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P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

February 22, 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-814.1/0189
Ref: AECM-84/0531, 12/21/84
AECM-85/0024, 1/25/85
AECM-85/0042, 2/7/85
Revised JCOs For Certain Electrical
Equipment Undergoing Environ-
mental Qualification
AECM-85/0064

The attached Justifications for Continued Operation (JCOs) are being submitted to further support previous requests for extension of the March 31, 1985 environmental qualification deadline as referenced in AECM-84/0531 dated December 21, 1985 and AECM-85/0042 dated February 7, 1985. Per agreement with Mr. Hukam Garg of your Equipment Qualification Branch (EQB) in a teleconference on February 14, 1985, MP&L has revised the JCOs for the ASCO solenoid valves on the Main Steam Isolation Valves (MSIVs) and General Electric (GE) Type THQB Circuit Breakers in the Klockner-Moeller Motor Control Centers (MCCs) to include additional supporting justification. The content of these JCOs was discussed with Mr. Garg at that time.

Regarding the JCO for ASCO solenoid valves, MP&L has corrected certain errors in the referenced valve numbers from our January 25, 1985 submittal (AECM-85/0024). In addition, due to recent failures of these solenoid valves, MP&L is providing special testing considerations for assuring valve operability. These failures were discussed in AECM-85/0051, dated February 14, 1985.

MP&L is expediting delivery of environmentally qualified replacement NP Series ASCO solenoid valves, which are scheduled for delivery the last week in February 1985. GGNS is currently in an unscheduled outage and MP&L will pursue the replacement of these valves during this outage. However, due to the uncertainty of the replacement activities and the completion of qualification documentation, MP&L still requests an extension to the 10CFR50.49 environmental qualification deadline. The compensatory measures for assuring valve operability, as discussed in the attached JCO for the ASCO solenoid valves, will be implemented if solenoid valve replacement is not accomplished during the current outage.

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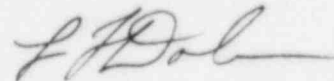
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The attached JCO for the GGNS Klockner-Moeller MCCs has been supplemented with testing results that indicate the previous aging test failure (discussed in AECM-85/0042 dated February 7, 1985) would not be expected to occur at GGNS at normal ambient temperatures.

MP&L concludes that with the revised JCOs for these components, our request for extension of the March 31, 1985 environmental qualification deadline is fully supported. An extension to November 30, 1985 was requested in AECM-84/0531 and AECM-85/0042.

If you require any additional information please contact this office.

Yours truly,



L. F. Dale
Director

SAB/EBS/JGC:rg
Attachments

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. James M. Taylor, Director (w/a)
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Atlanta, Georgia 30323

JUSTIFICATION FOR CONTINUED OPERATION

Generic Component Name: 480 Volt Motor Control Center

Plant ID Nos.:	Q1R20-S510A-A	Q1R20-S610A-B
	Q1R20-S520A-A	Q1R20-S620A-B
	Q1R20-S530A-A	Q1R20-S630A-B
	Q1R20-S540A-A	Q1R20-S640A-B
	Q1R20-S540B-A	Q1R20-S640B-B

Manufacturer/Model No.: Klockner-Moeller Series 170

Technical Discussion:

For the above list of 480 volt motor control centers, the only harsh environment to which they will be exposed is radiation. The maximum predicted accident radiation exposure for the above listed motor control centers is 5.77×10^4 rads. A materials evaluation for the components within the motor control centers has been performed, and the lowest radiation damage threshold for these organic materials is 1.0×10^5 rads. The components are therefore, expected to withstand the GGNS post LOCA radiation environment. The function time requirement for the motor control centers in the radiation harsh environment is 100 days post LOCA.

The thermal aging tests performed on the components within the motor control centers proved to be successful for obtaining a qualified life of 41 years except for two components. The first component is a Klockner-Moeller circuit breaker which has passed functional testing for a qualified life of 11.72 years. The second component is a GE THQB molded case circuit breaker. These circuit breakers were aged in three (3) groups to obtain different qualified lives. The aging temperatures used were 105C, 125C, and a combination of 125C and 131C to obtain qualified lives of 6.48 years, 22.53 years and 41.3 years, respectively. During post-thermal aging functional testing, the circuit breakers demonstrated an inability to trip under test load conditions, however, they still operated as a switching device. These circuit breakers have demonstrated the ability to trip in an ambient environment during the baseline functional testing performed.

