MISSISSIPPI POWER & LIGHT COMPANY
Helping Build Mississippi
P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

July 30, 1984

NUCLEAR LICENSING & SAFETY DEPARTMENT

Mr. Darryl G. Eisenhut
U.S. Nuclear Regulatory Commission
1717 H Street, N.W.
Washington, D.C. 20036

Dear Mr. Eisenhut:

SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 & 50-417
License No. NPF-13
File: 0260/L-860.0
SRV Solenoid Valves
AECM-84/0402

In response to the requirements of NUREG-0588 concerning environmental qualification of the Safety Relief Valves and their associated solenoid valves, MP&L submitted results of testing which justified interim operation pending full qualification as required by 10 CFR 50.49. Those results were transmitted by letter AECM-81/355.

A successful Design Basis Accident (DBA) test of four day duration was performed after thermal, mechanical and radiation aging. Attachment 1 contains details of the specifications and environmental profiles. MP&L considered this a successful test, but due to a limited qualified life and somewhat short DBA test time, it was determined that further enhanced testing would be undertaken.

Retesting of the SRV solenoid valves in accordance with IEEE-323-74 was initiated in September of 1982. The valves were functionally checked after each phase of testing and proved they could perform the required functions at an end of service life condition through 486 hours of a Main Stream Line Break/Loss of Coolant Accident. At this point the valve failed to operate and was removed from the chamber for an evaluation.

Prior to failure, the valve had been irradiated to 6.65×10^7 Rads from a Cobalt-60 source, thermally aged for 823.5 hours at 150°C, operationally cycled 1100 times, seismically tested and installed in an environmental chamber and exposed to a LOCA profile for 486 hours.

Therefore, the SRV associated solenoid valves have been shown to function under Grand Gulf environmental test conditions for in excess of 20 days. Recently, while under environmental testing for the Nine Mile Point Project 2, failure of an SRV associated solenoid was noted. As stated, this failure was for a qualification test for the General Electric Mark II containment. The required test parameters were significantly in excess of those required for the Grand Gulf Mark III containment.

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Attachment II provides a detailed comparison of the General Electric, Nine Mile Point qualification requirements versus those required for Grand Gulf.

As can be seen, the recent General Electric test far exceeds that required for Grand Gulf. Due to the failure mode of seal failure, the two parameters of most interest are the very high radiation exposure and containment pressure.

In summary, MP&L believes that the environmental integrity of Grand Gulf SRV's and their associated solenoid valves are adequate for interim operation pending full qualification testing because,

1) The Grand Gulf SRV's successfully passed a DBA qualification test as documented in AECM-81/355 (see Attachment I).

2) Further testing has shown successful operation for in excess of 20 days, under the required Grand Gulf accident profile.

Additionally, MP&L believes that the recent SRV solenoid failure experienced by General Electric is not applicable to Grand Gulf because the accident environment for the General Electric test was based on a Mark II containment environment which is far more severe than the environment for the Grand Gulf Mark III containment.

Sincerely,

for L. F. Dale
Manager, Nuclear Licensing & Safety

LFD/sad

cc: Mr. J. B. Richard
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Mr. N. S. Reynolds
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Mr. J. P. O'Reilly
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Atlanta, GA 30323

NUCLEAR PLANT ENGINEERING NUREG 0588/10CFR50.49 EQUIPMENT LIST

GENERIC NAME: MSSRV
MANUFACTURER: Dikkers-Seitz
ROOM NUMBER : 1A112
EQ CENTRAL FILE BOOK #: 634
PART DESCRIPTION: MIAN STEAM SRV ACTUATOR
MODEL # : SEE EQ FILE BK.

QUALIFICATION STATUS : IDJ
QUALIFIED LIFE :40 YRS
SPEC/PPD # :1B21-F051
PLANT ID # :1B21- F051A
TEST REPORT #:TA0-313-GH REV1

PARAMETER	SPECIFICATION ENVIRONMENT	QUALIFICATION ENVIRONMENT
OPERATING TIME	2 DYS ACT, 90 DYS PS	4 DAYS ACTIVE
TEMPERATURE	330F FOR 3 HOURS	349F MAX FOR 3 HOURS
PRESSURE	44.7 PSIA FOR 40 SEC	52 PSIG FOR 1 HOUR
REL. HUMIDITY	ALL STEAM FOR 1 HOUR	ALL STEAM 9 HOURS
FLOODING/FROTH	N/A	N/A
RADIATION	21.1E6-G, 1.5E9-BETA	30.0E6 GAMMA
AGING	5 YEARS, 150 CYCLES	40 YEARS, 1000 CY, RAD
CONTAINMENT SPRAY	N/A	N/A

