



GULF STATES UTILITIES COMPANY

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July 15, 1985

RBG- 21543

File No. G9.5

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

River Bend Station-Unit 1

Docket No. 50-458

Enclosed for your review is Gulf States Utilities Company change to the Final Safety Analysis Report (FSAR) regarding the Division III, 125 Vdc battery discharge profile. Attachment 1 contains the FSAR changes which will be incorporated in a future amendment. Attachment 2 contains changes to the River Bend Station Technical Specifications which are necessary to ensure consistency with the FSAR.

Sincerely,

J. E. Booker

J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

JEB/ERG/JEP/kt

Attachments (2)

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ATTACHMENT 1

8.3.2.4 Analysis

8.3.2.4.1 General DC Power System

8.3.2.4.1.1 Compliance With General Design Criteria and Regulatory Guides

The design of the 125-V dc system for the engineered safety features provided for this plant are based on the criteria described in IEEE-308 and Regulatory Guide 1.32.

The 125-V dc systems, including the power supply, distribution system, and load groups, are arranged to provide dc electric power for control and switching of the components of Class 1E systems.

Batteries consist of industrial-type storage cells designed for the type of service in which they are to be used. Ample capacity is available to serve the loads connected to the system for the duration of the time the alternating current is not available to the battery charger. Each division of Class 1E equipment is provided with a separate 125-V dc system, so as to avoid a single failure involving more than one system.

Each battery charger has enough power output capacity for the steady-state operation of connected loads required during normal or emergency operation (whichever is larger), while maintaining its battery in a fully charged state. Each battery charger supply has enough capacity to restore the battery from the design minimum charge to its fully charged state while supplying normal steady-state loads. The normal battery charger supply is from engineered safety feature buses. The backup battery charger is supplied from a non-ESF source. Since the dc power systems are operated ungrounded, a ground detection feature is provided. Indicators are provided to monitor the status of the battery charger supply. This instrumentation includes indication of output voltages, output current, battery ground status, and main circuit breaker position. Bus undervoltage is annunciated in the main control room. Battery chargers are provided with disconnecting means and feedback protection. Periodic tests are performed to assure the readiness of the system to deliver the power required.

8.3.2.4.2 HPCS - Division III - ESF DC System

The 480-V ac feed to the Class 1E battery charger is from the HPCS motor control center to maintain functional association such that the battery can carry the HPCS dc load

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for 4 hr. The backup charger is from a nonclass 1E source for availability if the HPCS bus is not energized. Probability of a system failure resulting in prolonged loss of dc power is extremely low. Important system components are either self-alarming on failure or capable of being tested during service to detect faults. The battery is located in its own ventilated battery room. All abnormal conditions of selected system parameters important to surveillance of the system annunciate in the main control room. Automatic cross connections between the HPCS 125-V dc systems and other dc systems are not provided. Control power for the breakers in the HPCS switchgear is from the HPCS battery ensuring the following:

1. The unlikely loss of HPCS dc power supply will not jeopardize the supply of offsite or onsite power to other engineered safety feature buses.
2. The differential relays and all the interlocks associated with HPCS are from the HPCS 125-V dc system only, thereby eliminating any cross connections between the redundant dc systems.

8.3.3 Fire Protection for Cable Systems

The basic concept of fire protection for cable systems is that it should be designed into the installation rather than added on to the finished product. Accordingly, the pertinent features have been previously discussed under the analysis conducted to determine if the power system design met applicable criteria (Section 8.3.1.4.4).

By use of fire-resistant cables and conservative application as regards ampacity and careful routing, both with regard to path and raceway construction, fire resistance is built into the cable systems. External fire protection and detection is discussed in Section 9.5.1.

RBS FSAR

TABLE 8.3-6

125-V DC SAFETY-RELATED BATTERY 1E22*S001BAT
(ASSOCIATED WITH HPCS)

<u>Load Description</u>	<u>0-1 Min (amp)</u>	<u>1-240 Min (amp)</u>	
Switchgear (two breakers closing)	28	-	21
Generator field flashing	2	-	
Relays and indicating lamps in diesel generator panel	2	2	
Solenoid valves (diesel air start)	2	-	18
Relays in HPCS logic panel	2	2	
Diesel fuel pump	7.4	7.4	
Turbocharger pump	7.4	-	
Diesel generator air start motor (starts engine-driven air compressor)	13.2	-	21
Standby service water pump motor switchgear	6	-	
Indicator lamps in main control room panel	2	2	18
Total Amperes/Interval*	72.0	13.4	

*At no time in the above duty cycle does the battery terminal voltage fall below 105 V.

