



MISSISSIPPI POWER & LIGHT COMPANY

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December 21, 1984

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
Request for Extension to
10CFR50.49(g) for Environmental
Qualification of Electrical
Equipment
AECM-84/0531

Pursuant to 10CFR50.49(g), Mississippi Power & Light (MP&L) is hereby requesting an extension to the March 31, 1985 environmental qualification deadline for seven categories of safety-related electrical components at the Grand Gulf Nuclear Station (GGNS) (Attachment 1). While MP&L has pursued an environmental qualification (EQ) program for electrical equipment in accordance with the requirements of GDC 4, NUREG-0588 and 10CFR50.49, as is discussed below, testing and procurement difficulties have resulted in a need for a limited extension of the qualification deadline until November 30, 1985.

On May 20, 1983, MP&L submitted a summary document listing the electrical equipment important to safety within the scope of 10CFR50.49. This submittal included a status of equipment qualification and a schedule for completing qualification by March 31, 1985, the qualification deadline set forth in 10CFR50.49. (At that time, two items were preliminarily identified as requiring an extension to the EQ deadline.) This schedule was consistent with the GGNS license condition which required completion of qualification by the first refueling outage, scheduled for about March 1985 (Condition 2.C(12) in NPF-13). However, delays in receiving a full power operating license subsequently extended the first refueling outage beyond March 31, 1985. Accordingly, on August 31, 1984, the license condition was modified removing the first refueling outage as an acceptable completion date for equipment qualification.

MP&L sustained its efforts to complete qualification by March 31, 1985 as required by 10CFR50.49. However, specific procurement lead times, testing difficulties and unavailability of a sufficient outage duration has resulted in projected completion for some components to be beyond this date.

Based on the above, MP&L is currently scheduling an outage around the period for declaring commercial operation in order to install the outstanding equipment modifications for environmental qualification. Depending on the progress made in the ongoing power ascension program, this outage is planned

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in the April through June, 1985 time frame. It is presently expected that all modifications and equipment testing will be completed prior to starting up from this outage. However, due to the potential for unforeseen testing concerns, installation problems, and the completion of qualification documentation for the GGNS EQ files, MP&L requests that an extension for the equipment listed in Attachment 1 be granted through November 30, 1985.

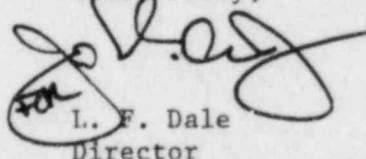
In support of the requests for extension, information detailing the specific condition necessitating the extension for each of the component types is provided in Attachment 2. These extension requests are based on one or more of the three criteria provided by 10CFR50.49(g) for demonstrating good cause for an extension. The criteria are provided in the notes to Attachment 1.

The GGNS Justifications for Continued Operation (JCOs) for each component type are provided in Attachment 3. Each JCO is based on one or more of the five criteria presented in 10CFR50.49(i) as listed in the notes to Attachment 1.

These justifications provide reasonable assurance that in the unlikely event an accident occurs during the interim period, it would be properly mitigated even though the final qualification of the equipment had not been completed. Therefore, MP&L concludes the requested extensions will have no significant environmental or public health and safety impact.

MP&L submits that for those components listed in Attachment 1, the attached supporting information and JCOs provide sufficient basis for an extension of the March 31, 1985 qualification deadline set forth in 10CFR50.49 until November 30, 1985. If you have any questions on this information, please feel free to contact this office.

Yours truly,



L. F. Dale
Director

SAB/JGC:rg
Attachments

cc: Mr. J. B. Richard (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
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LIST OF ELECTRICAL EQUIPMENT FOR WHICH AN EXTENSION OF
THE SCHEDULAR REQUIREMENTS IN 10CFR50.49 IS REQUESTED