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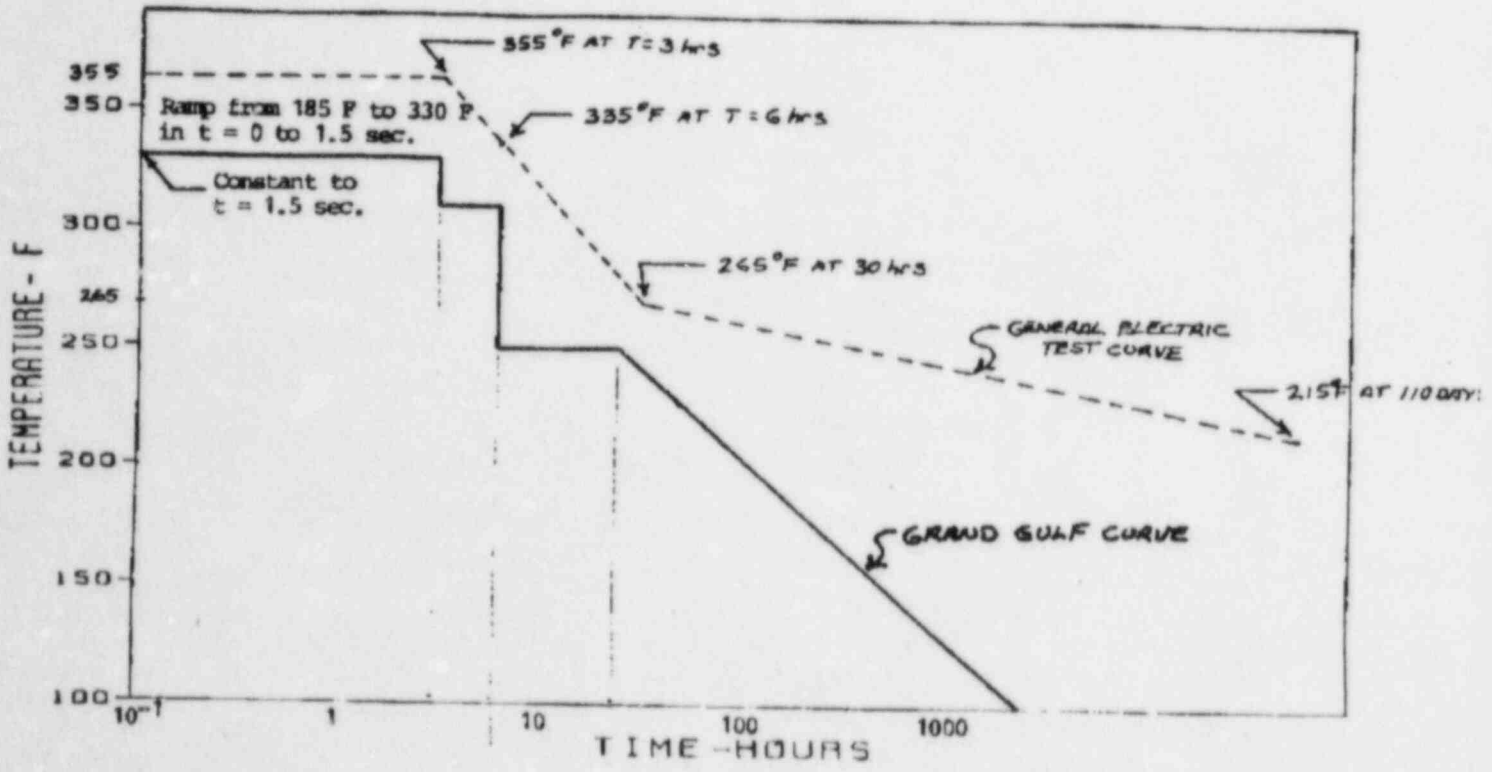
COMMENTS : IDJ PROVIDED IN AECM-81/355

