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July 19, 1985

Docket Nos. 50-348

Director, Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. S. A. Varga

Joseph M. Farley Nuclear Plant - Units 1 and 2
10CFR50.48 and 10CFR50, Appendix R
Fire Protection Exemption Requests

Gentlemen:

By letter dated March 13, 1985, Alabama Power Company submitted for NRC approval technical exemption requests from the provisions of 10CFR50, Appendix R for fire areas in Unit 2 and fire areas shared by Units 1 and 2. On July 8, 1985, it was determined that adequate circuit coordination is not provided between 125V DC safe-shutdown circuits and associated nonsafe-shutdown circuits in the service water intake structure. A fire could cause a loss of power to one of the 125V DC distribution panels in the service water intake structure. Consequently, a technical exemption is requested, pursuant to 10CFR50.12, from the requirement of 10CFR50.48(c)(3). Attached is an addendum to exemption request 1-003, fire area 72, that provides in detail justification for the exemption.

In addition, typographical errors were discovered in exemption requests 2-019 revision 1 and 2-036 revision 1 submitted by letter dated June 26, 1985. Attached is revision 2 to these exemption requests.

If you have any questions, please advise.

Yours very truly,

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PDR ADOCK 05000348
F PDR

R. P. McDonald

RPM/DHJ:gri-D30

Attachments

cc: Mr. L. B. Long
Dr. J. N. Grace
Mr. E. A. Reeves
Mr. W. H. Bradford

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ADDENDUM TO EXEMPTION REQUEST 1-3, FIRE AREA 72

EXEMPTION: Request an exemption from Section III.G.2 to the extent it requires safe-shutdown equipment to be isolated from associated non-safety circuits.

CONDITION REQUIRING EXEMPTION:

An associated circuit review indicated that adequate coordination is not provided between safe-shutdown circuits and associated nonsafe-shutdown circuits powered from 125V DC Distribution Panels 1N, 2N, 1M, 2M. The safe-shutdown circuits from these distribution panels provide control power for safe-shutdown breakers. A short circuit in an associated cable from one of the distribution panels could result in a loss of power to the panel, and therefore, a loss of control power to the safe-shutdown breakers powered from the affected panel.

JUSTIFICATION:

A loss of power to one of the 125V DC Distribution Panels 1N, 2N, 1M or 2M will result in the loss of breaker control power for the following safe-shutdown loads controlled from that panel as shown below.

Distribution Panel 1N:	4 kV Breaker DL02 to Load Center L 600 V Load Center Tie Breaker EL05 Service Water Pump 1C Service Water Pump 1D Service Water Pump 1E 600V Load Center Breaker EL09 4 kV Tie Breaker DG02
Distribution Panel 2N:	Service Water Pump 2C Service Water Pump 2D Service Water Pump 2E 4 kV Breaker DL02 to Load Center L
Distribution Panel 1M:	4 kV Breaker DK02 to Load Center K 600V Load Center Tie Breaker EK05 Service Water Pump 1A Service Water Pump 1B Service Water Pump 1C 600V Load Center Breaker EK03
Distribution Panel 2M:	Service Water Pump 2A Service Water Pump 2B Service Water Pump 2C 4 kV Breaker DK02 to Load Center K 4 kV Tie Breaker DF02

A loss of breaker control power from the single effected panel will not interrupt the operation of the load powered by the breaker. However, electrical control of the breaker including breaker protection circuits and handswitch operation will not be functional. A loss of power to one of the subject DC distribution panels will not preclude any necessary control and operation of safe-shutdown equipment. Should the need arise, manual operation of the affected breaker would be possible.

Although not part of the justification for this exemption request, a design change has been initiated to improve the breaker coordination. This design change is currently scheduled to be installed prior to the end of the Unit 1 seventh refueling outage in 1986. Upon completion, the potential for the fire damage will no longer exist.

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EXEMPTION REQUEST: 2-19 Rev. 2FIRE AREA: 2-009LOCATION: TRAIN-B INSIDE CABLE CHASES, AUXILIARY BUILDING

EXEMPTION: Request exemption from section III.G.2.c to the extent that it requires one train of redundant safe shutdown cables to be enclosed by a barrier having a 1-h fire rating.

CONDITIONS REQUIRING EXEMPTION:

Instrument Air

Fire area 2-009 contains electrical Train-B power and control cable raceways. The analysis of the potential effects of a fire in this area upon cabling shows that the plant could lose the entire electrical Train-B system. Due to loss of the electrical Train-B system, the following redundant safe shutdown valves could become inoperable in the closed position.