<u>GENERIC COMPONENT NAME</u>	<u>PLANT ID NO.</u>	<u>MANUFACTURE/ MODEL NO.</u>	<u>EXTENSION CRITERIA*</u>	<u>JCO CRITERIA**</u>
Transmitter	E31-N172A1,A2,B1,B2 E31-N173A,B E31-N176A,B T48-N013A,B	Rosemount/1151	(3)	(2)
Transmitter	B21-N062A,B B21-N067C,G,L,R B21-N073C,G,L,R B21-N078A,B,C,D B21-N091A,B,E,F B21-N094A,B,E,F B21-N095A,B E12-N062A,B,C,D E32-N050 E32-N058	Rosemount/1152 "T0280"	(1),(2)	(2),(5)
Solenoid Valve (MSIV)	B21-F022A,B,C,D B21-F028A,B,C,D	ASCO/HTX8320A108V	(3)	(2)
Solenoid Valve (SRV)	B21-F041A,B,C,D,E,F,G,K B21-F047A,C,D,G,H,L B21-F051A,B,C,D,F,K	Seitz/ 0-108-562(e)	(2),(3)	(2)
Heaters & Controls (SGTS)	T48-D001A-A T48-D001B-B	CVI/None	(3)	(2)
480 Volt Load Center	R20-S510-A R20-S520-A R20-S530-A R20-S540-A R20-S610-B R20-S620-B R20-S630-B R20-S640-B	Gould-Brown Boveri/VD, K1600S,K600S	(2)	(2)
Power Supply (Hydrogen Recombiner)	H22-P278 H22-P279	Westinghouse/ Model B	(2)	(2)

NOTES

*Criteria for extension request based on 10CFR50.49(g) for demonstrating of good cause:

- (1) extension required based on procurement lead times
- (2) extension required based on testing complications
- (3) extension required based on installation problems

**Criteria for the Justifications for Continued Operations based on 10CFR50.49(i)

- (1) Accomplishing the safety function by some designated alternative equipment if the principal equipment has not been demonstrated to be fully qualified.
- (2) The validity of partial test data in support of the original qualification.
- (3) Limited use of administrative controls over equipment that has not been demonstrated to be fully qualified.
- (4) Completion of the safety function prior to exposure to the accident environment resulting from a design basis event and ensuring that the subsequent failure of the equipment does not degrade any safety function or mislead the operator.
- (5) No significant degradation of any safety function or misleading information to the operator as a result of failure of equipment under the accident environment resulting from a design basis event.

SUPPORTING INFORMATION FOR EXTENSION REQUEST

I. Component Name: Rosemount Model 1151 Transmitters

Plant ID No.:	E31-N172A1,A2,B1,B2	E31-N176A,B
	E31-N173A,B	T48-N013A,B

Basis for Extension Request:

The Rosemount Model 1151 transmitters being replaced in the E31 system require the addition of square root extractors in the instrumentation circuits. These modifications can only be performed during an outage. Replacement of the above listed transmitters (including square root extractors) will require approximately a 6 week outage period. Upon recognizing that the replacement of these components must be performed prior to the previously scheduled first refueling outage, an outage of this duration was not available. The replacement of these transmitters is now planned for the outage scheduled around the declaration of commercial operation which will be occurring after the March 31, 1985 EQ deadline.

SUPPORTING INFORMATION FOR EXTENSION REQUEST

II. Component Name: Rosemount Model 1152 "T0280" Transmitters

Plant ID No.:	B21-N062A,B	B21-N094A,B,E,F
	B21-N067C,G,L,R	E21-N095A,B
	B21-N073C,G,L,R	E12-N062A,B,C,D
	B21-N078A,E,C,D	E32-N050
	B21-N091A,B,E,F	E32-N058

Basis for Extension Request:

MP&L is in the process of procuring Model 1153 transmitters for replacing all of the above referenced Rosemount Model 1152 transmitters. These replacement transmitters are presently scheduled for GGNS delivery in February 1985. Due to the present procurement lead time being experienced for obtaining fully qualified replacements, MP&L is unable to receive and install these replacements by March 31, 1985. These transmitters are scheduled for replacement concurrently with the previously discussed Model 1151 transmitters, which require a six week outage.

In addition, GE is currently testing the Rosemount Model 1152 "T0280" transmitters to environmental conditions that envelop the GGNS environmental requirements. Testing is expected to be completed by March 1985. MP&L is currently discussing with GE the possibility of obtaining the test report if testing is successful, and no replacements would be necessary.

SUPPORTING INFORMATION FOR EXTENSION REQUEST

III. Component Name: ASCO Solenoid Valves (MSIV) Model HTX8320A108V

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

Basis for Extension Request:

The MSIV ASCO solenoids were not part of the original NUREG-0588 list, but were recently added from an evaluation performed on the INPO Significant Event Report 08-80. The SER identified binding solenoids (due to exposure to severe environment) as the cause for Turkey Point 3 MSIV "C" failure to close. The GGNS MSIV Solenoids have been considered "Fail Safe" and, therefore, were not included in the Environmental Qualification Program.

MP&L has begun procurement of fully qualified model NP ASCO solenoids for replacement of the HTX8320A108V model ASCO solenoid valve. However, due to the procurement lead time involved, these solenoids are not scheduled for delivery until February 1985.

