 psia and 175°F. At 15 hours, the conditions are 19.94 psia and 161.4°F. At 96 hours, the conditions are 15.47 psia and 121.6°F. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Okonite Company 3-1/Conductor 500 mcm stranded copper wire triplexed with single bare 1/0 ground cable with 115 mils ethylene propylene rubber insulation and 80 mils neoprene jacket. (Reference E-11)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-013
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-1 Note 1 ROC-30B	Simultaneous Test	None
Plant ID No. AG2	Temperature (°F)	283.0	346.0	H, X	E-1 ROC-30B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	127.7	G, X	E-1 ROC-30B	Simultaneous Test	None
Manufacturer: Okonite	Relative Humidity (%)	100.0	100.0	A	E-1 ROC-30B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-1 ROC-30B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	2.0×10^8 RADS	CAL-44	E-1 ROC-30B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-90 E-1 ROC-30B	Sequential Test	None
Service: Electrical Control	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO.: 221H-013A
Rev.: 2

NOTES

Prepared by:

Date

Checked by:

Date

1. The test subjected the cabling to an initial transient of 346°F and 127.7 psia for 3 hours, followed by a cooldown to 140°F in 2 hours. The cabling was then subjected to a second transient of 346°F and 127.7 psia for 3 hours, followed by a cooldown to 335°F and 109.7 psia, which was maintained for 3 hours; then a cooldown to 315°F and 83.7 psia, which was maintained for 4 hours; then a cooldown to 265°F and 42.7 psia, which was maintained for 81 hours. The cabling was then subjected to a 212°F steam environment for 100 days. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 3 hours, the conditions are 204°F and 29.46 psia. At 5 hours, the conditions are 193.2°F and 27.08 psia. At 8 hours, the conditions are 24.5 psia and 184°F. At 11 hours, the conditions are 22.2 psia and 175°F. At 15 hours, the conditions are 19.94 psia and 161.4°F. At 96 hours, the conditions are 15.47 psia and 121.6°F. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Okonite Company 3-1/Conductor No. 2/0 stranded copper wire triplexed with single bare No. 4 ground cable with 115 mils ethylene propylene rubber insulation and 80 mils neoprene jacket. (Reference E-11)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-014
Rev.: 2

Prepared by: N. Lewis Date: 11/1/83
Checked by: A. J. [Signature] Date: 11/24/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. B01	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

Facility: Davis Besse Unit 1
Ticket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-014A
Rev.: 2

NOTES

Prepared by: J. Lewis Date 9/29/83
Checked by: J. McDonald Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 1 conductor 500 MCM with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-015
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years Note 1	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. BO2	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-015A
Rev.: 2

NOTES

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

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 1 conductor No. 4/0 AWG with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-016

Rev.: 2

Prepared by: N. Lewis
Checked by: Stan Dault

Date: 11/1/92
Date: 11/4/92

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. B04	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0 Note 2	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

Facility: Davis Besse Unit 1
Ticket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. DH-016A

Rev.: 2

NOTES

Prepared by: J. Lewis Date 9/30/83
Checked by: J. Macdonald Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 3 conductor No. 6 AWG with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-017
Rev.: 2

Prepared by: N. Lewis Date: 11/1/92
Checked by: Handwritten Date: 11/2/93

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. B06	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-017A
Rev.: 2

Prepared by: F. Lewis Date 9/29/83
Checked by: J. McDonald Date 9/30/83

NOTES

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 4 conductor No. 12 AWG with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-018
Rev.: 2

Prepared by: N. Lewis Date: 11/1/87
Checked by: Samuel Date: 11/2/87

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. B07	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-018A
Rev.: 2

NOTES

Prepared by: F. Lewis Date 9/30/83
Checked by: G. McDonald Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 3 conductor No. 12 AWG with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No: 221H-019
Rev.: 2

Prepared by: [Signature] Date: 4/1/83
Checked by: [Signature] Date: 4/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 1	Note 2	Type Test	None
Plant ID No. Various	Temperature (°F)	221.0	340.0	C-314	E-19	Type Test	None
Component: Cable	Pressure (PSIA)	19.76	77.7	C-314	E-19	Type Test	None
Manufacturer: General Electric	Relative Humidity (%)	100.0	100.0	C-314	E-19	Type Test	None
Model Number: SI-57275	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Switchboard Wire	Radiation	1.97×10^6 RADS	2.1×10^8 RADS	T	E-23	Type Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	E-23 Note 3	Type Test	None
Service: Various	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg.	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: N/A							
Needed for:							

Facility: D - Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

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Rev.: 2

NOTES

Prepared by: J Lewis Date 9/30/83
Checked by: J. H. Dond Date 11/2/83

1. One-year operating time is used as a conservative maximum specification.
2. The 36-hour test profile completely envelopes postulated accident conditions. Because the HELB environment returns to normal ambient within 20 minutes, this cable will be exposed to only normal ambient temperature conditions after that time and is therefore expected to remain operational for the required time of 1.1 years.
3. The thermal life of 40 years at 90°C (194°F) and radiation testing to 2.1×10^8 rads are for Rockbestos Firewall III cable. This cable is considered similar to GE SI-57275 since both utilized a cross-linked polyethylene insulation system. Any differences in the exact compounding of the insulation utilized are expected to be accounted for by the vast amount of margin which exists in both the test thermal life temperature (87% margin) and radiation (2 orders of magnitude) over actual plant conditions.

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Index No. 21H-020

Rev.: 2

Prepared by: N. Lewis
Checked by: Steve Dault

Date: 11/1/83
Date: 11/4/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-1 Note 1 ROC-30B	Simultaneous Test	None
Plant ID No. B10	Temperature (°F)	283.0	346.0	H, X	E-1 ROC-30B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	127.7	G, X	E-1 ROC-30B	Simultaneous Test	None
Manufacturer: Okonite	Relative Humidity (%)	100.0	100.0	A	E-1 ROC-30B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-1 ROC-30B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	2.0×10^8 RADS	CAL-44	E-1 ROC-30B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-90 E-1 ROC-30B	Sequential Test	None
Service: Electrical Control	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

Facility: Davis-Besse Unit 1
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NOTES

Prepared by: D. L. Linn Date 11/1/83
Checked by: M. McDonald Date 11/2/83

1. The test subjected the cabling to an initial transient of 346°F and 127.7 psia for 3 hours, followed by a cooldown to 140°F in 2 hours. The cabling was then subjected to a second transient of 346°F and 127.7 psia for 3 hours, followed by a cooldown to 335°F and 109.7 psia, which was maintained for 3 hours; then a cooldown to 315°F and 83.7 psia, which was maintained for 4 hours; then a cooldown to 265°F and 42.7 psia, which was maintained for 81 hours. The cabling was then subjected to a 212°F steam environment for 100 days. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 3 hours, the conditions are 204°F and 29.46 psia. At 5 hours, the conditions are 193.2°F and 27.08 psia. At 8 hours, the conditions are 24.5 psia and 184°F. At 11 hours, the conditions are 22.2 psia and 175°F. At 15 hours, the conditions are 19.94 psia and 161.4°F. At 96 hours, the conditions are 15.47 psia and 121.6°F. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Okonite Company 1 Conductor No. 2 AWG stranded copper wire with 60 mils ethylene propylene rubber insulation and 30 mils neoprene jacket (Reference E-11)

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-021
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Prepared by: N. Harris Date: 11/1/83
Checked by: S. Schickel Date: 11/1/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. B11	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable							
Manufacturer: Kerite	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4							
Function: Power	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Power Cable	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Location: Containment							
Flood Level Elev: 572'-2"	Radiation	3.87 x 10 ⁷ RADS	1.0 x 10 ⁸ RADS	CAL-44	E-3 V-23B	Sequential Test	None
Above Flood Level: No	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Needed for:	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Dabbs-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

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NOTES

Prepared by: J. Lewis Date 9/30/83
Checked by: Edmundson Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 1 conductor No. 6 AWG with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

Facility: Davis-Besse Unit 1
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Index No. 221H-022

Rev.: 2

Prepared by: E. Lewis
Checked by: S. A. Card

Date: 9/30/83
Date: 10/1/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	Note 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BELLA	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Component: Motor Control Center	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: Westinghouse	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: Type W	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Circuit Breaker	Radiation	1.62 x 10 ⁶ RADS	Note 3, 4	T	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Service: Power Supply/Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 209							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1
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Index No.: 221H-022A

Rev.: 2

NOTES

Prepared by: Sonia Yonis Date 3/7/83
Checked by: [Signature] Date 3/7/83

- . This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
- . The only harsh environment seen is increased radiation due to recirculated fluids.
- 1. This motor control center (MCC) is exposed to high radiation levels resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are ABS in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W-1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
- 1. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. These 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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Index No. 21H-023
 Rev.: 2

Prepared by: 3 Lewis Date: 9/30/87
 Checked by: [Signature] Date: 2-2-88

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	Note 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BELLB	Temperature (°F)	208.0	Exempt	C-304	Note 2, 4	N/A	None
Component: Motor Control Center	Pressure (PSIA)	15.83	Exempt	C-304	Note 2, 4	N/A	None
Manufacturer: Westinghouse	Relative Humidity (%)	100.0	Exempt	A	Note 2, 4	N/A	None
Model Number: Type W	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Circuit Breaker	Radiation	6.53 x 10 ⁴ RADS	Note 3, 4	T	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Service: Power Supply/Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 304							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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Index No.: 221H-023A
Rev.: 2

NOTES

Prepared by: Janis Yeans Date 3/7/83
Checked by: W. H. H. H. H. Date 3/7/83

- .. This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
- . This component is a motor control center (MCC) that houses the circuit breakers for certain safety-related equipment. This MCC 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 MCC in the harsh steam environment will not degrade other safety-related functions or mislead the operator because the equipment it feeds is only needed to mitigate a LOCA.
1. This motor control center (MCC) is exposed to high radiation levels resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are AES in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W-1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
1. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. These 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-024
Rev.: 2

Prepared by: J Lewis Date: 9/30/83
Checked by: John Hall Date: 9/30/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	Note 2, 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BELL	Temperature (°F)	208.0	Note 2, 4	C-304	N/A	N/A	Note 1
Component: Motor Control Center	Pressure (PSIA)	15.83	Note 2, 4	C-304	N/A	N/A	Note 1
Manufacturer: Westinghouse	Relative Humidity (%)	100.0	Note 2, 4	A	N/A	N/A	Note 1
Model Number: Type W	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Circuit Breaker	Radiation	6.53×10^4 RADS	Note 3, 4	T	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Service: Power Supply/Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 304							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

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Index No.: 221H-024A
Rev.: 2

NOTES

Prepared by: Sonia Upor Date: 3/2/83
Checked by: [Signature] Date: 3/7/83

- .. This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
- . The effects of a high energy line break will cause a harsh steam environment in Room 304 where the temperatures and pressures will rise to the values indicated. The pressure will not cause any adverse effect on the MCC due to the internal compartments' ability to "breathe" from the outside through gaps between the doors and the frame. The peak pressure is barely above atmospheric with a return to ambient within 10 seconds following the accident. The elevated temperature is not high enough to cause a breakdown of any of the materials in the MCC. Temperature will return to ambient within 8 minutes following the accident. The effect of 100% relative humidity may be the condensation of droplets of water on all the surfaces of the components of the MCC. According to the Davis-Besse 480 V Unit Substation Specification 7749-E-7, the type W MCCs are built for high humidity conditions. Considering the short-term saturated steam conditions (10 seconds), the 100% relative humidity should not cause any malfunctions of the devices in the MCC.
 1. This motor control center (MCC) is exposed to high radiation levels resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are ABS in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
 1. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. There 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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Index No. 21H-025
 Rev.: 2

Prepared by: J Lewis Date: 9/30/83
 Checked by: David Smith Date: 10/1/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	Note 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BELLD	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Component: Motor Control Center							
Manufacturer: Westinghouse	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: Type W							
Function: Circuit Breaker	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A							
Service: Power Supply/Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 227							
Flood Level Elev: N/A Above Flood Level: N/A	Radiation	1.62 x 10 ⁶ RADS	Note 3, 4	T	N/A	N/A	Note 1
Needed for:	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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Index No.: 221H-025A
Rev.: 2

NOTES

Prepared by: Sevin Ybarrido Date 3/2/83
Checked by: William H. H. H. Date 3/2/83

-
- .. This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
- .. The only harsh environment seen is increased radiation due to recirculated fluids.
1. This motor control center (MCC) is exposed to high radiation levels resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are ABS in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W-1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
1. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. These 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21B-026
Rev.: 2

Prepared by:

J Lewis

Date:

9/20/83

Checked by:

[Signature]

Date:

9/20/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	Note 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BF11A	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Component: Motor Control Center	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: Westinghouse	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: Type W	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Circuit Breaker	Radiation	3.12 x 10 ⁵ RADS	Note 3, 4	T	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Service: Power Supply/Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 427							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-0267

Rev.: 2

NOTES

Prepared by: Scavia n/over Date 3/7/83
Checked by: AMM Date 3/7/83

1. This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
2. The only harsh environment seen is increased radiation due to recirculated fluids.
3. This motor control center (MCC) is exposed to high radiation levels resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are ABS in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W-1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
4. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. These 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-027
Rev.: 2

Prepared by: F. Lewis
Checked by: [Signature]

