

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

August 14, 1984

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

By letter dated July 24, 1984, TVA transmitted updated information documenting the environmental qualification of safety-related electrical equipment at the Watts Bar Nuclear Plant unit 1. TVA noted that additional nonsafety-related equipment had been identified which was required to be qualified in accordance with 10 CFR 50.49(b)(2). A list of this equipment was provided as an enclosure to the letter.

TVA has evaluated the effects of the environmental conditions from all DBEs on the subject nonsafety-related equipment and has determined that this equipment will operate and/or not fail in a manner detrimental to plant safety under all conditions. These evaluations are documented in the enclosed environmental qualification sheets (EQS).

Enclosed for incorporation into the package of information submitted by the July 24, 1984 letter is environmental qualification documentation for the nonsafety-related equipment mentioned above. Specifically included in the enclosure are the following: (1) Effective Page Listing, (2) Table 1.1 (Sheets 119 and 120), (3) Section 2.6, (4) EEB EQS Index Sheet, (5) EEB EQSs and Appendices, (6) EEB Table 3.11-6 (Sheets 1013 and 1014), and (7) EEB Table 3.11-7 (Sheet 1011).

8408210435 840814
PDR ADOCK 05000390
A PDR

AOAS
||

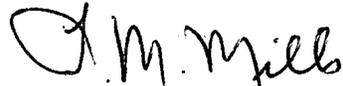
Director of Nuclear Reactor Regulation

August 14, 1984

If you have any questions concerning this matter, please get in touch with D. B. Ellis at FTS 858-2681.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



L. M. Mills, Manager
Nuclear Licensing

Sworn to and subscribed before me
this 14th day of August 1984

Paulette W. White

Notary Public

My Commission Expires 9-5-84

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attn: Mr. James P. O'Reilly Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

