

**Florida
Power**
CORPORATION

October 5, 1984
3F1084-10

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

Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
Appendix R Exemptions Requests

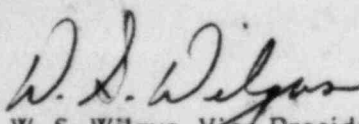
Dear Mr. Denton:

By letter (3F0984-06) dated September 4, 1984, Florida Power Corporation (FPC) provided background information on its fire protection program and submitted six technical exemptions from certain requirements of 10 CFR 50.48 and Appendix R. As indicated in that letter, FPC is hereby providing five additional technical exemptions and three scheduler exemptions. The scheduler exemptions will allow FPC to complete Appendix R requirements except where technically exempted in a very timely manner somewhat after restart from our 1985 refueling outage. As permitted by Generic Letter 82-14, the NRC Project Manager for Crystal River Unit 3 has specified that twenty-five copies of these exemptions requests are required.

We also want to confirm that a meeting has been scheduled for October 24, 1984 to discuss your review of these exemptions. The results of this meeting are anticipated to provide FPC management the necessary feedback to continue efforts to effectively manage Refuel V.

Your prompt review is crucial to such efforts and we thank you in advance for your attention.

Sincerely,


W. S. Wilgus, Vice President
Nuclear Operations

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Attachments

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EXEMPTION REQUEST #7

A. EXEMPTION REQUEST

Florida Power Corporation (FPC) requests exemption from certain technical requirements of 10 CFR 50, Appendix R, Section III.G.2, at Crystal River Unit 3 (CR-3). Specifically, exemption is requested from the requirement to provide a 3-hour rated fire barrier to separate fire areas containing redundant safe shutdown equipment. The fire areas are AB-95-3, the 95 foot elevation of the Auxiliary Building, and AB-119-6, the 119 foot elevation of the Auxiliary Building. This exemption request applies only to the separation of the 95 foot elevation from the 119 foot elevation in the reactor coolant bleed tank room, (Fire Zone AB-95-3T) at the south end of the Auxiliary Building.

B. REDUNDANT SAFE SHUTDOWN COMPONENTS/CIRCUITS IN FIRE AREA AB-95-3T.

Fire areas AB-95-3 (95 foot elevation of the Auxiliary Building) and AB-119-6 (119 foot elevation of the Auxiliary Building) contain components or circuits for most safe shutdown systems in the plant. However, fire zone AB-95-3T, which is located in both of these fire areas, contains no redundant safe shutdown components or circuits.

C. PHYSICAL DESCRIPTION OF AFFECTED AREA

Fire zone AB-95-3T is a large room extending from the floor of the 95 foot elevation to the ceiling of the 119 foot elevation, and is located in the south end of the Auxiliary Building. This room contains the three reactor coolant bleed tanks. The fire zone is open to both the 95 foot and 119 foot elevations of the building. The fire zone is bounded on all sides by reinforced concrete walls. A narrow passageway, on each elevation, provides access to the room. The passageways provide substantial separation from adjacent fire zones which contain safe shutdown components or circuits. (See Figures 7-1, 7-2, 7-3, and 7-4 for location and arrangement of the zone.)

D. JUSTIFICATION FOR PROPOSED EXEMPTION

The following information shows that the level of protection provided will ensure that at least one train of safe shutdown components and circuits will remain free of fire damage in either of the fire areas (AB-95-3 or AB-119-6).

- o There are no redundant safe shutdown components or circuits located in fire zone AB-95-3T on either elevation.
- o A wet pipe sprinkler system designed to meet the objectives of NFPA Standard No. 13 (1983) for an Ordinary Hazard, Group II Occupancy Classification will be provided in adjacent fire zones, which contain safe shutdown components or circuits.
- o Automatic ionization detectors, which alarm locally and in the continuously manned Control Room, are installed in fire zones immediately outside the passageways.
- o At least one train of redundant safe shutdown circuits in adjacent fire zones will be provided with 1-hour rated fire barriers.
- o The fire loading for fire zone AB-95-3T corresponds to a fire severity, on the ASTM E-119 time-temperature curve, of 10 minutes.
- o Hose stations and portable extinguishers are available in the vicinity of fire zone AB-95-3T.
- o The fire zone is well separated from adjacent fire zones by reinforced concrete walls and narrow passages with offset doorways.

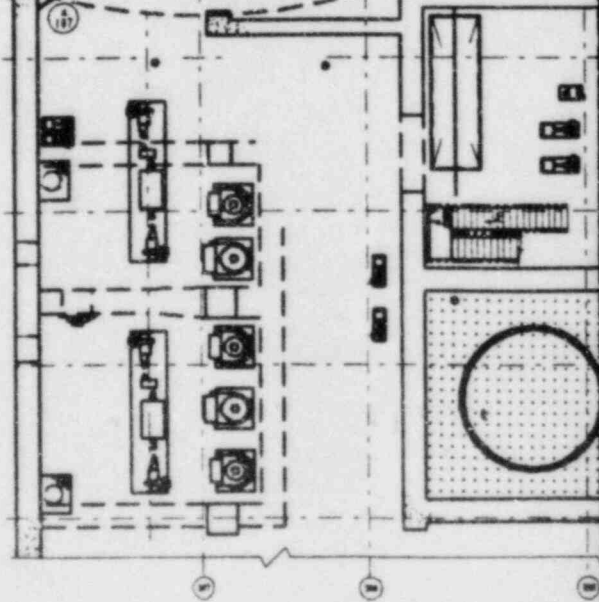
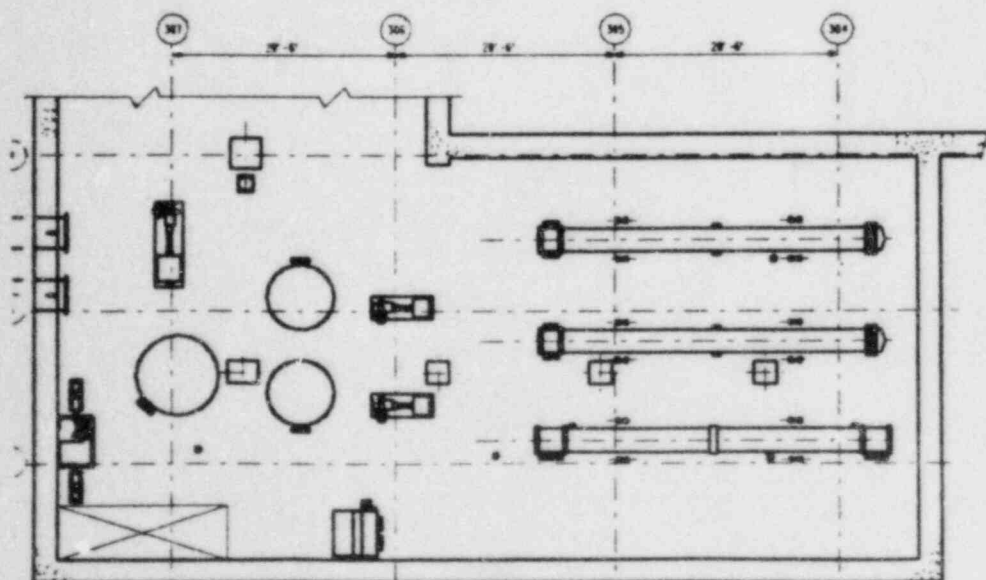
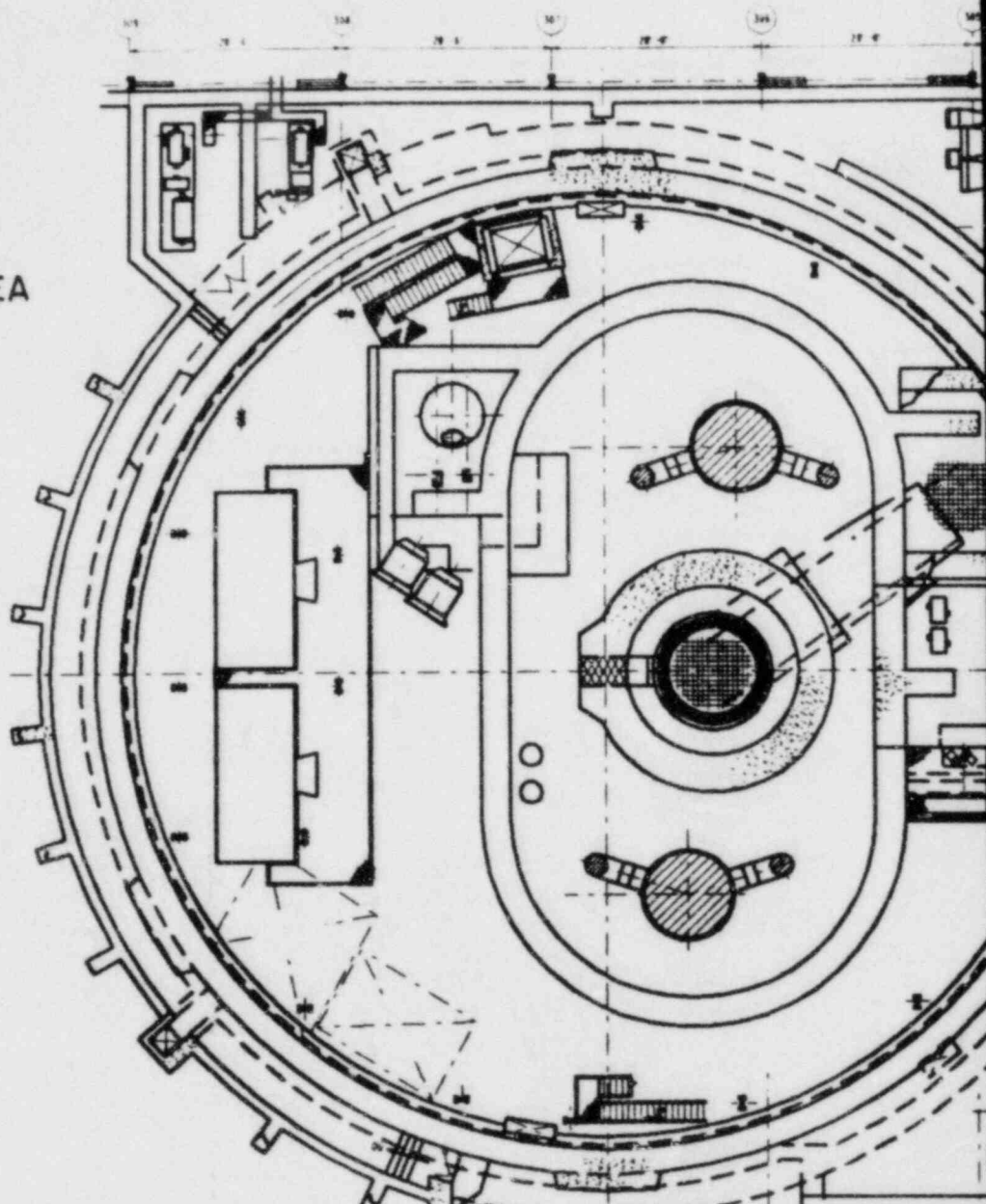
E. CONCLUSION

The installed and planned fire protection features, (automatic fire suppression systems, ionization detectors, 1-hour rated cable enclosures, hose stations, and portable extinguishers) combined with the zone configuration and low combustible loading, provide reasonable assurance that one train of safe shutdown components and circuits, in either fire area, will remain free of fire damage.

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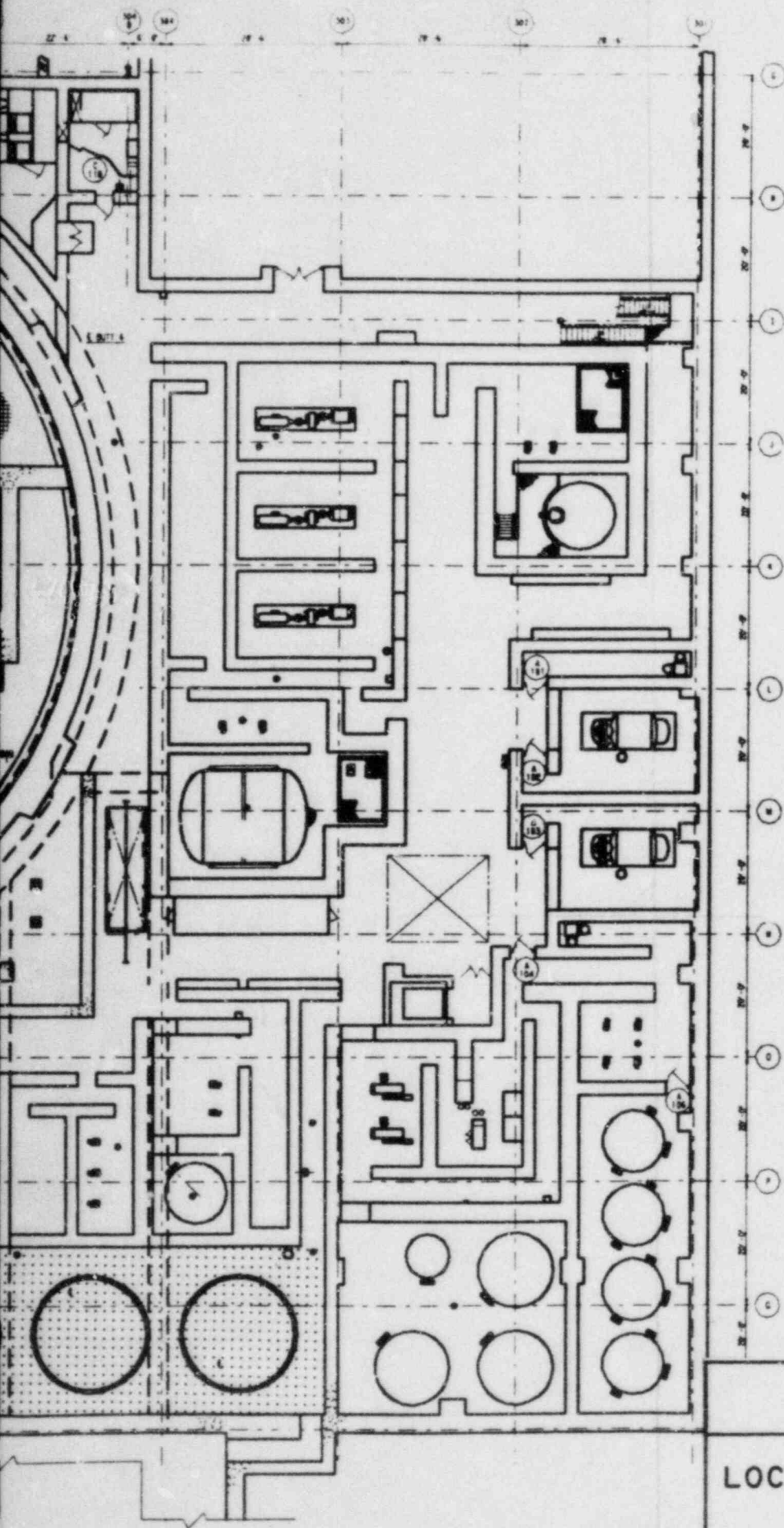
= AFFECTED AREA



PLAN 8 ELEV. 89'-0"
HEAT EXCHANGER ROOM

(1)

FOR CONTINUATION SEE PLAN 9



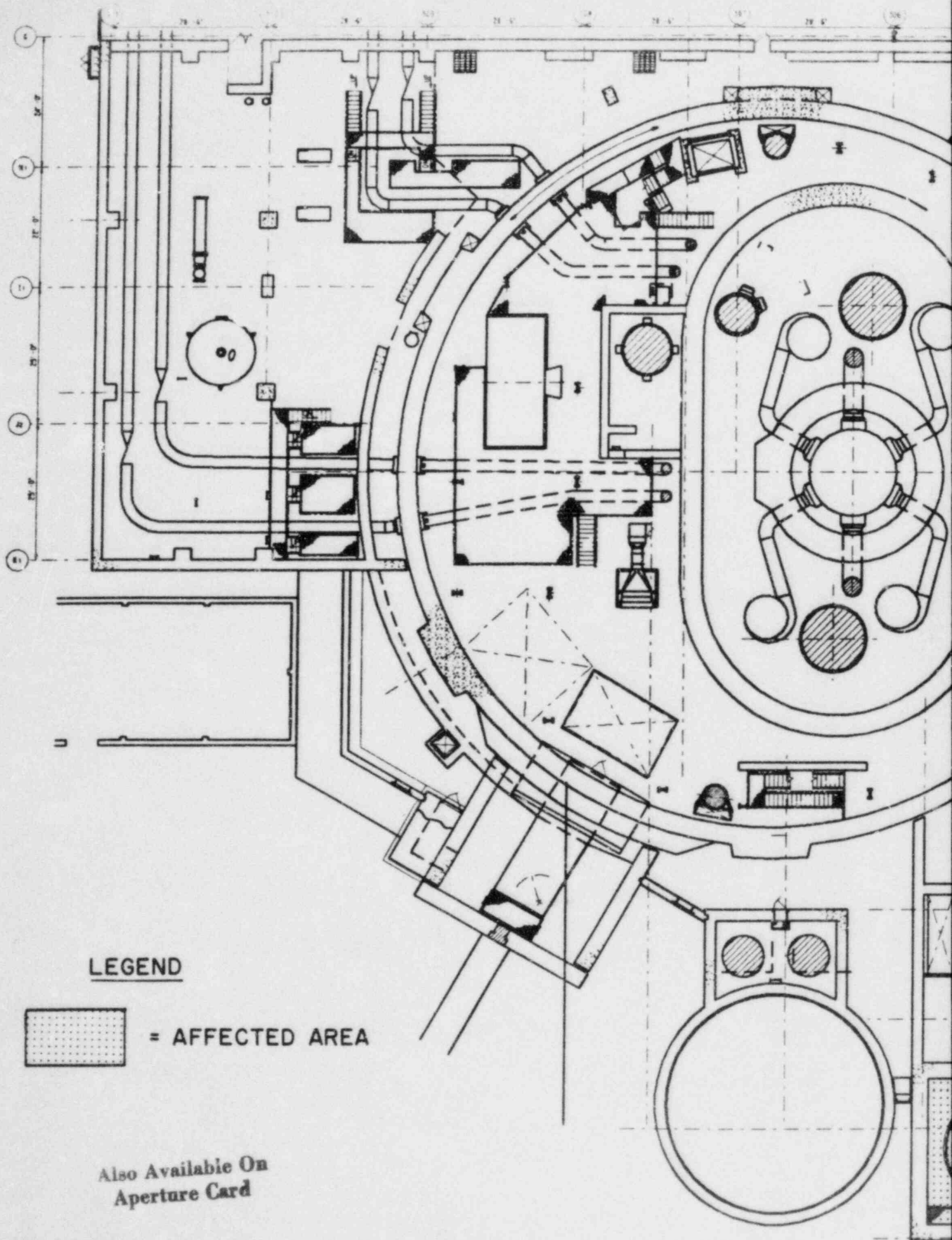
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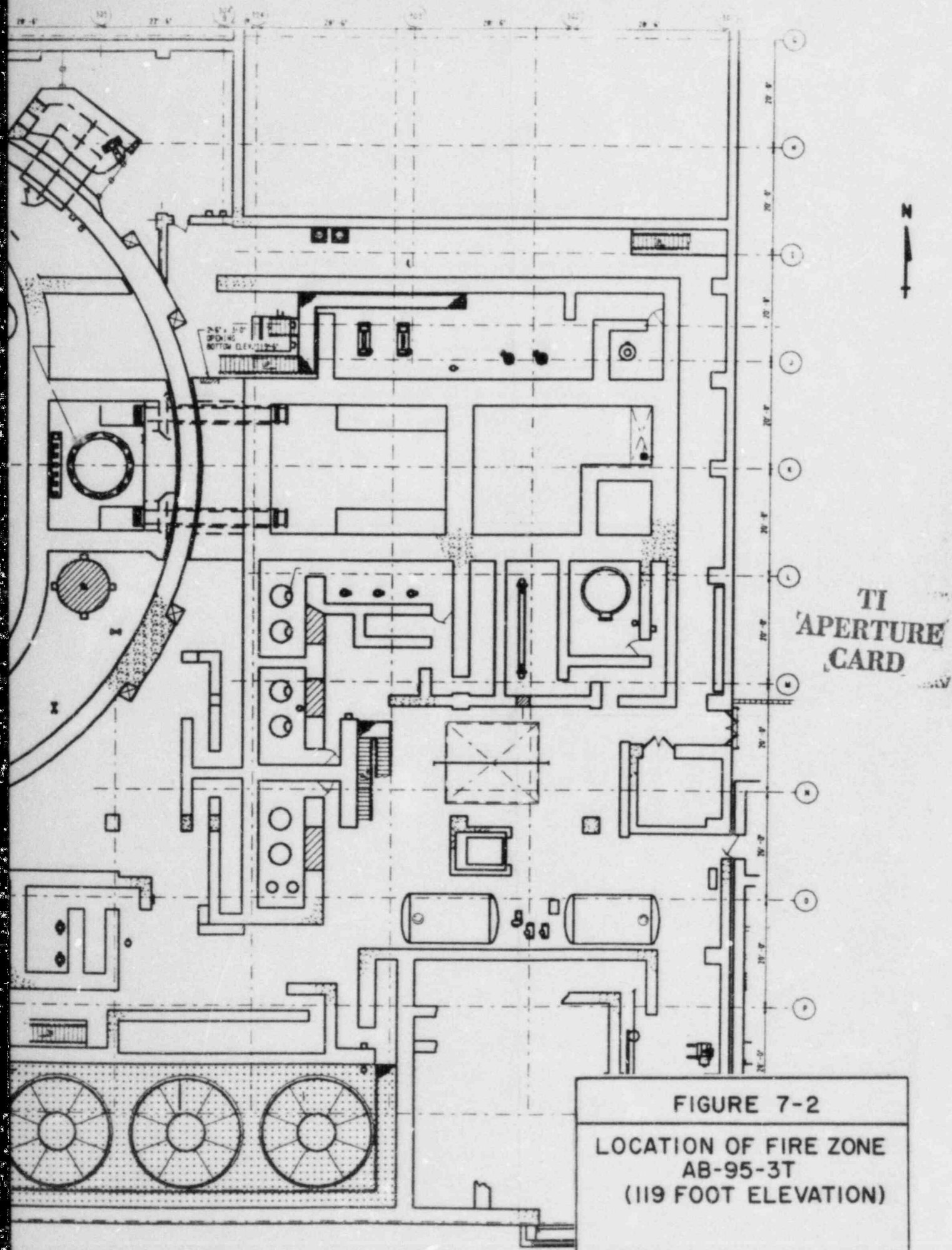
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FIGURE 7-1

LOCATION OF FIRE ZONE
AB-95-3T
(95 FOOT ELEVATION)





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SUPPLEMENTAL INFORMATION FOR EXEMPTION REQUEST #7

1. FIRE ZONE CHARACTERISTICS

FIRE ZONE AB-95-3T
REACTOR COOLANT BLEED TANK ROOM
ELEVATION: 95 AND 119 Ft., AUXILIARY BUILDING
SIZE: 2222 Sq. Ft.

Combustibles:

Cable Insulation	3,307 lbs.
Fire Loading	12,714 BTU/sq.ft.
Heat Rate	E/1200°F
ASTM E-119 Equivalent Fire Severity	10 min.

Fire Protection

Hose Stations (Number)	2 (in adjacent zones)
Portable Extinguishers (Type/Number)	ABC/2 (in adjacent zones)

2. ANALYSIS

The maximum severity fire in fire zone AB-95-3T is a fast burning fire that could create an ultimate room temperature of 1200°F. This fire is conservatively based on the simultaneous combustion of all combustible materials in the zone.

This zone is a high radiation area in the plant (Reactor Coolant Bleed Tank Room) and as such is isolated from other areas by concrete shield walls and offset doorways. The shield walls are of equivalent construction to a 3-hour fire barrier, and the offset doorways provide an effective barrier against the spread, or the direct effects of a fire, beyond the fire zone.

The only combustible material in fire zone AB-95-3T is cable insulation from cables in three trays which pass through part of the zone on the 95 foot elevation. The cable tray penetrations will be sealed.

The low combustible loading and configuration of this fire zone combine to provide an effective barrier to the spread of fire between elevations (fire areas) in the Auxiliary Building.

