ENCLOSURE 2

DIABLO CANYON POWER PLANT

UNIT 2

Pacific Gas and Electric Company Review of 10 CFR 50 Appendix R, Sections III.G, III.J, and III.O

Rev. 1
October 15, 1984

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1.0 INTRODUCTION

1.1 Background

In 1977, Pacific Gas and Electric Company (PGandE) performed a fire protection review for the Diablo Canyon Power Plant (DCPP) to meet the criteria of Appendix A to Branch Technical Position (BTP) Auxiliary Power Conversion Systems Branch (APCSB) 9.5-1. This review is documented in Amendment 51 to PGandE's application for an operating license. Responses to questions from the Nuclear Regulatory Commission (NRC) Staff Review are documented in letters from PGandE dated February 6, 1978, July 7, 1978, August 3, 1978, and November 13, 1978. The Regulatory Staff documented its review and acceptance of the DCPP fire protection program in Safety Evaluation Report Supplements 8, 9, and 13.

On October 1, 1981, PGandE submitted a letter providing information relating to compliance of its Fire Protection Plan with Sections III.G, III.J, III.L, and III.O of Appendix R to 10 CFR 50. This submittal was required by Section 2.C(6).b of Facility Operating License DPR-76 (Diablo Canyon Unit 1). In reviewing the requirements of the noted sections of Appendix R, PGandE recognized that there were deviations between the existing Fire Protection Plan and Appendix R. Since these deviations had previously been accepted by the NRC Staff in their review of Diablo Canyon to Appendix A to BTP APCSB 9.5-1, PGandE concluded that the deviations were approved exemptions from Appendix R. Subsequently, the NRC advised that the deviations from Appendix R and their justifications should have been redocumented in PGandE's October 1, 1981 letter.

Accordingly, on July 15, 1983, PGandE submitted its Report on 10 CFR 50 Appendix R Review for Unit 1 for NRC review and approval. Responses to questions from the NRC review and further clarifying information to the July 15, 1983 report were documented in letters from PGandE dated September 23 and 27 1983, October 3, 6, 11, 14, and 21, 1983; November 4, 1983; April 17, 1984; and May 16, 1984. In June 1984, the NRC issued Safety Evaluation Report Supplement No. 23 to indicate those areas that PGandE had requested exemptions for were approved.

1.2 Scope

This report provides a general description of the methods used to analyze the safe shutdown capability for DCPP Unit 2 in the event of a fire and loss of offsite power. It also documents the deviations and requests for exemptions to 10 CFR 50, Appendix R, Section III.G, III.J, and III.O. PGandE provides information in this report for each deviation from the requirements of Appendix R and provides reasonable justification of equivalent protection by:

- o Proposing a modification
- o Justifying the existing configuration and requesting an exemption, or
- o A combination of the above.

The Report on 10 CFR 50 Appendix R Review, for Unit 1, dated July 15, 1983, included certain fire areas that were physically common to both Units 1 and 2. That report evaluated only those structures, systems, and components that were necessary for the safe shutdown of Unit 1. In the evaluation of Unit 2 structures, systems, and components, descriptions of these common fire areas are repeated herein to provide continuity to this report. These fire areas are:

AB-1	Auxiliary Building
AB-2	Electrical Area Ventilation Room
AB-3	Electrical Area Ventilation Room
CR-1	Control Room
IS-1	Intake Structure
TB-7	Turbine Building
4-B	Access Control Area

Contrarily, fire areas TB-3 (Emergency Diesel Generator 1-3) and 35A and B (Diesel Fuel Oil Transfer Pump Vaults), which serve both Units 1 and 2, but are located in Unit 1, are not addressed in this report since they have been fully identified in the Unit 1 Report.

1.3 Comparison Between Unit 1 and Unit 2 Reports on 10CFR50 Appendix R Review

While the physical layout of equipment in Unit 2 is essentially identical to that of Unit 1, certain dissimilarities exist. Nonetheless, several exemptions requested for Unit 2 were the same or nearly the same as those requested in PGandE's Unit 1 Report on 10CFR50 Appendix R Review. Both the similarities and variances between the units for areas where exemptions were requested are categorized in three groups. These groups are described in Table 1-1 and include the affected Unit 1 and Unit 2 fire areas, that apply.

Table 1-1

Comparison of Unit 1 & 2 Fire Area Exemptions

Group	Unit 2 Fire Area (Zone)	Corresponding Unit 1 Fire Area (Zone)	Differences Between Unit 1 & Unit 2 Reports on 10CFR50 Appendix R Review
1	Steel Hatches 3-I-2 7-B 30-A-3 30-A-4	Steel Hatches 3-H-2 7-A 30-A-1 30-A-2	The exemptions for the listed Unit 2 fire areas are identical to the Unit 1 exemptions requested and subsequently approved for the corresponding areas in the Unit 1 Report on 10CFR50 Appendix R Review dated July 15, 1983.
2	Fire Doors 3-D-1 3-D-2 3-I-1 3-T-1 AB-1(3-K-1) AB-1(3-K-2) AB-1(3-K-3) CR-1 TB-10 TB-11 TB-12 RCP Oil Collection System	Fire Doors 3-B-1 3-B-2 3-H-1 3-Q-1 AB-1(3-J-1) AB-1(3-J-2) AB-1(3-J-3) CR-1 TB-4 TB-5 TB-6 RCP Oil Collection System	The exemptions for the listed Unit 2 fire areas are similar to the exemptions requested and subsequently approved for their Unit 1 counterparts as described in the July 15, 1983 Report on Appendix R except that typographical errors have been corrected and/or subsequent correspondence with the NRC was required to clarify or supplement the text of the July 15, 1983 Report. The Unit 2 Report includes these clarifications. The dates of the supplemental letters to the NRC are: September 23, 1983;

Table 1-1

Comparison of Unit 1 & 2 Fire Area Exemptions (Cont'd)

Group	Unit 2 Fire Area (Zone)	Corresponding Unit 1 Fire Area (Zone)	Differences Between Unit 1 & Unit 2 Reports on 10CFR50 Appendix R Review
2 (Cont'd)			October 3, 11, 14 and 21, 1983; November 4, 1983; April 17, 1984 (DCL-84-148); May 16, 1984 (DCL-84-185) and October 19, 1984 (DCL-84-259).
3	3-CC	3-BB	The exemptions for the listed Unit 2 fire areas differ from their Unit 1 counterparts in that the location or presence of penetrations, safe shut-down circuitry, proposed modification and/or other physical attributes of the Unit 2 fire areas may be different from those described for the corresponding areas in Unit 1.
	4-B	4-B	
	4-B-1	4-A-1	
	4-B-2	4-A-2	
	5-B-4	5-A-4	
	6-B-3	6-A-3	
	6-B-5	6-A-3	
	9	1	
	19-E	14-E	
	22-C	11-D	
	IS-1	IS-1	
	TB-7	TB-7	
	TB-8	TB-1	
	TB-9	TB-2	
	Emergency Lighting	Emergency Lighting	

2.0 EXECUTIVE OVERVIEW

2.1 Introduction

This report fulfills the commitment for Unit 2 made in Safety Evaluation Report Supplement No. 13, Section 9, related to Diablo Canyon Nuclear Power Plant Units 1 and 2, Docket Nos. 50-275 and 50-323, to implement Sections III.G, III.J, and III.O of 10CFR50, Appendix R.

Documentation of deviations and exemption requests, from these sections of Appendix R, are identified and technical justification provided.

2.2 Summary of Review to 10 CFR 50, Appendix R, Section III.G

Fifty-one fire areas in Unit 2 and common areas were reviewed against the requirements of 10 CFR 50, Appendix R, Section III.G.

Twenty-four fire areas have been determined to be in compliance with Section III.G. Of the remaining areas, ten will be brought into compliance following modifications. Exemptions for seventeen other fire areas are being requested, and justification is provided to demonstrate that these fire areas are provided with an equivalent level of protection to that of Section III.G.

Fifteen exemptions are being requested for these areas (some areas are combined into one exemption request due to the similarity of the deviation). An additional exemption is being requested for a deviation that is not area specific. This exemption request relates to steel hatches located throughout the plant to facilitate equipment removal and installation.

Section 3.0 of this report provides the discussion of safe shutdown capability and the evaluation of Appendix R, Section III.G, for those areas requiring exemption requests or where modifications are proposed.

A summary, by area, indicating compliance, exemptions requested, and/or proposed modification is provided in Table 2-1.

2.3 Summary of Review to 10 CFR 50 Appendix R, Section III.J

The emergency lighting system for DCPP consists of three independent systems: an emergency ac lighting system, an emergency dc lighting system, and emergency self-contained lights with 8-hour battery supply. This emergency lighting system is not in compliance with Appendix R, Section III.J, which requires self-contained lights with 8-hour battery supply for access and egress routes to safe shutdown equipment. However, as discussed in Section 4.0 of this report, the equivalent level of protection is provided when due consideration of the design is given and when the modifications described are made.

Based on the discussion in Section 4.0 of this report an exemption is justified and requested from the requirements of 10 CFR 50 Appendix R, Section III.J.

2.4 Summary of Review to 10 CFR 50 Appendix R, Section III.O

The reactor coolant pump oil collection system, as described in Section 5.0 of this report, does not meet Section III.O capacity requirements.

Based on the discussion in Section 5.0 of this report an exemption is justified and requested from the requirements of 10 CFR 50 Appendix R, Section III.O.

TABLE 2-1

SUMMARY OF FIRE AREA STATUS

Fire Area	Description	Meets Appendix R Section III.G	Exemption Requested	Modification Proposed
3-D-1	RHR Pump and Hx Room		X	
3-D-2	RHR Pump and Hx Room		X	
3-I-1	Centrifugal Charging Pump Room		X	
3-I-2	Reciprocating Charging Pump Room		X	
3-T-1	Auxiliary Feedwater Pump Room		X	
3-V-1	Ventilation Room	X		
3-V-5	Ventilation Room	X		
3-V-12	Ventilation Room	X		
3-CC	Containment Penetration Area		X	X
4-B	Showers, Lockers, and Access Control		X	X
4-B-1	G Bus Compartment	X		X
4-B-2	H Bus Compartment	X		X
5-B-1	480V Vital Switchgear, F Bus	X		
5-B-2	480V Vital Switchgear, G Bus	X		
5-B-3	480V Vital Switchgear, H Bus	X		
5-B-4	480V Nonvital Switchgear and Hot Shutdown Panel		X	X
6-B-1	Battery, Inverter, and dc Switchgear, F Bus	X		
6-B-2	Battery, Inverter, and dc Switchgear, G Bus	X		
6-B-3	Battery, Inverter, and dc Switchgear, H Bus	X		X
6-B-4	Reactor Trip Switchgear	X		
6-B-5	Electrical Area		X	X
7-B	Cable Spreading Room	X		X

TABLE 2-1 (Cont'd)

Fire Area	Description	Meets Appendix R Section III.G	Exemption Requested	Modification Proposed
7-D	Communications Room	X		
8-H	Safeguards Room	X		
9	Containment Building	X		X
18	Turbine Lube Oil Reservoir	X		
19-E	CCW Heat Exchangers		X	
20	12kV Switchgear and Cable Spreading Room	X		
22-C	Corridor Outside Diesel Generator Rooms		X	X
24-D	Excitation Switchgear Room	X		
29	Unit 2 Main Transformer	X		
30-A-3	Auxiliary Saltwater Pump 2-1 Vault		X	
30-A-4	Auxiliary Saltwater Pump 2-2 Vault		X	
33	Security Diesel Generator Room	X		
34	Area Outside Building (Elevation 140 feet)	X		
36	Technical Support Center	X		
AB-1	Auxiliary Building		X	X
AB-2	Electrical Area Ventilation Room	X		
AB-3	Electrical Area Ventilation Room	X		
CR-1	Control Room		X	X
FB-2	Fuel Handling Bldg, Corridor, and Spent Fuel Pool Hx and Pump Room	X		
IS-1	Circulating Water Pump Room and Intake Structure Control Room	X		X
TB-7	Turbine Building	X		X

TABLE 2-1 (Cont'd)

Fire Area	Description	Meets Appendix R Section III.G	Exemption Requested	Modification Proposed
TB-8	Emergency Diesel Generator 2-1		X	X
TB-9	Emergency Diesel Generator 2-2		X	X
TB-10	4.16kV Cable Spreading Room and Switchgear Room, F Bus	X		X
TB-11	4.16kV Cable Spreading Room and Switchgear Room, G Bus	X		X
TB-12	4.16kV Cable Spreading Room and Switchgear Room, H Bus	X		X
TB-13	Switchgear Fan Room, QA Document Storage Room, and Traveling Crew Quarters	X		
V-3	Ventilation Room	X		
V-4	Ventilation Room	X		

3.0 SAFE SHUTDOWN CAPABILITY AND EVALUATION TO APPENDIX R, SECTION III.G

3.1 Identification of Fire Areas

3.1.1 Scope

This section provides detailed information on the criteria and methodologies used to develop fire area and zone definitions for DCPP. In addition, the methodology utilized to develop equivalent fire severities for each fire area is discussed. The results of these activities are presented in Tables 3-1 through 3-4 and on Figures 3-1 through 3-27.

3.1.2 Background

On September 30, 1976, the NRC requested PGandE to provide an evaluation of their fire protection plan to Branch Technical Position (BTP) APCSB 9.5-1 for Units 1 and 2 at DCPP. On July 27, 1977, PGandE responded to this request with the Fire Protection Review. This review consisted of the following:

- o A fire hazards analysis of those areas important to safety
- o A comparison of the existing fire protection program provisions with the guidelines of Appendix A to BTP APCSB 9.5-1
- o An evaluation of the deficiencies identified and either justifications based on the fire hazards analysis or proposed changes

In performing the review, PGandE identified areas containing equipment and components important to safety. These areas and adjacent areas with fire hazard potential were subdivided into fire areas and fire zones, based on existing boundary fire barriers and other logical physical divisions or equipment grouping. "Fire areas" were major buildings or regions isolated from other areas of the plant by 3-hour fire barriers. "Fire zones" were subdivisions of fire areas established for purposes of the review and generally enclosed particular systems.

3.1.3 Fire Areas for Appendix R Review

A fire area is defined as that portion of the plant that is separated from other areas by boundary rated fire barriers (walls, floor, and ceiling) with any openings or penetrations protected with seals or closures having a fire resistance rating equal to that of the barrier. The barrier rating is commensurate with the fire hazard within each area. At DCPP, the construction of walls, floors, and ceilings is typically of heavy, reinforced concrete with an inherent fire rating in excess of 3 hours. In addition to this construction, the definition of the fire area barriers must also address the protection provided for the doorways, ducts, stairways, hatches, and other penetrations in the fire barrier.

The general guidelines used for establishing fire areas in this response to Appendix R were the fire zones and areas previously defined from the original Fire Protection Review. Locations which could be defined as fire areas were identified within the plant. This resulted in combinations of certain previously defined fire zones into fire areas. Table 3-1 is a compilation of all the Unit 2 fire areas.

Fire doors and dampers at DCPP are typically of either 1-1/2 or 3-hour rated construction when they form part of a barrier separating fire areas. Ratings may not exist for doors or dampers that form fire zone boundaries. Specific exemption requests address situations where doors or dampers in fire area barriers are not rated.

Building exterior boundaries of fire areas may contain unrated doors and penetrations. These are not specifically addressed unless there is an exposure hazard that challenges the interior structure and occupancy.

Section 7, page 69, of the National Fire Protection Association's (NFPA) Fire Protection Handbook, 14th Edition, only requires fire dampers to be installed in ductwork penetrating barriers with a fire resistance rating of more than 1 hour. In addition, it states sheet metal ducts of the gauges commonly used may protect an opening in a fire barrier for up to 1 hour, if properly hung and fire stopped.

All hatches that form part of a barrier separating fire areas containing redundant safe shutdown equipment are addressed by specific exemption requests as applicable.

Certain penetrations and openings in barriers may exist either as natural ventilation flow paths or to facilitate other aspects of plant and building design (water drainage paths, room pressure relief for hypothesized pipe breaks, etc.). Situations where these cases may affect the fire hazard analysis for the various fire areas are addressed by specific exemption requests.

Other penetrations and openings in barriers, where fire could reasonably propagate to redundant trains of safe shutdown equipment, are sealed to provide a level of fire protection commensurate with the fire hazard in the fire area.

The combustible loading is provided for each fire area requiring an exemption request. The basis for this value is the Fire Protection Review's fire hazards analysis. Each fire area containing safe shutdown equipment was physically inspected to evaluate any combustible material which may have been added subsequent to the 1977 fire hazard analysis. An estimate of the current combustible loading is presented with the corresponding fire severity. The fire severity was calculated using the criteria presented in Table 6-8A of the NFPA Fire Protection Handbook, 14th edition.

3.2 Safe Shutdown Systems Identification

3.2.1 Design Basis Event

For the purpose of this review and submittal the spectrum of postulated exposure fires in a given plant area will involve either in situ or transient combustibles located in or adjacent to the area. The effects of such fires are analyzed to determine if they may adversely impact structures systems, or components essential to safe plant shutdown. Other than the loss of offsite power, no other design basis event is assumed to occur concurrent with the postulated fire scenario.

Generally, the fire hazard analysis assumed complete combustion of all combustible loading in a fire area, as well as instantaneous spills or releases of combustible solids, liquids, and gases. This provides for a conservative margin of safety in determining the combustible loading and equivalent fire severity.

In general, recognizing the confined physical location of such fires and the operational flexibility and physical diversity of systems available to achieve safe shutdown, and the defense-in-depth fire protection features provided, fire damage would be limited to the extent that unaffected plant systems will be able to achieve safe shutdown. An extensive effort would be required to identify the effects of postulated fires in all potential plant locations on all the plant systems that are normally available to bring the plant to a safe shutdown condition. As a conservative alternative to this approach, a specific set of plant systems (safe shutdown systems) and components is identified in response to the requirements of Appendix R (see Section 3.2.4). The identified systems and components can achieve and maintain safe shutdown regardless of the location of the fire and the loss of offsite power. Demonstration of adequate protection of this set of systems from the effects of postulated fires constitutes an adequate and conservative demonstration of the ability to achieve and maintain safe shutdown for the purpose of fire protection.

The safe shutdown systems selected for DCPP will be capable of achieving and maintaining subcritical conditions in the reactor, maintaining reactor coolant inventory, achieving and maintaining hot conditions, achieving cold shutdown conditions, and maintaining cold shutdown conditions thereafter.

3.2.2 Assumptions and Definitions

The following are the initial assumptions used in this review:

- The unit is operating at 100% power upon the occurrence of a fire and concurrent loss of offsite power.

- The reactor is tripped either manually or automatically.

- The only failures considered are the postulated loss of offsite power and those directly attributable to the fire.

- The integrity of piping is not affected by a postulated fire except in cases of soldered or brazed joints.

- No piece of equipment required for safe shutdown is assumed to be out of service for maintenance.

Definitions for the various modes of operation:

- HOT STANDBY – Reactor at 0% thermal rated power excluding decay heat, K_{eff} less than 0.99, and reactor coolant system (RCS) average temperature greater than or equal to 350°F

- HOT SHUTDOWN – Reactor at 0% rated thermal power exluding decay heat, K_{eff} less than 0.99, and RCS average temperature less than 350°F but greater than 200°F

- COLD SHUTDOWN – Reactor at 0% rated thermal power excluding decay heat, K_{eff} less than 0.99, and RCS average temperature less than or equal to 200°F.

3.2.3 Safety Functions

The following is a list and description of the specific shutdown functions necessary to satisfy Appendix R acceptance criteria:

(1) Reactor reactivity control
(2) Reactor coolant makeup control
(3) Reactor coolant pressure control
(4) Reactor heat removal
(5) Process monitoring
(6) Miscellaneous supporting functions

3.2.3.1 Reactor Reactivity Control

In accordance with the technical specifications, the reactor reactivity control function will provide sufficient SHUTDOWN MARGIN to ensure that (1) the reactor can be made subcritical from all operating conditions, (2) the reactivity transients associated with postulated accident conditions are controllable within acceptable limits, and (3) the reactor will be maintained sufficiently subcritical to preclude inadvertent criticality in the shutdown condition.

