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October 22, 1984
EF2-71994

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

Dear Mr. Denton:

Reference: (1) Fermi 2
NRC Docket No. 50-341
(2) Detroit Edison to NRC Letter, "Alternative
Shutdown in the Control Center Complex",
EF2-72718, August 16, 1984
(3) Detroit Edison to NRC Letter, "Submittal of
Deviations from Staff Interpretations of
Fire Protection Features in 10CFR50,
Appendix R and Justification," EF2-72717,
August 3, 1984
(4) Detroit Edison to NRC Region III Letter,
"Detroit Edison Response Inspection Report
50-341/84-16," EF2-70022, October 8, 1984

Subject: Implementation of Alternative Shutdown
at Fermi 2

During the review of The Detroit Edison Company's application for an operating license for Fermi 2, the NRC staff has insisted that certain modifications to the design would be required. A number of other concerns in the fire protection area were also identified by the NRC staff during this review. Reference (2) provided Edison's formal agreement to enhance its fire protection design at Fermi 2 to address the staff's concerns by providing for an alternative shut-down approach for the Control Center Complex. The Company is also utilizing this commitment to an enhanced design in other areas as identified in Attachment 1.

Edison believes that the existing design would satisfy the requirements of General Design Criteria 3 of 10CFR Part 50, Appendix A and, therefore, would not, if operation were permitted, endanger life or property. However, the Company has agreed to enhance the design for Fermi 2. This enhanced design represents a difficult and complex task to implement. In a companion letter, the Company describes the approach it

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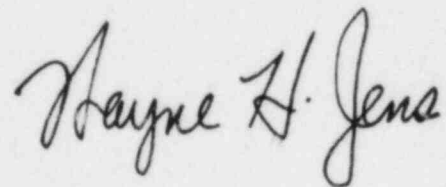
Mr. Harold Denton
October 22, 1984
EF2-71994
Page 2

will use in implementing the Company's agreement with the NRC. Additional information pertinent to this request is also contained in Attachment 3 to this letter.

Therefore, pursuant to the provisions of 10CFR 50.12, The Detroit Edison Company requests that the Commission grant Edison's request, that for a period not to exceed start-up after the first fuel cycle, the existing design as temporarily enhanced as described in Attachments 1 & 2 sufficiently meets the requirements of 10CFR Part 50, Appendix A, General Design Criteria 3 so as to not endanger life or property or the common defense or security and is otherwise in the public interest.

If you should have any questions, please contact Mr. O. K. Earle at (313) 586-4211.

Sincerely,

A handwritten signature in cursive script, reading "Wayne H. Jens".

cc: Mr. P. M. Byron
Mr. B. J. Younglood
Mr. M. D. Lynch
Mr. R. Eberly
Mr. R. C. Knop
Mr. J. G. Keppler
Mr. T. M. Novak
USNRC, Document Control Desk
Washington, D.C. 20555

Analysis/Measures Showing Adequate Fire Protection
Without The Alternate Shutdown Design

1.0 INTRODUCTION

The purpose of this Attachment is to show that for each applicable fire area listed in Table 1, an adequate level of fire protection exists to meet the underlying purpose of the NRC regulations for fire protection for the intervening period of time until the alternate shutdown approach is implemented. To do this, the permanent/installed fire protection features are described for each applicable fire zone. Analysis is then used to show that for limited fires (discussed in Attachment 2) in the fire area that:

- o The integrity of the fission product boundary is maintained including fuel clad, primary coolant, and containment.
- o Reactor coolant process variables are maintained within those predicted for a loss of normal AC power.
- o Safe hot and/or cold shutdown is attained and maintained.

In addition to analysis, certain further temporary measures are provided in some areas to provide added assurance in the intervening period of time that an adequate level of fire protection exists.

The general methodology employed in the analysis is described in Section 2.0 below. The methodology is implemented on each applicable fire zone listed in Attachment 1 and the results are presented in the attached pages. The detailed analysis supporting the methodology and results are controlled and available for NRC review. The methodology used as a starting point the previously generated Safe Shutdown Analysis. This analysis is used to define the circuits which need protection at Fermi 2 due to required fire protection separation requirements for redundant and associated circuits and spurious operation. The analysis will be maintained current.

For the fire areas listed in Table 1, the descriptions in Section 3.0 provide the current fire protection analysis and supercedes those applicable Sections in FSAR Section 9B. FSAR Section 9B will be amended in a

forthcoming Amendment to the FSAR to reflect the final plant fire protection design including the Alternative Shutdown approach.

2.0 GENERAL ANALYSIS METHODOLOGY

- 2.1 The fire zones in which the alternate/dedicated shutdown approach will be used for accomplishing plant shutdown are identified in Table 1.
- 2.2 For each of the fire zones identified in Table 1, an analysis has been performed to show that for limited fires, safe shutdown of the plant is achieved. The following steps were performed in each fire zone.

- 2.2.1 For the fire zone, the major division of equipment and raceways was identified. The opposite division would then be used for plant shutdown. The raceways (conduits and cable trays) which are routed in this fire zone were then listed for this shutdown division. The plant systems were also identified for the circuits which were routed in each raceway.

- 2.2.2 Each raceway was then reviewed to determine if it was configured as follows:

- 1. Raceway wrapped completely with one hour protective envelope.
 - 2. Raceway is separated from the redundant safe shutdown division by greater than 20 feet.
 - 3. Raceway contains circuits which are not required to shutdown the plant for a fire in this area.

For these raceways no further action was required other than disposition in the analysis.

- 2.2.3 For raceways which do not meet the criteria in step 2.2.2, the wrap status for each raceway was obtained from field walkdown information. The wrap status information provides the amount of 3-M protective material which has been installed on a particular raceway. The percentage and number of layers of wrap was listed for each of these raceways.

2.2.4 For those raceways which did not have any wrap installed, a review of the circuits in the raceway was performed. For those circuits where operator manual actions can be accomplished outside of the fire zone identified, a procedure outline is provided to achieve the required shutdown functions for the raceway.

2.2.5 For those remaining raceways, if any, the separation distance was identified to the closest redundant safe shutdown component or raceway. Raceways and components of the opposite division were evaluated for their redundancy to the unprotected raceway.

2.3 A summary of the fire protection features present in the fire zone and the present condition of the raceways is then provided for each of the fire zones.

3.0 FIRE PROTECTION ANALYSIS WITHOUT ALTERNATIVE SHUTDOWN

The attached pages provide the subject analysis for the applicable fire zones listed in Table 1 in the following format:

1. Description - a description is provided of the zone, its current fire protection features and pertinent characteristics, and the important equipment which is located in the room.
2. Analysis - a discussion is provided of the results of the analysis performed as described in Section 2 based on the current configuration of the room.
3. Additional Features - a discussion is provided of additional temporary provisions which are provided in the interim before full implementation of the Alternative Shutdown approach.
4. Conclusion - a concluding statement is provided demonstrating that the underlying purposes of the fire protection regulations are met for the zone for the intervening period until the Alternate Shutdown approach is implemented.

TABLE 1

Fire Areas Taking Credit for
Alternate Shutdown Approach

<u>Fire</u> <u>Area</u>	<u>Location</u>	<u>Elev.</u>
1	Aux. Bldg. Basement	551'-0" & 562' 0"
2	Aux. Bldg. Mezzanine	603'-6" & 583' 6"
3	Aux. Bldg. Relay Room	613'-6"
7	Aux. Bldg. Cable Spreading Rm	630'-6"
8	Aux. Bldg. Cable Tray Area	631'-0"
9	Aux. Bldg. Control Room	643'-6"
11	Aux. Bldg. 3rd Flr.	643'-6"
13	Aux. Bldg. 4th Flr.	659'-6"

FIRE ZONE 1

Basement Auxiliary Building
Elevations: 551'-0" and 562'-0"

1.0 DESCRIPTION

The following is a summary description of this fire zone. This summary includes the design combustible loading, fire protection features available and fire resistance rating of the zone. This section supplements the information provided in FSAR section 9B.4.2.