EXEMPTION REQUEST #8

A. EXEMPTION REQUEST

Florida Power Corporation (FPC) requests exemption from certain technical requirements of 10 CFR 50, Appendix R, Section III.G.2, at Crystal River Unit 3 (CR-3). Specifically, exemption is requested from the requirement to provide a 3-hour rated fire barrier to separate fire areas containing redundant safe shutdown equipment. The fire areas are AB-95-3, the 95 foot elevation of the Auxiliary Building, and AB-119-6, the 119 foot elevation of the Auxiliary Building. This exemption request applies only to the separation of the 95 foot elevation from the 119 foot elevation in the elevator shaft, (Fire Area AB-95-2) located in the middle of the Auxiliary Building.

B. REDUNDANT SAFE SHUTDOWN COMPONENTS/CIRCUITS IN FIRE AREA AB-95-2.

Fire areas AB-95-3 (95 foot elevation of the Auxiliary Building) and AB-119-6 (119 foot elevation of the Auxiliary Building) contain components or circuits for most safe shutdown systems in the plant. However, fire area AB-95-2 contains no safe shutdown components or circuits.

C. PHYSICAL DESCRIPTION OF AFFECTED AREA

Fire zone AB-95-2 is an elevator shaft located in the middle of the Auxiliary Building (see Figures 8-1 and 8-2). There is no barrier separating the 95 foot elevation and the 119 foot elevation in the elevator shaft. The fire area is bounded by reinforced concrete walls on the north, south, and west sides on both elevations. Equivalent 1½-hour fire rated elevator doors, form the east boundary of the fire area on both elevations.

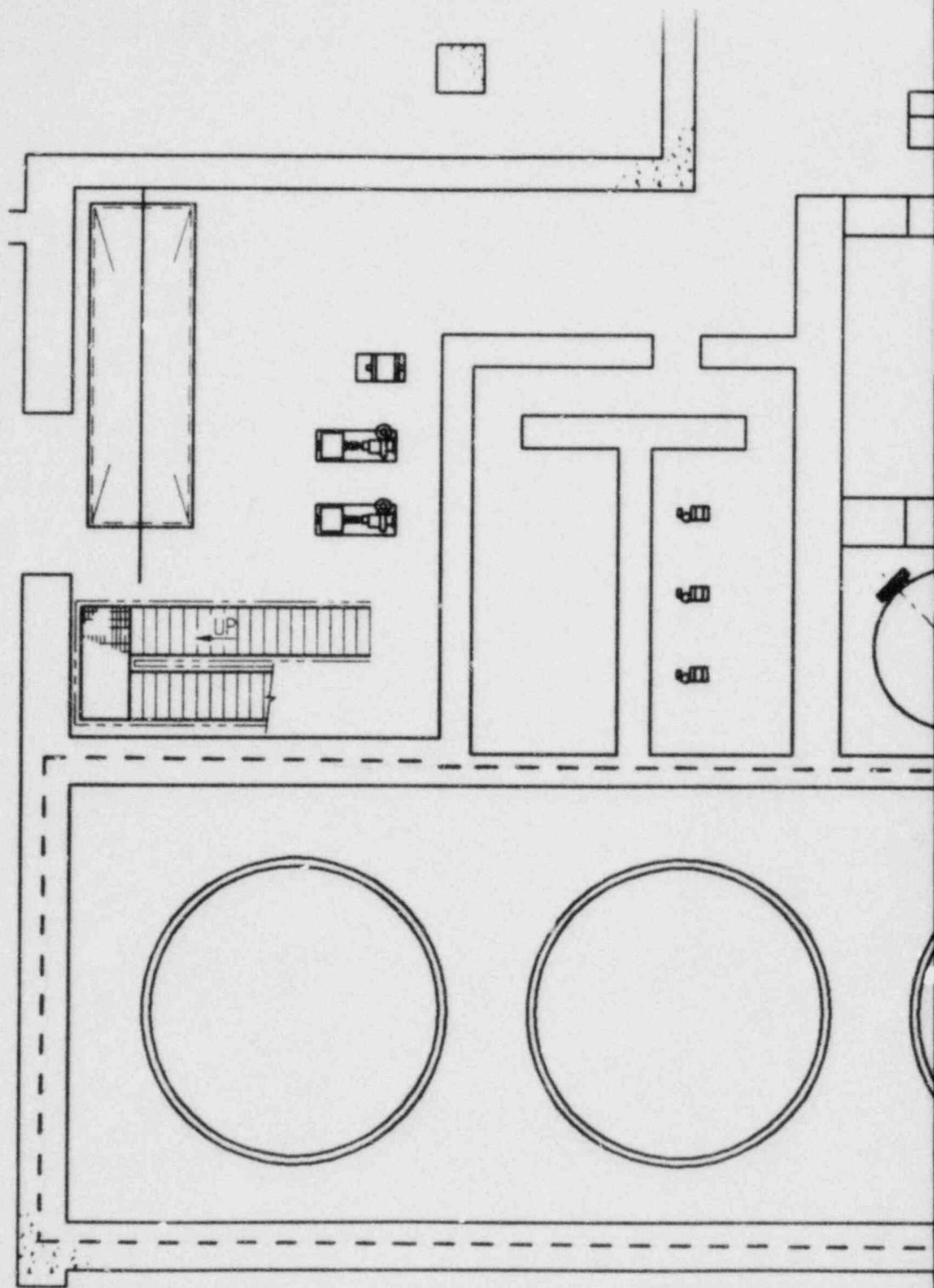
D. JUSTIFICATION FOR PROPOSED EXEMPTION

The following information shows that the level of protection provided will ensure that at least one train of safe shutdown components will remain free of fire damage in either of the fire areas AB-95-3 and AB-119-6.

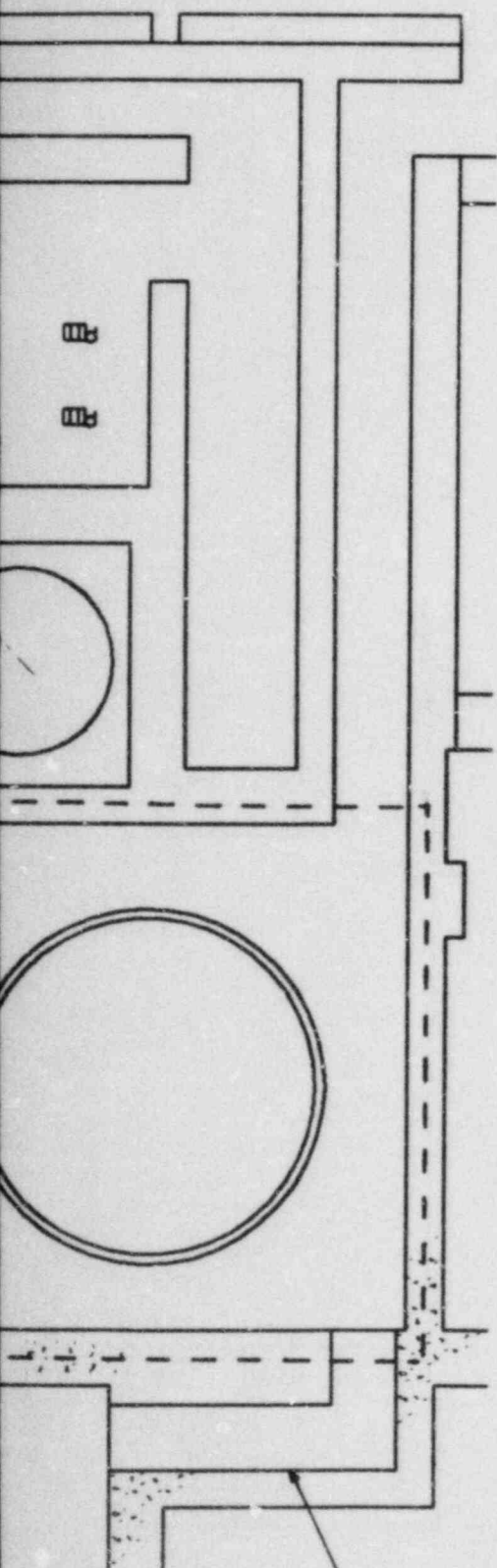
- o There are no safe shutdown components or circuits located in fire area AB-95-2 on either elevation.
- o A wet pipe sprinkler system designed to meet the objectives of NFPA Standard No. 13 (1983) for an Ordinary Hazard, Group II Occupancy Classification will be provided in the surrounding fire zones, which contain safe shutdown components or circuits.
- o Automatic ionization detectors, which alarm locally and in the continuously manned Control Room, are installed in surrounding fire zones, which contain safe shutdown components or circuits.
- o At least one train of redundant safe shutdown circuits in surrounding fire zones will be provided with 1-hour rated fire barriers.
- o The fire loading for fire area AB-95-2 is negligible.
- o Access to the elevator shaft is available from multiple points to allow choice of the most effective fire fighting strategy.
- o Hose stations and portable extinguishers are available in the vicinity of the elevator shaft.

E. CONCLUSION

The installed and planned fire protection features, (automatic fire suppression, ionization detectors, 1-hour rated cable enclosures, hose stations, and portable extinguishers) combined with the existing configuration and low combustible loading, provide reasonable assurance that one train of safe shutdown components and circuits, in either fire area, will remain free of fire damage.



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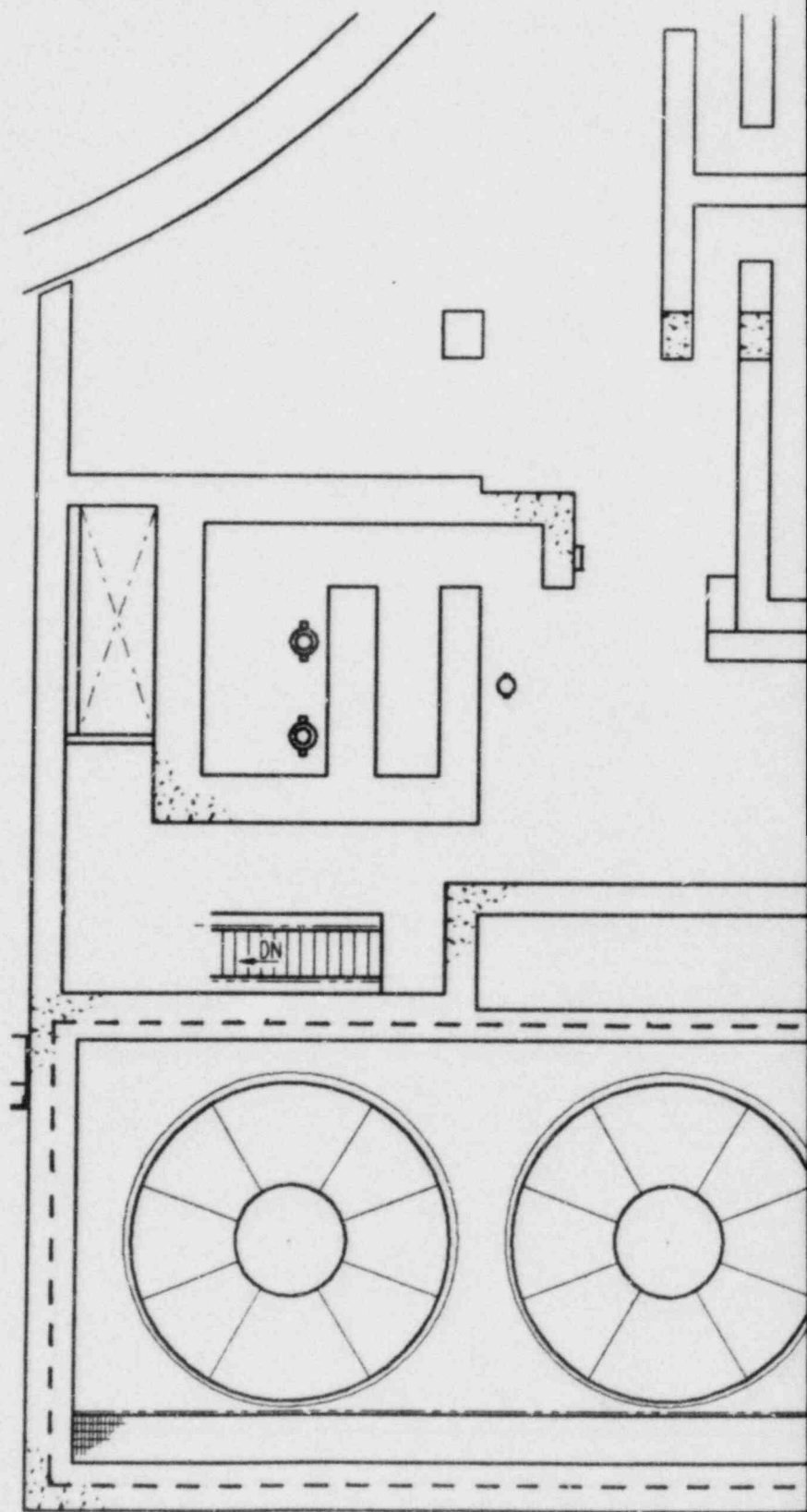
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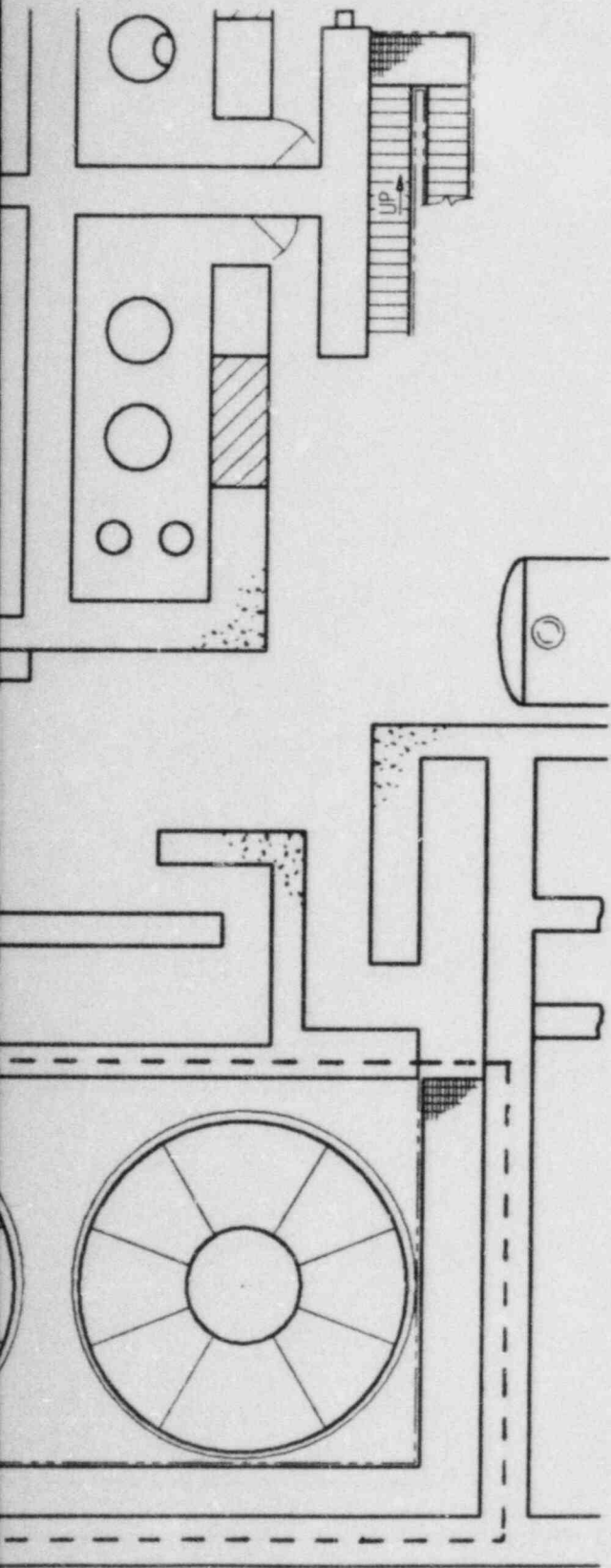
FIGURE 7-3

ARRANGEMENT OF FIRE ZONE
AB-95-3T
(95 FOOT ELEVATION)

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20'-0"



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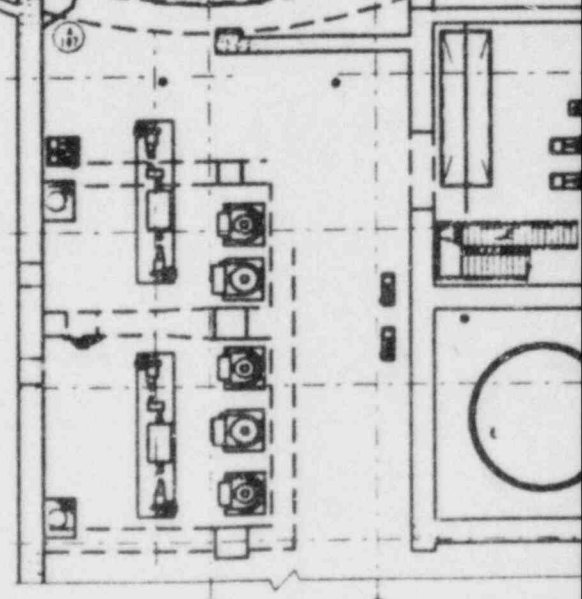
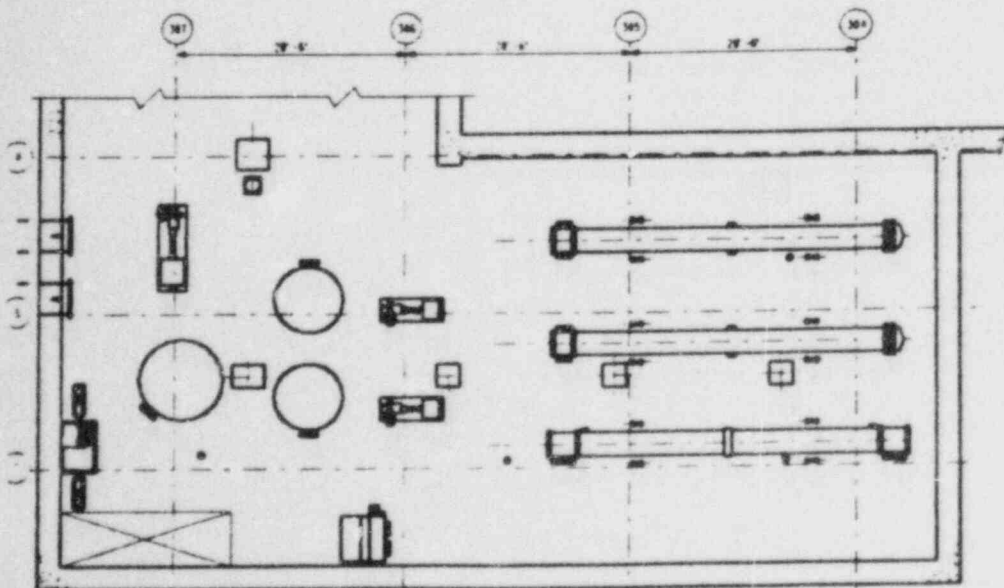
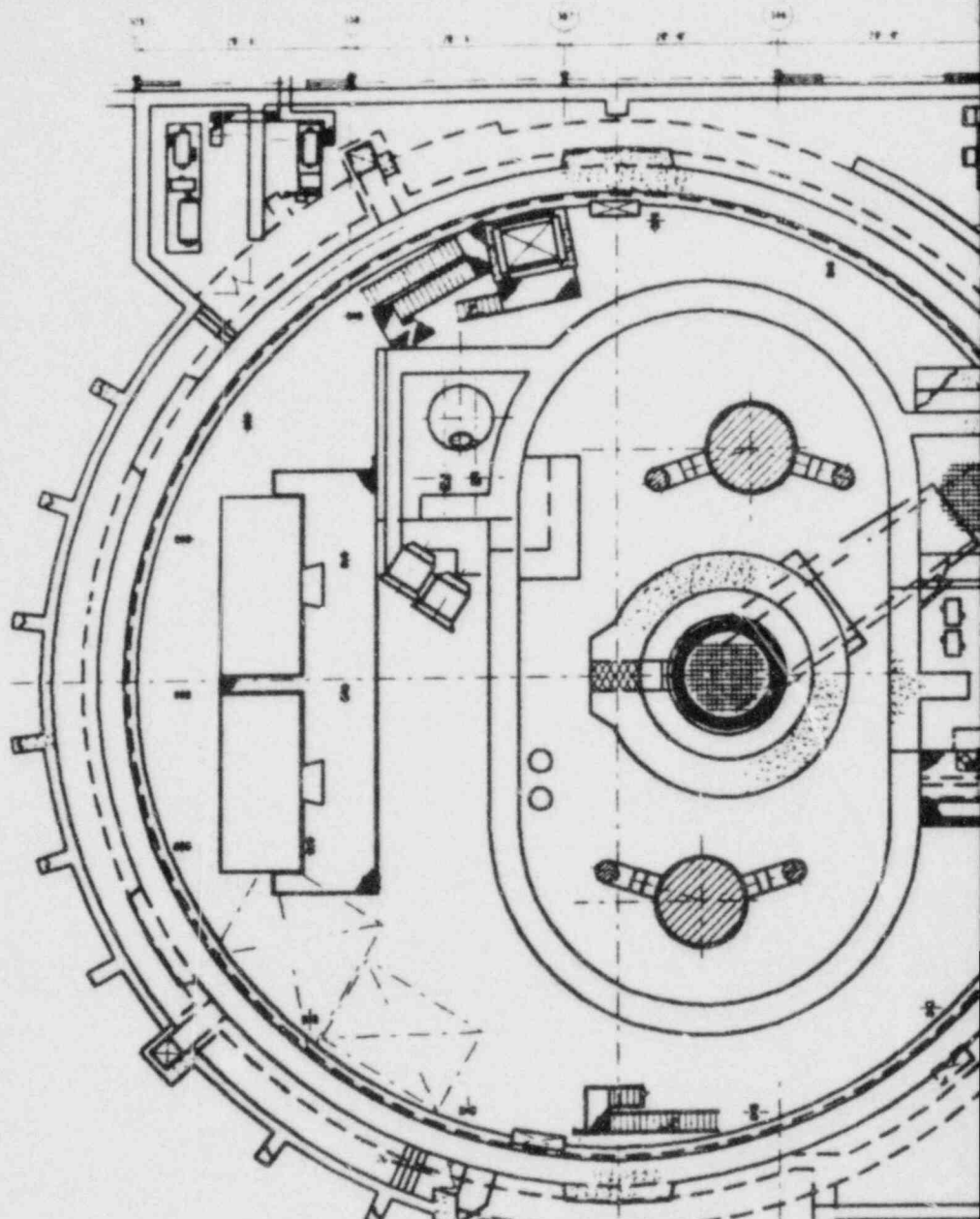
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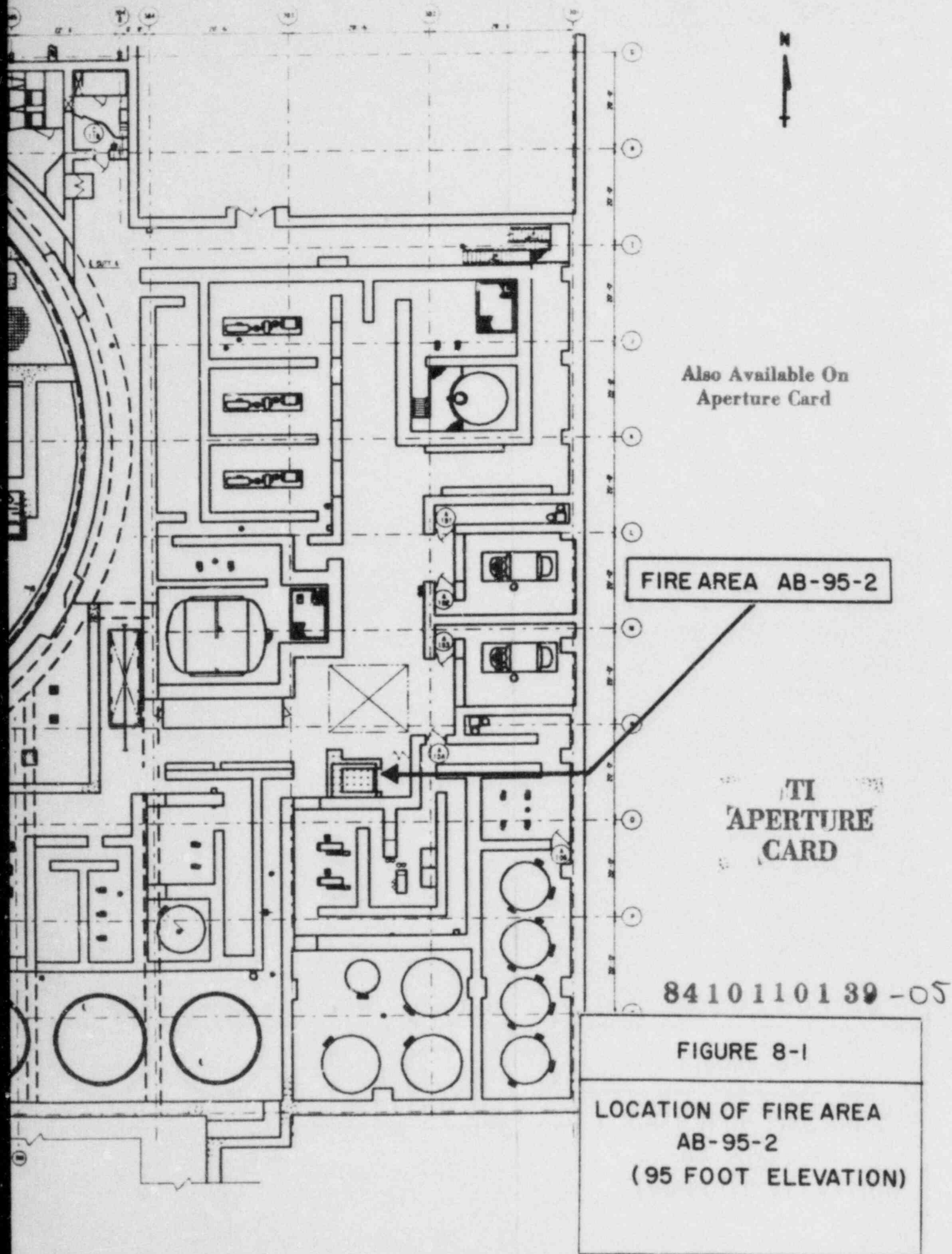
FIGURE 7-4

