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INCORPORATED

ATOMIC ENERGY DIVISION

SAVANNAH RIVER PLANT
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November 30, 1979

Mr. Faust Rosa, Chief
Power Systems Branch
Mail Stop 832B
Phillips Building
U.S. Nuclear Regulatory Commission
Bethesda, MD 21609

Dear Mr. Rosa:

Attached are initial questions relating to Grand Gulf Nuclear Station which we discussed with A. Bennett and yourself on November 15, 1979. In addition to these questions, the applicant has not replied to your questions numbered 040.26, 040.37 and 040.38.

Your assistance is requested in obtaining responses to all questions.

Yours very truly,

A handwritten signature in black ink that reads "W.M. Taylor".

W. M. Taylor
Superintendent
E & I Department

WMT:ssr

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Q040. - Section 8.1.4.1.b of the FSAR says that there are three
(8.1)

GG 1 (3) physically independent circuits from the 500KV switch-
yard to the onsite electrical distribution system. Figure
8.2-3 indicates that there are only two (2) circuits from
the 500KV switchyard. Clarify.

Q040. - Standard Review Plan Section 8.3.1, III, 4 requires onsite
(8.1)

(8.3) fuel storage capacity for seven (7) days. The following
GG 2 questions pertain to this capacity:

- a) - In FSAR Section 8.1.4.2.3.e, it is stated that the fuel capacity for the standby power source has "time sufficient to put the plant in a safe condition". How much time is "sufficient"?
- b) - Provide the fuel consumption rate of the HPCS and standby diesel generators while they are supplying maximum post-LOCA load demands.
- c) - How much of the diesel storage tank is useable? (i.e. How much fuel oil can the transfer pump be expected to supply to the day tank?) Provide drawing of storage tank, transfer pump, and transfer pump suction line. Provide dimensions of storage tank, depth of suction line into storage tank and show where level of fuel oil is maintained during normal standby operation.

Q040. - In the first paragraph of FSAR Section 8.1.4.3 a "spare
(8.1)

GG 3 set of BOP transformers" are mentioned. Are these in
addition to those shown in Figure 8.1-1 or do you mean
that these are included in the four BOP transformers
shown (such as BOP XFMRS #12A and 12B)?

Q040. - In FSAR Section 8.1.4.2.3.f it is stated that "provision
(8.1)

GG 4 is made for control (of the HPCS power system) from the
control room and another location external to the control
room". Where is the other location?

Q040. - SRP Section 8.1, III, 5, Revision 1, requires that cri-
(8.0)

GG 5 teria applicable to the design should be identified and
the degree of conformance defined. SRP Table 8-1 lists
applicability of criteria to each FSAR section. Each
section of your FSAR Chapter 8 should mention conformance
(or exception) to all of the criteria of SRP Table 8-1.
This may be done by a single comprehensive table in FSAR
Section 8.1 which would be referenced by the subsequent
sections. Where exceptions, relative to the electrical
power systems, are taken, these should be specifically
noted and referenced to a detailed explanation.

Q040. - FSAR Section 8.1.4.4.1 states that the design is in
(8.1)

GG 6 accordance with Regulatory Guide 1.93, among others.

However, in the table of contents of Appendix 3A,
RG 1.93 is noted as "not addressed in FSAR.....".

The statement in Appendix 3A is not correct since the recommendation of Regulatory Guide 1.93 will be incorporated in the Technical Specifications, FSAR Section 16.
Correct Appendix 3A.

Q040. - In FSAR Appendix 3A, page 3A-4, Regulatory Guide 1.32 is
(Appx. 3A) GG 7 noted as N/A. However, compliance with RG 1.32 is stated
in FSAR on page 3A/1.32-1. Correct this discrepancy.

Q040. - SRP Section 8.1, III, 1 states that FSAR grid "....descrip-
(8.2) GG 8 tions should state whether facilities are existing or planned; if planned, the respective completion dates should be provided." Which of the 500KV and 115KV overhead lines are completed and ready for service at this time? For those that are not completed, list scheduled or projected date of completion.

Q040. - Regulatory Guide 1.70, Revision 3, Section 8.2.2 specifies
(8.2) GG 9 that the applicant should "provide information and a discussion of grid availability, including the frequency, duration and cause of outages". For the outage statistics given in FSAR Table 8.2-1, furnish the following information:
a) cause of each outage
b) duration of each outage
c) update the table to the present time

Q040. - In FSAR Section 8.2.1.2 and Section 8.2.1.4 the acronym
(8.2) GG 10 "NAPSIC" is used. Explain the meaning and the function of NAPSIC.

Q040. - Explain how you comply with Regulatory Guide 1.9,
(8.3)
GG 11 revision 1, paragraph C.9 with respect to first out
alarm indication.

Q040. - In the FSAR paragraph 8.3.1.1.4.2.10 it indicates that
(8.3)
GG 12 generator differential current and engine overspeed are
the only emergency protective devices for the HPCS diesel.
Figure 8.3-8 of the FSAR shows that lube oil pressure low
(2 of 3 logic) and case pressure high (2 of 3 logic) also
operate protective interlocks during an emergency for
division I and II. If this logic diagram also applies to
the HPCS diesel explain the discrepancy or provide the
logic diagram for the HPCS diesel.