EQUIPMENTFUNCTION

N2P19HV3885-B	Instrument Air to Penetration Room
Q2B13HV2228-B	Backup Air/N ₂ Supply to Pressurizer PORVs
Q2B31PCV0445A-A	Pressurizer PORV, Train A
Q2B31PCV0444B-B	Pressurizer PORV, Train B
Q2E21HV8145-N	Pressurizer Auxiliary Spray

In addition, Fire Area 2-009 contains control cables directly associated with N2P19HV3885-B and N2P19HV3825-A. The analysis of the potential effects of a fire in the area upon these cables shows the valves could become inoperable in the closed position.

Reactor Coolant Boundary

Fire area 2-009 contains control cables for the Train-B pressurizer power operated relief and blocking valves Q2B31PCV0444B-B and Q2B13MOV8000B-B, and the reactor head vent valves Q2B13SV2213B-B and Q2B13SV2214B-B. The subject cables are associated with control from both the hot shutdown and main control board. A fire induced failure having multiple hot shorts could cause the reactor inventory to letdown via the PORV and reactor head vent paths.

Auxiliary Feedwater

Auxiliary feedwater isolation valves Q2N23MOV3764B, Q2N23MOV3764C, and Q2N23MOV3764E are redundant to one another from the point of view that they isolate flow in redundant auxiliary feedwater supply lines. Control cables for all three valves are routed through the fire area. The analysis of the potential effects of a fire on these control cables shows that

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spurious operation of the auxiliary feedwater isolation valves could occur.

Component Cooling Water

Fire area 2-009 contains a control cable for the CCW heat exchanger 2B service water discharge valve (Q2P16SV3009-B). A fire induced failure resulting in a hot short from adjacent cables in the same raceway, could energize the solenoid and close the valve.

JUSTIFICATION:

Instrument Air - Justification

Failure of valve Q2E21HV8145-N in the closed position will disable the Pressurizer Aux. Spray system which provides one method to achieve depressurization of the RCS. Pressurizer PORV's Q2B31PCV0445A-A and Q2B31PCV0444B-B provide another means of achieving RCS depressurization. Valves N2P19HV3885-B, Q2B13HV2228-B and N2P19HV3825-A could fail in the closed position as a result of fire damage. This will isolate the instrument air supply to the Pressurizer PORV's Q2B31PCV0445A-A and Q2B31PCV0444B-B. PORV Q2B31PCV0444B-B will also be inoperable due to loss of the Train-B DC power supply. However, the Train-A DC supply to PORV Q2B31PCV0445A-A is not affected due to a fire in this area. Since only one of the PORV's is required for RCS depressurization and RCS depressurization is a long term requirement, the operator has adequate time to take manual action to restore the instrument air by hand wheel operation of valve N2P19HV3885-B and N2P19HV3825-A.

Once air is restored, PORV Q2B31PCV0445A-A will be operable to achieve RCS depressurization.

Reactor Coolant Boundary - Justification

Fire induced failure (hot short) of the individual control cables for Q2B31PCV0444B-B power operated relief valve, Q2B13SV2213B-B, and Q2B13SV2214B-B reactor head vent valves could result in the valves to be energized to open. The power operated relief blocking valve (MOV) could become electrically inoperative in the open position. In the unlikely event of the multiple fire induced failures (hot shorts from adjacent control cables in the shared raceway) occurring, this condition can be

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mitigated by removing 125 V-dc power from cables in the shared raceway. This can be accomplished by opening breaker on the 125 V-dc switchgear bus 2B (Q2R42B001B-B) for 125 V-dc distribution panels, 2D, 3E, and 2F.

Auxiliary Feedwater - Justification

The control cable associated with at least one of the auxiliary feedwater isolation valves has been protected by two 1-in. layers of Kaowool blanket with an overall layer of Zetex fabric or it will be rerouted out of the fire area. The subject valves and associated cables are as follows:

Q2N23MOV3764B: 2VBFV-M5C
Q2N23MOV3764C: 2VBFV-Y2C
Q2N23MOV3764E: 2VBFV-R2C

Component Cooling Water - Justification

The service water discharge valve (Q2P16SV3009-B) is required to be in the open position only when the swing CCW pump 2B is aligned to electrical Train A. In the unlikely event of such hot shorts resulting in the closed position of the service water discharge valve, the valve can be manually repositioned.

