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May 17, 1985
RBG- 21,036
File Nos. G9.5, G9.8.6.2

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

Attached are revisions to the Final Safety Analysis Report (FSAR) Section 9A.2 (Attachment 1) which respond to various concerns identified during a recent review of fire protection at River Bend Station. These revisions provide additional clarification concerning the safe shutdown methodology to be used in specific fire areas and supplement Gulf States Utilities previous responses to Safety Evaluation Report Outstanding Issue No. 13. These revisions will be included in a future amendment to the FSAR.

Also provided, as Attachment 2, is a list of deviations from the Branch Technical Position CMEB 9.5-1 which supercedes the list provided with my letter of March 5, 1985 (RBG-20,313). Further, Attachment 3 identifies inconsistencies found in the Safety Evaluation Report in the area of the fire protection.

Sincerely,

J. E. Booker

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

JEB/ERG/je

Attachment

B001
1/1

At this level the contained volume of water in the tank is 253,000 gallons and the usable volume is 241,000 gallons.

fire and smoke detection and control system, fire barriers, egress facilities, etc. 11

9.5.1.2.1 Water Supply Tanks

Fire water supply is from two ground level steel ~~suction~~ storage tanks. Each tank has a capacity of 297,000 gallons, with a maximum working capacity of 265,000 gallons. These tanks are filled automatically by the shallow well makeup water pump at a rate of 800 gpm when the water level in the tanks falls 2'-0" below the overflow level. The makeup water pump shuts off automatically when the water level in the tanks reaches the overflow level. Additional makeup water is available from two 150-gpm, manually operated deep well pumps. The two storage tanks have their discharge piping cross-connected with normally open valves, so that the fire pumps can take suction from either tank. 11

9.5.1.2.2 Fire Pumps

The fire protection water flow and pressure requirements are met by one electrically driven and two diesel-driven fire pumps. Each pump is rated at 1,500 gpm at 165 psig and is separated by a 3 hr-rated fire wall in the fire pump house. Tanks, pumps, and discharge lines to the underground loop are provided with sectionalizing shutoff valves, so no single impairment incapacitates more than one tank or pump. 11

The system pressure is maintained continuously between 110 and 140 psig by a jockey pump. The fire pumps are started by actuation of pressure switches located on the discharge side of the pumps and stopped manually at the fire pump house. The motor-driven pump starts when system discharge pressure drops to 90 psig. The two diesel-driven pumps start when pressure drops to 80 psig and 70 psig, respectively. In addition, if the electric motor-driven pump cannot bring the system pressure to 140 psig within 5 sec, the first diesel-driven pump starts. If the first diesel-driven pump cannot bring the system pressure to 140 psig, the second diesel-driven pump starts with time delays of 5 or 15 sec depending upon whether the electric motor-driven pump is running. Fire pumps are designed utilizing guidance from NFPA Code 20. 13 17 11 17 16

9.5.1.2.3 Yard Piping

The plant underground fire protection system piping is cement-lined, cast-iron and ductile iron pipe with mechanical joints. Looped mains with post indicator

9A.2.2.1 Safe Shutdown Analysis

The physical separation and acceptable protection methods provided for equipment required for safe plant shutdown are adequate to prevent a postulated fire from affecting redundant components. Fire loadings in most areas are negligible. For the elevations containing the cable trays, el 114'-0" and 141'-0", redundant safety divisions are separated. Fire loadings within the zones approximate 30 min, which is considered minimal for flashover between divisions. Further spread of fire is prevented by structural walls as shown in Fig. 9A.2-3 and 9A.2-4 for el 114'-0", 141'-0", and 162'-3" and by a fire stop in nondivisional tray on the north side of the containment. | 11 | 11 | 13

INSERT 1 →

The principal potential fire hazard in the drywell is the lubricating oil contained within the two reactor recirculation pump motors. Each motor utilizes oil-lubricated bearings. The lubricating oil is cooled by cooling coils installed within the reservoirs.

