

Georgia Power Company
Project Management
Route 2, Box 299A
Waynesboro, Georgia 30830
Telephone 404 724-8114
404 554-9961



Vogtle Project

March 8, 1985

Director of Nuclear Reactor Regulation
Attention Ms. Elinor G. Adensam, Chief
Licensing Branch #4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

File: X6BB06
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NRC DOCKET NUMBERS 50-424 AND 50-425
CONSTRUCTION PERMIT NUMBERS CPPR-108 AND CPPR-109
VOGTLE ELECTRIC GENERATING PLANT - UNITS 1 AND 2
DRAFT SER OPEN ITEMS 74, 75, 77 THRU 80, 82, AND 84 FIRE PROTECTION

Dear Mr. Denton:

Attached for your review are five (5) copies of information related to our draft open items 74, 75, 77 thru 80, 82, and 84 concerning the VEGP Fire Protection Program. These items were discussed in the February 28, 1985, telephone conference call with your staff. The attachment provides the clarification and additional information requested by the staff and will be incorporated into the upcoming amendments to the FSAR. The response to open items 77 and 78 in our letter dated February 22, 1985, is unchanged. It is GPC's intention to comply with the requirements of CMEB 9.5-1 Sections C.5.b and C.5.c; therefore these items should be confirmatory.

If your staff requires any additional information please do not hesitate to contact me.

Sincerely,

J. A. Bailey
Project Licensing Manager

JAB/RLK/caa
Attachment

xc: D. O. Foster
G. F. Trowbridge, Esquire
J. E. Joiner, Esquire
C. A. Stangler
L. Fowler
M. A. Miller
L. T. Gucwa
G. Bockhold, Jr.

8503150060 850308
PDR ADOCK 05000424
F PDR

Boo2
1/5

Open Item: 74 Fire Doors
SER Section: 9.5.1, C.5.a
NRC Branch CMEB (Fire Protection)

Description:

1. Door openings in fire barriers will be protected with equivalently rated doors, frames, and hardware except for watertight doors (which are not fire rated by UL), pressure-retaining doors (which will have a certificate of UL label construction applied by the vendor), and security doors (which will have a certificate of UL label construction applied by the vendor). The applicant also states that only those fire doors that serve a security function are electrically supervised and monitored in the main control room. Doors designed to remain open to maintain post-accident (pipe break) pressures within design limits are normally held open and released only when smoke is detected. Other doors are kept closed. On the basis of its review, the staff will require the applicant to indicate the type of door and the method of supervision provided for each door opening in the plant that is not of a labeled fire door assembly. The applicant should also justify the adequacy of the special-purpose doors when used in rated fire barriers. This information is needed for the staff to independently determine that door openings in fire barriers satisfy the guidelines of BTP CMEB 9.5-1, Section C.5.a(5). This is an open item.

Response:

There are door openings that are required to be designed for pressure loads, bullet resistance, and the combined requirement of pressure and bullet resistance. The doors are specially designed to meet the Vogtle criteria and therefore never generically tested, as are typically fire rated hollow metal doors. Each door has been fabricated to listed UL label procedures for a UL 3-hour rating and the NFPA 80 and 252 standards. The construction of each door is certified by a certificate of fire label construction by the manufacturer. The manufacturer cannot affix a label to these doors and frames because they are a special design for the Vogtle project and have not been subjected to an actual physical UL fire test. In each case the thickness of the metal used to construct the door frame, door skin, stiffeners, strike and butt reinforcements exceed the thickness of metal used in standard fire-rated doors and frames. The watertight doors used at Plant Vogtle are manufactured by the Julius Mock Company. Similar doors have been used at SNUPPS and Limerick. In addition, Baltimore Gas and Electric has tested this type of door and received a UL rating as a special purpose door. The pressure tight doors used at Plant Vogtle are manufactured by Overly and similar doors have been installed and approved for use at Grand Gulf by the NRC Region I office. The designated fire barriers containing unrated hatch covers will remain designated until the safe shutdown analysis is completed in September 1985. When the analysis is completed, the barriers that do not separate redundant safe shutdown equipment will be deleted. A fire propagation and effects analysis will be performed for the remaining barriers to justify the use of the unrated hatch covers.

In the case of the security doors, all doors that do not fall into the categories mentioned above are labeled class A fire doors.