The two means of reactivity control are control rods, which provide the immediate shutdown reactivity, if required to trip the reactor from power, and additional soluble boron, which will maintain adequate SHUTDOWN MARGIN for the transition from HOT STANDBY to COLD SHUTDOWN.

No postulated fire will prevent the initiation of a reactor trip either by an automatic or a manual actuation. No postulated fire will prevent the addition of soluble boron necessary to maintain required SHUTDOWN MARGIN throughout the shutdown period.

3.2.3.2 Reactor Coolant Makeup Control

The reactor coolant makeup control function will ensure sufficient makeup inventory is provided for: (1) Reactor coolant system (RCS) fluid losses due to reactor coolant system leakage as allowed by the technical specifications, and (2) Shrinkage of the reactor coolant system water volume during cool-down from HOT STANDBY to COLD SHUTDOWN conditions

Adequate performance of this function is demonstrated by maintaining reactor coolant level within the pressurizer.

For the assumed fire scenario, reactor coolant makeup is achieved by operation of the charging portion of the chemical and volume control system (CVCS). Normal and excess letdown paths of the CVCS can be isolated to reduce the required makeup. The reactor coolant pump seal

injection provides a makeup path in addition to the normal and alternate charging paths. The boron injection tank (BIT) injection path may also be used for added operational flexibility.

For the fire scenarios assumed in this analysis, inventory makeup to the RCS will be from either the normal RCS makeup system or from the refueling water storage tank by the normal charging path, the reactor coolant pump seal injection path, or BIT injection path. The negative reactivity inserted by the control rods and boron addition from any of the available sources will maintain the reactor core subcritical by the required SHUTDOWN MARGIN while cooling down the RCS.

3.2.3.3 Reactor Coolant Pressure Control

Reactor coolant pressure control ensures that: (1) reactor coolant system integrity is maintained by providing overpressure protection, (2) fuel cladding integrity is protected by restricting power operation to within the nucleate boiling region by maintaining reactor coolant system (RCS) pressure and temperature within Technical Specification limits, and (3) sufficient subcooling margin is provided to minimize void formation within the reactor vessel.

Overpressure protection of the RCS is provided for the HOT STANDBY (prior to cooldown and depressurization) by the pressurizer safety valves. Added flexibility is provided by the pressurizer power-operated relief valves (PORVs) and pressurizer auxiliary spray valves. After depressurization, when the RCS is aligned with the residual heat removal system (RHR), overpressure protection is provided by RHR suction relief valves or by activating the pressurizer PORV low-pressure setpoint capability. RCS pressure temperature will be maintained within Technical Specification limits by controlling cooldown.

Thus, for the Appendix R fire scenario, adequate subcooled margin is achieved and maintained by operator action using information received from the RCS pressure and temperature instrumentation.

3.2.3.4 Reactor Heat Removal

The reactor heat removal function is capable of transferring fission product decay heat from the reactor core at a rate such that specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. Following a reactor trip with an assumed loss of offsite power, decay heat is initially removed by natural circulation of the RCS, heat transfer to the main steam system through the steam generators, and operation of either the 10% steam dump valves or the main steam system code safety valves. Decay heat removal requires that sufficient feedwater be supplied to the steam generators to make up for the inventory discharged as steam by the safety or dump valves. The auxiliary feedwater system (AFW) will supply sufficient feedwater to make up for inventory losses during initial maintenance of HOT STANDBY and subsequent cooldown. Feedwater is available from the condensate storage tank, the fire water storage tank, and from the raw water reservoir, if necessary. Feedwater may be supplied to the steam generators by the motor-driven auxiliary feed pumps or by the steam turbine-driven auxiliary feed pump.

After reduction of reactor coolant system temperature to less than 350°F, the RHR system is used to provide long-term core cooling through the removal of decay heat from the RCS to the environment through the component cooling water (CCW) system and the auxiliary saltwater (ASW) system.

3.2.3.5 Process Monitoring

The process monitoring function is capable of providing direct readings of those plant process variables necessary for plant operators to perform and/or control the previously identified functions.

Various process monitoring functions must be available to achieve and maintain the reactor coolant makeup, pressure control, and decay heat removal functions adequately. For the Appendix R fire scenario, maintenance of HOT STANDBY requires that pressurizer level and RCS pressure instrumentation be available. RCS temperature is maintained

during HOT STANDBY by proper decay heat removal via steam generators and self-actuation of the main steam code safety valves or controlled operation of the steam generator 10% steam dump valves. In the natural circulation mode of operation, the difference between the hot leg and cold leg wide range temperatures (T_h-T_c) provides a direct indication of the existence of a natural circulation condition.

Operating personnel, by monitoring RCS pressure and hot leg temperature (T_h) instrumentation, and by manual control of the pressurizer heaters, will maintain RCS pressure to ensure that adequate subcooled margin is achieved for the RCS temperature which exists during this period. Maintenance of pressurizer level control is achieved by monitoring pressurizer level instrumentation and manual control of CVCS charging flow.

Maintenance of HOT STANDBY also requires the control of the secondary system to compensate for variations in the primary system performance. Steam generator level and pressure are available to ensure adequate monitoring of controlled decay heat removal. Steam generator level control is achieved by automatic or manual manipulation of AFW system flow, based on steam generator level indication. Steam generator pressure is monitored for controlled manipulation of secondary system pressure.

The transition from HOT STANDBY to HOT SHUTDOWN will use the instrumentation discussed above to monitor the natural circulation conditions, subcooling margin, heat removal, and compliance with the plant pressure/temperature limits as they pertain to the low temperature overpressure protection of the RCS (cold leg temperature in conjunction with RCS pressure).

3.2.3.6 Miscellaneous Supporting Functions

The systems and equipment used to perform the previous functions may require miscellaneous supporting functions such as process cooling and ac/dc power. These supporting functions will be available and capable of providing the support necessary to ensure acceptable performance of the previously identified safe shutdown functions.

For the purpose of the fire scenarios, the various systems required to provide support to safe shutdown equipment or systems are the emergency power system, ASW system, and the CCW system. A brief description of these support systems and the individual safe shutdown equipment is provided in Section 3.2.4 below.

3.2.4 Description of Safe Shutdown Systems

The following description and Table 3-2 identifies the minimum set of systems and components required to attain safe shutdown in response to the requirements of Appendix R. Redundancy of equipment is specified for each component. In some cases, supporting or backup equipment which may be available to provide operator flexibility is also listed.

3.2.4.1 Emergency Power Supply

Required emergency power supply for safe shutdown equipment and instrumentation has been tabulated assuming loss of offsite power. The required emergency power equipment includes the emergency diesel generators and their support equipment: the fuel transfer pumps, the batteries, battery chargers, inverters, vital switchgear, and associated power cabling. Two of the three emergency power supply buses are adequate for safe shutdown.

3.2.4.2 Auxiliary Feedwater System

One of three AFW pumps and associated level control valves are required for safe shutdown. These components are controllable from the hot shutdown panel if required.

The normal AFW system supply is the condensate storage tank with the fire water storage tank available for use as a backup supply.

3.2.4.3 Residual Heat Removal System

One of two residual heat removal flow paths is required to reach COLD SHUTDOWN. This requires an RHR pump, heat exchanger, and valves in

the flow path to be available. If the control room is uninhabitable, the required RHR pump and valves can be operated at the switchgear or locally.

3.2.4.4 Charging and Boration

One of three charging pumps (two centrifugal and one reciprocating) is required for safe shutdown. The two centrifugal pumps and the boric acid transfer pumps and necessary valves are controllable from the hot shutdown panel.

Numerous charging and boration flow paths have been identified, any one of which is adequate for safe shutdown. Two sources of concentrated boron are available (boric acid tanks and boron injection tank). Sufficient boron is available in the boron injection tank to reach HOT SHUTDOWN and sufficient boron is available in either boric acid tank to reach COLD SHUTDOWN. A third source and path for borating the reactor coolant system for cold shutdown conditions is by using the refueling water storage tank and charging borated water through the reactor coolant pump seals.

3.2.4.5 Component Cooling Water System (CCW)

The CCW system is required to provide cooling for the RHR system and the charging pumps. One of the three CCW pumps and one of the two CCW heat exchangers are required for safe shutdown. The CCW pumps are controllable from the hot shutdown panel.

3.2.4.6 Auxiliary Saltwater System (ASW)

The ASW system is the ultimate heat sink for the CCW system. One of two ASW pumps (controllable at the hot shutdown panel) is required for safe shutdown.

3.2.4.7 Main Steam System

Some components of the main steam system are required for safe shutdown to maintain water inventory and to provide steam generator pressure relief and removal. The active components in this system

consist of the main steam isolation valves, the 10% steam relief valves, the steam generator safety valves, and the steam generator blowdown isolation valves. The steam generator blowdown isolation valves are required to close to maintain water inventory. The main steam isolation valves are required to close only if a steam line break occurs. Steam generator pressure relief and heat removal is accomplished with the 10% steam dump valves or the steam generator safety valves.

3.2.4.8 Instrumentation

Instrumentation required for safe shutdown consists of indication for steam generator level and pressure, RCS pressure and temperature, and pressurizer level. Cooldown can be accomplished using a single reactor coolant loop and steam generator; instrumentation would be required for that loop and steam generator. Neutron source range monitors provide an indication of reactor reactivity. Four instrument ac channels provide power for the instrumentation. Channels I and II are powered from either the 125V dc batteries, 2-1 and 2-2, or the 480V vital buses, F and G, respectively. Channels III and IV are powered from either the 125V dc batteries, 2-3 and 2-2, respectively, or the 480 V vital H bus. In all cases, the batteries are the preferred source. Sufficient instrumentation is available assuming two of three vital buses are available.

3.2.4.9 Ventilation

Each ASW pump room is provided with a separate ventilation system. The ventilation system associated with the corresponding operating ASW pump is required to operate for safe shutdown.

3.3 Method of Evaluation and Review

The review for compliance with Section III.G was accomplished by defining those systems and components required for a normal safe shutdown, and then evaluating the circuits that are required to provide power and control for those systems.

Circuits which could adversely affect safe shutdown capability were identified for review. These circuits include those required to operate safe shutdown components and those which could prevent safe shutdown components from performing their safety function. Circuits sharing common power sources with safe shutdown circuits and those which could cause spurious operation and prevent safe shutdown were also evaluated. Table 3-3 identifies potential spurious operating components, and presents the effect of malfunction and the proposed resolution to maintain safe shutdown conditions.

Circuits that are located in a fire area that are all of the same vitality were not uniquely identified, as a loss of that vitality, would not affect the ability to achieve COLD SHUTDOWN.

Nonsafety-related circuits terminating in an enclosure which houses safe shutdown circuitry are electrically isolated via breakers, fuses, or similar protection. Cable insulation is flame retardant to inhibit propagation of the fire into the common enclosure which contains safe shutdown circuitry. Breaker and fuse protection is properly coordinated and selective tripping is provided for all circuits on the emergency power system and engineered safety feature components.

All Class 1E cable is contained in conduit, except in those areas where only one vital bus is located within a fire area, or in the cable spreading room and the control room. In these cases, some cable tray may exist. Thus, inherent protection is provided from fires propagating to other circuits necessary for safe shutdown. In some cases, power cables are routed in conduit which are embedded in concrete.

Fires propagating by cable trays were considered unlikely since all horizontal cable trays are fire stopped at a maximum of every 12 feet and all vertical cable trays are fire stopped at a maximum of every 5 feet.

In the evaluation of certain fire areas, credit was taken for manual operation of specific equipment in order to achieve HOT SHUTDOWN. The extent of this credit is in compliance with the NRC memorandum

from Roger J. Mattson, Director, Division of Systems Integration, to Roger H. Vollmer, Director, Division of Engineering, dated July 2, 1982, which states:

> "Operability of the hot shutdown systems, including the ability to overcome a fire or fire suppressant induced maloperation of hot shutdown equipment and the plant's power distribution system, must exist without repairs. Manual operation of valves, switches, and circuit breakers is allowed to operate equipment and isolate systems and is not considered a repair. However, the removal of fuses for isolation is not permitted. All manual operations must be achievable prior to the fire or fire suppressant induced maloperations reaching an unrecoverable plant condition."

The circuits for equipment required for maintaining COLD SHUTDOWN were not included in the evaluation, as sufficient time would be available to allow credit for manual operation of this equipment, and achievement of COLD SHUTDOWN within 72 hours.

Heat tracing for the boric acid lines was not evaluated since loss of this heat tracing would be alarmed in the control room. Sufficient time would then be available for the operators to decide to borate before the boron solidified in the piping. Alternately, borated water could be injected via a different flow path using the refueling water storage tank as its source.

Ventilation systems for areas containing safe shutdown equipment may be affected as a result of fire. PGandE has analyzed the effects that loss of ventilation in the auxiliary building and the fuel handling building would have on the safe shutdown equipment it served (CCW, CVCS, and AFW areas). The results indicated that safe shutdown equipment would not be adversely affected due to loss of ventilation. In other plant areas containing safe shutdown equipment that could be affected by loss of ventilation, the rooms are

monitored, as necessary, with installed local temperature instruments. Temperature limits are identified in Technical Specification 3/4.7.11 for crucial equipment required for safe shutdown. PGandE will maintain temperatures within these limits or take appropriate action as provided for in the Technical Specifications.

The Station Blackout Accident Analysis (NUREG/CR-3226) indicates that natural circulation could be established in critical plant areas simply by opening doors. In the unlikely event that a particular area (e.g., battery room) would need ventilation, four portable 5200 cfm ventilation fans (three electrical and one gasoline powered) are available to cool the compartments. Vital power is available at local electrical outlets throughout the plant. Other electrically powered ventilation fans used for maintenance purposes may also be available for use during a loss of ventilation condition, as required.

The ventilation for the ASW pump cubicles has been included in the safe shutdown analysis as required equipment.

Once the circuits for safe shutdown components were identified, the raceway and fire areas were highlighted on electrical raceway layout drawings so that separation of electrical and mechanical equipment could readily be identified. Embedded conduits were assumed not to be affected by a fire in any area. Each raceway was coded with its corresponding electrical vital bus, the system it served, and the fire zone/area through which it was routed. These data were then entered into the computer and sorted to provide a means of organizing the information for evaluation and for checking the accuracy of the highlighted raceway layout drawings.

An analysis of each zone/area was then undertaken and the effects of a fire, due to in situ and transient combustibles on the safe shutdown raceway routed through or terminating in that fire zone/area, was assessed. Logic trees for the safe shutdown systems were used to ensure that success paths for one complete train are available.

The fire zones/areas were evaluated for their ability to confine a postulated fire to that zone/area. Equivalent fire severities were determined for each fire area/zone and were based on the ASTM E-119 time-temperature curve. If a fire in one fire zone could communicate with other fire zones through open walls, penetrations, ductwork without fire dampers, etc., then circuits in the adjoining zones/areas were also evaluated to ensure that a means was always available to safely bring and maintain the plant to HOT/COLD SHUTDOWN condition.

3.4 Areas For Which Exemptions Are Requested or Modifications Proposed

3.4.1 Introduction

The results presented in the following section describe the justification for the exemption requests and are generally in two categories:

- Fire barriers separating redundant safe shutdown circuits or compartments.

  The fire barrier exemption requests are generally due to barrier penetrations with no rating or ratings less than 3 hours. Analysis, in most cases, demonstrates that fires will be contained in the area affected and that a high level or inherent fire protection exists to provide equivalence to the rated fire barrier. In some instances, it was found reasonable and prudent to propose modifications which would provide protection to one safe shutdown train.

  Those fire areas containing shutdown equipment adjacent to areas containing redundant trains have been analyzed. Where penetrations exist through barriers, consideration has been given to installed active and passive fire protection features, examples of which are circuitous paths between redundant trains, spatial separation of the equipment and circuits, location and

type of penetration deficiencies, and the continuity of combustibles between redundant trains. The exemptions requested for fire barriers as a result of this analysis provide justification that the barrier will provide protection to one train of redundant safe shutdown equipment, in the unlikely event a postulated fire occurs.

- Redundant safe shutdown circuits separated by less then 20 feet.

  Requests for exemption from the 20-foot separation requirements of Appendix R are typically due to cable separation on the order of 8 to 14 feet outside containment. A fire hazards analysis has been performed which utilizes the design fire protection features of the area. This approach gives consideration to the following:

  - Lack of intervening combustibles
  - Use of vented tray covers
  - Fire stops provided for cable trays
  - Safe shutdown cables are routed in conduit except in those areas where only one vital bus is located within a fire area.

3.4.2 Exemption Requests to 10 CFR 50 Appendix R, Section III.G

The following describes the fire areas for which exemptions are being requested, and justification provided, for their deviation from 10 CFR 50 Appendix R, Section III.G.

Due to the similarity in plant layout between Diablo Canyon Units 1 and 2, exemption requests similar to those written herein were also requested in PGandE's Report on 10 CFR 50 Appendix R Review for Unit 1 dated July 15, 1983, and supplemental correspondence noted in paragraph 3 of Section 1.1 of this Report. Those exemptions for Unit 1 were approved by the NRC in Safety Evaluation Report Supplement No. 23, dated June 1984.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

One-inch thick steel access hatches separate fire areas 4-B at elevation 85 feet, 5-B-4 at elevation 100 feet, 6-B-5 at elevation 115 feet, and 7-B at elevation 125 feet. The steel hatches do not meet the separation requirements of Appendix R, Section III.G.2.

BASIS FOR EXEMPTION REQUEST

1. As previously documented in an internal NRC memorandum dated March 29, 1978 (Subject: Summary of February 14 and 15, 1978, Meeting with PGandE on the DCPP Fire Protection Program) to Robert L. Tedesco, Assistant Director for Plant Systems, from Peter C. Ahearn of the Auxiliary Systems Branch, through Victor Benaroya, Chief of the Auxiliary Systems Branch and Donald C. Fisher, Section Leader of the Auxiliary Systems Branch, and, as summarized in Enclosure 2, dated February 15, 1978, to the above referenced memorandum, the 1-inch steel hatches which separate fire areas 4-B at elevation 85 feet, 5-B-4 at elevation 100 feet, 6-B-5 at elevation 115 feet, and 7-B at elevation 125 feet provide a level of protection equivalent to the hazards in these areas. These areas are also designated as "No Storage" areas.

2. Replacing the 1-inch steel hatches with rated hatches would not enhance, to a significant degree, the level of protection provided by the current configuration.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Doors to the 4160V switchgear rooms, 480V switchgear rooms, battery, inverter, and reactor trip switchgear rooms all have removable steel side panels and some removable steel transoms, to provide a larger opening for equipment removal/replacement. These panels are constructed of metal and are not provided with the UL label.

The following table list the fire zones/areas, doors, and their ratings:

Fire Zone/Area	Door No.	Door Rating
24-A	310-2	B
24-B	308-2	B
24-C	306-2	B
5-B-1	236-2	A
5-B-1	237-2	A
5-B-2	238-2	A
5-B-3	239-2	A
6-B-1	330-2	A
6-B-2	331-2	A
6-B-3	339-2	A
6-B-4	340-2	A

PROPOSED MODIFICATIONS

Each side panel and transom assembly will be removed and replaced with a 3-hour rated fire wall. Doors and door frames will be labeled as follows, commensurate with the fire loading for each fire area/zone: 1-1/2-hour for fire zones 24-A, 24-B, 24-C, and 3-hour for fire areas 5-B-1, 5-B-2, 5-B-3, 6-B-1, 6-B-2, 6-B-3, and 6-B-4.