NOTE: FSAR section 9B.4.2 states wrap will be used to protect redundant trains. This document takes into account the fact that wrap activities have been stopped in these areas and the wrap remains in a partially complete state.

Combustibles

Lubricating Oil	1,520,000	BTU
Dessicant	3,890,000	BTU
Electrical Insulation ¹	438,000,000	BTU
	<u>444,000,000</u>	BTU

Design Basis Fire

Fire Loading ¹	80,000	BTU/sq. ft.
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Fire Protection (Available)

Suppression: Automatic sprinklers/zone wide

Detection: Ionization/zone wide (early warning)

Portable Extinguishers: (2) Dry chemical

Hose Stations: (2) Water

Fire Resistance Rating

Required:	1.0 hour
Actual: Walls -	3-hour rated
Floor/Ceiling -	3-hour rated
Fixed Openings -	none
Sealed Penetrations -	3-hour rated

Unsealed
Penetrations - none

Doors - A/Zone 3 (RB)
- A/Zone 2 (RB)

NOTE: 1. Based on trays being 100% visual full. Presently, average trayloading would be less than 20%. (Estimated fire loading of 20,000 BTU/ft²).

The following lists all those Appendix R systems that have some equipment or circuits located in the fire zone. An 'X' opposite a system indicates the presence of those divisional components/cabling in the fire zone.

NOTE: Not all these systems are required for safe shutdown. There are different paths available that the operating procedures utilize to accomplish plant shutdown.

FIRE ZONE: 1

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS	X	
B21-ADS	X	
E11-RHR	X	X
Cold Shutdown Only		
E11-RHR	X	X
B31-Recirc.		
Hot and Cold Shutdown		
B21-MSIV's		
B21-Instrumentation	X	
E11-RHR SW	X	
E11-RHR Cooling Towers	X	
P44-EECW	X	
P45-EESW	X	
R14-ESF AC	X	
R16-ESF AC	X	X
R30-ESF AC	X	X
R32-ESF DC		X
T41-ESF Fan Coil HVAC	X	X
T41-Control Center HVAC		
T50-Suppression Pool Instr.	X	X
P50-Control Air	X	X
X41-E.D.G. HVAC	X	
R31-ESF AC		

REFERENCE DRAWINGS: 6E721-2800-15
6E721-2800-16

2.0 ANALYSIS

Within this predominately Division I area there is Division II circuits and equipment located in the fire zone. The Division II raceways fall into one of the following categories:

- 1) raceways containing circuits that are not required for shutdown.
- 2) raceways that are separated by twenty or more feet from Division I raceways and equipment.
- 3) raceways that are wrapped with one hour fire barrier.
- 4) raceways that are wrapped with the 3-M material but do not achieve a full one hour rating.

Of those raceways which do not fall into any of the above categories are raceways and equipment for the Control Air System. Although not a short term need, control air is required for Control Center HVAC. If both divisions of the Control Air Systems were lost due to the fire in the zone, the following procedure will be implemented:

On detection of a fire in this fire zone operator actions would be accomplished to restore Control Air to the plant by connecting the Division II Non-Interruptible Air Supply (NIAS) system to the Interruptible Air Supply (IAS) system which will be supplied by Station Air Compressors as follows:

1. Operator will go to the IAS Receiver P5002A003 location in the Turbine Bldg. Elev. 583'6" and manually open bypass manual valve V23-2016. (6M721-4795).
2. When fire zone 1 is accessible, operator will go to the fire zone and open manual bypass manual valve V5-2208 (6M721-4615) at the South Control Air Receiver. (Div II) P5002A002.
3. When offsite power is restored (72 hrs), the station Air compressors will be started and will supply air to Division II NIAS. This action will restore Control Center HVAC by restoring control air to the dampers. Without Control Center HVAC, the ambient temperature could rise to 120°F in 4.3 days. (Ref. FSAR Section 9.4.1.3). However, this temperature would not be obtained due to reactivation of the system at 72 hours.

3.0 ADDITIONAL FEATURES

In addition to the features presented in section 1.0 and the procedure in section 2.0, the Detroit Edison Company commits to having a roving

fire watch for this fire zone. A roving fire watch will be established who will on an hourly basis check for and report on if necessary:

- o Fire hazards
- o Evidence of fire
- o Availability of extinguishers
- o Any unsafe practices

4.0 CONCLUSION

The fire protection features for the area are designed to ensure that one train of equipment necessary to achieve and maintain hot shutdown is unaffected by a fire in this area. Under the definitions of a limited fire we meet this goal by having fire protection wrap or separation for all necessary system consistent with the size of the fire.

Hot shutdown and cold shutdown can be achieved and maintained for a limited fire condition.

FIRE ZONE 2

Mezzanine and Cable Tray Area Auxiliary Building
Elevations: 583'-6" and 603'-6"

1.0 DESCRIPTION

The following is a summary description of this fire zone. This summary includes the design combustible loading, fire protection features available and fire resistance rating of the zone. This section supplements the information provided in FSAR section 9B.4.2.

NOTE: FSAR section 9B.4.2 states wrap will be used to protect redundant trains. This document takes into account the fact that wrap activities have been stopped in these areas and the wrap remains in a partially complete state.

Combustibles

Electrical Insulation¹ 424,000,000 BTU

Design Basis Fire

Fire Loading¹ 71,000 BTU/sq. ft.

Fire Protection (Available)

Suppression: Automatic sprinklers/zone wide

Detection: Ionization/zone wide (early warning)

Portable Extinguishers: (2) Dry chemical

Hose Stations: (1) Water
(2) Water/Turbine Building

Fire Resistance Rating

Required: 1.0 hour

Actual: Walls - 3-hour rated/north, south, east and west
exterior/north and south

Floor/Ceiling - 3-hour rated ceiling

Fixed Openings - Concrete hatch/Zone 3 (Reactor Building)

Sealed
Penetrations - 3-hour rated

Unsealed
Penetrations - none

Doors - A/Zone 3 (AB)
(2) A/TB
NR/Outside

Note: Estimated actual fire loading is 35,000 BTU/sq. ft., based on
trays being 50% full.

The following lists all those Appendix R systems that have some equipment or circuits located in the fire zone. An "X" opposite a system indicates the presence of those divisional components/cabling in the fire zone.

Note: Not all these systems are required for safe shutdown. There are different paths available that the operating procedures utilize to accomplish plant shutdown.

FIRE ZONE: 2

NORTH AREA

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS	X	
B21-ADS	X	
E11-RHR	X	X
Cold Shutdown Only		
E11-RHR	X	X
B31-Recirc.		
Hot and Cold Shutdown		
B21-MSIV's	X	X
B21-Instrumentation	X	X
E11-RHR SW	X	X
E11-RHR Cooling Towers	X	X
P44-EECW	X	X
P45-EESW	X	X
R14-ESF AC	X	X
R16-ESF AC		X
R30-ESF AC	X	X
R32-ESF DC	X	X
T41-ESF Fan Coil HVAC	X	X
T41-Control Center HVAC	X	X
T50-Suppression Pool Instr.	X	X
P50-Control Air	X	X
X41-E.D.G. HVAC	X	X
R31-ESF AC		

REFERENCE DRAWINGS: 6E721-2801-15

FIRE ZONE: 2

SOUTH AREA

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS		
B21-ADS		
E11-RHR	X	X
Cold Shutdown Only		
E11-RHR	X	X
B31-Recirc.		
Hot and Cold Shutdown		
B21-MSIV's		X
B21-Instrumentation		X
E11-RHR SW	X	X
E11-RHR Cooling Towers	X	X
P44-EECW		X
P45-EESW	X	X
R14-ESF AC	X	X
R16-ESF AC	X	X
R30-ESF AC	X	X
R32-ESF DC	X	X
T41-ESF Fan Coil HVAC		X
T41-Control Center HVAC		
T50-Suppression Pool Instr.		
P50-Control Air		X
X41-E.D.G. HVAC	X	X
R31-ESF AC		

REFERENCE DRAWINGS: 6E721-2801-16

2.0 ANALYSIS

North Half of Zone

The north half of the fire zone is a major Division I area. Division II raceways have one of the following fire protection features.