A fire analysis of adjacent fire areas separated by the unlabeled doors and metal hatches is provided below:

Results of Fire Analysis for Unlabeled Doors

A. Unrated Fire Door 105 - Auxiliary
Application Watertight
Fire Area Separation 1-AB-LD-B & 1-AB-L1-E

<u>Item</u>	<u>Fire Area</u> <u>1-AB-LD-B</u>		<u>Fire Area</u> <u>1-AB-L1-E</u>
	Cable Chase	Balance of Area	
Fire load, lb cable insulation	2,913	78,962	17,636
Fire severity, min	6.2 hrs.	73	62

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B VCT isolation valves, of the same safety system, are located within fire area 1-AB-LD-B, an alternate means via administrative action is available such that safe shutdown is not precluded.

 Although train A and B valves, of the same safety system located between the boric acid tank and charging pumps are located within fire area 1-AB-LD-B, an alternate means via the RWST is available to deliver borated water to the reactor coolant system.

 Although train A and B valves, of the same safety system, located between the APW pumps and the steam generators are located within fire area 1-AB-LD-B, an alternate means is available such that safe shutdown is not precluded. There are a total of 8 train A and B valves, but only two are required to bring the plant to a safe shutdown condition.
2. The cable chase in fire area 1-AB-LD-B is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

B. Unrated Fire Door 106 - Auxiliary
Application Watertight

Fire Area Separation

1-AB-LD-B & 1-AB-L1-D

<u>Item</u>	<u>Fire Area</u> <u>1-AB-LD-B</u>		<u>Fire Area</u> <u>1-AB-L1-D</u>
	Cable Chase	Balance of Area	
Fire load, lb cable insulation	2,913	78,962	17,636
Fire severity, min	6.2 hrs.	73	62

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. The cable chase in fire area 1-AB-L1-D as well as fire area 1-AB-LD-B is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

C. Unrated Fire Door

D36 - Auxiliary

Application

Watertight

Fire Area Separation

-AB-LD-B & 1-AB-LD-A

<u>Item</u>	<u>Fire Area</u> <u>1-AB-LD-B</u>			<u>Fire Area</u> <u>1-AB-LD-A</u>	
	Cable Chase	Balance of Area	Elect Chase	RHR Pump	Wing Area
Fire load, lb cable insulation	2,913	78,962	12,850	1,143	2,244
Hydraulic Fluid	-	-	-	-	894
Fire Severity, min	6.2 hrs.	73	109	41	3

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B VCT isolation valves, of the same safety system, are located within fire area 1-AB-LD-B, an alternate means via administrative action is available such that safe shutdown is not precluded.

Although train A and B valves, of the same safety system, located between the boric acid tank and charging pumps are located within fire area 1-AB-LD-B, an alternate means via the RWST is available to deliver borated water to the reactor coolant system.

Although train A and B valves, of the same safety system, located between the AFW pumps and the steam generators are located within fire area 1-AB-LD-B, an alternate means is available such that safe shutdown is not precluded. There are a total of 8 train A and B valves, but only two are required to bring the plant to a safe shutdown condition.

2. The cable chase in fire area 1-4B-LD-B as well as fire area 1-AB-LD-A are equipped with automatic sprinkler protection
3. Each fire are has been provided with early warning detection features.

D. Unrated Fire Door C56 - Auxiliary
Application Watertight
Fire Area Separation 1-AB-LC-D & 1-AB-LC-G

<u>Item</u>	<u>Fire Area 1-AB-LC-D</u>	<u>Fire Area 1-AB-LC-G</u>
Fire Load, lb cable insulation	1,189	11,811
Fire severity, min	25	18

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

E. Unrated Fire Door 123 - Auxiliary
Application Watertight

Fire Area Separation

1-AB-L1-A & 1-AB-LD-B

<u>Item</u>	<u>Fire Area 1-AB-L1-A</u>		<u>Fire Area 1-AB-LD-B</u>	Balance of Area
	Aux Bldg	Fuel Bldg	Cable Chase	
Fire load, lb cable insulation	1,386	1,470	2,913	78,962
Fire severity, min	3	1	6.2 hrs	73

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B VCT isolation valves, of the same safety system, are located within fire area 1-AB-LD-B, an alternate means via administrative action is available such that safe shutdown is not precluded.

Although train A and B valves, of the same safety system, located between the boric acid tank and charging pumps are located within fire area 1-AB-LD-B, an alternate means via the RWST is available to deliver borated water to the reactor coolant system.

Although train A and B valves, of the same safety system, located between the boric acid tank and charging pumps are located within fire area 1-AB-LD-B, an alternate means is available such that safe shutdown is not precluded. There are a total of 8 train A and B valves, but only two are required to bring the plant to a safe shutdown condition.