FIRE AREA: 3-D-1
TITLE: RHR PUMP 2-1 and HEAT EXCHANGER ROOM
FIGURES: 3-5, 3-6, 3-7, 3-8, and 3-15

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 3-D-1, which consists of residual heat removal (RHR) pump 2-1 and the heat exchanger room, is located at the southern end of the auxiliary building. The floor level is at elevation 58 feet and the area extends upward to elevation 113 feet in the heat exchanger shaft. The walls, floor, and ceiling are 3-hour rated fire barriers with the following exceptions:

1. Overflow opening in the wall 5 feet above elevation 54 feet communicates with zone 3-C (fire area AB-1).

2. At elevation 64 feet, a 1-1/2-hour rated door and duct penetrations without fire dampers in the west wall of fire area 3-D-2, and a 1-1/2-hour rated door and duct penetrations without fire dampers in the east wall of fire area 3-D-1, communicate through fire zone 3-D-3 (fire area AB-1). A 3-hour rated double door, modified to accommodate a monorail, is located in the east wall of fire area 3-D-1 and communicates with fire zone 3-D-3 (fire area AB-1)

3. An open doorway with a security gate and open penetrations at elevation 75 feet communicate with fire area 3-I-1.

4. At elevation 64 feet, duct penetrations without fire dampers in the east wall of fire area 3-D-2 and a duct penetration without a fire damper in the west wall of fire area 3-D-1 communicate with fire zone 3-C (fire area AB-1).

5. A duct penetration without a fire damper at elevation 104 feet communicates with fire zone 3-X (fire area AB-1).

6. A concrete equipment hatch located at elevation 115 feet communicates with fire zone 3-AA (fire area AB-1).

COMBUSTIBLES

The in situ combustible loading in fire area 3-D-1 is about 862 Btu/ft^2 with an equivalent severity of less than one minute. In situ combustible loading consists primarily of oil and grease evenly distributed throughout the entire 675 square foot area.

Transient combustible loading is estimated to present an additional 7820 Btu/ft^2 with an equivalent severity of approximately 6 minutes. This loading will include grease, oil, solvent, and radiological Class A combustibles evenly distributed throughout the entire 675 square foot area.

MAJOR EQUIPMENT

Fire area 3-D-1 contains residual heat removal pump 2-1 and residual heat removal heat exchanger 2-1. This equipment is not required for HOT SHUTDOWN.

For a listing of the raceways required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection systems provide 100% coverage in this area and alarm in the continuously manned control room.

SUPPRESSION

Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 3-D-1 does not meet the requirements of Appendix R, Section III.G.2(a) in that the 3-hour rated fire barriers do not contain appropriately rated doors, fire dampers, and penetration seals. At elevation 64 feet, 3-hour rated fire barriers and fire zone 3-D-3 (approximately 10 feet wide) separate fire areas 3-D-1 (residual heat removal pump 2-1) and 3-D-2 (pump 2-2); however, duct penetrations without fire dampers connect fire areas 3-D-1 and 3-D-2 through fire zone 3-D-3. Ducts penetrating the west wall of fire area 3-D-1 and east wall of fire area 3-D-2 connect to a common building ventilation system in zone 3-C. These two duct penetrations are separated by a minimum of 50 feet. In addition, one door in the east barrier of 3-D-1 and one door in the west barrier of 3-D-2, which are 1-1/2-hour rated, and a 3-hour rated double door, modified to accommodate a monorail, are located in these same walls. At elevation 75 feet, fire area 3-D-1 communicates with fire area 3-I-1 via a normally locked security gate and open penetrations. However, fire area 3-D-2 at this elevation is separated from fire area 3-D-1 by a 3-hour rated barrier. At elevation 104 feet, ducts without fire dampers penetrate the walls of fire areas 3-D-1 and 3-D-2 and connect to a common building ventilation system in zone 3-X; however, a minimum of 35 feet separates the two duct penetrations.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2(a) of Appendix R, which requires that 3-hour rated fire barriers be protected by appropriately rated doors, fire dampers, and penetration seals. The technical bases that justify the exemption request are detailed below.

1. The in situ loading in fire area 3-D-1 is approximately 862 Btu/ft^2 with an equivalent severity of less than 1 minute. In

addition, the transient combustible loading is approximately 7,820 Btu/ft^2 with an equivalent fire severity of about 6 minutes. A postulated instantaneous oil spill would create a thin oil film on the concrete slab as it flows to the sump area. The heat absorption capability of the concrete floor heat sink would greatly reduce the rate of vaporization of the thin film of oil, minimizing the probability of ignition from any source.

2. The total combustible loading in fire area 3-D-2 (approximately 8,682 Btu/ft^2 with an equivalent severity of 7 minutes) and the total combustible loading in fire zone 3-D-3 (approximately 10,166 Btu/ft^2 with an equivalent severity of approximately 8 minutes) would not have sufficient fire duration to breach the existing fire barriers, assuming a worst case scenario of instantaneous total heat release of combustibles.

3. At elevation 64 feet, a minimum of 10 feet of separation exists between the duct penetrations without fire dampers in fire areas 3-D-1 and 3-D-2 through fire zone 3-D-3.

4. At elevation 64 feet, a minimum of 10 feet of separation exists between the 1-1/2-hour rated door in the wall between fire area 3-D-1 and fire zone 3-D-3, and the 1-1/2-hour rated door in the wall between fire area 3-D-2 and fire zone 3-D-3.

5. At elevation 64 feet, an automatic closed-head sprinkler will be provided to wet the surface of fire door B43-2 (double fire door with monorail modification) adjoining fire zone 3-D-3. The door surface adjoining fire area 3-D-1 will not be sprinkled due to the proximity of the door to the low ceiling and the door swing into fire area 3-D-1.

   Sprinklers in this area would be susceptible to unacceptable physical damage resulting in possible inadvertent sprinkler actuation. Inadvertent sprinkler actuation in this area will produce excess quantities of liquid radwaste, spread contamination, and require otherwise unnecessary personnel activity and radiation exposures in the area.

Sprinklers in fire area 3-D-1 do not significantly enhance the fire protection in these areas and reduce the overall protection to equipment and plant personnel.

6. The separation distance between the redundant RHR pumps in the two fire areas is at least 20 feet with no in situ intervening combustibles.

7. At elevation 64 feet, a minimum of 50 feet of separation exists between the duct penetration without a fire damper in the west barrier of fire area 3-D-1, and the duct penetration without a fire damper in the east barrier from fire area 3-D-2 through fire zone 3-C.

8. At elevation 75 feet, there is no direct or indirect communication between fire areas 3-D-2 and 3-D-1.

9. Based on the ability to bypass the control circuit located in fire area 3-I-1 for charging pump 2-3 (see the exemption request for fire area 3-I-1), a fire in fire area 3-D-1 at elevation 75 feet will not have a detrimental impact on the capability of charging pump 2-3 to perform its function.

10. A minimum of 35 feet of separation exists between the duct penetrations without fire dampers in fire area 3-D-1 and fire area 3-D-2 through the common ventilation system in zone 3-X at elevation 104 feet.

11. The concrete equipment hatch for fire area 3-D-1 provides an equivalent level of protection commensurate with the fire loading of fire area 3-D-1 (equivalent fire severity of less than 1 minute) and fire zone 3-AA (equivalent severity of 10 minutes).

12. Fire hose stations and portable extinguishers are available in fire zone 3-C to fight fires in area 3-D-1.

13. The addition of 3-hour rated fire dampers, replacing existing 1-1/2-hour rated doors, 3-hour rated doors with monorail cutouts and security gates, and upgrading penetrations to a 3-hour fire rating would not enhance, to a significant degree, the protection of safe shutdown functions provided by the current configuration.

FIRE AREA: 3-D-2
TITLE: RHR PUMP 2-2 and HEAT EXCHANGER ROOM
FIGURES: 3-5, 3-6, 3-7, and 3-8

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 3-D-2, which contains the residual heat removal (RHR) pump 2-2 and heat exchanger room, is located at the southern end of the auxiliary building. The floor level is at elevation 58 feet, and the area extends upward to elevation 113 feet in the heat exchanger shaft. The walls, floor, and ceiling are 3-hour rated fire barriers with the following exceptions:

1. Overflow opening in the wall 5 feet above elevation 54 feet communicates with zone 3-C (fire area AB-1).

2. At elevation 64 feet, a 1-1/2-hour rated door and duct penetrations without fire dampers in the west wall of fire area 3-D-2, and 1-1/2-hour rated door and duct penetrations without fire dampers in the east wall of fire area 3-D-1 communicate through fire zone 3-D-3 (fire area AB-1). A 3-hour rated double door, modified to accommodate monorails, is located in the west wall of fire area 3-D-2 and communicates with fire zone 3-D-3 (fire area AB-1).

3. At elevation 64 feet, duct penetrations without fire dampers in the east wall of fire area 3-D-2 and a duct penetration without a fire damper in the west wall of fire area 3-D-1 communicate with fire zone 3-C.

4. A duct penetration without a fire damper communicates with fire zone 3-N (fire area AB-1) at elevation 85 feet.

5. A duct penetration without a fire damper at elevation 104 feet communicates with fire zone 3-X (fire area AB-1).

6. A concrete equipment hatch is located at elevation 115 feet and communicates with fire zone 3-AA (fire area AB-1).

COMBUSTIBLES

The in situ combustible loading in fire area 3-D-2 is about 862 Btu/ft^2 with an equivalent severity of less than 1 minute. In situ combustible loading consists primarily of oil and grease evenly distributed throughout the entire 675 square foot area.

Transient combustible loading is estimated to present an additional 7,820 Btu/ft^2 with an equivalent severity of approximately 6 minutes. This loading will include grease, oil, solvent, and radiological Class A combustibles evenly distributed throughout the entire 675 square foot area.

MAJOR EQUIPMENT

Fire area 3-D-2 contains residual heat removal pump 2-2 and residual heat removal heat exchanger 2-2. This equipment is not required for HOT SHUTDOWN.

For a listing of the raceway required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection systems provide 100% coverage in this area and alarm in the continuously manned control room.

SUPPRESSION

Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 3-D-2 does not meet the requirements of Appendix R, Section III.G.2(a) in that the 3-hour rated fire barriers do not contain appropriately labeled doors, fire dampers, and penetration seals. At elevation 64 feet, 3-hour rated fire barriers and fire zone 3-D-3 (approximately 10 feet wide) separate fire areas 3-D-1 (residual heat removal pump 2-1) and 3-D-2 (pump 2-2); however, duct penetrations without fire dampers connect fire areas 3-D-1 and 3-D-2 through fire zone 3-D-3. Ducts penetrating the west wall of fire area 3-D-1 and the east wall of fire area 3-D-2 connect to a common building ventilation system in zone 3-C. These two duct penetrations are separated by a minimum of 50 feet. In addition, 1-1/2-hour rated doors in the east barrier of 3-D-1 and west barrier of 3-D-2, and a 3-hour rated double door modified to accommodate monorails, are located in these walls. At elevation 85 feet, fire area 3-D-2 communicates with fire zone 3-N via a duct penetration without a fire damper. At elevation 104 feet, ducts without fire dampers penetrate the walls of fire areas 3-D-1 and 3-D-2 and connect to a common building ventilation system in zone 3-X; however, a minimum of 35 feet separates the two duct penetrations.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2(a) of Appendix R, which requires that 3-hour rated fire barriers be protected by appropriately rated doors, fire dampers, and penetration seals. The technical bases that justify the exemption request are detailed below.

1. The in situ combustible loading in fire area 3-D-2 is approximately 862 Btu/ft^2 with an equivalent severity of less than 1 minute. In addition, the transient combustible loading is approximately 7,820 Btu/ft^2 with an equivalent fire severity of about 6 minutes. A postulated instantaneous oil spill would create a thin oil film on

the concrete slab as it flows to the sump area. The heat absorption capability of the concrete floor heat sink would greatly reduce the rate of vaporization of the thin film of oil, minimizing the probability of ignition from any source.

2. The total combustible loading in fire area 3-D-1 (approximately 8,682 Btu/ft^2 with an equivalent severity of about 7 minutes) and the total combustible loading in fire zone 3-D-3 (approximately 10,166 Btu/ft^2 with an equivalent severity of about 8 minutes) would not have sufficient fire duration to breach the existing fire barrier, assuming a worst case scenario of instantaneous total heat release of combustible.

3. At elevation 64 feet, a minimum of 10 feet of separation exists between the duct penetrations without fire dampers in fire areas 3-D-1 and in 3-D-2 through fire zone 3-D-3.

4. At elevation 64 feet, a minimum of 10 feet of separation exists between the 1-1/2-hour rated door in the wall between fire area 3-D-1 and fire zone 3-D-3, and the 1-1/2-hour rated door in the wall between fire area 3-D-2 and fire zone 3-D-3.

5. At elevation 64 feet, an automatic closed-head sprinkler will be provided to wet the surface of fire door B42-2 (double fire door, modified to accommodate monorails) adjoining fire zone 3-D-3. The door surface adjoining fire area 3-D-2 will not be sprinklered due to the proximity of the door to the low ceiling and the door swing into fire area 3-D-2.

   Sprinklers in this area would be susceptible to causing unacceptable physical damage resulting from possible inadvertent sprinkler actuation. Inadvertent sprinkler actuation in this area will produce excess quantities of liquid radwaste, spread contamination, and require otherwise unnecessary personnel activity and radiation exposure in the area. Sprinklers in fire area 3-D-2 do not significantly enhance the fire protection in these areas and reduce the overall protection to equipment and plant personnel.

6. The separation distance between the redundant RHR pumps in the two fire areas is at least 20 feet with no in situ intervening combustibles.

7. At elevation 64 feet, a minimum of 50 feet of separation exists between the duct penetration without a fire damper in the west barrier of fire area 3-D-1 and the duct penetration without a fire damper in the east barrier of fire area 3-D-2 through fire zone 3-C.

8. At elevation 75 feet, there is no direct or indirect communication between fire areas 3-D-2 and 3-D-1.

9. A minimum of 35 feet of separation exists between the duct penetrations without fire dampers in fire area 3-D-1 and fire area 3-D-2 through the common ventilation system in zone 3-X at elevation 104 feet.

10. The concrete equipment hatch for fire area 3-D-2 provides an equivalent level of protection commensurate with the fire loading of fire area 3-D-2 (equivalent fire severity of less than 1 minute) and fire zone 3-AA (equivalent fire severity of 10 minutes).

11. Fire hose stations and portable fire extinguishers are available in fire zone 3-C to fight fires in fire area 3-D-2.

12 The addition of 3-hour rated fire dampers, replacing existing 1-1/2-hour rated doors, 3-hour rated double doors with monorail cutouts and security gates, and upgrading penetrations to a 3-hour fire rating would not enhance, to a significant degree, the protection of safe shutdown functions provided by the current configuration.

FIRE AREA: 3-I-1
TITLE: CENTRIFUGAL CHARGING PUMPS 2-1 and 2-2 ROOM
FIGURE: 3-6

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

This fire area is located on the south side of the auxiliary building at elevation 75 feet. The boundaries of the fire area are 3-hour rated barriers with the following exceptions:

1. An opening with a security gate, one vent opening, and one drain scupper communicate with fire area 3-D-1.

2. A duct penetration without a fire damper communicates with fire area AB-1 (fire zone 3-D-3).

3. Two sets of 1-1/2-hour rated double doors, modified to accommodate monorails, one 3-hour rated door with an unrated side panel, and two walls and one floor duct penetration without a fire damper communicate with fire area AB-1 (fire zone 3-C).

COMBUSTIBLES

The floor area of this fire area is approximately 1,000 square feet. The in situ combustible loading is approximately 6,980 Btu/ft^2 consisting of grease and lubricating oil. The anticipated transient combustible loading, consisting of lubricants and radiological control materials, would add an additional 12,900 Btu/ft^2 for a total equivalent severity of approximately 15 minutes.

MAJOR EQUIPMENT

Fire area 3-I-1 contains centrifugal charging pumps 2-1 and 2-2 and their auxiliary lube oil pumps. This equipment is required for safe shutdown.

For a listing of the raceway required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection systems are provided throughout this area and alarm in the continuously manned control room.

SUPPRESSION

Automatic wet pipe sprinkler protection is provided in the area of centrifugal charging pumps 2-1 and 2-2, and the water flow alarm annunciates in the continuously manned control room. Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 3-I-1 does not meet the requirements of Appendix R, Section III.G.2(a) in that the 3-hour rated fire barriers do not contain appropriately rated doors, fire dampers, and penetration seals. At elevation 75 feet, the barrier between fire area 3-I-1 and 3-D-1 contains an open doorway with a security gate and open penetrations. Duct penetrations without fire dampers and two sets of 1-1/2-hour rated double doors, modified to accommodate monorails, are located in the north wall between fire area 3-I-1 and fire zone 3-C. The northwest duct penetration in the wall between fire area 3-I-1 and fire zone 3-C connects to a common building ventilation system with duct penetration in the north wall between fire area 3-I-2 and fire zone 3-C. These two duct penetrations are separated by a minimum of 50 feet. In addition, duct penetrations without fire dampers communicate from fire area 3-I-1 to fire zone 3-D-3 at elevation 75 feet and fire zone 3-C at elevation 64 feet.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2(a) of Appendix R which requires that 3-hour rated fire barriers be protected by appropriately rated doors, fire dampers, and penetration seals. The technical bases that justify the exemption request are detailed below.

1. Centrifugal charging pumps 2-1 and 2-2 and their power and control circuitry are located in this fire area. In addition, the control circuitry for reciprocating charging pump 2-3 (located in fire area 3-I-2) is situated in this area. However, the starting circuit for pump 2-3 can be isolated by means of an installed switch at the switchgear located in fire zone 24-B. The pump can then be started at the switchgear.

2. Fire area 3-I-2, containing the redundant charging pump, is located within 3-hour rated fire barriers with an open doorway, a security gate, and a duct penetration without a fire damper to fire zone 3-G (fire area AB-1). A minimum of 40 linear feet of separation exists between the duct penetration in the wall between 3-I-1 and 3-C and the open door with a security gate in the wall between 3-I-2 and 3-G. Therefore, a fire or its products of combustion must travel a circuitous path to communicate between 3-I-1 and 3-I-2.

3. The total combustible loading in fire area 3-I-1 is 19,900 Btu/ft^2 with an equivalent fire severity of 15 minutes (in situ - 6,980 Btu/ft^2 with an equivalent severity of 5.2 minutes, and transient - 12,923 Btu/ft^2 with an equivalent severity of 9.7 minutes). Propagation of fire out of the area and into the reciprocating charging pump compartment through ventilation duct work and 1-1/2-hour rated doors would be unlikely.

4. The combustible loading in fire area 3-D-1 is low, 8,682 Btu/ft^2, with an equivalent severity of approximately 7 minutes. Propagation of a fire from 3-D-1 through the open doorway with the security gate or piping penetrations to 3-I-1 is unlikely; however, should propagation occur, the redundant safe shutdown capability of the charging pumps in 3-I-1 and 3-I-2 will not be adversely affected due to reasons stated above.

5. The combustible loading in fire zones 3-G and 3-C are 10,600 Btu/ft^2 and 2,850 Btu/ft^2, respectively. Due to the combustible loadings in these two zones and in fire areas 3-I-1 and 3-I-2, propagation of a fire from either zone 3-G or 3-C into both fire areas 3-I-1 and 3-I-2 would be unlikely.

6. The installation of automatic closed-head sprinklers on both sides of the 3-hour rated door and unrated side panel, and the two 1-1/2 hour rated double doors, modified to accommodate monorails, will provide an equivalent level of protection consistent with the ratings for these doors.

7. Automatic suppression and automatic smoke detection systems are provided in fire area 3-I-1 and alarm in the continuously manned control room.

8. Automatic suppression and automatic smoke detection systems are provided in fire area 3-I-2 and alarm in the continuously manned control room.

9. Fire hose stations and portable extinguishers are located in adjacent zones for manual fire fighting in fire area 3-I-1.

10. Adding 3-hour rated dampers and seals, replacing 1-1/2-hour rated doors with 3-hour rated doors, and providing a 3-hour rated door would not enhance, to a significant degree, the protection of safe shutdown functions provided by the existing configuration.

FIRE AREA: 3-I-2
TITLE: RECIPROCATING CHARGING PUMP 2-3 ROOM
FIGURE: 3-6

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 3-I-2 houses the reciprocating charging pump 2-3 and is located in the south side of the auxiliary building at elevation 75 feet. The floor, ceiling, and walls are 3-hour rated barriers, with the following exceptions:

1. A duct penetration without a fire damper in the south wall and an open doorway with a security gate in the east wall communicate with fire zone 3-G (fire area AB-1).