ENCLOSURE

01740

WBN - EEEQR

EFFECTIVE PAGE LISTING
ORIGINAL ISSUE - JULY 1983
REVISED - JULY 1984

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
WBN EEEQR Unit 1&2 - Title Page		7/84
Forward	ii	7/84
Table of Contents	iii-iv	7/84
1.0 Title Page		7/84
1.1	1-2	7/84
1.2	1-2	7/84
Table 1.1	1-120	7/84
2.0 Title Page		7/84
2.1	1-2	7/84
Table 2.1-1	1	7/84
2.2	1	7/84
2.3	1	7/84
Table 2.3-1	1	7/84
2.4	1	7/84
Table 2.4-1	1	7/84
2.5	1	7/84
2.6	1-2	7/84
2.7	1	7/84
3.0 Title Page		7/84
3.1	1-17	7/84
Figure 3.1.2.1.1-1	1	7/84
Figure 3.01-1 thru 3.01-46	1-46	7/84
4.0 Title Page		7/84
4.1	1-2	7/84
4.2	1-3	7/84
4.3	1	7/84
5.0 Title Page		7/84
5.1	1-3	7/84
5.2 NEB-NSSS EQS Title Page		7/84
NEB-EQS Index	1	7/84
NEB-83-1 R2		7/84
Appendix 1 R2	1-2	7/84
NEB-68-3 R2		7/84
Appendix 1 R3	1-2	7/84
Attachment 1 R2	1	7/84
NEB-3-4 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1		7/84
NEB-XX-5 R2		7/84
Appendix 1 R1	1	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
NEB-XX-6 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1	7/84
NEB-XX-8 R1		7/84
Appendix 1 R1	1	7/84
NEB-XX-11 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-2	7/84
NEB-XX-13 R2		7/84
Appendix 1 R2	1	7/84
NEB-68-14 R2		7/84
Appendix 1 R2	1	7/84
NEB-1-21 R1		7/84
Appendix 1 R1	1-3	7/84
NEB-68-23 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
NEB-68-24 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
NEB-62-26 R2		7/84
Appendix 2 R2	1	7/84
NEB-30-27 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-3	7/84
NEB-XX-31 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R0	1-3	7/84
NEB-68-33 R0		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-3	7/84
NEB-XX-36 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
NEB-XX-37 R2		7/84
Appendix 1 R2	1-2	7/84
Appendix 2 R1	1-4	7/84
NEB-XX-38 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R1	1-2	7/84
NEB-1-40 R1		7/84
Appendix 1 R1	1-3	7/84
NEB-68-43 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
NEB-68-44 R1		7/84
Appendix 1 R1	1	7/84
NEB-74-45 R1		7/84
Appendix 1 R1	1	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
Attachment 1	1	7/84
NEB-XX-47		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-2	7/84
NEB-XX-48		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-2	7/84
NEB-94-48		7/84
Appendix 1 R0	1-2	7/84
Attachment 1	1-5	7/84
NEB-XX-49		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-2	7/84
Attachment 1	1-15	7/84
5.3 EEB EQS Title Page	1	7/84
EEB EQS Index	1-6	7/84
WBNEEB0001 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-5	7/84
Appendix 3 R2	1	7/84
WBNEEB0002 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-2	7/84
Appendix 3 R2	1	7/84
WBNEEB0006 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-7	7/84
WBNEEB0007 R0		7/84
Appendix 1 R0	1-1	7/84
Appendix 2 R0	1-8	7/84
Appendix 3 R0	1	7/84
Appendix 4 R0	1	7/84
WBNEEB0009 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-5	7/84
Appendix 3 R0	1	7/84
WBNEEB0011 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
WBNEEB0015 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-4	7/84
WBNEEB0016 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-2	7/84
WBNEEB0018 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-11	7/84
Appendix 3 R2	1	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
WBNEEB0019 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-8	7/84
Appendix 3 R2	1	7/84
WBNEEB0020 R2		7/84
Appendix 1 R2	1-3	7/84
Appendix 2 R2	1-18	7/84
Appendix 3 R2	1	7/84
WBNEEB0022 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
WBNEEB0023 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1	7/84
WBNEEB0026 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-4	7/84
WBNEEB0027 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-3	7/84
WBNEEB0028 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-12	7/84
Appendix 3 R2	1	7/84
WBNEEB0029 R2		7/84
Appendix 1 R2	1-2	7/84
Appendix 2 R2	1-26	7/84
WBNEEB0030 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-2	7/84
WBNEEB0033 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-3	7/84
Appendix 3 R1	1	7/84
WBNEEB0035 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-7	7/84
WBNEEB0036 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-5	7/84
Appendix 3 R2	1	7/84
WBNEEB0037 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-5	7/84
WBNEEB0038 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
WBNEEB0039 R2		7/84
Appendix 1 R2	1-2	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
Appendix 2 R2	1-9	7/84
Appendix 3 R2	1	7/84
WBNEEB0043 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-4	7/84
WBNEEB0044 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-5	7/84
WBNEEB0046 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-5	7/84
Appendix 3 R0	1	7/84
WBNEEB0047 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-5	7/84
Appendix 3 R0	1	7/84
WBNEEB0049 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-4	7/84
WBNEEB0051 R2		7/84
Appendix 1 R2	1-2	7/84
Appendix 2 R2	1-12	7/84
Appendix 3 R2	1	7/84
WBNEEB0053 R2		7/84
Appendix 1 R2	1-2	7/84
Appendix 2 R1	1	7/84
WBNEEB0054 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-6	7/84
WBNEEB0056 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
Appendix 3 R2	1	7/84
WBNEEB0057 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-2	7/84
WBNEEB0058 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-2	7/84
Appendix 3 R2	1-2	7/84
WBNEEB0059 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
WBNEEB0060 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1	7/84
WBNEEB0061 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-5	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
WBNEEB0063 R0		7/84
Appendix 2 R0	1	7/84
Appendix 2 R0	1-5	7/84
WBNEEB0065 R2		7/84
Appendix 1 R2	1-2	7/84
Appendix 2 R2	1-8	7/84
Appendix 3 R2	1	7/84
WBNEEB0067 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-3	7/84
WBNEEB0068 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-3	7/84
Appendix 3 R0	1	7/84
WBNEEB0072 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-4	7/84
WBNEEB0073 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBNEEB0074 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-9	7/84
WBNEEB0076 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBNEEB0077 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-6	7/84
WBNEEB0079 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-2	7/84
WBNEEB0080 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-4	7/84
WBNEEB0081 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1	7/84
WBNEEB0085 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBNEEB0086 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-3	7/84
WBNEEB0087 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-5	7/84
Appendix 3 R0	1	7/84
WBNEEB0088 R0		7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
Appendix 1 RO	1	7/84
Appendix 2 RO	1-5	7/84
WBNEEB0089 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-3	7/84
WBNEEB0090 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-3	7/84
WBNEEB0091 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1	7/84
WBNEEB0093 RO		7/84
Appendix 1 RO	1-5	7/84
EEB-CBL-1 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-2	7/84
EEB-CBL-2 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-4	7/84
EEB-CBL-3 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-4	7/84
EEB-CBL-3.1 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-2	7/84
EEB-CBL-4 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-5	7/84
EEB-CBL-5 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-6	7/84
EEB-CBL-6 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-6	7/84
EEB-CBL-7 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-2	7/84
EEB-CBL-7.1 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-3	7/84
EEB-CBL-7.2 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-7	7/84
EEB-CBL-8.0 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-2	7/84
EEB-CBL-8.1 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-2	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
EEB-CBL-8.2 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-2	7/84
EEB-CBL-8.3 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-3	7/84
EEB-CBL-8.5 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-3	7/84
EEB-CBL-9 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-6	7/84
EEB-CBL-10 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-6	7/84
EEB-CBL-12 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-5	7/84
EEB-CBL-13 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-19	7/84
EEB-CBL-14 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-26	7/84
EEB-CBL-15 RO		7/84
Appendix 1 R1	1	7/84
EEB-CBL-16 R1		7/84
Appendix 1 R1	1-2	7/84
Appendix 2 R1	1-22	7/84
EEB-CBL-16.1 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-7	7/84
EEB-CBL-17 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-13	7/84
EEB-CBL-18 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-2	7/84
EEB-CBL-18.1 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-5	7/84
EEB-CBL-18.2 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-3	7/84
EEB-CBL-19 RO		7/84
Appendix 1 RO	1	7/84
Appendix 2 RO	1-4	7/84
EEB-CB-1 RO		7/84
Appendix 1 RO	1	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
Appendix 2 R0	1	7/84
EEB-CSC-1 R0		7/84
Appendix 1 R0	1	7/84
EEB-CSM-1 R0		7/84
Appendix 1 R0	1	7/84
EEB-HS-1 R2		7/84
Appendix 1 R2	1-2	7/84
Appendix 2 R0	1	7/84
EEB-JB-1 R1		7/84
Appendix 1 R2	1-2	7/84
Appendix 2 R0	1-2	7/84
WBNEEB-MTR-1 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-2	7/84
EEB-PEN-1 R0		7/84
Appendix 1 R1	1-4	7/84
Appendix 2 R0	1-4	7/84
EEB-SPL-1 R0		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
EEB-TB-1 R1		7/84
Appendix 1 R2	1-3	7/84
EEB-XS-1 R1		7/84
Appendix 1 R1	1-4	7/84
Appendix 2 R1	1-59	7/84
Appendix 3 R1	1-12	7/84
Appendix 4 R1	1-24	7/84
EEB-RLY-1 R1		7/84
Appendix A R1	1	7/84
WBNEEB-RM-2 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-3	7/84
Appendix 3 R0	1-7	7/84
EEB-STR-1 R1		7/84
Attachment 1 R0	1	7/84
EEB-XS-2 R1		7/84
Attachment 1 R1	1	7/84
EEB-BD-242 R0		7/84
Appendix 1 R0	1	7/84
EEB-PNL-1 R0		7/84
Appendix 1 R0	1	7/84
EEB-BD-1 R0		7/84
Appendix 1 R0	1	7/84
EEB-BD-2 R0		7/84
Appendix 1 R0	1	7/84
EEB-BD-3 R0		7/84
Appendix 1 R0	1	7/84
EEB-BD-4 R0		7/84
Appendix 1 R0	1	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
EEB-MC-1 RO		7/84
Appendix 1 RO	1	7/84
EEB-MC-2 RO		7/84
Appendix 1 RO	1	7/84
EEB-MC-3 RO		7/84
Appendix 1 RO	1	7/84
EEB-MC-4 RO		7/84
Appendix 1 RO	1	7/84
EEB-MC-5 RO		7/84
Appendix 1 RO	1	7/84
5.4 MEB EQS Title Page	1	7/84
MEB EQS Index	1-12	7/84
WBN-MEB-30-0001 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0002 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0004 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0005 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0006 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-65-0007 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-40	7/84
WBN-MEB-65-0008 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-65-0009 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-65-0010 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-30-0011 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0012 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0013 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-30-0015 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0016 R1		7/84
Appendix 1 R1	1-3	7/84
Appendix 2 R1	1	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
WBN-MEB-30-0017 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-30-0018 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-65-0030 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0035 R1		7/84
Appendix 1 R0	1	7/84
Appendix 2 R1	1	7/84
Appendix 3 R0	1-87	7/84
Appendix 4 R0	1-2	7/84
WBN-MEB-1-0101 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-1-0103 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-1-0104 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-1-0105 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-1-0107 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-1-0108 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-1-0110 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-3-0111 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-3-0113 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-3-0114 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-26-0115 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-30-0117 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0118 R1		7/84
Appendix 1 R1	1	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
Appendix 2 R1	1	7/84
WBN-MEB-30-0119 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0120 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0121 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-30-0123 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0124 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-30-0125 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0126 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-30-0127 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-31-0128 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-31-0129 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-65-0130 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-65-0132 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-67-0134 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-67-135 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-67-0136 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-67-0137 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-67-0139 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
WBN-MEB-67-0140 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-70-0141 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-70-0142 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-70-0144 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-70-0147 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-70-0148 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-72-0151 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-2	7/84
WBN-MEB-31-0153 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-31-0154 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-72-0156 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84
WBN-MEB-65-0159 R1		7/84
Appendix 1 R1	1	7/84
WBN-MEB-70-0161 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-2	7/84
WBN-MEB-70-0162 R0		7/84
Appendix 1 R0	1	7/84
WBN-MEB-70-0163 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-2	7/84
WBN-MEB-70-0164 R0		7/84
Appendix 1 R0	1	7/84
Appendix 2 R0	1-5	7/84
WBN-MEB-3-0201 R2		7/84
Appendix 1 R2	1	7/84
Appendix 2 R2	1-3	7/84
WBN-MEB-3-0202 R0		7/84
Appendix 1 R0	1	7/84
WBN-MEB-46-0203 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1	7/84