2. The cable chase in fire area 1-AB-LD-B is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

F. Unrated Fire Door D49 - Auxiliary

Application Watertight

Fire Area Separation 1-AB-LD-J & 1-AB-LD-G

<u>Item</u>	<u>Fire Area 1-AB-LD-J</u>	<u>Fire Area 1-AB-LD-G</u>
Fire load, lb cable insulation	14	4,042
Fire severity, min	2	16

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Fire area 1-AB-LD-G is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

G. Unrated Fire Door D34 - Auxiliary
Application Watertight
Fire Area Separation 1-AB-LD-B & 1-AB-LD-D

<u>Item</u>	<u>Fire Area</u>		
	<u>1-AB-LD-B</u>	<u>1-AB-LD-D</u>	
	Cable Chase	Balance of Area	
Fire load, lb cable insulation	2,913	78,962	2,216
Fire severity, min	6.2 hrs	73	35

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B VCT isolation valves, of the same safety system, are located within fire area 1-AB-LD-B, an alternate means via administrative action is available such that safe shutdown is not precluded.

Although train A and B valves, of the same safety system, located between the boric acid tank and charging pumps are located within fire area 1-AB-LD-B, an alternate means via the RWST is available to deliver borated water to the reactor coolant system.

Although train A and B Valves, of the same safety system located between the APW pumps and the steam generators are located within fire area 1-AB-LD-B, an alternate means is available such that safe shutdown is not precluded. There are a total of 8 train A and B valves, but only two are required to bring the plant to a safe shutdown condition.

2. The cable chase in fire area 1-AB-LD-B as well as fire area 1-AB-LD-D are provided with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

H. Unrated Fire Door D47 - Auxiliary
Application Watertight
Fire Area Separation 1-AB-LD-I & 1-AB-LD-G

<u>Item</u>	<u>Fire Area 1-AB-LD-I</u>		<u>Fire Area 1-AB-LD-G</u>
	Elect. Chase	Pipe & Pump Room	
Fire load, lb cable insulation	2,534	6,874	4,042
Fire severity, min	5.4 hrs.	29	16

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B level transmitters of the same safety system are located within fire area 1-AB-LD-G, they are located in the boric acid storage tank room, which is bounded by a minimum of 3 feet of concrete, including the ceiling equipment hatch. There are no combustible materials in this room.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

I. Unrated Fire Door L49 - 201
Application Airtight and pressure resistant
Fire Area Separation 1-CB-LB-S & 1-CB-LC-B

<u>Item</u>	<u>Fire Area 1-CB-LB-S</u>	<u>Fire Area 1-CB-LC-B</u>
Fire load, lb cable insulation	None	24,959
Fire severity, min	None	22.2

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Fire area 1-CB-LC-B is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

J. Unrated Fire Door 253 - Control
Application Airtight and pressure resistant
Fire Area Separation 1-CB-LB-S & 1-CB-L2-E

<u>Item</u>	<u>Fire Area 1-CB-LB-S</u>	<u>Fire Area 1-CB-L2-E</u>
Fire load, lb		
1. Cable insulation	None	6,859
2. Cleaning fluid		67
3. Paper product		550
4. Hydrogen		Small quantity
Fire severity, min	None	10.6

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Fire area 1-CB-L2-E is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

K. Unrated Fire Door 104 - Diesel generator Bldg.

Application Pressure resistant

Fire Area Separation 1-CB-LB-A & 1-DB-L1-A

<u>Item</u>	<u>Fire Area 1-CB-LB-A</u>	<u>Fire Area 1-DB-L1-A</u>
Fire load, lb		
1. Cable insulation	75,670	10,030
2. oil		11,500
Fire severity, min	60.6	88

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Fire are 1-CB-LB-A is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

L. Unrated Fire Door C02 - Fuel

Application Pressure resistant

Fire Area Separation 1-CB-LC-A & 1-AB-LC-B

<u>Item</u>	<u>Fire Area 1-CB-LC-A</u>	<u>Fire Area 1-AB-LC-B</u>
Fire load, lb cable insulation	33,605	18.328
Fire severity, min	67	29 Hrs.

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

M. Unrated Fire Door 333 - Control.

Application Airtight and pressure resistant

Fire Area Separation 1-CB-LB-S & 1-CB-L3-K

<u>Item</u>	<u>Fire Area 1-CB-LB-S</u>	<u>Fire Area 1-CB-L3-K</u>
Fire load, lb		
1. Cable insulation	None	13,246
2. Charcoal		967
Fire severity, min	None	60

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Fire area 1-CB-L3-K is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.
5. The charcoal filtration unit is provided with a self-contained water spray system.