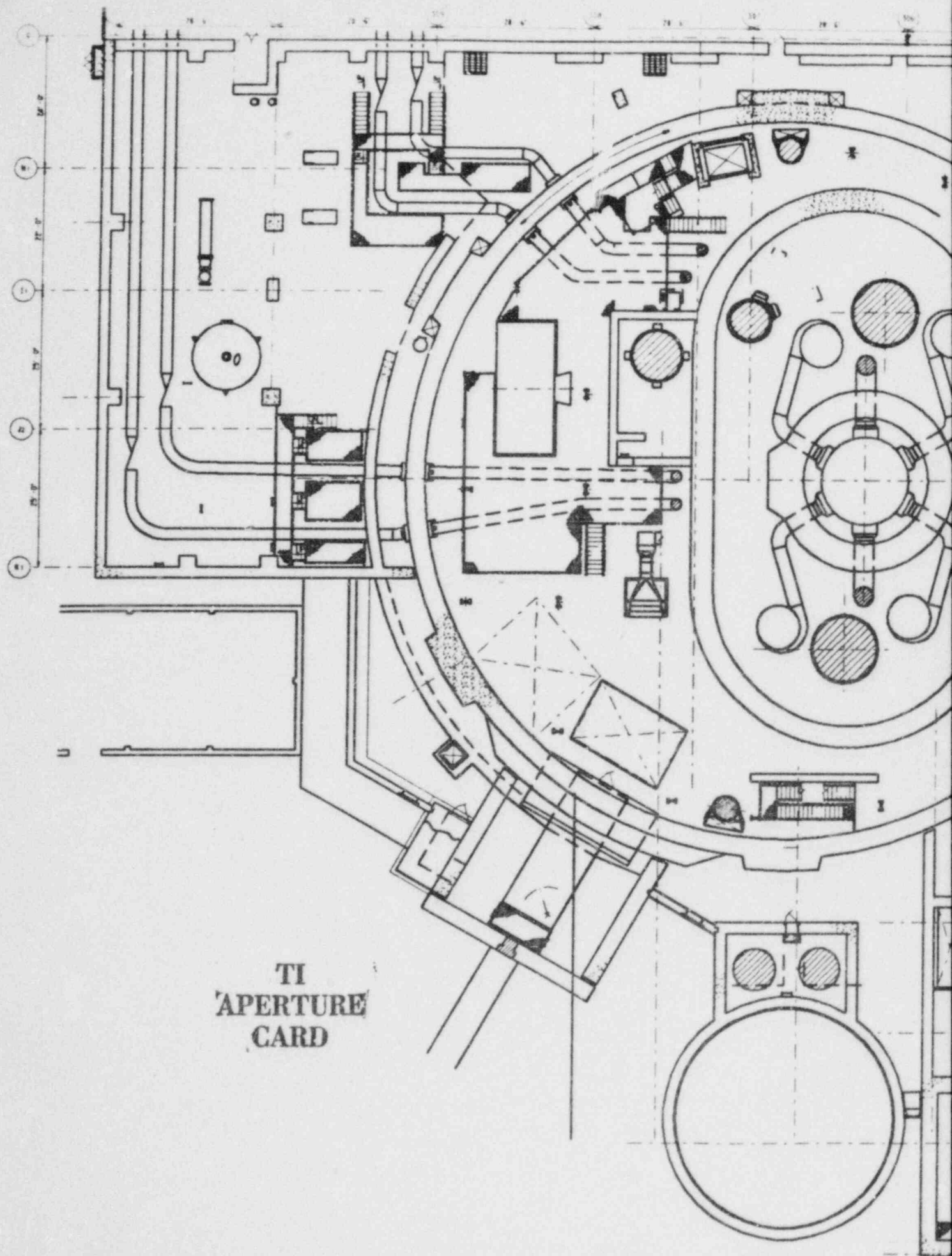
ARRANGEMENT OF FIRE ZONE
AB-95-3T
(119 FOOT ELEVATION)



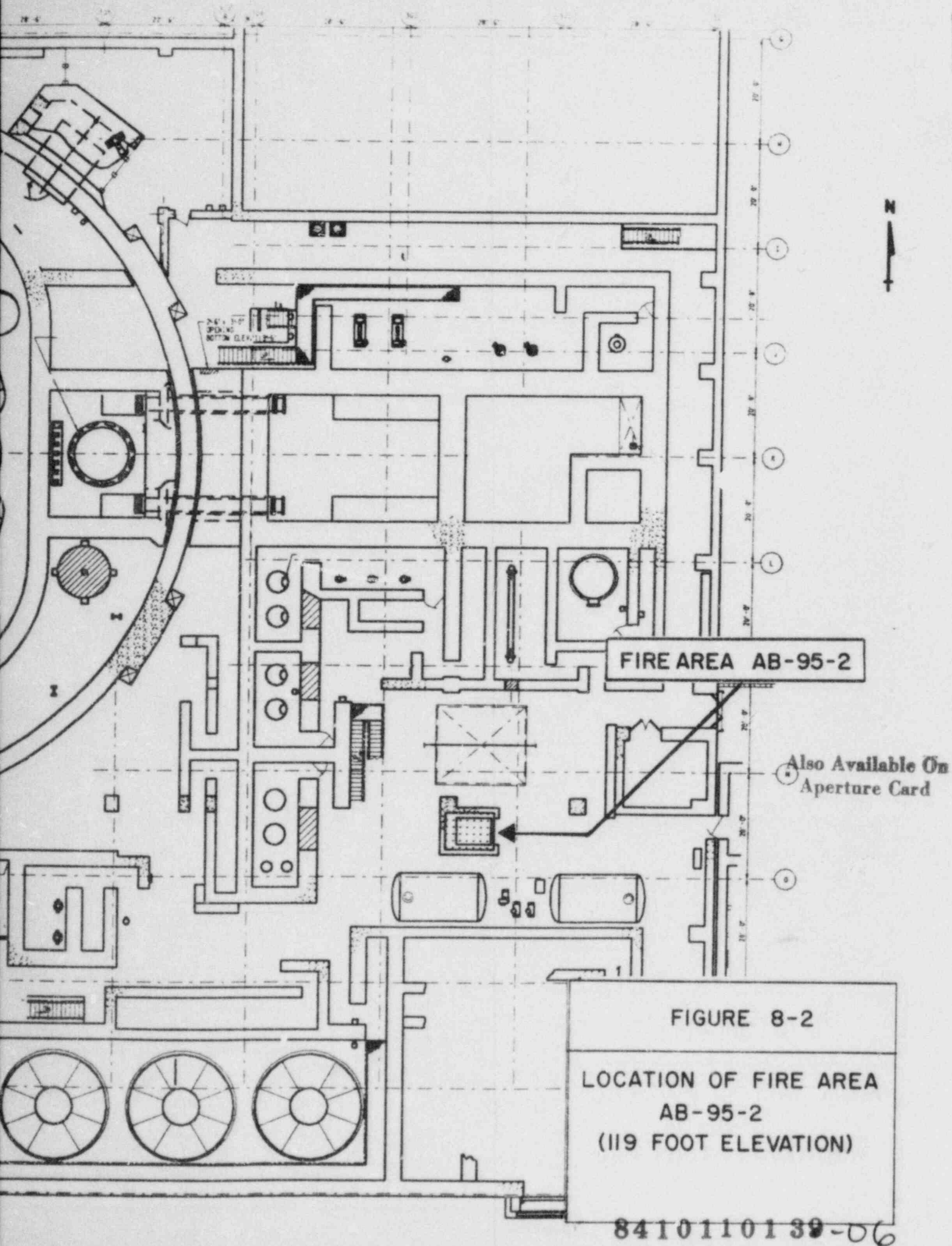
PLAN B ELEV. 80' 0"

FOR CONTINUATION SEE PLAN B





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SUPPLEMENTAL INFORMATION FOR EXEMPTION REQUEST #8

1. FIRE AREA CHARACTERISTICS

FIRE AREA AB-95-2
AUXILIARY BUILDING ELEVATOR SHAFT
ELEVATION: 95 AND 119 Ft., AUXILIARY BUILDING
SIZE: 36 Sq. Ft.

Combustibles:

Negligible

Fire Protection

Hose Stations (Number) 2 (in adjacent zones)

Portable Extinguishers (Type/Number) ABC/2 (in adjacent zones)

2. ANALYSIS

The equivalent 1-1/2-hour rated fire elevator doors combined with the reinforced concrete walls surrounding the elevator shaft provide an effective barrier to keep a fire from spreading into the elevator shaft. The combustible loading in the shaft is negligible and will not support a fire. However, should the fire be maintained, the other 1-1/2-hour rated fire elevator door and reinforced concrete walls surrounding the elevator shaft will provide an effective barrier to keep the fire from spreading from the elevator shaft into the other fire area. Sprinklers to be installed in the surrounding fire zones, at both elevations, will also help limit fire propagation from the elevator shaft to surrounding fire zones.

Each of the fire zones immediately surrounding the elevator shaft is equipped with ionization type smoke detectors, which alarm locally and in the continuously manned Control Room, to provide early warning of an incipient fire. Manual fire fighting equipment is located in the immediately surrounding zones. These zones are accessible through multiple routes to facilitate manual fire fighting.

Construction of a rated wall around the elevator shaft would not significantly increase the level of protection provided by existing systems when combined with the proposed modifications.

EXEMPTION REQUEST #9

A. EXEMPTION REQUEST

Florida Power Corporation (FPC) requests exemption from certain technical requirements of 10 CFR 50, Appendix R, Section III.G.2, at Crystal River Unit 3 (CR-3). Specifically, exemption is requested from the requirement to separate redundant safe shutdown components and circuits, located in the same fire area, with a rated fire barrier. This exemption applies to the separation of Reactor Building penetration assemblies in Quadrant I from redundant penetration assemblies in Quadrant IV in fire areas IB-119-201. The fire area is the 119 foot elevation of the Intermediate Building. The fire area location is shown in Figure 9-1.

B. REDUNDANT SAFE SHUTDOWN COMPONENT/CIRCUITS IN FIRE AREA IB-119-201

The redundant components with circuits which utilize these penetration assemblies are listed below. Penetration locations are shown in Figure 9-2.

<u>Component</u>	<u>Train</u>	<u>Penetration</u>	<u>Quadrant</u>
Air Handling Fan 1B	B	126	I
Air Handling Fan 1A	A	412	IV

C. PHYSICAL DESCRIPTION OF AFFECTED AREA

Fire area IB-119-201 is the upper elevation of the Intermediate Building. This fire area is bounded by the following 3-hour rated walls:

North	Turbine Building
East	Control Complex and Auxiliary Building
South	Reactor Building and Exterior Wall
West	Exterior Wall

The ceiling of this area is formed by the Intermediate Building roof and has ventilation openings to the outside. The floor of this area is partially basemat and partially over fire area IB-95-200.

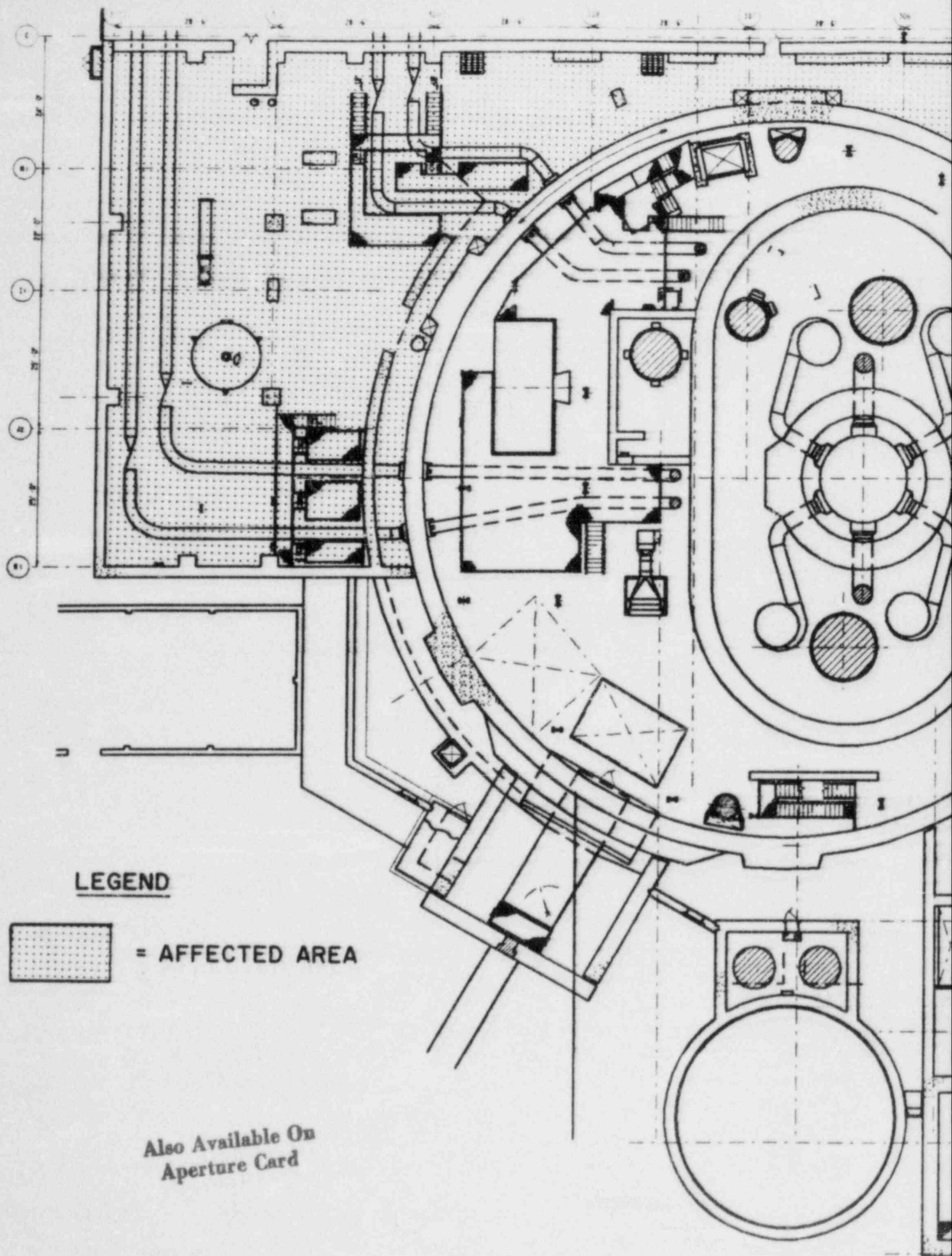
D. JUSTIFICATION FOR PROPOSED EXEMPTION

The following information shows that the level of protection provided will ensure that at least one train of safe shutdown circuits and penetration assemblies will remain free of fire damage from a fire anywhere in this fire area.

- o A wet pipe sprinkler system designed to meet the objectives of NFPA Standard No. 13 (1983) for an Ordinary Hazard, Group II Occupancy Classification will be provided in this area.
- o Automatic ionization detectors, which alarm locally and in the continuously manned Control Room, are installed in this area providing early warning of fire to aid in manual fire fighting activities.
- o One train of functionally redundant cables and penetration assemblies will be enclosed in approved 1-hour rated barriers where redundant circuits exist within the same quadrant.
- o The fire loading for fire area IB-119-201 corresponds to a conservatively estimated fire severity, on the ASTM E-119 time-temperature curve, of 1-hour.
- o Access to this fire area is available from multiple points to allow choice of the most effective fire fighting strategy.
- o Hose stations and portable fire extinguishers are available for use in this fire area.

E. CONCLUSION

The installed and planned fire protection features, (ionization detectors, automatic sprinklers, 1-hour cable and penetration assembly wraps, manual hose stations, and portable fire extinguishers) combined with existing physical separation, provides reasonable assurance that one train of safe shutdown circuits and penetration assemblies in this fire area will remain free of fire damage.



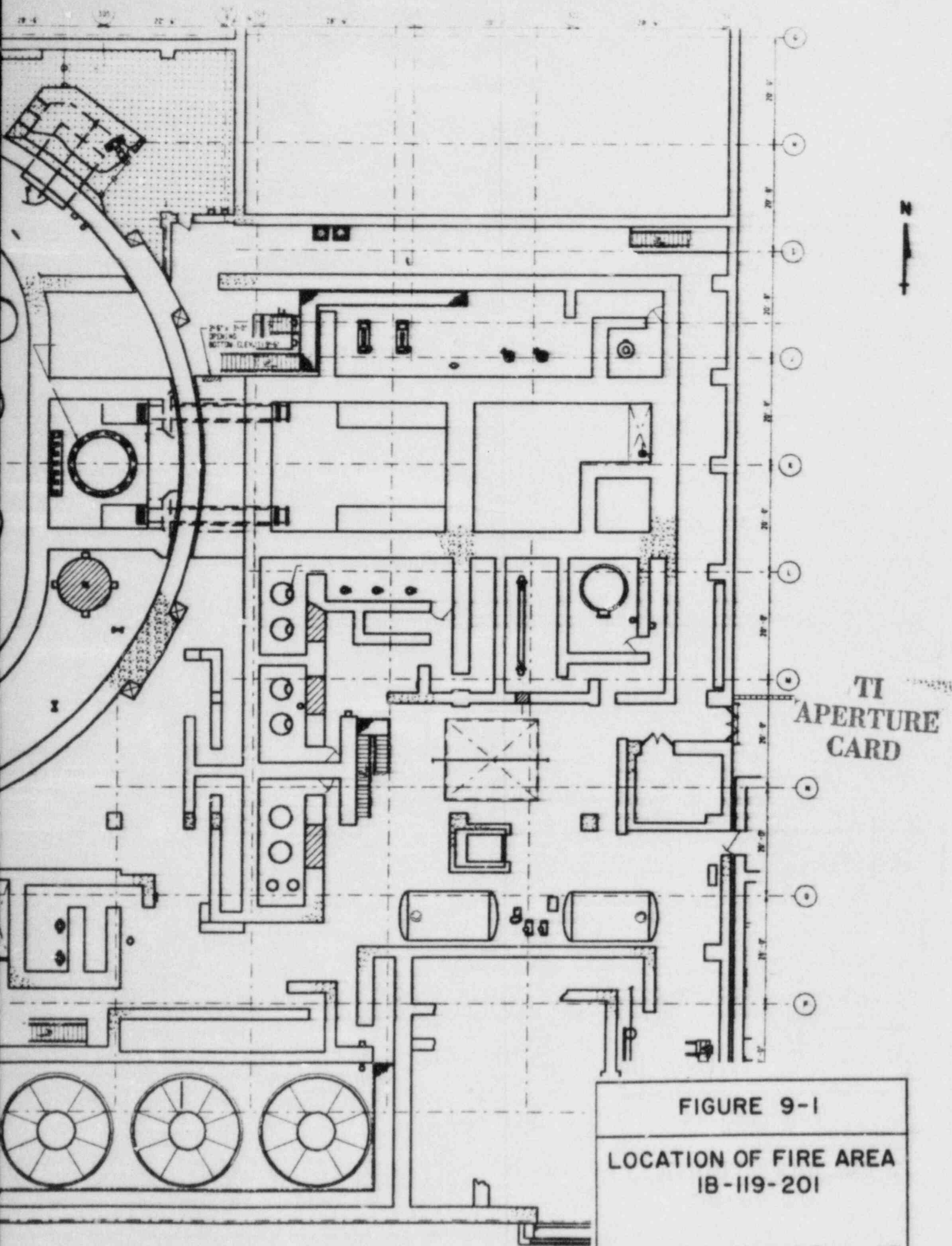
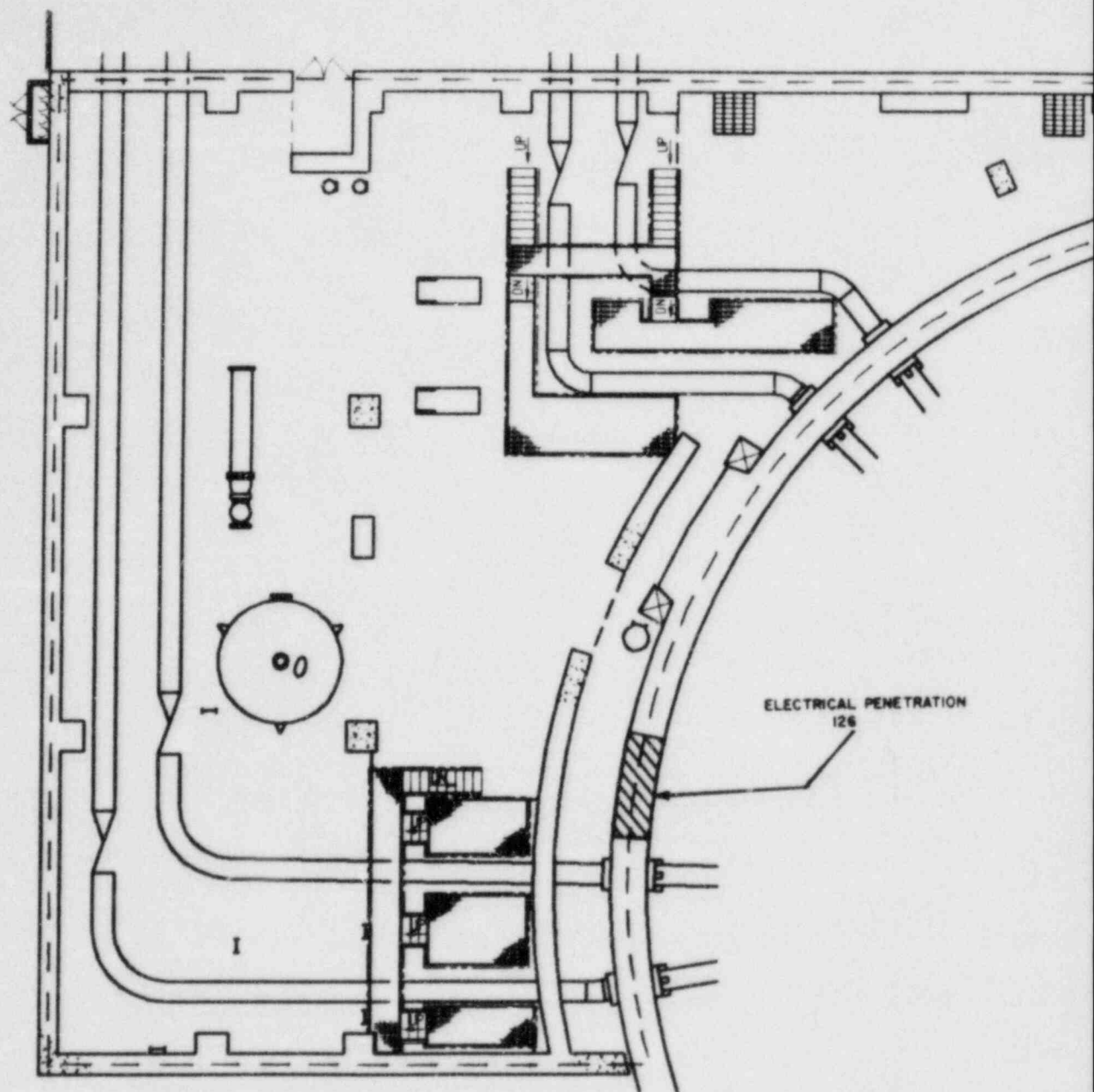