- 1) Raceways which are wrapped with a one hour protective envelope.
- 2) Raceways which are separated by more than 20 feet from Division I raceways.
- 3) Raceways which are wrapped with the 3M material but do not achieve a full one-hour rating.

Of those raceways not falling into the above category the following was identified; loss of instrument trays 2K-029 and 1K-029 would lead to loss of EECW and loss of reactor pressure indication. The following procedure would provide a means to maintain EECW and to monitor reactor pressure under these circumstances:

On detection of a fire in the north half of this fire zone, the following operator actions would be required:

1. Operator will go to Instrument Rack H21-P005 Reactor Bldg. 2nd floor El. 613'-6" and monitor reactor vessel pressure on instrument B21-R004B (6M721-2090).
2. Operator will go to EECW Temperature Control Valve P44-F400B (V15-2040) located in Reactor Bldg. 2nd floor El. 613' and adjust valve regulator to bleed off supply air and cause the valve to go full open. 6M721-5444.

South Half of Zone

The south half of the fire zone is a Major Division II area. Division I raceways have one of the following fire protection features:

- 1) Raceways which are wrapped with a one hour protective envelope.
- 2) Raceways which are wrapped with the material but do not achieve a full one-hour rating.

3.0 ADDITIONAL FEATURES

Detroit Edison has installed additional fire stops described below. In addition to the features presented in section 1.0 and the procedure outline in section 2.0, the Detroit Edison Company commits to having a roving fire watch for this fire zone.

A roving fire watch will be established who will on an hourly basis check for and report on if necessary:

- o Fire hazards
- o Evidence of fire
- o Availability of extinguishers
- o Any unsafe practices

In addition the following modifications have been installed in the trays at approximately column line(s). (See Attachment Sketch).

For trays:

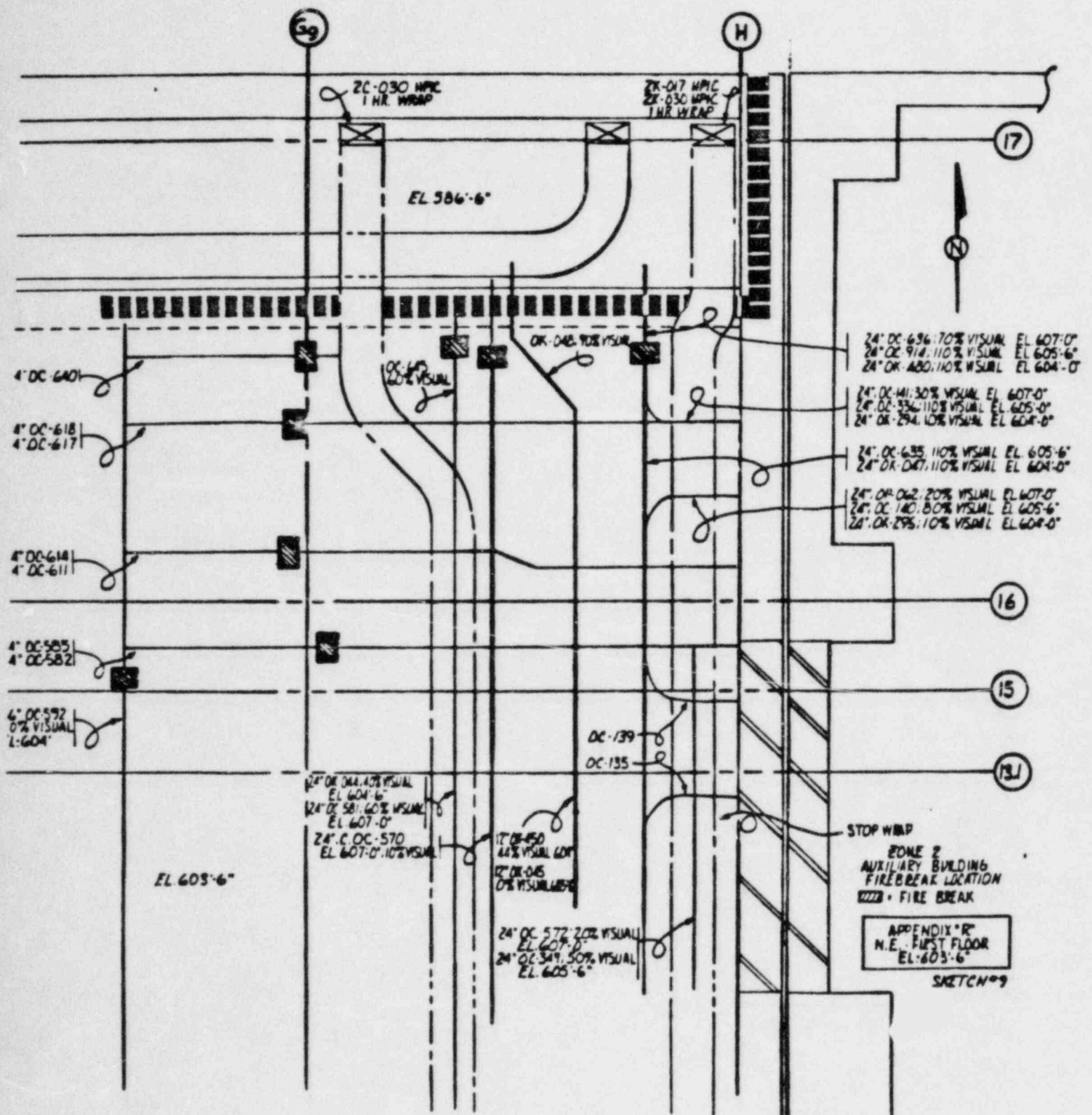
<u>Tray ID#</u>	<u>FBL</u>
OC-617	Break installed approx. 4 feet west of column at Gg.
OC-618	Break installed approx. 4 feet west of column at Gg.
OC-611	Break installed approx. 4 feet west of column at Gg.
OC-614	Break installed approx. 4 feet west of column at Gg.
OC-582	Break installed on east side of column at Gg.
OC-585	Break installed on east side of column at Gg.
OC-640	Break installed approx. 3 feet west of Gg.
OC-636	Break installed approx. 3 feet south of cable chase edge.
OC-914	Break installed approx. 3 feet south of cable chase edge.
OC-570	Break installed approx. 3 feet south of cable chase edge.
OC-645	Break installed approx. 3 feet south of cable chase edge.
OC-592	Break installed approx. at column Line 15.

These breaks in combination with automatic sprinklers will prevent the propagation of fire.

4.0 CONCLUSION

The fire protection feature for the area are designed to ensure that one train of equipment equipment necessary to achieve and maintain hot shutdown is unaffected by a fire in this area. Under the definition of a limited fire we meet this goal by having fire protection wrap or separation for all necessary system consistent with the size of the fire.

Hot shutdown and cold shutdown can be achieved and maintained for a limited fire condition.



Sketch of Additional Fire Breaks Installed in Fire Zone 2 - Auxiliary Building

FIRE ZONE 3

Relay Room Auxiliary Building
Elevations: 613'-6"

1.0 DESCRIPTION

The following is a summary description of this fire zone. This summary includes the design combustible loading, fire protection features available and fire resistance rating of the zone. This section supplements the information provided in FSAR section 9B.4.2.