TABLE B.3-6

125-V DC SAFETY-RELATED BATTERY 1E22*SO01BAT
(ASSOCIATED WITH HPCS)

<u>DESCRIPTION OF LOAD</u>	<u>0-1 MINUTE (exp)</u>	<u>1-120 MINUTE (exp)</u>	<u>NOTE</u>
4.16KV Switchgear (two breaker closing)	12	-	
4.16KV Switchgear Control Relays/ Indications	3	2	1
Diesel Generator Field Flushing	2	-	
Solenoid Valves (Diesel Air Start)	2	-	
Diesel Generator Fuel Pump	7.4	7.4	
Turbo Charger Lube Oil Pump	7.4	-	2
Lube Oil Circulating Oil Pump	7.4	-	2
Relays and Indicator Lamps in Diesel Generator Control Panel	2	2	
Relays and Indicators in HPCS Logic Panel	3	3	
HPCS Diesel Generator Protective Relay Panel	1	1	
Standby Service Water Pump Switchgear	6	-	3
TOTAL	33.2	15.4	

NOTES:

- Control loads for all 4.16KV Switchgears including standby service water pump.
- These pumps run only during loss of AC power at E22-S002 when the AC pumps motors are not running.
- This load appears only for short duration, during 0-1 minute for breaker closing when standby service water pump is in service. Running loads between 0-120 minute is accounted in 4.16KV Switchgears control Relays/Indications.

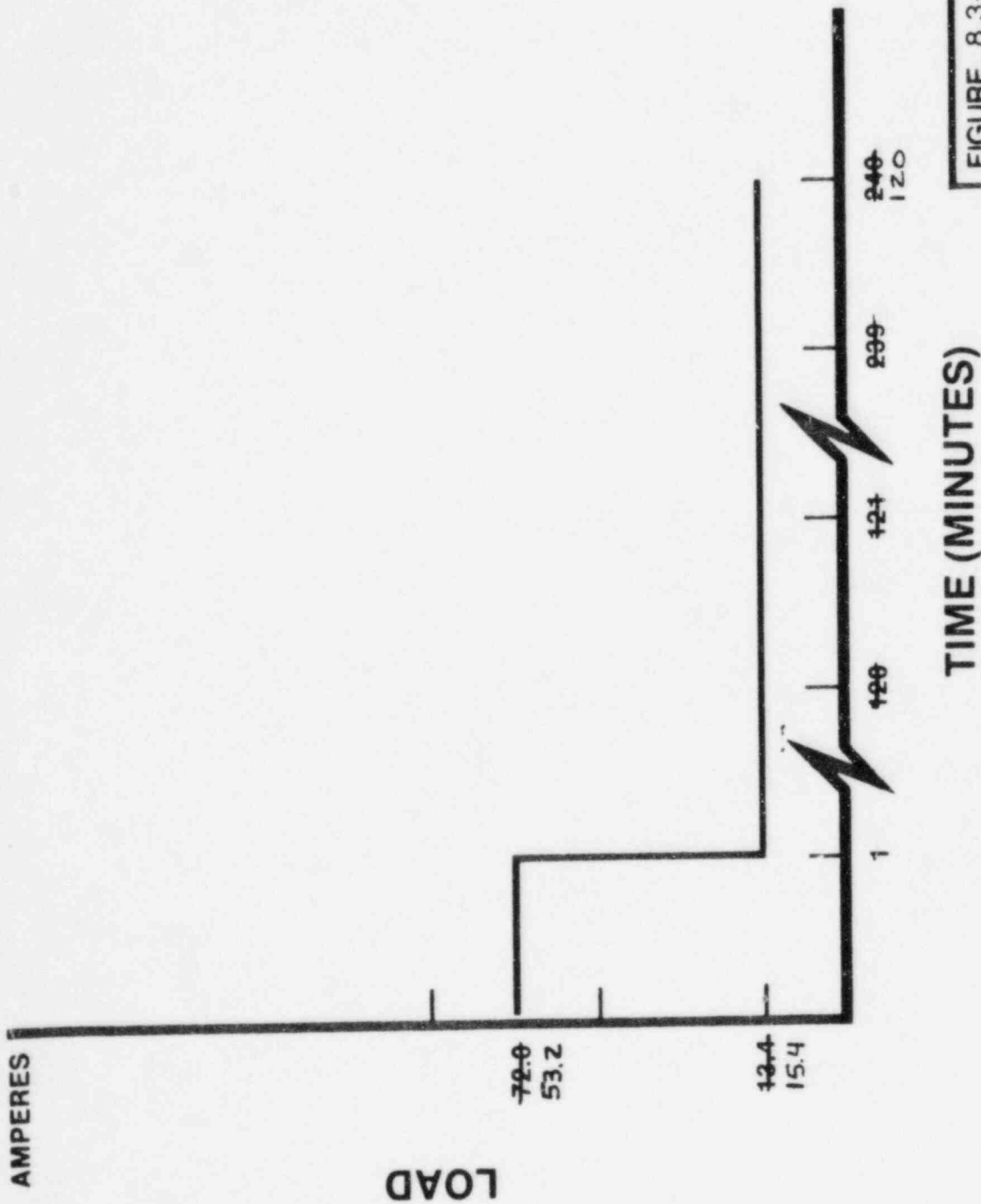


FIGURE 8.3-13

HPCS BATTERY DISCHARGE PROFILE

RIVER BEND STATION
FINAL SAFETY ANALYSIS REPORT

ATTACHMENT 2

SURVEILLANCE REQUIREMENTS (Continued)

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