FIGURE 9-1

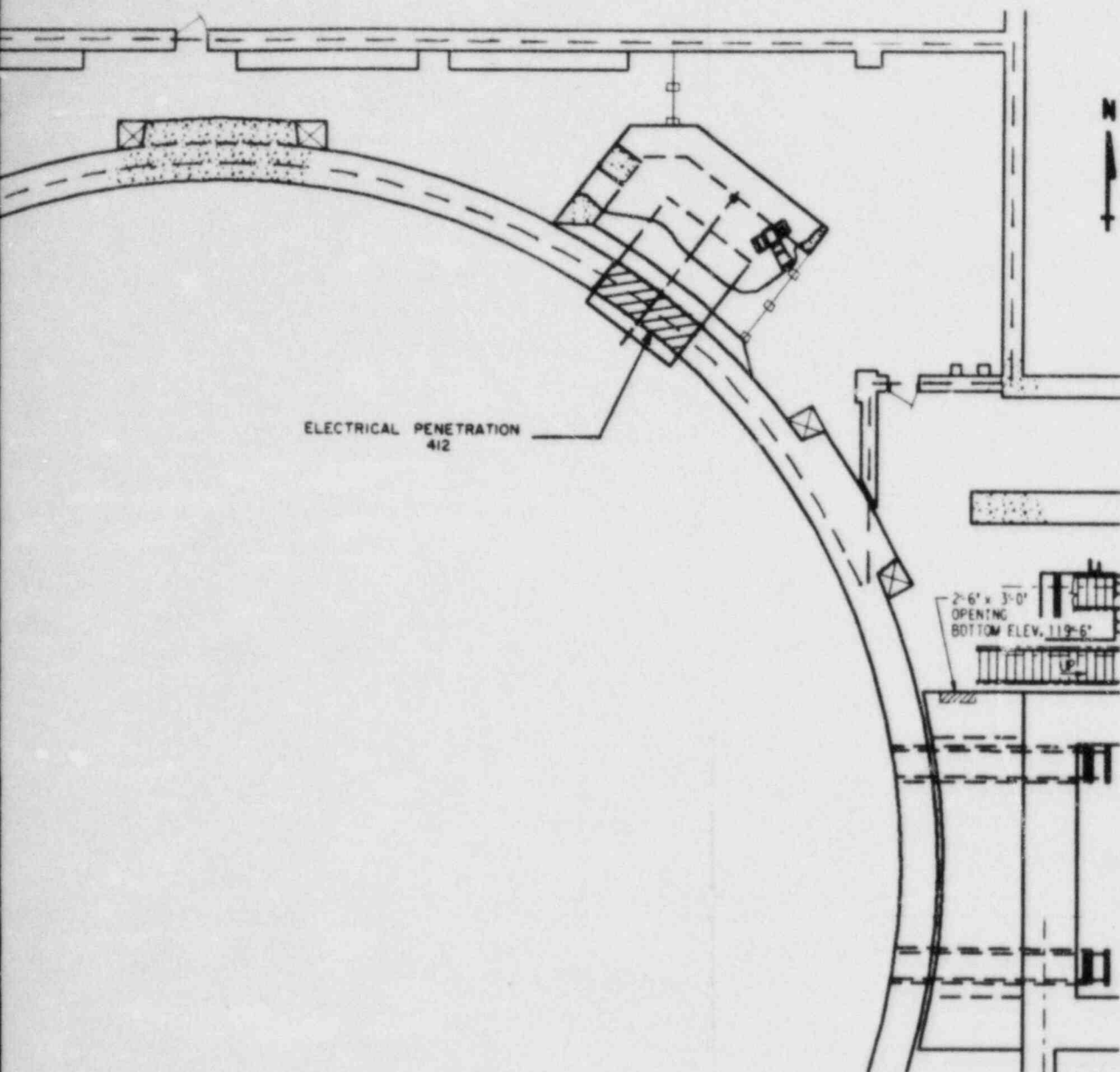
LOCATION OF FIRE AREA
IB-119-201

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FIGURE 9-2

ARRANGEMENT OF FIRE AREA
IB-119-201

SUPPLEMENTAL INFORMATION FOR EXEMPTION REQUEST #9

1. FIRE AREA CHARACTERISTICS

FIRE AREA IB-119-201
UPPER LEVEL-INTERMEDIATE BUILDING
ELEVATION: 119 Ft., INTERMEDIATE BUILDING
SIZE: 7959 Sq. Ft.

Combustibles:

Oil and Grease	1 gal.
Cable Insulation	69,632 lbs.
Class A	3,075 lbs.
Plastics	604 lbs.

Fire Loading	79,399 BTU/sq.ft.
Heat Rate	E/1725°F
ASTM E-119 Equivalent Fire Severity	60 min.

Fire Protection

Suppression (Type)	Wet Pipe (planned)
Detection (Type)	Ionization
Hose Stations (Number)	2
Portable Extinguishers (Type/Number)	ABC/2 (plus 2 in adjacent zones)

2. ANALYSIS

The maximum severity fire in this fire area is a fast burning fire that could create an ultimate room temperature of 1725°F. This fire is conservatively based on the simultaneous combustion of all combustible material in the area. In actuality, a hot gas layer resulting from a fire in this area would be dissipated by release through open roof vents.

The fire area is equipped with ionization smoke detectors which alarm locally and in the Control Room to provide warning of an incipient fire. The entire fire area will be provided with a wet pipe sprinkler system. Manual fire fighting equipment is available in and immediately adjacent to the fire area, and multiple access routes are available into the area to facilitate manual fire fighting activities.

The wide separation of redundant penetration areas, combined with 1-hour rated cable and penetration assembly enclosures and sprinkler system installation, provide adequate assurance that one train of redundant safe shutdown circuits will remain free of fire damage.

EXEMPTION REQUEST #10

A. EXEMPTION REQUEST

Florida Power Corporation (FPC) requests exemption from certain technical requirements of 10 CFR 50, Appendix R, Section III.G.2, at Crystal River Unit 3 (CR-3). Specifically, exemption is requested from the requirement to provide a 3-hour rated fire barrier to separate fire areas containing redundant safe shutdown equipment. The fire areas are IB-95-200, the 95 foot elevation of the Intermediate Building, and IB-119-201, the 119 foot elevation of the Intermediate Building. This exemption applies to separation of the two fire areas at a number of unsealed ceiling/floor penetrations. (See Figures 10-1 and 10-3 for Fire Area Locations)

B. REDUNDANT SAFE SHUTDOWN COMPONENTS/CIRCUITS IN FIRE AREAS IB-95-200 AND IB-119-201

The following is a list of functionally redundant components or circuits separated by the boundary between fire areas IB-95-200 and IB-119-201.

<u>Circuit</u>	<u>Train</u>
Main Steam Isolation Valve Solenoid Operators (MSIV-411, 412, 413, 414)	A
Main Steam Isolation Valve Solenoid Operators (MSIV-411, 412, 413, 414)	B
Emergency Feedwater Valves (EFV-14*, 33*, 57, 58)	A
Emergency Feedwater Valves (EFV-11*, 32*, 55, 56)	B

*Both A and B Power Supplied.

<u>Circuit</u>	<u>Train</u>
Reactor Coolant Level and Temperature Instruments (RC-1 -LT1, RC-2-TE1)	A
Reactor Coolant Level and Temperature Instruments (RC-1 -LT3, RC-2 -TE2)	B
Steam Generator Level Instruments (SP-20 24, 28, 32, -dPT)	A
Steam Generator Level Instruments (SP-19, 23, 27, 31, -dPT)	B

C. PHYSICAL DESCRIPTION OF AFFECTED AREA

Fire Area IB-95-200

Fire area IB-95-200 is the lower elevation of the Intermediate Building. There are ceiling penetrations of four types in this area that open to the fire area above.

1. Unsealed piping penetrations
2. Unsealed floor gratings
3. Unsealed tendon stressing fitting openings and
4. Floor gratings with 3-hour rated dampers.

The fire area is bounded by the following 3-hour rated walls:

North	Turbine Building
East	Auxiliary Building
South	Reactor Building
West	Exterior Wall (below grade)

Fire Area IB-119-201

Fire area IB-119-201 is the upper elevation of the Intermediate Building. This fire area is bounded by the following 3-hour rated walls:

North	Turbine Building
East	Control Complex and Auxiliary Building
South	Reactor Building and Exterior Wall
West	Exterior Wall

The ceiling of this fire area is formed by the Intermediate Building roof and contains ventilation openings to the outside. The floor of this fire area is partially basemat and partially ceiling over fire area IB-95-200. (See Figures 10-2 and 10-4 for arrangement of Fire Areas IB-95-200 and IB-119-201).

D. JUSTIFICATION FOR PROPOSED EXEMPTION

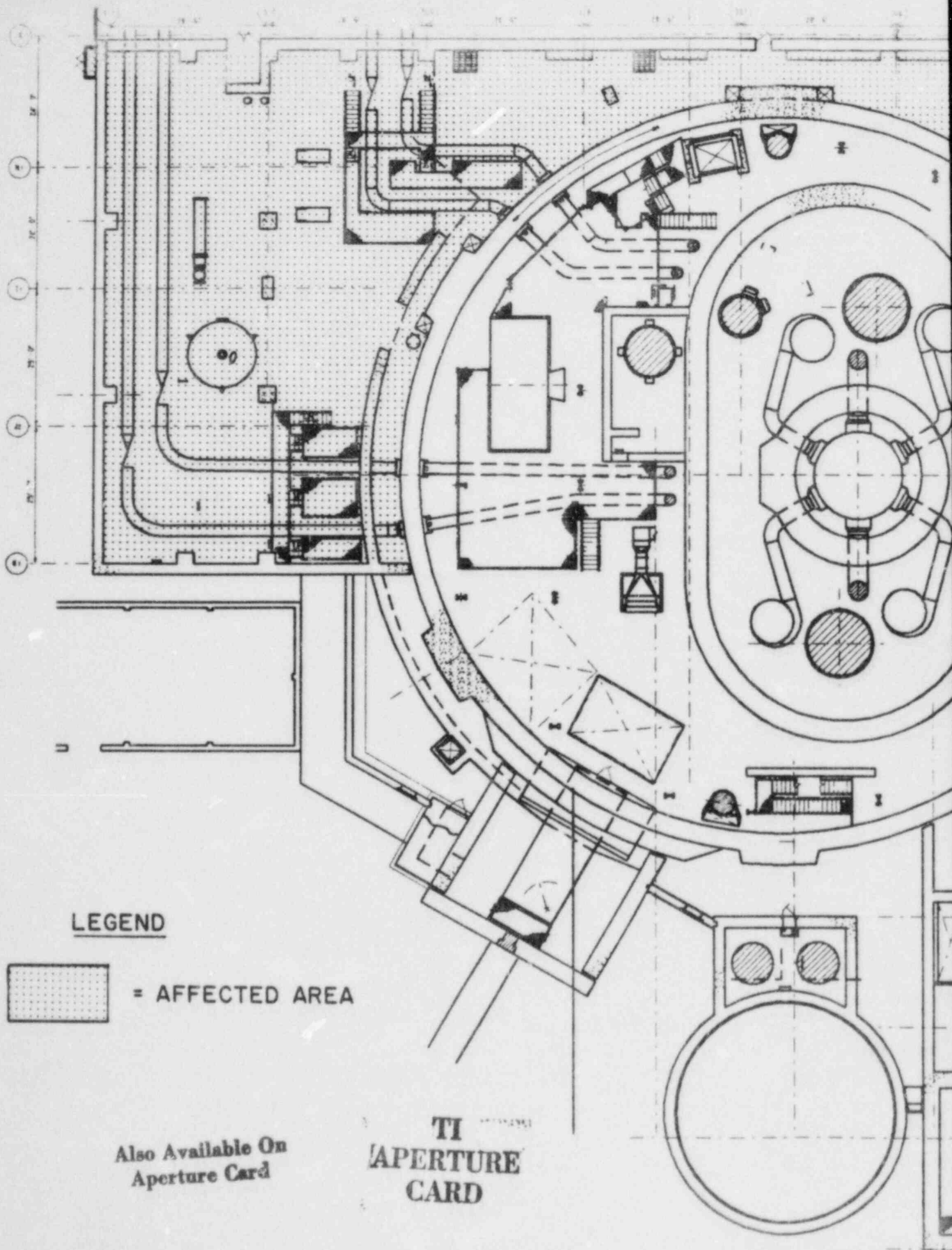
The following information shows that the level of protection provided will ensure that at least one train of safe shutdown components and circuits will remain free of fire damage in either of these fire areas.

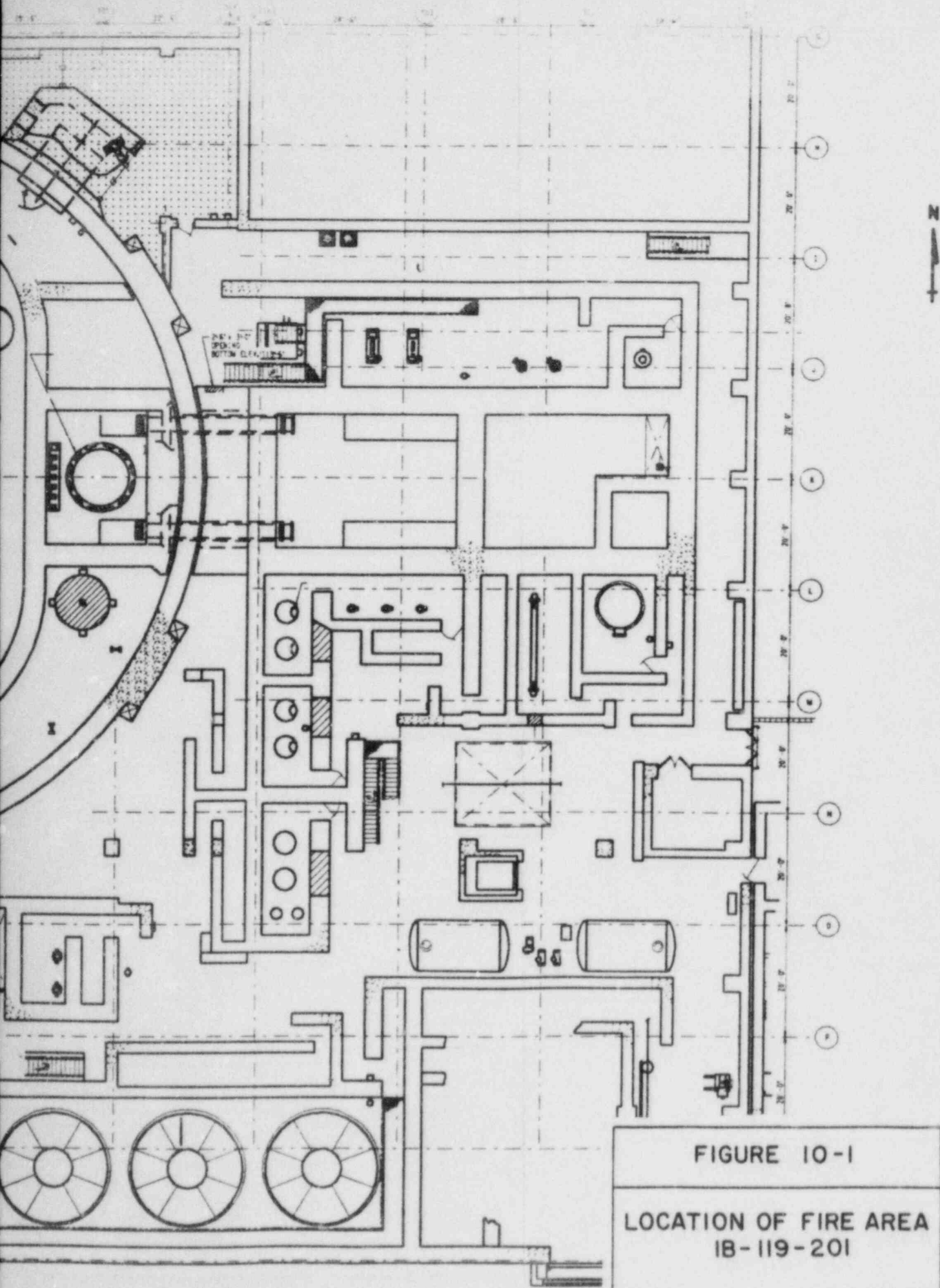
- o A wet pipe sprinkler system designed to meet the objectives of NFPA Standard No. 13 (1983) for an Ordinary Hazard, Group II Occupancy Classification will be provided in each of these fire areas.

- o Automatic ionization detectors, which alarm locally and in the continuously manned Control Room, are installed in both fire areas providing early warning of fire to aid manual fire fighting activities.
- o One train of functionally redundant cables in each area will be enclosed in approved 1-hour rated barriers.
- o The fire loading for fire area IB-119-201 (the upper elevation) corresponds to a conservatively estimated fire severity, on the ASTM E-119 time-temperature curve, of 60 minutes.
- o The fire loading for fire area IB-95-200 (the lower elevation) corresponds to a conservatively estimated fire severity, on the ASTM E-119 time temperature curve, of 25 minutes.
- o Access to each fire area is available from multiple points to allow choice of the most effective fire fighting strategy.
- o Manual hose stations and portable extinguishers are available in or adjacent to each fire area.

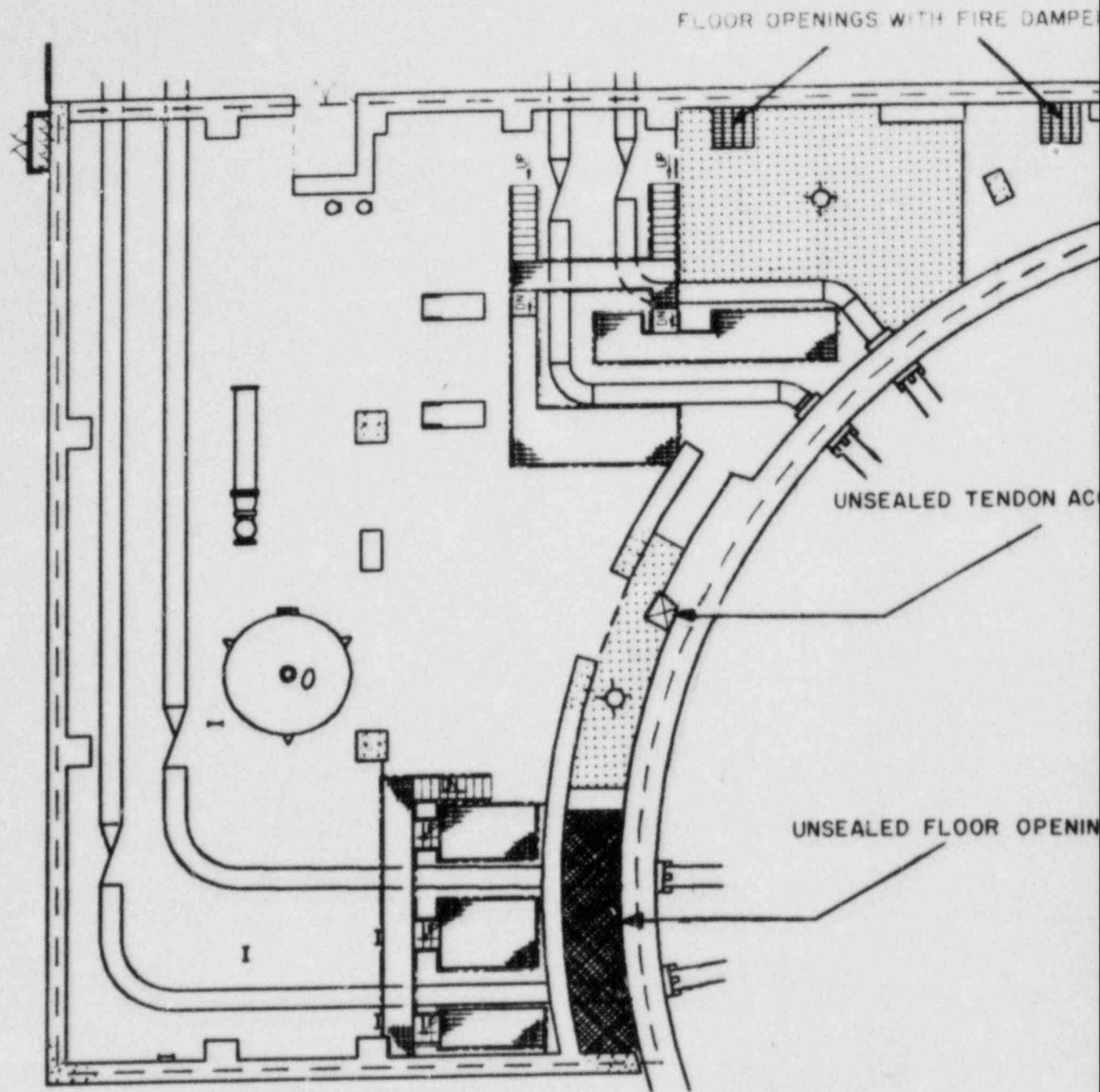
E. CONCLUSION

The installed and planned fire protection features, (automatic fire suppression systems, ionization detectors, 1-hour rated cable enclosures, hose stations, and portable fire extinguishers) provide reasonable assurance that one train of safe shutdown components and circuits, in either fire area, will remain free of fire damage.