2. A duct penetration without a fire damper in the north wall communicates with fire zone 3-C (fire area AB-1).

3. A duct penetration without a fire damper in both the floor and ceiling communicates with fire zones 3-C (elevation 64 feet) and 3-N (elevation 85 feet).

COMBUSTIBLES

The floor area of this fire area is approximately 235 square feet. The in situ combustible loading is approximately 28,000 Btu/ft^2 consisting of lubricants and oil in the fluid drive unit. The anticipated transient combustible loading, consisting of radiological control materials and replacement lubricants, etc., would add an additional 38,000 Btu/ft^2 for a total equivalent severity of approximately 50 minutes.

MAJOR EQUIPMENT

Fire area 3-I-2 contains reciprocating charging pump 2-3. This equipment is required for safe shutdown.

For a listing of the raceways required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection systems are provided throughout this area and alarm in the continuously manned control room.

SUPPRESSION

Wet pipe automatic sprinkler protection is provided in the area and the water flow alarm annunciates in the continuously manned control room. Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 3-I-2 does not meet the requirements of Appendix R, Section III.G.2(a) in that the 3-hour rated fire barriers do not contain appropriately rated doors, fire dampers, and piping penetrations. At elevation 75 feet, an open doorway with a security gate and a duct penetration without a fire damper separates fire area 3-I-2 from zone 3-G. In addition, a duct without a fire damper penetrates the ceiling and floor of 3-I-2 up into fire zone 3-N at elevation 85 feet and down into zone 3-C at elevation 64 feet and into fire zone 3-C at elevation 75 feet. The duct penetration without a fire damper located in the north wall of fire area 3-I-2 is separated by a minimum of 50 feet from the duct penetration without a fire damper in the northwest corner of fire area 3-I-1. These ducts communicate in fire zone 3-C via a common building ventilation system.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2(a) of Appendix R which requires that 3-hour rated fire barriers be protected by appropriately rated doors, fire dampers, and penetration seals. The technical bases that justify the exemption request are detailed below.

1. Reciprocating charging pump 2-3 is located in this fire area. Redundant centrifugal charging pumps and their power and control circuitry, along with the control circuitry for pump 2-3, are located in fire area 3-I-1.

2. Fire area 3-I-2 is located within 3-hour rated walls with an open doorway with a security gate and a duct penetration without a fire

damper to zone 3-G. A minimum of 40 linear feet of separation exists between this doorway in the wall between 3-I-2 and 3-G and the duct penetration in the wall between 3-I-1 and 3-C. Therefore, a fire or its products of combustion must travel a circuitous path to communicate between 3-I-1 and 3-I-2.

3. The combustible loading in fire area 3-I-2 is 66,000 Btu/ft^2 with an equivalent fire severity of 50 minutes. The combustible loadings of zones 3-G and 3-C are 10,660 Btu/ft^2 and 2,850 Btu/ft^2, respectively. Due to the combustible loadings in zones 3-G and 3-C and in fire areas 3-I-1 and 3-I-2, propagation of a fire from either zone 3-G or 3-C into both fire areas 3-I-1 and 3-I-2 would be unlikely.

4. The total combustible loading in fire zone 3-N is 9,140 Btu/ft^2 with an equivalent fire severity of 7 minutes. Due to the combustible loading in zone 3-N, it is unlikely that fire will breach the duct in fire zone 3-N and propagate down into fire area 3-I-2.

5. Automatic suppression and automatic smoke detection systems are provided in fire area 3-I-2 and alarm in the continuously manned control room.

6. Automatic suppression and automatic smoke detection systems are provided in fire area 3-I-1 and alarm in the continuously manned control room.

7. Fire hose stations and portable fire extinguishers are located in adjacent zones for manual fire fighting in fire area 3-I-2.

8. Adding 3-hour rated fire dampers and providing a 3-hour rated door in the open doorway with a security gate opening to zone 3-G would not enhance, to a significant degree, the protection of safe shutdown functions provided by the existing configuration.

FIRE AREA: 3-T-1
TITLE: TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP ROOM
FIGURE: 3-12

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 3-T-1 is located at the north end of the Unit 2 fuel handling building at elevation 100 feet. This area is enclosed by a 3-hour rated barrier with the following exceptions:

1. A 1-1/2-hour rated door in the north wall separates this area from fire zone 3-X (fire area AB-1).

2. One and one-half hour rated double doors mounted in a two hour wall separate this area from fire zone 32 (fire area FB-2).

3. An unrated concrete sliding shield wall separates this area from fire zone 3-U (fire area FB-2).

4. A one-hour rated wall, a 1-1/2-hour rated wall-mounted fire damper, and a duct penetration without a fire damper separate this area from fire zone 3-T-2 (fire area AB-1).

5. An opening to a ventilation duct is routed outside the fuel handling building at elevation 140 feet of the fuel handling building.

6. A supply duct penetration without a fire damper in the ceiling of this area communicates with fire zone 3-W above.

COMBUSTIBLES

The in situ combustible loading in fire area 3-T-1 is approximately 10,700 Btu/ft^2 with an equivalent severity of approximately 8 minutes. This loading is evenly distributed over the entire area of 700 square feet. In situ combustible loading consists primarily of cable, oil, and grease.

Transient combustible loading is estimated to add an additional 5,080 Btu/ft^2 with an equivalent severity of approximately 4 minutes. This loading will include oil, grease, solvents, and Class A combustibles used for radiological controls.

MAJOR EQUIPMENT

The major equipment in this area includes the turbine-driven auxiliary feedwater (AFW) pump 2-1, piping, valves, electrical cabling, and trays. AFW pump 2-1 is required for safe shutdown.

For a listing of those raceways required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

A smoke detection system is provided throughout this area and alarms in the continuously manned control room.

SUPPRESSION

Wet pipe automatic sprinkler protection is provided throughout this area and the water flow alarm annunciates in the continuously manned control room.

Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 3-T-1 does not meet the requirements of Appendix R, Section III.G.2(a) in that the 3-hour rated barriers do not contain appropriately rated fire dampers or doors. A supply duct without a fire damper communicates with fire zone 3-W and with fire zone 3-T-2, which contains the redundant motor-driven AFW pumps 2-2 and 2-3. A concrete sliding shield wall separates the subject fire areas from fire zone 3-O.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2(a) of Appendix R which would require that fire dampers be installed in the ventilation ducts and 3-hour fire doors be installed in the walls for fire area 3-T-1. The technical bases that justify the exemption request are detailed below.

1. During normal operation, supply air is ducted through fire zone 3-W (near the east wall at elevation 115 feet) into fire area 3-T-1, and a supply air register discharges directly over the turbine-driven AFW pump. The supply air ducting is then routed into fire zone 3-T-2, and a supply air register discharges air over each motor-driven AFW pump.

   The primary exhaust air flowpath from fire area 3-T-1 is through a 1-1/2-hour rated wall-mounted fire damper to fire zone 3-T-2, and then through a grated ceiling vent opening to fire zone 3-W at elevation 115 feet. A secondary exhaust air flowpath is through an exhaust duct opening in the ceiling of fire area 3-T-1. This exhaust duct is routed outside the east wall of the Unit 2 fuel handling building and discharges into fire zone 3-W just above elevation 140 feet.

In the unlikely event a fire occurs in fire area 3-T-1, the hot exhaust air flowing through the 1-1/2-hour rated wall-mounted fire damper would result in its closure. The products of combustion would then be vented through the secondary exhaust air flow-path to elevation 140 feet of fire zone 3-W.

The exhaust air flow-path for fire zone 3-T-2 would continue to be through the grated ceiling vent opening to fire zone 3-W at elevation 115 feet.

2. The secondary exhaust duct for fire area 3-T-1 is routed outside the east wall of the Unit 2 fuel handling building to fire zone 3-W at elevation 140 feet. Natural air circulation will result in the flow of products of combustion from 3-T-1 through this duct to fire zone 3-W. The effects of a fire adjacent to this exterior duct would not have an adverse impact on the operability of the equipment in 3-T-1, as the products of combustion would not flow down this duct if it were breached.

3. The air circulation in fire zone 3-W is such that it would preclude the communication of exhaust air from 3-T-1 to 3-T-2.

4. A 1-1/2-hour rated wall fire damper is provided with fusible links rated at 165°F. A postulated fire in area 3-T-1 would cause this damper to close prior to a significant heat buildup in zone 3-T-2, precluding an adverse impact on the operability of redundant motor-driven AFW pumps 2-2 and 2-3.

5. A 1-hour rated barrier, with a 1-1/2-hour wall-mounted fire damper, two 3-hour rated doors, and a duct penetration without a fire damper separate fire area 3-T-1 from the fire zone 3-T-2. The equivalent fire severity in fire area 3-T-1 is 12 minutes and in fire zone 3-T-2 is 7 minutes.

6. An automatic smoke detection system is installed in fire area 3-T-1 and fire zone 3-T-2 and alarms in the continuously manned control room.

7. A wet pipe automatic sprinkler system is installed in fire area 3-T-1 and fire zone 3-T-2, and the water flow alarm annunciates in the continuously manned control room.

8. The combustible loading for fire area 3-T-1 results in an equivalent fire severity of approximately 12 minutes. In the unlikely event that such a fire were to occur, it would not have sufficient energy to breach the ductwork to propagate to fire zone 3-T-2 and have an adverse impact on the operability of redundant AFW pumps 2-2 and 2-3.

9. One and one-half hour rated doors separate the subject fire area from fire zones 32 and 3-X whose equivalent fire severities are 9 minutes and 4 minutes, respectively.

10. A 13-1/2 inch thick concrete sliding shield wall separates the subject fire area from fire zone 3-U whose equivalent fire severity is less than 1 minute.

11. Installing a 3-hour rated damper in the duct penetration in the wall separating area 3-T-1 from zone 3-T-2, in the exhaust opening in the ceiling, and providing 3-hour rated fire doors and fire walls would not significantly enhance the degree of protection provided by the current configuration.

FIRE AREA: 3-CC
TITLE: PENETRATION AREA
FIGURE: 3-12, 3-13, 3-25, 3-26, and 3-27

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 3-CC consists of three levels which comprise the area between the containment structures and the auxiliary building extending from elevations 85 to 115 feet. This fire area is bounded on the south by the containment building wall, which is separated by an 8-inch seismic and vent gap at each floor level. It is separated from the auxiliary building to the north and the fuel handling building to the east by concrete 3-hour rated fire walls with 1-1/2-hour rated doors. This fire area is separated from the turbine building to the west by a 3-hour rated fire barrier. The floor and ceiling of this area are 3-hour rated fire barriers. The floor separating the three levels are concrete slabs with numerous unsealed penetrations.

The following exceptions exist to the 3-hour fire rated barriers in the fire area:

1. One and one-half hour rated fire doors provide separation of this area from fire zones 3-L and S-4 (both in fire area AB-1) at elevation 85 feet, from fire zone 3-X and fire zone 3-T-2 (both in fire area AB-1) at elevation 100 feet, and from fire zones 3-AA and 3-W (fire area AB-1) at elevation 115 feet.

2. The southwest wall at all three elevations is provided with ventilation louvers without fire dampers that communicate with fire area 29 (outside).

3. Unsealed pipe penetrations in the south ceiling communicate with fire area 34 (outside roof area) at elevation 140 feet.

4. A pipe opening about 13 feet square located in the floor at elevation 85 feet penetrates into the component cooling water pump room, zone 3-K-3 of fire area AB-1.

5. Blowout panels are provided at elevation 115 feet to accommodate a main steam pipe break. These panels communicate with the main steam pipe tunnel and ultimately the outdoors. In addition, door 364-2 adjacent to the blowout panels has its latch removed to allow the door to swing open in the event of a high energy line break, thus mitigating the pressure increase.

COMBUSTIBLES

The in situ combustible loading in fire area 3-CC, by elevation, is tabulated below and consists primarily of cable, grease, rubber, and hydrogen.

Elevation, ft	Combustible Btu/ft^2	Equivalent Fire Severity, min.
85	negligible	negligible
100	9,900	7.4
115	9,900	7.4

Transient combustible loading for elevations 85, 100, and 115 feet is estimated to present an additional 1,318 Btu/ft^2 per floor or an equivalent severity of 1 minute. This loading will include cable, grease, and Class A combustibles used for radiological controls.

MAJOR EQUIPMENT

Fire area 3-CC contains electrical raceways and piping that run to and from the adjoining fire zones/areas. This includes safe shutdown piping and valves for auxiliary feedwater system, residual heat removal system, charging and boration system, component cooling water system, and main steam system.

For a listing of the raceways required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection is provided for this area at elevations 100 and 115 feet in the vicinity of the cable trays located near the ceiling at the west side of each elevation. The calculated detection coverage at elevation 100 feet is 75% and at elevation 115 feet 60%. Smoke detection is also provided in the post-LOCA sampling room in the southwest corner at elevation 85 feet.

SUPPRESSION

Wet pipe automatic sprinkler protection is provided throughout elevations 100 and 115 feet of this area. Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 3-CC does not meet the requirements of Appendix R, Section III.G.2(b) in that only partial area detection and suppression are provided, and that redundant components of safe shutdown circuits do not have 20 feet of separation. At elevation 85 feet, in the post-LOCA sampling room, smoke detection is provided and it is used for early notification of a fire. At elevations 100 and 115 feet, complete automatic suppression is provided with partial area ionization smoke detectors located in the vicinity of the in situ combustibles (cable trays) on both elevations.

Since areawide suppression and detection are not met in combination with 20 foot separation, the following deviations to Appendix R, Section III.G.2(b) exist:

At elevation 85 feet:

- Circuits for each vitality required for safe shutdown pass through separate concrete pull boxes located below grade in the northwest corner of 3-CC. The pull boxes are provided with an 8-inch curb above the floor elevation to preclude flow of combustible fluids into the pull box. Pull box walls meet 3-hour fire barrier requirements, but 3/8-inch steel access covers to the pull boxes are unrated. See Figure 3-25.

At elevation 100 feet:

- Circuits for containment inboard main steam blowdown isolation valves (FCV-760, 761, 762, and 763) are separated from the outboard isolation valves (FCV-151, 154, 157, and 160) by over 50 feet with no intervening in situ combustibles.

- Four pull box covers located in the northwest corner ceiling of elevation 100 feet which contain circuits for all four steam generator level transmitters are separated by 4 to 13 feet. See Figure 3-26 for exact orientation and distances.

- Circuits for reactor coolant temperature instrumentation TE-413A and B and TE-423-A and B (KT924, KT925, KT926), and for TE-433A and B and TE-443A and B (KT260) have no horizontal separation.

- Circuits for reactor coolant pressure transmitters PT-403 and 405 (KK204 and KK205, respectively) are separated from PT-406 (KT189) by 25 feet with no intervening combustibles.

- Circuits for the three pressurizer power-operated relief valves (PORVs) and their associated block valves are routed at this elevation. A hot short on the PORV circuit coupled with a loss of control of the associated block valve could resulted in a small break LOCA due to an open pressurizer relief line.

At elevation 115 feet:

- Circuits for steam generator level transmitters LT-517, 527, 537, and 547 (KT362) are separated from conduits KT355, KT354, KT350, and KT351 containing steam generator level transmitter circuits LT-519, 529, 539, and 549 by 35 feet with no intervening combustibles.

- Conduits for all steam generator pressure transmitters are located at this elevation. At any locations there is a separation of more than 20 feet with no intervening in situ combustibles from the redundant transmitter.

- Conduits and junction boxes containing circuitry for reactor coolant temperature elements TE-413A and B and TE-423A and B (KT925, KT938, KT983), and for TE-433A and B and TE-443A and B (KT260, KT908) are separated by a maximum of 3 feet horizontally.

- Conduits for the three redundant reactor coolant pressure transmitters are located in this area. Horizontal separation between circuits for PT-405 (KK205 and BTG8E) and PT-406 (KT189 and BTG13E) have a minimum separation of 13 feet, 8 inches, with no intervening in situ combustibles.

- All four redundant pressurizer level instruments, LT-406 (KT189), LT-459 (KT351, BTG31E), LT-460 (KT355, BTG24E), and LT-461 (KT358, BTG14E), are routed at this elevation. Only one is required for safe shutdown. The separation between two of the four redundant pressurizer level instrument circuits (KT358 and BTG14E for LT-461, and KT351 and BTG31E for LT-459) is 34 feet with no intervening in situ combustibles. (See Figure 3-27 for orientation of the circuits relative to each other.)

- Minimum separation of conduit for source range neutron monitors NE-31 and NE-32 where they are not embedded in concrete is in excess of 22 feet; however, both circuits have exposed pull box covers for K6405 (NE-31) and K6402 (NE-32) which are less than 20 feet apart.

- Circuits for the three pressurizer PORVs and their associated block valves are routed to containment penetrations BTG12E, BTG19E, and BTG26E. A hot short on the PORV circuit coupled with a loss of control of the associated block valve could cause a small break LOCA due to an open pressurizer relief line.

Components for other safe shutdown systems not specifically referenced meet the requirements of Appendix R, Section III.G.2(b).

BASIS FOR EXEMPTION REQUEST

1. Fire area 3-CC is isolated from other fire areas by 3-hour barriers, except for some 1-1/2-hour rated doors leading to low combustible areas of fire area AB-1, and ventilation louvers, blowout panels, and pipe penetrations which lead to the outdoors. The three elevations of the penetration area, which are large open areas on each elevation, are combined into one fire area due primarily to (1) an 8-inch seismic gap at the junction of the containment building

and (2) unsealed penetrations at the floor at elevations 100 and 115 feet. An existing floor vent opening at elevation 85 feet connecting fire area 3-CC with zone 3-K-3 will be replaced with material to provide a 3-hour fire boundary.

2. The fixed combustible loading at elevations 100 and 115 feet is 7.4 minutes consisting mainly of either grease inside valves or cables in trays located near the ceiling. The only equipment within this elevation consists of cables, conduits, and valves, thereby limiting the need for flammable or combustible liquids for maintenance purposes. Combined with the limited access through this elevation to other fire areas and the controlled access due to radiological considerations, the impact of transient combustible materials is minimal.

3. Horizontal and vertical cable trays containing exposed cables are firestopped every 12 feet horizontally and every 5 feet vertically, with either marinite board or metal covers used where horizontal trays cross. This, combined with vented metal covers on vertical trays, precludes intervening combustibles from impacting redundant circuits. In addition, cable trays are protected by both automatic sprinklers and detectors.

4. All cabling for redundant safe shutdown systems located in fire area 3-CC is enclosed in rigid steel conduits or in metal steel boxes. Cabling not enclosed in conduit is not required for safe shutdown.

5. Fire hose stations and portable fire extinguishers are available in fire area 3-CC at all elevations and in adjoining fire areas and zones for manual fire fighting purposes.

6. Full area automatic sprinkler coverage of elevations 100 and 115 feet is provided. Therefore, hot gases that may collect at the ceiling of these elevations would be suppressed by the automatic sprinkler coverage.

7. Additional smoke detectors will be provided at elevation 115 feet such that complete areawide detection will be available for this elevation west of column line L. Note that the circuits referred to under STATEMENT OF PROBLEM above, whose separation was in excess of 20 feet, are all located west of column line L.

8. Based on negligible combustible loading at elevation 85, concrete separation between vaults, and curbing to prevent flow of any combustible fluids into the vaults, the 3/8-inch thick checker plate steel vault access covers offer adequate separation between redundant circuits in adjacent vaults.

9. The 50-foot separation between conduits containing redundant circuits for containment main steam blowdown isolation is adequate separation when due consideration is given the low level of combustible material, suppression, and partial detection.

10. Pull box covers located in the ceiling of elevation 100 feet for steam generator level transmitter circuits will be treated to provide a 1-hour fire barrier.

11. Conduits KT260 and KT908, junction box BJG301, and penetration box BTG24E with circuits from reactor coolant temperature elements TE-433A, 433B, 443A, and 443B will be supplied with a 1-hour barrier to provide isolation from loops 1 and 2 elements TE-413A, 413B, 423A, and 423B.