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	Note 2, 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BF11C	Temperature (°F)	198.0	Note 2, 4	C-236	N/A	N/A	Note 1
Component: Motor Control Center	Pressure (PSIA)	15.51	Note 2, 4	C-236	N/A	N/A	Note 1
Manufacturer: Westinghouse	Relative Humidity (%)	100.0	Note 2, 4	A	N/A	N/A	Note 1
Model Number: Type W	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Circuit Breaker	Radiation	1.97 x 10 ⁶ RADS	Note 3, 4	T	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Service: Power Supply/Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-027A
Rev.: 2

NOTES

Prepared by: Sonia R. Jones Date: 2/7/83
Checked by: William D. Smith Date: 3/9/83

1. This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
2. This component is a motor control center that houses the circuit breakers for certain safety-related equipment. Only one component fed from this MCC is needed to mitigate the effects of a high energy line break that causes a harsh steam environment in Room 236. This component is the motor operator for the AFP 2 suction valve (from service water), MV13830. MV13830 would not be initiated in the short term following the accident because it is only needed when the condensate storage tanks run dry. There is ample time to provide this component with temporary power should the MCC fail.
3. This motor control center (MCC) is exposed to high radiation resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are ABS in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W-1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
4. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. These 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-028
Rev.: 2

Prepared by:

F. Lewis

Date:

9/30/83

Checked by:

[Signature]

Date:

10/1/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	Note 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BF11D	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Component: Motor Control Center	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: Westinghouse	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: Type W	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Circuit Breaker	Radiation	1.62 x 10 ⁶ RADS	Note 3, 4	T	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Service: Power Supply/Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 227							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-028

Rev.: 2

NOTES

Prepared by: Sonia Repas Date 3/7/83
Checked by: Ed McDonald Date 3/7/83

1. This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
2. The only harsh environment seen is increased radiation due to recirculated fluids.
3. This motor control center (MCC) is exposed to high radiation resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are ABS in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W-1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
4. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. These 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-029
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. BGI	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87 x 10 ⁷ RADS	1.0 x 10 ⁸ RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Dabbs Besse Unit 1
Socket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-029A
Rev.: 2

Prepared by:

F Lewis

Date

9/30/83

Checked by:

John Smith

Date

9/30/83

NOTES

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 3-1/conductor 500 MCM with Kerite HT insulation and Kerite FR jacket.
(References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-030

Rev.: 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

[Signature]

Date:

11/4/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. BG2	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis Besse Unit 1
Socket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 1H-030A

Rev.: 2

NOTES

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

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 3-1/conductor 350 MCM with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-031
Rev.: 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

Sharon

Date:

11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. BG3	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-031A

Rev.: 2

NOTES

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

.. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 3-1/conductor No. 4/0 AWG triplexed with single bare No. 2 AWG ground wire with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-032
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. BG4	Temperature	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	(°F)						
Manufacturer: Kerite	Pressure	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	(PSIA)						
Function: Power	Relative Humidity	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	(%)						
Service: Power Cable	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Location: Containment	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Flood Level Elev: 572'-2"	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-032A

Rev.: 2

NOTES

Prepared by: F. Lewis Date 9/30/83
Checked by: L. McDonald Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 3-1/conductor No. 2 AWG with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-033
 Rev.: 2

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

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. BG5	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis Besse Unit 1
Socket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-033A
Rev.: 2

NOTES

Prepared by: J. Lewis Date 9/30/83
Checked by: S. McDonald Date 9/30/83

- The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

- 1. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
- 1. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
- 1. Cable is Kerite Company stranded copper wire 3-1/conductor 250 KCMIL triplexed with single bare No. 2 AWG ground wire with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-034
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. BG6	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Power	Radiation	3.87 x 10 ⁷ RADS	1.0 x 10 ⁸ RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Power Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-034A
Rev.: 2

NOTES

Prepared by: J. Lewis Date 9/30/83
Checked by: J. McDonald Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire 3 conductor No. 4 AWG with Kerite HT insulation and Kerite FR jacket. (References E-11 and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-035
Rev.: 2

Prepared by: F. Lewis
Checked by: [Signature]

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	Note 2, 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BYE2	Temperature (°F)	208.0	Exempt	C-304	Note 2, 4	N/A	None
Component: Motor Control Center	Pressure (PSIA)	15.83	Exempt	C-304	Note 2, 4	N/A	None
Manufacturer: Westinghouse	Relative Humidity (%)	100.0	Exempt	A	Note 2, 4	N/A	None
Model Number: Type W	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Circuit Breaker	Radiation	6.53×10^4 RADS	Note 3, 4	T	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Service: Power Supply/Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 304							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-035A
Rev.: 2

NOTES

Prepared by: Servia Yonas Date 3/7/83
Checked by: William D. Smith Date 3/7/83

1. This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
2. This component is a motor control center (MCC) that houses the circuit breakers for certain safety-related equipment. This MCC 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 MCC in the harsh steam environment will not degrade other safety-related functions or mislead the operator because the equipment it feeds is only needed to mitigate a LOCA.
3. This motor control center (MCC) is exposed to high radiation levels resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are ABS in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W-1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
4. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. These 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-036
Rev.: 2

Prepared by: F Lewis Date: 9/30/83
Checked by: [Signature] Date: 10/1/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	Note 3, 4	F	N/A	N/A	Note 1
Plant ID No.: BYF2	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Component: Motor Control Center	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: Westinghouse	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: Type W	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Circuit Breaker	Radiation	0.12 x 10 ⁵ RADS	Note 3, 4	T	N/A	N/A	Note 1
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	Note 4	I	N/A	N/A	Note 1
Service: Power Supply/Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 427							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-036A
Rev.: 2

NOTES

Prepared by: Sonia Refasco Date 3/7/83
Checked by: EMM/Draft Date 3/7/83

1. This component is scheduled to be tested or analyzed for qualification by January 1, 1984.
2. The only harsh environment seen is increased radiation due to recirculated fluids.
3. This motor control center (MCC) is exposed to high radiation levels resulting from the post-LOCA recirculation of fluids which commences 40 minutes into the accident. The only known materials susceptible to degradation due to radiation are ABS in the handle mechanism of the circuit breaker, and nylon in the auxiliary contacts and terminal blocks. The handle mechanism in the circuit breakers is used to turn the power off for maintenance only and is not required to be operated after an accident. The failure of the handle mechanism cannot prevent any of the devices fed by this MCC from performing their function. According to Reference W-1, the degradation of nylon, which is contained in the auxiliary contacts and terminal blocks, occurs for a radiation dose of 4×10^6 Rads or higher. This value is greater than the total integrated dose that the MCC will see.
4. In the unlikely event that the MCC failed, its associated equipment can be provided with temporary power. There is no identifiable failure mechanism which will trip a circuit breaker feeding power to a device, or move a valve that is already in a safe position after receiving a safety features actuation signal. These 1E MCCs are built to IEEE-323 standards and are equipped with manual closing and tripping devices for the circuit breakers should their actuating circuits fail. Failure of the MCC will not mislead the operator. Based on the above discussion, continued safe plant operation is justified.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-037
Rev.: 2

Prepared by: N. Lewis Date: 11/1/82
Checked by: Sharon Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. COL	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87 x 10 ⁷ RADS	1.0 x 10 ⁸ RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-037A
Rev.: 2

Prepared by: 3 Lewis Date 9/30/82
Checked by: Macdonald Date 9/30/82

NOTES

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 2C No. 9 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-038
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. CO2	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87 x 10 ⁷ RADS	1.0 x 10 ⁸ RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-038A

Rev.: 2

NOTES

Prepared by: J. Lewis Date: 9/30/83
Checked by: J. McDonald Date: 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 4C No. 9 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-039
Rev.: 2

Prepared by: N Lewis
Checked by: BA Anderson

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C10	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

Facility: Dabbs Besse Unit 1
Socket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-039A
Rev.: 2

Prepared by:

J Lewis

Date

9/30/83

Checked by:

Spencer

Date

9/30/83

NOTES

- .. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
1. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
1. Cable is Kerite Company stranded copper wire control cable 2C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-040

Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C11	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: NO							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davenport-Besse Unit 1
Project: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-040A
Rev.: 2

NOTES

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

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 5C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-041
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C12	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-2 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-041A

Rev.: 2

NOTES

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

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 7C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221R-042
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C13	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87 x 10 ⁷ RADS	1.0 x 10 ⁸ RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Notes 3 and 5	B	Note 3 CAL-65	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-042A
Rev.: 2

NOTES

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

- The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

- CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
- The cables become submerged due to a LOCA. The cables are insulated with a chlorosulfonated polyethylene insulation system. The steam air chemical spray environment is the most severe environment imposed on the cables. When cable submergence tests are performed with relative humidity conditions in the space between the water surface and the closing cover, the most severe degradation takes place in this space above the water surface. Based on the above information, it is considered that since the cabling passed the LOCA tests, the cabling would withstand submergence satisfactorily. (Reference V-23A)
- Cable is Kerite Company stranded copper wire control cable 9C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)
- The C13 cable would successfully withstand submergence, would remain functional during and after exposure to a LOCA, and operation of the valve MV5010C would not be impaired. Also, the inability to operate MV5010C for any reason would not impact any other safety-related functions or mislead an operator. (Reference Evaluation Worksheet Index No. 221H-152)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-043
 Rev.: 2

Prepared by: N Lewis Date: 11/1/82
 Checked by: [Signature] Date: 11/4/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C14	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-043A
Rev.: 2

NOTES

Prepared by: 3 Lewis Date 9/29/83
Checked by: SPM/ind Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables are not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 12C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-044
Rev.: 2

Prepared by: N. Lewis Date: 11/6/87
Checked by: James Donnell Date: 11/2/87

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C15	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-044A

Rev.: 2

NOTES

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

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 11.8 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 3C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-045
Rev.: 2

Prepared by: N. Lewis Date: 11/1/82
Checked by: [Signature] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C20	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87 x 10 ⁷ RADS	1.0 x 10 ⁸ RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Notes 3 and 5	B	Note 3 CAL-65	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-045A
Rev.: 2

NOTES

Prepared by: F. Lewis Date: 9/30/81
Checked by: Jim. J. Smith Date: 9/30/81

- The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

- CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
- The cables become submerged due to a LOCA. The cables are insulated with a chlorosulfonated polyethylene insulation system. The steam air chemical spray environment is the most severe environment imposed on the cables. When cable submergence tests are performed with relative humidity conditions in the space between the water surface and the closing cover, the most severe degradation takes place in this space above the water surface. Based on the above information, it is considered that since the cabling passed the LOCA tests, the cabling would withstand submergence satisfactorily. (Reference V-23A)
- Cable is Kerite Company stranded copper wire control cable 2C No. 14 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)
- The cabling would successfully withstand submergence, would remain functional during and after exposure to a LOCA, and operation of the sealed limit switches (ZSDH11A and ZSDH12A) would not be impaired. (Reference Evaluation Worksheet Index Nos. 224E-014 and 224H-015)

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-046
Rev.: 2

Prepared by: N. Lewis Date: 11/1/82
Checked by: Stan Smith Date: 11/2/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C21	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-046A
Rev.: 2

NOTES

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

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 4C No. 14 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-047
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C22	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-44 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-047A
Rev.: 2

NOTES

Prepared by: F Lewis Date 9/30/83
Checked by: [Signature] Date 10/1/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 5C No. 14 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C23	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: W/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

Facility: D~~uke~~-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-048A
Rev.: 2

NOTES

Prepared by: J Lewis Date 9/30/81
Checked by: [Signature] Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 7C No. 14 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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Rev.: 2

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C24	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87 x 10 ⁷ RADS	1.0 x 10 ⁸ RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-049A
Rev.: 2

NOTES

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

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 9C No. 14 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. C25	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-050A
Rev.: 2

NOTES

Prepared by: J Lewis Date 9/30/83
Checked by: W.B. Dand Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 12C No. 14 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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Rev.: 2

Prepared by: J. H. [Signature] Date: 1/1/83
Checked by: [Signature] Date: 6/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 1	Note 2	Analysis	None
Plant ID No. Various Component:							
Disconnect Switch	Temperature (°F)	208	208	C-304	CAL-94	Analysis	None
Manufacturer:							
General Electric	Pressure (PSIA)	15.83	15.83	C-304	Note 3	Analysis	None
Model Number: SB-1							
Function: Electrical Continuity	Relative Humidity (%)	100	None	A	N/A	N/A	Note 4
Accuracy: Spec: N/A Demon: N/A							
Service: Various	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg.							
	Radiation	1.97×10^6 RADS	3.0×10^6 RADS	T	CAL-94	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A							
	Aging	40 Years	40 Years	I	CAL-94	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-051A
Rev.: 2

NOTES

Prepared by: J. L. [Signature] Date: 11/1/83
Checked by: [Signature] Date: 11/2/83

1. One year operating time is used as a conservative maximum specification.
2. This device has a thermal life of 40 years at 131°F (CAL-94). The relatively short period of time this device will be exposed to temperatures in excess of normal ambient (less than 7 minutes) is insignificant when compared to this thermal life. Therefore, this equipment is considered capable of withstanding accident conditions of at least 1.1 years.
3. This device is contained in an open housing which will not allow for the build-up of differential pressure. Given its sturdy design, the approximate 1.13 psi pressure spike will have no effect on its operation.
4. This device is not currently qualified for 100% RH. Therefore, the switches required to operate post-HELB which are contained in cabinets CDE11A, CDE11B-1, CDE11B-2, CDE11C, CDYE2, and CDF11C will either be qualified, replaced or sealed to prevent entrance of moisture. This will be completed by November 30, 1984.