N. Unrated Fire Door 182 - Control

Application Airtight and pressure resistant

Fire Area Separation 1-CB-LB-S & 1-CB-L1-B

<u>Item</u>	<u>Fire Area 1-CB-LB-S</u>	<u>Fire Area 1-CB-L1-B</u>
Fire load, lb material cable insulation	None	6,868
Fire severity, min	None	158

Conclusion

Should a fire spread through both fire areas, a safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Fire area 1-CB-L1-B is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

O. Unrated Fire Door A61 - Control

Application Pressure resistant

Fire Area Separation 1-CB-LA-N & Stairwell #3

<u>Item</u>	<u>Fire Area 1-CB-LA-N</u>	<u>Fire Area N/A</u>
Fire load, lb cable insulation	31,540	None
Fire severity, min	54	None

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in area 1-CB-LA-N does not produce any redundant safety-related trains of the same safety system.

2. Fire area 1-CB-LA-N is equipped with automatic sprinkler protection.
3. Fire are 1-CB-LA-N has been approved with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

P. Unrated Fire Door 101 - Diesel generator bldg.

Application Pressure resistant

Fire Area Separation 1-CB-LB-D & 1-DB-L1-B

<u>Item</u>	<u>Fire Area 1-CB-LB-D</u>	<u>Fire Area 1-DB-L1-B</u>
Fire load, lb cable insulation	59,500	10,030
Oil		11,500
Fire severity, min	65.4	88

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

Q. Unrated Fire Door B79 - Control

Application Pressure resistant

Fire Area Separation 1-CB-LB-A & Stairwell #3

<u>Item</u>	<u>Fire Area 1-CB-LB-A</u>	<u>Fire Area N/A</u>
Fire load, lb cable insulation	75,670	None

Fire severity, min

60.6

None

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in area 1-CB-LB-A does not produce any redundant safety-related trains of the same safety system.
2. Fire area 1-CB-LB-A is equipped with automatic sprinkler protection.
3. Fire area 1-CB-LB-A has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

R. Unrated Fire Door

B98 - Control

Application

Pressure resistant

Fire Area Separation

1-CB-LC-A & 1-CB-LB-A

<u>Item</u>	<u>Fire Area 1-CB-LC-A</u>	<u>Fire Area 1-CB-LB-A</u>
Fire load, lb cable insulation	33,605	75,670
Fire severity, min	67	60.6

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

S. Unrated Fire Door S75 - Control
Application Pressure resistant
Fire Area Separation 1-CB-LC-A & 1-CB-LA-F

<u>Item</u>	<u>Fire Area</u> <u>1-CB-LC-A</u>	<u>Fire Area</u> <u>1-CB-LA-F</u>
Fire load, lb cable insulation	33,605	8,250
Fire severity, min	67	17

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.

T. Unrated Fire Door 199Q - Technical Support Center
Application Airtight and pressure resistant
Fire Area Separation 1-CB-L1-B & 1-CB-L1-TSC

<u>Item</u>	<u>Fire Area</u> <u>1-CB-L1-B</u>	<u>Fire Area</u> <u>1-CB-L1-TSC</u>
Fire load, lb		
1. Cable insulation	821	1,278
2. oil	67	0
3. Paper product	1,850	200
4. Charcoal	0	1,450
Fire severity, min	2.3	97.5

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. The fire area 1-CB-L1-B is equipped with automatic sprinkler protection. The fire area (1-CB-L1-TSC) is equipped with Halon 1301 in computer and communication room and wet pipe sprinkler system in the balance of the area.
3. Each fire area has been provided with early warning detection features.
4. The pressure door has been certified by the manufacturer that the door's construction has been in accordance with the 3-hour U.L. approved procedures.
5. The charcoal filtration unit is provided with a self-contained water spray system.