<u>Section and/or Description</u>	<u>Page</u>	<u>Effective Date</u>
WBN-MEB-72-0204 R1		7/84
Appendix 1 R1	1	7/84
Appendix 2 R1	1-3	7/84
6.0 Title Page		7/84
6.1	1	7/84
6.2	1-3	7/84
Table 6.2 R0	1-2	7/84
6.3	1	7/84
Table 3.11-4, 4A Title Page		7/84
NEB-Table 3.11-4	1-21	7/84
EEB-Table 3.11-4	1-12,1000-1001	7/84
EEB-Table 3.11-4A	1000,1000A,1001,1003	7/84
MEB-Table 3.11-4	1,101(2)-102	7/84
Table 3.11-5 Title Page		7/84
NEB-Table 3.11-5	1	7/84
EEB-Table 3.11-5	1-4,1000	7/84
MEB-Table 3.11-5	101-102(3)	7/84
Table 3.11-6 Title Page		7/84
NEB-Table 3.11-6	1-2	7/84
EEB-Table 3.11-6	1-6,1000-1014	7/84
MEB-Table 3.11-6	1-3,101(2),102(2), 103,201	7/84
Table 3.11-7 Title Page		7/84
NEB-Table 3.11-7	1-13	7/84
EEB-Table 3.11-7	1-5,1000-1011	7/84
MEB-Table 3.11-7	1-6,101(2),102(2), 103(2),104(2),105(3), 201	7/84
Table 3.11-8 Title Page		7/84
NEB-Table 3.11-8	1-14	7/84
EEB-Table 3.11-8	1-14,1000-1014	7/84
EEB Table 3.11-8A	1000-1011,1011A, 1011B, 1012-1013, 1013A,1014-1016	7/84
MEB-Table 3.11-8	101-102(2)	7/84
Table 3.11-9 Title Page		7/84
NEB-Table 3.11-9	1	7/84
7.0 Title Page		7/84
7.0	1	7/84
8.0 Title Page		7/84
8.0	1	7/84

012265.03

WBN TABLE 1.1

SUMMARY OF ELECTRICAL EQUIPMENT QUALIFICATION STATUS

<u>Unit</u>	<u>TVA ID No.</u>	<u>Manufacturer/Model No.</u>	<u>Status</u>	<u>NCR No.</u>	<u>EQS No.</u>	<u>Table Reference</u>
1	BD-242-1	EI-Tex Ind.	Non-Class 1E (See Note 1)	None	EEB-BD-242	E 6/1014
1	BD-242-2	EI-Tex Ind.	Non-Class 1E (See Note 1)	None	EEB-BD-242	E 6/1014
0	DPL-234-A1-SIS	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 7/1011
0	DPL-234-B1/SIS	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 7/1011
0	DPL-234-A2/SIS	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 7/1011
0	DPL-234-B2/SIS	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 7/1011
0	DPL-234-A1/CVC	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 7/1014
0	DPL-234-B1/CVC	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 6/1014
0	DPL-234-A2/CVC	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 6/1014
0	DPL-234-B2/CVC	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 6/1014
0	DPL-234-A3/CVC	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 6/1014
0	DPL-234-B3/CVC	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 6/1014
0	DPL-234-A4/CVC	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 6/1014
0	DPL-234-B4/CVC	Thermon Mfg. Co.	Non-Class 1E (See Note 1)	None	EEB-PNL-1	E 6/1014
0	BD-228-1	Arrow-Hart	Non-Class 1E (See Note 1)	None	EEB-BD-1	E 6/1013

EPC
 JUL 1984

WBN TABLE 1.1

SUMMARY OF ELECTRICAL EQUIPMENT QUALIFICATION STATUS

<u>Unit</u>	<u>TVA ID No.</u>	<u>Manufacturer/Model No.</u>	<u>Status</u>	<u>NCR No.</u>	<u>EQS No.</u>	<u>Table Reference</u>
0	BD-228-2	Arrow-Hart	Non-Class 1E (See Note 1)	None	EEB-BD-2	E 6/1013
0	BD-228-3	Arrow-Hart	Non-Class 1E (See Note 1)	None	EEB-BD-3	E 6/1013
0	BD-228-4	Arrow-Hart	Non-Class 1E (See Note 1)	None	EEB-BD-4	E 6/1013
0	MCC-217-A	I-T-E	Non-Class 1E (See Note 1)	None	EEB-MC-1	E 6/1013
0	MCC-217-B	I-T-E	Non-Class 1E (See Note 1)	None	EEB-MC-2	E 6/1013
0	MCC-216-A	I-T-E	Non-Class 1E (See Note 1)	None	EEB-MC-3	E 6/1013
0	MCC-216-B	I-T-E	Non-Class 1E (See Note 1)	None	EEB-MC-4	E 6/1013
0	MCC-208-A	I-T-E	Non-Class 1E (See Note 1)	None	EEB-MC-5	E 6/1013

NOTE 1: A status cannot be placed on this equipment as this equipment was not required to be procured to any qualification requirements (e.g., IREQ 323-1971, 1974, NUREG-0588). However, TVA has evaluated this equipment and has determined that this equipment will operate and/or not fail in any manner detrimental to plant safety. (See Section 2.6)

2.6 Identification of Nonsafety-Related Systems and Justification

Paragraph (b)(2) of 10CFR50.49 requires environmental qualification of "nonsafety-related electric equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions . . . by the safety-related equipment."

