



GULF STATES UTILITIES COMPANY

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Harold R. Denton, Director
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 are Gulf States Utilities Company responses to Request for Additional Information (RAI) identified by the Nuclear Regulatory Commission Power Systems Branch (PSB). Attachment 1 of this letter details each RAI as previously discussed with your staff and contains the final responses to close out Open Item (16) to Table 1.3 of the Safety Evaluation Report. The enclosures contain changes in the Final Safety Analysis Report (FSAR) text that will be incorporated in a future amendment.

Sincerely,

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

JEB/ERG/JEP

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ATTACHMENT 1

I. Diesel Generator Training

Provide a detailed discussion of any "in-house" diesel generator training program that has been developed, its equivalency to a vendor program, and the qualifications of the instructors.

RESPONSE

Site-specific Training Manuals were developed for both types of diesel generators at River Bend Station. These manuals contain specific training materials for all diesel components. These manuals were developed using diesel vendor materials and vendor consultants. The training materials contained in the Training Manuals provides not only a detailed outline of the training programs, but also all the lesson material needed to teach the courses for both operations and maintenance personnel. Procedures specify retraining on the diesel generators for operations and maintenance personnel shall be at intervals not to exceed two years.

GSU currently has three operations training instructors, and two maintenance training instructors prepared to provide both initial and continued training on both types of diesel generators.

Finally, an additional training course was taught at River Bend Station for the Transamerican DeLeval diesel in May 1983. Attending this course were Quality Assurance, Maintenance and Training (both operations and maintenance training) personnel.

II. HPCS DG Room Temperature

The air dryers for the HPCS diesel generator air start systems are refrigerant type which, under ideal conditions, deliver air with a dew point of 35 F. In the Standard Review Plan, an ambient temperature of not less than 10 F above starting air dew point is recommended in order to preclude condensation and air start system degradation. Provide a discussion for assuring that the HPCS diesel generator ambient room temperature will not drop below 45 F.

RESPONSE

In order to ensure that the HPCS diesel generator ambient room temperature will not drop below 45 F, GSU proposes the attached Technical Specification (Enclosure 1). Also attached (Enclosure 2) is a revised response to FSAR Question 430.86 which was changed to be consistent with the proposed Technical Specification.

III. Standby DGSS Compressor Unloading Line

Is the compressor unloader line up to and including the orifice Seismic Category 1 and Safety Class 3.

RESPONSE

The standby diesel generator compressor unloader line, up to and including the orifice, is Seismic Category 1 and Safety Class 3.

IV. HPCS DGSS Air Filters

Provide a discussion justifying the lack of air filters on the HPCS diesel generator air start system air compressor intake.

RESPONSE

Provided in Enclosure 3 is a revised FSAR description of the air filters at the compressor air inlet.

V. Dust Control

Provide confirmation that procedures have been developed and implemented which will require cleaning of all control panels, cabinets, and diesel generator start system electrical circuitry on a regular basis.

RESPONSE

GSU's current maintenance procedures require cleaning of dust/dirt of all control panels, cabinets, and diesel generator start system electrical circuitry every thirteen weeks.

ENCLOSURE 1

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verify the Division III Diesel Generator ambient room temperature to be $\geq 45^{\circ}\text{F}$:
 1. At least once per 24 hours with the last recorded ambient room temperature $\geq 50^{\circ}\text{F}$ or
 2. At least once per 12 hours with the last recorded ambient room temperature $< 50^{\circ}\text{F}$.

- 3) Diesel generator output breaker closed before start of diesel.
- 4) *Diesel generator output breaker in racked-out position
- 5) *Diesel generator regulator mode switch not in "AUTO" position.
- 6) Insufficient starting air pressure.
- 7) Loss of dc power to diesel generator controls.

h. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting all three diesel generators simultaneously, during shutdown, and verifying that all three diesel generators accelerate to at least 450 rpm for diesel generators 1A and 1B and 900 rpm for diesel generator 1C in less than or equal to 10 seconds.

i. At least once per 10 years by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and
2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with ASME Code Section 11 Article IWD-5000.

4.8.1.1.3 Reports - All diesel generator failures, valid or ²non-valid, shall be reported to the Commission pursuant to Specification 6.9.2. within 30 days. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests, on a per nuclear unit basis, is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

*Items 4) and 5) do not electrically block diesel generator from emergency starting; however these will affect the loading and operation of the diesel.