Replacement of the solenoids are outage dependent, however, the next available outage is scheduled after the March 31, 1985 completion deadline.

SUPPORTING INFORMATION FOR EXTENSION REQUEST

IV. Component Name: Seitz Solenoid Valve (SRV)

Plant ID No.: B21-F041A,B,C,D,E,F,G,K
B21-F047A,C,D,G,H,L
B21-F051A,B,C,D,F,K

Basis for Extension Request:

As discussed in AECM-84/0402 dated July 30, 1984, the Seitz SRV solenoids have been continuously involved in extensive testing programs that have resulted in insufficient test data and solenoid test failure. The Seitz solenoid has been subsequently redesigned and is presently undergoing further qualification testing. Testing of the new solenoid is scheduled for completion in February 1985.

Anticipating successful test results for the new solenoid design, MP&L has begun procurement of the new designed solenoids for their timely replacement. However, the replacement solenoids are not scheduled for GCNS delivery until March 1985.

The replacement of these solenoids are outage dependent. If successful testing is accomplished, the solenoids will be replaced during the outage scheduled around commercial operation.

SUPPORTING INFORMATION FOR EXTENSION REQUEST

- V. Component Name: Heaters and Controls for the Standby Gas Treatment System (SGTS)

Plant ID No.: T48-D001A-A
T48-D001B-B

Basis for Extension Request:

The SGTS Heaters & Controls were originally supplied as unqualified, non-Class 1E components, but were reclassified to be qualified as Class 1E components due to the guidance provided in ANSI N509-1980. A Purchase Specification for Class 1E environmentally qualified heaters and controls was awarded in September 1984. The GGNS delivery of the qualified components is scheduled for February 1985. Due to this procurement lead time, installation prior to March 31, 1985 is considered extremely close. Even though installation of the heaters and controls is not entirely outage dependent (can be installed under an LCO), any unforeseen schedule delays in equipment delivery and installation completion (including component surveillance testing), may extend beyond the March 31, 1985 EQ deadline. Therefore, an extension to the EQ deadline is being requested.

SUPPORTING INFORMATION FOR EXTENSION REQUEST

VI. Component Name: Gould-Brown Boveri 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

Basis for Extension Request:

MP&L and the GGNS Architect-Engineer performed an audit in mid-1983 of a proprietary test report for the Load Centers. The results of the audit identified several deficiencies which led to the present test program. Testing of seven components in the load control centers is in progress. Completion of the testing is scheduled for March 1985, however, if any unforeseen delays in the testing program or unsuccessful results are incurred, an extension to the March 31, 1985 EQ deadline will be necessary. Even though no testing delays are presently foreseen, preparation of an extension request could not be accomplished in the limited time remaining prior to March 31, 1985. Therefore, an extension to the EQ deadline is being requested.

SUPPORTING INFORMATION FOR EXTENSION REQUEST

VII. Component Name: Hydrogen Recombiner Power Supply

Plant ID No.: H22-P278
H22-P279

Basis for Extension Request:

GCNS delays were initially experienced in obtaining qualified bidders for performing the testing on the hydrogen recombiner power supply. The power supply is presently being tested which is scheduled for completion in March 1985. Since completion of the testing is extremely close to the March 31, 1985 EQ deadline, and any unexpected delays could cause the deadline for this component to be exceeded. Therefore, an extension to the EQ deadline is being requested.

JUSTIFICATION FOR CONTINUED OPERATION

I. Generic Component Name: Transmitters

Plant ID No.: E31-N172A1,A2,B1,B2
E31-N173A,B

E31-N176A,B
T48-N013A,B

Manufacture/Model No.: Rosemount/1151

Technical Discussion:

Radiation is the only harsh environment the above listed model 1151 Rosemount transmitters are exposed. The maximum predicted radiation exposure for any one of the above listed transmitters is 2×10^6 Rads. The above list of transmitters are required to function for 100 days post LOCA. The Rosemount Model 1151 was tested to a radiation level of 2×10^6 Rads (Reference: Rosemount Report 127227). The Rosemount Model 1151 transmitter is essentially the same transmitter as the Rosemount Model 1152 (Reference: Rosemount Report 117415). This similarity allows the use of the Model 1152 test data to substantiate that the Model 1151 can be expected to survive 100 days post LOCA because the Model 1152 transmitter has been tested to a radiation level of 5×10^6 Rads (Reference: Rosemount Report 117415).

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

Therefore, continued operation is justified.