G.E./GGNS PARAMETER COMPARISON

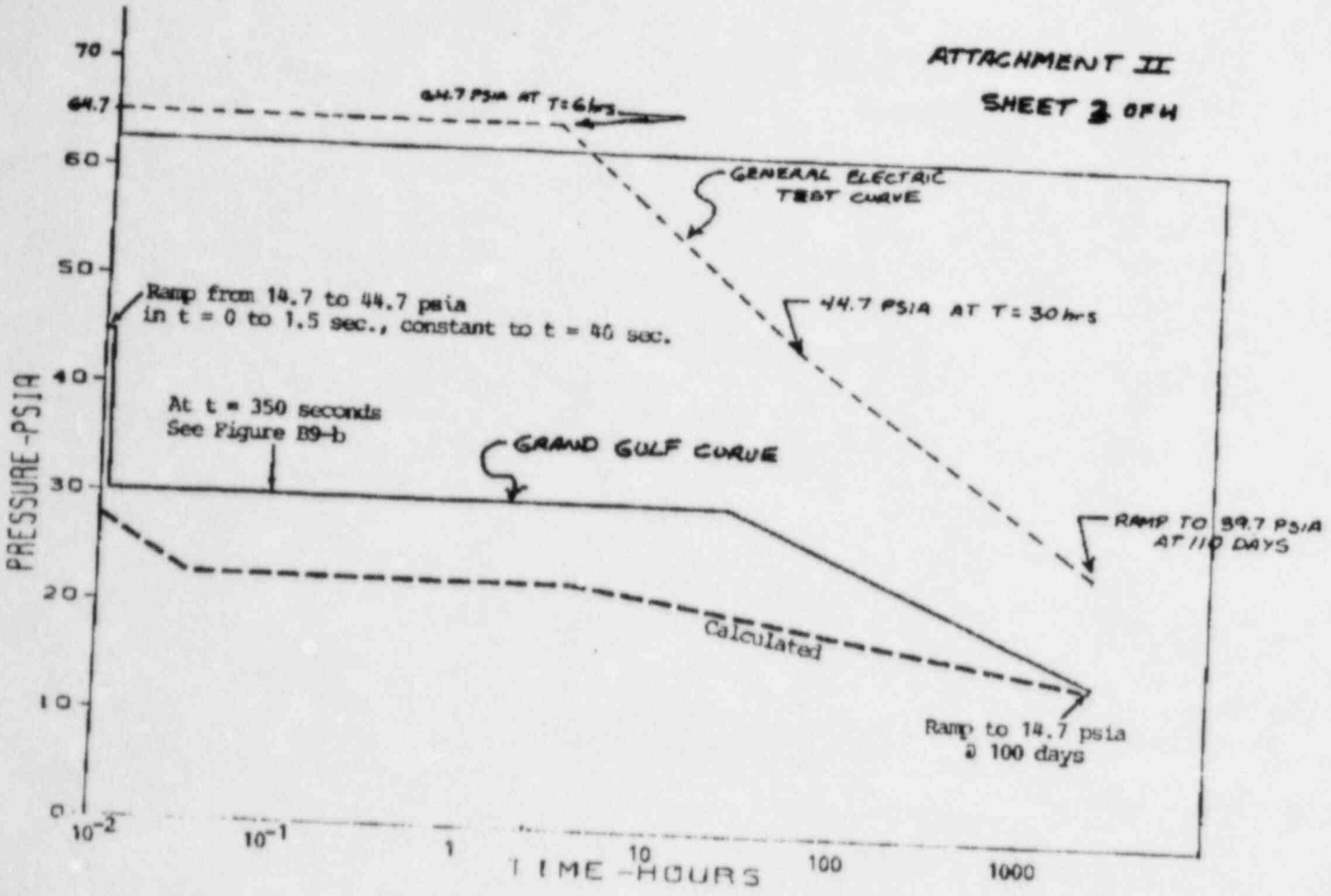
PARAMETER	G.E. TEST REQUIREMENTS	GGNS REQUIREMENTS
1) Radiation Aging	300×10^6 Gamma Rads (5 yr. service life)	44×10^6 Gamma Rads (40 yr. service life)
2) Thermal Aging	300°F for 590 Hrs. (5 yr. service life)	300°F for 923.5 Hrs. (40 yr. service life)
3) Mechanical Aging	1237 cycles (5 yr. service life)	200 cycles (5 yr. service life)
4) DBA	See Sheets 2 thru 4 of this attachment	See Sheets 2 thru 4 of this attachment



MISSISSIPPI POWER & LIGHT COMPANY GRAND GULF NUCLEAR STATION UNIT 1 RESPONSE TO NUREG - 0588
ENVELOPING TEMPERATURE PROFILE FOR ROOMS: 1A112, 1A113 (EXCEPT AS SHOWN ON FIGURE B-11), 1A126, 1A513 FIGURE B-10

ATTACHMENT II

SHEET 2 OF 4



MISSISSIPPI POWER & LIGHT COMPANY GRAND GULF NUCLEAR STATION UNIT 1 RESPONSE TO NUREG - 0588
ENVELOPING PRESSURE PROFILE FOR ROOMS: 1A112, 1A113, 1A126, 1A513 FIGURE B-9a