This design minimizes piping connections to the oil reservoir. The heavy construction and nonpressurized design of this lubricating system minimizes the susceptibility of the system to leakage. Also, if a leak were to occur, ignition-enhancing spray would be unlikely. Therefore, an exposure fire due to ignition of the recirculation pump lubricating oil is not credible and additional fire protection measures for the recirculation pumps are not required. | 11

Substantially all cables in the drywell are installed within conduit raceway. The amount of exposed combustible is negligible. ~~Therefore, cable fires are not postulated.~~

The drywell is inaccessible during operation and when opened, stringent administrative controls and procedures are implemented to monitor personnel and equipment ingress and egress. ~~Therefore, an exposure fire from transient combustibles is not postulated.~~

INSERT 2 →

9A.2.2.2 Radioactive Release Analysis

The portions of the reactor plant ventilation system (which includes the auxiliary building) which are provided to mitigate a possible release of radiation to the atmosphere are the continuous containment/drywell purge system, the annulus pressure control system, and the annulus mixing system, as described below. | 11

INSERT 1

Shutdown Method 1 and 2 equipment, instrumentation, and electrical cables are well separated in the containment. The east (Division II - blue) side of the containment is separated from the west (Division I - red) side by the main steam tunnel on the south and by an area free of combustibles in the north. Shutdown by either Method 1 or 2 can be used, depending on the actual location of the fire in the containment.

The main steam tunnel (outside the containment and upstream of the jet impingement wall) contains equipment, instrumentation, and/or cables for Shutdown Method 1 only. Therefore, in the event of a fire in this area, safe shutdown may be achieved using Shutdown Method 2.

INSERT 2

The drywell contains valves and raceways for both Shutdown Methods 1 and 2. In the event of a fire in this area, plant shutdown could be achieved using Shutdown Method 1. Depressurizing the Reactor Pressure Vessel may be achieved using combinations of safety relief valves which are not affected by the fire in the drywell.

9A.2.3 FUEL BUILDING

Tables 9A.2-3 and 9A.2-4 provide data and information required for the fire hazards analysis and loading of the fuel building.

The fuel building contains safety-related components including piping and cables for the following systems:

1. Fuel Pool Cooling (SFC)
2. Reactor Plant Component Cooling Water (RPCCW)
3. Fuel Handling and Storage
4. Fuel Building Ventilation (HVF)
5. Containment penetration valve of the Control Rod Drive
6. Fuel Transfer (FTS)
7. Termination Cabinets.

The building is a reinforced concrete structure, including exterior and interior walls and roof.

9A.2.3.1 Safe Shutdown Analysis

INSERT 3 →

Fuel pool cooling pumps and heat exchangers required for decay heat removal in the fuel storage pool are located in separate 3 ft thick, reinforced concrete enclosures on el 70'-0" and would not be subject to simultaneous damage in a single fire event. Divisional cables supplying power to these components are not subject to simultaneous damage. Other than the fuel pool cooling pumps and heat exchangers, there is no single fire area which contains redundant safety-related equipment or combinations of equipment required for safe plant shutdown. Acceptable methods of protection are provided for one division for spent fuel cooling. Other divisional cables are arranged so that Division I is in the west sections and Division II is in the east sections of the building. Separation of divisional and nondivisional cables follows Regulatory Guide 1.75. Continuity of combustibles is negligible, as are area fire loadings. 11

9A.2.3.2 Radioactive Release Analysis

The fuel building ventilation system consists of a supply air subsystem, unit coolers subsystem, exhaust air subsystem, and charcoal filtration subsystem, with their associated fans, filters, ductwork, dampers, and controls. Cooling is provided by air conditioning unit and fan coil unit coolers for various cubicles. During normal operation, ventilation air is exhausted directly to the atmosphere through the roof of the building by exhaust fans. Upon detection of high airborne radioactivity concentration

INSERT 3

This area is divided into four zones. Zones Z-1 and Z-2 contain equipment, instrumentation, and cables for both Shutdown Methods 1 and 2 and for spent fuel pool cooling. Zones Z-3 and Z-4 do not contain any Shutdown Method 1 or 2 equipment, instrumentation, or cables, but do contain Division I and II equipment required to cool stored spent fuel. In the event of a fire in these areas, safe shutdown may be achieved using Shutdown Method 1 systems. The equipment, instrumentation, or cable of one method required for safe shutdown is protected in accordance with an approved Appendix R method.