Plant procedures will be revised to include the above action for a fire in area 2-009.

FIRE PROTECTION:

A smoke detection system and automatic water suppression system are provided throughout the chase. In addition, water hoses and portable extinguishers located in rooms 2185 (area 2-6) and 2319 (area 2-42) are available for use in the area.

FIRE AREA INFORMATION:

<u>ROOM NUMBERS/ TITLES</u>	<u>SHUTDOWN TRAIN</u>	<u>COMBUSTIBLE MATERIAL</u>	<u>QUANTITY</u>	<u>FIRE LOAD (Btu/ft²)</u>	<u>MAXIMUM FIRE SEVERITY</u>
Rooms 2117, 2198, 2247, 2338 Cable Chase	B	Cable Insul.	4,489 lb	2,921,199	<9 h

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<u>ROOM NUMBERS/ TITLES</u>	<u>SHUTDOWN TRAIN</u>	<u>COMBUSTIBLE MATERIAL</u>	<u>QUANTITY</u>	<u>FIRE LOAD (Btu/ft²)</u>	<u>MAXIMUM FIRE SEVERITY</u>
Rooms 2246, 2344 Cable Chase	B	Cable Insul.	2,135 lb	180,180	<2-1/2 h

DESIGN FEATURES:

Construction: Floor, ceiling, and walls forming the area boundary are of reinforced concrete.

Doors: Airtight UL Class-A doors are located between rooms 2198 and 2185 (area 2-6) and between rooms 2338 and 2335 (area 2-41); an airtight UL Class-A door exists between rooms 2344 and 2343 (area 2-41).

Piping and Electrical Penetrations: All penetrations through the area boundary are sealed with silicone foam or Nelson fittings.

Ventilation: There is no normal ventilation for this area. Fixed smoke removal capability has not been provided.

Floor Drains: There are no floor drains.

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EXEMPTION REQUEST: 2-36 Rev. 2

FIRE AREA: 2-001

LOCATION: UNIT-2 AUXILIARY BUILDING, EL 83 FT - 0 IN., 100 FT - 0 IN., AND 121 FT - 0 IN.

Fire area 2-001 consists of the following rooms:

El 83 Ft - 0 In.

Room 2101	Waste Decay Tank Room
Room 2102	Valve Compartment Room
Room 2103	Corridor
Room 2104	Passageway to Unit 1
Room 2105	Catalytic H ₂ Recombiner-A Room
Room 2106	Catalytic H ₂ Recombiner-B Room
Room 2108	Waste Monitor Tank Room
Room 2109	Waste Monitor Tank Pump Room
Room 2110	Monitor Control Panel Room
Room 2111	Containment Spray Pump Room A
Room 2112	Access to Tendon Access Gallery
Room 2113	Valve Encapsulation
Room 2114	Pipe Chase
Room 2115	Hallway
Room 2118	Floor Drain Tank Room
Room 2119	Waste Holdup Tank Room
Room 2120	Corridor
Room 2121	Floor Drain Tank Pump Room
Room 2122	Waste Evaporator Feed Pump Room
Room 2123	Pipe Chase
Room 2124	Valve Encapsulation
Room 2125	Containment Spray Pump Room B
Room 2126	Pipe Chase
Room 2127	Pipe Chase
Room 2128	RHR Heat Exchanger Room
Room 2129	RHR Low Head Pump Room B
Room 2130	Pipe Chase
Room 2131	RHR Low Head Pump Room A

El 100 Ft - 0 In.

Room 2183	Tendon Access Gallery Entrance
Room 2184	Piping Penetration Room
Room 2169	Pipe and Duct Chase
Room 2196	Tendon Access Gallery

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E1 121 Ft - 0 In.

Room 2223 Piping Penetration Room

All of the fire area boundary walls, floors, and ceilings are rated as 3-h fire barriers except for a non-rated steel hatch cover between the ceiling of room 2103 and the floor of room 2163 (area 1-4). All electrical and piping penetrations sealed for a 3-h rating. All doors in the boundary walls are UL Class-A or Class-B rated.

EXEMPTION: An exemption is requested from section III.G.2.c to the extent it requires one train of redundant safe shutdown cable to be enclosed by a barrier having a 1-h fire rating and automatic fire suppression.