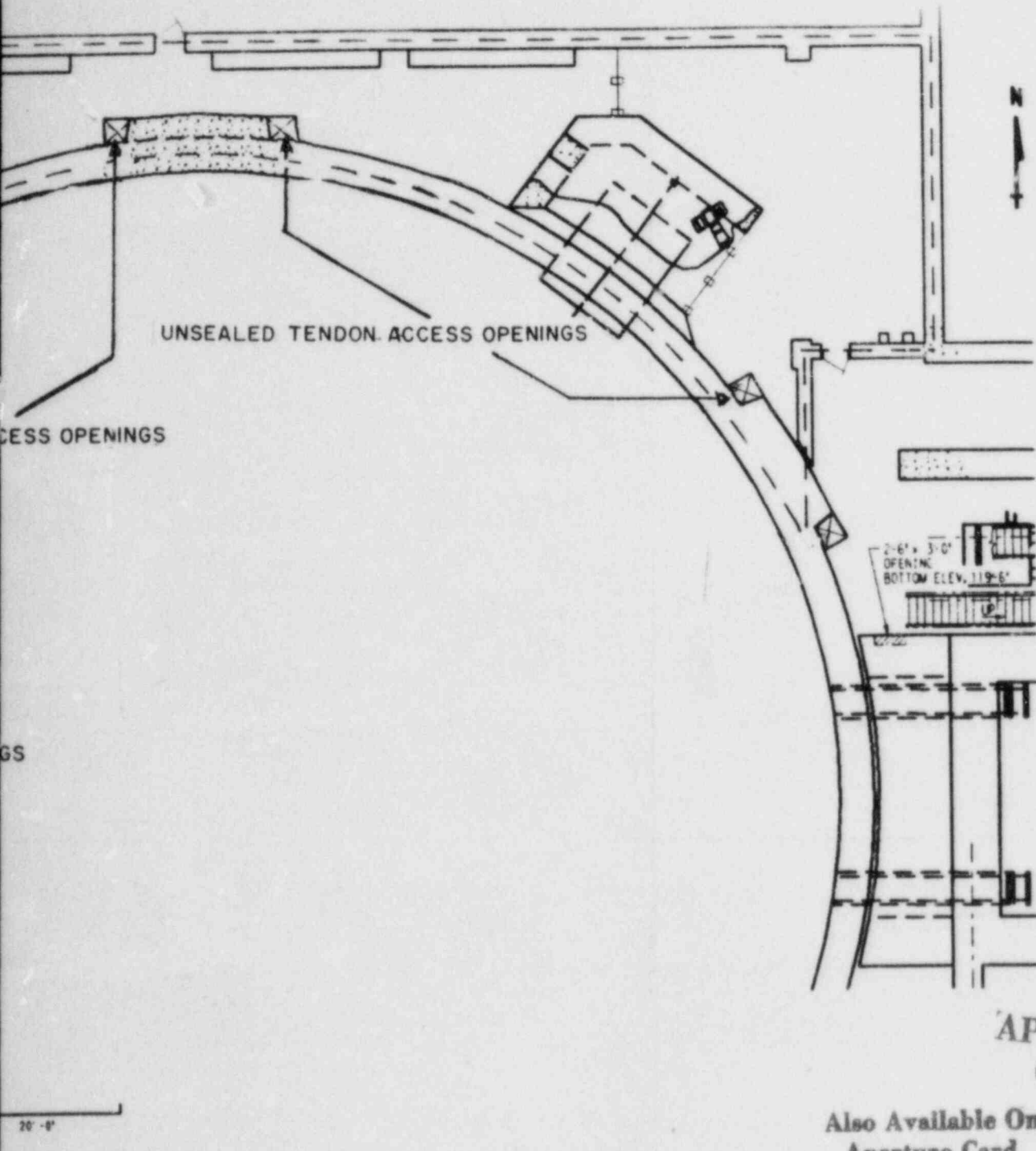
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AREA BOUNDARY

PIPE PENETRATION AREA

FIGURE 10-2

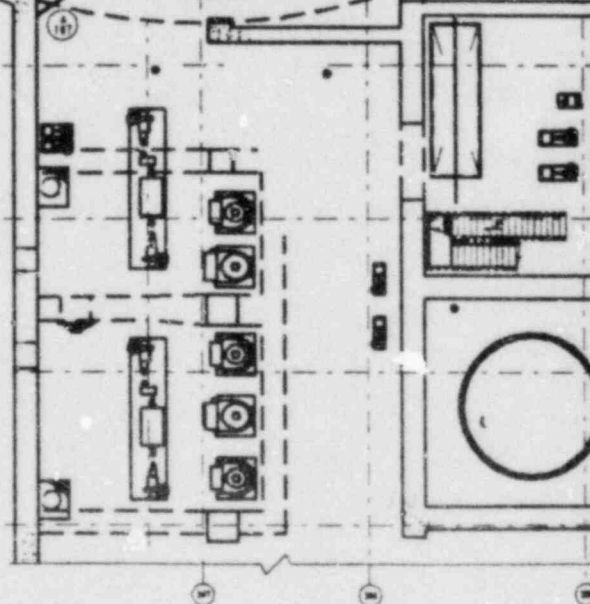
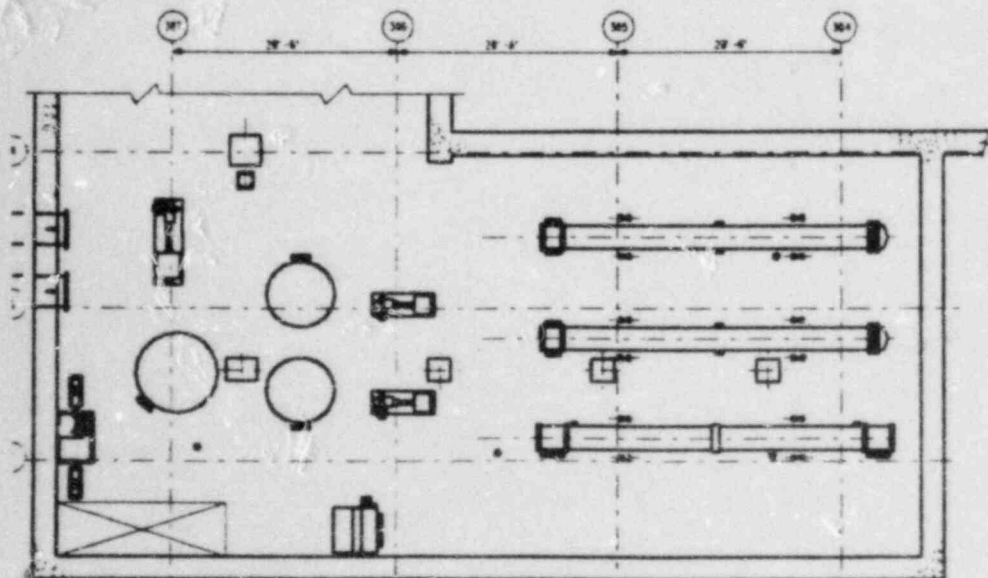
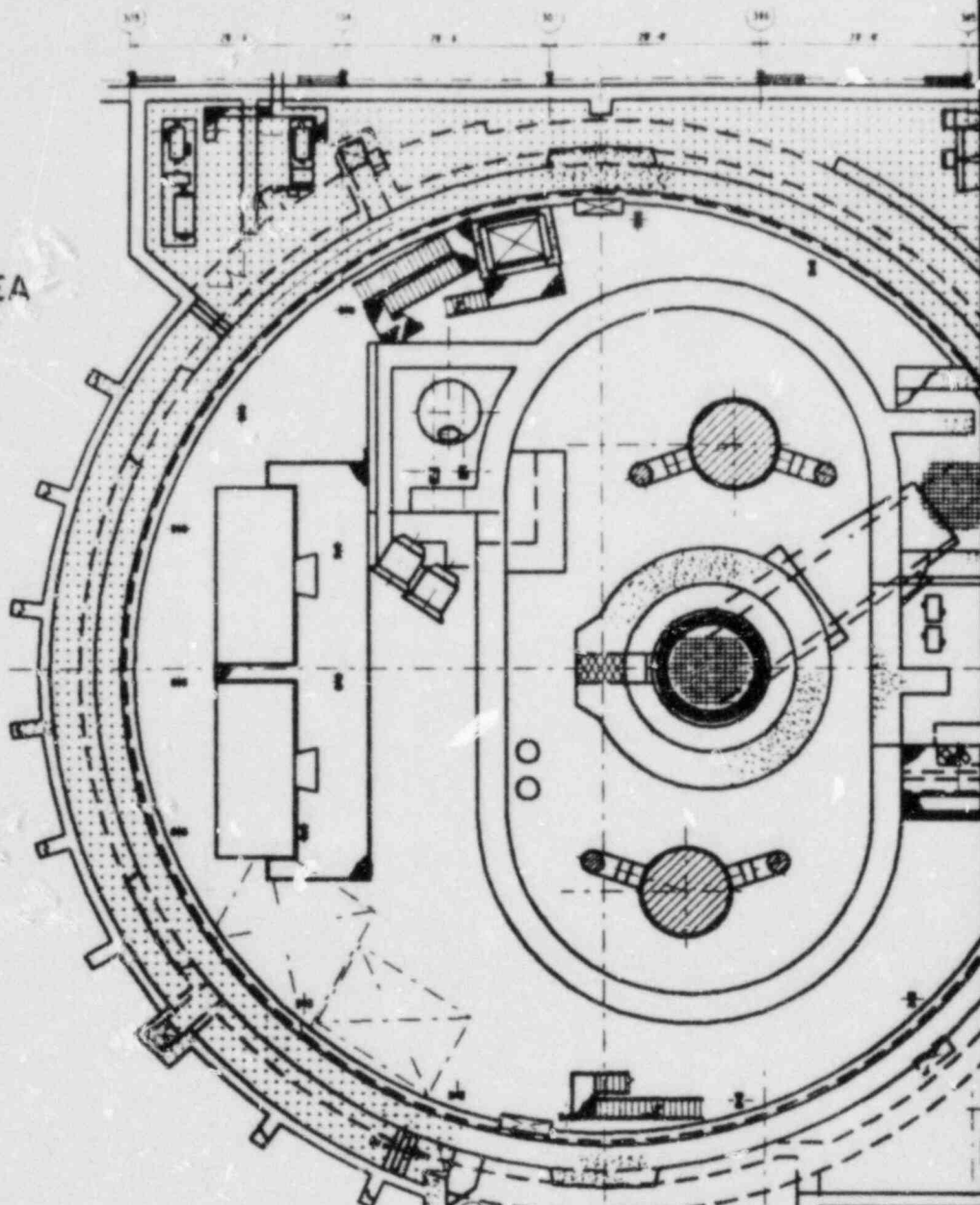
ARRANGEMENT OF FIRE AREA
IB-119-201

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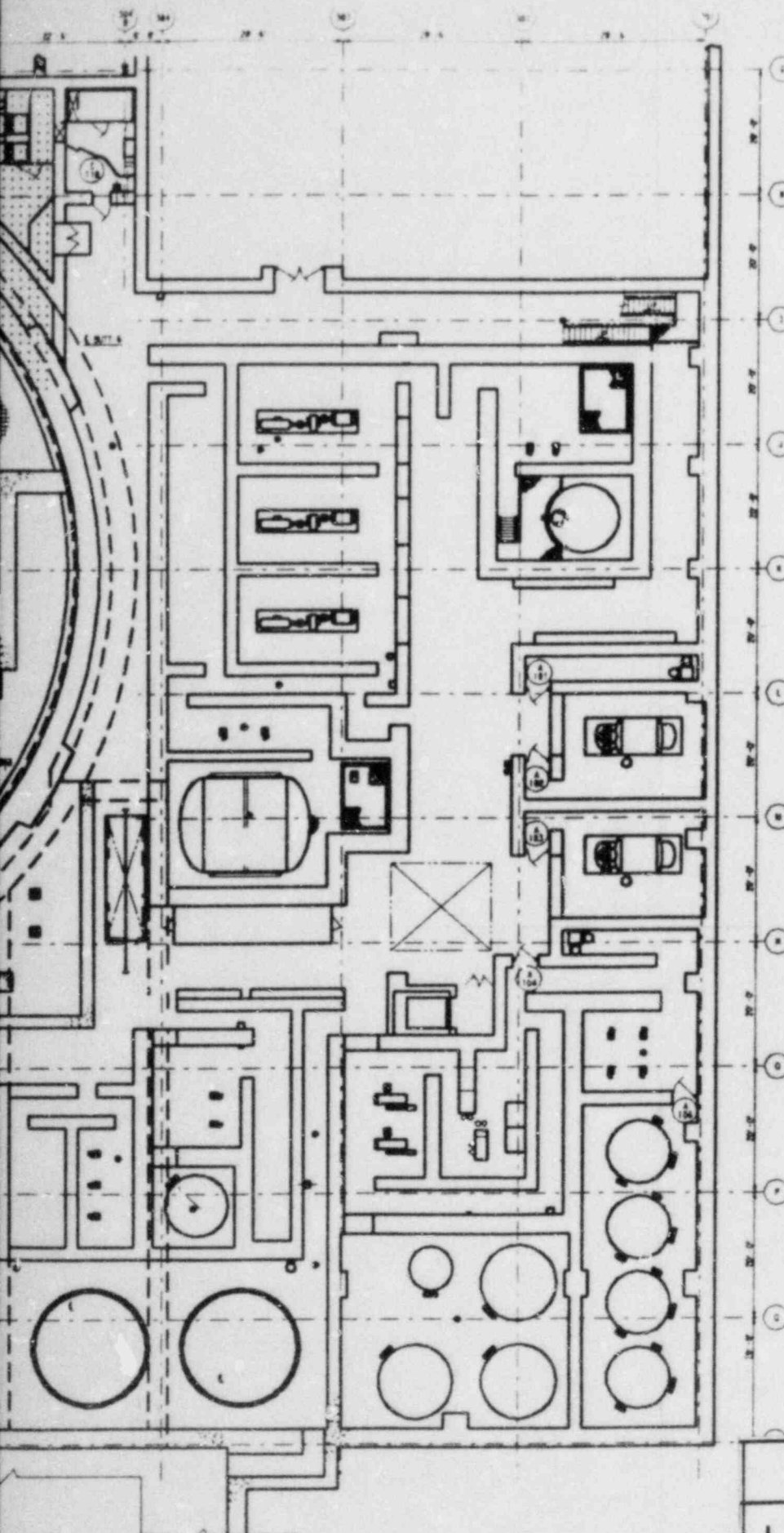
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= AFFECTED AREA



FOR CONTINUATION SEE PLAN B



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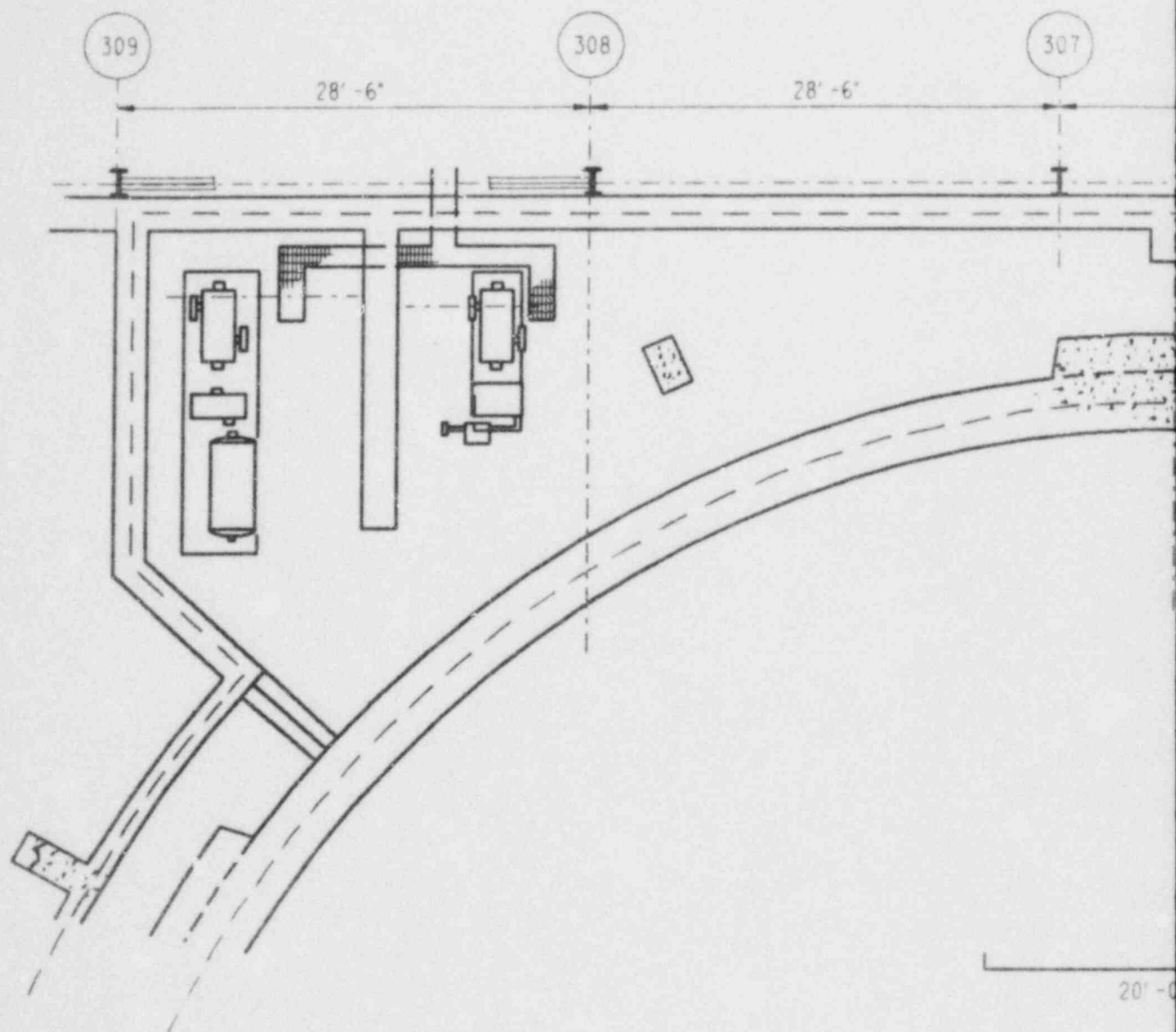
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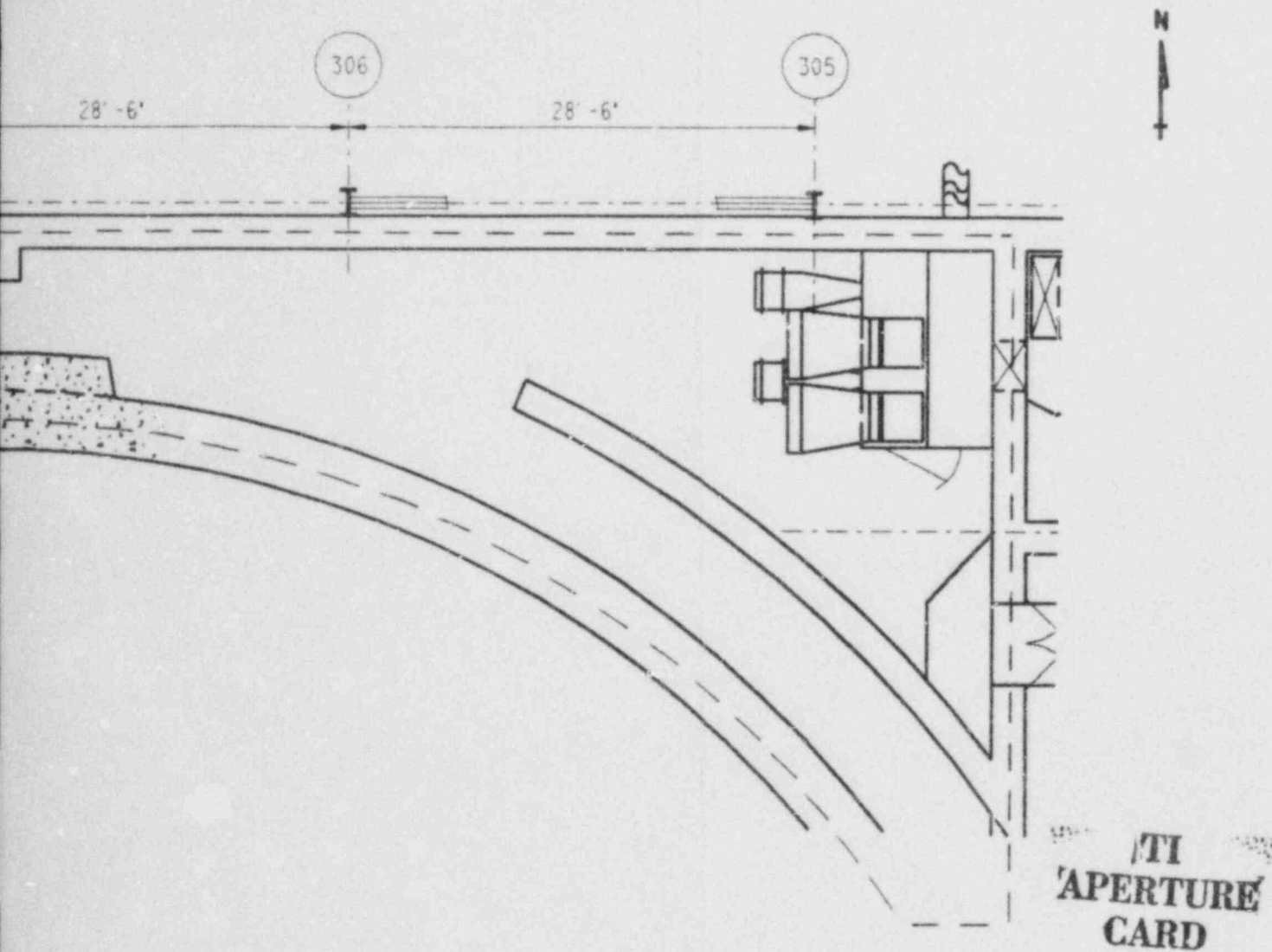
FIGURE 10-3

LOCATION OF FIRE AREA
IB-95-200

LEGEND

----- = AREA BOUNDARY





Also Available On
Aperture Card

FIGURE 10-4
ARRANGEMENT OF FIRE AREA IB-95-200

8410110139-12

SUPPLEMENTAL INFORMATION FOR EXEMPTION REQUEST #10

1. FIRE AREA CHARACTERISTICS

FIRE AREA IB-119-201
UPPER LEVEL - INTERMEDIATE BUILDING
ELEVATION: 119 Ft., INTERMEDIATE BUILDING
SIZE: 7959 Sq. Ft.

Combustibles:

Oil and Grease	1 gal
Cable Insulation	69,632 lbs.
Class A	3,075 lbs.
Plastics	604 lbs.

Fire Loading	79,399 BTU/sq.ft.
Heat Rate	E/1725°F
ASTM E-119 Equivalent Fire Severity	60 min.

Fire Protection

Suppression (Type)	Wet Pipe (planned)
Detection (Type)	Ionization
Hose Stations (Number)	2
Portable Extinguishers (Type/Number)	ABC/2 (plus 2 in adjacent zones)

SUPPLEMENTAL INFORMATION FOR EXEMPTION REQUEST #10

FIRE AREA IB-95-200
LOWER LEVEL - INTERMEDIATE BUILDING
ELEVATION: 95 Ft., INTERMEDIATE BUILDING
SIZE: 2957 Sq. Ft.

Combustibles:

Oil and Grease 23 gal

Cable Insulation 11,299 lbs.

Fire Loading 33,673 BTU/sq.ft.

Heat Rate E/1550°F

ASTM E-119 Equivalent Fire Severity 25 minutes

Fire Protection

Suppression (Type) Wet Pipe (planned)

Detection (Type) Ionization

Hose Stations (Number) 1 (in adjacent zone)

Portable Extinguishers (Type/Number) ABC/1 (in adjacent zone)

2. ANALYSIS

The maximum severity fire in fire area IB-95-200 (the lower elevation) is a fast burning fire that could create an ultimate room temperature of 1550°F. The maximum severity fire in fire area IB-119-201 (the upper elevation) is a fast burning fire that could create an ultimate room temperature of 1725°F. These fires are conservatively based on simultaneous combustion of all combustible materials in the area.

The existing ceiling/floor separating these two areas is constructed of reinforced concrete, and except for the unsealed penetrations, offers fire resistance equivalent to three hours.

There are ventilation openings in the floor which are equipped with automatically actuated, 3-hour rated dampers. There are approximately 15 unsealed ceiling/floor pipe penetrations between these two areas. The pipe penetrations are equipped with steel sleeves which extend from 3 to 36 inches above the upper floor to prevent a potential spill of combustible fluid from leaking from the upper to lower level. The penetrations are sized to provide for limited pipe movement during operation.

There are four unsealed tendon stressing fitting openings located in this ceiling/floor, around the perimeter of the Reactor Building. The openings are located at the containment building buttresses, away from the containment electrical penetration areas. These openings have steel enclosures around them extending from the floor upward for approximately 30 inches and are covered by grating. The enclosures prevent combustible fluids from draining to the lower level. Each opening is approximately 9 square feet in area.

There is an open floor grating in the south portion of the areas directly below the main steam lines. There are no combustible materials, safe shutdown components or cables below the grating or in the immediate vicinity above the grating. The unsealed grating presents essentially no threat to safe shutdown capability.

The location of the floor grating and dampers provided for the ventilation openings eliminate them as fire hazards concerns. Only the pipe penetrations and tendon stressing fitting openings need to be considered for potential fire propagation. The pipe and tendon openings are conservatively estimated to present 50 square feet of unsealed opening, which is less than 2% of the ceiling area of the lower elevation. The features provided which protect safe shutdown components and cables in the vicinity of these openings from damage include:

- o Wet pipe sprinklers on both levels.
- o Ionization smoke detectors on both levels.
- o Enclosure of one train of redundant cabling on each level.

The combined fire protection features of this area make these unsealed openings an insignificant contributor to risk, and sealing of these openings is unnecessary.

EXEMPTION REQUEST #11

A. EXEMPTION REQUEST

Florida Power Corporation (FPC) requests exemption from certain technical requirements of 10 CFR 50, Appendix R, Section III.G.2, at Crystal River Unit 3 (CR-3). Specifically, exemption is requested from the requirement to provide a 3-hour rated fire barrier to separate fire areas containing redundant safe shutdown equipment. The fire areas are AB-95-3, the 95 foot elevation of the Auxiliary Building and AB-119-6, the 119 foot elevation of the Auxiliary Building. This exemption request applies only to the separation of the 95 foot elevation from the 119 foot elevation at the southwest stairway and pipe chase connecting fire zones AB-95-3X and AB-119-6V in the southwest corner of the Auxiliary Building.