The switches contained in cabinets CDE11D, CDF11D, CDF11A-1, CDF11A-2, and CDYF2 are qualified since they will not be exposed to 100% RH.

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COMPONENT MATERIAL EVALUATION SHEET

Index No. 221H-051B
Rev.: 2

Prepared by:

Date:

Checked by:

Date:

Plant I.D. No.: Various

Component: Switch

Manufacturer: General Electric

Model No.: SB-1

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Cams Barriers Mounting Plate Rear Support Fixed Contact Support	Wood-Flour Filled Phenolic	40 Years @ 104°F	CAL-94	3 x 10 ⁶ RADS (25% reduction all properties)	CAL-94
Barrier	Polyester Glass	40 Years @ 131°F	CAL-94	4 x 10 ⁸ RADS (Threshold - tensile strength)	CAL-94
Cover	Polyvinyl Chloride	40 Years @ 140°F	CAL-94	8.0 x 10 ⁶ RADS (25% reduction tensile strength)	CAL-94
Cover Screws	Zytel (Nylon)	40 Years @ 342°F	CAL-94	4.0 x 10 ⁶ RADS (25% reduction elongation)	CAL-94

Material & Parts List Reference: V-36A

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-052
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	F	Note 2, 3	Analysis	None
Plant ID No. CDE11A							
Component: Disconnect Switch Cabinet (CD) (Note 1) Terminal Block	Temperature (°F)	208.0	307.0	C-304	V-36B E-14	Simultaneous Test	None
Manufacturer: Cabinet: GE Block: The States Co.	Pressure (PSIA)	15.83	61.0	C-304	V-36B E-14	Simultaneous Test	None
Model Number: ZWM-250							
Function: Switching & Control	Relative Humidity (%)	100.0	100.0	A	V-36B E-14	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 304	Radiation	6.53×10^4 RADS	2.0×10^6 RADS	T	CAL-92 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 2	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-052A
Rev.: 2

NOTES

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

1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
3. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-052B
Rev.: 2

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

Plant I.D. No.: CDE11A
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose Durez #791	Greater than 40 Years @ 104°F	CAL-92	1.0×10^7 RADS	CAL-92
Barrier	Polypropylene Plaskon 1083 or Moplen CRV0-8	Greater than 40 Years @ 104°F	CAL-92	2.0×10^6 RADS	CAL-92
Terminal Strip	Galvanized Steel	Not Sensitive		Not Affected	
Screws	Steel	Not Sensitive		Not Affected	
Electrical Strips	Copper Alloy	Not Sensitive		Not Affected	
Rivet	Nylon	Greater than 40 Years @ 104°F	CAL-92	6.0×10^7 RADS	CAL-92

Material & Parts List Reference: V-36A

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-053
Rev.: 2

Prepared by: Jhe Date: 11/1/92
Checked by: Handman Date: 11/2/92

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	Exempt	Note 1	Note 2	N/A	None
Plant ID No. Various							
Component: Terminal Lugs	Temperature (°F)	221	Exempt	C-314	Note 2	N/A	None
Manufacturer: Various							
	Pressure (PSIA)	19.76	Exempt	C-314	Note 2	N/A	None
Model Number: Various							
Function: Electrical Continuity	Relative Humidity (%)	100%	Exempt	A	Note 2	N/A	None
Accuracy: Spec: N/A Demon: N/A							
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Various							
Location: Auxiliary Bldg.							
	Radiation	1.97 x 10 ⁶ RADS	Exempt	T	Note 2	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A							
	Aging	40 Years	Exempt	I	Note 2	N/A	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							
	Submergence	N/A	N/A	N/A	N/A	N/A	None

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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-053A
Rev.: 2

NOTES

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

1. One year operating time is used as a conservative maximum specification.
2. These thermal lugs are utilized within the switch disconnect and relay cabinets for wiring various types of equipment. In and of themselves, there is no postulated failure mode for these lugs to interrupt electrical continuity.

While it could be postulated that condensation build-up could result in electrical failure, this is not considered to be a function of the type of terminal lug used, but rather the connection design configuration. This electrical interface is addressed in the qualification of the connected equipment since that equipment would be functional during testing. For example, States Terminal Blocks were connected during steam testing by lugs in a manner which was determined by inspection to be similar to that which occurs in the plant. Therefore, the connection design configuration has been qualified as part of the terminal block testing.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221E-054
Rev.: 2

Prepared by: J. Low Date: 11/1/82
Checked by: D. Dand Date: 11/2/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 1	E-20 Note 2	Simultaneous Test	None
Plant ID No. Various							
Component: Electric Fuses	Temperature (°F)	221	212	C-314	E-20 Note 3	Simultaneous Test	None
Manufacturer: Gould Electronics	Pressure (PSIA)	19.76	19.76	C-314	Note 4	Simultaneous Test	None
Model Number: AMP-Trap 250V-3 amp	Relative Humidity (%)	100%	100%	A	E-20	Simultaneous Test	None
Function: Circuit Protection							
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Various							
Location: Auxiliary Bldg.	Radiation	1.97 x 10 ⁶ RADS	1.0 x 10 ⁷ RADS	T	E-20	Simultaneous Test	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	37.2 Years	I	E-20	Type Test	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221E-054A

Docket: 50-346

Rev.: 2

NOTES

Prepared by: J. L. [Signature] Date 11/1/92
Checked by: [Signature] Date 11/2/92

1. One year operating time is used as a conservative maximum specification.
2. This device has demonstrated operability during testing for 107 hours. This is considered sufficient to demonstrate qualification for 1.1 years because the postulated accident temperature conditions return to normal ambient within 20 minutes. After 107 hours qualification is enveloped by the qualified life and radiation testing.
3. The initial peak accident temperature of 221°F occurs almost instantaneously and returns to within the qualified temperature of 212°F within 10 seconds. Due to thermal lag considerations, this equipment will not be heated to even 212°F within that short length of time. Therefore, the initial temperature spike is not considered to have an effect upon the qualification of this device.
4. Examination of the relatively rugged construction of this device indicates that it would be unaffected by the pressure spike of only approximately 5 psi which occurs post-accident.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-055
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components Plant ID No. CDE11B-1 Component: Disconnect Switch Cabinet (CD) (Note 1) Terminal Block Manufacturer: Cabinet: GE Block: The States Co. Model Number: ZWM-250 Function: Switching & Control Accuracy: Spec: N/A Demon: N/A Service: Electrical Control Location: Auxiliary Bldg. Rm. 304 Flood Level Elev: N/A Above Flood Level: N/A Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Operating Time	1 Year	1.1 Years	F	Note 2, 3	Analysis	None
	Temperature (°F)	208.0	307.0	C-304	V-36B E-14	Simultaneous Test	None
	Pressure (PSIA)	15.83	61.0	C-304	V-36B E-14	Simultaneous Test	None
	Relative Humidity (%)	100.0	100.0	A	V 36B E-14	Simultaneous Test	None
	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
	Radiation	6.53×10^4 RADS	2.0×10^6 RADS	T	CAL-92 Note 2	Analysis	None
	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 2	Analysis	None
	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-055A
Rev.: 2

NOTES

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

-
1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 3. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-055B
Rev.: 2

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

Plant I.D. No.: CDE11B-1
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose	Greater than	CAL-92	1.0×10^7 RADS	CAL-92
	Durez #791	40 Years @ 104°F			
Barrier	Polypropylene	Greater than	CAL-92	2.0×10^6 RADS	CAL-92
	Plaskon 1083 or	40 Years @ 104°F			
	Moplen CRV0-8				
Terminal Strip	Galvanized Steel	Not Sensitive		Not Affected	
Screws	Steel	Not Sensitive		Not Affected	
Electrical Strips	Copper Alloy	Not Sensitive		Not Affected	
Rivet	Nylon	Greater than	CAL-92	6.0×10^7 RADS	CAL-92
		40 Years @ 104°F			

Material & Parts List Reference: V-36A

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-056
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	F	Note 2, 3	Analysis	None
Plant ID No. CDE11B-2							
Component: Disconnect Switch Cabinet (CD) (Note 1) Terminal Block	Temperature (°F)	208.0	307.0	C-304	V-36B E-14	Simultaneous Test	None
Manufacturer: Cabinet: GE Block: The States Co.	Pressure (PSIA)	15.83	61.0	C-304	V-36B E-14	Simultaneous Test	None
Model Number: ZWM-250	Relative Humidity (%)	100.0	100.0	A	V-36B E-14	Simultaneous Test	None
Function: Switching & Control							
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 304	Radiation	6.53×10^4 RADS	2.0×10^6 RADS	T	CAL-92 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 2	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-056A
Rev.: 2

NOTES

Prepared by: N Lewis Date 11/6/83
Checked by: [Signature] Date 11/21/83

-
1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 3. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-056B
Rev.: 2

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

Plant I.D. No.: CDE11B-2
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose	Greater than	CAL-92	1.0×10^7 RADS	CAL-92
Barrier	Durez #791	40 Years @ 104°F	CAL-92	2.0×10^6 RADS	CAL-92
	Polypropylene	Greater than			
Terminal Strip	Plaskon 1083 or	40 Years @ 104°F	CAL-92	Not Affected	CAL-92
	Moplen CRV0-8	Not Sensitive			
	Galvanized Steel	Not Sensitive			
	Steel	Not Sensitive			
Screws	Copper Alloy	Greater than	CAL-92	6.0×10^7 RADS	CAL-92
Electrical Strips	Nylon	40 Years @ 104°F			
Rivet					

Material & Parts List Reference: V-36A

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-057
 Rev.: 2

Prepared by: N. Lewis Date: 11/1/93
 Checked by: [Signature] Date: 11/1/93

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components Plant ID No. CDE11C Component: Disconnect Switch Cabinet (CD) (Note 1) Terminal Block	Operating Time	1 Year	1.1 Years	F	Note 2, 3	Analysis	None
Manufacturer: Cabinet: GE Block: The States Co.	Temperature (°F)	208.0	307.0	C-304	V-36B E-14	Simultaneous Test	None
Model Number: ZWM-250	Pressure (PSIA)	15.83	61.0	C-304	V-36B E-14	Simultaneous Test	None
Function: Switching & Control	Relative Humidity (%)	100.0	100.0	A	V-36B E-14	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control Location: Auxiliary Bldg. Rm. 304	Radiation	6.53×10^4 RADS	2.0×10^6 RADS	T	CAL-92 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 2	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-057A
Rev.: 2

NOTES

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

1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
3. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-057B
Rev.: 2

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

Plant I.D. No.: CDEL1C
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose	Greater than	CAL-92	1.0×10^7 RADS	CAL-92
	Durez #791	40 Years @ 104°F			
Barrier	Polypropylene	Greater than	CAL-92	2.0×10^6 RADS	CAL-92
	Plaskon 1083 or	40 Years @ 104°F			
Terminal Strip	Moplen CRV0-8	Not Sensitive		Not Affected	
Screws	Galvanized Steel	Not Sensitive		Not Affected	
Electrical Strips	Steel	Not Sensitive		Not Affected	
Rivet	Copper Alloy	Greater than	CAL-92	6.0×10^7 RADS	CAL-92
	Nylon	40 Years @ 104°F			

Material & Parts List Reference: V-36A

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-058
Rev.: 2

Prepared by: N Lewis Date: 11/1/93
Checked by: L. Paulson Date: 11/4/93

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	40 Years	F	Note 3, 4	Analysis	None
Plant ID No. CDE11D							
Component: Disconnect Switch Cabinet (CD)	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
(Note 1) Terminal Block							
Manufacturer:							
Cabinet: General Electric	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Block: The States Co.							
Model Number: ZWM-250	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Function: Switching & Control							
Accuracy: Spec: N/A							
Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 227	Radiation	1.62 x 10 ⁶ RADS	2.0 x 10 ⁶ RADS	T	CAL-92 Note 3	Analysis	None
Flood Level Elev: N/A							
Above Flood Level: N/A	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 3	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-058A
Rev.: 2

NOTES

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

-
- . Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
 - . The only harsh environment seen is increased radiation due to recirculated fluids.
 - . Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 - . The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-058B
Rev.: 2

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

Plant I.D. No.: CDE11D
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose	Greater than	CAL-92	1.0×10^7 RADS	CAL-92
	Durez #791	40 Years @ 104°F			
Barrier	Polypropylene	Greater than	CAL-92	2.0×10^6 RADS	CAL-92
	Plaskon 1083 or	40 Years @ 104°F			
	Moplen CRV0-8				
Terminal Strip	Galvanized Steel	Not Sensitive		Not Affected	
Screws	Steel	Not Sensitive		Not Affected	
Electrical Strips	Copper Alloy	Not Sensitive		Not Affected	
Rivet	Nylon	Greater than	CAL-92	6.0×10^7 RADS	CAL-92
		40 Years @ 104°F			