NOTE: FSAR section 9B.4.2 states wrap will be used to protect redundant trains. This document takes into account the fact that wrap activities have been stopped in these areas and the wrap remains in a partially complete state.

Combustibles

Electrical insulation ¹ .	226,600,000	
Wiring insulation (racks cabinets)	<u>157,000,000</u>	
	383,600,000	BTU

Design Basis Fire

Fire Loading ¹	83,000 BTU/sq. ft.
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Fire Protection (Available)

Suppression: Halon/zone wide

Detection: Ionization/zone wide (early warning)

Portable Extinguishers: (1) Dry chemical
(2) CO₂
(2) Halon

Hose Stations: (1) CO₂
(3) Water

Fire Resistance Rating

Required: 1.25 hour

Actual: Walls - 3-hour rated/east, south, and west walls
- Non-rated/exterior north wall
- 2-hour rated/northeast stairwell
- 3-hour rated/stairwell to 603'-6" mezzanine

Floor/Ceiling - 3-hour rated

Fixed Openings - none

Sealed
Penetrations - 3-hour rated

Unsealed
Penetrations - none

Doors - 1 A/Corridor to miscellaneous rooms (Zone 6)
- 1 B/northeast stairwell
- 1 A/stairwell to 603'-6" mezzanine (Zone 2)

NOTE: 1. Based on trays being 100% visual. Presently estimated tray fill is approximately 45% which equates to 56,000 Btu/ft². Additionally, there is a significant amount of cabling which has been fire wrapped, which effectively reduces the combustible loading of the zone.

The following lists all those Appendix R systems that have some equipment or circuits located in the fire zone. An 'X' opposite a system indicates the presence of those divisional components/cabling in the fire zone.

NOTE: Not all these systems are required for safe shutdown. There are different paths available that the operating procedures utilize to accomplish plant shutdown.

FIRE ZONE: 3

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS	X	X
B21-ADS	X	X
E11-RHR	X	X
Cold Shutdown Only		
E11-RHR	X	X
B31-Recirc.	X	X
Hot and Cold Shutdown		
B21-MSIV's	X	X
B21-Instrumentation	X	X
E11-RHR SW	X	X
E11-RHR Cooling Towers	X	X
P44-EECW	X	X
P45-EESW	X	X
R14-ESF AC	X	X
R16-ESF AC	X	X
R30-ESF AC	X	X
R32-ESF DC	X	X
T41-ESF Fan Coil HVAC	X	X
T41-Control Center HVAC	X	X
T50-Suppression Pool Instr.	X	X
P50-Control Air	X	X
X41-E.D.G. HVAC	X	X
R31-ESF AC	X	X

REFERENCE DRAWINGS: 6E721-2800-15
6E721-2800-16

2.0 ANALYSIS

This fire zone has no major division, but is segregated such that the northern part of the room is mostly Div. I while the southern part is mostly Div. II. The raceways fall into one of the following categories:

- 1) Within the northern (Div. I) area the Division II raceways routed within 10 feet and north of 13.1 column line are wrapped with a one hour protective envelope.
- 2) Within the southern (Div. II) area the Division I raceways routed within 10 feet and south of column line 13.1 are either:
 - a) wrapped with a one hour fire barrier or
 - b) wrapped with the 3-M material but do not achieve a full one hour rating
- 3) Raceways containing circuits which are not required for shutdown.
- 4) Division I and Division II panels are physically separated by at least 20 feet. A Relay Room layout sketch showing the Appendix R required panels is attached.

The fire wrap and separation discussed above provide adequate protection for a limited fire.

3.0 ADDITIONAL FEATURES

In addition to the features presented in section 1.0, the Detroit Edison Company commits to having a continuous fire watch for this fire zone.

A fire watch will be established who will check for and report on if necessary:

- o Fire hazards
- o Evidence of fire
- o Availability of extinguishers
- o Any unsafe practices

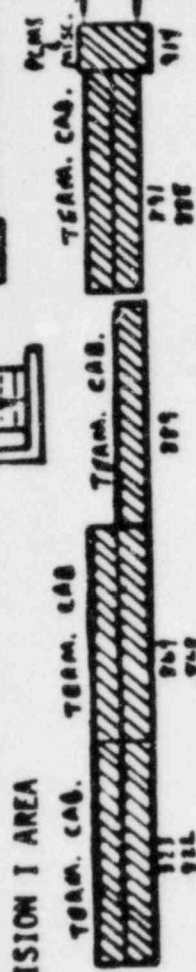
4.0 CONCLUSION

The fire protection features for the area are designed to ensure that one train of equipment necessary to achieve and maintain hot shutdown is unaffected by a fire in this area. Under the definitions of a limited fire we meet this goal by having fire protection wrap or separation for all necessary system consistent with the size of the fire.

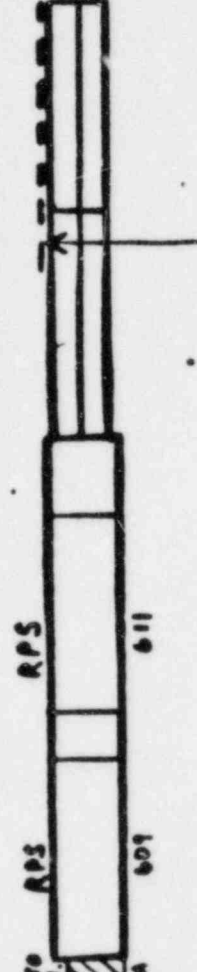
Hot shutdown and cold shutdown can be achieved and maintained for a limited fire condition.

87'-9"

DIVISION I AREA



DIVISION II AREA



WRAP BOTH DIVISIONS

DIV. I

DIV. II

FIRE ZONE 7

Cable Spreading Room - Auxiliary Building
Elevation: 630'-6"

1.0 DESCRIPTION

The following is a summary description of this fire zone. This summary includes the design combustible loading, fire protection features available and fire resistance rating of the zone. This section supplements the information provided in FSAR section 9B.4.2.

NOTE: FSAR section 9B.4.2 states wrap will be used to protect redundant trains. This document takes into account the fact that wrap activities have been stopped in these areas and the wrap remains in a partially complete state.

Combustibles

Electrical Insulation¹ 318,000,000 BTU

Design Basis Fire

Fire Loading¹ 67,000 BTU/sq. ft.

Fire Protection (Available)

Suppression: Halon/zone wide
Manual fusible link sprinkler system

Detection: Ionization/zone wide (early warning)
Ionization/zone wide (halon system actuation)

Portable Extinguishers: (2) Dry chemical
(1) CO₂

Hose Stations: (1) Water

Fire Resistance Rating

Required: 1.0 hour

Actual: Walls - 3-hour rated
Non-rated/exterior north wall
2-hour rated/northeast stairwell

Floor/Ceiling - 3-hour rated

Fixed Openings - none

Sealed Penetrations - 3-hour rated

Unsealed

Penetrations - none

Doors - 1 A/below stairwell to control room (zone 9)
- 1 B/northeast stairwell
- 1 A/stairwell to control room (zone 9)

Note: 1. Based on trays being 100% visual full. Presently, average tray loading would be less than 50%. (Estimated fire loading of 30,000 BTU/ft₂). Additionally, there is a significant amount of cabling which has been fire wrapped, which effectively reduces the combustible loading of the zone.

The following lists all those Appendix R systems that have some equipment or circuits located in the fire zone. An 'X' opposite a system indicates the presence of those divisional components/cabling in the fire zone.

NOTE: Not all these systems are required for safe shutdown. There are different paths available that the operating procedures utilize to accomplish plant shutdown.