TVA has identified such nonsafety-related systems and equipment by analyzing the system process and electrical interfaces through which such unacceptable interactions could occur.

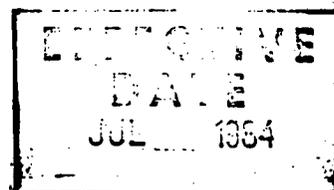
For system process interactions TVA has performed a systematic evaluation of the environmental effects resulting from high energy pipe breaks, inside and outside containment, upon nonsafety-related systems. This evaluation is documented in the Watts Bar FSAR under NRC Question 31.148 which required TVA to respond to IE Information Notice 79-22 on environmental qualification of control systems. The evaluation discussed the method used to identify potential adverse system process interaction and the required operator action to ensure safe shutdown. All potential adverse systems interactions were evaluated by studying the transients caused by inappropriate actuation of the final control elements due to environmental induced failures in the associated control circuits. The evaluation concluded that there is a possibility for adverse system interaction between safety and nonsafety-related systems. However, the consequences were acceptable in all cases for the following reasons:

1. Qualified postaccident monitoring (PAM) instrumentation is available to the operator to provide sufficient indication of an adverse system interaction.
2. Qualified Class 1E equipment is available to mitigate or isolate the effect of the nonsafety-related system failing in the adverse direction.
3. Adequate time is available for the operator to take corrective action.

Therefore, with regard to system process interactions, TVA has identified no nonsafety-related systems or equipment which require environmental qualification under the requirements of 10CFR50.49 paragraph (b)(2).

For electrical interactions both direct interfaces (i.e., direct electrical connection) and indirect interfaces (i.e., association by physical proximity) were considered. For the protection system/control systems interface, TVA reviewed the Westinghouse design requirements for safety-related systems to determine if safety and nonsafety-related systems were properly isolated. In all cases the safety-related systems were isolated from nonsafety-related systems through qualified isolation amplifiers. The isolation amplifiers are

2.6-1 (R1)

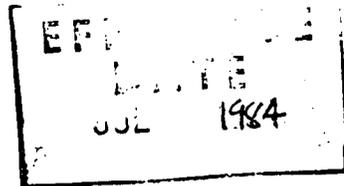


classified as part of the protection system and are located in the analog protection racks. The control signals obtained from the protection channels via the isolation amplifiers are never returned to the protection racks. This design feature meets the requirements of Criterion 24 of the 1971 GDC. Where failure of a protective system component can cause a process excursion which requires protective action, analysis performed by Westinghouse has indicated that the protection system can withstand another independent failure without loss of protective function. This design feature meets the design requirements of Criterion 25 of the 1971 GDC.

For the remainder of the electrical interfaces, both direct and indirect, TVA conducted a review and analysis on associated circuits, separation distances between Class 1E and Non-Class 1E circuits, and the circuits' associated protective devices. The results of this review and analysis were found to be acceptable by NRC's evaluation based on proper operation of protective devices as summarized in sections 8.3.3.3(2) and 8.3.3.3(3) of the "Safety Evaluation Report (SER) for Watts Bar Nuclear Plant Units 1 and 2 - NUREG-0847," dated June 1982. This initial review and analysis did not include an evaluation of the effects of environmental conditions, due to design basis events, on the performance of the associated circuits' protection devices as required by 10CFR50.49(b)(2). A subsequent review has been performed to determine which of the previously identified non-Class 1E protective devices are in a harsh environment. This review has identified several non-Class 1E devices located in the harsh environment required to be environmentally evaluated for operability under all plant conditions. These devices are identified in Table 1.1

These non-Class 1E devices were not required to be procured to any qualification requirements (e.g. IEEE 323-1971, 1974, NUREG-0588, etc.). TVA has evaluated the effects of the environmental conditions from all DBEs on the operating capabilities of these devices and has determined that these devices will operate and/or not fail in any manner detrimental to plant safety. These evaluations are contained in the EQSs referenced in Table 1.1. As a result of these evaluations, TVA feels no further qualification is required for these devices.

TVA believes that the methodology described above meets the requirements of 10CFR50.49 paragraph (b)(2) for the identification of nonsafety-related equipment.



WATTS BAR NUCLEAR PLANT
NUREG-0588 EQS INDEX

<u>WBN EQS No.</u>	<u>Description</u>	<u>Table</u>	<u>Sheet No.</u> <u>WBN-EEB</u>
EEB-TB-1	Terminal Blocks	3.11-4	1000
		3.11-5	1000
		3.11-6	1000
		3.11-7	1000
		3.11-8	1000,1001
			1002,1003
			1004,1005
			1006,1007
	1008,1009		
	1010,1011		
	1012,1013		
EEB-XS-1	Transfer Switch - Electroswitch Series 24	3.11-6	1009
EEB-RLY-1	Relay, Rotary - Potter&Brumfield Series MDR	3.11-6	1010
EEB-XS-2	Transfer Switch - Nutherm Part No. 4641	3.11-6	1011
EEB-STR-1	Motor Starter - Nutherm Part No. 4642	3.11-6	1012
EEB-RM-2	Radiation Monitors - General Atomic	3.11-4	1002
EEB-MTR-1	Motors - Reliance Electric Co.	3.11-6	1012
EEB-BD-242*	Power Panels - El-Tex, Ind.	3.11-6	1014
EEB-PNL-1*	Distribution Panels - Thermon Manufacturing Co.	3.11-6	1014
		3.11-7	1011
EEB-BD-1*	Power Boards - Arrow-Hart	3.11-6	1013
EEB-BD-2*	Power Boards - Arrow-Hart	3.11-6	1013
EEB-BD-3*	Power Boards - Arrow-Hart	3.11-6	1013
EEB-BD-4*	Power Boards - Arrow-Hart	3.11-6	1013
EEB-MC-1*	Motor Control Center - I-T-E	3.11-6	1013
EEB-MC-2*	Motor Control Center - I-T-E	3.11-6	1013
EEB-MC-3*	Motor Control Center - I-T-E	3.11-6	1013
EEB-MC-4*	Motor Control Center - I-T-E	3.11-6	1013
EEB-MC-5*	Motor Control Center - I-T-E	3.11-6	1013

JUL 1984

*Non-Class 1E [10CFR50.49b(2)]

	Revision					
Preparer/Date	H.W. Hampton	7/12/84	/	/	/	/
Reviewer/Date	J. Wagner	7/13/84	/	/	/	/

Unit No. 1 and 2
 EQS No. EEB-BD-242
 TVA ID No. See Appendix 1.