9A.2.4.1 Safe Shutdown Analysis

Redundancy is provided for components required for safe plant shutdown. These components are located in separate minimum 3-hr, fire-resistive cubicles and would not be simultaneously subject to damage from a single fire event. Components of multiple systems which operate together for safe shutdown are similarly protected. Divisional cables supplying power to these components are not subject to simultaneous damage. The majority of the divisional cables are arranged so that Division I is in the west sections and Division II is in the east sections of the building. The cubicles and east and west sections define separate fire areas. Where Division I cables that are required for safe shutdown enter a predominantly Division II area, acceptable protection is provided. Where Division II cables that are required for safe shutdown enter a predominantly Division I area, acceptable protection is provided. Installation of equipment and cable trays satisfies the requirements of Regulatory Guide 1.75. Continuity of combustibles in these trays does not exist. A water curtain separates AB-1 from AB-15 (west-east) at elevations 70'0" and 141'-0" and features closely spaced open-head sprinklers with water discharge initiated by tripping a deluge valve activated by cross-zoned fire detectors. Smoke propagation does not represent a hazard to redundant systems and operation of the system does not endanger safety systems on either side of the water curtain in accordance with NRC Generic Letter 83-33. The area in the vicinity of the water curtain does not contain equipment which requires the use of combustible materials for maintenance and the use of the water curtain for protection of the auxiliary building unit coolers enhances the availability of both of these redundant safe shutdown support systems. Therefore, both divisions would not be subject to damage in a single fire event.

INSERT 4 →

9A.2.4.2 Radioactive Release Analysis

The building ventilation system consists of an air supply system and air exhaust system, each including two 100 percent fans and associated viscous impingement type filters, dampers, and ductwork. Cooling is provided by unit coolers. The exhaust system is capable of discharging directly to the plant exhaust duct or diverting the exhaust to the standby gas treatment system (SGTS) charcoal filters. There are two 100 percent redundant SGTS filter trains each located in a separate 3-hr, fire-rated enclosure. Radiation levels are monitored in the exhaust duct, and high levels sound an alarm in the main control room from which the operator manually diverts exhaust through the SGTS.

INSERT 4

Safe Shutdown may be accomplished by using Shutdown Method 2 for transient fires in fire areas AB-1, AB-2/Z-1, AB-5, AB-6, AB-7 and AB-14. For a transient fire in fire areas AB-2/Z-2, AB-3, AB-4, and AB-15 shutdown can be achieved using Shutdown Method 1. For fire areas AB-4 and AB-5, the above shutdown methods could be used, along with the HPCS system for reactor water makeup, in lieu of RCIC and RHR-C, respectively, which are assumed to be disabled by the fire.

A fire in fire area AB-15 would require use of the LPCS system in addition to other available Shutdown Method 1 equipment. In addition, once in cold shutdown, the normal shutdown cooling mode of RHR-A may be initiated by opening the normal shutdown cooling mode valve 1E12*F009 either manually or by utilizing jumpers at standby motor control center 1EHS*MCC2L.

9A.2.5 CONTROL BUILDING

Tables 9A.2-7 and 9A.2-8 provide data and information required for the fire hazards analysis and loading of the control building.

The control building contains the major controls and related equipment necessary to start up, operate, and shut down the plant. It is a four-story reinforced concrete structure including walls, floors, and roof. Minimum 3-hr fire barriers are located throughout to mitigate the consequences of a fire. All penetrations in these barriers are also rated for 3 hr. El 70'-0" contains cable and air conditioning equipment areas. El 98'-0" contains the standby switchgear rooms, the remote shutdown panel rooms, and the equipment room containing chillers and cable areas. El 115'-0" contains an additional switchgear room, battery rooms, motor generator areas, cable chases, and air conditioning equipment rooms and charcoal filter trains. The main control room is at el 136'-0". Cable chases extending from el 70'-0" to the control room level contain the PGCC equipment cables and are enclosed with 3-hr, fire-rated barriers. Fire protection of the PGCC is described in NEDO-10466A. Remote shutdown capability for Division I and Division II are provided to shut down the reactor in the event that the main control room becomes uninhabitable. 13 11 11