Results of Fire Analysis for Unlabeled Metal Hatches

A. Unrated Hatch Cover Auxiliary bldg. - Level 2 (wing)
Location Col. A19 & A_G
Fire Area Separation 1-AB-LD-D & 1-AB-L1-E

<u>Item</u>	<u>Fire Area 1-AB-LD-D</u>	<u>Fire Area 1-AB-L1-E</u>
Fire load, lb cable insulation	2,216	17,636
Fire severity, min	35	62

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

B. Unrated Hatch Cover Auxiliary bldg. - Level 1 (wing)
Location Col. A19 & A_{C3}

Fire Area Separation 1-AB-L1-D & 1-AB-LA-C

<u>Item</u>	<u>Fire Area 1-AB-L1-D</u>	<u>Fire Area 1-AB-LA-C</u>
Fire load, lb cable insulation	17,636	3,576
Fire severity, min	62	13

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

C. Unrated Hatch Cover Auxiliary bldg. - Level 1 (wing)

Location Col. A₁₉ & A_G

Fire Area Separation 1-AB-L1-E & 1-AB-LA-B

<u>Item</u>	<u>Fire Area 1-AB-L1-E</u>	<u>Fire Area 1-AB-LA-B</u>
Fire load, lb cable insulation	17,636	3,576
Fire severity, min	62	13

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

D. Unrated Hatch Cover Auxiliary bldg. - Level A (wing)

Location Col. A₁₉ & A_G

Fire Area Separation 1-AB-LA-B & 1-AB-LB-B

<u>Item</u>	<u>Fire Area 1-AB-LA-B</u>	<u>Fire Area 1-AB-LB-B</u>
Fire load, lb cable insulation	3,576	3,633
Fire severity, min	13	11

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

E. Unrated Hatch Cover Auxiliary bldg. - Level A (wing)

Location Col. A19 & AC3

Fire Area Separation 1-AB-LA-C & 1-AB-LB-B

<u>Item</u>	<u>Fire Area 1-AB-LA-C</u>	<u>Fire Area 1-AB-LB-B</u>
Fire load, lb cable insulation	3,576	3,633
Fire severity, min	13	11

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

F. Unrated Hatch Cover Auxiliary bldg. - Level B (wing)

Location Col. A₁₉ & AC₂

Fire Area Separation 1-AB-LB-B & 1-AB-LC-G

<u>Item</u>	<u>Fire Area 1-AB-LB-B</u>	<u>Fire Area 1-AB-LC-G</u>
Fire load, lb cable insulation	3,633	11,811
Fire severity, min	11	18

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B pressure transmitters of the same safety system are located within fire area 1-AB-LC-G, an alternate means of determining the pressure levels is available such that safe shutdown is not precluded.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

G. Unrated Hatch Cover Auxiliary bldg. - Level 2 (wing)

Location Col. A₁₉ & AC₃

Fire Area Separation 1-AB-L2-F & 1-AB-L1-D

<u>Item</u>	<u>Fire Area 1-AB-L2-F</u>	<u>Fire Area 1-AB-L1-D</u>
Fire load, lb cable insulation	1,260	17,636
Fire severity, min	4	62

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.

3. Each fire area has been provided with early warning detection features.

H. Unrated Hatch Cover Auxiliary bldg. - Level B (wing)

Location Col. A₁₉ & A_G

Fire Area Separation 1-AB-LB-B & 1-AB-LC-F

<u>Item</u>	<u>Fire Area 1-AB-LB-B</u>	<u>Fire Area 1-AB-LC-F</u>
Fire load, lb cable insulation	3,633	11,811
Fire severity, min	11	17

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in areas does not produce any redundant safety-related trains of the same safety system.
2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

I. Unrated Hatch Cover Auxiliary bldg. - Level C (wing)

Location Col. A₁₉ & A_{C2}, A₁₉ & A_G

Fire Area Separation 1-AB-LC-G & 1-AB-LD-G

<u>Item</u>	<u>Fire Area 1-AB-LC-G</u>	<u>Fire Area 1-AB-LD-G</u>
Fire load, lb cable insulation	11,811	4,042
Fire severity, min	18	16

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B level transmitter of the same safety system are located within fire area 1-AB-LD-G, they are located in the boric acid storage tank room which is bounded by a minimum of 3 feet of concrete including the ceiling equipment hatch. There are no combustible materials in this room.

Although train A and B pressure transmitters of the same safety system are located within fire area 1-AB-LC-G, an alternate means of determining the pressure levels is available such that safe shutdown is not precluded.

2. Both fire areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.

Open Item: 75 Fire Dampers
 SER Section: 9.5.1, C.5.a
 NRC Branch CMEB (Fire Protection)

Description:

- Ventilation ducts that penetrate fire barriers are provided with fire dampers. The applicant states that 17 oversize fire dampers are used that do not bear a UL label. This does not comply with Section C.5.a of BTP CMEB 9.5-1. The staff will require the applicant to provide fire dampers that are tested and approved by a nationally recognized testing laboratory for all HVAC penetrations of fire barriers. This is an open item.