Q040. - FSAR Section 8.3.1.1.5.1 in describing the RPS power
(8.3)
GG 13 supply states that ".....the power feeds to independent
divisions are physically separated and feed four
redundant buses." FSAR Figure 8.3-11 shows only two
buses, "A" and "B". Correct the contradiction.

Q040. - SRP Section 8.2, I, 2 states that "evaluation (of the
(8.2)
GG 14 offsite power source) will include a review of the
electrical protective relaying and breaker control
circuits and power supplies to assure that loss of one
preferred system circuit will not cause or result in
loss of the redundant counterpart, nor any standby power
system sources". FSAR Section 8.2.1.2 states that

"a fault of any section of 500KV bus will be cleared.... and not interrupt operation of any of the remaining parts of the 500KV switchyard bus". Provide details describing how this selectivity of breakers is accomplished.

Q040. - In FSAR Table 8.2-3 "Load Flow Studies" and Table 8.2-4 (8.2)
GG 15 "Stability Studies", the results of analysis of contingencies and faults are stated as "no problem" and "stable". Define these terms more explicitly so as to provide greater assurance of the results of the analysis. Provide minimum or maximum voltage, transient durations, and other quantitative values to substantiate the conclusions drawn in Tables 8.2-3 and 8.2-4.

Q040. - Clarify the description in FSAR Section 8.2.1.2, regarding (8.2)
GG 16 alarms for the various problems that could occur involving the switchyard auxiliary systems. Identify the alarm indication and its location.

Q040. - In FSAR Section 8.2.1.1 page 8.2-3, you state that "there (8.2)
GG 17 has only been an average loss of two towers per year....". Provide further detail of these tower failures and show how this compares to the experience of other utilities and the effect on grid stability at Grand Gulf.

Q040. - In Section 8.2.1.1 on page 8.2-2, it is stated that "The (8.2)
GG 18 115KV line does not cross over or under any of the 500KV offsite power supply lines....". However, from Figure 8.2-2, it appears that the 500KV line from Franklin to

Grand Gulf does cross over the 115KV line between Natchez S.E.S. and Port Gibson. Confirm that it does or does not cross. Provide further information on grid stability at Grand Gulf if the above mentioned 500KV line fell on top of the 115KV line.

Q040. - In FSAR Section 8.3.1.2.1.a.4, page 8.3-26 provide a more (8.3)

GG substantive basis to support the statement concerning
19 large motors reaching rated speed in 5 seconds or less.

Relate this information to each of the large motors involved.

Q040. - FSAR Section 8.3.1.1.4.1 page 8.3-11 provides information (8.3)

GG on controls for diesel generators. Clarify statement con-
20 cerning how many and where the local control stations are
 for each diesel generator.

Q040. - Describe how you assure that a diesel generator is capable (8.3)

GG of responding automatically to a LOCA - loss of preferred
21 power condition after completion of and during a periodic
 test. Address the following:

- o Governor control settings
- o Monitoring of Diesel Generator Sync-Speed setting

Q040. - FSAR Section 8.3.1.2.1.b.14.(e) page 8.3-37, states that (8.3)

GG the "HPCS generator is operated in the isochronous mode
22 only". HPCS Power Supply Topical Report NEDO-10905, page

7-11 states that IEEE 387 - Section 5.6.1.4 is "not applicable since the governor is operated in droop mode only". Clarify this discrepancy and explain the provisions for placing the engine governor controls in an acceptable mode of operation when the diesel-generator unit is required to operate automatically. (See also Topical Report NEDO-10905 paragraph 5.2.10)

Q040. - In FSAR Section 8.3.1.2.3.b page 8.3-39, you state that
(8.3)
GG 23 "circuits of different safety divisions are not routed through hostile areas....". Define and identify (provide list) all hostile areas.

Q040. - In FSAR Section 8.3.1.1.4.1 page 8.3-7, you state that
(8.3)
GG 24 following an automatic start, diesel generator sets 11 and 12 (21 and 22) are automatically connected to their associated 4.16KV ESF buses. Clarify the statement with regard to the availability of offsite power as discussed in FSAR Section 8.3.1.1.3.b.

Q040. - In FSAR Section 8.3.1.1.2.1 page 8.3-2, you state that
(8.3)
GG 25 any one offsite power source is capable of supplying AC power to start the ESF loads of one unit required due to a LOCA and to run the ESF loads of the other unit required for safe shutdown. IEEE Standard 308 uses the terminology of "start and operate the ESF loads of the other unit required for safe shutdown." Define the

capability of the offsite power source more explicitly
in this regard.

Q040. - In FSAR Section 8.3.1.1.4.1.1.a.2 page 8.3-12, it appears
(8.3)
GG 26 that the resistive load was omitted from the tabulated
data in test 2; clarify. Also, provide the analytical
method for obtaining the cumulative loads.

Q040. - The load shedding and sequencing reset operation is
(8.3)
GG 27 mentioned in Section 8.3.1.1.3 page 8.3-5. Regarding
restoring of motors and valve operations following loss
of offsite power, clarify and expand the description since
you state that, "reset is not a function of the presence
or absence of bus voltage".

Q040. - In Table 8.3-5 of FSAR, it is stated that the diesel
(8.3)
GG 28 generator start signal is given at time 3 seconds following
LOCA. In Table 6.3-1 the diesel generator start signal is
given at time 0 seconds. Correct this discrepancy.