Material & Parts List Reference: V-36A

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-059

Rev.: 2

Prepared by: N Lewis
Checked by: B. McDonald

Date: 11/1/83
Date: 11/24/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components Plant ID No. CDF11A-1	Operating Time	1 Year	40 Years	F	Note 3, 4	Analysis	None
Component: Disconnect Switch Cabinet (CD) (Note 1) Terminal Block	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: Cabinet: GE Block: The States Co.	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: ZWM-250	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Function: Switching & Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Radiation	3.12×10^5 RADS	2.0×10^6 RADS	T	CAL-92 Note 3	Analysis	None
Service: Electrical Control	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 3	Analysis	None
Location: Auxiliary Bldg. Rm. 427	Submergence	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-259A
Rev.: 2

NOTES

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

-
1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
 2. The only harsh environment seen is increased radiation due to recirculated fluids.
 3. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 4. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-059B
Rev.: 2

Prepared by: N. Lewis Date: 11/1/83
Checked by: D. Lambert Date: 11/4/83

Plant I.D. No.: CDF11A-1
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose	Greater than	CAL-92	1.0×10^7 RADS	CAL-92
	Durez #791	40 Years @ 104°F			
Barrier	Polypropylene	Greater than	CAL-92	2.0×10^6 RADS	CAL-92
	Plaskon 1083 or	40 Years @ 104°F			
	Moplen CRV0-8				
Terminal Strip	Galvanized Steel	Not Sensitive		Not Affected	
Screws	Steel	Not Sensitive		Not Affected	
Electrical Strips	Copper Alloy	Not Sensitive		Not Affected	
Rivet	Nylon	Greater than	CAL-92	6.0×10^7 RADS	CAL-92
		40 Years @ 104°F			

Material & Parts List Reference: V-36A

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-060
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components Plant ID No. CDF11A-2	Operating Time	1 Year	40 Years	F	Note 3, 4	Analysis	None
Component: Disconnect Switch Cabinet (CD) (Note 1) Terminal Block	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: Cabinet: GE Block: The States Co.	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: ZWM-250	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Function: Switching & Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Radiation	3.12×10^5 RADS	2.0×10^6 RADS	T	CAL-92 Note 3	Analysis	None
Service: Electrical Control	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 3	Analysis	None
Location: Auxiliary Bldg. Rm. 427	Submergence	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-060A
Rev.: 2

NOTES

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

1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
2. The only harsh environment seen is increased radiation due to recirculated fluids.
3. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
4. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-060B
Rev.: 2

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

Plant I.D. No.: CDF11A-2
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose Durez #791	Greater than 40 Years @ 104°F	CAL-92	1.0×10^7 RADS	CAL-92
Barrier	Polypropylene Plaskon 1083 or Moplen CRV0-8	Greater than 40 Years @ 104°F	CAL-92	2.0×10^6 RADS	CAL-92
Terminal Strip	Galvanized Steel	Not Sensitive		Not Affected	
Screws	Steel	Not Sensitive		Not Affected	
Electrical Strips	Copper Alloy	Not Sensitive		Not Affected	
Rivet	Nylon	Greater than 40 Years @ 104°F	CAL-92	6.0×10^7 RADS	CAL-92

Material & Parts List Reference: V-36A

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-061
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	F	Note 2, 3	Analysis	None
Plant ID No. CDF11C							
Component: Disconnect Switch Cabinet (CD) Note (1) Terminal Block	Temperature (°F)	198.0	307.0	C-236	V-36B E-14	Simultaneous Test	None
Manufacturer: Cabinet: General Electric Block: The States Co.	Pressure (PSIA)	15.51	61.0	C-236	V-36B E-14	Simultaneous Test	None
Model Number: ZWM-250	Relative Humidity (%)	100.0	100.0	A	V-36B E-14	Simultaneous Test	None
Function: Switching							
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 236	Radiation	1.97×10^6 RADS	2.0×10^6 RADS	T	CAL-92 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 2	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-061A
Rev.: 2

NOTES

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

-
1. Disconnect Switch Cabinets are a sheet steel enclosed cabinet with terminal blocks mounted inside.
 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 3. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-061B
Rev.: 2

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

Plant I.D. No.: CDF11C
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose	Greater than	CAL-92	1.0×10^7 RADS	CAL-92
	Durez #791	40 Years @ 104°F			
Barrier	Polypropylene	Greater than	CAL-92	2.0×10^6 RADS	CAL-92
	Plaskon 1083 or	40 Years @ 104°F			
Terminal Strip	Moplen CRV0-8	Not Sensitive		Not Affected	
Screws	Galvanized Steel	Not Sensitive		Not Affected	
Electrical Strips	Steel	Not Sensitive		Not Affected	
Rivet	Copper Alloy	Greater than	CAL-92	5.0×10^7 RADS	CAL-92
	Nylon	40 Years @ 104°F			

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-062
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components Plant ID No. CDF11D	Operating Time	1 Year	40 Years	F	Note 3, 4	Analysis	None
Component: Disconnect Switch Cabinet (CD) Note (1) Terminal Block	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: Cabinet: General Electric Block: The States Co.	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: ZWM-250	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Function: Switching & Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Radiation	1.62×10^6 RADS	2.0×10^6 RADS	T	CAL-92 Note 3	Analysis	None
Service: Electrical Control	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 3	Analysis	None
Location: Auxiliary Bldg. Rm. 227	Submergence	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

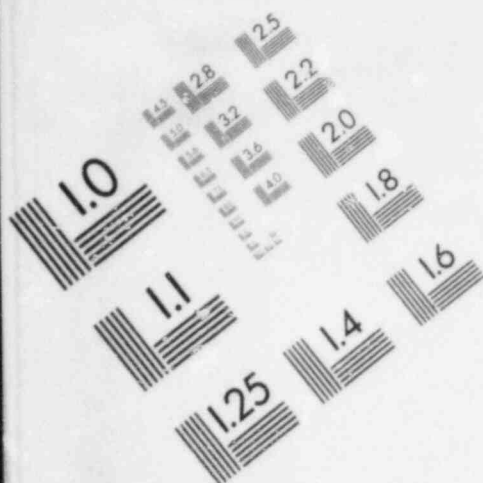
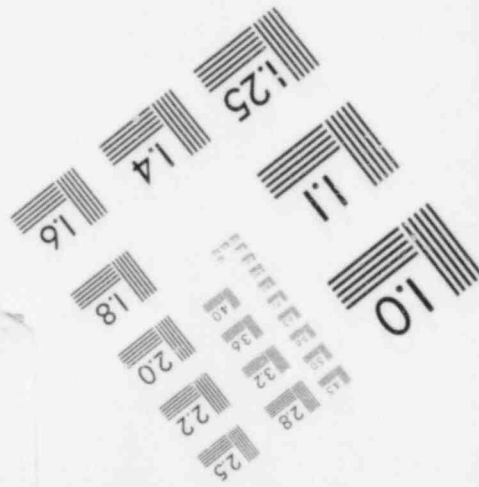
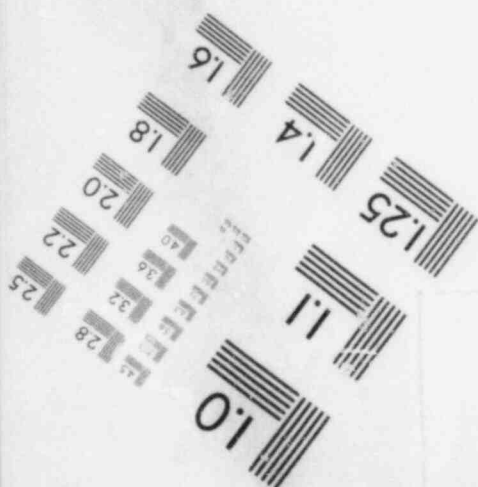
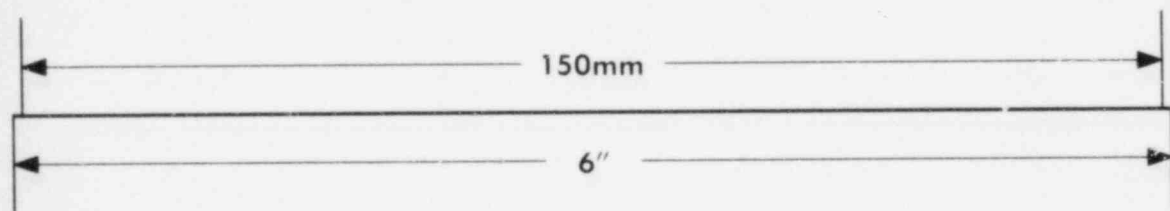
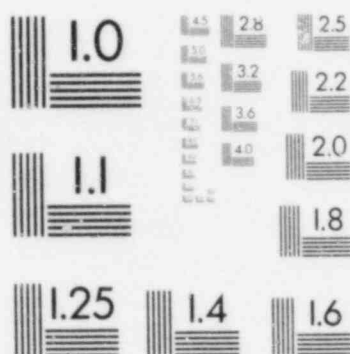
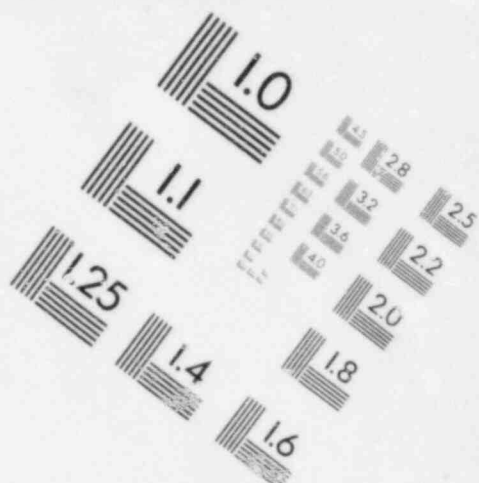


IMAGE EVALUATION
TEST TARGET (MT-3)



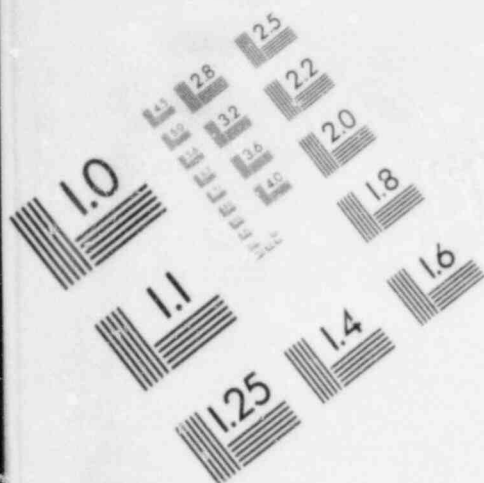
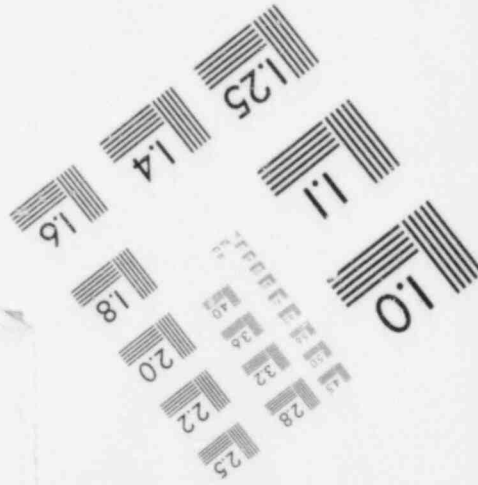
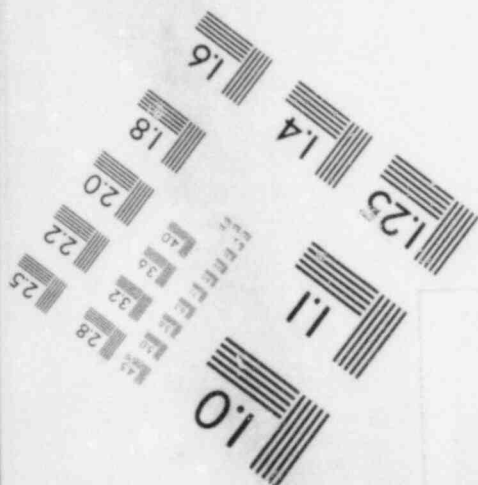
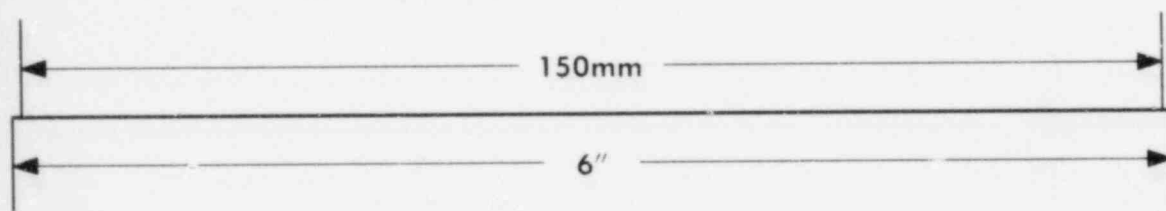
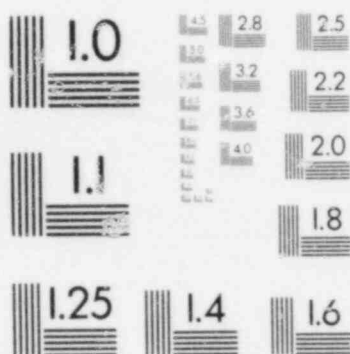
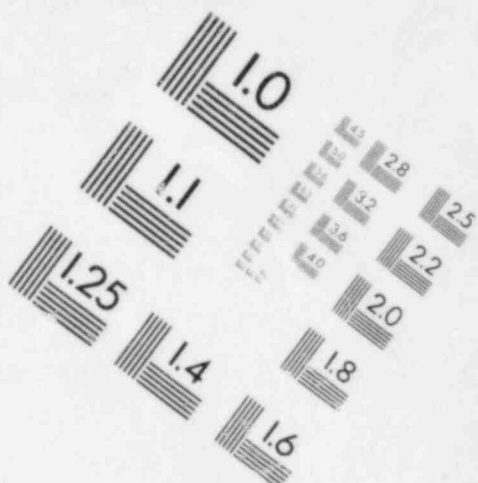