FIRE ZONE: 7

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS	X	X
B21-ADS	X	X
E11-RHR	X	X
Cold Shutdown Only		
E11-RHR	X	X
B31-Recirc.	X	X
Hot and Cold Shutdown		
B21-MSIV's	X	X
B21-Instrumentation	X	X
E11-RHR SW	X	X
E11-RHK Cooling Towers	X	X
P44-EECW	X	X
P45-EESW	X	X
R14-ESF AC	X	X
R16-ESF AC	X	X
R30-ESF AC	X	X
R32-ESF DC	X	X
T41-ESF Fan Coil HVAC	X	X
T41-Control Center HVAC	X	X
T50-Suppression Pool Instr.	X	X
P50-Control Air	X	X
X41-E.D.G. HVAC	X	X
R31-ESF AC	X	X

REFERENCE DRAWINGS: 6E721-2802-15
6E721-2802-16
6E721-2802-17
6E721-2802-18

2.0 ANALYSIS

Within this predominantly Div. I area there are Div. II circuits. These circuits are in raceways that fall into one of the following categories:

- 1) Raceways which are wrapped with a one-hour fire barrier.
- 2) Raceways that are separated by twenty or more feet from Division I unwrapped raceways.
- 3) Raceways containing circuits that are not required for shutdown.
- 4) Raceways that are wrapped with the 3-M material but do not achieve a full one-hour rating.
- 5) In a few cases there are raceways which have a separation of less than 20 feet from redundant Division I raceways, (Closest distance 4 feet) but these raceways have metal tray covers. These tray covers provide additional separation in the form of a barrier and radiant heat shield.

3.0 ADDITIONAL FEATURES

In addition to the features presented in section 1.0 and 2.0, the Detroit Edison Company commits to having a roving fire watch for this fire zone who will on an hourly basis check for and report on if necessary:

- o Fire hazards
- o Evidence of fire
- o Availability of extinguishers
- o Any unsafe practices

4.0 CONCLUSION

The fire protection features for the area are designed to ensure that one train of equipment necessary to achieve and maintain hot shutdown is unaffected by a fire in this area. Under the definitions of a limited fire we meet this goal by having fire protection wrap, separation, or metal tray covers for all necessary system consistent with the size of the fire.

Hot shutdown and cold shutdown can be achieved and maintained for a limited fire condition.

FIRE ZONE 8

Cable Tray Area Auxiliary Building
Elevation: 631'-0"

1.0 DESCRIPTION

The following is a summary description of this fire zone. This summary includes the design combustible loading, fire protection features available and fire resistance rating of the zone. This section supplements the information provided in FSAR section 9B.4.2.

NOTE: FSAR section 9B.4.2 states wrap will be used to protect redundant trains this document takes into account the fact that wrap activities have been stopped in these areas and the wrap remains in a partially complete state.

Combustibles

Electrical Insulation¹ 117,000,000 BTU

Design Basis Fire

Fire Loading¹ 24,000 BTU/sq. ft.

Fire Protection (Available)

Suppression: Automatic carbon dioxide system/zone wide

Detection: Ionization/zone wide (early warning)
Ionization/zone wide (carbon dioxide system
actuation)

Portable Extinguishers: (1) CO₂
(1) Drywell chemical

Hose Stations: (1) Water

Fire Resistance Rating

Required: .50 hours

Actual: Walls - exterior/south wall
- 3-hour rated/north, west, and east
- 2-hour rated/stairwell enclosure

Floor/Ceiling - 3-hour rated

Fixed Openings - none

Sealed
Penetrations - 3-hour rated

Unsealed
Penetrations - none

Doors - B/stairwell

NOTE: 1. Based on trays being 100% visual full. Presently estimated tray fill is approximately 55% which equates to 13,000 BTU/ft².

The following lists all those Appendix R systems that have some equipment or circuits located in the fire zone. An 'X' opposite a system indicates the presence of those divisional components/cabling in the fire zone.

Note: Not all these systems are required for safe shutdown. There are different paths available that the operating procedures utilize to accomplish plant shutdown.

FIRE ZONE: 8

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS		X
B21-ADS	X	X
E11-RHR		X
Cold Shutdown Only		
E11-RHR		X
B31-Recirc.		X
Hot and Cold Shutdown		
B21-MSIV's		
B21-Instrumentation	X	X
E11-RHR SW	X	X
E11-RHR Cooling Towers	X	X
P44-EECW		X
P45-EESW		X
R14-ESF AC	X	X
R16-ESF AC	X	X
R30-ESF AC		X
R32-ESF DC	X	X
T41-ESF Fan Coil HVAC	X	X
T41-Control Center HVAC	X	X
T50-Suppression Pool Instr.		
P50-Control Air		X
X41-E.D.G. HVAC	X	X
R31-ESF AC		

REFERENCE DRAWINGS: 6E721-2802-19

2.0 ANALYSIS

Within the predominately Div II area there are some Div I cables. the cabling is in raceways that fall into one of the following categories:

- 1) raceways that contain circuits not required for shutdown.
- 2) raceways that are separated by twenty feet or more distance from Div II raceways.
- 3) conduit which is wrapped with a one hour protective envelope.
- 4) one cable tray that has 13 feet of separation from a Div II raceway.

Under limited fire condition this 13 feet of separation provide adequate protection.

The fire wrap and separation discussed above provide adequate protection for a limited fire.

3.0 ADDITIONAL FEATURES

In addition to the features presented in section 1.0, the Detroit Edison Company commits to having a roving fire watch for this fire zone.

A roving fire watch will be established who will on an hourly basis check for and report on if necessary:

- o Fire hazards
- o Evidence of fire
- o Availability of extinguishers
- o Any unsafe practices

4.0 CONCLUSION

The fire protection features for the area are designed to ensure that one train of equipment necessary to achieve and maintain hot shutdown is unaffected by a fire in this area. Under the definitions of a limited fire we meet this goal by having fire protection wrap or separation for all necessary system consistent with the size of the fire.

Hot shutdown and cold shutdown can be achieved and maintained for a limited fire condition.

FIRE ZONE 9

Control Room Auxiliary Building
Elevation: 643'-6"

1.0 DESCRIPTION

The following is a summary description of this fire zone. This summary includes the design combustible loading, fire protection features available and fire resistance rating of the zone. This section supplements the information provided in FSAR section 9B.4.2.

NOTE: FSAR section 9B.4.2 states wrap will be used to protect redundant trains this document takes into account the fact that wrap activities have been stopped in these areas and the wrap remains in a partially complete state.

Combustibles

Control Room:

Electrical insulation	134,000,000	BTU
Paper	95,000,000	BTU
Transients (in computer room)	102,000,000	BTU
	444,000,000	BTU

Peripheral Rooms:

Paper, wood, plastic	222,000,000	BTU
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Fire Protection (Available)

Suppression: none

Detection: Some detection (early warning) above drop ceiling
and in Control Room panels

Portable Extinguishers: (2) Dry chemical

Hose Stations: (2) CO₂
(3) Halon

Fire Resistance Rating

Actual: Walls - Reinforced concrete

Floor/Ceiling - Reinforced concrete

Fixed Openings - none

Sealed
Penetrations - Penetrations sealed consistent with fire
rating of walls, floor and ceiling

Unsealed
Penetrations
in barriers

- Ventilation ducting

Doors

- 2 bulletproof doors to Turbine Building (A)
- 1 bulletproof door to northeast stair tower

The following lists all those Appendix R systems that have some equipment or circuits located in the fire zone. An 'X' opposite a system indicates the presence of those divisional components/cabling in the fire zone.

Note: Not all these systems are required for safe shutdown. There are different paths available that the operating procedures utilize to accomplish plant shutdown.