INSERT 5 →

9A.2.5.1 Safe Shutdown Analyses

Safety-related cables in trays are arranged so that Division I is located in the west section, Division II in the east section and Division III in separate equipment rooms. Adequate separation is provided by minimum 3-hr, fire-rated walls except for the walls separating the redundant Division I and II chillers and air-conditioning equipment rooms. Area C-4 contains the Division I and II redundant HVAC equipment on the west and east sides of the wall, respectively. The equipment ensures adequate ventilation for the respective standby switchgear rooms. As listed in Table 9A.2-8, the combustible loading consists of the air-conditioning unit's motor insulation. The loading due to cables is negligible since cables are run in conduit. Area C-13 contains the Division I and II redundant chiller equipment necessary to air-condition the main control room on the west and east sides of the wall, respectively. Combustible loading consists of cable in tray, approximately 11

INSERT 5

Shutdown Method 1 may be utilized to achieve safe shutdown for a transient fire in fire areas C-1A, C-1B, C-1C, C-2A, C-2B, C-2C, C-5, C-6, C-14, C-19, C-23, C-25 and C-27. For a transient fire in fire areas C-7, C-9A, C-9B, C-9C, C-10A, C-10B, C-10C, C-11, C-12, C-15, C-16, C-17, C-18, C-20, C-21, C-22, C-24, C-26 and C-28, Shutdown Method 2 may be used to achieve safe shutdown. Fire areas C-4 and C-13 contain HVAC equipment for both methods of shutdown, separated by a concrete wall. Therefore, either Shutdown Method 1 or 2 may be used to attain safe shutdown, depending on which HVAC equipment is unaffected by the fire.

In order to achieve cold shutdown for a fire in the Main Control Room, fire area C-25, air compressor 1LSV*C3A may have to be started by the use of jumpers at standby motor-control center 1EHS*MCC2L, if additional air is required for ADS/SRV cycling. In addition, once in cold shutdown, the normal shutdown cooling mode of RHR may be initiated by opening the normal shutdown cooling mode valve 1E12*F009 either manually or by utilizing jumpers at standby motor control center 1EHS*MCC21.

9A.2.6 DIESEL GENERATOR BUILDING

Tables 9A.2-9 and 9A.2-10 provide data and information required for the fire hazards analysis and loading of the diesel generator building.

The diesel generator building contains the Division I, II and III and (HPCS) diesel generator systems on automatic start standby service. These three systems provide power to essential equipment if both normal and preferred station service power sources are lost. The building is a reinforced concrete structure with 3 ft thick reinforced concrete barrier walls provided to separate each diesel system. Fuel oil storage tanks are in sand-filled reinforced concrete vaults beneath each diesel generator room and do not expose the systems to fire. One 550-gal diesel engine fuel oil day tank is located in each diesel room. | 13

9A.2.6.1 Safe Shutdown Analysis

Fire wall separation of the Division I, II and III (HPCS) diesel generator systems preclude a fire in one section from disabling both systems. The HPCS diesel generator system is located between the Division I and II systems and is also separated by minimum 3-hr, fire-rated barriers.

INSERT 6 →

9A.2.6.2 Radioactive Release Analysis

There is no source of radioactivity in this building. Redundancy and arrangements described previously would preclude a single fire event in this building from compromising the functions required to prevent a release of radiation from sources outside the building.

9A.2.6.3 Fire Suppression - Detection

Each diesel generator room and fuel oil day tank is protected by an automatically actuated preaction sprinkler system. Actuation is through a heat detection system which is arranged to alarm locally and in both control rooms. Portable extinguishers are provided in each room. Hose coverage is possible by use of equipment located at outside yard hydrant and hose houses. Inside hose stations are not considered to be useful for secondary suppression capability, since access to these rooms would be expected to be difficult in event of a fire reaching proportions requiring hose use. | 11 | 11

INSERT 6

Shutdown Method 1 may be used to attain safe shutdown for a transient fire in fire areas DG-1 and DG-4. Shutdown Method 2 may be utilized to achieve safe shutdown for a transient fire in fire areas DG-2, DG-3, DG-5 and DG-6.

9A.2.13 STANDBY SERVICE WATER PUMP HOUSE

Tables 9A.2-23 and 9A.2-24 provide data and information required for the fire hazards analysis and loading of the standby service water pump house.

The pump house contains the following safety-related equipment:

1. Four standby service water pumps
2. Two motor control centers
3. Ventilation system.

The standby cooling tower including the standby service water pump house is constructed of reinforced concrete.

9A.2.13.1 Safe Shutdown Analysis

Redundancy is provided for components required for safe plant shutdown.