IMAGE EVALUATION TEST TARGET (MT-3)



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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-062A
Rev.: 2

NOTES

Prepared by: N Lewis Date 11/1/83
Checked by: Garland Date 11/24/83

-
1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
 2. The only harsh environment seen is increased radiation due to recirculated fluids.
 3. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 4. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-062B
Rev.: 2

Prepared by: N Lewis Date: 11/1/83
Checked by: Lyman D. Smith Date: 11/24/82

Plant I.D. No.: CDF11D
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose Durez #791	Greater than 40 Years @ 104°F	CAL-92	1.0×10^7 RADS	CAL-92
Barrier	Polypropylene Plaskon 1093 or Moplen CRV0-8	Greater than 40 Years @ 104°F	CAL-92	2.0×10^6 RADS	CAL-92
Terminal Strip	Galvanized Steel	Not Sensitive		Not Affected	
Screws	Steel	Not Sensitive		Not Affected	
Electrical Strips	Copper Alloy	Not Sensitive		Not Affected	
Rivet	Nylon	Greater than 40 Years @ 104°F	CAL-92	6.0×10^7 RADS	CAL-92

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-063
 Rev.: 2

Prepared by: N. Lewis Date: 11/6/83
 Checked by: Samuel Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	Note 2, 3	Analysis	None
Plant ID No. CDYE2							
Component: Disconnect Switch Cabinet (CD)	Temperature (°F)	208.0	307.0	C-304	V-36B E-14	Simultaneous Test	None
(Note 1) Terminal Block							
Manufacturer: Block: The States Co.	Pressure (PSIA)	15.83	61.0	C-304	V-36B E-14	Simultaneous Test	None
Model Number: ZWM-250							
Function: Switching & Control	Relative Humidity (%)	100.0	100.0	A	V-36B E-14	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 304	Radiation	6.53×10^4 RADS	2.0×10^6 RADS	T	CAL-92 Note 2	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 2	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-063A
Rev.: 2

NOTES

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

-
1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 3. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-063B
Rev.: 2

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

Plant I.D. No.: CDYE2
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose Durez #791	Greater than 40 Years @ 104°F	CAL-92	1.0 x 10 ⁷ RADS	CAL-92
Barrier	Polypropylene Plaskon 1083 or Moplen CRV0-8	Greater than 40 Years @ 104°F	CAL-92	2.0 x 10 ⁶ RADS	CAL-92
Terminal Strip	Galvanized Steel	Not Sensitive		Not Affected	
Screws	Steel	Not Sensitive		Not Affected	
Electrical Strips	Copper Alloy	Not Sensitive		Not Affected	
Rivet	Nylon	Greater than 40 Years @ 104°F	CAL-92	6.0 x 10 ⁷ RADS	CAL-92

Material & Parts List Reference: V-36A

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-064
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components Plant ID No. CDYF2	Operating Time	1 Year	40 Years	F	Note 3, 4	Analysis	None
Component: Disconnect Switch Cabinet (CD) (Note 1) Terminal Block	Temperature (°F)	N/A	N/A	Note 2	N/A	N/A	None
Manufacturer: Cabinet: GE Block: The States Co.	Pressure (PSIA)	N/A	N/A	Note 2	N/A	N/A	None
Model Number: ZWM-250	Relative Humidity (%)	N/A	N/A	Note 2	N/A	N/A	None
Function: Switching & Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Radiation	3.12×10^5 RADS	2.0×10^6 RADS	T	CAL-92 Note 3	Analysis	None
Service: Electrical Control	Aging	40 Years	Greater than 40 Years @ 104°F	I	CAL-92 Note 3	Analysis	None
Location: Auxiliary Bldg. Rm. 427	Submergence	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-064A
Rev.: 2

NOTES

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

-
1. Disconnect Switch Cabinets are sheet steel enclosed cabinets with terminal blocks mounted inside.
 2. The only harsh environment seen is increased radiation due to recirculated fluids.
 3. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 4. The test performed on the States terminal blocks fully envelopes all outside containment temperature and pressure profile and also includes sufficient margin.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-064B
Rev.: 2

Prepared by: N Lewis Date: 11/1/82
Checked by: [Signature] Date: 11/2/83

Plant I.D. No.: CDYF2
Manufacturer: States Co.

Component: Terminal Block
Model No.: ZWM-250

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Base	General Purpose	Greater than	CAL-92	1.0×10^7 RADS	CAL-92
Barrier	Durez #791	40 Years @ 104°F	CAL-92	2.0×10^6 RADS	CAL-92
	Polypropylene	Greater than			
	Plaskon 1083 or	40 Years @ 104°F			
Terminal Strip	Moplen CRV0-8	Not Sensitive	CAL-92	Not Affected	CAL-92
Screws	Galvanized Steel	Not Sensitive		Not Affected	
Electrical Strips	Steel	Not Sensitive		Not Affected	
Rivet	Copper Alloy	Greater than		6.0×10^7 RADS	
	Nylon	40 Years @ 104°F			

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-065
Rev.: 2

Prepared by: N Lewis
Checked by: [Signature]

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. CS1	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-065A

Docket: 50-346

Rev.: 2

NOTES

Prepared by: J Lewis Date 9/30/83

Checked by: John W. Powell Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 2C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-3A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-066

Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. CS2	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-066A
Rev.: 2

NOTES

Prepared by: J Lewis Date 9/30/83
Checked by: J M. Wood Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 4C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-067

Rev.: 2

Prepared by: N. Lewis
Checked by: [Signature]

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. CS3	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-067A

Rev.: 2

NOTES

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

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 7C No. 12 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-068

Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. CS5	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment							
Flood Level Elev: 572'-2"							
Above Flood Level: No							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-068A

Socket: 50-346

Rev.: 2

NOTES

Prepared by: F Lewis Date 9/30/83
Checked by: John McDonald Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 2C No. 9 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-069
Rev.: 2

Prepared by: N. Lewis Date: 11/1/13
Checked by: [Signature] Date: 11/2/13

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	F	E-3 Note 1 V-23B	Simultaneous Test	None
Plant ID No. CS6	Temperature (°F)	283.0	320.0	H, X	E-3 V-23B	Simultaneous Test	None
Component: Cable	Pressure (PSIA)	52.0	96.7	G, X	E-3 V-23B	Simultaneous Test	None
Manufacturer: Kerite	Relative Humidity (%)	100.0	100.0	A	E-3 V-23B	Simultaneous Test	None
Model Number: Note 4	Chemical Spray	Boric Acid 1800 ppm pH 5.0	Boric Acid 1800 ppm pH 5.0	A	E-3 V-23B CAL-40 Note 2	Simultaneous Test, Analysis	None
Function: Control	Radiation	3.87×10^7 RADS	1.0×10^8 RADS	CAL-44	E-3 V-23B	Sequential Test	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-91 E-3 V-23B	Sequential Test	None
Service: Control Cable	Submergence	572'-2"	Note 3	B	Note 3	Note 3	None
Location: Containment	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: 572'-2"	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: No							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-069A

Rev.: 2

NOTES

Prepared by: J Lewis Date 9/30/83
Checked by: W. J. Dond Date 9/30/83

1. The test subjected the cabling to an initial transient of 320°F and 96.7 psia for 13 hours, followed by a cooldown to ambient. The cabling was then subjected to a second transient of 223°F and 19.7 psia for 118 hours. The temperature in containment peaks at 283°F in 17 seconds. The pressure in containment peaks at 52 psia in 50 seconds. At 13 hours, the conditions are 172°F and 20.5 psia. The conditions in containment return to ambient after 7 days.

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

2. CAL-40 qualifies components tested in a high pH boric acid spray to a pH value of 5.
3. Cables are not affected by submergence. Cables do not service components located below maximum containment flood level.
4. Cable is Kerite Company stranded copper wire control cable 4C No. 9 AWG with Kerite FR insulation and Kerite FR jacket. (References E-11, ROC-23A, and ROC-23B)

Facility: D...s-Besse Unit 1
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-070
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EC5017	Temperature (°F)	203.0	345.0	C-515	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.60	74.7	C-515	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 515							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-070A

Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 515 peaks at 203°F in 35.2 seconds. The pressure in Room 515 peaks at 15.6 psia in 9.4 seconds. The temperature and pressure in Room 515 return to ambient conditions in 19 minutes. (Reference C-515)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-071
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EC5018	Temperature (°F)	203.0	345.0	C-515	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.60	74.7	C-515	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 515							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-071A
Rev.: 2

NOTES

Prepared by: N Lewis Date: 11/1/83
Checked by: W. W. Schmidt Date: 11/2/82

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 515 peaks at 203°F in 35.2 seconds. The pressure in Room 515 peaks at 15.6 psia in 9.4 seconds. The temperature and pressure in Room 515 return to ambient conditions in 19 minutes. (Reference C-515)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-072

Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EC5056	Temperature (°F)	203.0	345.0	C-515	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.60	74.7	C-515	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 515							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-072A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 515 peaks at 203°F in 35.2 seconds. The pressure in Room 515 peaks at 15.6 psia in 9.4 seconds. The temperature and pressure in Room 515 return to ambient conditions in 19 minutes. (Reference C-515)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-073
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EC5057	Temperature (°F)	203.0	345.0	C-515	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.60	74.7	C-515	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 515							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-073A
Rev.: 2

NOTES

Prepared by: N Lewis Date: 11/1/83
Checked by: L MacLeod Date: 11/6/83

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 515 peaks at 203°F in 35.2 seconds. The pressure in Room 515 peaks at 15.6 psia in 9.4 seconds. The temperature and pressure in Room 515 return to ambient conditions in 19 minutes. (Reference C-515)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Prepared by:

Plant I.D. No.: EC5057

Manufacturer: Stanwick

THERMAL AGING

RADIATION

Parts List

Materials List

Qualification

Reference

Qualification

Reference

Terminal Block Links

Brass

Not Sensitive

CAL-79

Not Affected

CAL-79

Mounting Rods

Metallic

Not Sensitive

Not Affected

CAL-79

Bolts

Silicone Bronze

Not Sensitive

Not Affected

Insert

Brass

Not Sensitive

Not Affected

Nuts

Brass

Not Sensitive

Not Affected

Terminal Block Base

Durez #791 Phenolic

40 Years @ 230°F

CAL-79

 3.0×10^8 RADS

CAL-79

Terminal Block Barrier

Glass - Melamine

Greater than

 1.6×10^8 RADS

40 Years @ 122°F

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-074
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV01060	Temperature	267.0	345.0	C-501	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	15.61	74.7	C-501	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity	100.0	100.0	A	Note 3	Simultaneous Test	None
	(%)						
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 501	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-0074A
Rev.: 2

Prepared by: N. Lewis
Checked by: [Signature]

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

NOTES

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 501 peaks at 267°F in 31 seconds. The pressure in Room 501 peaks at 15.6 psia in 9.5 seconds. The temperature and pressure in Room 501 return to ambient conditions in 19 minutes. (Reference C-501)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1
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COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-0743

Rev.: 2

Prepared by:

N. Lewis

Date:

11/1/83

Checked by:

R. McDonald

Date:

11/2/83

Plant I.D. No.: EV01060

Component: Terminal Block

Manufacturer: Stanwick

Model No.: Type G

THERMAL AGING

RADIATION

Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.9×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-075
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV0106A	Temperature	267.0	345.0	C-501	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	15.61	74.7	C-501	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity	100.0	100.0	A	Note 3	Simultaneous Test	None
	(%)						
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 501	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-075A

Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 501 peaks at 267°F in 31 seconds. The pressure in Room 501 peaks at 15.6 psia in 9.5 seconds. The temperature and pressure in Room 501 return to ambient conditions in 19 minutes. (Reference C-501)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1

Docket: 50-346

COMPONENT MATERIAL EVALUATION SHEET

Index No. 21H-075B

Rev.: 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

G. G. G. G.

Date:

11/2/83

Plant I.D. No.: EV0106A

Component: Terminal Block

Manufacturer: Stanwick

Model No.: Type G

THERMAL AGING

RADIATION

Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-076
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV01070	Temperature (°F)	267.0	345.0	C-501	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.61	74.7	C-501	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-076A
Rev.: 2

NOTES

Prepared by: N Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 501 peaks at 267°F in 31 seconds. The pressure in Room 501 peaks at 15.6 psia in 9.5 seconds. The temperature and pressure in Room 501 return to ambient conditions in 19 minutes. (Reference C-501).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-076B
Rev.: 2

Prepared by: N. Lewis Date: 11/1/83
Checked by: [Signature] Date: 11/5/83

Plant I.D. No.: EV01070
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-077