12. Source range neutron flux monitors NE-31 and 32 will be supplemented by two additional flux monitors NE-51 and 52, which will have circuits routed to maintain a 20-foot minimum separation through 3-CC to the hot shutdown panel. (NE-31 and 32 go to the control room.) The addition of these monitors will make NE-31 and 32 redundant.

13. No modification is proposed for the reactor coolant pressure transmitter circuits for PT-405 (KK205 and BTG8E) and PT-406 (KT189 and BTG13E) whose circuits are separated by 13 feet, 8 inches. These circuits are located west of column line L at elevation 115 feet. This position is justified in view of the new smoke detectors that will be added to this area, the areawide suppression provided, the absence of intervening combustibles, and the low in situ and transient combustible hazards for this area.

14. A 1-hour rated barrier will be provided for containment penetration boxes BTG12E, BTG19E, and BTG26E located at elevation 115 west of column line L. This, in combination with the disconnect switches proposed for PCV-455C, PCV-456, and PCV-457, as noted in the exemption request for fire area 7-B, will preclude the possiblity of small break LOCA occurring as a result of a fire.

15. Automatic closed-head sprinkler spray will be provided in accordance with NFPA 13 across the opening created by door 364-2 and the adjacent blowout panels. The water spray will be provided on the turbine building side (main steam pipeway) of the opening to protect fire area 3-CC from a postulated fire in fire zone 19-A. No safe shutdown circuits are located in the main steam pipeway. The addition of water spray in fire area 3-CC would provide no additional protection of redundant safe shutdown fuctions and would not enhance, to any significant degree, the protection provided by the existing configuration with the proposed modifications.

16. Providing full area detection and suppression and a minimum of 20 feet of separation between redundant trains of safe shutdown cabling in conduits in fire area 3-CC would not enhance, to a significant degree, the level of protection provided by the current configuration with modifications as proposed herein.

FIRE AREA: 4-B
TITLE: SHOWERS, LOCKERS, AND ACCESS CONTROL AREA
FIGURE: 3-7

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 4-B is the radiological control access area for Units 1 and 2. This area contains personnel showers, lockers, restrooms, offices, and storage areas. It is located in the southwest corner of the auxilary building at elevation 85 feet.

This area is separated from adjacent fire areas by 3-hour fire rated barriers with the following exceptions:

1. The north wall of this area, separating it from the chemical laboratory (fire area 4-A), is a 2-hour barrier with 1-1/2-hour rated fire doors with 1-1/2-hour fire dampers provided in all but one of the duct penetrations.

2. An 1-1/2 hour rated door communicates with stairway S-2 (fire area AB-1).

3. Equipment hatches in the northwest and southwest corners of the ceiling of this fire area provide separation of this fire area from fire areas 5-A-4 and 5-B-4 above at elevation 104 feet. (See exemption request for steel hatches, page 27.)

4. Ceiling penetrations fitted with steel covers communicate with fire areas 5-A-4 and 5-B-4.

5. A 1-1/2-hour rated door provides separation from stairway S-1.

6. The west wall has a supply duct penetration without a fire damper.

7. The suspended ceiling is metal lath and plaster in the locker, shower, and washroom areas. The balance of the suspended ceiling is splined accoustical tile. The ceilings are not fire rated.

8. The south wall, separating this fire area from fire areas 4-B-1 and 4-B-2, is 2-hour rated below the suspended plaster ceiling. The separation wall above the suspended ceiling is unrated.

COMBUSTIBLES

Fire area 4-B has a floor area of approximately 6,000 square feet. The in situ combustible loading within this fire zone is approximately 4,590 Btu/ft^2, with an equivalent fire severity of approximately 3.4 minutes. In situ combustible loading consists primarily of wood counters, electric cable insulation, and anticontamination clothing and respirators.

Transient combustible loading is estimated to present an additional 4,970 Btu/ft^2, with an equivalent severity of approximately 3.7 minutes. Anticipated transient combustibles are Class A combustibles for radiological control activities and oils and solvents being brought into the auxiliary building for maintenance work.

MAJOR EQUIPMENT

- Lockers
- Lavatories
- Offices
- Radiological control monitors and equipment

For a listing of the raceways required for safe shutdown routed through the subject fire area, see Table 3-4.

DETECTION

Smoke detection is provided only in the northwest corner of fire area 4-B (office area).

SUPPRESSION

Wet pipe automatic spinkler protection is provided throughout the fire areas below the suspended ceiling. The water flow alarm annunciates in the continuously manned control room. Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

A deviation and exemption request for fire area 4-B was addressed in the Report on 10CFR50 Appendix R Review for Unit 1 issued on July 15, 1983. That exemption pertained only to Unit 1 safe shutdown circuits. The exemption request noted herein pertains to the Unit 2 safe shutdown circuits and completes the Appendix R evaluation of this fire area for both units.

STATEMENT OF PROBLEM

Fire area 4-B does not meet the requirements of Appendix R, Section III.G.2(a) in that there is an 1-1/2 hour rated door to stairway S-2 (fire area AB-1) in the northeast corner of the zone, and fire dampers are not provided in the supply duct in the west wall nor in the exhaust duct in the north wall. Redundant conduits above the suspended ceiling are not separated by 3-hour fire barriers, and automatic fire suppression is not provided above the suspended ceiling, nor is area wide detection provided for this fire area. The minimum separation of the redundant circuits is four feet.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2(c) of Appendix R which requires one train of redundant safe shutdown equipment to be enclosed in a 1-hour rated fire barrier with automatic suppression and detection provided in the fire area. The technical bases that justify the exemption are summarized below.

1. While this fire area does not meet the strict interpretation of a fire area due to the two duct penetrations from other fire areas without fire dampers, the exposure hazard outside this fire area is such that the door and duct work would not be seriously challenged by a fire.

2. Automatic sprinklers are provided to cover the entire floor area of this fire area with the exception of the F bus compartment in the southwest corner of the fire area. No sprinklers are provided above the suspended ceiling.

3. An ionization smoke detection system will be provided both above and below the suspended ceiling to provide 100% coverage of the fire area. The system will alarm in the continuously manned control room.

4. Conduit K6944, 4.16kV power supply to 480V load center 2G, will be enclosed in a 1-hour rated fire barrier. This will, in turn, isolate the F and H bus 4.16kV power feeders by a minimum distance of 25 feet, with no intervening combustibles, and isolate the G bus feeder by the 1-hour barrier.

5. The wall separating the G and H bus compartments of fire areas 4-B-1 and 4-B-2, respectively from fire area 4-B, will be upgraded to a full 2-hour rating above the suspended ceiling.

6. Conduits K7237 (F bus) and K7236 (G bus) provide control circuits for the auxiliary saltwater supply valves FCV-602 and FCV-603, respectively. Both conduits are routed in this area and are separated by at least 5 feet with no intervening combustibles. A fire in this area could possibly cause loss of control functions for both valves. However, manual action can be taken to open either or both the valves. This will be accomplished by venting the air supply to the valve locally in fire area 19-E.

7. Conduits K7223 (F bus) and K7229 (G bus) provide power and control circuits for the redundant charging water supply valves 8805A and 8805B, respectively. Both circuits are routed above the suspended ceiling approximately 4 feet apart with no intervening combustibles and could prevent one or both valves from operating in the event of a fire in this area (hot short, open circuit). However, operator action can be taken to manually open one or both valves to restore charging water supply.

8. A "No Storage" sign will be posted in the area of the equipment hatch.

FIRE AREA: 4-B-1
TITLE: G BUS COMPARTMENT
FIGURE: 3-7

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 4-B-1 is in the cable raceway area in the southwest corner of the auxiliary building at elevation 85 feet. This area isolates the G bus cables from F bus in area 4-B and H bus in area 4-B-2. The inside dimension of the area is approximately 3 feet wide and 15 feet long.

This fire area is separated from other areas by 3-hour barriers with the following exceptions:

1. The 3-hour access door from the F bus raceway area is in a 2-hour rated wall.

2. The north wall separating 4-B-1 from 4-B is a 2-hour rated wall below the 4-B drop ceiling and unrated above.

COMBUSTIBLES

The in situ combustible loading consists solely of cable in steel conduit which is negligible.

There will be no transient combustible loading as this area will be designated "No Storage".

MAJOR EQUIPMENT

Fire area 4-B-1 contains only cable in conduit for various G bus safe shutdown components and equipment.

For a listing of the raceways required for safe shutdown that are routed through this fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

No detection is provided in this area. See Item 3 under PROPOSED MODIFICATIONS (page 69).

SUPPRESSION

Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF MODIFICATIONS

STATEMENT OF PROBLEM

Fire area 4-B-1 does not meet the requirements of Appendix R, Section III.G.2(a). There is no detection or automatic suppression system, and the separation from the F bus compartment of 4-B is a 2-hour barrier, with a 3-hour access door. A barrier between 4-B-1 and the rest of 4-B is also 2-hour rated, while separation from the space above the 4-B drop ceiling, containing some non-G bus compartment circuits in conduit, is unrated. The H bus compartment (fire area 4-B-2) is separated from 4-B-1 by a 3-hour barrier without access.

PROPOSED MODIFICATIONS

1. The north wall above the drop ceiling of 4-B will be upgraded to a 2-hour barrier. This means 4-B-1 will be separated from other areas, either by a combination of 2-hour or 3-hour barriers.

2. The one vital and two nonvital conduits penetrating into the area above the drop ceiling of 4-B will be sealed to a 3-hour rating.

3. Area wide smoke detection will be installed in accordance with NFPA 72E.

4. The area will be designated "No Storage."

5. Considering the negligible fire loading (only cable in steel conduit), the 2-hour barrier between fire areas 4-B-1 and 4-B and the proposed smoke detection, and the further upgrading of walls to a 3-hour fire rating, would not enhance, to a significant degree, the protection of safe shutdown functions provided by the current configuration.

FIRE AREA: 4-B-2
TITLE: H BUS COMPARTMENT
FIGURE: 3-7

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 4-B-2 is the east portion of the cable raceway on the west side of the south wall of the auxiliary building at elevation 85 feet. The 3-by-25 feet long arm of this L-shaped compartment runs east-west on the south wall of this building and containments H bus conduit. The 3-foot by 11-foot north arm on the east side of this compartment contains nonvital cable trays and miscellaneous plumbing from area 4-B. The total floor area is approximately 99 square feet.

This fire area is separated from other fire areas by 3-hour barriers with the following exceptions:

1. The wall separating 4-B-2 from 4-B is a 2-hour rated barrier with a 1-1/2-hour rated access door.

2. The wall separating 4-B-2 from the space above the drop ceiling of 4-B is unrated.

COMBUSTIBLES

1. The in situ combustible loading is less than 6,800 Btu/ft^2 with an equivalent fire severity of 5 minutes. Combustible loading is composed of electrical cable insulation in cable trays.

2. There will be no transient combustible loading as this area will be designated "No Storage."

MAJOR EQUIPMENT

Fire area 4-B-2 contains cable in conduit for various H bus safe shutdown components and equipment and a few nonvital cables in cable trays.

For a listing of the raceways required for safe shutdown that are routed through this area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

No detection is provided in this area.

SUPPRESSION

Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF MODIFICATIONS

STATEMENT OF PROBLEM

Fire area 4-B-2 does not meet the requirements of Appendix R, Section III.G.2(a). There is no detection or automatic suppression system, and the separation from fire area 4-B is a 2-hour barrier with a 1-1/2-hour fire door as sole access to 4-B-2. The wall between 4-B-2 and the space above the 4-B drop ceiling, which contains some non-H bus vital circuits, is unrated. The G bus compartment (fire area 4-B-1) is separated from 4-B-2 by a 3-hour barrier without access.

PROPOSED MODIFICATIONS

1. The wall separating 4-B-2 and the space above 4-B drop ceiling will be upgraded to a 2-hour barrier. This means 4-B-2 will be separated from other fire areas by either a 2-hour or a 3-hour barrier.

2. Area wide smoke detection will be installed in accordance with NFPA 72E.

3. The area will be designated "No Storage."

4. Considering the low fire loading (a few nonvital cables in trays, plus cable in steel conduit), the 2-hour barrier between 4-B-2 and 4-B, 3-hour barriers between 4-B-2 and other fire areas (4-B-1 and 3-D-1), and the proposed smoke detectors, the further upgrading of walls and doors to a 3-hour rating would not enhance, to a significant degree, the protection of safe shutdown functions provided by the current configuration.

FIRE AREA: 5-B-4
TITLE: HOT SHUTDOWN PANEL and NON-VITAL SWITCHGEAR ROOM AREA
FIGURE: 3-8

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 5-B-4 is located in the southwest corner of the auxiliary building at elevation 104 feet. This area is separated by 3-hour rated fire barriers from fire area 4-B at elevation 85 feet; from fire areas 3-D-1, AB-1 (zones 3-X and S-2), 5-B-1, 5-B-2, 5-B-3, 5-A-4, and fire zones S-1 and S-5 at elevation 100 feet; and from fire areas 6-B-1, 6-B-2, 6-B-3, 6-B-4, and 6-B-5 at elevation 115 feet, with the following exceptions:

1. Equipment access openings, with unrated 1-inch thick steel hatches, are located in the floor and ceiling in the west end of this area communicating with fire areas 4-B below and 6-B-5 above. (See exemption request for steel hatches, page 27.)

2. A ventilation register without a fire damper in the east wall communicates with a concrete air shaft located in stairway S-5.

3. Three-hour rated doors with adjacent filled metal panels in the walls communicate with fire areas 5-B-1 and 5-B-3.

4. A ventilation duct penetrates the walls of fire areas 5-B-1 and 5-B-3. The ducts and supports that are fireproofed in fire areas 5-B-1, 5-B-2, and 5-B-3 have been previously accepted as providing a level of protection equivalent to the hazard in the area (Ref. SER 13). One and one-half hour rated fire dampers are located in the register at the ceilings of these three fire areas.

5. Duct penetrations without fire dampers communicate with a concrete air shaft in stairway S-1.

6. Duct penetrations without fire dampers in the ceiling's southwest corner communicate with fire area 6-B-5.

The area ventilation ducting and supports are fire proofed with a 1-hour rated coating.

COMBUSTIBLES

The in situ combustible loading in fire area 5-B-4 is approximately 25,167 Btu/ft^2 or an equivalent severity of 19 minutes. This loading is evenly distributed over the entire area of 2,702 square feet. In situ combustible loading consists primarily of cable in raceways.

Transient combustible loading is estimated to present an additional 2,803 Btu/ft^2 or an equivalent severity of 2 minutes. This loading will include cable, paper, rags, and solvents.

MAJOR EQUIPMENT

Safe shutdown equipment in this area consists of the hot shutdown panel.

Other equipment in this area consists of 480V nonvital switchgear and its ventilation system.

For a listing of the raceways required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection systems are provided throughout this area and alarm in the continuously manned control room.

SUPPRESSION

Manual suppression capability, in the form of portable fire extinguishers and fire and CO_2 hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 5-B-4 does not meet the requirements of Appendix R, Section III.G.2(c) in that a fixed suppression system is not provided in the fire area. The fire area contains the hot shutdown panel, which provides alternate shutdown capabilities should a fire occur in the control room, and redundant Unit 2 power sources for the emergency diesel fuel oil transfer pumps.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2(c) which requires a fixed suppression system in combination with a 1-hour fire barrier and a fire detection system. The technical bases that justify the exemption are detailed below.

1. Fire area 5-B-4 presently meets the separation requirements for a fire area as defined in Appendix A of BTP 9.5-1. All fire barriers are 3-hour rated, except as noted above in physical characteristics.

2. The combustible loading in fire area 5-B-4 results in an equivalent fire severity of 21 minutes. Fire area 4-B, at elevation 85 feet located below the subject fire area, has an equivalent fire severity of approximately 7 minutes. Fire area 6-B-5, at elevation 115 feet located above the subject fire area, has an equivalent fire severity of 9 minutes. Because of the minimal in situ combustible loading and the existing designation of the areas (4-B, 5-B-4, and 6-B-5) in the immediate vicinity of the 1-inch thick steel hatches as "No Storage Area," the propagation of fire between the referenced fire areas via the steel hatches is unlikely.

3. Automatic smoke detection is provided in the fire area and inside the hot shutdown panel and alarms in the continuously manned control room.

4. Manual fire fighting capability is provided for this fire area in the form of fire hose stations, CO_2 hose reels, and portable fire extinguishers in the fire area and in adjacent areas.

5. An isolator will be provided on each diesel generator RPM tach-pack to preclude a trip of the diesel generators due to a fire-induced circuit failure of the RPM indication circuitry that passes through the subject fire area.

6. The control switch in the hot shutdown panel associated with ASW pump 2-1 will be switched to a normally cut out position to prevent loss of control of this pump from the control room.

7. Unit 2 circuits (K7450 and K7438) for the emergency diesel fuel oil transfer pumps are located 14 feet apart with intervening cable trays that have been provided with fire stops. At least one of these circuits would be required only if Unit 1 were not operating (similar circuits exist in Unit 1) and a concurrent loss of offsite power was experienced. Therefore, a 1-hour fire barrier will be provided for conduit K7438 along its entire length in fire areas 5-B-4 (Unit 2) and 5-A-4 (Unit 1), to preclude the loss of the emergency diesel fuel oil transfer pumps, under this operating condition.

8. Conduits K7237 (F bus) and K7236 (G bus) provide control circuits for the auxiliary saltwater supply valves FCV-602 and FCV-603, respectively. Both conduits are routed in this area and are separated by less then 6 feet with no intervening combustibles. A fire in this area could possibly cause loss of control functions for both valves, thereby losing auxiliary saltwater to the component cooling water (CCW) heat exchangers. However, manual action can be taken to open either or both valves. This will be accomplished by venting the air supply to the valve locally in fire area 19-E.

9. Filled metal panels that are adjacent to fire doors will be replaced with materials to achieve a 3-hour rated wall assembly. The door frame will be replaced by a labeled assembly for a single door in lieu of the existing frame which supports the existing combined door and panel.

10. The addition of a fixed suppression system would not enhance, to a significant degree, the protection of safe shutdown functions provided by the current configuration.

FIRE AREA: 6-B-3
TITLE: BATTERY, INVERTER, and DC SWITCHGEAR ROOM
FIGURE: 3-9

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 6-B-3 is located in the southeast side of the auxiliary building at elevation 115 feet between (fire area 6-B-2) the G bus battery, inverter, and dc switchgear room and the rod control room (fire area 6-B-4). The floor, ceiling, and walls are 3-hour rated barriers with the following exceptions:

1. Four heating, ventilating, and air conditioning (HVAC) ducts and their supports that are fireproofed in this fire area have been previously accepted as providing a level of protection equivalent to the hazard in the area (Ref. SER 13). One and one-half hour rated fire dampers are located in the register at the ceiling of the fire area. All four ducts penetrate the west wall and communicate with fire area 6-B-2. Two of the ducts continue through the room and penetrate the east wall and communicate with fire area 6-B-5.

COMBUSTIBLES

The in situ combustible loading in fire area 6-B-3 is approximately 18,000 Btu/ft^2 with an equivalent severity of 13.5 minutes. This loading is evenly distributed over the entire area of approximately 550 square feet. In situ combustibles consist primarily of rubber and electrical wires and cables.

Transient combustible loading is estimated to present no significant increase in fire load.

MAJOR EQUIPMENT

The major equipment in this area includes the H bus 125V batteries, the H bus inverter, the H bus dc switchgear, and channel III and IV 115V ac instrument panels.

For a listing of the raceways required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection system provide 100% coverage in the dc switchgear room and alarm in the continuously manned control room. No detection is provided in the battery room.

SUPPRESSION

Manual fire suppression capability, in the form of CO_2 hose reels, fire hose stations, and portable fire extinguishers, is available for this area.

DESCRIPTION OF MODIFICATIONS

STATEMENT OF PROBLEM

Fire area 6-B-3 does not meet the requirements of Appendix R, Section III.G.2 in that the three redundant safe shutdown instruments needed to measure reactor coolant pressure are all powered from two panels located in this fire area.