These components are located in different rooms separated by a 3-hr fire wall (fire areas PH-1 and PH-2, Fig. 9A.2-7) and are not simultaneously subject to damage from a single fire event. 11

INSERT 7 →

9A.2.13.2 Radioactive Release Analysis

There is no equipment in this building capable of releasing radioactivity to the atmosphere.

9A.2.13.3 Fire Suppression - Detection

The building is provided with a zoned detection system arranged to alarm locally and in both control rooms.

Portable extinguishers are provided. Hose coverage is possible by use of equipment located at an outside yard hydrant and hose houses. Fire loading in the building does not justify fixed fire suppression systems. 11

INSERT 7

A transient fire in fire area PH-1 may require safe shutdown to be attained by the use of Shutdown Method 2. Shutdown Method 1 may be utilized to achieve safe shutdown for a transient fire in fire area PH-2.

9A.2.15 PIPE TUNNELS

Tables 9A.2-27 and 9A.2-28 provide data and information required for the fire hazards analysis and loading of the pipe tunnels.

These tunnels contain piping associated with the following systems:

1. Service Water
2. Reactor Plant Component Cooling Water
3. Condensate Makeup and Draw-off
4. Makeup Water
5. Control Rod Drive
6. Fuel Pool Cooling and Cleanup
7. Radioactive Liquid Waste
8. Service Air
9. Instrument Air
10. Turbine Plant Equipment Drains
11. Reactor Water Cleanup
12. High Pressure Core Spray
13. Turbine Building Floor Drains
14. Reactor Building Equipment Drains
15. Reactor Building Floor Drains
16. Auxiliary Steam
17. Auxiliary Boiler Steam

Division I, II and III and nondivisional, cable trays are also located in these tunnels. Trays are installed in accordance with Regulatory Guide 1.75. The portion of the pipe tunnels located within the auxiliary building is included in Section 9A.2.3. | 11

9A.2.15.1 Safe Shutdown Analysis

Cables for Shutdown Method 1 systems are protected with an approved method ensuring that, in the event of a fire, one method of shutdown is available. | 11

Shutdown Method 1

9A.2.15.2 Radioactive Release Analysis

The pipe tunnels are not considered susceptible to uncontrolled radioactive releases. No system components within the tunnels can in themselves cause such a release in other areas which cannot be controlled by equipment within those areas.

9A.2.16 ELECTRICAL TUNNELS

Tables 9A.2-29 and 9A.2-30 provide data and information required for the fire hazards analysis and loading of the electrical tunnels.

The electrical tunnels contain Division I, II, and III, and nondivisional, cables, ~~in trays~~. | 11

9A.2.16.1 Safe Shutdown Analysis | 11

The separation and acceptable methods of protection provided are such that a single fire event cannot damage ~~redundant~~ equipment or services ~~required for safe plant shutdown~~ of more than one Shutdown Method. | 11

INSERT 8 →

9A.2.16.2 Radioactive Release Analysis

There is no equipment within electrical tunnels capable of releasing radioactive materials. Electrical equipment within the tunnels for control and operation of safety-related systems components located in other buildings is arranged and segregated so that radioactive release from those buildings to the atmosphere is prevented.

9A.2.16.3 Fire Suppression - Detection

Zoned detection systems are provided and arranged to alarm locally and in both control rooms. Zoned water spray systems are provided throughout the electrical tunnels. These systems are arranged to actuate upon operation of zoned detectors. Operation is indicated in both control rooms. Portable extinguishers are provided. Tunnel areas can be reached by manual hose stations located either in a tunnel area or in an adjoining building. | 11 | 11

INSERT 8

Shutdown Method 1 may be utilized to achieve safe shutdown for a transient fire in fire area ET-2, while Shutdown Method 2 may be utilized to achieve safe shutdown for a transient fire in fire area ET-1.

9A.3.6.2.4 Reliable Water Supplies

Two separate reliable water supplies should be provided. If tanks are used, two 100 percent (minimum of 300,000 gal each) system capacity tanks should be installed. They should be so interconnected that pumps can take suction from either or both. However, a leak in one tank or its piping should not cause both tanks to drain. The main plant fire water supply capacity should be capable of refilling either tank in a minimum of 8 hr.