The tested circuit breakers were sent to GE for further analysis to determine the exact cause of failure. In a letter from GE to Wyle Labs, GE has completed their analysis and states:

"Our circuit breaker design uses a screw to affix the trip unit to the molded case. At the elevated temperatures used in your test, the molded material under the screw head flowed slightly, enough to upset the circuit breaker calibration".

This directly relates the failures to the excessive test temperatures used in the MCC Test Program. GE also states:

"This is not a problem with breakers aged at normal temperatures. We have conducted calibration tests on breakers which have been in field use for fifteen to twenty years. In all instances calibrations have remained within acceptable limits."

"We feel, despite the performance of the returned samples, that no design changes are in order. Rather, we attribute these failures to abnormal conditioning of the breaker."

Based on the above analysis, MP&L concludes that under normal plant temperature conditions these failures would not be expected to occur.

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

Manufacturer/Model No.: ASCO/HTX8320A20V (Single Solenoid Valve)
ASCO/HTX8323A20V (Dual Solenoid Valve)

Technical Discussion:

The function time requirement for the MSIV solenoid valves (ASCO model numbers listed above) is one (1) hour post LOCA. The maximum environmental conditions that the subject valves will be exposed to, from the postulated GGNS LOCA environment, will be pressure of 4.7 psia, a temperature of 330°F, a humidity of 100%, and a radiation exposure of 14.5×10^6 rads.

ASCO Test Report AQR-67368/Rev. 1 qualifies the generic family of ASCO valves including the Series NP8320 & NP8323. The maximum environment conditions which these were 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 limitations), also for 30 days post LOCA. The ASCO model HTX8320A20V & HTX8323A20V are similar to ASCO series NP8320 & NP8323 (respectively) with Viton materials. These similarities are established as follows:

	<u>Model HTX8320A20V & HTX8323A20V</u>	<u>Series NP8320 & NP8323</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 models used at GGNS to the tested solenoid valves and the review of the referenced test report, the MSIV (ASCO models HTX8320A20V & HTX8323A20V) solenoids can be expected to survive one (1) hour post LOCA.

In addition to the above information, on February 10, 1985, GGNS had a failure of three of eight MSIVs to initially close during a plant cooldown subsequent to a scram. This event was reported to NRC Region II by AECM-85/0051 dated February 14, 1985. MP&L has determined after investigation that the double solenoid valve (ASCO Model HTX832320V) probably did not shift positions when the solenoids were deenergized.

All eight (HTX832320V) solenoid valves were replaced with model HTX8323A20V valves and a program has commenced to determine the cause of these failures. This program includes General Electric and vendor assistance.

In order to assure MSIV operability during interim operation until the qualified solenoid valves are installed, a program of compensatory measures was initiated. The program includes the following elements:

- 1) Verify operability* of MSIVs prior to restart.
- 2) Verify operability* of MSIVs prior to exceeding 25% power.
- 3) Verify operability* of MSIVs daily for the first week, every other day for the next two weeks, and weekly thereafter until solenoids are replaced with environmentally qualified models.
- 4) Monitor an inboard and an outboard MSIV solenoid temperature with a thermocouple to assess ambient temperature conditions.

* Operability will be verified by cycling the valves through a slow closure with the test solenoid (HTX8320A20V) and switching the main solenoid (HTX8323A20V) into the close position to maintain the MSIV in the closed position. Position indication lights will be used to verify valve position. The MSIV operability check at 600 psig (as referenced in AECM-85/0051) was performed during the initial restart and will not be performed again during subsequent restarts.

If the solenoid valves are not replaced in the current outage the program of compensatory measures will be reinitiated.

This analysis meets the criteria of 10CFR50.49, paragraph (1), item (2) and (3).

Therefore, continued operation is justified.