Rev.: 2

Prepared by: N Lewis
Checked by: Smith

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV0107A	Temperature (°F)	267.0	345.0	C-501	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.61	74.7	C-501	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-077A
Rev.: 2

NOTES

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

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 501 peaks at 267°F in 31 seconds. The pressure in Room 501 peaks at 15.6 psia in 9.5 seconds. The temperature and pressure in Room 501 return to ambient conditions in 19 minutes. (Reference C-501)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-077B
Rev.: 2

Prepared by: N Lewis Date: 11/1/83
Checked by: [Signature] Date: 4/2/82

Plant I.D. No.: EV0107A
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

THERMAL AGING				RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-078

Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV0240B	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-078A

Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-078B
Rev.: 2

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

Plant I.D. No.: EV0240B
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-079

Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV05990	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A					CAL-79 Note 4		
Needed for:	Submergence	N/A	N/A	N/A	N/A	N/A	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-079A

Rev.: 2

NOTES

Prepared by: N. Lewis
Checked by: [Signature]

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

The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
1. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-079B
Rev.: 2

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

Plant I.D. No.: EV05990
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-080
 Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV06010	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-080A

Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-080B

Rev.: 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

Michael

Date:

11/2/83

Plant I.D. No.: EV06010

Manufacturer: Stanwick

Component: Terminal Block

Model No.: Type G

THERMAL AGING

RADIATION

Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-081

Rev.: 2

Prepared by: N Lewis
Checked by: L J. Small

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV06080	Temperature (°F)	218.0	345.0	C-303	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	17.16	74.7	C-303	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 303	Radiation	1.16×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for:	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO. 221H-081A

Rev.: 2

NOTES

Prepared by: N Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 303 peaks at 218°F in 1.5 seconds. The pressure in Room 303 peaks at 17.16 psia in .04 seconds. The temperature and pressure in Room 303 return to ambient conditions in 19 minutes (Reference C-303).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-081B
Rev.: 2

Prepared by:

Ni Lewis

Date:

11/1/82

Checked by:

[Signature]

Date:

11/2/82

Plant I.D. No.: EV06080

Manufacturer: Stanwick

Component: Terminal Block

Model No.: Type G

THERMAL AGING

RADIATION

Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO. 221H-082

Rev.: 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

[Signature]

Date:

11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV06120	Temperature (°F)	218.0	345.0	C-303	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	17.16	74.7	C-303	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 303	Radiation	1.16×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-082A

Rev.: 2

NOTES

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

The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 303 peaks at 218°F in 1.5 seconds. The pressure in Room 303 peaks at 17.16 psia in .04 seconds. The temperature and pressure in Room 303 return to ambient conditions in 19 minutes (Reference C-303).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-082B
Rev.: 2

Prepared by: W Lewis Date: 11/1/83
Checked by: [Signature] Date: 11/2/82

Plant I.D. No.: EV06120
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET

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Rev.: 2

NOTES

Prepared by: W Lewis

Date: 11/1/83

Checked by: [Signature]

Date: 11/2/83

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

Facility: Davis-Besse Unit 1
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COMPONENT MATERIALS EVALUATION SHEET

Index No: 221H-083B
Rev.: 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

[Signature]

Date:

11/2/83

Plant I.D. No.: EV0624B

Manufacturer: Stanwick

Component: Terminal Block

Model No.: Type G

THERMAL AGING

RADIATION

Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-084

Rev.: 2

Prepared by: N Lewis
Checked by: [Signature]

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV08300	Temperature (°F)	155.0	345.0	C-113	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	16.06	74.7	C-113	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	7.1×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 113							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

Facility: Davis-Besse Unit 1

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-084A

Docket: 50-346

Rev.: 2

NOTES

Prepared by: N Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 113 peaks at 155°F in 19 seconds. The pressure in Room 113 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 113 return to ambient conditions in 6.7 minutes (Reference C-113).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1
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COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-084B
Rev.: 2

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

Plant I.D. No.: EV08300
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

Re v. : 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV08310	Temperature (°F)	155.0	345.0	C-113	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	16.06	74.7	C-113	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 113	Radiation	7.1×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-085A
Rev.: 2

NOTES

Prepared by: N Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 113 peaks at 155°F in 19 seconds. The pressure in Room 113 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 113 return to ambient conditions in 6.7 minutes (Reference C-113).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-085B
Rev.: 2

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

Plant I.D. No.: EV08310
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-086
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1001	Temperature (°F)	344.0	345.0	C-602	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	20.0	74.7	C-602	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.86 x 10 ⁴ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

Facility: D...-Besse Unit 1
Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-086A
Rev.: 2

NOTES

Prepared by N. Lewis
Checked by: [Signature]

Date: 11/1/82
Date: 11/2/82

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 602 peaks at 344°F in 0.4 seconds. The pressure in Room 602 peaks at 20.0 psia in 2.05 seconds. The temperature and pressure in Room 602 return to ambient conditions in 56 minutes. (Reference C - 602)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
5. Margin is deemed adequate for this component based on the following:
 1. The test report temperature envelopes the postulated HELB profile.
 2. The time for which the required temperature margin is not available is very short (0.12 seconds).
 3. It can be assumed that thermal lag analysis would show that surface temperature would be will within margin requirements.

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

COMPONENT MATERIAL EVALUATION SHEET

Index: 21H-086B
Rev.: 2

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

Plant I.D. No.: EV1001
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-087
Rev.: 2

Prepared by: N Harris Date: 11/1/83
Checked by: Lynn David Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV100A	Temperature (°F)	344.0	345.0	C-602	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	20.0	74.7	C-602	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.86 x 10 ⁴ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 602							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-087A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 602 peaks at 344°F in 0.4 seconds. The pressure in Room 602 peaks at 20.0 psia in 2.05 seconds. The temperature and pressure in Room 602 return to ambient conditions in 56 minutes. (Reference C - 602)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
5. Margin is deemed adequate for this component based on the following:
 1. The test report temperature envelopes the postulated HELB profile.
 2. The time for which the required temperature margin is not available is very short (0.12 seconds).
 3. It can be assumed that thermal lag analysis would show that surface temperature would be will within margin requirements.

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

COMPONENT MATERIAL EVALUATION SHEET

Index: 221H-087B
Rev.: 2

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

Plant I.D. No.: EY100A
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		N Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-088
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1011	Temperature (°F)	282.0	345.0	C-601	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	17.0	74.7	C-601	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.86×10^4 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-088A

Rev.: 2

NOTES

Prepared by: N. Lewis
Checked by: Smick

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 601 peaks at 282°F in 0.45 seconds. The pressure in Room 601 peaks at 17.0 psia in 2.05 seconds. The temperature and pressure in Room 601 return to ambient conditions in 2 hours and 18 minutes. (Reference C - 601)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index No. 221H-088B
Rev.: 2

Prepared by:
Checked by:

W Lewis
[Signature]

Date:
Date:

11/1/83
11/2/83

Plant I.D. No.: EV1011
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-089
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV101B	Temperature (°F)	282.0	345.0	C-601	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	17.0	74.7	C-601	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 601	Radiation	1.86 x 10 ⁴ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-089A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 601 peaks at 282°F in 0.45 seconds. The pressure in Room 601 peaks at 17.0 psia in 2.05 seconds. The temperature and pressure in Room 601 return to ambient conditions in 2 hours and 18 minutes. (Reference C - 601)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index 221H-0898
Rev.: 2

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

Plant I.D. No.: EV101B
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-090
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV13280	Temperature	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-090A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index 221H-0908
Rev.: 2

Prepared by:
Checked by:

W Lewis
[Signature]

Date:
Date:

11/1/83
11/2/83

Plant I.D. No.: EV13280

Manufacturer: Stanwick

Component: Terminal Block

Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-091
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV13380	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:	Submergence	N/A	N/A	N/A	N/A	N/A	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-091A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

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221H-09/B

Rev. :

2Prepared by: W LewisDate: 11/1/83Checked by: [Signature]Date: 11/2/83Plant I.D. No.: EV13380Component: Terminal BlockManufacturer: StanwickModel No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-092
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV13660	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-092A
Rev.: 2

NOTES

Prepared by: N Lewis Date: 11/2/87
Checked by: William R. self Date: 11/2/87

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index: 221H-092B
Rev.: 2

Prepared by:

IV Lewis
[Signature]

Date:

11/1/83

Checked by:

Date:

11/2/83

Plant I.D. No.: EV13660

Component: Terminal Block

Manufacturer: Stanwick

Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-093
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV13670	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-093A

Rev.: 2

NOTES

Prepared by: N Lewis Date: 11/1/53
Checked by: L. W. P. R. J. Date: 11/2/53

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index: 221H-093B
Rev.: 2

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

Plant I.D. No.: EV13670
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-094
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV13830	Temperature	198.0	345.0	C-236	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	15.51	74.7	C-236	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control	Spray						
Location: Auxiliary Bldg. Rm. 236	Radiation	1.97×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 21H-094A

Rev.: 2

NOTES

Prepared by: N Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 236 peaks at 198°F in 19 seconds. The pressure in Room 236 peaks at 15.5 psia in 1.6 seconds. The temperature and pressure in Room 236 return to ambient conditions in 6.7 minutes (Reference C-236).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index: 221H-094B
Rev.: 2

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

Plant I.D. No.: EV13830
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-095
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1407B							
Component: Terminal Block	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick							
Model Number: Type G	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314							
	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A							
	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-095A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index: 221H-095B
Rev.: 2

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

Plant I.D. No.: EV1407B
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-096
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic 1E Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1411B	Temperature	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity	100.0	100.0	A	Note 3	Simultaneous Test	None
	(%)						
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A							
Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-096A
Rev. 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index No. 221H-096B
Rev. 2

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

Plant I.D. No.: EV1411B
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-097
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1467	Temperature	155.0	345.0	C-113	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	16.06	74.7	C-113	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity	100.0	100.0	A	Note 3	Simultaneous Test	None
	(%)						
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 113	Radiation	7.1 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-097A
Rev. 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 113 peaks at 155°F in 19 seconds. The pressure in Room 113 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 113 return to ambient conditions in 6.7 minutes (Reference C-113).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-097B

Rev. 2

Prepared by:

N Lewis

Date:

11/1/83

Checked by:

J. M. [Signature]

Date:

11/2/83

Plant I.D. No.: EVI467

Component: Terminal Block

Manufacturer: Stanwick

Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-098
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1469	Temperature	155.0	345.0	C-113	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	16.06	74.7	C-113	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 113	Radiation	7.1×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-098A
Rev. 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 113 peaks at 155°F in 19 seconds. The pressure in Room 113 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 113 return to ambient conditions in 6.7 minutes (Reference C-113).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 175°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Index No. 221H-098B
Rev. 2

11/2/13

Model No.: _____ Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-099
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic 1E Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV15170	Temperature (°F)	198.0	345.0	C-236	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.51	74.7	C-236	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.97 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					

Facility: D Besse Unit 1
Docket: 50-16

SYSTEM COMPONENT EVALUATION WORKSHEET

Index 21H-099A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 236 peaks at 198°F in 19 seconds. The pressure in Room 236 peaks at 15.5 psia in 1.6 seconds. The temperature and pressure in Room 236 return to ambient conditions in 6.7 minutes (Reference C-236).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index: 221H-0908
Rev.: 2

Prepared by:

Checked by:

W Lewis
[Signature]

Date:

Date:

11/1/83
11/2/82

Plant I.D. No.: EV15170

Manufacturer: Stanwick

Component: Terminal Block

Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADs	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADs	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-100
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV15180	Temperature (°F)	198.0	345.0	C-236	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.51	74.7	C-236	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.97 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

Facility: D. Jesse Unit 1
Docket: 5

SYSTEM COMPONENT EVALUATION WORKSHEET

Index 1 21H-100A

Rev.: 2

NOTES

Prepared by: N Lewis
Checked by: Macdonald

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 236 peaks at 198°F in 19 seconds. The pressure in Room 236 peaks at 15.5 psia in 1.6 seconds. The temperature and pressure in Room 236 return to ambient conditions in 6.7 minutes (Reference C-236).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index 221H-100B
Rev. : 2

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

Plant I.D. No.: EV15180
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-101
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV15300	Temperature (°F)	218.0	345.0	C-303	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	17.16	74.7	C-303	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.16 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 303	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

Facility: D Besse Unit 1
Docket: 50-16

SYSTEM COMPONENT EVALUATION WORKSHEET

Index 21H-101A
Rev.: 2

NOTES

Prepared by: N Lewis Date: 11/1/81
Checked by: W. J. J. J. Date: 11/2/81

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 303 peaks at 218°F in 1.5 seconds. The pressure in Room 303 peaks at 17.16 psia in .04 seconds. The temperature and pressure in Room 303 return to ambient conditions in 19 minutes (Reference C-303).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index 221H-101BRev.: 2Prepared by: W LewisDate: 11/1/83Checked by: [Signature]Date: 11/2/83Plant I.D. No.: EV15300Component: Terminal BlockManufacturer: StanwickModel No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-102
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic 1E Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV15310	Temperature	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity	100.0	100.0	A	Note 3	Simultaneous Test	None
	(%)						
Accuracy: Spec: N/A Demon: N/A	Chemical	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control	Spray						
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A							
Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-102A

Rev.: 2

NOTES

Prepared by: A Lewis
Checked by: [Signature]