WEN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. AC Power Distribution - El-Tex Ind., Inc.
 Verification of Table Information (Table _____)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): See Appendix 1
- Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- Unqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.
 NCR No. _____

EFFECTIVE DATE
 JUL 1984

Prepared by: H. W. Hampton 7/12/84
Reviewed by: J. J. Wagner 7/13/84

BD-242
Appendix I, Rev 0
Sheet 2 of 2

B. Abnormal

These values occur for up to 8 hours per excursion for less than 1% of plant life. The maximum and minimum values could occur as a result of outside temperature excursions, temporarily greater than design heat loads or a degraded environmental control system.

<u>Parameter</u>	<u>Max</u>	<u>Min</u>
Temperature (°F)	127	50
Relative Humidity (%)	100	10

C. Loss of Coolant Accident (LOCA)/High Energy Line Break (HELB) - Break Inside Containment

<u>Parameter</u>	<u>Max</u>
Radiation (RADS)	Less than 1×10^4

EFFECTIVE
DATE
JUL 1984

Preparer/Date: H.D. Romanowski / 7-13-84
Reviewer/Date: J.F. Wagner 7/13/84

EEB-PNL-1
Appendix 1 Rev. 0
Sheet 1 of 1

ELECTRICAL HEAT TRACE SYSTEMS
THERMON MANUFACTURING COMPANY
CONTRACT 77K6-821608

Distribution panels for the electrical heat trace systems feed associated circuits. The devices used for overload current protection on these circuits are Square D, type QOB circuit breakers.

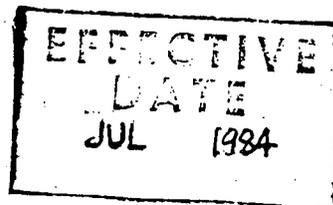
The panels are located in various areas of the plant and on a worst case basis may be subjected for a maximum temperature of 197°F, 100 percent humidity and a pressure of 14.3 psia dropping to 12.3 psia, and a total radiation dose of less than 1×10^4 .

Environmental qualification was not a requirement imposed on the manufacturer and consequently no environmental qualification tests were run on the equipment. Thermons Manufacturing did, however, do a thermal aging test which subjected the breaker to 125°C (257°F) for 1360 hours. The breakers functioned as required after this test, which indicates the breakers would function at the peak temperature described above. If the breakers were required to operate for an overload current during an elevated temperature condition described above, the breaker would trip faster for a given fault current than the trip times shown on the time-current curves for the breaker.

The 100 percent humidity conditions would not have a deleterious effect upon the breakers if they are energized before and during the accident. It is our engineering judgement that heat generated internal to the breaker will prevent damage by the humidity.

The radiation effects, which is less than 1×10^4 rads, is considered negligible since there are no known nonmetallic insulating materials adversely effected by this radiation level. See EPRI Report NP-1558 "Review of Equipment Aging Theory and Technology," Project 890-1, Final Report, Figure 7-18.

Therefore the breakers in the heat trace distribution panels will "fail-safe" when exposed to the environmental conditions specified. Absence of effective aging mechanisms assures this capability for the life of the plant.



	Revision					
Preparer/Date	<i>W.C. Nye</i>	<i>7/10/84</i>	/	/	/	/
Reviewer/Date	<i>D.R. K... ..</i>	<i>7/1/84</i>	/	/	/	/

Unit No. 1 & 2
 EQS No. EEB-BD-1
 TVA ID No. 0-BD-228-1

WEN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. Arrow-Hart
 Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-PSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): _____ (See Appendix 1)
- Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- Unqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.
 NCR No. _____

EFFECTIVE DATE
 JUL 1984

Prepared by: W. C. Wylie 7/16/84

EEB-BD-1

Reviewed by: D.R. Halster 7/16/84

Appendix 1, Rev. 0

LIGHTING BOARD

(ARROW HART)

This lighting board is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associate equipment because the feeder power cables from the lighting board are routed such that they share the same raceway with Class 1E circuits. Thus failure of the lighting board's circuit breakers, protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this lighting board it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

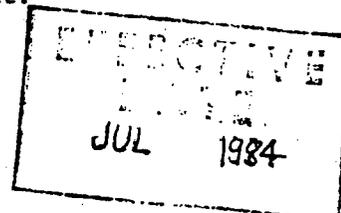
This Auxiliary Building Lighting Board is located in general space on elevation 737 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	127°F after 650 sec
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$<1 \times 10^4$ rads

The manufacturers technical data shows that the Westinghouse type JA and LA (TRI-PAC) molded-case circuit breaker can be safely applied in ambient temperature of 40°C (104°F). The only affect this higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual tests on motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no affect on molded-case circuit breakers. Radiation levels of $<1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure 7-18.

From the above it is concluded that these lighting boards are qualified to perform their only safety-related function in the worst-case environmental conditions resulting from an accident. Absence of effective aging mechanisms assures this capability for the life of the plant.

044192.09



	Revision				
Prepare/Date	7/10/94	/	/	/	/
Reviewer/Date	D.B. Webster 7/10/94	/	/	/	/

UNIT NO. 102
 EQS No. EEB-BD-2
 TVA ID No. 0-BD-228-2

WEN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. Arrow-Hart

Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): _____ (See Appendix 1)
- Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- Unqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation:
 NCR No. _____

JUL 1994

Prepared by: W. C. Wylie 7/14/84

EEB-BD-2
Appendix 1, Rev. 0

Reviewed by: D. R. Webster 7/14/84

LIGHTING BOARD

(ARROW HART)

This lighting board is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associate equipment because the feeder power cables from the lighting board are routed such that they share the same raceway with Class 1E circuits. Thus failure of the lighting board's circuit breakers, protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this lighting board it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

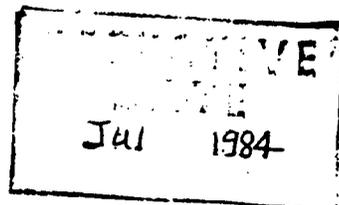
This Auxiliary Building Lighting Board is located in general space on elevation 737 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	127°F after 650 sec
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$<1 \times 10^4$ rads

The manufacturers technical data shows that the Westinghouse type JA and LA (TRI-PAC) molded-case circuit breaker can be safely applied in ambient temperature of 40°C (104°F). The only affect this higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual tests on motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no affect on molded-case circuit breakers. Radiation levels of $<1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure 7-18.