FIRE ZONE: 9

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS	X	X
B21-ADS	X	X
E11-RHR	X	X
Cold Shutdown Only		
E11-RHR	X	X
B31-Recirc.	X	X
Hot and Cold Shutdown		
B21-MSIV's	X	X
B21-Instrumentation	X	X
E11-RHR SW	X	X
E11-RHR Cooling Towers	X	X
P44-EECW	X	X
P45-EESW	X	X
R14-ESF AC	X	X
R16-ESF AC	X	X
R30-ESF AC	X	X
R32-ESF DC	X	X
T41-ESF Fan Coil HVAC	X	X
T41-Control Center HVAC	X	X
T50-Suppression Pool Instr.	X	X
P50-Control Air	X	X
X41-E.D.G. HVAC	X	X
R31-ESF AC		X

REFERENCE DRAWINGS: 6E721-2803-8

2.0 ANALYSIS

1. The control room is constantly manned, ensuring that potential fires are quickly detected and suppressed.
2. Control room operating panels each consist of a low combustible load and contain only low energy cables such as for control, indication and low power circuitry for control room instrumentation.
3. The conduits routed through the Control Room have been analyzed as not required for shutdown.
4. Safe shutdown panels in the control room have been protected to minimize exposure fire damage by the following additional actions:
 - a) Holes or gaps between the panels 601 and 602, 809 and 810, and 808 and 817 will be sealed with a fire retardant sealant or barrier (in particular, the bus bar penetration and the air gaps between the separating bulkheads and the Control Room floor).
 - b) Small fitup gaps in the front corners of the above referenced panels will be sealed with a fire retardant sealant or barrier.
 - c) Two additional portable Halon fire extinguishers will be located in convenient locations near the Control Room Operating Panels.
5. An analysis was performed on each control room panel to determine adverse affects on safe shutdown capability. The analysis results indicate that a fire in any single panel will not adversely affect safe shutdown capability. For fires in panels H11-P601 and H11-P807 manual operator action will be taken to eliminate possible spurious actuations. Those procedures follow:

Fire in Control Operating Panel
H11-P807 in Fire Zone 9
Control Room Elev. 643'6"

For a fire in the Control Room in panel H11-P807, the following actions may be required to restore Mechanical Draft Cooling Tower functionality (long term shutdown cooling).

1. Operator will go to the RHR Complex and manually open the Cooling Tower Bypass Valve E1150F603B (V15-2083).

When a Cooling Tower Fan requires operation:

2. Operator will go to the RHR Complex and manually open the Cooling Tower 1A inlet valve E1150F604A.
3. Operator will go to Termination Cabinet H11-P868 in the relay room. Lift the leads on cable no. 221233-1C from Terminal Strip 'D', terminal points D10, D13, D15.
4. Operator will go to Remote Shutdown Panel H21-P100/C35-P001. Operate Transfer Switch 100C53, turn CMC-R switch for Mech. Draft Cooling Tower Fan 'A' to "High Speed" position.

Fire in Control Operating Panel H11-P601,
Fire Zone 9, Control Room

For a fire in Panel H11-P601 it will be necessary to take operator action to maintain or restore torus water level indication, and to prevent inadvertent opening of the SRV's.

To maintain or restore torus water level indication the following operator actions are required: (long term action)

1. Locate Panel H11-P915 (DIV. II) in the Relay Room
2. Locate TB C in H11-P915 and lift the leads from the following terminals:
 - a. 5
 - b. 6
 - c. 7
 - d. 85
 - e. 86
 - f. 87
3. Locate TB D in H11-P915. Place a jumper between the following pairs of terminals:
 - a. TB D, Terminal 51 and TB C, Terminal 8
 - b. TB D, Terminal 52 and TB C, Terminal 2
 - c. TB D, Terminal 51 and TB C, Terminal 88
 - d. TB D, Terminal 52 and TB C, Terminal 78

The above listed actions will energize the open solenoid coils of valves E41-F400, -F402, -F412A, -F412B and open the valves.
(Ref. DWG's 61721-2671-11, R.A; 61721-2225-13, R.O; 61721-2674-4, R.L.)

To prevent inadvertent opening of the SRV's the following operator actions are required: (short term actions)

1. Open the position #1 disconnect switch in Cabinet R3200S064A (DIV. II) in the Relay Room.
2. Open the position #11 disconnect switch in Cabinet R3200S064B (DIV. II) in the Relay Room.
3. Open the position #1 disconnect switch in Cabinet R3200S061A (DIV. II) in the Relay Room.

4. Open the position #1 disconnect switch in Cabinet R3200S061B (DIV. II) in the Relay Room.

The above listed actions will take power away from the SRV's and prevent spurious operation due to the effects of a fire. (Ref. DWG's 6SD721-2530-10; 6SD721-2530-11)

3.0 ADDITIONAL FEATURES

With the features presented in section 1.0 and the procedure outlines in section 2.0, no additional features would significantly enhance the fire protections provided by the current configuration.

4.0 CONCLUSION

The fire protection features for the area are designed to ensure that one train of equipment necessary to achieve and maintain hot shutdown is unaffected by a fire in this area. Under the definition of a limited fire, we meet this goal by having adequate fire protection provided for all necessary systems consistent with the size of the fire. The procedures specified in section 2.0 ensures long term action is also achieved and short term spurious action is mitigated.

Hot shutdown and cold shutdown can be achieved and maintained for a limited fire condition in this zone.

FIRE ZONE 11

Miscellaneous Rooms Auxiliary Building
Elevation: 643'-6"

1.0 DESCRIPTION

The following is a summary description of this fire zone. This summary includes the design combustible loading, fire protection features available and fire resistance rating of the zone. This section supplements the information provided in FSA, section 9B.4.2.

NOTE: FSAR section 9B.4.2 states wrap will be used to protect redundant trains. This document takes into account the fact that wrap activities have been stopped in these areas and the wrap remains in a partially complete state.

Combustibles

Electrical Insulation ¹	76,200,000	BTU
	444,000,000	BTU

Design Basis Fire

Fire Loading ¹	37,000	BTU/sq. ft.
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Fire Protection (Available)

Suppression: CO₂/zone wide (DIV I only)

Detection: (2) Ionization detection systems/zone wide (one actuates Halon system)

Portable Extinguishers: (2) Dry chemical (1 in corridor)
(1) CO₂

Hose Stations: (1) water - corridor
(1) CO₂

Fire Resistance Rating

Required: .50 hour

Actual: Walls - 3-hour rated/north, east, west, south

Floor/Ceiling - 3-hour rated

Fixed Openings - metal hatch/Zone 13

Sealed
Penetrations - 3-hour rated

Unsealed
Penetrations - none

Doors - (2) A/12 AB
(2) A/Zone 10 (AB)
A/Turbine Building

NOTE 1: Estimated actual fire loading is 18,000 BTU/sq. ft. based on the trays being found to be approximately 50% full during visual inspection.

The following lists all those Appendix R systems that have some equipment or circuits located in the fire zone. An 'X' opposite a system indicates the presence of those divisional components/cabling in the fire zone.

Note: Not all these systems are required for safe shutdown. There are different paths available that the operating procedures utilize to accomplish plant shutdown.