CONDITIONS REQUIRING EXEMPTIONS:

Exemptions are required for safe shutdown related cable and equipment as described below.

Instrument Air Isolation

A fire induced failure in control cables for instrument air isolation valve Q2P19HV3611 and M2P19HV3825-A may cause the valve to fail closed. A loss of instrument air causes the normal charging line isolation valve Q2E21HV8146 and the alternate charging line isolation valve Q2E21HV8147 to fail open. It may be necessary to close these valves during the course of shutdown to isolate charging flow.

A fire induced failure in the control cable for the pressurizer PORV backup air/N₂ supply valve Q2B13HV2228-B may cause the valve to fail closed. If instrument air isolation valve Q2P19HV3611 or M2P19HV3825-A and the pressurizer PORV backup air/N₂ supply valve Q2B13HV2228-B fail closed, the pressurizer PORV's will be inoperable in the closed position. Operation of the pressurizer PORV's may be required to achieve depressurization of the RCS.

Initiation of Safety Signals

Fire area 2-001 contains instrumentation cables associated with the following redundant containment pressure instrument channels.

PT950-P1	CTMT Pressure	Channel 1
PT951-P2	CTMT Pressure	Channel 2
PT952-P3	CTMT Pressure	Channel 3
PT953-P4	CTMT Pressure	Channel 4

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These instrument loops are not required for post-fire safe shutdown, but due to fire induced failures, the circuitry could cause initiation of safety signals (SI, CI, and CVI).

Main Steam Atmospheric Relief

Control cables associated with the three redundant atmospheric relief valves are routed through fire area 2-001. An analysis of potential effects of a fire upon these cables has shown that the subject valve could become inoperable in the closed position.

Charging Pump Miniflow

Power and control cables associated with charging pump miniflow isolation valve MOV8106-A are routed through fire area 2-001. An analysis of the potential effects of a fire upon these cables has shown that MOV8106-A could close and isolate the charging pump miniflow line.

Reactor Coolant Boundary Integrity

Control cables for the Train-A pressurizer power operated relief and blocking valves Q2B31PCV0445A-A and Q2B13MOV8000A-A, and the reactor head vent valves Q2B13SV2213A-A and Q2B13SV2214A-A are located in fire area 2-001. The subject cables are associated with the control function from the hot shutdown panel Q2H21NBAFP2605G-A. In addition control cables which shift control from the main control board to the hot shutdown panel via the transfer relay cabinet Q2H22L002-A are in this area. A fire induced failure having multiple hot shorts could cause the reactor inventory to letdown via the PORV, and reactor head vent paths.

JUSTIFICATIONS FOR EXEMPTIONS:

Instrument Air Isolation - Justification

Instrument air isolation valves Q2P19HV3611 and N2P19HV3825-A are equipped with a handwheel to facilitate manual operation. In the event the valves fail closed an operator can manually open them. This action will restore instrument air to the charging line isolation valves and the pressurizer PORV's. Consequently action would not have to be taken on the pressurizer PORV backup air/N₂ supply valve Q2B13HV2228-B.

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Initiation of Safety Signals - Justification

Fire induced cable failures in fire area 2-001 to non-post-fire safe shutdown circuitry could potentially result in a false SI, CVI, or CI safety signal initiation from the solid state protection system. Plant procedures exist, or will be developed, for resetting spurious SI, CVI, and CI safety signals from the main control room and can be used if required for a fire in this area.

Main Steam Atmospheric Relief - Justification

One of the three main steam atmospheric relief valves and its related steam generator are required to be operable to achieve steam release for cooldown. The atmospheric relief valves are provided with hand wheels such that the valves may be manually opened or closed without electrical controls or air supplies. The operator would establish manual control of the atmospheric relief valves by closing the manual air control valves to isolate the air supply and by opening the manual air vent valve to bleed off air from the diaphragm of the valve actuator. Both the air control and air vent valves are located in the vicinity of their associated atmospheric relief valve and would be accessible despite a fire in area 2-001. The capability to control steam generator pressure and reactor coolant system temperature with the use of the manually controlled atmospheric relief valves was demonstrated during the Unit-2 natural circulation and cooldown startup testing. Consequently, a fire in area 2-001 would not prevent the operation of at least one redundant atmospheric relief valve.