B. REDUNDANT SAFE SHUTDOWN COMPONENTS/CIRCUITS IN FIRE ZONES AB-95-3X AND AB-119-6V

Fire areas AB-95-3 (95 foot elevation of the Auxiliary Building) and AB-119-6 (119 foot elevation of the Auxiliary Building) contain components or circuits for most safe shutdown systems in the plant. However, fire zone AB-95-3X contains no safe shutdown components or circuits which are redundant to safe shutdown components or circuits in fire zone AB-119-6V.

C. PHYSICAL DESCRIPTION OF AFFECTED AREA

Fire Zone AB-95-3X

Fire zone AB-95-3X is part of the main corridor on the 95 foot elevation of the Auxiliary Building. The fire zone is bounded by reinforced concrete walls on all sides. There are open doorways to the seawater pump room and the waste transfer pump room. The west end of the zone contains a stairway and a pipe chase which are open to the 119 foot elevation. The ceiling and floor of fire zone AB-95-3X are constructed of reinforced concrete. (See Figures 11-1 and 11-2 for location and arrangement of this zone.)

Fire Zone AB-119-6V

Fire zone AB-119-6V is an "L" shaped area located on the 119 foot elevation in the southwestern portion of the Auxiliary Building. The fire zone is bounded on all sides by reinforced concrete walls with a narrow access opening at the east side of the area. Fire zone AB-119-6V contains a stairway and pipe chase which are open to the 95 foot elevation. The ceiling and floor of fire zone AB-119-6V are constructed of reinforced concrete. (See Figures 11-3 and 11-4 for location and arrangement of this zone.)

D. JUSTIFICATION FOR PROPOSED EXEMPTION

The following information shows that the level of protection provided will ensure that at least one train of safe shutdown components or circuits will remain free of fire damage in either fire area AB-95-3 or AB-119-6.

- o Fire zone AB-95-3X contains no safe shutdown components or circuits which are redundant to safe shutdown components or circuits in fire zone AB-119-6V.
- o A wet pipe sprinkler system designed to meet the objectives of NFPA Standard No. 13 (1983) for an Ordinary Hazard, Group II Occupancy Classification will be provided in fire zone AB-95-3X and in adjacent fire zones on the 119 foot elevation for fire zones which contain safe shutdown components or circuits.
- o Automatic ionization detectors, which alarm locally and in the continuously manned Control Room, are installed in or adjacent to these zones.
- o At least one train of redundant safe shutdown circuits in adjacent fire zones will be provided with 1-hour rated barriers.
- o The fire loading for zone AB-95-3X (the lower elevation) corresponds to a fire severity, on the ASTM E-119 time-temperature curve, of 32 minutes.

- o The fire loading for zone AB-119-6V (the upper elevation) corresponds to a fire severity, on the ASTM E-119 time-temperature curve, of 5 minutes.
- o Access to each zone is available from multiple points to allow choice of the most effective fire fighting strategy.
- o Hose stations and portable fire extinguishers are available in the vicinity of each fire zone.

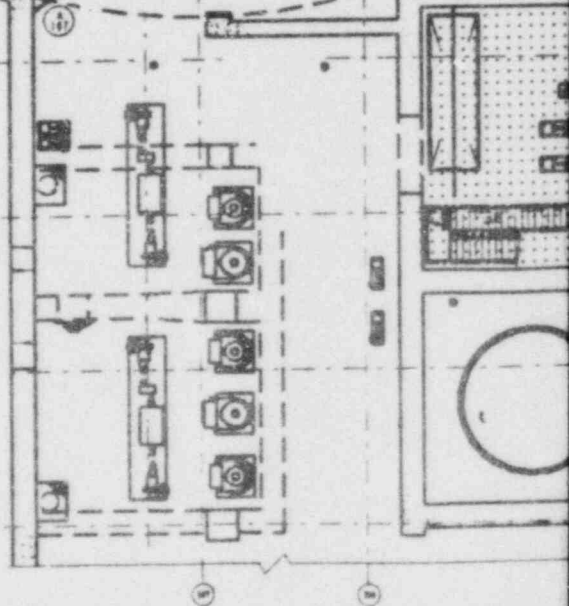
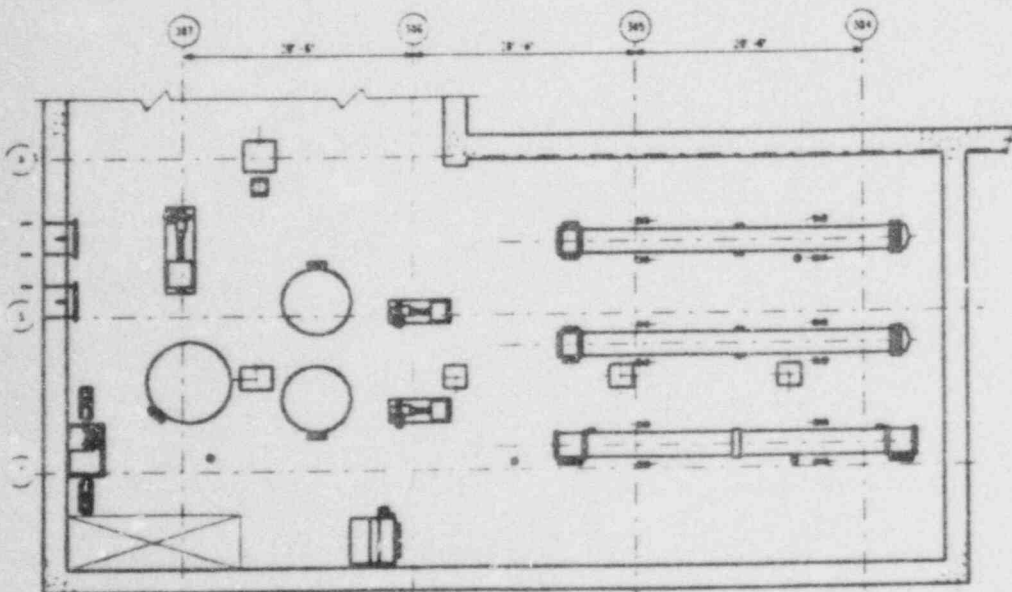
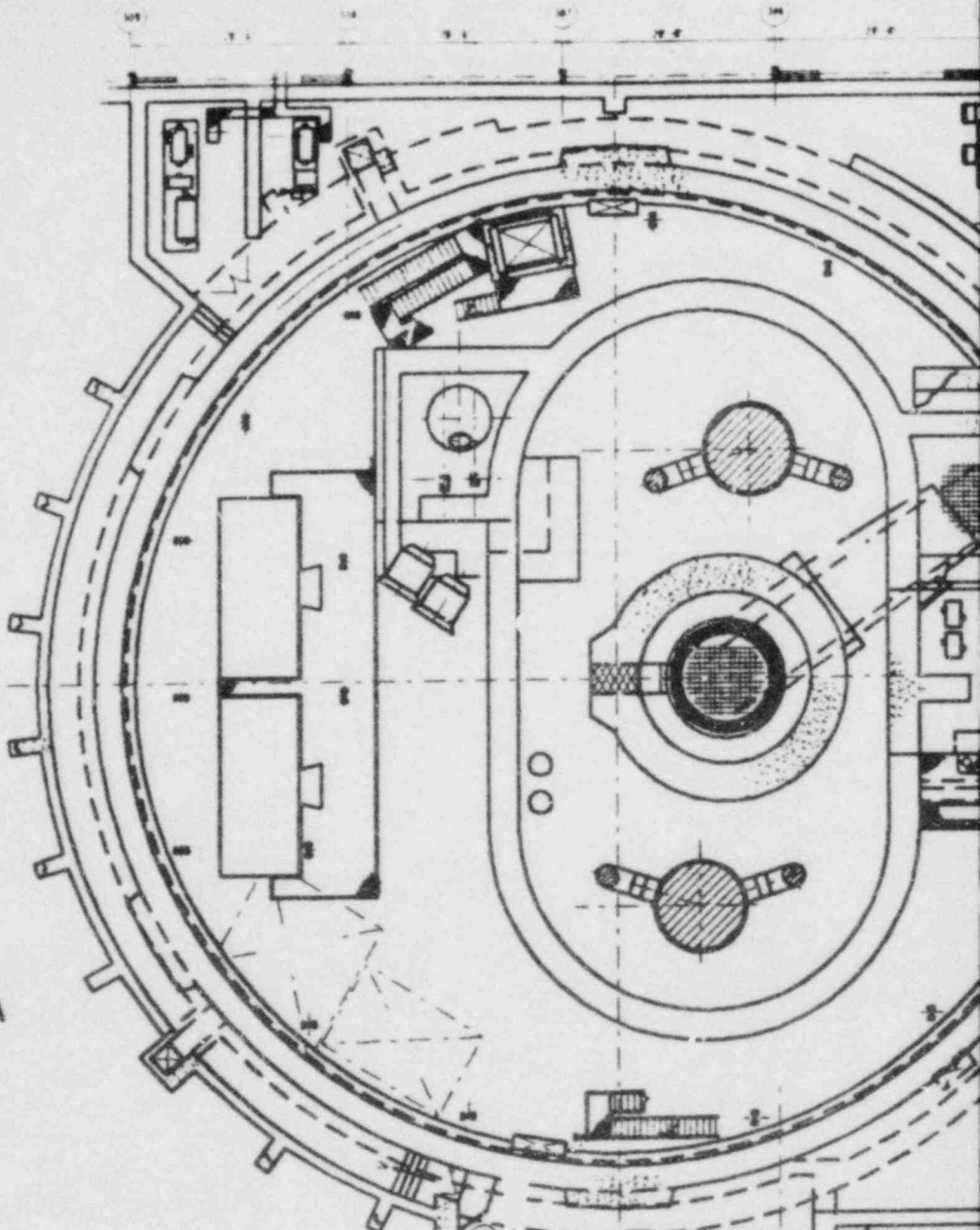
E. CONCLUSION

The installed and planned fire protection features, (automatic fire suppression, ionization detectors, 1-hour rated cable tray enclosures, manual hose stations and portable extinguishers) combined with the existing configuration and low fire loading, provide reasonable assurance that one train of safe shutdown equipment will remain free of fire damage.

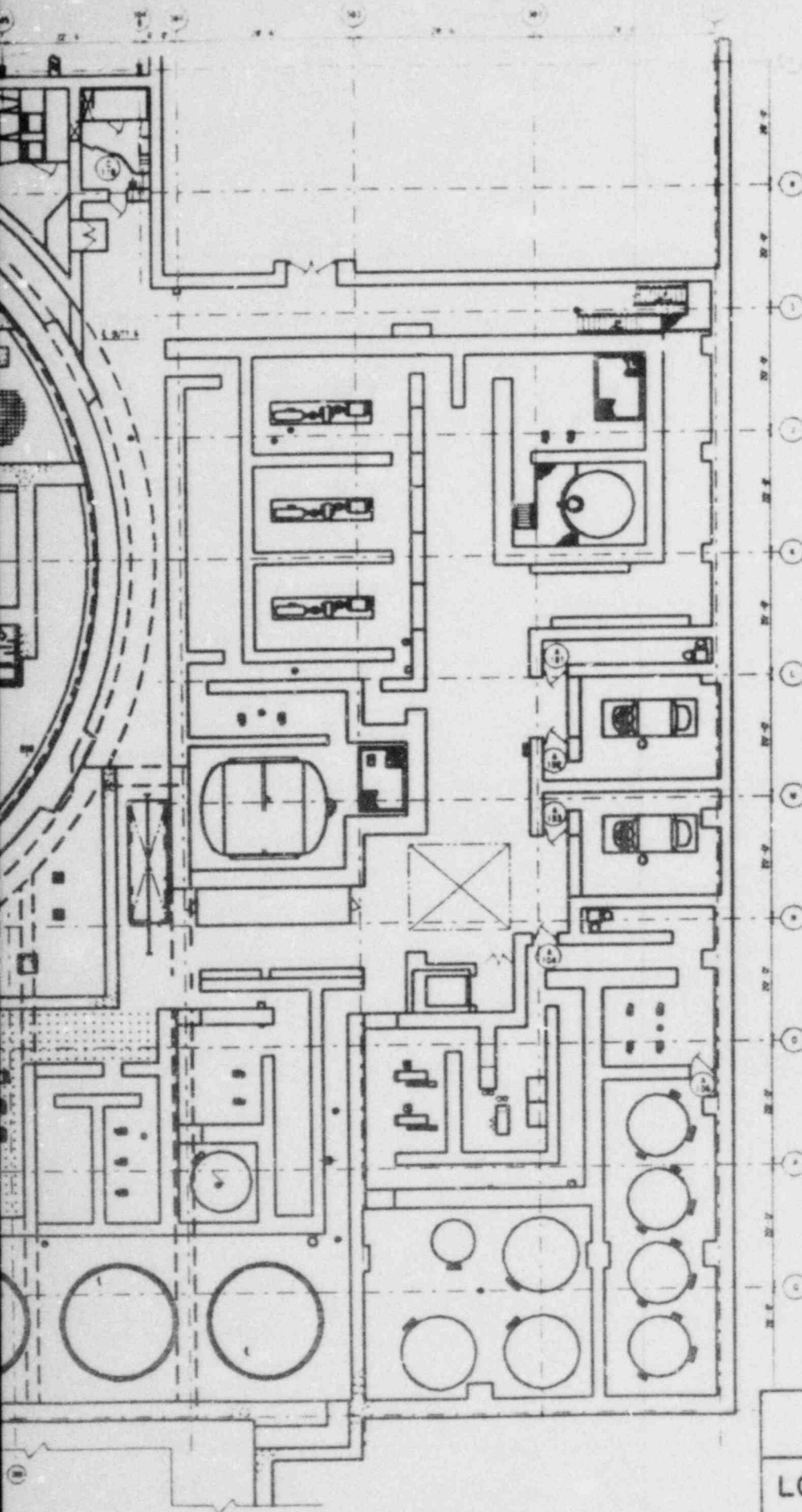
LEGEND



= AFFECTED AREA



FOR CONTINUATION SEE PLAN B



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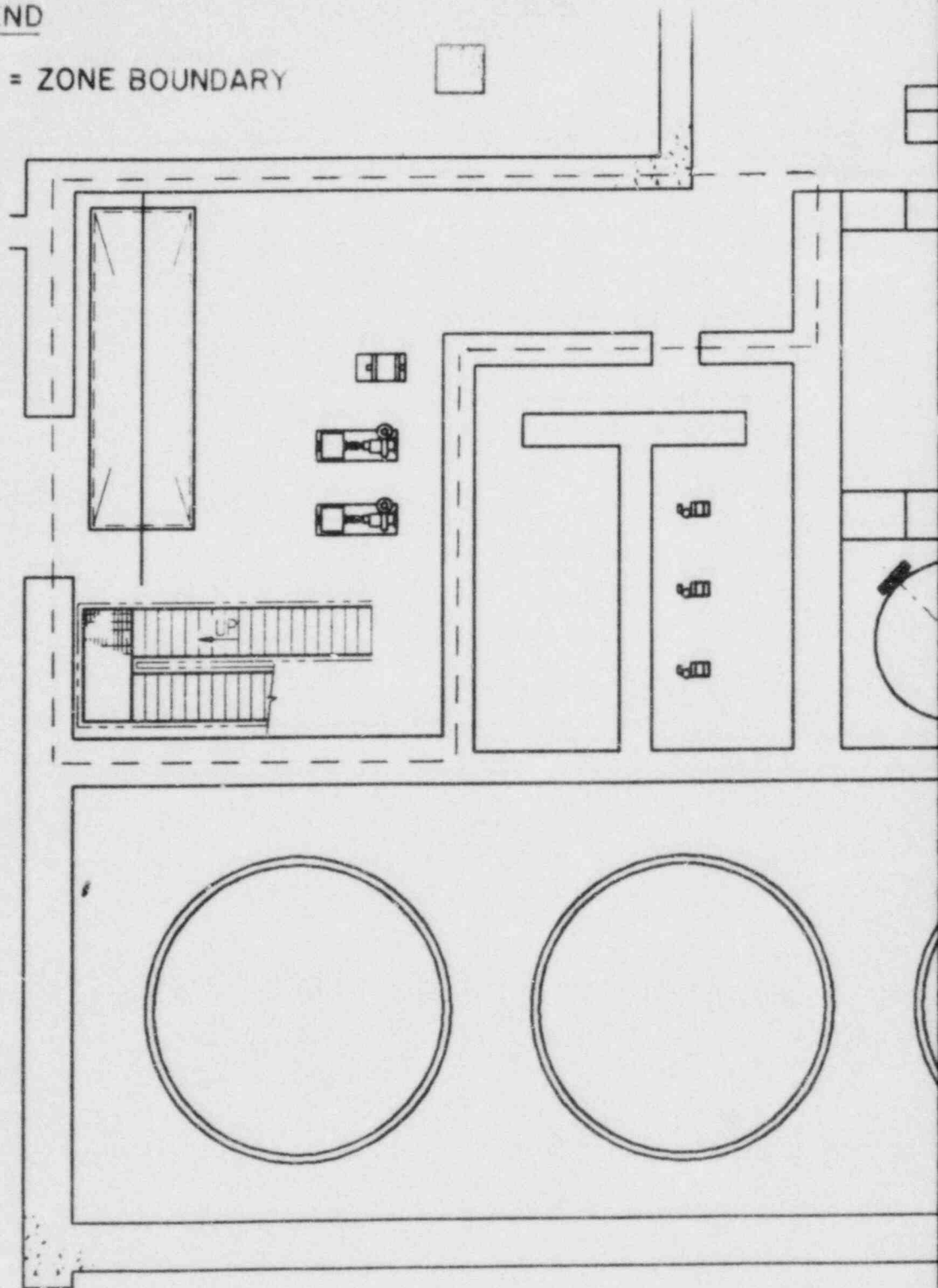
FIGURE II-1

LOCATION OF FIRE AREA
AB-95-3X

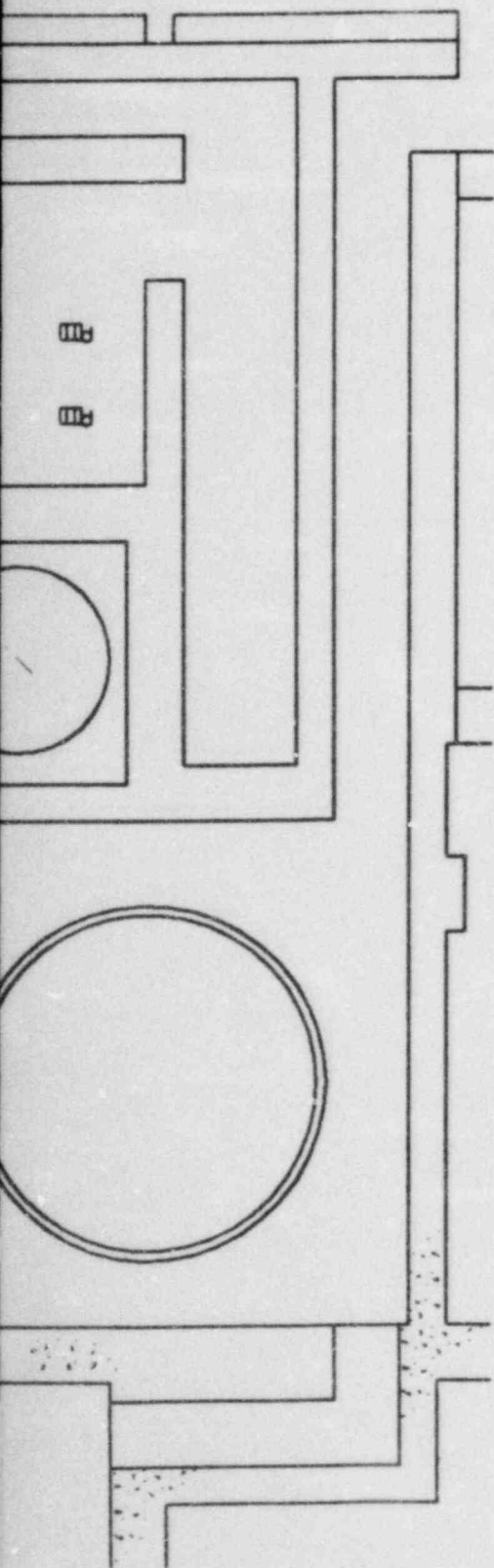
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LEGEND

----- = ZONE BOUNDARY



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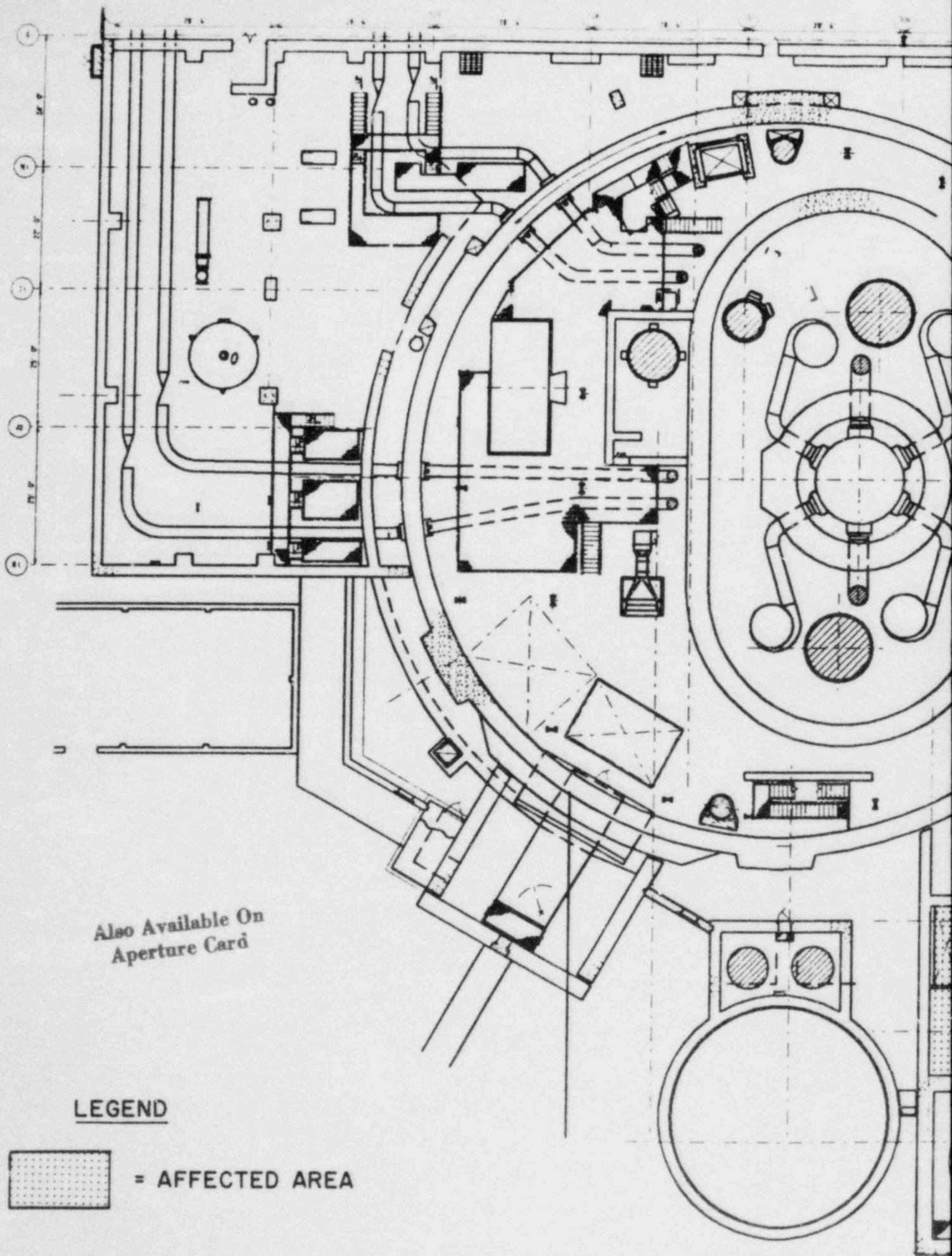


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FIGURE 11-2
ARRANGEMENT OF FIRE ZONE AB-95-3X