From the above it is concluded that these lighting boards are qualified to perform their only safety-related function in the worst-case environmental conditions resulting from an accident. Absence of aging mechanisms assures this capability for the life of the plant.

044192.08



	Revision					
Preparer/Date	<i>W.C. Wylie 7/10/84</i>	/	/	/	/	/
Reviewer/Date	<i>A.R. Helata 7/12/84</i>	/	/	/	/	/

Unit No. 1 & 2
 EQS No. EEB-BD-3
 TVA ID No. 0-BD-228-3

WEN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. Arrow-Hart

Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): _____ (See Appendix 1)

Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).

Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.

Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.

Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.

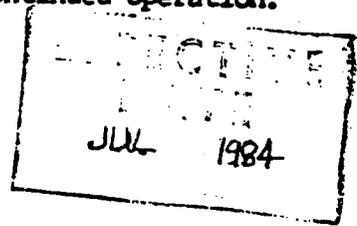
Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.

Term of Interim Qualification _____

NCR No. _____

Unqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.

NCR No. _____



Prepared by: W.C. Wylie 7/16/84

EEB-BD-3

Reviewed by: B.R. Kubit 7/16/84

Appendix 1, Rev. 0

LIGHTING BOARD

(ARROW HART)

This lighting board is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associate equipment because the feeder power cables from the lighting board are routed such that they share the same raceway with Class 1E circuits. Thus failure of the lighting board's circuit breakers, protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this lighting board it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

This Auxiliary Building Lighting Board is located in general space on elevation 692 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	153°F after 10 sec
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$< 1 \times 10^4$ rads

The manufacturers technical data shows that the Westinghouse type JA and LA (TRI-PAC) molded-case circuit breaker can be safely applied in ambient temperature of 40°C (104°F). The only affect this higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual test on motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no affect on molded-case circuit breakers. Radiation levels of $< 1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure 7-18.

From the above it is concluded that these lighting boards are qualified to perform their only safety-related function in the worst-case environmental conditions resulting from an accident. Absence of effective aging mechanisms assures this capability for the life of the plant.

044192.07

JUL 1984

	Revision					
Preparer/Date	<i>W.C. Nye</i>	<i>7/10/84</i>				
Reviewer/Date	<i>D.L. Hester</i>	<i>7/14/84</i>				

Unit No. 1 & 2
 EDS No. EEB-BD-4
 TVA ID No. 0-BD-228-4

WRN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. Arrow-Hart
 Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): (See Appendix 1)
- Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- Unqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.
 NCR No. _____

EFFECTIVE DATE
 JUL 1984

Prepared by: W. C. Wylie 7/16/84

EEB-BD-4
Appendix 1, Rev. 0

Reviewed by: D. R. Kelator 7/16/84

LIGHTING BOARD

(ARROW HART)

This lighting board is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associate equipment because the feeder power cables from the lighting board are routed such that they share the same raceway with Class 1E circuits. Thus failure of the lighting board's circuit breakers, protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this lighting board it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

This Auxiliary Building Lighting Board is located in general space on elevation 692 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	153°F after 10 sec
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$<1 \times 10^4$ rads

The manufacturers technical data shows that the Westinghouse type JA and LA (TRI-PAC) molded-case circuit breaker can be safely applied in ambient temperature of 40°C (104°F). The only affect this higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual test on motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no affect on molded-case circuit breakers. Radiation levels of $<1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure 7-18.

From the above it is concluded that these lighting boards are qualified to perform their only safety-related function in the worst-case environmental conditions resulting from an accident. Absence of effective aging mechanisms assures this capability for the life of the plant.

044192.06

JUL 1984

	Revision				
Preparer/Date <i>W.C. Mylio 2/10/84</i>	/	/	/	/	/
Reviewer/Date <i>D.R. Webster 2/14/84</i>	/	/	/	/	/

Unit No. 1 & 2
 EQS No. EEB-MC-1
 TVA ID No. 0-MCC-217-A

WEN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. I-T-E 5600 Series MCC

Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): _____ (See Appendix 1)
- NA Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- NA Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- NA Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- NA Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- NA Unqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.
 NCR No. _____

QUALIFIED
 DATE
 JUL 1984

Prepared by: W.C. Wylie 7/14/84

EEB-MC-1
Appendix 1, Rev. 0

Reviewed by: D.R. Hester 7/16/84

MOTOR CONTROL CENTER

(I-T-E 5600 SERIES)

This motor control center (MCC) is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associate equipment because the feeder power cables from the MCCs are routed such that they share the same raceway with Class 1E circuits. Thus failure of the MCC's circuit breakers (both thermal magnetic and magnetic only), protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this MCC it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

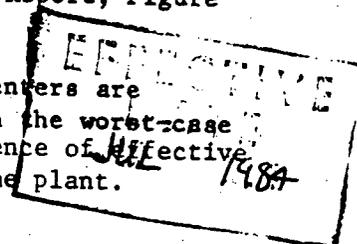
This Chemical and Volume Control Board is located in general space on elevation 692 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	153,F after 10 sec
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$<1 \times 10^4$ rads

The manufacturers technical data shows that the Gould I-T-E type EF molded-case circuit breaker (with some derating) can be safely applied in ambient temperature of 60,C (140,F). This is essentially the maximum temperature the breakers will have to operate in (153,F or 67.2,C). The only affect this ^{slightly} higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. The higher temperature will have no effect on the magnetic only breakers as these are operated on the amount of current flow and not by temperature rise. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual test on similar motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no affect of any components used on a motor control center. Radiation levels of $<1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure 7-18.

From the above it is concluded that these motor control centers are qualified to perform their only safety-related function in the worst-case environmental conditions resulting from an accident. Absence of effective aging mechanisms assures this capability for the life of the plant.

