



MISSISSIPPI POWER & LIGHT COMPANY

Helping Build Mississippi

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

January 25, 1985

NUCLEAR LICENSING & SAFETY DEPARTMENT

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
File: 0260/L-814.1
Supplemental Information for JCOs
on Environmental Qualification
of Electrical Equipment
AECM-85/0024

On December 21, 1984, MP&L submitted AECM-84/0531 regarding the GGNS request for extension to the qualification deadline as required by 10CFR50.49(g) on environmental qualification of electrical equipment. A teleconference was subsequently held on January 7, 1985 with the Equipment Qualification Branch (EQB) to resolve NRC review comments. As a result, MP&L committed to supplement the information contained in the Justifications for Continued Operation (JCOs) provided in AECM-84/0531, where similarity analyses to other components were referenced.

Consistent with the above commitment, MP&L is hereby providing revisions to the four GGNS JCOs which reference similarity analyses as identified by the EQB. Of these, the JCO for the 480 Volt load centers was subsequently modified to reference the qualification report for the actual load center, instead of the previously identified qualification report for a similar component. Additionally, as discussed with EQB, the JCO on the hydrogen recombiner power supply is being submitted to clarify that the radiation tolerances for all component materials of concern exceed the GGNS post LOCA conditions.

This submittal completes MP&L's response to the NRC's questions on this matter. Please contact this office if any additional information is required.

Yours truly,

L. F. Dale
Director

8501290347 850125
PDR ADOCK 05000416
P PDR

SAB/JCC:rg
Attachments

cc: See next page

Member Middle South Utilities System

A048
1/1

MISSISSIPPI POWER & LIGHT COMPANY

AECM-85/0024
Page 2

cc: Mr. J. B. Richard (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. G. B. Taylor (w/o)

Mr. Richard C. DeYoung, Director (w/a)
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. J. P. O'Reilly, Regional Administrator (w/a)
U.S. Nuclear Regulatory Commission
Region II
101 Marietta St., N.W., Suite 2900
Atlanta, Georgia 30323

JUSTIFICATION FOR CONTINUED OPERATION

II. Generic Component Name: Transmitters

Plant ID No.:	B21-N062A,B	B21-N094A,B,E,F
	B21-N067C,G,L,R	B21-N095A,B
	B21-N073C,G,L,R	E12-N062A,B,C,D
	B21-N078A,B,C,D	E32-N050
	B21-N091A,B,E,F	E32-N058

Manufacture/Model No.: Rosemount/1152"T0280"

Technical Discussion:

The above list of Model 1152"T0280" Rosemount transmitters are required to function for 100 days post LOCA (tested for a 50 hour time period). Failure Mode and Effects Analysis for each of the above plant ID's have been developed which indicate failure will not be detrimental to plant safety. The 50 hours of LOCA testing on the regular Model 1152 exceeds the first 50 hours of the postulated GGNS LOCA environment (Reference: Rosemount Report 117415). The Model 1152"T0280" was tested to a radiation level of 12.6×10^6 Rads (Reference: Rosemount Report 10763). The max predicted radiation exposure for any one of the above listed transmitter's is 7.2×10^6 Rads. An aging analysis of the materials in the model 1152"T0280" has established a service life of four (4) years.

The Model 1152"T0280" transmitter is similar in design and construction to the Rosemount Model 1153 Series B transmitter which has been qualified for 110 days post LOCA (Reference: Rosemount 108025, 108026, and 57820). The similarity of the two transmitters is established as follows:

	<u>1152"T0280"</u>	<u>1153 Series B</u>
Electronic Housing	Low-Copper Aluminum	Low-Copper Aluminum
Dimensions	Same as 1153 Series B	Same as 1152"T0280"
Shape	Same as 1153 Series B	Same as 1152"T0280"
Sensor Element	Sealed Capacitance	Sealed Capacitance
Sensor Fluid	Dow "704" Silicone Oil	Dow "704" Silicone Oil
Electronics	"E" Amp. Board	"E" Amp. Board
Electronics Housing	Ethylene Propylene	Ethylene Propylene
"O" Rings		
Process "O" Rings	Ethylene Propylene	316 Stainless Steel

Thus, the Rosemount Model 1152"T0280" transmitter is essentially the same transmitter as the Rosemount Model 1153 Series B transmitter. The primary difference between the two transmitters is the material used for the process "O" rings.

Rosemount further substantiates the similarity of the Model 1152 "T0280" to the Model 1153 Series B transmitter in Rosemount 1152 "T0280" Qualification Report 98017A.

The 1152 "T0280" transmitters are very similar to the 1153 Series B transmitter tested in Rosemount Report 97913A both mechanically and

JUSTIFICATION FOR CONTINUED OPERATION

electrically. The 1153 Series B evolved from the 1152 "T0280" with changes that would enhance it's aging characteristics. Performance and functional specifications remain identical for the two transmitters."

Based on the similarity of the Model 1152 "T0280" to the Model 1153 Series B Rosemount transmitter, the test data for the Model 1152 and the Failure Mode and Effects Analysis, the Rosemount Model 1152 "T0280" transmitter can be expected to survive 100 days post LOCA.