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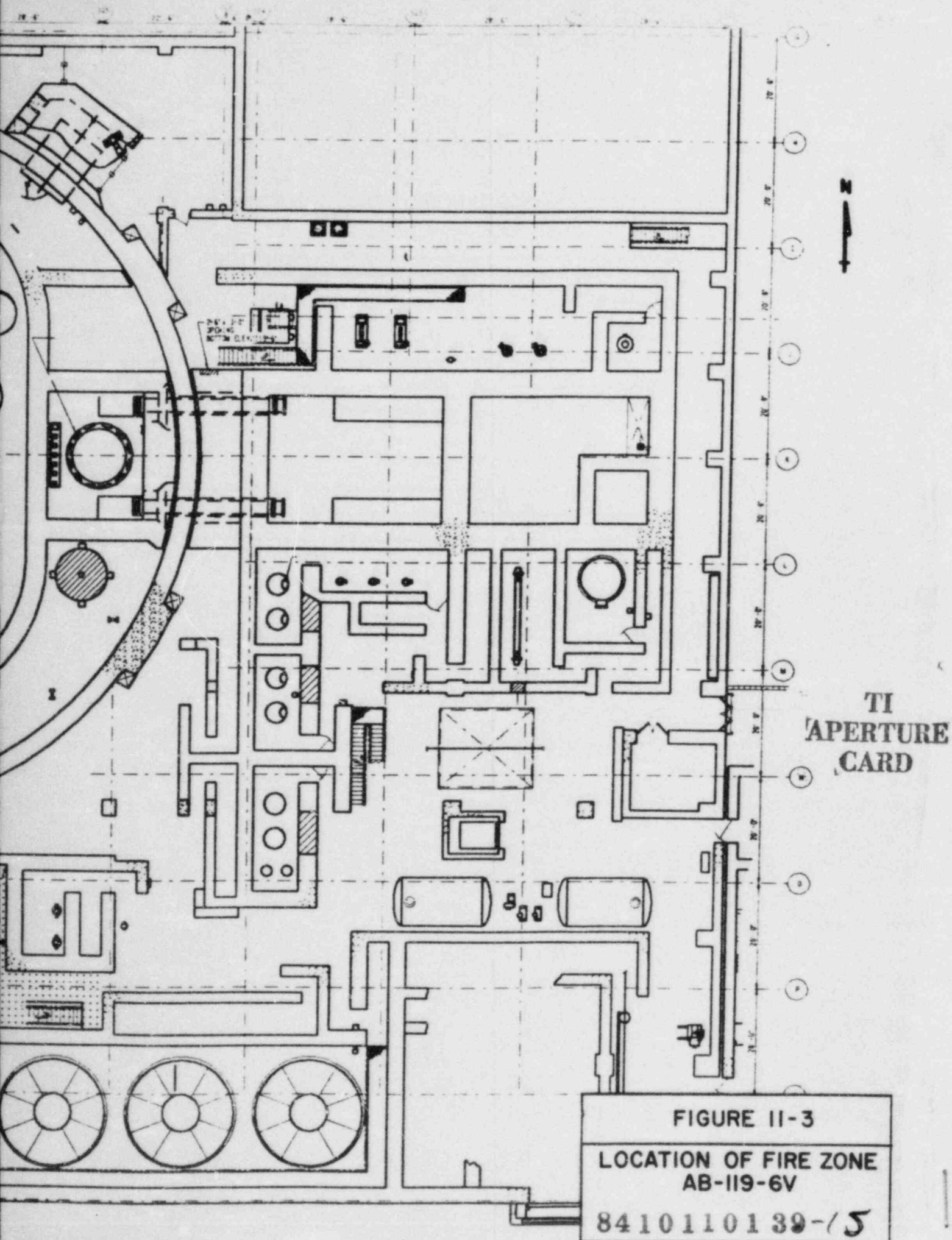


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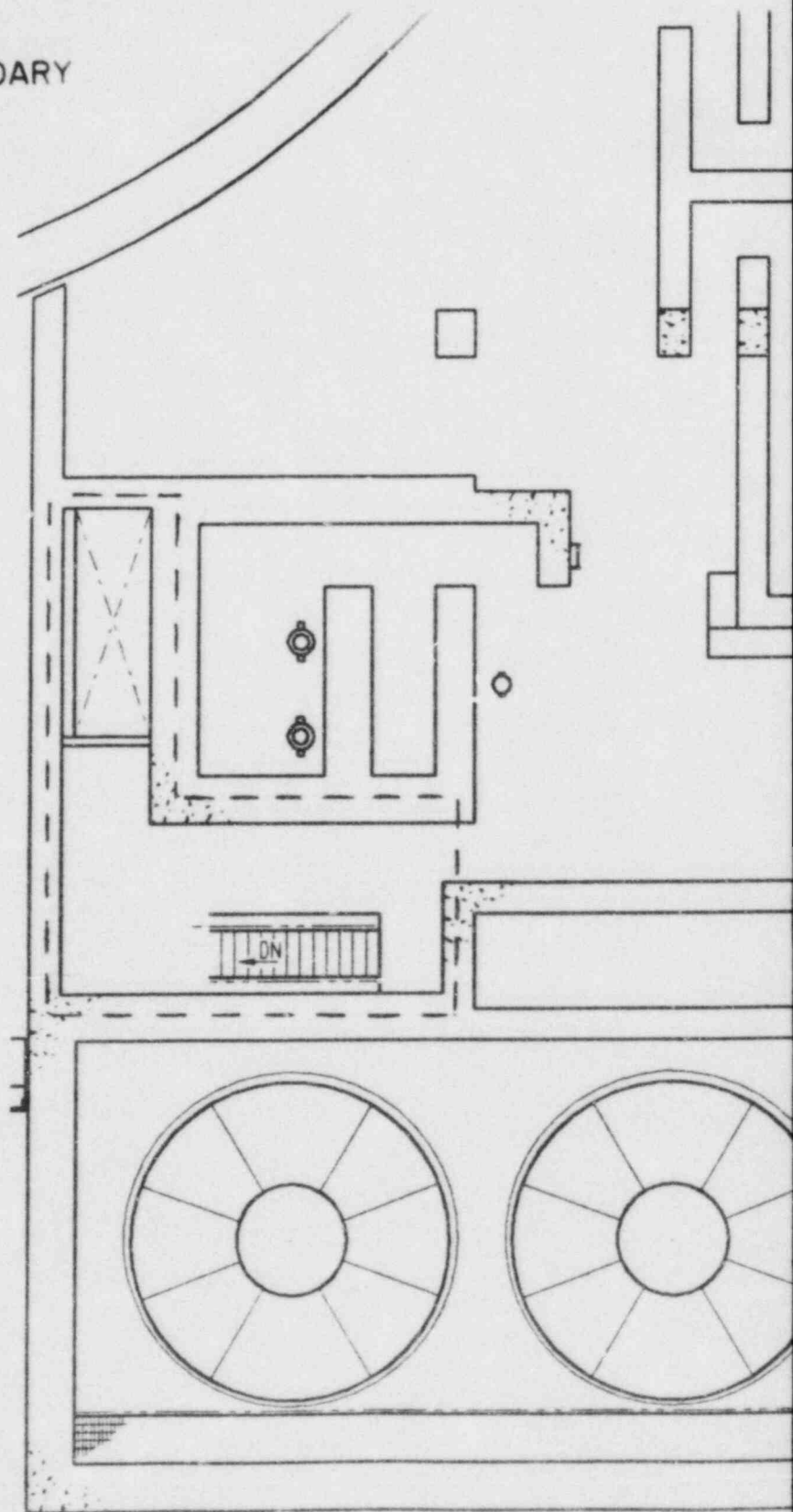


= AFFECTED AREA

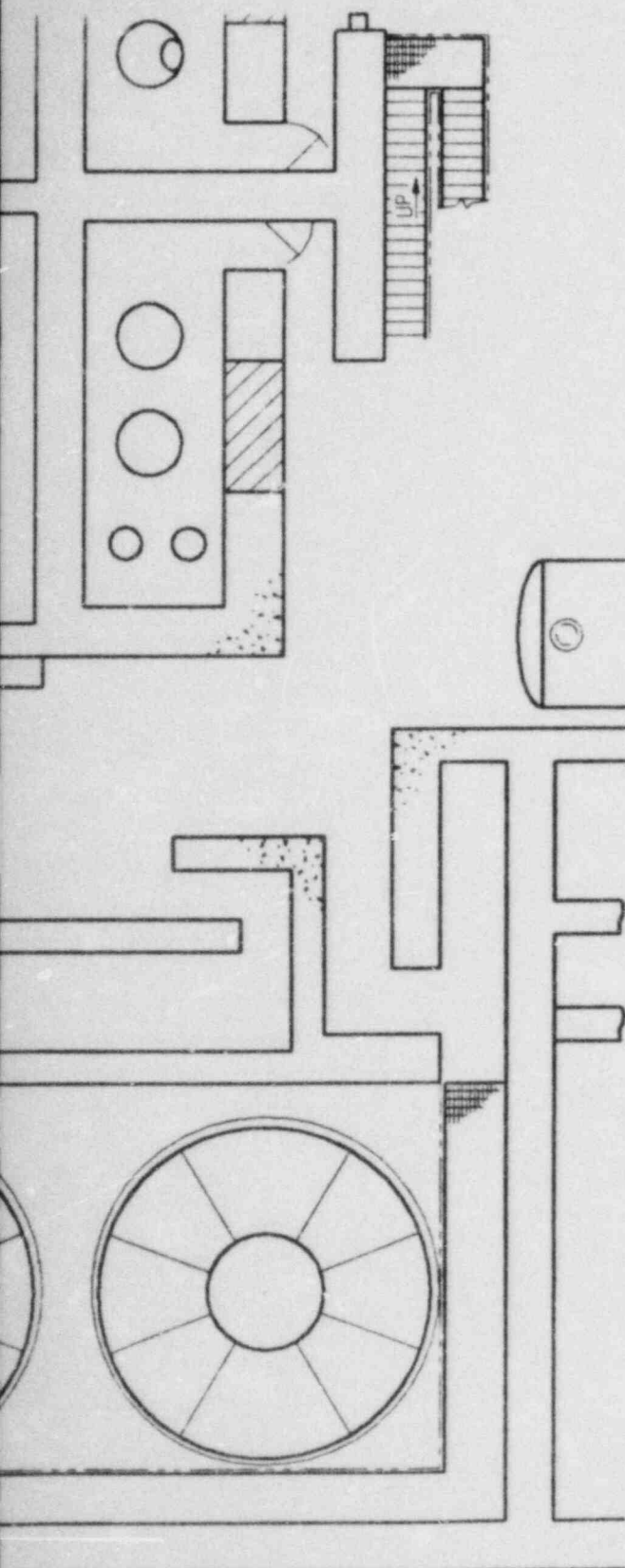


LEGEND

- - - - = ZONE BOUNDARY



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FIGURE II-4

ARRANGEMENT OF FIRE AREA
AB-II9-6V

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SUPPLEMENTAL INFORMATION FOR EXEMPTION REQUEST #11

1. FIRE ZONE CHARACTERISTICS

FIRE ZONE AB-95-3X
SOUTHWEST STAIRWAY AND PIPE CHASE
ELEVATION: 95 Ft., AUXILIARY BUILDING
SIZE: 1007 Sq. Ft.

Combustibles:

Oil and Grease 2 gal.

Cable Insulation 5,048 lbs.

Fire Loading 43,088 BTU/sq.ft.

Heat Rate E/1575°F

ASTM E-119 Equivalent Fire Severity 32 min.

Fire Protection

Suppression (Type) Wet Pipe Sprinklers (planned)

Detection (Type) Ionization

Portable Extinguishers (Type/Number) ABC/1

FIRE ZONE AB-119-6V
SOUTHWEST STAIRWAY AND PIPE CHASE
ELEVATION: 119 Ft., AUXILIARY BUILDING
SIZE: 472 Sq. Ft.

Combustibles:

Miscellaneous	369 lbs.
Fire Loading	6,551 BTU/sq.ft.
Heat Rate	E/925°F
ASTM E-119 Equivalent Fire Severity	5 min.

Fire Protection

Hose Stations	1 (immediately adjacent to zone)
Portable Extinguishers (Type/Number)	ABC/1 (immediately adjacent to zone)

2. ANALYSIS

The maximum severity fire in fire zone AB-95-3X (the lower elevation) is a fast burning fire that could create an ultimate room temperature of 1575°F. The maximum severity fire in fire zone AB-119-6V (the upper elevation) is a fast burning fire that could create an ultimate room temperature of 925°F.

Fire zone AB-95-3X contains no safe shutdown components or circuits which are redundant to safe shutdown components or circuits in fire zone AB-119-6V. Propagation of a fire beyond these zones will be limited by a sprinkler system which will be installed in adjacent fire zones which contain redundant safe shutdown components or circuits. The safe shutdown circuits in these adjacent fire zones will also be provided with 1-hour rated fire barriers.

Ionization type smoke detectors, which alarm locally and in the continuously manned Control Room, are located in fire zones adjacent to fire zones AB-95-3X and AB-119-6V. These detectors provide early warning of an incipient fire. Manual fire fighting equipment is available in or immediately adjacent to fire zones AB-95-3X and AB-119-6V. The zones are accessible through multiple routes to facilitate manual fire fighting.

Construction of a rated enclosure around the pipe chase and the stairway connecting the two areas would not significantly increase the level of protection provided by existing systems when combined with the proposed modifications.

CR-3 APPENDIX R
SCHEDULAR RELIEF REQUEST

BACKGROUND

Florida Power Corporation's Crystal River Unit 3 (CR-3) is scheduled to be taken off-line on March 9, 1985, for an extensive modification and refueling outage. The Corporation's financial and other planning assumptions are based on a 20-week outage with a return to operation in July, 1985. The scope of this outage is extremely ambitious. Relevant units of measure for Refuel V include: approximately \$53 million dollars expended during the actual outage time frame; over \$95 million dollars total outage cost (including pre-outage projects completed during Refuel V); 1450 total craft/supervisory personnel associated with modifications; 500 total staff on site expected during outage peak; and approximately 1.5 million manhours. Refuel V currently consists of 177 separate design packages. Several of the major modification projects are a result of the following NRC requirements: Remote Shutdown, Emergency Feedwater Initiation and Control, Reactor Coolant Inventory Tracking System, Environmental Qualification, and Appendix R.

Florida Power Corporation (FPC) has been aware of the general requirements of Appendix R and the associated generic letters since their issuance and has aggressively pursued compliance based almost solely upon modifications (i.e., eliminate reliance upon any operator action and do not pursue any exemptions from Appendix R technical or schedular requirements). In the intervening years, FPC has: (1) already completed a significant portion of the fire protection features for

CR-3, (2) designed for the remaining fire protection features, and (3) become increasingly aware of the magnitude of the impact Appendix R will have on future plant operations and maintenance. In early 1984, a newly formed task force of FPC and consultant personnel, directly and indirectly associated with Appendix R, was directed to re-evaluate FPC's overall fire protection program. This was done to assure our ability to demonstrate compliance with all Appendix R requirements based on feedback from: the Nuclear Utility Fire Protection Seminar; the initial inspections for Appendix R conformance at other utilities; and current staff guidance provided in Generic Letter 83-33, I.E. Information Notices 84-09, and -09 Rev. 1, the Regional Workshops, and various Commission meetings.

On May 25, 1984, FPC met with NRC staff to discuss our evolving fire protection program plan which included: more aggressive action on redevelopment of our fire protection plan(s); an updated fire hazards analysis; improved QA involvement; mutually acceptable interpretations of Appendix R requirements; and a minor reliance upon certain technical exemptions. Our September 24, 1984 letter provided discussions on some of these items and six specific technical exemptions. This letter provides additional technical exemptions and requests for schedular relief. The requests for schedular relief, the technical exemptions, the control complex dedicated HVAC system design review, and the associated technical specifications represent the remaining NRC staff actions required for implementation of Appendix R at CR-3.

The requests for technical exemptions do not represent an attempt by FPC to reduce our effort to a minimum number of changes to implement Appendix R. Based on our fire hazards evaluations and thorough review of NRC staff guidance,

we are confident that we could have demonstrated acceptable resolution of Appendix R intent with a much smaller work scope. FPC; however, chose to only request technical exemptions where long term negative impacts on operations and maintenance were great or where literal compliance was virtually unworkable, and to pursue such exemptions only if our legal, licensing, and technical staffs were unanimously confident that: (1) CR-3 operation would be safe, and (2) the NRC staff would readily concur.

BASIS FOR THE REQUEST FOR SCHEDULAR RELIEF

Because of the large number of modifications planned for Refuel V, FPC has already begun work on a portion of the modifications (including Appendix R) in an effort to minimize the impact on our resources. Should pre-outage work proceed more rapidly than anticipated, or if productivity exceeds our expectations, some of these items may be completed in shorter time frames. We are just now receiving detailed implementation plans on-site for some of these projects and, thus, this information is based on our best-estimate and engineering judgement at this point. Based on this information and realistic (not worst case) schedules, we feel confident the attached schedular relief requests address areas where conflicts between Appendix R work scope and other work scopes are so severe as to make concurrent accomplishment during Refuel V impractical. Therefore, in order to ensure the completion of the major modifications necessary for compliance with the many regulatory requirements, FPC is requesting schedular relief from our commitment to complete certain Appendix R modifications by the end of Refuel V.

Please note these schedular relief requests are based on the technical exemptions being granted. If this does not occur, the impact will be severe and the schedular relief being sought may need to be revised and/or additional schedular relief requested.

Attached for your information are: 1) summaries of the pre-outage and outage work (Attachments A and B); 2) specific schedular relief requests (Attachments C, D, and E); and 3) sketches and bar charts to identify where and when the major activities will be occurring (Figures 1A, 1B, 2, 3, 4, and 5).

JUSTIFICATION

By granting these schedular relief requests, the associated modifications can be completed post-outage without adversely affecting the public health and safety. This conclusion is justified based on the following: (1) specific compensatory measures are proposed for each request, (2) the major Appendix R modifications (e.g., the installation of the required associated fire detection and sprinkler systems and the required rerouting of existing circuits) will be completed during Refuel V, and (3) the ability of our existing on-site fire brigade to rapidly respond to a fire in these areas.

ATTACHMENT A

PRE-OUTAGE WORK SUMMARY

Some of the major tasks currently being undertaken in preparation for the outage are:

- (a) Installation of cable trays and conduits: FPC is installing new cable trays, conduits and their supports to support the extensive amount of new cables that will be needed for EFIC, remote shutdown, and the rerouting of circuits for Appendix R.
- (b) Cable Pulling: Because of the extensive amount of electrical modifications planned for Refuel V, cable is being pulled now in order to allow terminating and testing to be performed during the outage.
- (c) Prefabrication: As final design packages become available, FPC is prefabricating as much work as possible either in place (i.e., EFIC cabinets) or in the shops (i.e., Reactor Building hangers).

ATTACHMENT B

OUTAGE WORK SUMMARY

Some of the major projects include:

- (a) Emergency Feedwater Initiation and Control (EFIC): This new system will resolve several NRC mandates and concerns including (but not limited to): safety-grade initiation and control of emergency feedwater (NUREG-0737, Items II.E.1.1 & II.E.1.2); feed-only-good-generator controls; steam generator overfill protection; and capability to establish natural circulation conditions. This \$13.7 million dollar project has been planned, developed, and designed over the past 5 years and will result in a substantially more reliable emergency feedwater system. The EFIC project will require: the construction of 4 new rooms within the Control Complex, six (6) new cabinets of instrumentation/controls; installation of new steam generator level transmitters; installation of several new valves and associated piping to the emergency feedwater system; and extensive amounts of new cabling and conduit. The project is broken down into 22 design packages. It will require over 100,000 craft manhours to install this modification.
- (b) Remote Shutdown: This new alternate shutdown panel will provide alternate control for over 100 valves and over 50 instruments considered appropriate for the support of shutting down the unit in the case of a control room or

cable spreading room fire. This project was begun in response to BTP APCS 9.5-1 Appendix A, and the associated SER for CR-3. After incorporating Appendix R guidance and operations input, this project now entails \$8.5 million dollars worth of changes/additions to CR-3 which will include approximately 1100 feet of new cable tray, 11,000 feet of new conduit, 120,000 feet of cable, 1200 new conduit and cable tray supports, a new room to contain the panels, etc. Total craft construction manhours will exceed 100,000. The project is broken down into 14 design packages.

- (c) Environmental Qualification (EQ): In response to 10 CFR 50.49, FPC is upgrading our I. E. Bulletin 79-01B program to meet the recent guidance. While this project is often "buried" in other upgrades (i.e., those associated with NUREG-0737 installed in Refuel IV or EFIC/Remote Shutdown and other projects planned for Refuel V), it will include the repair/rebuild of many components and the replacement of others. These vary from "simple" replacement of limit switches in certain valve operators to wholesale replacement of all terminal blocks in harsh environments. This project is broken down into 10 design packages. Total craft construction manhours will exceed 54,000 and the cost is estimated to be \$2.6 million dollars.

- (d) Fire Protection (Appendix R): In response to 10 CFR 50.48 and Appendix R, FPC is upgrading our fire protection program to comply with the requirements of Appendix R. This modification involves: installing 475 new sprinkler heads; 14 new detectors; sealing over 280 penetrations; protecting 1150 feet of cable tray and 3571 feet of conduit; installing 600 new cable

tray and conduit supports; installation of the dedicated HVAC system for the Control Complex; relocation of relays and circuits associated with redundant trains of safe shutdown equipment; relocation of several motor control centers; construction of new fire barriers; installation of fuses in the power circuits for non-safe shutdown equipment which are connected to the same power source as safe-shutdown equipment; relocation and installation of new 3-hour rated fire dampers; and other miscellaneous re-wiring, re-routing of circuits, and separating of components. This project now entails \$13.5 million dollars worth of changes/additions to CR-3. Total craft construction manhours will exceed 180,000. This project is broken down into 25 design packages.

In addition to the above modifications, FPC is implementing the following modifications which are either required to assure continual conformance with license requirements or have been requested to be backfitted by the Commission.

- Reactor Internals Bolting Inspections (and Potential Replacement)

- Reactor Coolant Inventory Tracking System

- Engineered Safety Features Actuation System Testability Improvements

- Capability to Install An External Hydrogen Recombiner

- HPI Throttle Valve Replacements

- Safety Parameter Display System

Other major outage activities include:

- Refurbishment of LP Turbine Rotor

- Class III Hydrostatic Examination

- Normal ISI/IST/LLRT Activities

- Various Corrective and Preventative Maintenance Activities

- Refueling

ATTACHMENT C

SCHEDULAR RELIEF REQUEST: COMPLETION OF THE PIPING INSTALLATION FOR THE CONTROL COMPLEX DEDICATED HVAC SYSTEM

REQUEST DESCRIPTION: FPC requests a schedule extension for completing the installation of the chilled water piping for the dedicated HVAC system on the 108' elevation of the Control Complex for five (5) months after Refuel V or until nine (9) months after NRC approval of the dedicated HVAC system design, whichever is later.

BASES FOR SCHEDULAR RELIEF: A dedicated HVAC system is being installed to provide: 1) ventilation and cooling for the remote shutdown panels, power supply, and switchgear rooms; and 2) redundant chilled water supply to the EFIC rooms HVAC system. The Control Complex Dedicated HVAC System design is being finalized and will be submitted by November 15, 1984, for NRC review. The design has progressed to the point of identifying the routing of the chilled water piping. From this layout, it has been determined that the installation of the planned piping and supports cannot be completed during Refuel V without adversely affecting the cable pulling and termination schedule of the Appendix R, Remote Shutdown, and Emergency Feedwater Initiation and Control (EFIC) Projects. Figure 1A shows the areas of the 108' elevation of the control complex served by the dedicated HVAC system chilled water piping. Figure 2 is an enlargement of the southwest corner showing the arrangement of the chilled water piping, cable trays, and new remote shutdown panels. Figure 3 shows the planned schedule of activities.

The remote shutdown project requires new instrumentation panels to be installed within this area of the Control Complex. Cable pulling for remote shutdown and EFIC has already begun and the remaining cable pulling and intricate electrical termination and testing work on the highly sensitive equipment will continue throughout the outage. To attempt a major piping project for the dedicated HVAC system with all that it entails (i.e., scaffolding, welding, cutting, burning, etc.) at the same time and in the same area would impede the electrical work. The piping can be safely installed after the panel work is complete and the panels are closed.

PROPOSED COMPLETION DATE: Five months after Refuel V or 9 months after NRC approval of the conceptual design, whichever is later.