Common tanks are permitted for fire and sanitary or service water storage. When this is done, however, minimum fire water storage requirements should be dedicated by means of a vertical standpipe for other water services.

RIVER BEND STATION POSITION

See Section 9A.3.6.2.5.

9A.3.6.2.5 Fire Water Supply

The fire water supply (total capacity and flow rate) should be calculated on the basis of the largest expected flow rate for a period of 2 hr, but not less than 300,000 gal. This flow rate should be based (conservatively) on 1,000 gpm for manual hose streams plus the greater of:

1. All sprinkler heads opened and flowing in the largest designed fire area

2. The largest open head deluge system(s) operating.

RIVER BEND STATION POSITION

Fire water supply is from two ground-level steel suction tanks. Each tank has a maximum capacity of 297,000 gals, with a working capacity of 265,000 gals. These tanks are filled automatically by the shallow well makeup water pump at a rate of 800 gpm when the water level in the tanks fall 2'-0" below the overflow level.[1] The makeup water pump shuts off automatically when the water level in the tanks reaches the overflow level. Additional makeup water is available from two 150 gpm, manually operated deep well pumps. Three fire pumps (50 percent), each rated at 1,500 gpm, 165 psig discharge pressure are provided. Two pumps are diesel engine driven and one is electric motor driven. Each pump is separated by a 3-hr fire-rated wall in the fire pump house. Tanks, pumps, and discharge lines to the underground loop are provided with sectionalizing shutoff valves so that

[1] At this level the contained volume of water in the tank is 253,000 gallons and the usable volume is 241,000 gallons.

6. Shutdown systems installed to ensure postfire shutdown capability need not be designed to meet Seismic Category I criteria, single failure criteria, or other design basis accident criteria, except where required for other reasons, e.g., because of interface with or impact on existing safety systems, or because of adverse valve actions due to fire damage.

7. The safe shutdown equipment and systems for each fire area shall be known to be isolated from associated nonsafety circuits in the fire area so that hot shorts, open circuits, or shorts to ground in the associated circuits will not prevent operation of the safe shutdown equipment. The separation and barriers between trays and conduits containing associated circuits of one safe shutdown division and trays and conduits containing associated circuits or safe shutdown cables from the redundant division, or the isolation of these associated circuits from the safe shutdown equipment, shall be such that a postulated fire involving associated circuits will not prevent safe shutdown.[8]

RIVER BEND STATION POSITION

The Fire Hazards Analysis in Section 9A.2 identifies two preferred safe shutdown methods (No. 1 and No. 2). Alternate methods of shutdown consisting of combinations of Method 1, Method 2, and ECCS equipment are utilized as necessary (see Table 9A.2-35). The equipment required for 13 these alternate methods has been analyzed to assure that it is independent of the fire area being evaluated, or that acceptable fire protection is provided. ← INSERT 9

Dedicated shutdown capability, as defined by Footnote 2 of 10CFR50, Appendix R, is not used at River Bend Station.

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[8] An acceptable method of complying with this alternative would be to meet Regulatory Guide 1.75 position 4 related to associated circuits and IEEE Std 384-1974 (Section 4.5) where trays from redundant safety divisions are so protected that postulated fires affect trays from only one safety division.

INSERT 9

In a few cases, the fire damage is limited so that the system can be repaired and cold shutdown achieved within 72 hours. The necessary materials for these repairs are maintained onsite in a separate fire area and procedures are in effect to implement these repairs.

ATTACHMENT 2

1. Hose station accessibility to all buildings (9A.3.6.3.5)

   The BTP states that "interior manual hose installation should be able to reach any location that contains, or could present a fire exposure hazard to, safety related equipment with at least one effective hose stream." At RBS the following such areas do not have interior manual hose stations but suppression is available as described:

   A. The standby service water pumphouse is provided with detectors, portable extinguishers, and can be reached with a hose stream from a yard hose station installed in accordance with the BTP.

   B. The diesel generator building is provided with detectors, portable extinguishers, and an automatic preaction water spray system, and can be reached with a hose stream from a yard hose station installed in accordance with the BTP.