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 exceed 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 transmitter which has been qualified for 110 days post LOCA (Reference: Rosemount Report 108025, 108026, and 57820). Based on the similarity of the model 1152 "T0280" to the Model 1153 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 maximum environmental conditions the ASCO model HTX8320A108V solenoid valve will be exposed to from a LOCA environment will be a pressure of 44.7 psia, a temperature of 330°F, a humidity of 100%, and a radiation dose of 14.5×10^6 Rads. The MSIV solenoid valves are required to be functional for one (1) hour post LOCA.

The ASCO model HTX8320A108V solenoid valve is similar in design and construction to the ASCO model NP8344A171E solenoid valve which has been tested to conditions that envelop the postulated GGNS LOCA environment. The maximum environmental conditions the model NP8344A171E solenoid valve was tested to was a pressure of 124.7 psia, a temperature of 346°F, a max humidity of 100%, and a radiation value of 20×10^6 Rads (based on Viton limitation) (Reference: ASCO Report AQS21678/TR, Rev. A). The model NP8344A171E was also tested for 30 days post LOCA (Reference: ASCO Report AQS21678/TR, Rev. A). Based on the similarity of the ASCO model HTX8320A108V to the tested solenoid valve, review of the referenced test report, the ASCO model HTX8320A108V can be expected to survive one (1) hour post LOCA.

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

Therefore, continued operation is justified.

JUSTIFICATION FOR CONTINUED OPERATION

IV. Generic Component Name: Solenoid Valve (SRV)

Plant ID No.: B21-F041A,B,C,D,E,F,G,K
B21-F047A,C,D,G,H,L
B21-F051A,B,C,D,F,K

Manufacture/Model No.: Seitz/O-108-562e

Technical Discussion:

The information submitted in letter AECM-84/0394, dated August 5, 1984 provides detailed information on the justification for continued operation for this component. Additional supporting information is contained in AECM-84/0402, dated July 30, 1984.

The information submitted in the reference letters meets the criteria of 10CFR50.49, paragraph (i), item (2)

Therefore, continued operation is justified.

JUSTIFICATION FOR CONTINUED OPERATION

- V. Generic Component Name: Heaters and Controls (Standby Gas Treatment System)

Plant ID No.: T48-D001A-A
T48-D001B-B

Manufacture/Model No.: CVI/none

Technical Discussion:

Radiation is the only harsh environment that the heaters and controls of the Standby Gas Treatment System (SGTS) is exposed. The maximum predicted radiation exposure for this equipment is 5.7×10^5 Rads. The heaters and controls of the SGTS are required to function for 100 days post LOCA. A review of the Bill of Materials was conducted for the heaters and controls to obtain a list of organic materials.

For each of the organic materials listed above, a radiation tolerance value was obtained from the EPRI Report NP-2129. The radiation tolerances for these organic materials are of greater than or equal to the required value of 5.7×10^5 Rads.

Based on the review of the radiation tolerances of the materials in the SGTS heaters and controls, these components are expected to survive for 100 days post LOCA.

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

The only harsh environment the 480 volt load centers are exposed to is radiation. The max predicted radiation exposure for any one of the load centers is 1.6×10^5 Rads. The load centers are required to function post LOCA for 100 days. A load center of similar vintage and design manufactured by Gould-Brown Boveri has previously been tested to a radiation level of 2.1×10^6 Rads. Review of the test report submitted by Gould-Brown Boveri for the similar load center has confirmed radiation testing of 2.1×10^6 Rads on the load center. Based on the review of the test data (Reference: Brown Boveri Report 33-55170-QS), the 480 volt load centers can be expected to function post LOCA for 100 days.

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:

Radiation is the only harsh environment the power supply for the hydrogen recombiner is exposed. Refined radiation calculations performed for the exact location of the power supply has resulted in a maximum predicted radiation level of less than 3×10^4 Rads. The power supply is required to function post LOCA for 100 days. Organic materials in the power supply have been identified and reviewed for radiation tolerance using EPRI Report NP-2129. The EPRI report concludes that radiation levels of 10^5 Rads produce no significant degradation of mechanical or electrical properties (with the exception of Teflon and semiconductor devices) for the organic materials reviewed. The diodes of the power supply have been successfully tested to 5×10^6 Rads. The Teflon in the power supply is of the FEP type which has a radiation tolerance of 2.4×10^5 Rads (Reference: EPRI Report NP-2129). Based on the review of radiation tolerances the power supply can be expected to function post LOCA for 100 days.

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

Therefore, continued operation is justified.