ENCLOSURE 2

RBS FSAR

QUESTION 430.86 (9.5.5)

In section 9.5.5.3, you state that on standby service the diesel generator jacket cooling water is maintained at a constant temperature by circulating the water through a separate electric immersion heater. Forced circulation is used on the standby diesel generators, while the HPCS diesel utilizes natural circulation. Expand this section of the FSAR to show that these jacket water heating systems are adequate to maintain recommended jacket water temperature for the coldest temperatures possible in the diesel generator building, assuming a failure of the heating system. If the jacket water heating systems are not adequate for this purpose, describe the measures which will be taken to maintain diesel generator availability in the event the diesel generator building heating system fails.

RESPONSE

A description of the diesel generator cooling water system operation in the standby condition is provided in Section 9.5.5.2.

The RBS HPCS diesel generator is specified to operate at room temperatures ranging from 40°F to 122°F. The diesel generator building HVAC systems are designed to maintain the required environmental conditions between the minimum and maximum ambient conditions specified. The design basis thus provides an ambient room temperature ranging from 40°F to 122°F. When the ambient temperature of the HPCS diesel generator room drops below 45°F due to loss of the HPCS diesel generator room heater, the HPCS diesel generator will be declared inoperable as required by technical specifications. An engine low temperature condition will be annunciated in the diesel generator control room and in the main control room through a low temperature alarm in the lube oil system.

To address the concern of HPCS diesel generator operability with the room temperature below 65°F, GSU will demonstrate, prior to full power operation, the engine's capability to start and accept load within 10 sec at an ambient room temperature of approximately 40°F. In addition, required monthly surveillance testing will demonstrate engine start tests over a range of room temperatures. Additional parameters that will be monitored prior to the monthly test include: room and engine block temperatures on the day before and the day of the test, and temperatures of the lube oil and cooling systems. An assessment of the impact of ambient temperatures on the diesel generator starting

ENCLOSURE 3

rust within the system. In addition, the system piping for the standby diesel generator is provided with an air strainer installed before the air starting solenoid valve.

The system piping is installed at an elevation lower than the engine inlet, and is provided with a drip leg to provide for removal of any water which may be present in the lines. The HPCS diesel generator air starting piping system is provided with a strainer before the air starting solenoid valve which removes particulates and allows for periodic draining of water present in the lines.

The performance of the DGSS filters and strainers for the standby diesel generators is monitored by a pressure sensor located in each of the air starting lines just upstream of the solenoid valves which admit air to the air header on the engine. The pressure sensors detect pressure downstream of the final strainer in the system and signal an alarm on the engine control panel when the starting air pressure is low.

~~There is no air filter for the HPCS diesel generator.~~ The air strainer is located on the engine at the inlet point. A pressure switch is provided at the entrance of the air motor downstream of the strainer.

9.5.6.4 Testing and Inspection Requirements

The system is operated and tested initially with regard to flow path, flow capacity, and mechanical operability in accordance with requirements given in Chapter 14. To ensure continued integrity of the DGSS, scheduled inspection and testing of equipment, including associated instruments and controls, are performed as part of the overall engine performance checks at regular intervals. Filters and strainers are checked for cleanliness during routine testing and inspection.

Testing of the DGSS simulates, where practicable, the parameters of operation (automatic start, load sequencing, load shedding, operation time, etc.) and environments (temperature, humidity, etc.) that would be expected if actual demand were placed on the system.

Periodic surveillance testing and inservice inspection programs for the DGSS components, instrumentation, controls, and alarms are in accordance with Regulatory Guide 1.108, Revision 1, and engine manufacturer recommendations. All start failures are analyzed and reported pursuant to Regulatory Guide 1.108 and the Technical Specifications, respectively. The system is designed such that testing can

ATTACHMENT 1 to page 9.5-31

In the HPCS diesel generator air start system, air entering the system passes through a 15-20 micron filter provided at the compressor air inlet. The compressed air is dried using a "condensate separator" housed in a refrigerated heat exchanger. This device removes not only moisture but also dirt and oil vapors from the compressed air. Provision is also made for system internal contaminants, eg. metal flaking, by use of a strainer in the air line to the starters.