PROPOSED MODIFICATIONS

Reactor coolant pressure instrument PT-406, located in the dedicated shutdown panel, will be provided with a power source routed through a different fire area. A new 115V ac branch circuit from fire area 6-B-2 will be installed via fire areas 6-B-1 and 3-CC to power PT-406 in the PDS.

FIRE AREA: 6-B-5
TITLE: ELECTRICAL AREA WEST OF BATTERY ROOM
FIGURE: 3-9

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 6-B-5 is located in the southwest corner of the auxiliary building at elevation 115 feet, just west of the F bus battery inverter and dc switchgear room (fire area 6-B-1). The fire area walls, floor, and ceiling are 3-hour rated fire barriers with the following exceptions:

1. The HVAC ducts and their supports in this area are fireproofed without fire dampers in the duct penetrations, and they have two room registers without fire dampers.

   a. Three of these ducts penetrate the east wall and communicate with area 6-B-1. The upstream ducting and their supports in areas 6-B-1, 6-B-2, and 6-B-3 is fireproofed and have been previously accepted as providing a level of protection equivalent to the hazard in the area (Ref. SER 13). There are 1-1/2-hour rated fire dampers in the registers at the ceilings of these areas. One duct continues on to area 6-B-4 where it is not provided with fireproofing or fire dampers.

   b. Two of the ducts penetrate the west wall and communicate with fire zone 19-A where the ducts continue up to the roof.

   c. Two ducts penetrate the floor and communicate with fire area 5-B-4. These ducts and their supports are also fireproofed; to a 1-hour rating; however, they contain 2 ceiling registers in this fire area and 2 ceiling registers in area 5-B-4 without fire dampers.

   d. One duct penetrates the west wall without a fire damper and communicates with fire zone S-1; however, this duct leads to a concrete-lined air shaft.

2. There are two 8-feet by 12-feet by 1-inch solid steel unrated equipment hatches. One hatch communicates with fire area 5-B-4 below and the other communicates with fire area 7-B above. (See hatch exemption request, page 27.)

COMBUSTIBLES

The in situ combustible loading in fire area 6-B-5 is approximately 11,960 Btu/ft^2, with an equivalent fire severity of about 9 minutes. This loading is evenly distributed over the entire area of 575 square feet and consists primarily of oil and electrical wires.

Transient combustible loading is estimated to present no additonal increase in fire load since this area is designated "No Storage."

MAJOR EQUIPMENT

Fire area 6-B-5 contains the nonvital computer inverter. This equipment is not required for safe shutdown.

For a listing of the raceways required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection provides 100% coverage and alarms in the continuously manned control room.

SUPPRESSION

Manual fire suppression capability, in the form of CO_2 hose reels, fire hose stations, and portable fire extinguishers, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 6-B-5 does not meet the requirements of Appendix R, Section III.G.2 in that ducts without fire dampers penetrate the west wall, the floor, and the east wall of this fire area.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2 of Appendix R which requires that dampers be placed in duct work penetrating the boundary fire barriers. The technical bases that justify the exemption request are detailed below.

1. The ducts that penetrate into fire zone 19-A would be exposed to an equivalent severity of under 18 minutes in fire zone 19-A and 9 minutes in fire area 6-B-5. In addition, automatic sprinklers are provided in fire zone 19-A, including the vicinity of the duct penetrations from fire area 6-B-5. Therefore, it is highly unlikely that a fire would propagate into or out of the undampered room registers in the 6-B-5 area ducting from fire zone 19-A.

2. The duct that penetrates into stairway S-1 penetrates to a fire area with negligible fuel loading. Therefore, the 1-hour rated fireproofing on the ducts (in 6-B-5) would be sufficient to prevent a fire from communicating between areas S-1 and 6-B-5.

3. The ducts that penetrate into fire areas 5-B-4 and 6-B-4 would be exposed to an equivalent severity of 21 minutes in area 5-B-4, 17 minutes in area 6-B-4, and 9 minutes in area 6-B-5. Even though there are room registers without fire dampers in these rooms, it is highly unlikely that a fire would propagate into area 6-B-5 from these areas due to the low combustible loadings.

4. Automatic smoke detection is provided in fire area 6-B-5 and alarms in the continuously manned control room.

5. Except for the duct penetrations without fire dampers, all fire barriers and penetrations are either 3-hour fire rated or have been previously accepted as providing a level of protection equivalent to the hazard in the area. This is the case with the 1-inch thick steel equipment hatches. The steel hatches that penetrate into areas 5-B-4 and 7-B have been previously accepted as providing a level of protection equivalent to the hazard in the area. (See hatch exemption request, page 27.)

6. Fire hose stations are available in fire area 6-B-5 for manual fire fighting purposes.

7. An isolator will be provided on each diesel generator RPM tach-pack to preclude a trip of the diesel generators due to a fire-induced circuit failure of the RPM indication circuitry that passes through the subject fire area.

8. Conduits K7237 and K7494 (F bus) and K7236 and K7495 (G bus) provide control circuits for auxiliary saltwater supply valves FCV-602 and FCV-603, respectively, to the CCW heat exchanger. The conduits are routed in this area and are separated by about 5 feet with no intervening combustibles. A fire in this area could possibly cause loss of control functions for both valves, thereby losing auxiliary saltwater to the component cooling water (CCW) heat exchangers. However, manual action can be taken to open either or both the valves. This will be accomplished by venting the air supply to the valve locally in fire area 19-E.

9. A "No Storage" sign will be located in the vicinity of the equipment hatch.

10. The addition of fire dampers in the duct work penetrating the boundary fire barriers of this fire area would not enhance, to a significant degree, the protection provided by the current configuration.

FIRE AREA: 7-B
TITLE: CABLE SPREADING ROOM
(UNIT 2)
FIGURE: 3-11

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

This fire area is located directly under the control room at elevation 128 feet in the auxiliary building. The walls, floor, and ceiling of this fire area are 3-hour rated fire barriers with the following exceptions:

1. Doors connecting the subject area to area 7-D (communications room) are rated 1-1/2-hour barriers.

2. The west wall has an HVAC duct penetration with 1-1/2-hour rated fire damper.

3. A 12-feet by 8-feet by 1-inch thick solid steel equipment hatch located in the west side of the area communicates with fire area 6-B-5 below. (See hatch exemption request, page 27.)

COMBUSTIBLES

The in situ combustible loading in this fire area is approximately 55,900 Btu/ft^2 with an equivalent fire severity of 42 minutes. This loading is primarily distributed in the cable trays and consists of electrical wires. There is no significant transient combustible loading.

MAJOR EQUIPMENT

The major equipment in this area includes the reactor protection sets, other electrical cabinets, and cable trays and steel conduits containing cabling that feeds into the control room.

For a listing of the raceway required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Area smoke detection provides 100% coverage in the cable spreading room and alarms in the continuously manned control room.

SUPPRESSION

Automatic suppression includes a heat actuated total flooding CO_2 system which can also be manually activated from the control room or outside the cable spreading room. Manual suppression capability consists of a fire hose station and portable fire extinguishers, either within the subject area or in the adjacent fire zones/areas at the same elevation.

REMOTE SHUTDOWN CAPABILITY

Remote shutdown capability can be achieved independent of the control room/cable spreading room fire. This capability includes the hot shutdown panel (fire area 5-B-4), the remote dedicated shutdown panel (fire area 3-CC), and various other equipment requiring local control.

DESCRIPTION OF MODIFICATIONS

STATEMENT OF PROBLEM

Fire area 7-B does not meet the requirements of Appendix R, Section III.G.1(a) in that the diesel generator alarm reset control circuits and pressurizer PORV control circuits have conditions which could degrade the alternate shutdown capability.

PROPOSED MODIFICATIONS

An isolation contact will be provided in the diesel generator local control panel to isolate the alarm reset circuit from the control room. This will ensure the ability to start the diesels locally, no matter what happens to the circuit in the cable spreading room.

A disconnect switch for PCV-455C, -456, and -474 will be provided at the hot shutdown panel. This will ensure that these valves can be failed closed in the event a fire in the cable spreading room causes them to open inadvertantly due to a hot short.

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 9 consists of all elevations of the Unit 2 containment building. The outer wall of this fire area is the containment wall which is steel-lined reinforced concrete and provides a 3-hour fire barrier between fire area 9 and adjacent fire areas. All containment penetrations are sealed to ensure integrity of the pressure boundary. Containment electrical penetrations consist of 5-foot long Schedule 80 pipe sleeves. At the end of the sleeve, the electrical conductors pass through a steel header plate and are encased in a fire retardant epoxy. The space between the header plates is pressurized with nitrogen. The containment personnel, emergency, and equipment hatches are heavy gauge steel and provide separation from fire area 34 (outside). Access to this fire area is strictly controlled for security and radiological considerations.

Fire area 9 is divided into three fire zones: 9-A (the containment penetration area), 9-B (reactor coolant pump area), and 9-C (control rod drive area).

Fire zone 9-A is an annular region within the containment between the floor of the containment at elevation 91 feet and the operating deck at elevation 140 feet. The outer wall of this zone is the containment wall. The inner wall and ceiling of this zone are unrated reinforced concrete shield walls. Open steel floor gratings and open stairways provide for personnel access to various elevations within this zone. Fire zone 9-B forms a cylinder in the central part of the containment. It is separated from fire zone 19-A by the unrated reinforced concrete shield wall which also serves as the support structure for the polar crane. This zone is separated from fire zone 9-C above by the elevation 140-feet reinforced concrete operating deck. The concrete barriers defining fire zone 9-B are not fire barriers, but do provide a radiant

energy shield between this fire zone and fire zones 9-A and 9-C. Fire zone 9-C includes the reactor pit and area above the reactor to elevation 140 feet and above. The outer wall of this zone is the steel-lined reinforced concrete containment wall. The floor of fire zone 9-C is constructed of reinforced concrete with openings for stairways and open floor gratings for equipment access.

COMBUSTIBLES

The in situ combustible loading in fire area 9 is approximately 26,200 Btu/ft^2 or an equivalent severity of 20 minutes. This loading is considered to be evenly distributed over the approximate floor area of 17,600 ft^2. In situ combustible loading consists primarily of oil in reactor coolant pumps, cable in cable trays, grease in valve operators, oil and grease in the crane and fan cooler motors, and charcoal, high efficiency particulate air (HEPA), and roughing filters in the iodine removal system.

Transient combustible loading is estimated to present a minimal additional 124 Btu/ft^2 or an equivalent severity of less than 0.1 minute. The transient loading represents small amounts of solvents, oil, grease, and radiological Class A combustibles necessary for maintenance during plant operation. Transient conbustibles will not be stored in fire area 9 during plant operations.

MAJOR EQUIPMENT

A. Fire Zone 9-A

The major equipment in this fire zone includes the accumulator tanks, the pressurizer relief tank, and the iodine removal units. Equipment and electrical circuitry required for safe shutdown located in this zone consist of a residual heat removal pump suction valve, valves in the charging and boration flowpath, associated circuitry for these valves, and reactor coolant system and steam generator instrumentation and circuitry.

B. Fire Zone 9-B

The major equipment in this fire zone includes the reactor coolant system (RCS) including the pressurizer, four reactor coolant pumps, and four steam generators. Equipment required for safe shutdown located in this zone consists of a residual heat removal pump suction valve, steam generator blowdown isolation valves, and RCS temperature elements.

C. Fire Zone 9-C

Equipment in this zone consists of the reactor vessel refueling cavity below the operating floor, the control rod drives, the five containment fan coolers, the overhead polar crane, and the manipulator crane.

For a listing of the raceways required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

9-A: Smoke detection throughout this zone provides early warning of a fire in the vicinity of the cable trays or safe shutdown circuitry in steel conduits.

9-B: Smoke detection for each reactor coolant pump provides timely detection of incipient fires.

9-C: Flame detection is provided for this zone on the operating deck.

All detectors alarm in the continuously manned control room.

SUPPRESSION

9-A: Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this zone.

9-B: Wet pipe automatic sprinkler protection is provided in this zone in the vicinity of each reactor coolant pump. The waterflow alarm annunciates in the continuously manned control room. Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for use in this zone.

9-C: Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this zone.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 9 does not meet the requirements of Appendix R, Section III.G.2 in that redundant safe shutdown instrumentation cabling with less than 20 feet of separation in fire zone 9-A is not protected by radiant energy shield. In addition, control circuits for pressurizer power-operated relief valves in 9-A and 9-C do not meet separation requirements.

Circuits for reactor coolant temperature instrumentation for loops 1 and 2 are routed in conduit KX469 and go into penetration box BTX31E. Corresponding circuits for loops 3 and 4 are routed in conduit KX463 and go into penetration box BTX24E. Separation between the penetration boxes is approximately 12 feet.

Source range neutron flux monitor circuits for NE-31 and NE-32 are routed in conduits K1501 and K1505. In their vertical runs to their respective penetration boxes, separation is less than 3 feet. There is also about 25 feet of horizontal conduit run where horizontal separation is less than 15 feet.

Conduits for pressurizer power-operated pressure relief valves (PORV), PCV-474, 455C, and 456 and their corresponding block valves V8000A, V8000B, and V8000C are not separated by 20 feet in both fire zones 9-A and 9-C. This could effect penetration boxes BTX12E, BTX19E, and BTX26E as well as conduit K1986 and junction box BJX263 for PCV-474. A hot short due to fire could cause the PORVs to open and the PORV block to fail as is, (normally open).

PROPOSED MODIFICATIONS

1. Penetration box BTX31E and conduit KX469 for loops 1 and 2 of reactor coolant temperature instrumentation circuits will be provided with a 1-hour barrier where it is within 20 feet horizontally of the redundant circuit for loops 3 and 4 (BTX24E and KX363).

2. Two additional source range neutron flux monitors, NE-51 and 52, are being added to make NE-31 and 32 redundant. The 20-foot separation requirement will be maintained on conduit for these supplemental monitors.

3. To preclude a hot short from opening PCV-474, a 1-hour fire barrier will be installed on junction box BJX263, conduit K1986, and penetration box BTX26E.

4. A 1-hour fire rated enclosure will be provided for penetration boxes BTX12E and BTX19E which contain circuits for PCV-456 and PCV-455C, respectively.

5. Pressurizer level instrument lines will be shielded where they pass in the vicinity of RCP 2-2 at elevation 115 feet.

FIRE AREA: 19-E
TITLE: COMPONENT COOLING WATER HEAT EXCHANGER ROOM
FIGURE: 3-1

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 19-E is located in the northeast section of the Unit 2 turbine building at elevation 85 feet. It is separated from fire zone 19-A (fire area TB-7) and fire area 4-B by 3-hour barriers, except for a supply duct which penetrates the ceiling from 19-A, and passes through a corner of 19-E and into 4-B in the auxiliary building. This duct has no opening into 19-E and contains no fire dampers.

COMBUSTIBLES

The in situ combustible loading in fire area 19-E is approximately 13,000 Btu/ft^2 or an equivalent fire severity of 10 minutes. It is evenly distributed over an area of approximately 2,100 square feet. In situ combustibles are primarily cables in trays.

Anticipated transient combustibles include rags, and solvents for cleaning, paper procedures, and drawings. Transients are expected to add about 3,770 Btu/ft^2 loading with an increased severity of 3 minutes.

MAJOR EQUIPMENT

The equipment in this zone is limited to the two component cooling water heat exchangers and three motor-operated and two air-operated valves associated with the component cooling water system and auxiliary saltwater system for safe shutdown.

For a listing of the raceways required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection systems provide 86% coverage in this area and alarm in the continuously manned control room.

SUPPRESSION

Wet pipe automatic sprinkler protection is provided throughout this area and the water flow alarm annunciates in the continuously manned control room.

Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 19-E does not meet the requirements of Appendix R, Section III.G.2(c) in that full area detection is not provided and 1-hour enclosure is not provided around one train of redundant safe shutdown systems. Auxiliary saltwater valves FCV-602 and FCV-603 and the associated conduits are located less than 10 feet apart. Component cooling water motor-operated valves FCV-430 and FCV-431 and the associated conduits are located less than 20 feet apart, and the component cooling water heat exchangers are less than 5 feet apart.

BASIS FOR EXEMPTION REQUEST

1. Fire area 19-E is totally separated from other areas by 3-hour fire barriers except for a ceiling-to-wall supply duct which passes through the area. Even without fire dampers, this duct does not pose a significant means of fire communication as it simply passes through a corner of the area, has no openings in the area, and initiates and discharges into areas of low fire loading.

2. Combustible loading in fire area 19-E is only 16,770 Btu/ft^2, or less than an equivalent fire severity of 13 minutes.

3. A wet pipe automatic sprinkler system protects the entire area.

4. An automatic ionization detection system is provided in the area and alarms in the continuously manned control room.

5. A fire hose station, within the fire area, and portable extinguishers in fire zone 19-A are available for manual firefighting purposes.

6. A hot short of the valve circuits to the auxiliary saltwater valves could cause the valves to move to the closed position, thereby losing auxiliary saltwater to the component cooling water heat exchangers. However, manual action can be taken to open either or both valves by removing the twist-pull fuse located in the control room protecting the circuit controlling these valves. Alternatively, the circuit breakers located in the inverter room (fire areas 6-B-1 and 6-B-2) serving these valves could be tripped. Either of these actions will result in the valve failing in its open position assuring auxiliary saltwater flow.

7. Failure of the valve circuits to the component cooling water motor-operated valves will fail the valves as is. One of the two redundant valves is normally open and the other is normally closed; flow through only one component cooling water heat exchanger is required for safe shutdown.

8. A reinforced concrete missile shield separates the redundant heat exchangers, and extends approximately 2.5 feet beyond the ends of the heat exchangers.

9. Expanding the detection area wide and providing a 1-hour enclosure around the heat exchangers and the valve circuits for the auxiliary saltwater and component cooling water valves would not enhance, to a significant degree, the protection provided by the current configuration.

FIRE AREA: 22-C
TITLE: CORRIDOR OUTSIDE DIESEL GENERATOR
FIGURE: 3-1

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area 22-C is a corridor at elevation 85 feet in the turbine building that separates the diesel generator rooms from fire area 20.

The corridor is separated from all other fire areas by 3-hour rated barriers, with the following exceptions:

1. Ventilation ducting penetrating the east wall is equipped with a 1-1/2-hour rated fire damper.

2. The door leading to stairwell S-7 is 1-1/2-hour rated.

3. A duct penetration without a fire damper passes to fire zone 24-E above.

COMBUSTIBLES

Fire area 22-C has an approximate floor area of about 624 square feet. The in situ combustibles loading within this fire area is negligible since all cables are run in steel conduit.

Transient combustible loading is estimated to present an additional 16,050 Btu/ft^2 with an equivalent severity of 12 minutes. Anticipated transient combustibles are lubricating oil to top off the diesel generator lube oil systems and solvent and rags for component cleaning.

Due to the possibility of transient combustibles in this corridor, safe shutdown circuits are enclosed in 2-hour rated fire barriers to isolate vital F, G, and H conduits from a fire in this area.

MAJOR EQUIPMENT

Although no safety-related equipment is housed in this fire area, vital F, G, and H bus circuitry associated with diesel generators 2-1 and 2-2 and diesel fuel transfer pumps O-1 and O-2 are located in this area. Diesel generator emergency stop switches are also located in this area.

For a listing of the raceways required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

No detection is provided for this area.

SUPPRESSION

Wet pipe automatic sprinkler protection is provided in this area. The water flow alarm annunciates in the continuously manned control room. Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this area.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area 22-C does not meet the requirements of Appendix R, Section III.G.2(c). The fire area contains circuitry associated with diesel generators 2-1, 2-2, and diesel fuel transfer pumps O-1 and O-2. These circuits are separated by less than 20 feet. These circuits are or will be enclosed as described below by a barrier with a fire rating of at least 2-hours. Full area suppression is provided; however, detection is not provided.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Appendix R, Section III.G.2(c) requiring full area detection. The technical bases which support this exemption request are itemized below.

1. A 2-hour rated fire barrier encloses the power and control circuitry for each diesel generator.

2. Circuits for diesel generators 2-1 and 2-2 low speed indication will be provided with isolators for the RPM tach-pack unit to preclude tripping the diesel generator due to a short circuit of this indication circuitry.