Response:

As a result of fire barrier modifications, there are now ten (10) fire damper assemblies (Unit 1 and 2) installed in 3-hour barriers (6 vertically and 4 horizontally) that do not bare an approved U.L. Label as their size exceeds the manufacturer's U.L. test limitations.

Although the 3-hour barriers also make up adjacent fire area boundaries, none of the fire areas contiguous to the damper assemblies contain safety-related equipment of redundant trains that would jeopardize safe shutdown. Therefore, safe shutdown is not jeopardized should a damper assembly malfunction and fire spread throughout both fire areas. In spite of the fact that the damper assemblies are without an approved U.L. label, the manufacturer has certified that the fire dampers have been fabricated of the same material, with the same method, and to the same design and U.L. procedures as their standard U.L. approved 3-hour fire damper. The results of the fire hazards analysis as tabulated below, in addition to the above, is used to justify this deviation. Upon completion of the safe shutdown analysis in September 1985, the barriers containing unrated fire dampers which do not separate redundant safe shutdown equipment will be deleted from the list of required barriers. A fire propagation and effects analysis will be performed for the remaining barriers to justify the use of the unrated fire dampers.

RESULTS OF UNIT 1 ANALYSIS

A. Unrated Fire Damper A-1551-S7-612 Auxiliary Building
Size, Inches 94 x 48
Fire Area Separation 1-AB-L2-A & 1-AB-L1-B

<u>Item</u>	<u>Fire Area 1-AB-L2-A</u>	<u>Fire Area 1-AB-L1-B</u>
Fire load, lb		
1. Cable insulation	3,569	6,868
2. Charcoal	21,000	
Fire severity, min	59	158

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Fire area 1-AB-L1-B is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The fire damper has been certified by the manufacturer that the damper construction has been in accordance with the 3-hour U.L. approved procedures.
5. The charcoal filtration unit is provided with a self-contained water spray system.

B. Unrated Fire Damper A-1553-S7-603 Auxiliary Building

Size, Inches 48 x 96

Fire Area Separation 1-AB-L2-A & 1-AB-L2-B

<u>Item</u>	<u>Fire Area 1-AB-L2-A</u>	<u>Fire Area 1-AB-L2-B</u>
Fire load, lb		
1. Cable insulation	3,569	420
2. Charcoal	21,000	5,000
Fire severity, min	59	121

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Fire area 1-AB-L2-B is equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The fire damper has been certified by the manufacturer that the damper construction has been in accordance with the 3-hour U.L. approved procedures.

5. The charcoal filtration unit is provided with a self-contained water spray system.

C. Unrated Fire Damper A-1553-S7-602 Auxiliary Building
Size, Inches 48 x 96
Fire Area Separation 1-AB-L2-B & 1-EB-A

<u>Item</u>	<u>Fire Area 1-AB-L2-B</u>	<u>Fire Area 1-EB-A</u>
Fire load, lb		
1. Cable insulation	420	0
2. Charcoal	5,000	3,553
Fire severity, min	121	29

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Combining the safe shutdown equipment in both areas does not produce any redundant safety-related trains of the same safety system.
2. Both areas are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The fire damper has been certified by the manufacturer that the damper construction has been in accordance with the 3-hour U.L. approved procedures.

D. Unrated Fire Damper A-1551-S7-602
Size, Inches 64 x 54
Fire Area Separation 1-AB-L1-B & 1-AB-LD-B

<u>Item</u>	<u>Fire Area 1-AB-L1-B</u>	<u>Fire Area 1-AB-LD-B</u>
Fire load, lb cable insulation	6,868	1. 12,850-cable chase 2. 78,962 Balance of area
Fire Severity, Min	158	1. 6-2 HR 2. 73 MIN

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B VCT isolation valves of the same safety system are located within fire area 1-AB-LD-B, an alternate means via administrative action is available such that safe shutdown is not precluded.

Although train A and B valves of the same safety system, located between the boric acid tank and charging pumps, are located within fire area 1-AB-LD-B, an alternate means via the RWST is available to deliver borated water to the reactor coolant system.

Although train A and B valves, of the same safety system, located between the AFW pumps and the steam generators are located within fire area 1-AB-LD-B, an alternate means is available such that safe shutdown is not precluded. There are a total of 8 train A and B valves, but only two are required to bring the plant to a safe shutdown condition.

2. The cable chase in fire area 1-AB-LD-B as well as area 1-AB-L1-B are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The fire damper has been certified by the manufacturer that the damper construction has been in accordance with the 3-hour U.L. approved procedures.