△1 Cycle each solenoid pilot and air valve 20 times (9 minutes apart) with 92.5 VDC and 90 psid air/N_2. * **

△2 Baseline Functional Test (135°F/0 psig)

△3 Same as 1.* **

△4 3-hr to 48-hr - each solenoid to be actuated 2 times each hour with 92.5 VDC and 90 psig air/N_2.**

△5 Two days through 30 days, each solenoid to be actuated once each day with 92.5 VDC and 90 psid air N_2. One solenoid to be held in energized state with 140 VDC except when required to actuate the other solenoid(s).**

△6 From 30 days through 110 days, each solenoid to be actuated once every week with 92.5 VDC and 90 psid (+3 psig, -0 psig). One solenoid to be held in energized state with 140 VDC except when required to actuate the other solenoid(s).**

*Pneumatic inlet pressure shall be slowly increased until a differential of 292 psid is attained prior to the first actuation.

**Voltage noted includes margin.

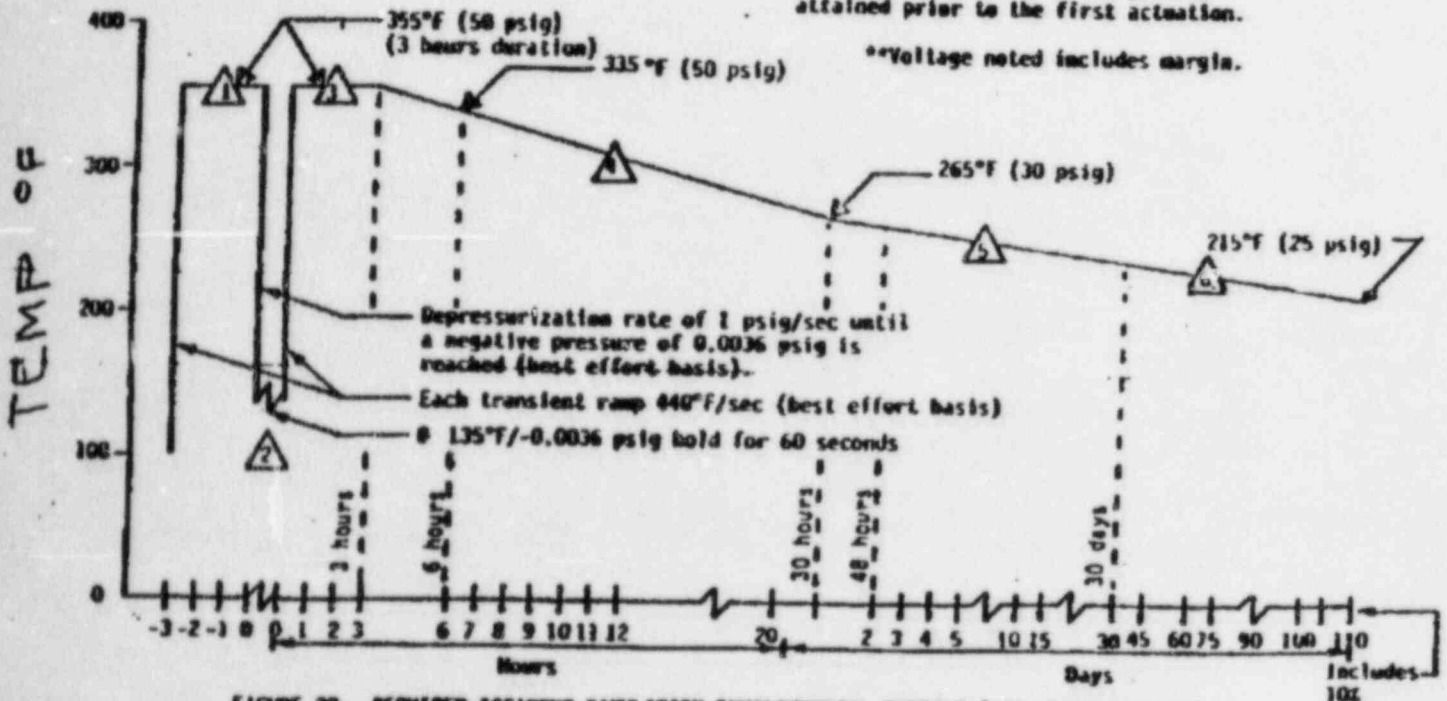


FIGURE 20. REQUIRED ACCIDENT SIMULATION ENVIRONMENTAL PROFILE (INCLUDING MARGINS)

END MMOD-2 & DERBY