Division I Area

FIRE ZONE: 11

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS		X
B21-ADS	X	X
E11-RHR	X	X
Cold Shutdown Only		
E11-RHR		X
B31-Recirc.		
Hot and Cold Shutdown		
B21-MSIV's		
B21-Instrumentation	X	X
E11-RHR SW	X	
E11-RHR Cooling Towers		
P44-EECW		
P45-EESW		
R14-ESF AC	X	
R16-ESF AC	X	X
R30-ESF AC		
R32-ESF DC	X	X
T41-ESF Fan Coil HVAC	X	X
T41-Control Center HVAC	X	X
T50-Suppression Pool Instr.		
P50-Control Air		
X41-E.D.G. HVAC		
R31-ESF AC	X	X

REFERENCE DRAWINGS: 6E721-2803-9

Division II Area

FIRE ZONE: 11

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC		
E41-HPCI		
E21-CS		
B21-ADS		
E11-RHR		
Cold Shutdown Only		
E11-RHR		
B31-Recirc.		
Hot and Cold Shutdown		
B21-MSIV's		
B21-Instrumentation		
E11-RHR SW		
E11-RHR Cooling Towers		
P44-EECW		
P45-EESW		
R14-ESF AC		
R16-ESF AC		
R30-ESF AC		
R32-ESF DC		X
T41-ESF Fan Coil HVAC		X
T41-Control Center HVAC		
T50-Suppression Pool Instr.		
P50-Control Air		
X41-E.D.G. HVAC		
R31-ESF AC		

REFERENCE DRAWINGS: 6E721-2803-9

2.0 ANALYSIS

1. The Division I battery charger area has Division II (Train B) raceways and equipment which have one of the following fire protection features:
 - a. Raceways and equipment which are not required for shutdown.
 - b. Two cable trays which have separation less than 20 feet from Division I but have their major portions wrapped with a single layer of 3-M protective material.

Under the limited fire, the wrap and separation combination above will ensure at least one train of shutdown equipment is available.

3.0 ADDITIONAL FEATURES

In addition to the features presented in section 1.0 and in section 2.0, the Detroit Edison Company commits to having a roving fire watch for this fire zone.

A roving fire watch will be established who will on an hourly basis check for and report on if necessary:

- o Fire hazards
- o Evidence of fire
- o Availability of extinguishers
- o Any unsafe practices

4.0 CONCLUSION

The fire protection features for the area are designed to ensure that one train of equipment necessary to achieve and maintain hot shutdown is unaffected by a fire in this area. Under the definitions of a limited fire we meet this goal by having fire protection wrap or separation for all necessary system consistent with the size of the fire.

Hot shutdown and cold shutdown can be achieved and maintained for a limited fire condition.

FIRE ZONE 13

Ventilation Equipment Area Auxiliary Building
Elevation: 659'-6"

1.0 DESCRIPTION

The following is a summary description of this fire zone. This summary includes the design combustible loading, fire protection features available and fire resistance rating of the zone. This section supplements the information provided in FSAR section 9B.4.2.

NOTE: FSAR section 9B.4.2 states wrap will be used to protect redundant trains this document takes into account the fact that wrap activities have been stopped in these areas and the wrap remains in a partially complete state.

Combustibles

Electrical Insulation 9,400,000 BTU

Design Basis Fire

Fire Loading Northeast corner 14,000 BTU/sq. ft.
Total Zone Loading 1,190 BTU/sq. ft.

Fire Protection (Available)

Suppression: none

Detection: Ionization/zone wide (early warning)

Portable Extinguishers: (1) Dry chemical-north stairwell

Hose Stations: (2) Water

Fire Resistance Rating

Required: .25 hours

Actual: Walls - 3-hour rated/east, north, and west
- 3-hour rated/northwest stairwell
- exterior/south
- concrete block enclosure, 3-hour dampered pipe chase

Floor/Ceiling - 50 inches reinforced concrete floor
12 inches reinforced concrete ceiling

Fixed Openings - Metal hatch/Zone 11 AB and 15 AB

Sealed
Penetrations - 3-hour rated/through rated walls
in unrated - Fire stops/cable tray penetrations through
barriers unrated barriers

Unsealed
Penetrations - piping
- conduit

Doors - A/northwest stairwell
- A/Turbine Building

The following lists all those Appendix R systems that have some equipment or circuits located in the fire zone. An 'X' opposite a system indicates the presence of those divisional components/cabling in the fire zone.

Note: Not all these systems are required for safe shutdown. There are different paths available that the operating procedures utilize to accomplish plant shutdown.

FIRE ZONE: 13

SYSTEMS	DIVISION I	DIVISION II
Hot Shutdown Only		
E51-RCIC	X	
E41-HPCI		X
E21-CS	X	X
B21-ADS	X	X
E11-RHR	X	X
Cold Shutdown Only		
E11-RHR	X	X
B31-Recirc.		
Hot and Cold Shutdown		
B21-MSIV's		
B21-Instrumentation	X	X
E11-RHR SW		
E11-RHR Cooling Towers		
P44-EECW		
P45-EESW		
R14-ESF AC	X	
R16-ESF AC	X	X
R30-ESF AC		
R32-ESF DC		X
T41-ESF Fan Coil HVAC		X
T41-Control Center HVAC	X	X
T50-Suppression Pool Instr.		
P50-Control Air		
X41-E.D.G. HVAC		
R31-ESF AC	X	X

REFERENCE DRAWINGS: 6E721-2804-10
6E721-2804-11
6E721-2804-12B

2.0 ANALYSIS

Fire zone 13 is a major Division I area. Division II raceways have one of the following fire protection features:

- 1) Raceways which are analyzed as not required for shutdown.
- 2) Raceways which are wrapped with a one hour protective envelope.
- 3) Raceways that are wrapped with the 3-M material but do not achieve a full one hour rating.
- 4) A radiant heat shield floor to ceiling as shown on the attached sketch is also being added to separate the Div I and Div II equipment from a common heat source.

Based on the above discussion there is adequate protection for a limited fire.

3.0 ADDITIONAL FEATURES

In addition to the features presented in section 1.0 and section 2.0, the Detroit Edison Company commits to having a roving fire watch for this fire zone.

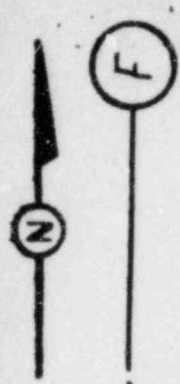
A roving fire watch will be established who will on an hourly basis check for and report on if necessary:

- o Fire hazards
- o Evidence of fire
- o Availability of extinguishers
- o Any unsafe practices

4.0 CONCLUSION

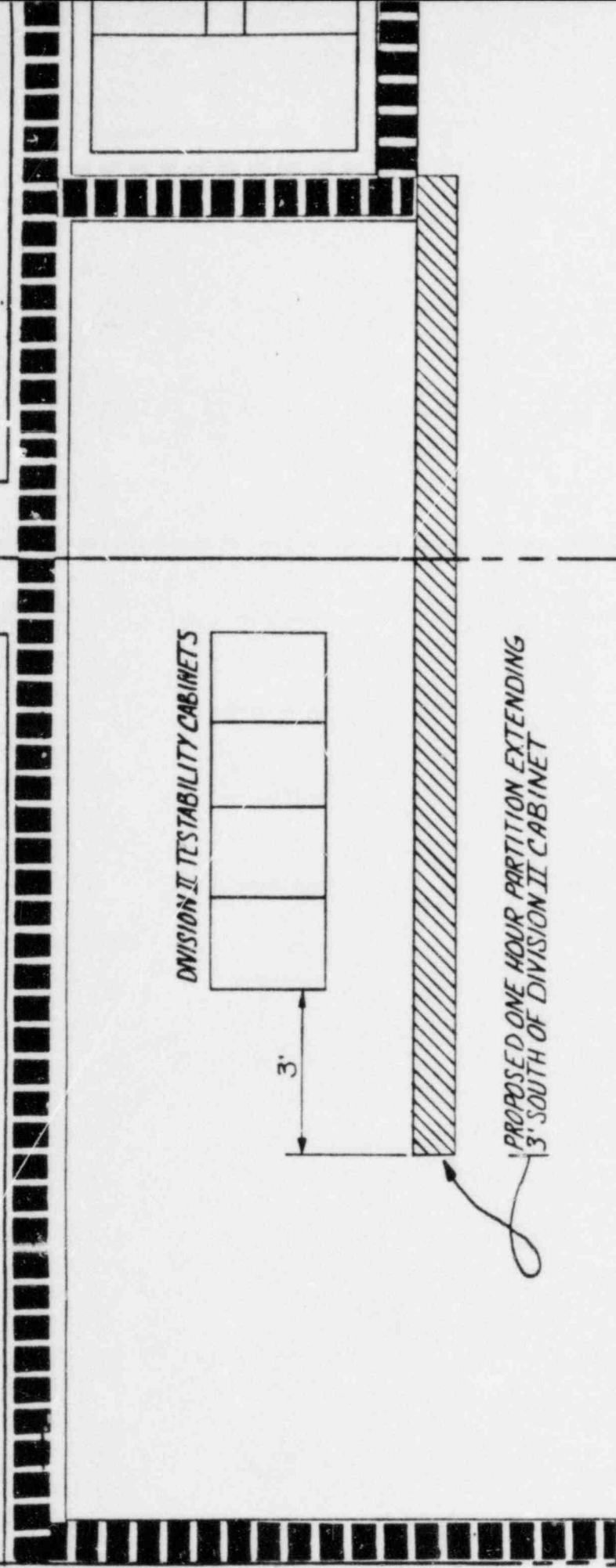
The fire protection features for the area are designed to ensure that one train of equipment necessary to achieve and maintain hot shutdown is unaffected by a fire in this area. Under the definitions of a limited fire we meet this goal by having fire protection wrap or separation for all necessary system consistent with the size of the fire.

