OSR 25-8
(REV 1-72)

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
ATOMIC ENERGY DIVISION
SAVANNAH RIVER PLANT
AIKEN, SOUTH CAROLINA 29801
(TWX: 810-771-2670, TEL: 803-824-6331, WU: AUGUSTA, GA.)

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,

WM Taylor

W. M. Taylor
Superintendent
E & I Department

WMT:ssr

1522 096

7912100310

Q040. (8.1) GG 1 - Section 8.1.4.1.b of the FSAR says that there are three (3) physically independent circuits from the 500KV switchyard to the onsite electrical distribution system. Figure 8.2-3 indicates that there are only two (2) circuits from the 500KV switchyard. Clarify.

Q040. (8.1) (8.3) GG 2 - Standard Review Plan Section 8.3.1, III, 4 requires onsite fuel storage capacity for seven (7) days. The following 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.

1522 097

Q040. (8.1) GG 3 - In the first paragraph of FSAR Section 8.1.4.3 a "spare 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. (8.1) GG 4 - In FSAR Section 8.1.4.2.3.f it is stated that "provision 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. (8.0) GG 5 - SRP Section 8.1, III, 5, Revision 1, requires that criteria 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. (8.1) GG 6 - FSAR Section 8.1.4.4.1 states that the design is in 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.....".

1522 098

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

Q040. (8.2) GG 8 - SRP Section 8.1, III, 1 states that FSAR grid "....descriptions 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. (8.2) GG 9 - Regulatory Guide 1.70, Revision 3, Section 8.2.2 specifies 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. (8.2) GG 10 - In FSAR Section 8.2.1.2 and Section 8.2.1.4 the acronym "NAPSIC" is used. Explain the meaning and the function of NAPSIC.

1522 099

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

Q040. (8.3) GG 12 - In the FSAR paragraph 8.3.1.1.4.2.10 it indicates that 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. (8.3) GG 13 - FSAR Section 8.3.1.1.5.1 in describing the RPS power 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. (8.2) GG 14 - SRP Section 8.2, I, 2 states that "evaluation (of the 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. (8.2) GG 15 - In FSAR Table 8.2-3 "Load Flow Studies" and Table 8.2-4 "Stability Studies", the results of analysis of contingencies and faults are stated as "no problem" and "stable". Define these terms more explicity 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. (8.2) GG 16 - Clarify the description in FSAR Section 8.2.1.2, regarding alarms for the various problems that could occur involving the switchyard auxiliary systems. Identify the alarm indication and its location.

Q040. (8.2) GG 17 - In FSAR Section 8.2.1.1 page 8.2-3, you state that "there 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. (8.2) GG 18 - In Section 8.2.1.1 on page 8.2-2, it is stated that "The 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. (8.3) GG 19 - In FSAR Section 8.3.1.2.1.a.4, page 8.3-26 provide a more substantive basis to support the statement concerning large motors reaching rated speed in 5 seconds or less. Relate this information to each of the large motors involved.

Q040. (8.3) GG 20 - FSAR Section 8.3.1.1.4.1 page 8.3-11 provides information on controls for diesel generators. Clarify statement concerning how many and where the local control stations are for each diesel generator.

Q040. (8.3) GG 21 - Describe how you assure that a diesel generator is capable of responding automatically to a LOCA - loss of preferred 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. (8.3) GG 22 - FSAR Section 8.3.1.2.1.b.14.(e) page 8.3-37, states that the "HPCS generator is operated in the isochronous mode 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. (8.3) GG 23 - In FSAR Section 8.3.1.2.3.b page 8.3-39, you state that "circuits of different safety divisions are not routed through hostile areas....". Define and identify (provide list) all hostile areas.

Q040. (8.3) GG 24 - In FSAR Section 8.3.1.1.4.1 page 8.3-7, you state that 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. (8.3) GG 25 - In FSAR Section 8.3.1.1.2.1 page 8.3-2, you state that 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. (8.3) GG 26 - In FSAR Section 8.3.1.1.4.1.1.a.2 page 8.3-12, it appears 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. (8.3) GG 27 - The load shedding and sequencing reset operation is 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. (8.3) GG 28 - In Table 8.3-5 of FSAR, it is stated that the diesel 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.