INTERIM COMPENSATORY MEASURES: A hourly fire watch patrol (consistent with the Action Statement requirements of Technical Specification 3.7.12) will be provided to improve detection reliability and reduce response time for manual suppression. Appropriate procedures and temporary equipment will be provided for backup HVAC for the remote shutdown panel, power supply, and switchgear rooms, in the event of a fire isolating or damaging the normal HVAC system. Furthermore, during most work hours a substantial number of craft personnel will be present in the affected areas completing the deferred work.

ATTACHMENT D

SCHEDULAR RELIEF REQUEST: INSTALLATION OF THE 3-HOUR RATED FIRE BARRIER FOR CONTROL COMPLEX EMERGENCY FEEDWATER INITIATION AND CONTROL (EFIC) ROOM CEILINGS

REQUEST DESCRIPTION: FPC requests a schedule extension of five months after Refuel V to install the 3-hour rated fire barrier for the ceilings in the new EFIC rooms located on elevation 124' of the Control Complex.

BASES FOR SCHEDULAR RELIEF: Several areas of the Control Complex are to be upgraded to provide three-hour rated separation. Four of these areas are the new EFIC rooms. Each of these rooms will require the ceilings to be upgraded to a 3-hour rated fire barrier. The four (4) EFIC rooms are approximately 14' x 14' in size. Figure 1B shows the location of the EFIC rooms on the 124' elevation of the Control Complex. Figure 4 is an enlargement of the center room on the north side of Control Complex elevation 124' which shows the internal arrangement of the 4 new EFIC rooms. Installation of the cabinets and electrical work on the sensitive control cabinets is already in progress for the following NRC commitments: EFIC, Remote Shutdown, Safety Parameter Display System, and Appendix R. This electrical work, the HVAC ducting and piping work, and the fire protection work in the nearby safeguard switchgear rooms are not expected to be completed until the end of Refuel V. Figure 5 shows the planned schedule of activities.

Protecting the EFIC rooms' ceilings will be an extremely dirty and dust-raising job. Under these cramped and already work intensive conditions attempting to commence the fire protection work overhead before completion of the electrical work would have a negative effect on the aforementioned commitments and would result in schedule delays. The ceilings can be safely protected after the cabinet work is complete and the cabinets are closed.

PROPOSED COMPLETION DATE: Five months after Refuel V.

INTERIM COMPENSATORY MEASURES: A hourly fire watch patrol (consistent with the Action Statement requirements of Technical Specification 3.7.12) will be provided to improve detection reliability and reduce response time for manual suppression. Furthermore, during most work hours a substantial number of craft personnel will be present in the affected area(s) completing the deferred work.

ATTACHMENT E

SCHEDULAR RELIEF REQUEST: PROVIDING FIRE BARRIERS FOR CABLE TRAYS REQUIRING FIRE PROTECTION

REQUEST DESCRIPTION: FPC requests a schedule extension of eight months after Refuel V to complete the fire protection of safety-related cable trays requiring fire protection in the Auxiliary Building, Intermediate Building and Control Complex.

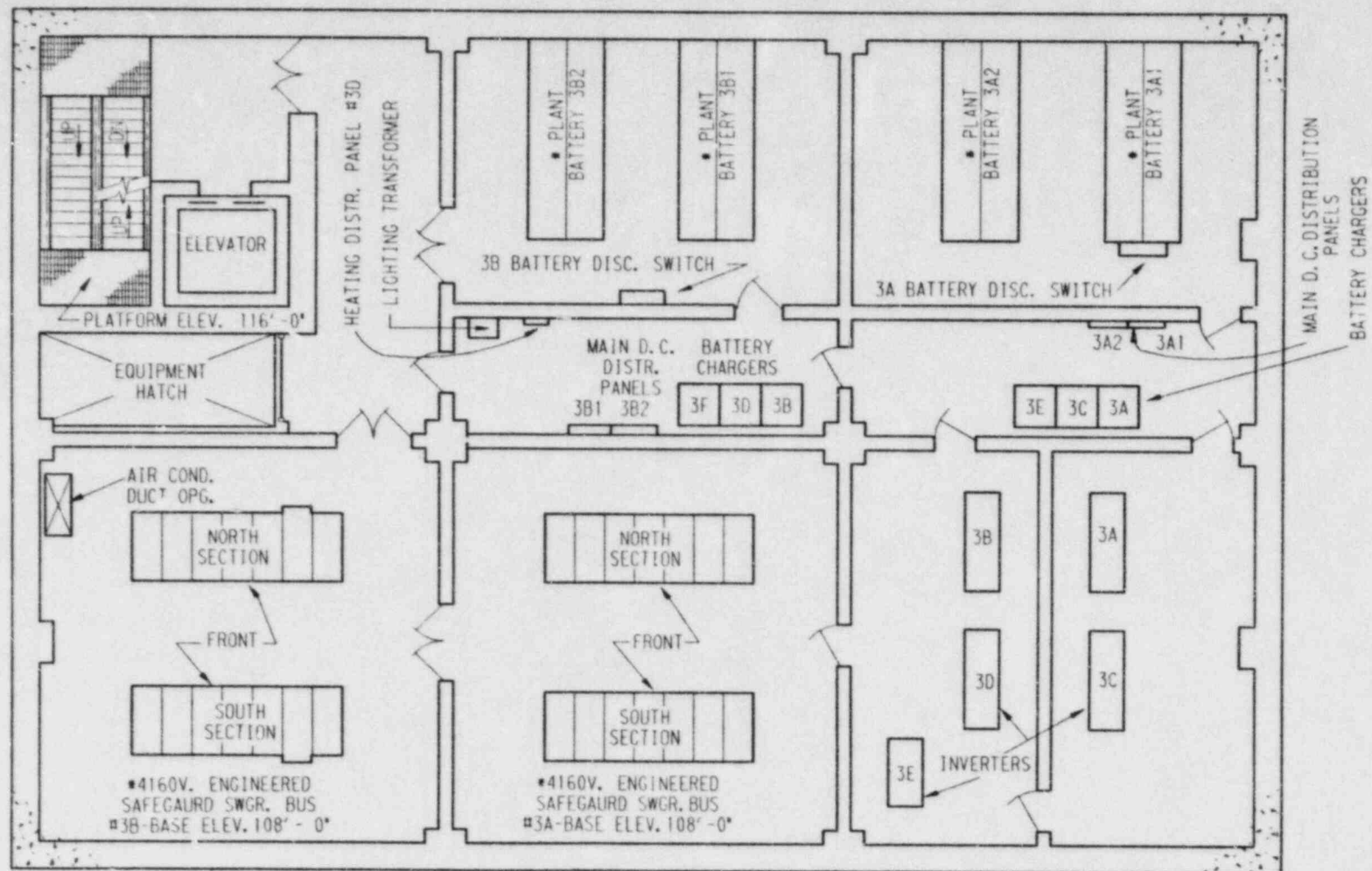
BASES FOR SCHEDULAR RELIEF: Fire protection will be provided for the electrical cable trays requiring protection. During Refuel V, many modifications are scheduled to be heavily engaged in cable pulling through trays which have also been designated as requiring fire protection to comply with Appendix R. Many of these modifications are also NRC commitments (i.e., Emergency Feedwater Initiation and Control, Appendix R, Remote Shutdown, and Reactor Coolant Inventory Tracking System). See Figure 6 for a schedule of the major work planned.

Trays cannot be provided with fire protection until all cables required by the new modifications have been pulled, terminated and tested. Also, there is a very limited amount of space available to perform the work (e.g., multiple trays, close to the ceilings). Therefore, attempting to commence tray fire protection (which in itself is an extremely time and space consuming task) during the same time frame

a major cable pulling effort is in process is impractical. In addition, a concentrated effort will be underway to complete the fire protection sprinkler and detection systems (also an Appendix R commitment for Refuel V) in many of the same locations. Attempting all of this work simultaneously on the same cramped scaffolds would hinder the timely completion of the other modifications. It would be safer and a more orderly sequence to begin cable tray fire protection as all other work is completed.

PROPOSED COMPLETION DATE: Eight months after Refuel V.

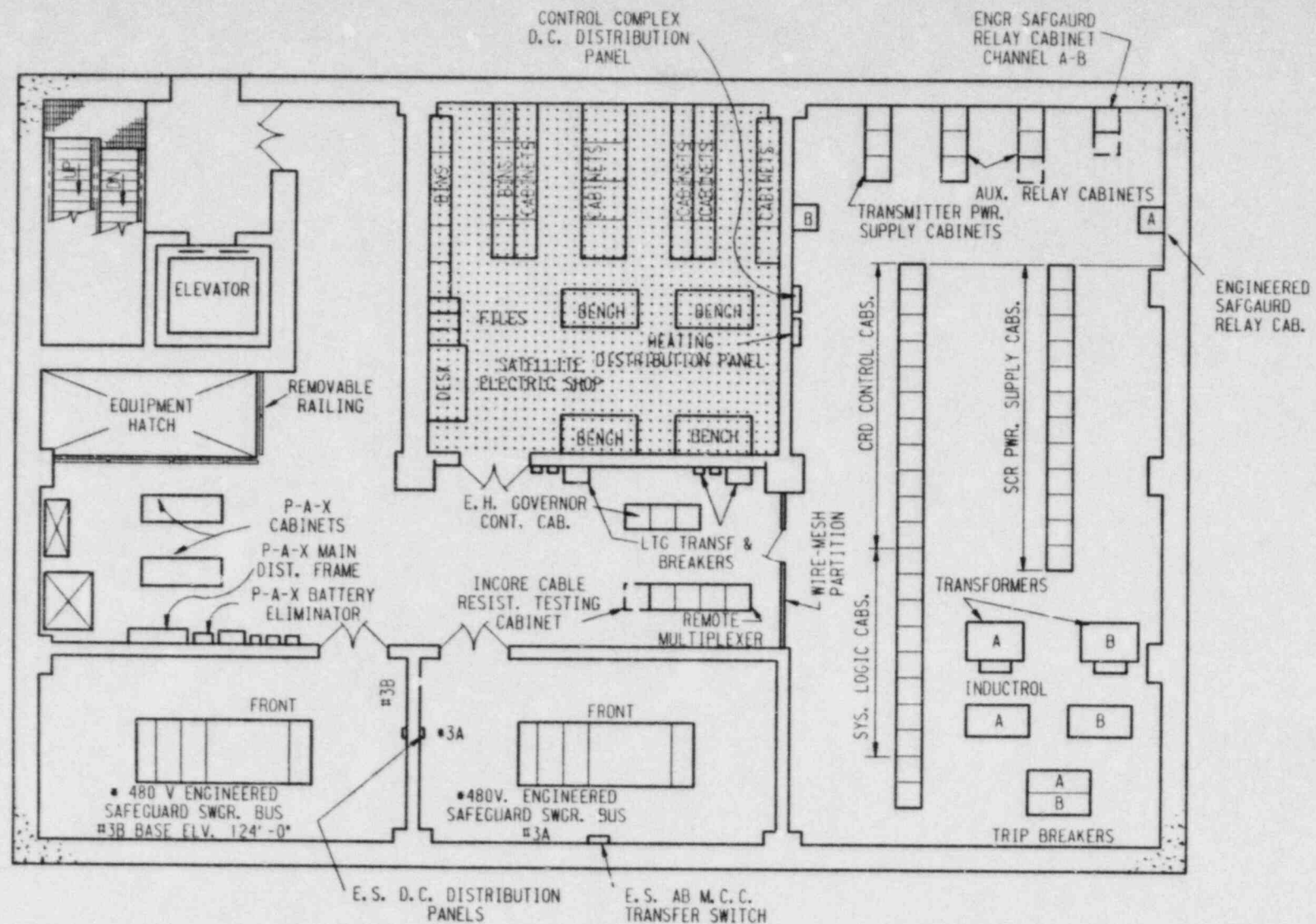
INTERIM COMPENSATORY MEASURES: A hourly fire watch patrol (consistent with the Action Statement requirements of Technical Specification 3.7.12) will be provided to improve detection reliability and reduce response time for manual suppression. Work on the trays will be planned such that those providing the greatest safety benefit are scheduled to be completed first.



20'-0"

FIGURE 1A

CONTROL COMPLEX EL. 108'



LEGEND







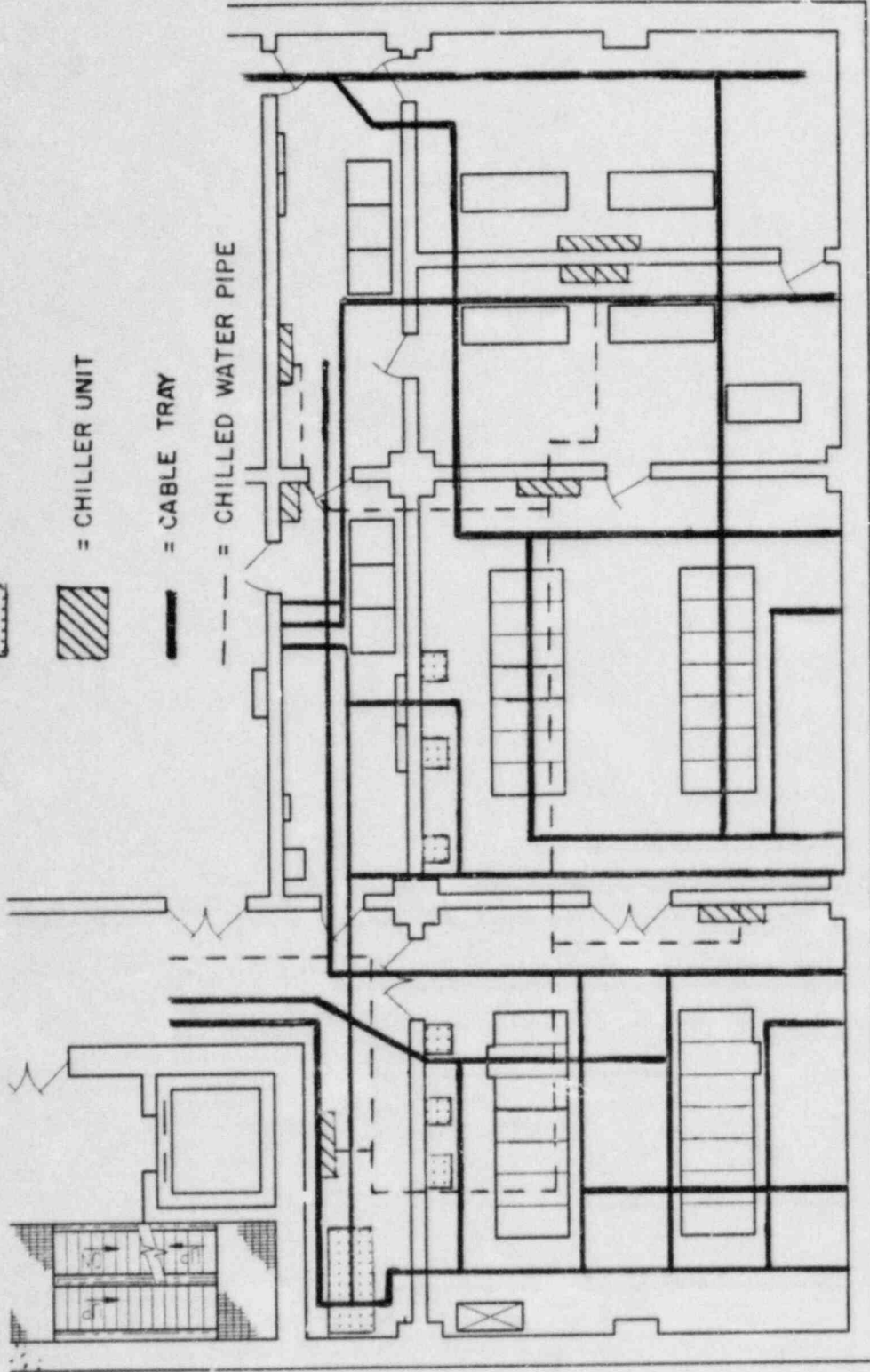
= LOCATION OF EFIC ROOMS

FIGURE 1B

CONTROL COMPLEX EL. 124'
LOCATION OF EFIC ROOMS

LEGEND

-  = REMOTE SHUTDOWN COMPONENT
-  = CHILLER UNIT
-  = CABLE TRAY
-  = CHILLED WATER PIPE



20'-0"

FIGURE 2

CONTROL COMPLEX EL. 108'
ARRANGEMENT OF
DEDICATED CONTROL COMPLEX
HVAC CHILLED WATER PIPING

FIGURE 3 - CONTROL COMPLEX ACTIVITIES AFFECTING COMPLETION OF THE DEDICATED HVAC SYSTEM PIPING

1935

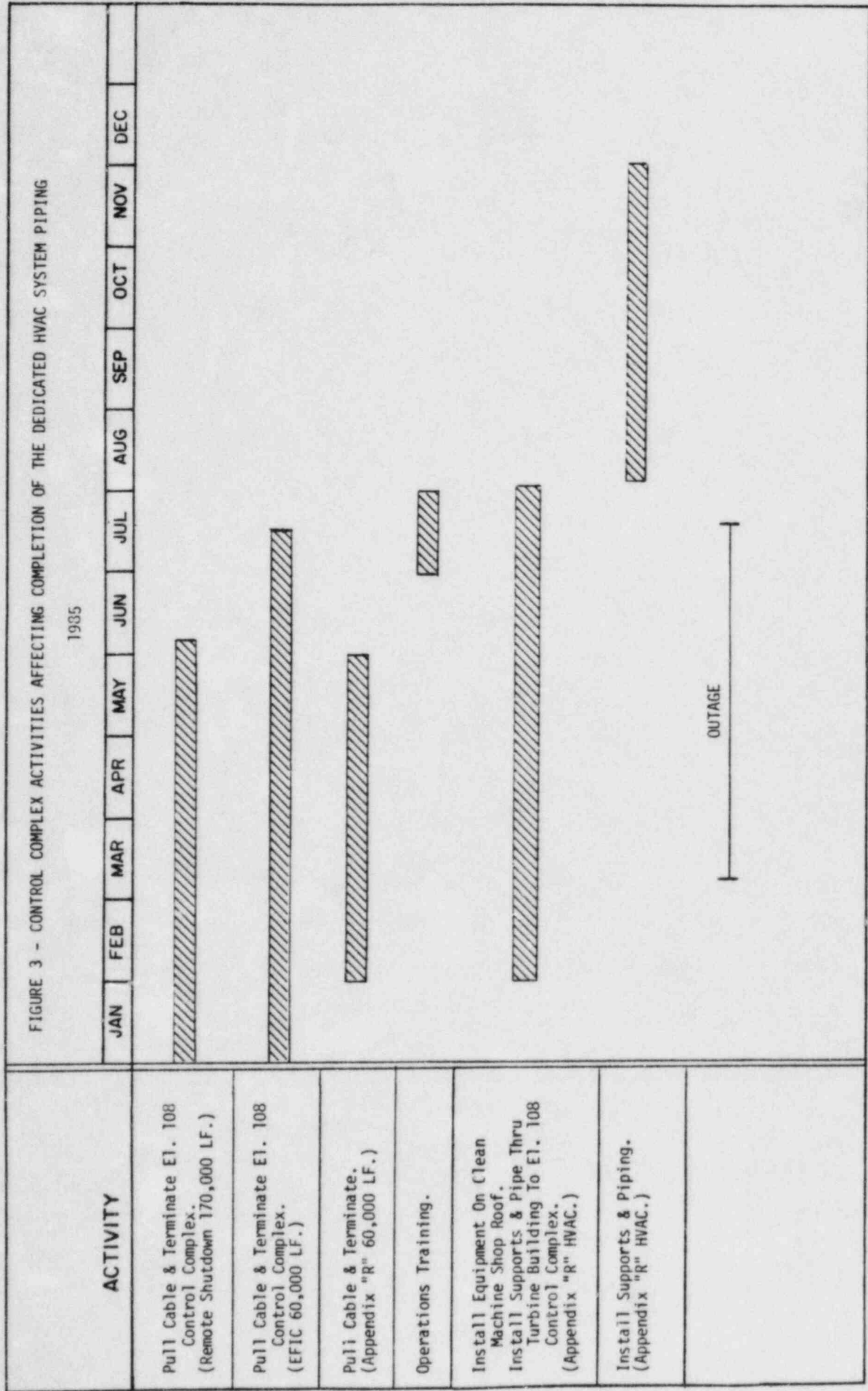


FIGURE 5 - CONTROL COMPLEX ACTIVITIES AFFECTING INSTALLATION OF THE EFIC ROOMS' CEILING FIRE PROTECTION

1985

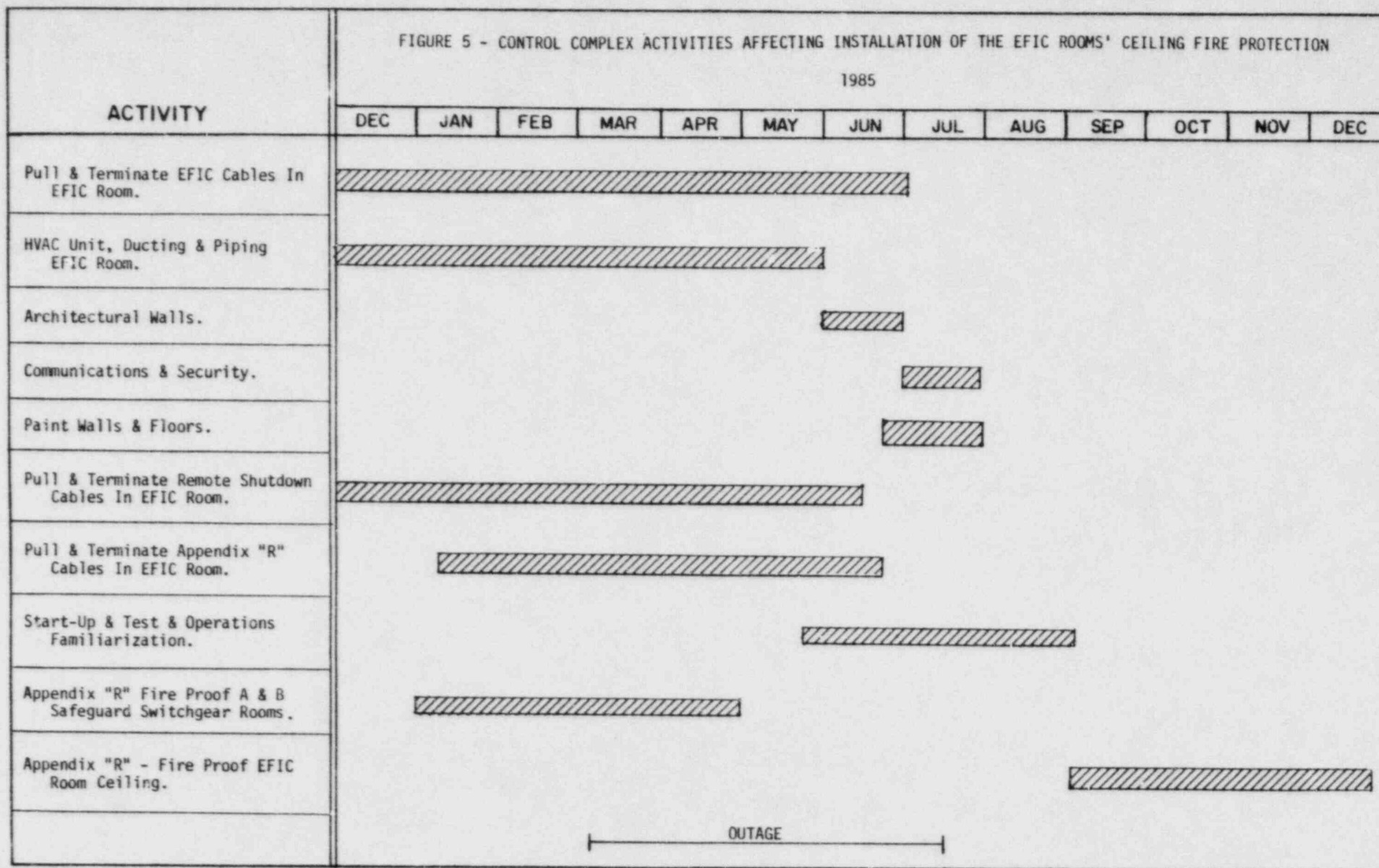


FIGURE 6 - AUXILIARY BLDG., INTERMEDIATE BLDG., & CONTROL COMPLEX ACTIVITIES AFFECTING CABLE TRAY FIRE PROTECTION