Hot shutdown and cold shutdown can be achieved and maintained for a limited fire condition.



(11)

(10)



DIVISION II TESTABILITY CABINETS

3'

PROPOSED ONE HOUR PARTITION EXTENDING
3' SOUTH OF DIVISION II CABINET

FIRE ZONE 13 - AUXILIARY BUILDING

SKETCH #10

APPENDIX "R"
S.E. - FOURTH FLOOR PLAN
FL. 659'-6"

DISCUSSION OF LIMITED FIRE CONCEPT

The areas where the limited fire concept is used are areas that have strict access control. These areas contain only cable, control cabinets or ventilation equipment. The introduction of large amounts of transient combustibles is not anticipated nor is it allowed in accordance with Fermi 2 administrative controls. Therefore the predominate combustible in all of these areas are cables of EPR/Hypalon construction.

EPRI tests have demonstrated that an electrical short will not propagate a fire in this type of cable. Therefore an exposure fire would be required for propagation of the cable fire. EPRI test "NP 1881" documents that a minimum of four gallons of a necessary flammable liquid, burning for 10 minutes was necessary to cause the fire to slowly propagate. The cable fire self extinguished after approximately 30 minutes. This indicates the EPR/Hypalon jacket cable has a high resistance to fire.

Additionally in six of the eight auxiliary building areas, automatic suppression systems are installed. They are as follows:

Zone 1	Automatic sprinklers
Zone 2	Automatic sprinklers
Zone 3	Automatic Halon 1301
Zone 7	Automatic Halon 1301/manual sprinklers
Zone 8	Automatic carbon dioxide
Zone 11	Automatic carbon dioxide

All eight zones contain ionization detection systems. A transient combustible exposure fire of the large magnitude described previously (4 gallon of flammable liquid), is expected to actuate the various suppression systems in the rooms in less than 10 minutes. Actuation times of 10 minutes or less compare favorably to the time required for cable fire propagation.

Upon sprinkler actuation, the water will provide a positive means for cooling the area and fire control/extinguishment. In addition, Sandia Report "SANDI 81-1785" shows that upon actuation of Halon 1301 systems, the fire is permanently extinguished and room temperature drops. Detroit Edison's CO₂ systems are designed with extended discharge times (20 min), which allow for fire extinguishment. Upon extinguishment room temperature drops.

The two areas where no suppression systems exist are zones 9 and 13. Zone 13 contains a very low combustible loading. Zone 9 is the Control Room which is continuously manned.

All these zones are large volume rooms where heat buildup would be slow should a limited fire occur. The heat buildup would be less than an Ell9 fire.

On certain raceways, a less than Ell9 fire rated one hour fire barrier has been installed. These barriers have approximate Ell9 ratings ranging from 10 minutes to 45 minutes. These raceway protective systems will provide protection beyond that Ell9 rating because of the room volume, suppression systems and slow growth of EPR/Hypalon cable fire. These less than one hour barriers will provide the necessary protection to maintain electrical circuit integrity during a limited fire in any of these areas.

Additional Information Showing
Compliance with 10CFR50.12

The NRC staff requested Edison file this request due to the time required to implement installation for the alternate shutdown approach. The granting of this request is authorized by law and will not present an undue risk to the public health and safety, is consistent with the common defense and security, and is in the public interest as specified below.

- o Will not present an undue risk to public health and safety and is consistent with the common defense and security: Appendix 9B of the FSAR, Reference (3) and (4), Supplement 2 to the NRC's Safety Evaluation Report for Fermi 2, and numerous other submittals of record document Detroit Edison's effort towards implementing a proper and effective fire protection program at Fermi 2. These efforts not only arise out of a corporate commitment to good fire protection practices and meeting appropriate regulations, especially as it pertains to nuclear power, but also out of good faith efforts to respond to NRC staff concerns, interpretations, and guidance. The commitment to the alternative shutdown approach for affected fire areas (see Attachment 1) arose earlier this year out of discussions with the staff over such interpretations. Detroit Edison is implementing the alternative shutdown approach expeditiously consistent with proper design control, review, and implementation procedures. Until the design is implemented, Detroit Edison is showing, by analysis, that the existing design serves the underlying purpose of the regulation. In addition, Detroit Edison is further enhancing the fire protection measures for the areas of interest in the intervening period by employing additional compensatory measures. These measures along with the existing fire protection features and the analysis are described in detail in Attachment 1 and 2. This information documents that granting of this exemption will not present an undue risk to public health and safety, and is consistent with the common defense and security.

- o Is in the Public Interest: The commitment to the alternative shutdown approach was formally made to the NRC in August, 1984 (Reference 2) and arose from discussions with NRC staff beginning approximately in March 1984. Fermi 2 is scheduled to load fuel before the end of 1984. To not grant this request would place an undue financial and economic hardship on Detroit Edison and its customers due to the late stage of plant completion. The denial would lead to a commensurate delay in the project schedule until implementation of the alternative shutdown concept were complete. This is not warranted since there is no undue risk to public health and safety. As stated to the NRC staff, the concept is a complex one and we must satisfy ourselves of its safety and acceptability prior to formal implementation. Edison believes this can be safely done prior to startup after the first refueling outage. However, to ensure the period of time is minimized prior to implementation, Edison commits to implement the approach as feasible during available outages after detailed design is completed, and materials and procedures for implementation are available.

Additional considerations are as follows:

- o Alternative or compensatory means exist to achieve the underlying purpose of the regulation: Attachment 1 to this letter describes in detail for each applicable fire area the existing fire protection features, and alternative or compensatory measures to achieve the underlying purpose of the regulation. These measures include summaries of analyses of possible limited fire situations showing how safe shutdown is achieved.
- o The exemption would provide only temporary relief from the applicable regulations: As stated previously, this request is temporary and will only remain in force until the alternate shutdown approach is implemented. Detroit Edison is proceeding expeditiously to implement this approach consistent with proper engineering design practices and proper respect for safety. Furthermore, Detroit Edison has committed to a reasonable date for implementation of the approach which is well within prior precedent and within Edison's ability to properly commit. Notwithstanding, Edison committed, in addition, to not delay until this calendar date but implement the approach as soon as practically feasible within the operating constraints of the plant after the design is completed and the material is received, and implementation procedures developed.