044192.05



Unit No. 1 & 2
 EQS No. EEB-MC-2
 TVA ID No. 0-MCC-217-B

	Revision				
Preparer/Date					
Reviewer/Date					

WBN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. I-T-E Motor Control Center 5600 Series
 Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): (See Appendix 1)
- Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- Disqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.
 NCR No. _____

RECEIVED
 DATE
 JUL 1984

Prepared by: W. C. Wyllie 7/16/84

EEB-MC-2
Appendix 1, Rev. 0

Reviewed by: R. P. Halverson 7/16/84

MOTOR CONTROL CENTER

(I-T-E 5600 SERIES)

This motor control center (MCC) is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associated equipment because the feeder power cables from the MCCs are routed such that they share the same raceway with Class 1E circuits. Thus failure of the MCC's circuit breakers (both thermal magnetic and magnetic only), protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this MCC it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

This Chemical and Volume Control Board is located in general space on elevation 692 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	153°F after 10 sec
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$<1 \times 10^4$ rads

The manufacturer's technical data shows that the Gould I-T-E type EF molded-case circuit breaker (with some derating) can be safely applied in ambient temperature of 60°C (140°F). This is essentially the maximum temperature the breakers will have to operate in (153°F or 67.2°C). The only effect this ~~slightly~~ ^{slightly} higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. The higher temperature will have no effect on the magnetic only breakers as these are operated on the amount of current flow and not by temperature rise. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual test on similar motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no effect of any components used on a motor control center. Radiation levels of $<1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure VE 7-18.

From the above it is concluded that these motor control centers are qualified to perform their only safety-related function in the worst-case environmental conditions resulting from an accident. Absence of effective aging mechanisms assures this capability for the life of the plant.

044192.04

	Revision				
Preparer/Date	<i>W. C. McGhee 7/14/84</i>	/	/	/	/
Reviewer/Date	<i>A. R. Hill 7/14/84</i>	/	/	/	/

Unit No. 1 & 2
 EDS No. EEB-MC-3
 TVA ID No. 0-MCC-216A

WBN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. Gould I-T-E Motor Control Center 5600 Series
 Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): _____ (See Appendix 1)
- Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- Unqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.
 NCR No. _____

EFFECTIVE
 DATE
 JUL 1984

Prepared by: W.E. Uglye 7/14/84

EEB-MC-3
Appendix 1, Rev. 0

Reviewed by: P.R. Webster 7/16/84

MOTOR CONTROL CENTER

(I-T-E 5600 SERIES)

This motor control center (MCC) is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associate equipment because the feeder power cables from the MCCs are routed such that they share the same raceway with Class 1E circuits. Thus failure of the MCC's circuit breakers (both thermal magnetic and magnetic only), protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this MCC it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

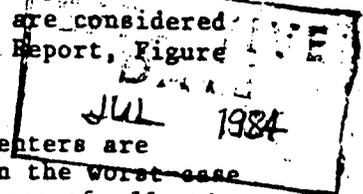
This Fuel and Waste Handling Board is located in general space on elevation 713 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	127°F
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$< 1 \times 10^4$ rads

The manufacturers technical data shows that the Gould I-T-E type EF molded-case circuit breaker (with some derating) can be safely applied in ambient temperature of 60°C (140°F). This is essentially the maximum temperature the breakers will have to operate in (127°F or 52.8°C). The only affect this slightly higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. The higher temperature will have no effect on the magnetic only breakers as these are operated on the amount of current flow and not by temperature rise. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual test on similar motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no affect of any components used on a motor control center. Radiation levels of $< 1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure 7-18.

From the above it is concluded that these motor control centers are qualified to perform their only safety-related function in the worst case environmental conditions resulting from an accident. Absence of effective aging mechanisms assures this capability for the life of the plants.

044192.03



	Revision					
Preparer/Date	<i>W.C. Nye/10/88</i>	/	/	/	/	/
Reviewer/Date	<i>D.R. Roberts 7/11/82</i>	/	/	/	/	/

Unit No. 1 & 2
 EDS No. EEB-MC-4
 TVA ID No. 0-MCC-216B

WBN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. Gould I-T-E Motor Control Center 5600 Series
 Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): _____ (See Appendix 1)
- Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- Disqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.
 NCR No. _____

EFFECTIVE DATE
 JUL 1984

Prepared by: W. C. Wylie 7/16/84

EEB-MC-4

Reviewed by: B. R. Helton 7/16/84

Appendix 1, Rev. 0

MOTOR CONTROL CENTER

(I-T-E 5600 SERIES)

This motor control center (MCC) is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associate equipment because the feeder power cables from the MCCs are routed such that they share the same raceway with Class 1E circuits. Thus failure of the MCC's circuit breakers (both thermal magnetic and magnetic only), protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this MCC it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

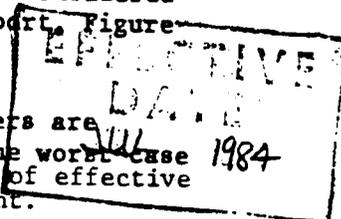
This Fuel and Waste Handling Board is located in general space on elevation 713 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	127°F
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$< 1 \times 10^4$ rads

The manufacturers technical data shows that the Gould I-T-E type EF molded-case circuit breaker (with some derating) can be safely applied in ambient temperature of 60°C (140°F). This is essentially the maximum temperature the breakers will have to operate in (127°F or 52.8°C). The only affect this slightly higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. The higher temperature will have no effect on the magnetic only breakers as these are operated on the amount of current flow and not by temperature rise. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual test on similar motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no affect of any components used on a motor control center. Radiation levels of $< 1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure 7-18.

From the above it is concluded that these motor control centers are qualified to perform their only safety-related function in the worst-case environmental conditions resulting from an accident. Absence of effective aging mechanisms assures this capability for life of the plant.

044192.02



	Revision					
Preparer/Date	<i>w.c. Wylie 7/10/84</i>	/	/	/	/	/
Reviewer/Date	<i>A.R. W. [unclear] 7/10/84</i>	/	/	/	/	/

Unit No. 1 & 2
 EQS No. EEB-MC-5
 TVA ID No. 0-MCC-208-A

WEN EQUIPMENT QUALIFICATION SHEET (EQS)

Manufacturer and Model No. Gould I-T-E Motor Control Centers
 Verification of Table Information (Table Appendix 1)

- Equipment Type - The equipment has been identified as per TVA ID number designations (such as, MOV, SOV).
- Location - The location has been identified (such as, inside primary containment, annulus, individually cooled rooms, general spaces, or area affected by HELB outside primary containment).
- Component - A unique TVA ID number has been assigned (such as, 1-FSV-68-308).
- Function - A functional description of the component has been given (such as, steam generator blowdown).
- Contract No., Manufacturer, and Model No. - The contract number, manufacturer, and model number have been given.
- Abnormal or Accident Environment - All abnormal or accident environmental conditions applicable to this equipment have been identified either in tables or by references to figures from tables.
- Environment to Which Qualified - The environment to which the equipment has been qualified is addressed in either the tables or the environmental analysis attached.
- Category - A category of a, b, c, or d has been defined for the equipment.
- Operation and Accuracy Required and Demonstrated - The operation and accuracy required and demonstrated have been defined.