2. Fire water storage tank capacity (9.5.1.2.1, 9A.3.6.2.5)

   Although the BTP states that tanks used for the freshwater supply to the fire suppression system should have a minimum capacity of 300,000 gallons, tanks in use at RBS have a working capacity of 241,000 gallons. This capacity is sufficient to supply, for two hours, 500 gpm for manual hose streams plus the largest actual demand, 1400 gpm, of any associated sprinkler or deluge system, with a margin of 13,000 gal. In addition, these tanks are filled automatically by the shallow well makeup pump at a rate of 800 gpm when the water level falls 2 feet below the overflow level and shutoff when this overflow level is again reached. Additional makeup is provided by two 150 gpm, manually operated deep well pumps.

3. Hose station hose length to 150 feet (9.5.1.2.4, 9A.3.6.3.5)

   Although the BTP states "standpipes with hose connections (should be) equipped with a maximum of 100 feet of 1-1/2-inch woven-jacket, lined fire hose." RBS has seven areas with 150 feet of hose - in the control building at elevation 70'-0" (fire area C-11), elevation 116'-0" and elevation 136'-0" (outside the main control room); in the fuel building at elevation 70'-0" on the east wall; in the G tunnel at elevation 70'-0"; in the radwaste building at elevation 70'-0". Sufficient system pressure exists such that a 30 foot hose stream is assured with the 150 foot hose length, assuming operation of an associated sprinkler system.

   The seventh area to be provided with 150 feet of hose length is inside the drywell. On elevation 113'-0" of the fuel building, the fire brigade locker contains an additional 75 foot length of hose to insure that areas of the drywell (i.e. through the containment

access airlock) can be reached with an effective hose stream. Additionally, the prefire strategies for the reactor building drywell fire area addresses the need for and use of this additional hose length.

4. Main control room suspended ceiling lighting fixture cables (9A.3.5.1.6)

   Although the BTP indicates that concealed spaces in suspended ceilings should be devoid of combustibles, RBS has cables for the suspended ceiling lighting fixtures concealed. The amount of lighting fixture cables is minimal and thus the combustible loading is negligible.

5. Cable tray water suppression systems

   The BTP states that to meet guidelines, "one of the means of ensuring that one of the redundant trains is free of fire damage" would be the "enclosure of cable and equipment and associated circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system should be installed in the fire area." RBS uses 1-hour barriers and cable tray water spray suppression systems activated by cross-zoned smoke detectors, in lieu of area-wide suppression systems, to provide the protection required (that cable trays provide the sole source of installed combustibles) within the following areas:

   ET-1 - Electrical Tunnel
   PT-1 - Pipe Tunnel
   AB-7 - Auxiliary Building Piping and Electrical Tunnel
   C-2A - Control Building Cable Chases
   C-2B - Control Building Cable Chases
   C-2C - Control Building Cable Chases
   C-6 Control Building, Elev. 70

6. Switchgear room flooding protection (9A.3.5.1.9)

   The BTP states that "Floor drains should be provided in those areas where fixed water suppression systems are installed." Floor drains have not been provided in the Division I & II switchgear rooms; however, 4-inch curbs are provided at each access door to prevent flooding of the rooms from adjacent sprinklered fire areas.

ATTACHMENT 3

ERRATA

As a result of GSU's review of the RBS Safety Evaluation Report (SER, NUREG-0989), several editorial inconsistencies were found which unless clarified may lead to misinterpretation or be construed as inaccurate descriptions of various RBS systems, equipment, etc...

1. Page 9-38, Section 9.5.1.1 (Fire Protection Program)

   The fire protection program is described in Final Safety Analysis Report (FSAR) Section 9.5.1 and Appendices 9A and 9B, as opposed to a separate FPER.

2. Page 9-42, Section 9.5.1.4 (Electrical Cable Construction, Cable Trays, and Cable Penetrations

   The parenthetical phrase at the end of the first paragraph, "(areas containing six or more cable trays)" should be revised to read "(areas containing stacks of six or more cable trays)".

3. Page 9-44, Section 9.5.1.5 (Fire Protection Water Supply System)

   The reference to a hydropneumatic tank in the first sentence of the second paragraph should be removed since such a tank does not exist in the fire protection system at RBS.

4. Page 9-47, Section 9.5.1.6 (Switchgear Room)

   As detailed in Item 7 of Attachment 2 to this letter, the switchgear room has floor curbs at the access doors to the Division I & II switchgear not floor drains. The last sentence of the first paragraph should be modified accordingly.