3. Emergency stop pushbutton switches for diesel generators 2-1 and 2-2 will be enclosed in a 1-hour barrier to prevent a short across the pushbutton contact from inadvertantly tripping the diesel.

4. Automatic suppression is provided for the entire area.

5. The in situ combustible loading, consisting primarily of cable insulation, is enclosed in 2-hour fire rated construction representing a negligible fire loading. The estimated combustible loading due to transient combustibles is estimated to be 16,050 Btu/ft^2 with an equivalent severity of 12 minutes.

6. Manual fire suppression capabilities are available in this and adjacent areas.

7. The presence of the automatic suppression system, combined with the level of protection provided by the sheet metal duct, limits the potential for a fire in fire area 22-C or fire zone 24-E from affecting the adjoining areas through ductwork without fire dampers.

8. The addition of a fire detection system or dampers in the duct connecting fire area 22-C with fire zone 24-E would not enhance, to a significant degree, the protection of safe shutdown functions provided by the current configuration.

FIRE AREA: 30-A-3 and 30-A-4
TITLE: AUXILIARY SALTWATER PUMPS 2-1 and 2-2
FIGURES: 3-14

AREA DESCRIPTION

Fire area 30-A-3 houses auxiliary saltwater pump 2-1 located in the intake structure. (The area description and exemption request for fire area 30-A-3 are identical to that of fire area 30-A-4, which houses the redundant auxiliary saltwater pump 2-2. Conditions described in this section apply to both fire areas.)

PHYSICAL CHARACTERISTICS

This area is bounded by 3-hour fire barriers, including a common wall to fire area 30-A-4, and has an unrated steel watertight door facing southwest to fire area 30-A-5. (See attached Dwg. No. 100424.) This door is equipped with a security alarm in the control room to ensure the door is closed. The ceiling of this area is penetrated by an open metal ventilation stack to the outside and a concrete equipment hatch to the outside.

The power supply to the auxiliary saltwater pumps and its associated exhaust fan is separated from the redundant train by the 3-hour rated fire barriers and the watertight doors. Furthermore, each unit has two auxiliary saltwater pumps, of which only one per unit is required for safe shutdown. The auxiliary saltwater systems can be cross-connected between units.

COMBUSTIBLES

Fire areas 30-A-3 and 30-A-4 have an approximate floor area of about 160 ft^2 each. The in situ combustible loading within these fire areas is approximately 1,700 Btu/ft^2 with an equivalent fire severity of 1.2 minutes. In situ combustible loading is composed primarily of lubricating oil and a rubber boot on the pump discharge.

Transient combustible loading is estimated to present an additional 3,100 Btu/ft^2 with an increased severity of 2.3 minutes to each area. Anticipated transient combustibles are lubricating oil, a wood ladder, and grease.

MAJOR EQUIPMENT

30-A-3: This fire area houses auxiliary saltwater pump 2-1; this equipment is required for safe shutdown.

30-A-4: This fire area houses auxiliary saltwater pump 2-2; this equipment is required for safe shutdown.

For a listing of the raceways required for safe shutdown routed through the subject fire area, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection is provided immediately outside of the entry to these areas and alarms in the continuously manned control room.

SUPPRESSION

Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for these areas.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire areas 30-A-3 and 30-A-4 do not meet the requirements of Appendix R, Section III.G.2(a). The fire areas are separated from each other by a 3-hour rated enclosure. However, an unrated steel watertight door is provided for access to each pump vault from adjoining fire area IS-1.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Appendix R, Section III.G.2(a) requiring 3-hour rated barriers with door openings protected by 3-hour rated doors. The technical bases which support this exemption are itemized below.

1. The door is fabricated of about 1/2-inch steel with a wire glass circular view plate under 30 square inches in area. (See attached Dwg. No. 100424.)

2. The in situ combustible loading for fire areas 30-A-3 and 30-A-4 is approximately 1,700 Btu/ft^2 each. The in situ combustible loading in adjacent fire zone 30-A-5 is approximately 540 Btu/ft^2. When the estimated transient combustible loading is added, the combustible loadings are under 4,000 Btu/ft^2 and 2,000 Btu/ft^2, respectively. Based on the combustible loadings, an exposure fire is not likely to challenge the watertight doors.

3. Replacing the unrated watertight door with a rated fire door in fire area 30-A-3 or 30-A-4 would not enhance, to a significant degree, the protection of the safe shutdown equipment provided by the current configuration.

FIRE AREA: AB-1
TITLE: MISCELLANEOUS - BUILDING AND FUEL HANDLING BUILDING
FIGURES: 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, and 3-13

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Fire area AB-1 is composed of numerous Unit 1, Unit 2, and common fire zones. This area encompasses the main portion of the auxiliary building from elevation 54 to 140 feet and the fuel pool and machine shop areas of the fuel handling building from elevation 99 to 140 feet. Portions of this fire area were discussed in the Report on 10CFR50 Appendix R Review for Unit 1, issued on July 15, 1983, and are included herein for completeness.

The fire zones in fire area AB-1 include:

a. 3-A, Liquid Holdup Tanks
b. 3-B-3, Unit 1 Boron Injection Tank Room
c. 3-C, Drain Receiving and Gas Decay Tanks
d. 3-D-3, Unit 2 Boron Injection Tank Room
e 3-F, Unit 1 Containment Spray Pump Area
f. 3-G, Unit 2 Containment Spray Pump Area
g. 3-J-1, 3-J-2, and 3-J-3, Unit 1 Component Cooling Water Pumps 1-1, 1-2, and 1-2 Areas
h. 3-K-1, 3-K-2, and 3-K-3, Unit 2 Component Cooling Water Pumps 2-1, 2-2, and 2-3 Areas
i. 3-L, Boric Acid and Waste Evaporators
j. 3-M, Unit 1 Safety Injection Pump Area
k. 3-N, Unit 2 Safety Injection Pump Area
l. 3-Q-2, Unit 1 Motor-driven Auxiliary Feedwater Pumps
m. 3-R, Unit 1 New and Spent Fuel Storage
n. 3-S, Hot Shop
o. 3-T-2, Unit 2 Motor-driven Auxiliary Feedwater Pumps
p. 3-W, Unit 2 New and Spent Fuel Storage

q. 3-X, Boric Acid Transfer Pumps and Chemical Volume Control System (CVCS) Demineralizers

r. 3-AA, Boric Acid Tanks Area

s. 8-B-1, Unit 1 Area K, Aux. Building Ventilation Supply Fan Room

t. 8-B-2, Unit 2 Area K, Aux. Building Ventilation Supply Fan Room

u. Stairway S-2

v. Stairways S-3 and S-4

Numerous unprotected vents, equipment hatches, manways, ducts, pipeways, electric raceways, and diverse openings communicate between different zones.

A. Fire Zone 3-A, Liquid Holdup Tanks

Fire zone 3-A is located in the east of the auxiliary building at elevation 55 to 115 feet. This zone is separated from other fire areas by 3-hour barriers with the following exceptions.

1. Two-hour rated plaster on metal lath panels providing separation at elevation 85 feet from fire zones 3-P-3 (fire area V-1) and 3-V-3 (fire area V-3).

2. Duct penetrations without fire dampers communicate with fire zones 3-P-3 and 3-V-3 at elevation 85 feet.

B. Fire Zone 3-B-3, Unit 1 Boron Injection Tank Room

Fire zone 3-B-3 is located on the north side of the auxiliary building at elevation 64 feet and is equivalent to its Unit 2 counterpart (fire zone 3-D-3).

C. Fire Zone 3-C, Drain Receiving and Gas Decay Tanks

Fire zone 3-C is located in the main portion of the auxiliary building at elevations 54, 64, and 75 feet. This zone is separated from other fire areas and zones by 3-hour rated barriers with the following exceptions:

1. Open overflow penetrations communicate with fire areas 3-B-1, 3-B-2, 3-D-1, and 3-D-2 at elevation 54 feet.

2. Doorway openings communicate with fire zones 3-J-1, 3-J-2, 3-J-3, 3-K-1, 3-K-2, and 3-K-3 at elevation 75 feet.

3. Duct penetrations without fire dampers communicate with fire areas 3-H-1, 3-H-2, 3-I-1, and 3-I-2 at elevation 75 feet.

4. One and one-half hour rated doors provide separation from fire areas 3-H-1 and 3-I-1 at elevation 75 feet.

D. Fire Zone 3-D-3, Unit 2 Boron Injection Tank Room

Fire zone 3-D-3 is located on the south side of the auxiliary building at elevation 64 feet. This zone is separated from other fire areas by 3-hour rated barriers with the following exceptions:

1. Duct penetrations without fire dampers communicate with fire areas 3-D-1 and 3-D-2.

2. One and one-half hour rated doors provide separation from fire areas 3-D-1 and 3-D-2.

E. Fire Zone 3-F, Unit 1 Containment Spray Pump Area

Fire zone 3-F is located in the northeast corner of the auxiliary building at elevation 75 feet and is equivalent to its Unit 2 counterpart (fire zone 3-G).

F. Fire Zone 3-G, Unit 2 Containment Spray Pump Area

Fire zone 3-G is located in the southeast corner of the auxiliary building at elevation 75 feet. This zone is separated from fire areas 3-D-2, 3-I-2, V-3 (zone 3-V-3) and 3-CC by 3-hour rated barriers at elevations 64, 75, and 85 feet with the following exceptions:

1. Duct penetrations without fire dampers communicate with fire zone 3-V-3 at elevations 64 and 75 feet.

2. A doorway opening communicates with fire area 3-I-2 (at elevation 75 feet).

G. Fire Zones 3-J-1, 3-J-2, and 3-J-3, Unit 1 Component Cooling Water Pump Areas

These fire zones are located in the northwest corner of the auxiliary building at elevation 75 feet and are equivalent to their Unit 2 counterparts (fire zones 3-K-1, 3-K-2, and 3-K-3).

H. Fire Zones 3-K-1, 3-K-2, and 3-K-3, Unit 2 Component Cooling Water Pump Areas

Fire zone 3-K-1, 3-K-2, and 3-K-3 are located in the southwest corner of the auxiliary building at elevation 75 feet. In fire zone 3-K-1, the walls to the south and west are 3-hour rated barriers, and the wall to the east is a 3-hour rated barrier with an unsealed pipe penetration and duct penetrations without fire dampers. In fire zone 3-K-2, the south wall is a 3-hour rated barrier and the east and west walls are 3-hour rated barriers with unsealed pipe and duct penetrations without fire dampers. In fire zone 3-K-3, the wall to the west is a 3-hour rated barrier with unsealed pipe penetrations and duct penetrations without fire dampers. An anteroom is provided off of fire zone 3-K-3; it is not provided with smoke detection or automatic suppression. The wall to the east is a 3-hour rated barrier, and the pipe opening approximately 13 square feet that communicates with fire area 3-CC will be modified to a 3-hour rated barrier. The north sides of 3-K-1, 3-K-2, and 3-K-3 are open to zone 3-C. Each of these openings is provided with approximately a 4-inch high curb to prevent oil spillage from communicating between zones.

I. Fire Zone 3-L, Boric Acid and Waste Evaporators

Fire zone 3-L is located at the west end of the auxiliary building at elevations 85 and 115 feet. The zone is separated by 3-hour rated barriers from fire areas 3-B-1, 3-B-2, 3-D-1, 3-D-2, 3-H-1, 3-H-2, 3-I-1, 3-I-2, V-1, V-3, 3-BB, and 3-CC at elevations 75, 85, 104, and 115 feet with the following exceptions:

1. Duct penetrations without fire dampers communicate with fire zones 3-P-3 (fire area V-1) and 3-V-3 (fire area V-3).

2. A 2-hour rated barrier separates this zone from fire area 4-A..

3. One and one-half hour rated doors provide separation from fire areas 3-BB, 3-CC, V-1, and V-3.

J. Fire Zone 3-M, Unit 1 Safety Injection Pump Area

Fire zone 3-M is located on the north side of the auxiliary building at elevation 85 feet and is equivalent to its Unit 2 counterpart (fire zone 3-N).

K. Fire Zone 3-N, Unit 2 Safety Injection Pump Area

Fire zone 3-N is located on the south side of the auxiliary building at elevation 85 feet and is separated from other fire areas by 3-hour rated fire barriers with the following exception:

1. A duct penetration without a fire damper which communicates with fire area 3-D-2.

L. Fire Zone 3-Q-2, Unit 1 Motor-driven Auxiliary Feedwater Pumps

Fire zone 3-Q-2 is located at the south end of the Unit 1 fuel handling building at elevation 100 feet. The description of this area is equivalent to its Unit 2 counterpart (fire zone 3-T-2).

M. Fire Zone 3-R, Unit 1 New and Spent Fuel Storage

Fire zone 3-R is located in the fuel handling building, just east of the Unit 1 containment building. The description of this area is equivalent to its Unit 2 counterpart (fire zone 3-W).

N. Fire Zone 3-S, Hot Shop

Fire zone 3-S is located in the east end of the auxiliary building at elevation 140 feet and is common to both units. This zone adjoins Units 1 and 2 new and spent fuel areas (fire zones 3-R and 3-W) to the north and south, respectively.

The east and west walls and ceiling of this zone are unrated metal and communicate with the outside. The structural steel is unprotected.

O. Fire Zone 3-T-2, Unit 2 Motor-driven Auxiliary Feedwater Pumps

Fire zone 3-T-2 is located at the north end of the Unit 2 fuel handling building at elevation 100 feet. This zone is separated from other fire areas by 3-hour rated barriers with the following exceptions:

1. A 1-hour rated wall provides the east boundary with fire area 3-T-1. This wall contains a 1-1/2-hour rated ventilation fire damper, 3-hour fire doors, and a duct penetration without a fire damper.

2. A 1-1/2-hour rated door in the south wall separates this zone from fire zone 3-U (fire area FB-2).

3. A 1-1/2-hour rated door in the west wall separates this zone from fire area 3-CC.

4. A ventilation opening in the ceiling communicates with fire zone 3-W.

P. Fire Zone 3-W, Unit 2 New and Spent Fuel Storage

Fire zone 3-W is located in the fuel handling building, just east of the

Unit 2 reactor containment building. It extends from elevations 99 to 104 feet. This zone is separated from adjacent fire areas by 3-hour rated fire barriers with the following exceptions:

1. One and one-half hour rated fire doors provide separation at elevation 100 feet from fire zones 32 and 3-V-2 (fire area V-3).

2. One and one-half hour rated doors provide separation at elevation 115 feet from fire zone 3-V-2 (fire area V-3) and fire area 3-CC.

3. Duct penetrations without fire dampers and vent openings provide separation at elevation 115 feet from fire zone 3-V-4 (fire area V-3).

4. Duct penetrations without fire dampers communicate with fire zone 3-V-8 (fire area V-4) at elevation 140 feet.

5. The east, west, and north walls and the ceiling are unrated and communicate with the outside at elevation 140 feet. The supporting structural steel is unprotected.

Q. <u>Fire Zone 3-X, Boric Acid Transfer Pumps and CVCS Demineralizers</u>

Fire zone 3-X, which houses the boric acid transfer pumps and CVCS demineralizers for Units 1 and 2, occupies the largest portion of the east side of the auxiliary building at elevation 104 feet.

This zone is separated from adjacent fire areas by 3-hour rated barriers with the following exceptions:

1. One and one-half hour rated doors provide separation from fire area 3-BB to the north and fire area 3-CC to the south.

2. Duct penetrations without fire dampers communicate with fire areas 3-B-1, 3-B-2, 3-D-1, and 3-D-2.

R. Fire Zone 3-AA, Boric Acid Tanks Area

Fire zone 3-AA, which contains the boric acid storage tanks, is located on the east side of the auxiliary building at elevation 115 feet. The north half of fire zone 3-AA contains the tanks for Unit 1; the south half contains Unit 2 equipment. This fire zone is separated from adjacent fire areas by 3-hour rated barriers with the following exceptions:

1. One and one-half hour rated doors provide separation from fire areas 3-BB and 3-CC.

2. Two unrated doors on the east wall communicate with the outdoors.

S. Fire Zone 8-B-1, Unit 1, Area K, Auxiliary Building Ventilation Supply Fan Room

Fire zone 8-B-1, which houses Unit 1 ventilation supply fans for the auxiliary building and associated roughing filters and heating coils, is located to the northeast of the control room complex at elevation 140 feet. It is separated from adjacent areas by a 3-hour rated fire barrier with the following exceptions:

1. Unrated louvers and a door communicate through the north and east walls with fire area 34 outside.

T. Fire Zone 8-B-2, Unit 2, Area K Auxiliary Building Ventilation Supply Fan Room

Fire zone 8-B-2, which houses Unit 2 ventilation supply fans for the auxiliary building and associated roughing filters and heating coils, is located to the southeast of the control room complex at elevation 140 feet. It is separated from adjacent fire areas with 3-hour rated barriers with the following exception:

1. Unrated louvers and a door communicate through the south and east walls with fire area 34 outside.

U. Stairway - S-2

Stairway S-2 extends from elevations 54 to 140 feet in the center of the auxiliary building. This fire zone is separated from adjacent fire areas by 3-hour rated barriers with the following exceptions:

1. A one and one-half hour rated door provides separation from fire area 4-B at elevation 85 feet.

2. One and one-half hour rated doors that provide separation from stairway S-5 (fire area AB-2) and fire area 34 outside at elevation 140 feet, and fire zones 8-B-3 and 8-B-4 (fire area CR-1) at elevation 154 feet.

V. Stairways - S-3 and S-4

Stairways S-3 and S-4 extend from elevation 64 to 140 feet at the northeast and southeast corners of the auxiliary building, respectively. These stairways have 1-1/2-hour rated doors providing separation from adjacent fire zones. Each stairway terminates in the hot shop (fire zone 3-S) and is open at this elevation.

COMBUSTIBLES

Combustible loading for this fire area is divided by fire zones as follows:

a) Fire zone 3-A of this fire area has an approximate floor area of 1,200 square feet. The in situ combustible loading within this fire zone is approximately 129 Btu/ft^2 with an equivalent fire severity of 0.1 minutes. In situ combustible loading is composed primarily of lubricating oil.

Transient combustible loading is estimated to present an additional 358 Btu/ft^2 with an increased severity of 0.3 minutes. Anticipated transient combustibles are Class A combustibles used for radiological controls.

b) Fire zone 3-B-3 has a combustible loading equivalent to its Unit 2 counterpart (fire zone 3-D-3).

c) Fire zone 3-C of this fire area has an approximate floor area of 15,000 square feet. The in situ combustible loading within this fire zone is approximately 1,956 Btu/ft^2 with an equivalent fire severity of 1.6 minutes. In situ combustible loading is composed primarily of electric cable in cable trays and lubricating oil.

Transient combustible loading is estimated to present an additional 260 Btu/ft^2 with an increased severity of 0.7 minutes: Anticipated transient combustibles are Class A combustibles used for radiological controls, cleaning solvents, grease, and lubricating oil for maintenance activities.

d) Fire zone 3-D-3 of this fire area has an approximate floor area of 550 square feet. The in situ combustible loading within this fire zone is approximately 566 Btu/ft^2 with an equivalent fire severity of 0.4 minutes. In situ combustible loading is composed primarily of oil and grease.

e) Fire zone 3-F has a combustible loading equivalent to its Unit 2 counterpart (fire zone 3-G).

f) Fire zone 3-G of this fire area has an approximate floor area of approximately 3200 square feet. The in situ combustible loading within this fire zone is approximately 5100 Btu/ft^2 with an equivalent fire severity of 3.8 minutes. In situ combustible loading is composed primarily of electric cable, grease, and lubricating oil.

Transient combustible loading is estimated to present an additional 5550 Btu/ft^2 with an increased severity of 4.2 minutes. Anticipated transient combustibles are electric cable, solvents for cleaning, lubrication oils, grease, and Class A combustibles used for radiological controls.

g) Fire zone 3-J-1 has a combustible loading equivalent to its Unit 2 counterpart (fire zone 3-K-1).

h) Fire zone 3-J-2 has a combustible loading equivalent to its Unit 2 counterpart (fire zone 3-K-2).

i) Fire zone 3-J-3 has a combustible loading equivalent to its Unit 2 counterpart (fire zone 3-K-3).

j) Fire zone 3-K-1 of this fire area has an approximate floor area of 480 square feet. The in situ combustible loading within this fire zone is approximately 11,150 Btu/ft^2 with an equivalent fire severity of 8.4 minutes. In situ combustible loading is composed primarily of electric cable insulation, lubricating oil, and grease.