E.	<u>Unrated Fire Damper</u>	A-1551-S7-523
	<u>Size, Inches</u>	52 x 44
	<u>Fire Area Separation</u>	1-AB-LD-B & 1-AB-LD-A

<u>Item</u>	<u>Fire Area 1-AB-LD-B</u>	<u>Fire Area 1-AB-LD-A</u>
Fire load, lb cable insulation	1. 2,913 cable chase 2. 78,962 balance of area	1. 12,850-cable chase 2. 1,143 pump room 2,244-Wing Area and 894 lb of hydraulic fluid
Fire Severity, Min	1. 6.2 hr. 2. 73	1. 109 2. 41 3. 3

Conclusion

Should a fire spread through both fire areas, safe shutdown of the plant is not compromised due to the following reasons:

1. Although train A and B VCT isolation valves of the same safety system are located within fire area 1-AB-LD-B, an alternate means via administrative action is available such that safe shutdown is not precluded.

Although train A and B valves of the same safety system, located between the boric acid tank and charging pumps, are located within fire area 1-AB-LD-B, an alternate means via the RWST is available to deliver borated water to the reactor coolant system.

Although train A and B valves, of the same safety system, located between the AFW pumps and the steam generators are located within fire area 1-AB-LD-B, and 1-AB-LD-A, an alternate means is available such that safe shutdown is not precluded. There are a total of 8 train A and B valves, but only two are required to bring the plant to a safe shutdown condition.

2. The cable chase in fire area 1-AB-LD-A as well as area 1-AB-LD-B are equipped with automatic sprinkler protection.
3. Each fire area has been provided with early warning detection features.
4. The fire damper has been certified by the manufacturer that the damper construction has been in accordance with the 3-hour U.L. approved procedures.

Open Item: 79 Power Supplies for Ventilation

SER Section: 9.5.1, C.5.f

NRC Branch: CMEB (Fire Protection)

Description:

1. Power supplies and controls for mechanical ventilation systems will be located outside the fire area served, where practical. This does not conform to the guidelines in Section C.5.f of BTP CMEB 9.5.1. The staff will require the applicant to demonstrate that a single fire will not disable both trains of ventilation needed for safety-related areas. This is an open item.

Response:

As part of the overall fire hazards analysis, we intend to perform a routing analysis to ensure (in part) that a single fire will not disable the ventilation systems required to be operable to support the operation of other safe shutdown equipment. In addition, we will review all ventilation system circuits, safety-related and non safety-related in order to support smoke venting capabilities. The safe shutdown analysis to determine the separation requirements for the equipment needed to bring the plant to safe shutdown, including ventilation systems and associated power supplies, will be completed in September 1985.

Normal building exhaust ventilation systems can be utilized for smoke removal from the various plant fire areas in addition to their normal design function. The control room is provided with its own independent smoke removal fan. The normal building exhaust systems can serve a combination of fire areas, building floors and, in some cases, the entire building. Exclusion of their power cable from fire areas also served by the same exhaust system is not physically possible to accomplish in most cases. However, fire damage to such cable has been minimized to the extent practical by limiting the number of fire areas through which the cable must pass. It should be noted that the cable has been routed through areas that are equipped with early warning detection features such that imminent fire fighting activities can be established. Should the normal exhaust system become unavailable for smoke removal operations, as in the case of loss of offsite power, portable smoke removal fans are available as an alternate means to relieve an area of smoke.

Open Item: 80 Fire Detection
SER Section: 9.5.1, C.6.a
NRC Branch: CMEB (Fire Protection)

Description:

1. A backup power supply exists for the fire detection system with access to the Class 1E diesel, switching manually, and a 4-hr battery backup power supply for the suppression actuation system with no access to the Class 1E diesels.

The applicant did not provide enough information for the staff to verify that this is in accordance with staff guidelines. The staff will require the applicant to confirm that primary and secondary power supplies for the fire detection system and for electrically operated control valves for automatic suppression systems conform to the guidelines of BTP CMEB 9.5-1, Section C.6.a(6). This is an open item.

2. The applicant states that it will be guided by NFPA Std. 72E for selecting fire detectors and installing them in the plant, but does not indicate how the detectors might deviate from NFPA Std., 72E. The staff will require the applicant to confirm that the fire detectors meet the guidelines of BTP CMEB 9.5-1, Section C.6.a(3).

Response:

1. The VEGP complies with NFPA 72D, 1975, Section 2220 in the following manner:
 - a. Fire detection system - Power, via battery charges, is supplied from at least one Class 1E diesel generator with isolation provided per R.G. 1.75. A second Non-Class 1E diesel generator provides primary power to an inverter which provides uninterruptible power to the detection system. An inverter secondary power source is provided from a two-hour battery system deriving power from the above indicated battery charges.