Date: 11/18/83
Date: 11/21/83

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index 221M-1028
Rev.: 2

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

Plant I.D. No.: EV15310
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-103
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic 1E Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1544	Temperature (°F)	218.0	345.0	C-303	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	17.16	74.7	C-303	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.16×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 303	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-103A
Rev.: 2

NOTES

Prepared by: N Lewis Date: 11/1/85
Checked by: L. M. G. D. M. ad Date: 11/2/85

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 303 peaks at 218°F in 1.5 seconds. The pressure in Room 303 peaks at 17.16 psia in .04 seconds. The temperature and pressure in Room 303 return to ambient conditions in 19 minutes (Reference C-303).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index 221H-103BRev.: 2Prepared by: W LewisDate: 11/1/83Checked by: [Signature]Date: 11/2/83Plant I.D. No.: EV1544Component: Terminal BlockManufacturer: StanwickModel No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-104
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1545	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	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	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:	Submergence	N/A	N/A	N/A	N/A	N/A	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-104A
Rev.: 2

NOTES

Prepared by: N Lewis
Checked by: [Signature]

Date: 11/1/53
Date: 11/2/53

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index: 221M-1048
Rev.: 2

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

Plant I.D. No.: EV1545
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-105
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1567B	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.0 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

Facility: Davis-Besse Unit 1

Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-105A

Rev.: 2

NOTES

Prepared by: N Lewis

Date: 11/1/61

Checked by: John E. Jones

Date: 11/2/61

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIAL EVALUATION SHEET

Index No. 221H-105B
Rev.: 2

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

Plant I.D. No.: EV1567B
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-106
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV1719B	Temperature (°F)	198.0	345.0	C-236	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.51	74.7	C-236	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 236	Radiation	1.97×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-106A

Rev.: 2

NOTES

Prepared by: N Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 236 peaks at 198°F in 19 seconds. The pressure in Room 236 peaks at 15.5 psia in 1.6 seconds. The temperature and pressure in Room 236 return to ambient conditions in 6.7 minutes (Reference C-236).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-106B
Rev.: 2

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

Plant I.D. No.: EV1719B
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-107
 Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV20000	Temperature (°F)	218.0	345.0	C-303	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	17.16	74.7	C-303	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.16×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 303	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-107A

Rev.: 2

NOTES

Prepared by: N. Lewis
Checked by: [Signature]

Date: 11/1/03
Date: 11/2/03

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 303 peaks at 218°F in 1.5 seconds. The pressure in Room 303 peaks at 17.16 psia in .04 seconds. The temperature and pressure in Room 303 return to ambient conditions in 19 minutes (Reference C-303).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-107B
Rev.: 2

Prepared by: N. Lewis Date: 11/1/13
Checked by: [Signature] Date: 11/2/13

Plant I.D. No.: EV20000
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-108
Rev.: 2

Prepared by: N. Lewis Date: 11/1/13
Checked by: [Signature] Date: 11/2/13

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	40 Years	Note 1	Note 2	Analysis	None
Plant ID No.: EV20010	Temperature (°F)	N/A	N/A	Note 3	N/A	N/A	None
Component: Terminal Block	Pressure (PSIA)	N/A	N/A	Note 3	N/A	N/A	None
Manufacturer: Stanwick	Relative Humidity (%)	N/A	N/A	Note 3	N/A	N/A	None
Model Number: Type G	Chemical Spray	N/A	N/A	Note 3	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	3.12×10^5 RADS	1.6×10^8 RADS	T	CAL-79 Note 2	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 2	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 427							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-108A

Rev.: 2

NOTES

Prepared by: N. Lewis Date: 11/1/13
Checked by: [Signature] Date: 11/2/13

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

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-108B
Rev.: 2

Prepared by: N. Lewis Date: 11/1/82
Checked by: Stanwick Date: 11/2/82

Plant I.D. No.: EV20010
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-109
Rev.: 2

Prepared by: H. Lewis
Checked by: H. Lewis

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV20030	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-109A

Rev.: 2

NOTES

Prepared by: N. Levin
Checked by: L. MaDonell

Date: 11/1/13
Date: 11/2/13

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-109B
Rev.: 2

Prepared by: N. Kevin Date: 11/1/73
Checked by: [Signature] Date: 11/2/73

Plant I.D. No.: EV20030
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-110

Rev.: 2

Prepared by: W. Lewis
Checked by: L. McDonald

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV2010	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-110A
Rev.: 2

NOTES

Prepared by: H. Lewis Date: 11/1/83
Checked by: DMC Date: 11/2/83

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-110B
Rev.: 2

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

Plant I.D. No.: EV2010
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-111
Rev.: 2

Prepared by: R. Lewis Date: 11/1/83
Checked by: Steve Gandy Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV2012B	Temperature (°F)	198.0	345.0	C-236	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.51	74.7	C-236	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236	Radiation	1.97×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A							
Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:	Submergence	N/A	N/A	N/A	N/A	N/A	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-111A
Rev.: 2

NOTES

Prepared by: H. Levi
Checked by: MaDonald

Date: 4/1/83
Date: 4/1/83

The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 236 peaks at 198°F in 19 seconds. The pressure in Room 236 peaks at 15.5 psia in 1.6 seconds. The temperature and pressure in Room 236 return to ambient conditions in 6.7 minutes (Reference C-236).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-111B
Rev.: 2

Prepared by: H. Kaur Date: 11/6/03
Checked by: Smad Date: 11/2/03

Plant I.D. No.: EV2010B
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-112
Rev.: 2

Prepared by: H. Lewis Date: 4/6/83
Checked by: [Signature] Date: 4/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV27330	Temperature (°F)	130.0	345.0	C-105	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	16.06	74.7	C-105	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 105	Radiation	1.9×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-112A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 105 peaks at 130°F in 19 seconds. The pressure in Room 105 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 105 return to ambient conditions in 24 minutes (Reference C-105).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-112B
Rev.: 2

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

Plant I.D. No.: EV27330
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-113
 Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV27340	Temperature (°F)	155.0	345.0	C-113	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	16.06	74.7	C-113	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 113	Radiation	7.1×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A					CAL-79 Note 4		
Needed for:	Submergence	N/A	N/A	N/A	N/A	N/A	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-113A
Rev.: 2

NOTES

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

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 113 peaks at 155°F in 19 seconds. The pressure in Room 113 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 113 return to ambient conditions in 6.7 minutes (Reference C-113).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-113B
Rev.: 2

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

Plant I.D. No.: EV27340
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-114

Rev.: 2

Prepared by: N. Jones
Checked by: James

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV27360	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO.: 221H-114A
Rev.: 2

NOTES

Prepared by: H. Lewis
Checked by: Sauls

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1

Docket: 50-346

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-114B

Rev.: 2

Prepared by:

N. Lewis

Date:

11/1/13

Checked by:

James A. Smith

Date:

11/1/13

Plant I.D. No.: EV27360

Manufacturer: Stanwick

Component: Terminal Block

Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-115
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV5005	Temperature (°F)	282.0	345.0	C-601	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	17.0	74.7	C-601	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.86×10^4 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 601	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-115A
Rev.: 2

NOTES

Prepared by: n. Lewis Date: 11/1/83
Checked by: L. M. O'Neill Date: 11/2/83

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 601 peaks at 282°F in 0.45 seconds. The pressure in Room 601 peaks at 17.0 psia in 2.05 seconds. The temperature and pressure in Room 601 return to ambient conditions in 2 hours and 18 minutes. (Reference C-601)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1

Docket: 50-346

COMPONENT MATERIALS EVALUATION SHEET

Index NO.: 221H-115B

Rev.: 2

Prepared by:

H. Lewis

Date:

11/1/83

Checked by:

W. C. C. C.

Date:

11/2/83

Plant I.D. No.: EV5005

Component: Terminal Block

Manufacturer: Stanwick

Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-116
Rev. 2

Prepared by: H. Lewis Date: 11/1/83
Checked by: [Signature] Date: 4/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic 1E Elec- trical Components	Operating Time	1 Year	40 Years	Note 1	Note 2	Analysis	None
Plant ID No.: EV5008	Temperature (°F)	N/A	N/A	Note 3	N/A	N/A	None
Component: Terminal Block	Pressure (PSIA)	N/A	N/A	Note 3	N/A	N/A	None
Manufacturer: Stanwick	Relative Humidity (%)	N/A	N/A	Note 3	N/A	N/A	None
Model Number: Type G	Chemical Spray	N/A	N/A	Note 3	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	3.12 x 10 ⁵ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 2	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 2	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 427							
Flood Level Elev: N/A							
Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-116A
Rev. 2

NOTES

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

-
1. One year operating time is used as a conservative maximum specification.
 2. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.
 3. The only harsh environment seen is increased radiation due to recirculated fluids.

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

COMPONENT MATERIALS EVALUATION SHEET

Index NO.: 221H-116B
Rev. 2

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

Plant I.D. No.: EV5008
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-117
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV5010B	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-117A
Rev. 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

11/2/83

Model No.: _____ Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-118
Rev. 2

Prepared by: H. Linn Date: 11/1/83
Checked by: [Signature] Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV5010D	Temperature	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity	100.0	100.0	A	Note 3	Simultaneous Test	None
	(%)						
Accuracy: Spec: N/A Demon: N/A	Chemical	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control	Spray						
Location: Auxiliary Bldg. Rm. 314	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-118A
Rev. 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1
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SYSTEM COMPONENT EVALUATION WORKSHEET

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Rev. 2

Prepared by: H. Lewis Date: 11/6/83
Checked by: W. G. Smith Date: 11/12/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50240	Temperature (°F)	203.0	345.0	C-515	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.60	74.7	C-515	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 515							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-119A
Rev. 2

NOTES

Prepared by: W. Lewis
Checked by: W. Lewis

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 515 peaks at 203°F in 35.2 seconds. The pressure in Room 515 peaks at 15.6 psia in 9.4 seconds. The temperature and pressure in Room 515 return to ambient conditions in 19 minutes. (Reference C-515)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-119B
Rev. 2

Prepared by: A. Kros Date: 11/1/83
Checked by: [Signature] Date: 11/2/83

Plant I.D. No.: EV50240

Component: Terminal Block

Manufacturer: Stanwick

Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-120
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50250	Temperature	203.0	345.0	C-515	Note 3	Simultaneous Test	None
Component: Terminal Block	(°F)						
Manufacturer: Stanwick	Pressure	15.60	74.7	C-515	Note 3	Simultaneous Test	None
Model Number: Type G	(PSIA)						
Function: Electrical Circuit Termination	Relative Humidity	100.0	100.0	A	Note 3	Simultaneous Test	None
	(%)						
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Building RM. 515	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:							
Hot Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-120A
Rev. 2

NOTES

Prepared by: H. Ferri Date: 11/1/83
Checked by: [Signature] Date: 11/2/83

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 515 peaks at 203°F in 35.2 seconds. The pressure in Room 515 peaks at 15.6 psia in 9.4 seconds. The temperature and pressure in Room 515 return to ambient conditions in 19 minutes. (Reference C-515)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-120B
Rev. 2

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

Plant I.D. No.: EV50250
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

Index No. 221H-121
Rev. 2

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50370	Temperature (°F)	198.0	345.0	C-236	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.51	74.7	C-236	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.97 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 236							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-121A
Rev. 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 236 peaks at 198°F in 19 seconds. The pressure in Room 236 peaks at 15.5 psia in 1.6 seconds. The temperature and pressure in Room 236 return to ambient conditions in 6.7 minutes (Reference C-236).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-121B
Rev. 2

Prepared by:

N. Lewis

Date:

11/11/83

Checked by:

Erica D. Smith

Date:

11/2/83

Plant I.D. No.: EV50370

Component: Terminal Block

Manufacturer: Stanwick

Model No.: Type G

THERMAL AGING

RADIATION

Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

Docket: 50-346

SYSTEM COMPONENT EVALUATION WORKSHEET

Rev. 2

Prepared by:

Date:

Checked by:

Date:

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50380	Temperature (°F)	198.0	345.0	C-236	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.51	74.7	C-236	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	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	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for:	Submergence	N/A	N/A	N/A	N/A	N/A	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-122A
Rev. 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 236 peaks at 198°F in 19 seconds. The pressure in Room 236 peaks at 15.5 psia in 1.6 seconds. The temperature and pressure in Room 236 return to ambient conditions in 6.7 minutes (Reference C-236).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-122B
Rev. 2

Prepared by:

N. Semi

Date:

11/1/83

Checked by:

BT Mahand

Date:

11/4/83

Plant I.D. No.: EV50380

Component: Terminal Block

Manufacturer: Stanwick

Model No.: Type G

THERMAL AGING

RADIATION

Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-123
Rev. 2

Prepared by: H. Lewis
Checked by: B. M. Smith

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic 1E Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50650	Temperature (°F)	192.0	345.0	C-208	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	16.25	74.7	C-208	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.97×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 208	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-123A
Rev. 2

NOTES

Prepared by: N. Lewis Date: 11/1/83
Checked by: A. MacDonell Date: 11/1/83

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 208 peaks at 192°F in 7.1 seconds. The pressure in Room 208 peaks at 16.25 psia in 1.55 seconds. The temperature and pressure in Room 208 return to ambient conditions in 20 minutes (Reference C-208).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-124
Rev. 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50670	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-124A
Rev. 2