This analysis meets the criteria of 10CFR50.49, paragraph (i), items (2) and (5).

Therefore, continued operation is justified.

JUSTIFICATION FOR CONTINUED OPERATION

III. Generic Component Name: Solenoid Valve (MSIV)

Plant ID No.: B21-F022A,B,C,D
 B21-F028A,B,C,D

Manufacture/Model No.: ASCO/HTX8320A108V

Technical Discussion:

The reaction time requirement for the MSIV solenoid valve (ASCO Model HTX8320A108V) is one (1) hour post LOCA. The maximum environmental conditions the MSIV (ASCO model HTX8320A108V) solenoid valve will be exposed to from the postulated GGNS LOCA environment will be a pressure of 44.7 psia, a temperature of 330°F, a humidity of 100%, and a radiation exposure of 14.5×10^6 Rads.

The ASCO model HTX 8320A108V solenoid valve is similar in design and construction to the ASCO model NP8320A185V solenoid valve which has been tested by ASCO to environmental conditions that envelop the postulated GGNS LOCA environment. The maximum environmental conditions the model NP8320A185V was tested to was a pressure of 64.7 psia, a temperature of 448°F, a humidity of 100%, and a radiation exposure of 20×10^6 Rads (based on Viton limitation) (Reference: ASCO Report AQR-67368/Rev. 1). The model NP8320A185V was also tested for 30 days post LOCA (Reference: ASCO Report AQR-67368/Rev. 1).

The similarity of the ASCO model HTX8320A108V to the ASCO model NP8320A185V is established as follows:

	<u>Model HTX8320A108V</u>	<u>Model NP8320A185V</u>
Coil	Class H High-Temperature	Class H High-Temperature
Body	Brass or Stainless Steel	Brass or Stainless Steel
Enclosure	NEMA 4	NEMA 4
Seals & Discs	Viton	Viton
Disc Holder	Stainless Steel	Stainless Steel
Operation	3 Way Valve	3 Way Valve

Based on the similarity of the ASCO model HTX8320A108V to the tested NP8320A185V solenoid valve and the review of the referenced test report, the MSIV (ASCO model HTX8320A108V) solenoid can be expected to survive one (1) hour post LOCA.

This analysis meets the criteria of 10CFR50.49, paragraph (1), item (2).

Therefore, continued operation is justified.

JUSTIFICATION FOR CONTINUED OPERATION

VI. Generic Component Name: 480 Volt Load Center

Plant ID No.:	R20-S510-A	R20-S610-B
	R20-S520-A	R20-S620-B
	R20-S530-A	R20-S630-B
	R20-S540-A	R20-S640-B

Manufacture/Model No.: Gould-Brown Boveri/VD,K1600S,K600S

Technical Discussion:

For the above list of 480 Volt load centers, the only harsh environment to which the load centers will be exposed is radiation. The maximum predicted accident radiation exposure for any one of the above listed load centers is 1.6×10^6 Rads. The function time requirement for the above listed load centers in the radiation harsh only environment is 100 days post LOCA. The above list of 480 Volt load centers have been qualified by Gould-Brown Boveri to a radiation exposure of 2.1×10^6 Rads (Reference: Brown Boveri Report 33-55170-QS). The Brown Boveri qualification report 33-55170-QS states:

"Results of actual gamma exposure of switchgear equipment to a total integrated dose of 2.1×10^6 Rads gamma at a rate of 1.6×10^4 Rads gamma per hour provide verification that switchgear components will retain the ability to perform required functions after exposure to radiation."

Based on the review of the data from Brown Boveri qualification report 33-55170-QS, the 480 Volt load centers can be expected to survive 100 days post LOCA in the expected radiation environment.

This analysis meets the criteria of 10CFR50.49, paragraph (1), item (2).

Therefore, continued operation is justified.

JUSTIFICATION FOR CONTINUED OPERATION

VII. Generic Component Name: Power Supply (Hydrogen Recombiner)

Plant ID No.: H22-P278
H22-P279

Manufacture/Model No.: Westinghouse/Model B

Technical Discussion:

For the above power supply, the only harsh environment the power supply will be exposed is radiation. The maximum predicted accident radiation exposure for the above power supply based on refined radiation calculations performed for the exact location of the power supply has resulted in a radiation exposure of less than 3×10^4 Rads. The function time requirement for the above power supply in the expected radiation environment is 100 days post LOCA.

The power supply consists essentially of an isolation transformer, SCX Module (semiconductor), auxiliary control power transformer, main line contactor, and Teflon wiring. All of the organic materials of these power supply components have been reviewed to determine their radiation tolerance. All materials contained in these power supplies have a radiation tolerance of greater than 3×10^4 Rads either from EPRI Report NP-2129 or other test data.

Based on the radiation tolerance review of the organic materials, the power supply (Hydrogen Recombiner) can be expected to survive 100 days post LOCA in the expected radiation environment.

This analysis meets the criteria of 10CFR50.49, paragraph (i), item (2).

Therefore, continued operation is justified.