Qualification Status (check if applicable, NA if not)

- Qualified Life (If equipment is qualified, indicate the qualified life with a numerical entry): _____ (See Appendix 1)
- NA Qualification Report and Method - A qualification report and the method of qualification has been identified on the Table Input Data Sheet (TIDS).
- Environmental Analysis - An environmental analysis has been done, attached to the EQS, and independently reviewed by the responsible organization.
- NA Qualification by Similarity (If applicable) - A justification for qualification by similarity is attached to the EQS considering all the above factors and referenced to the appropriate tables.
- NA Qualification of Several Exact Components (If applicable) - When an EQS is used for more than one item, a list of all exact components is given as an appendix with all references to appropriate tables with justification for qualification considering all the above factors.
- NA Interim Qualification (If applicable) - (Open item) - Component has been determined to be qualified only for a limited interim operation, an NCR has been written, and plan of action has been determined to yield a qualified component.
 Term of Interim Qualification _____
 NCR No. _____
- NA Unqualified Component - (Open item) - (If applicable) - Component has been determined to be unqualified; the following is attached to EQS: NCR number, reason for non-qualification, and justification of continued operation.
 NCR No. _____

RECEIVED
 JUL 1984

Prepared by: W.C. Wylie 7/16/84
Reviewed by: D.R. Kilstrom 7/16/84

EEB-MC-5
Appendix 1, Rev. 0

MOTOR CONTROL CENTER

(I-T-E 5600 SERIES)

This motor control center (MCC) is non-Class 1E because it is not required to operate during a design basis event, but is considered to be associate equipment because the feeder power cables from the MCCs are routed such that they share the same raceway with Class 1E circuits. Thus failure of the MCC's circuit breakers (both thermal magnetic and magnetic only), protecting these power cables, to trip for a fault could cause damage to a Class 1E cable and thus prevent Class 1E equipment from performing their accident mitigation function. Therefore, to environmentally qualify this MCC it is only necessary to address the tripping capability of the molded-case circuit breakers in the stipulated environmental conditions.

This Auxiliary Building Common MCC is located in general space on elevation 692 of the Auxiliary Building. The worst-case environmental conditions are as follows:

Temperature	127°F after 650 sec
Humidity	100%
Pressure	drop from 14.3 to 12.3 in 3 sec 2 sec at low pressure and a rise to normal 14.3 in 3 sec
Radiation	$<1 \times 10^4$ rads

The manufacturers technical data shows that the Gould I-T-E type EF molded-case circuit breaker (with some derating) can be safely applied in ambient temperature of 60°C (140°F). This is essentially the maximum temperature the breakers will have to operate in (127°F or 52.8°C). The only affect this slightly higher ambient temperature will have on the thermal magnetic circuit breaker is for the breaker to trip sooner than normal on any fault thereby providing greater protection for the associated cables. The higher temperature will have no effect on the magnetic only breakers as these are operated on the amount of current flow and not by temperature rise. High levels of relative humidity will have no detrimental effect on these circuit breakers when they are carrying current because the air surrounding their operating mechanism will be of higher temperature with respect to the room temperature and therefore will be appreciably dryer than the ambient air. It has been shown during actual tests on motor control centers for Hartsville Nuclear Plant that a sudden change of pressure of 3 PSIA had no affect on molded-case circuit breakers. Radiation levels of $<1 \times 10^4$ rads are considered negligible. Reference EPRI NP-1558, Project 890-1, Final Report, Figure 7-18.

From the above it is concluded that these motor control centers are qualified to perform their only safety-related function in the worst-case environmental conditions resulting from an accident. Absence of effective aging mechanisms assures this capability for the life of the plant.

044192.01

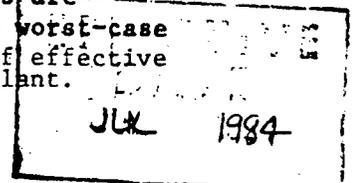


Table No.: 3.11-6
 Sheet No: WBN-EEB-1013

TABLE INPUT DATA SHEET
 WBN CLASS 1E EQUIPMENT

Revision 0	R1	R2	R3	R4
Preparer/Date <i>W. C. Wylie 7/10/84</i>	/	/	/	/
Reviewer/Date <i>S. R. Foster 7/10/84</i>	/	/	/	/

LOC	COMPONENT	FUNCTION	CONTRACT NO. MFG & MODEL NO.	ABML OR ACD ENVR	ENVIRONMENT TO WHICH QUALIFIED	CAT	OPER REQMT	OPER DEMO	ACCUR REQMT	ACCUR DEMO	QUAL RPT METHOD
		Auxiliary Building	73C2-84112	47E205							
	Lighting Board 0-BD-228-1	Lighting	Arrow-Hart	-46	Temp 127°F Humidity 100% Radiation 10 ⁴ rads Depressurization due to tornado ΔP -2.0 PSIA 8 sec	b	100d	100 days			
	Lighting Board 0-BD-228-2	Lighting	Arrow-Hart	-46	Temp 127°F Humidity 100% Radiation 10 ⁴ rads Depressurization due to tornado ΔP -2.0 PSIA 8 sec	b	100d	100 days			
	Lighting Board 0-BD-228-3	Lighting	Arrow-Hart	-62	Temp 153°F Humidity 100% Radiation 10 ⁴ rads Depressurization due to tornado ΔP -2.0 PSIA 8 sec	b	100d	100 days			
	Lighting Board 0-BD-228-4	Lighting	Arrow-Hart	-62	Temp 153°F Humidity 100% Radiation 10 ⁴ rads Depressurization due to tornado ΔP -2.0 PSIA 8 sec	b	100d	100 days			
	MCC 0-MCC-217-A	Chemical and Vol Control Bd	74C5-84646 I-T-F	-62	Temp 153°F Humidity 100% Radiation 10 ⁴ rads Depressurization due to tornado ΔP -2.0 PSIA 8 sec	b	100d	100 days			
	MCC 0-MCC-217-B	"	"	-62	"	b	100d	100 days			
	MCC 0-MCC-216-A	Fuel and Waste Handling Bd	"	-52	Temp 127°F Humidity 100% Radiation 10 ⁴ rads Depressurization due to tornado ΔP -2.0 PSIA 8 sec	b	100d	100 days			
	MCC 0-MCC-216-B	"	"	-52	"	b	100d	100 days			
	MCC 0-MCC-208-A	Auxiliary Bldg Common MCC	"	-46	"	b	100d	100 days			

RECEIVED
 JUL 1984

d = days