NOTES

Prepared by: D. Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-124B
Rev. 2

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

Plant I.D. No.: EV50670
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-125
Rev. 2

Prepared by:

N. Lewis

Date:

11/1/83

Checked by:

Donald

Date:

11/4/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification	Outstanding
	Parameter	Specification	Qualification	Specification	Qualification	Method	Items
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50700	Temperature (°F)	249.0	345.0	C-500	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.61	74.7	C-500	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	N/A	N/A	N/A	N/A	N/A	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 500							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-125A
Rev. 2

NOTES

Prepared by: N. Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 500 peaks at 249°F in 31 seconds. The pressure in Room 500 peaks at 15.61 psia in 9.6 seconds. The temperature and pressure in Room 500 return to ambient conditions in 19 minutes. (Reference C-500)

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-125B
Rev. 2

Prepared by: N. Lemi Date: 11/1/83
Checked by: L. H. Dault Date: 4/2/87

Plant I.D. No.: EV50700
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

Re v. : 2

Checked by: Tommy Date: 11/2/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50730	Temperature (°F)	249.0	345.0	C-500	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.61	74.7	C-500	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 500							
Flood Level Elev: N/A Above Flood Level: N/A	Radiation	N/A	N/A	N/A	N/A	N/A	None
Needed for:	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-126A
Rev.: 2

NOTES

Prepared by: N. Lewis
Checked by: Steve Paul

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 500 peaks at 249°F in 31 seconds. The pressure in Room 500 peaks at 15.61 psia in 9.6 seconds. The temperature and pressure in Room 500 return to ambient conditions in 19 minutes. (Reference C-500).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-126B
Rev.: 2

Prepared by: N. Lewis Date: 11/1/82
Checked by: Lyndal Date: 11/2/82

Plant I.D. No.: EV50730
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-127
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50750	Temperature (°F)	267.0	345.0	C-501	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.61	74.7	C-501	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 501	Radiation	N/A	N/A	N/A	N/A	N/A	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-127A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 501 peaks at 267°F in 31 seconds. The pressure in Room 501 peaks at 15.6 psia in 9.5 seconds. The temperature and pressure in Room 501 return to ambient conditions in 19 minutes. (Reference C-501).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-127B
Rev.: 2

Prepared by: N. Ford Date: 11/1/83
Checked by: Stanwick Date: 11/2/83

Plant I.D. No.: EV50750
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

Rev. : 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50780	Temperature (°F)	267.0	345.0	C-501	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.61	74.7	C-501	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A							
Service: Electrical Control	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 501							
Flood Level Elev: N/A	Radiation	N/A	N/A	N/A	N/A	N/A	None
Above Flood Level: N/A							
Needed for:	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-128A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 501 peaks at 267°F in 31 seconds. The pressure in Room 501 peaks at 15.6 psia in 9.5 seconds. The temperature and pressure in Room 501 return to ambient conditions in 19 minutes. (Reference C-501).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-128B
Rev.: 2

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

Plant I.D. No.: EV50780
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-129
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV50900	Temperature (°F)	221.0	345.0	C-314	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	19.76	74.7	C-314	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.0×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 314	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Above Flood Level: N/A							
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO.: 221H-129A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 314 peaks at 221°F in 1.55 seconds. The pressure in Room 314 peaks at 19.76 psia in .09 seconds. The temperature and pressure in Room 314 return to ambient conditions in 8 minutes (Reference C-314).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-129B
Rev.: 2

Prepared by: H. Leub Date: 11/1/83
Checked by: [Signature] Date: 11/2/83

Plant I.D. No.: EV50900
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-130
 Rev.: 2

Prepared by: n. kws Date: 11/1/83
 Checked by: [Signature] Date: 1/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV54210	Temperature (°F)	130.0	345.0	C-105	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	16.06	74.7	C-105	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.9×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 105	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					
Needed for:							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-130A
Rev.: 2

NOTES

Prepared by: N. Lewis Date: 11/1/83
Checked by: Paul G. Smith Date: 11/2/83

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 105 peaks at 130°F in 19 seconds. The pressure in Room 105 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 105 return to ambient conditions in 24 minutes (Reference C-105).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Facility: Davis-Besse Unit 1

Docket: 50-346

COMPONENT MATERIALS EVALUATION SHEET

Index NO.: 221H-130B

Rev.: 2

Prepared by: M. Lewis Date: 4/1/83
 Checked by: Stanwick Date: 4/2/83

Plant I.D. No.: EV54210

Manufacturer: Stanwick

Component: Terminal Block

Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No: 221H-131

Rev.: 2

Prepared by: N. Lewis
Checked by: [Signature]

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV54220	Temperature (°F)	130.0	345.0	C-105	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	16.06	74.7	C-105	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.9×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 105							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-131A
Rev.: 2

NOTES

Prepared by: N. Lewis Date: 11/1/81
Checked by: W. A. Hall Date: 11/2/81

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 105 peaks at 130°F in 19 seconds. The pressure in Room 105 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 105 return to ambient conditions in 24 minutes (Reference C-105).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% \pm 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-131B
Rev.: 2

Prepared by: N. Lewis Date: 11/1/93
Checked by: L. J. Smith Date: 11/2/93

Plant I.D. No.: EV54220
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index NO.: 221H-132
 Rev.: 2

Prepared by: D. Lewis Date: 11/1/82
 Checked by: Edmund Date: 11/1/82

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic 1E Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV54230	Temperature (°F)	155.0	345.0	C-113	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	16.06	74.7	C-113	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	7.1×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 113							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-132A
Rev.: 2

NOTES

Prepared by: H. Fenn
Checked by: James D. ...

Date: 11/1/03
Date: 11/2/03

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 113 peaks at 155°F in 19 seconds. The pressure in Room 113 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 113 return to ambient conditions in 6.7 minutes (Reference C-113).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-132B
Rev.: 2

Prepared by: A. Lewis
Checked by: [Signature]

Date: 11/1/81
Date: 11/2/83

Plant I.D. No.: EV54230
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-133
Rev.: 2

Prepared by: H. Lewis Date: 11/1/83
Checked by: Ann Daulton Date: 11/2/83

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Elec- trical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV54240	Temperature (°F)	177.0	345.0	C-115	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	15.60	74.7	C-115	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 115	Radiation	2.67×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-133A
Rev.: 2

NOTES

Prepared by: D. Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 115 peaks at 177°F in 19 seconds. The pressure in Room 115 peaks at 15.6 psia in 1.7 seconds. The temperature and pressure in Room 115 return to ambient conditions in 6.7 minutes (Reference C-115).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-133B
Rev.: 2

Prepared by: N. Lewis
Checked by: John Smith

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

Plant I.D. No.: EV54240
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-134
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV54250	Temperature (°F)	177.0	345.0	C-115	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	15.60	74.7	C-115	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	2.67×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 115	Hot Shutdown	<input checked="" type="checkbox"/>					
Flood Level Elev: N/A Above Flood Level: N/A	Cold Shutdown	<input checked="" type="checkbox"/>					

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No.: 221H-134A
Rev.: 2

NOTES

Prepared by: M. Lewis Date: 11/1/83
Checked by: W. A. Gault Date: 11/2/83

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 115 peaks at 177°F in 19 seconds. The pressure in Room 115 peaks at 15.6 psia in 1.7 seconds. The temperature and pressure in Room 115 return to ambient conditions in 6.7 minutes (Reference C-115).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% + 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No.: 221H-134B
Rev.: 2

Prepared by: N. Leub Date: 11/1/83
Checked by: Eric L. Lavel Date: 11/2/83

Plant I.D. No.: EV54250
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0 x 10 ⁸ RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6 x 10 ⁸ RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-135
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV54390	Temperature (°F)	130.0	345.0	C-105	Note 3	Simultaneous Test	None
Component: Terminal Block							
Manufacturer: Stanwick	Pressure (PSIA)	16.06	74.7	C-105	Note 3	Simultaneous Test	None
Model Number: Type G							
Function: Electrical Circuit Termination	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Accuracy: Spec: N/A Demon: N/A	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Service: Electrical Control							
Location: Auxiliary Bldg. Rm. 105	Radiation	1.9×10^6 RADS	1.6×10^8 RADS	T	CAL-79 Note 4	Analysis	None
Flood Level Elev: N/A Above Flood Level: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Needed for: Hot Shutdown <input checked="" type="checkbox"/> Cold Shutdown <input checked="" type="checkbox"/>	Submergence	N/A	N/A	N/A	N/A	N/A	None

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-135A
Rev.: 2

NOTES

Prepared by: H. Lewis
Checked by: [Signature]

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 105 peaks at 130°F in 19 seconds. The pressure in Room 105 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 105 return to ambient conditions in 24 minutes (Reference C-105).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

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

COMPONENT MATERIALS EVALUATION SHEET

Index No. 221H-135B
Rev.: 2

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

Plant I.D. No.: EV54390
Manufacturer: Stanwick

Component: Terminal Block
Model No.: Type G

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-136
Rev.: 2

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

EQUIPMENT DESCRIPTION	ENVIRONMENT			DOCUMENTATION REF.		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Generic IE Electrical Components	Operating Time	1 Year	1.1 Years	Note 2	Note 1 Note 3	Simultaneous Test	None
Plant ID No.: EV54400	Temperature (°F)	130.0	345.0	C-105	Note 3	Simultaneous Test	None
Component: Terminal Block	Pressure (PSIA)	16.06	74.7	C-105	Note 3	Simultaneous Test	None
Manufacturer: Stanwick	Relative Humidity (%)	100.0	100.0	A	Note 3	Simultaneous Test	None
Model Number: Type G	Chemical Spray	N/A	N/A	N/A	N/A	N/A	None
Function: Electrical Circuit Termination	Radiation	1.9 x 10 ⁶ RADS	1.6 x 10 ⁸ RADS	T	CAL-79 Note 4	Analysis	None
Accuracy: Spec: N/A Demon: N/A	Aging	40 Years	40 Years	I	CAL-79 Note 4	Analysis	None
Service: Electrical Control	Submergence	N/A	N/A	N/A	N/A	N/A	None
Location: Auxiliary Bldg. Rm. 1C5							
Flood Level Elev: N/A Above Flood Level: N/A							
Needed for: Hot Shutdown <input checked="" type="checkbox"/>							
Cold Shutdown <input checked="" type="checkbox"/>							

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

SYSTEM COMPONENT EVALUATION WORKSHEET

Index No. 221H-136A
Rev.: 2

NOTES

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

1. The test subjected the terminal block to a peak temperature of 345°F. At 30 minutes after the start of the test, the temperature was 320°F, at 1 hour the temperature was 300°F, at 1-1/2 hours the temperature was 290°F, at 2 hours the temperature was 280°F, at 3 hours the temperature was 260°F, at 4 hours the temperature was 255°F, at 8 hours the temperature was 235°F, at 12 hours the temperature was 225°F, and at 18 hours the temperature was 220°F which was maintained for the duration of the 96-hour test. The test pressure peak was 74.7 psia and at 35 minutes the test pressure was down to 19.7 psia which was maintained for the duration of the 96 hours. The temperature in Room 105 peaks at 130°F in 19 seconds. The pressure in Room 105 peaks at 16.06 psia in 1.75 seconds. The temperature and pressure in Room 105 return to ambient conditions in 24 minutes (Reference C-105).

Based on this information, it can be concluded that the laboratory test subjected the terminal block to an overall more severe environment than that which would result from a postulated HELB. Since the terminal block remained operable throughout the test and functional after the test, it can be concluded that the terminal block will remain functional during and after exposure to the accident environment which would result from the postulated HELB.

In addition, the terminal blocks were tested for temperature and humidity by the Stanwick Electrical Products Company. The high temperature test of 150°F for 8 hours was passed successfully with a test voltage of 600 volts D.C. (References V-35A, and V-35B). Maximum continuous use temperatures for the terminal block base and barrier materials (only non-metallic parts) are 302°F and 275°F, respectively (References W-2, AA). Stanwick also conducted a humidity test on the terminal blocks with 90% ± 10% relative humidity at 68°F using a test voltage of 500 volts D.C. No shorting or arcing occurred during the test (References V-35A, V-35B).

2. One year operating time is used as a conservative maximum specification.
3. This test data was obtained from a test performed by Duke Power Corporation on Stanwick terminal blocks (Reference ROC-35A). This test report is not available as a reference document.
4. Materials evaluation conducted. Materials sensitive to radiation and/or thermal aging summarized on attached evaluation.

Prepared by:

Plant I.D. No.: EV54400

Manufacturer: Stanwick

		THERMAL AGING		RADIATION	
Parts List	Materials List	Qualification	Reference	Qualification	Reference
Terminal Block Links	Brass	Not Sensitive		Not Affected	
Mounting Rods	Metallic	Not Sensitive		Not Affected	
Bolts	Silicone Bronze	Not Sensitive		Not Affected	
Insert	Brass	Not Sensitive		Not Affected	
Nuts	Brass	Not Sensitive		Not Affected	
Terminal Block Base	Durez #791 Phenolic	40 Years @ 230°F	CAL-79	3.0×10^8 RADS	CAL-79
Terminal Block Barrier	Glass - Melamine	Greater than 40 Years @ 122°F	CAL-79	1.6×10^8 RADS	CAL-79

Material and Parts Reference List: V-35A, V-35B, ROC-35B