Charging Pump Miniflow - Justification

Valve Q2E21MOV8106-A is required to be maintained open to establish charging pump miniflow. In the event this valve fails closed, miniflow will be discontinued. The charging pump can be run safely with miniflow isolated and with a minimum of 24 gpm of seal injection flow for a period of up to 1 h. This will allow the operator time to take manual action to open the valve and re-establish miniflow.

Reactor Coolant Boundary Integrity - Justification

Fire induced failures (hot shorts) to the control cables for the transfer relay cabinet Q2H22LO02-A could cause control for the power operated relief and blocking valves and the reaction head

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vent valves, to shift from their normal main control board alignment to the remote hot shutdown panel. Subsequent fire induced failures (hot shorts for adjacent control cables in the shared raceway) of the control cables for Q2B31PCV0445A-A, power operated relief valve, Q2B13SV2213A-A, and 2B13SV2214A-A reactor head vent valves could result in the valves being energized to open. The power relief blocking valve (MOV) could become electrically inoperative in the open position. In the unlikely event of the multiple hot shorts occurring, this condition can be mitigated by removing power from the transfer relays and manual operation (handle) of the effected relay, thereby shifting control to the main control board.

Plant procedures will be revised to include the above actions for fire-area 2-001.

FIRE AREA INFORMATION:

<u>ROOM NUMBERS/ TITLES</u>	<u>SHUTDOWN TRAIN</u>	<u>COMBUSTIBLE MATERIAL</u>	<u>QUANTITY</u>	<u>FIRE LOAD (Btu/ft²)</u>	<u>MAXIMUM FIRE SEVERITY</u>
Room 2101 Waste Gas Decay Tank Room	-	Cable Insul.	29 lb ^(a)	1,251 ^(a)	<30 min ^(a)
Room 2102 Valve Compartment Room	-	Cable Insul.			
Room 2103 Corridor	B	Cable Insul.			
Room 2105 Catalytic H ₂ Re- combiner-A Room	B	Cable Insul. Panels	490 lb ^(a) 28 lb	7,634 ^(b)	<30 min ^(b)
Room 2106 Catalytic H ₂ Re- combiner-B Room	-	Cable Panels			

(a) Applies to rooms 2101 and 2102 collectively.

(b) Applies to rooms 2103, 2105, and 2106 collectively.

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<u>ROOM NUMBERS/ TITLES</u>	<u>SHUTDOWN TRAIN</u>	<u>COMBUSTIBLE MATERIAL</u>	<u>QUANTITY</u>	<u>FIRE LOAD (Btu/ft²)</u>	<u>MAXIMUM FIRE SEVERITY</u>
Room 2104 Passageway to Unit 1	B	Cable Insul.			
Room 2109 Waste Monitor Tank Pump Room	B	Cable Insul. Lube Oil	417 lb ^(c) 0.25 gal	5,742 ^(c)	<30 min ^(c)
Room 2110 Monitor Control Panel Room	-	Cable Insul. Panels	14 lb		
Room 2108 Waste Monitor Tank Room	-	Cable Insul. Charcoal Filter	75 lb 375 lb	19,457	<30 min
Room 2169 Duct and Pipe Chase	-	None	-	0	0
Room 2118 Floor Drain Tank Room	-	Cable Insul.	22 lb	831	<30 min
Room 2119 Waste Holdup Tank Room	-	Cable Insul.	60 lb	2,711	<30 min
Room 2120 Corridor	B, C	Cable Insul.	42 lb	5,540	<30 min
Room 2121 Floor Drain Tank Pump Room	B, C	Cable Insul. Lube Oil	287 lb 0.25 gal	21,402	<30 min
Room 2122 Waste Evaporator Feed Pump Room	B, C	Cable Insul. Lube Oil	287 lb 0.25 gal	21,402	<30 min

(c) Applies to rooms 2104, 2109, and 2110 collectively.

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<u>ROOM NUMBERS/ TITLES</u>	<u>SHUTDOWN TRAIN</u>	<u>COMBUSTIBLE MATERIAL</u>	<u>QUANTITY</u>	<u>FIRE LOAD (Btu/ft²)</u>	<u>MAXIMUM FIRE SEVERITY</u>
Room 2127 Pipe Chase	B, C	None	0	0	0
Room 2128 RHR Heat Exchanger Room	A, C	Cable Insul.	454 lb	2,607	<30 min
Room 2129 RHR Low Head Pump Room B	B, C	Cable Insul.	217 lb	3,837	<30 min
Room 2130 Pipe Chase	-	None	0	0	0
Room 2131 RHR Low Head Pump Room A	-	Cable Insul.	222 lb	6,332	<30 min
Room 2126 Pipe Chase	-	None	0	0	0
Room 2124 Valve Encapsulation	-	Cable Insul.	7 lb	6,329	<30 min
Room 2125 Containment Spray Pump Room B	-	Cable Insul. Lube Oil	261 lb 0.25 gal	3,569	<30 min
Room 2114 Pipe Chase	-	Cable Insul.	7 lb	3,885	<30 min
Room 2111 Containment Spray Pump Room A	-	Cable Insul. Lube Oil	101 lb 0.25 gal	3,469	<30 min