Alternately, fire detection panels located remotely from the above power system are provided with 24-hour backup batteries. The above backup power sources are provided in addition to normal system power which is derived from offsite sources.

- b. Fire suppression system and fire alarm signaling systems - these systems are powered from normal power sources and are provided with 24-hour battery backup.
2. The detector supplier will locate and install detectors in accordance with NFPA 72E. Where it is physically impossible to do this, the detector locations will be evaluated and accepted by Georgia Power Company using the services of a registered professional fire protection engineer.

Open Item: 82 Sprinkler Systems

SER Section: 9.5.1, C.6.c

NRC Branch: CMEB (Fire Protection)

Description:

1. The applicant states that NFPA Stds. 13 and 15 have been used as guidance in the design of wet pipe sprinkler systems, deluge systems, and pre-action systems, but has not indicated how these systems might vary from the applicable standards. The staff will require that the applicant conform to NFPA Stds. 13 and 15 or identify and justify any deviations from Section C.6.c of staff guidelines. This is an open item.

Response:

Except for the following chapters, sections, subsections, and their applicable appendix items, VEGP compliance with NFPA 13-1983 "Sprinkler Systems" and NFPA 15-1982 "Water Spray Fixed Systems" is assured during the design process through compliance with approved design criteria and procedures.

NFPA 13-1983

Subsections C-11.1, "Flushing of Underground Connections," the underground main and lead-in piping will not be flushed before connection is made to the sprinkler piping. However, measures will be taken and controlled via the flush procedure to prohibit the introduction of foreign material into the sprinkler piping during main and lead-in flushing.

Subsection 1-11-2.5, "Test Blanks," Test blanks will not be painted or numbered, however, they will be strictly controlled by procedure which requires removal verification.

Subsection 2-2.1.2.4, "Water Supply Requirements Tables," water allowance for outside hose not added to sprinkler and inside hose requirements for all buildings since some buildings are not accessible for outside hose usage, i.e., Auxiliary Control Fuel Handling & Containment buildings. However, the design at Plant Vogtle is such that no given system plus hose stream will exceed the requirements of CMEB 9.5-1 section C.6.b.

Subsection 2-6, "Pressure Tanks," is not applicable because pressure tanks are not used at VEGP.

Subsection 2-7, "Fire Department Connections," are not provided at VEGP. The local fire department will be used for additional fire brigade members only. The plant fire protection systems consist of redundant fire water pump and water supply, and the yard network is a loop providing water supply even if any one section is out of service. In addition, each fire hydrant at VEGP is equipped with a pumper connection.

Subsection 3-14.2.7, "Valves Controlling Sprinkler Systems," is not applicable because a city connection is not provided at VEGP.

Subsection 4-4.17, "Fur Vaults," is not applicable because vaults are not provide at VEGP.

Subsection 4-4.21, "Theater Stages," is not applicable because theater staged not provided at VEGP.

Subsection 5-5, "Antifreeze Systems," is not applicable due to heat tracing of piping subject to freezing.

Chapter 8, "High-Rise Buildings," not applicable to VEGP because none provided at VEGP.

NFPA 15-1982

Subsection 2-12, "Fire Department Connections," is not applicable because fire department connections are not provided at VEGP as licensed in NFPA 13 Subsection 2-7 above.

Subsection 3.3.2, "Fire Department Connections," is not applicable as stated above.

Subsection 4-4.3.5, "Belt Conveyors," is not applicable because none provided at VEGP.

Subsection G-11, "General Periodic Testing and Maintenance," the testing and maintenance of water spray systems will be under the control of VEGP and will be done by qualified VEGP testing personnel.

Open Item: 84 Halon 1301 Systems

SER Section: 9.5.1, C.6.d

NRC Branch: CMEB (Fire Protection)

Description:

1. The applicant states that the use of Halon systems is guided by NFPA Std. 12A, but has not indicated how it might vary from NFPA Std. 12A. The staff will require the applicant to comply with NFPA Std. 12A or to identify and justify any deviations from Section C.6d of BTP CMEB 9.5-1. This is an open item.

Response:

VEGP intends to comply with the requirements of NFPA 12A. The suppression system contractor will install the system in accordance with the code to the maximum extent possible. If any deviations due to physical limitations are identified by the contractor, they will be evaluated for acceptability by Georgia Power Company through the services of a registered professional fire protection engineer.