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<u>ROOM NUMBERS/ TITLES</u>	<u>SHUTDOWN TRAIN</u>	<u>COMBUSTIBLE MATERIAL</u>	<u>QUANTITY</u>	<u>FIRE LOAD (Btu/ft²)</u>	<u>MAXIMUM FIRE SEVERITY</u>
Room 2113 Valve Encapsulation	-	Cable Insul.	6 lb	3,333	<30 min
Room 2115 Hallway	-	Cable Insul.	4 lb	1,655	<30 min
Room 2112 Access to Tendon Access Gallery	-	Cable Insul.	4 lb	175	<30 min
Room 2196 Access to Tendon Access Gallery	-	Cable Insul.	4 lb	175	<30 min
Room 2123 Pipe Chase	-	None	0	0	0
Room 2183 Tendon Access Gallery Entrance	A	Cable Insul.	1,050 lb ^(d)	6,405 ^(d)	<30 min ^(d)
Room 2184 Piping Penetration Room, El 100 Ft - 0 In.	-	Cable Insul.			
Room 2223 Penetration Room El 121 Ft - 0 In.	A, B	Cable Insul. Charcoal	16,663 lb 400 lb	40,625	<1 h

(d) Applies to rooms 2183 and 2184 collectively.

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DESIGN FEATURES:

Construction: Floors and walls forming the area boundary are of reinforced concrete. The ceiling of room 2223 has tendon access openings to room 2334 (area 2-34). Steel plates with 3-h rated coatings and which are topped by removable concrete slabs have been installed over the tendon access openings. The steel hatch cover located in the el 100 ft - 0 in. floor slab between room 2103 (area 2-001) and 2163 (area 2-004) is protected by a suppression system designed for extra hazards to limit the spread of fire to adjacent fire areas.

Doors: An airtight, UL Class-B door is installed between room 2223 and stairway No. 2. The door between room 2184 and room 2162 (area 2-4) is an airtight UL Class-A door. Nonairtight Class-B doors are installed between room 2110 and 2115 and stairway No. 2.

Piping and Electrical Penetrations: Penetrations through the area boundary are sealed with silicone foam. Three-h rated fire dampers are installed between 2169 and 2163 (area 2-4).

Ventilation: No normal ventilation exists. Fixed smoke removal capability has not been provided.

Floor Drains: Twenty-one 4-in. diameter floor drains with a 100-gal/m capacity each are located throughout the area. Sumps are provided in rooms 2103, 2111, 2125, 2128, 2129, and 2131. The sumps contain two 100-gal/m pumps each. The sump pumps discharge to the waste holdup tank or the floor drain tank. The floor drains above el 77 ft - 83 in. drains to the floor drain tank. The other floor drains drain to the sumps.

FIRE PROTECTION:

A detection system covers the majority of the area. Exceptions to this coverage are rooms 2112, 2114, 2115, 2123, 2126, 2127, 2130, 2169, and 2196. The western half of the piping penetration room on el 121 ft - 0 in. is the only part of fire area 2-001 covered by automatic suppression.

Portable extinguishers, smoke removal equipment, and water hose cabinets are located throughout the fire area for use by the fire brigade.

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JUSTIFICATION FOR FIRE PROTECTION:

The rooms in fire area 2-001 without detection (2112, 2114, 2115, 2123, 2126, 2127, 2130, 2169, and 2196.) contain little or no combustible material and contain no safe shutdown cable or equipment. The western half of the piping penetration room on el 121 ft - 0 in. is the only part of fire area 2-001 covered by an automatic suppression system. This is the only part of fire area 2-001 that has cables or equipment that are associated with redundant hot shutdown systems. One train of redundant cables are provided with fire barriers consisting of two 1-in. layers of Kaowool blanket with overall layer of Zetex cloth within this area.