Transient combustible loading is estimated to present an additional 25,750 Btu/ft^2 with an increased severity of 19.3 minutes. Anticipated transient combustibles are Class A combustibles used for radiological controls, cleaning solvents, lubricating oil, and grease for maintenance.

k) Fire zone 3-K-2 of this fire area has an approximate floor area of 480 square feet. The in situ combustible loading within this fire zone is approximately 11,150 Btu/ft^2 with an equivalent fire severity of 8.4 minutes. In situ combustible loading is composed primarily of electric cable insulation, lubricating oil, and grease.

Transient combustible loading is estimated to present an additional 25,750 Btu/ft^2 with an increased severity of 19.3 minutes. Anticipated transient combustibles are Class A combustibles used for radiological controls, cleaning solvents, lubricating oil, and grease for maintenance.

l) Fire zone 3-K-3 of this fire area has an approximate floor area of 810 square feet. The in situ combustible loading within this fire zone is approximately 6600 Btu/ft^2 with an equivalent fire severity of 5 minutes. In situ combustible loading is composed primarily of electric cable insulation, lubricating oil, and grease.

Transient combustible loading is estimated to present an additional 15,260 Btu/ft^2 with an increased severity of 11.4 minutes. Anticipated transient combustibles are Class A combustibles used for radiological controls, cleaning solvents, lubricating oil, and grease for maintenance.

m) Fire zone 3-L of this fire area has an approximate floor area of 10,000 square feet. The in situ combustible loading within this fire zone is approximately 9700 Btu/ft^2 with an equivalent fire severity of 7.3 minutes. In situ combustible loading is composed primarily of electric cable insulation, lubricating oil, grease, and plastic.

Transient combustible loading is estimated to present an additional 6850 Btu/ft^2 with an increased severity of 5.1 minutes. Anticipated transient combustibles are Class A combustibles used for radiological controls, lubricating oil, cable, grease, cleaning solvent, and fire retardant treated wood used for scaffold and cribbing.

n) Fire zone 3-M has a combustible loading equivalent to its Unit 2 counterpart (fire zone 3-N).

o) Fire zone 3-N of this fire area has an approximate floor area of 900 square feet. The in situ combustible loading within this fire zone is approximately 2410 Btu/ft^2 with an equivalent fire severity of 1.8 minutes. In situ combustible loading is composed primarily of oil and grease.

Transient combustible loading is estimated to present an additional 6730 Btu/ft^2 with an increased severity of 5.0 minutes. Anticipated transient combustibles are oil, grease, Class A combustibles used for radiological controls, and solvent.

p) Fire zone 3-Q-2 has a combustible loading equivalent to its Unit 2 counterpart (fire zone 3-T-2).

q) Fire zone 3-R has a combustible loading equivalent to its Unit 2 counterpart (fire zone 3-W).

r) Fire zone 3-S of this fire area has an approximate floor area of 7200 square feet. The in situ combustible loading within this fire zone is approximately 630 Btu/ft^2 with an equivalent fire severity of 0.5 minutes. In situ combustible loading is composed primarily of lubricating oil, grease, and acetylene cylinders used for cutting and welding.

Transient combustible loading is estimated to present an additional 8130 Btu/ft^2 with an increased severity of 6.1 minutes. Anticipated transient combustibles are Class A combustibles used for radiological controls, cleaning solvents and rags, power, grease, fire retardant treated wood and acetylene in cyliners, used for welding and cutting.

s) Fire zone 3-T-2 of this fire area has an approximate floor area of 400 square feet. The in situ combustible loading within this fire zone is approximately 17,970 Btu/ft^2 with an equivalent fire severity fire severity of 13.5 minutes. In situ combustible loading is composed primarily of grease in motor bearings.

Transient combustible loading is estimated to present an additional 8906 Btu/ft^2 with an increased severity of 6.7 minutes. Anticipated transient combustibles are grease, solvent, and Class A combustibles used for radiological controls.

t) Fire zone 3-W of this fire area has an approximate floor are of 7700 square feet. The in situ combustible loading within this fire zone is approximately 953 Btu/ft^2 with an equivalent fire severity of 0.7 minutes. In situ combustible loading is composed primarily of electric cable insulation, paper in procedures and drawings, grease and plastic.

Transient combustible loading is estimated to present an additional 13,010 Btu/ft^2 with an increased severity of 9.8 minutes. Anticipated transient combustibles are Class A combustibles used for

radiological controls, cleaning solvents, lubricating oil, cables, grease and fire, and fire retardant treated wood for scaffold and cribbing.

u) Fire zone 3-X of this fire area has an approximate floor area of 10,000 square feet. The in situ combustible loading within this fire zone is approximately 2200 Btu/ft^2 with an equivalent fire severity of 1.6 minutes. In situ combustible loading is composed primarily of electric cable insulation, grease, lubricating oil and primary system hydrogen.

Transient combustible loading is estimated to present an additional 2700 Btu/ft^2 with an increased severity of 2 minutes. Anticipated transient combustibles are Class A combustibles used for radiological controls, grease, lubricating oil, acetylene in cylinders for welding and burning, paper in procedures and drawings, cleaning solvents, and fire retardant treated wood.

v) Fire zone 3-AA of this fire area has an approximate floor area of 15,000 square feet. The in situ combustible loading within this fire zone is approximately 3270 Btu/ft^2 with an equivalent fire severity of 2.4 minutes. In situ combustible loading is composed primarily of lubricating oil and grease.

Transient combustible loading is estimated to present an additional 10,070 Btu/ft^2 with an increased severity of 7.6 minutes. Anticipated transient combustibles are Class A combustibles used for radiological controls, lubricating oil, rags and solvent for cleaning, grease, electric cable, paper procedures and drawings, fire retardant treated wood for scaffold and cribbing, acetylene in cylinders for welding and cutting, and replacement resin for ion exchangers.

w) Fire zone 8-B-1 has a combustible loading equivalent to its Unit 2 counterpart (fire zone 8-B-2).

x) Fire zone 8-B-2 of this fire area has an approximate floor area of 1650 square feet. The in situ combustible loading within this fire

zone is approximately 1145 Btu/ft^2 with an equivalent fire severity of 0.9 minutes. In situ combustible loading is composed primarily of fan belts, electric cable insulation, grease and roughing filters.

Transient combustible loading is estimated to present an additional 320 Btu/ft^2 with an increased severity of 0.2 minutes. Anticipated transient combustibles are replacement roughing filters, grease, and replacement fan belts.

y) S-2, S-3, and S-4 are stairways and as such have a negligible in situ combustible loading. Transient combustible loading in the stairways is also assumed to be negligible.

MAJOR EQUIPMENT

Zone 3-A:

Fire zone 3-A contains Units 1 and 2 liquid holdup tanks, located in individual compartments. None of this equipment is required for safe shutdown.

Zone 3-B-3:

Fire zone 3-B-3 contains the Unit 1 boron injection tank (BIT) and heat tracing and valves associated with the BIT flowpath.

Zone 3-C:

Fire zone 3-C contains Units 1 and 2 equipment drain tanks, floor drain tanks, waste gas compressors, gas decay tanks, auxiliary building sump pumps, radwaste filters, and waste concentrator tanks and associated transfer pumps. None of this equipment is required for safe shutdown.

Zone 3-D-3:

Fire zone 3-D-3 contains the Unit 2 boron injection tank (BIT) and heat tracing and valves associated with the BIT flowpath.

Zone 3-F:

Fire zone 3-F contains the Unit 1 containment spray pumps 1-1 and 1-2, the spray additive tank, and nonvital motor control center.

The containment spray pumps and the spray additive tanks are safety-related but not required for safe shutdown.

Zone 3-G:

Fire zone 3-G contains the Unit 2 containment spray pumps 2-1 and 2-2, the spray additive tank, and a nonvital motor control center. The containment spray pumps and the spray additive tanks are safety-related but not required for safe shutdown.

Zone 3-J-1:

Fire zone 3-J-1 contains Unit 1 component cooling water (CCW) pump 1-1. This equipment is required for safe shutdown.

Zone 3-J-2:

Fire zone 3-J-2 contains Unit 1 CCW pump 1-2. This equipment is required for safe shutdown.

Zone 3-J-3:

Fire zone 3-J-3 contains Unit 1 CCW pump 1-3. This equipment is required for safe shutdown.

Zone 3-K-1:

Fire zone 3-K-1 contains Unit 2 CCW pump 2-1. This equipment is required for safe shutdown.

Zone 3-K-2:

Fire zone 3-K-2 contains Unit 2 CCW pump 2-2. This equipment is required for safe shutdown.

Zone 3-K-3:

Fire zone 3-K-3 contains Unit 2 CCW pump 2-3. This equipment is required for safe shutdown.

Zone 3-L:

Fire zone 3-L contains the Units 1 and 2 boric acid evaporators, waste evaporators, letdown heat exchangers, and the nonvital auxiliary building control panel. This equipment is not required for safe shutdown.

Zone 3-M:

Fire zone 3-M contains the Unit 1 safey injection pumps. These pumps are not required for safe shutdown.

Zone 3-N:

Fire zone 3-N contains the Unit 2 safety injection pumps. These pumps are not required for safe shutdown.

Zone 3-Q-2:

The major equipment in this zone consists of the two Unit 1 motor-driven auxiliary feedwater (AFW) pumps. One AFW pump is required for safe shutdown.

Zone 3-R:

Fire zone 3-R contains the Unit 1 spent fuel pool and its transfer system, cask decontamination equipment, new fuel storage vault, one traveling crane and one shared with zones 3-S and 3-W, two fire pumps, and the AFW chemical addition tanks. This equipment is not required for safe shutdown.

Zone 3-S:

Fire zone 3-S contains machine equipment associated with the hot shop, the vacuum deaerator, and the hot shop exhaust fan. The equipment in this fire zone is not required for safe shutdown.

Zone 3-T-2:

The major equipment in this zone consists of the two motor-driven AFW pumps for Unit 2. One AFW pump is required for safe shutdown.

Zone 3-W:

Fire zone 3-W contains the Unit 2 spent fuel pool and its transfer system, cask decontamination equipment, new fuel storage vault, two traveling cranes (one of them shared between zones 3-R and 3-S) and the AFW chemical addition tanks. This equipment is not required for safe shutdown.

Zone 3-X:

Fire zone 3-X contains Units 1 and 2 boric acid transfer pumps, CVCS demineralizers, filters, and volume control tanks. The equipment

required for safe shutdown includes the boric acid transfer pumps, seal water injection filters, boric acid filters, and emergency borate valve 8104.

Zone 3-AA:

Fire zone 3-AA contains Units 1 and 2 boric acid tanks, blowdown cleanup demineralizers, primary makeup demineralizers, spent resin storage tanks, waste concentrates holding tanks, and the solid radwaste drumming station. The boric acid tanks are required for safe shutdown.

Zone 8-B-1:

Fire zone 8-B-1 contains the Unit 1 auxiliary building ventilation supply fans and associated roughing filters and heating coils. This equipment is not required for safe shutdown.

Zone 8-B-2:

Fire zone 8-B-2 contains the Unit 2 auxiliary building ventilation supply fans and associated roughing filters and heating coils. This equipment is not required for safe shutdown.

Stairways S-2, S-3, and S-4:

Stairways S-2, S-3, and S-4 contain no equipment.

For a listing of the raceways required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

3-A : None

3-B-3: None

3-C : Smoke detection is provided throughout this zone at elevations 64 and 75 feet.

3-D-3: None

3-F : Smoke detection is provided throughout this zone.

3-G : Smoke detection is provided throughout this zone.

3-J-1: Smoke detection is provided throughout this zone.

3-J-2: Smoke detection is provided throughout this zone.

3-J-3: Smoke detection is provided throughout this zone.

3-K-1: Smoke detection is provided throughout this zone.

3-K-2: Smoke detection is provided throughout this zone.

3-K-3: Smoke detection is provided throughout this zone.

3-L : Smoke detection is located above the boric acid evaporators providing coverage for about 18% of this zone.

3-M : Smoke detection is provided throughout this zone.

3-N : Smoke detection is provided throughout this zone.

3-Q-2: Smoke detection is provided throughout this zone.

3-R : Smoke or flame detection is provided throughout this zone.

3-S : Flame detection is provided throughout this zone.

3-T-2: Smoke detection is provided throughout this zone.

3-W : Smoke or flame detection is provided throughout this zone.

3-X : Smoke detection is located in the east end providing coverage for about 36% of this zone.

3-AA : Smoke detection is located in the vicinity of the boric acid storage tanks providing coverage for about 56% of this zone.

8-B-1: Smoke detection is provided throughout this zone.

8-B-2: Smoke detection is provided throughout this zone.

S-2 : None

S-3 : None

S-4 : None

Note: Each smoke detection system alarms in the continuously manned control room.

SUPPRESSION

3-A : No automatic suppression provided.

3-B-3: No automatic suppression provided.

3-C : No automatic suppression provided.

3-D-3: No automatic suppression provided.

3-F : No automatic suppression provided.

3-G : No automatic suppression provided.

3-J-1: Wet pipe automatic sprinkler protection is provided throughout this zone.

Suppression (Cont'd.)

3-J-2: Wet pipe automatic sprinkler protection is provided throughout this zone.

3-J-3: Wet pipe automatic sprinkler protection is provided throughout this zone.

3-K-1: Wet pipe automatic sprinkler protection is provided throughout this zone.

3-K-2: Wet pipe automatic sprinkler protection is provided throughout this zone.

3-K-3: Wet pipe automatic sprinkler protection is provided throughout this zone.

3-L : No automatic suppression provided.

3-M : No automatic suppression provided.

3-N : No automatic suppression provided.

3-Q-2: Wet pipe automatic sprinkler protection is provided throughout this zone.

3-R : No automatic suppression provided.

3-S : No automatic suppression provided.

3-T-2: Wet pipe automatic sprinkler system is provided throughout this zone.

3-W : No automatic suppression provided.

3-X : Wet pipe automatic sprinkler protection is located in the east end of this zone only and covers about 2% of the entire zone.

3-AA : Automatic suppression provided in the vicinity of the radwaste drumming station.

8-B-1: Wet pipe automatic sprinkler protection is provided in the vicinity of the filter area and fans and motors only.

8-B-2: Wet pipe automatic sprinkler protection is provided in the vicinity of the filter area and fans and motors only.

S-2 : Limited wet pipe automatic sprinkler protection is provided at elevation 140 feet of this zone.

S-3 : No automatic suppression provided.

S-4 : No automatic suppression provided.

Note: Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for all these zones. Water flow alarms for the wet pipe automatic sprinkler systems annunciate in the continuously manned control room.

FIRE AREA: AB-1
(FIRE ZONES 3-C and 3-J-1)
TITLE: DRAIN RECEIVER AND GAS DECAY TANK AREA AND COMPONENT COOLING PUMP 1-1 AREA

DESCRIPTION OF DEVIATION

This description of a deviation was addressed in the Report 10CFR50 Appendix R Review for Unit 1 issued on July 15, 1983 and is repeated here for completeness of the Unit 2 Report.

STATEMENT OF PROBLEM

Circuitry for the diesel generator fuel transfer pumps O-1 and O-2 is located in zones 3-C and 3-J-1. They are separated by 15 feet. The conduits containing the circuitry for diesel generator fuel transfer pump O-1 (zone 3-J-1) is enclosed in a 2-hour barrier. Zone 3-J-1 is provided with wet pipe automatic sprinkler protection and smoke detection. Zone 3-C has only smoke detection on this elevation. This configuration does not meet Appendix R, Secion III.G.2(c).

BASIS FOR EXEMPTION REQUEST

An exemption was requested and granted to Appendix R, Section III.G.2(c) requiring full area detection and suppression. The technical bases which support this exemption request have been addressed in the Unit 1 Report on 10CFR50 Appendix R Review.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

The CCW systems in fire zones 3-K-1, 3-K-2, and 3-K-3 do not meet Appendix R, Section III.G(c) separation criteria. As described in the area description, zones 3-K-1, 3-K-2, and 3-K-3 communicate through unsealed pipe penetrations, duct penetrations without fire dampers, and through openings to zone 3-C. The individual pump cubicles are provided with area smoke detection and wet pipe automatic sprinkler protection.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Appendix R, Section III.G.2(c) requiring full area detection and suppression. The technical bases which support this exemption request are itemized below.

1. The three CCW pumps are located in individual cubicles at elevation 75 feet, and each is open to fire zone 3-C. The pumps are approximately 5 feet apart with a 3-hour rated barrier provided between each pump that has duct penetrations without fire dampers and unsealed pipe penetrations.

2. The control circuitry for charging pumps 2-1, 2-2, and 2-3 is routed through fire zones 3-K-2 and 3-K-3. However, the starting circuitry for each pump can be bypassed by individual switches located in the switchgear of fire area TB-10 for charging pump 2-1 and fire area TB-11 for charging pumps 2-2 and 2-3.

3. Access to the pump cubicles is provided by a catwalk which is routed on east-west orientation 8 feet above the floor of zone 3-C.

4. The floor of zone 3-C directly below the pump cubicle (elevation 64 feet) and the catwalk (elevation 75 feet) provides access to the drain receiving and gas decay tanks. Access to this elevation is controlled for radiation protection considerations. Due to this consideration, the potential for transient combustibles being stored underneath the pump cubicles or the catwalk is low.

5. The corridor at elevation 64 feet, below the pump cubicle and catwalk, circles the drain receiving and gas decay tanks, running the entire length and width of auxiliary building.

6. The ceilings of the pump cubicles and elevation 64 feet of the auxiliary building is at elevation 83 feet, with the pumps at approximately elevation 75 feet. In order for a fire at elevation 64 feet of zone 3-C to adversely impact all three pumps, a stratified layer of hot gases would have to build down to the level of the pumps. This would require building the layer of hot gases down to this elevation throughout the entire access corridor surrounding the drain receiving and gas decay tanks. Grated security doors and openings provide access to several large rooms off the catwalk. Heat and smoke would also flow into these rooms, thereby increasing the volume which must become filled with a layer of hot gases prior to adversely affecting the CCW pumps.

7. The in situ transient combustible loadings at elevation 64 feet of fire zone 3-C is approximately 2,800 Btu/ft^2 for an equivalent severity of under 2.3 minutes. From a fire protection viewpoint, a combustible loading several orders of magnitude larger than what would be available at this elevation would be required to form a stratified layer of hot gases to the depth necessary to adversely affect the pumps.

8. Each pump cubicle is provided with automatic smoke detection and wet pipe automatic sprinkler protection. Should a layer of hot gases build up within the pump cubicles, the sprinkler system in the cubicles would actuate. The water discharged from the sprinkler system would act to cool the hot gases that may enter these cubicles prior to it having an adverse affect on the pumps.

9. A smoke detector will be provided in the anteroom off of fire zone 3-K-3.

10. The in situ combustible loading in each of zones 3-K-1, 3-K-2, and 3-K-3, consisting primarily of oil and cable insulation, is approximately 11,150 Btu/ft^2 for 3-K-1 and 3-K-2, and 6,607 Btu/ft^2 for 3-K-3, with an equivalent severity of approximately 8.4 minutes and 5 minutes, respectively. The combustible loading in adjacent zone 3-C, consisting primarily of insulation, is approximately 2,800 Btu/ft^2 with an equivalent severity of approximately 2 minutes.

    The transient combustible loading in 3-K-1, 3-K-2, and 3-K-3, consisting primarily of radiological Class A combustibles, solvents, lubricating oil, and grease for maintenance, is approximately 25,750 Btu/ft^2 for 3-K-1 and 3-K-2, and 15,260 Btu/ft^2 for 3-K-3, with an equivalent severity of 19 minutes and 11 minutes, respectively. The transient combustible loading in zone 3-C, consisting primarily of radiological Class A combustibles, solvents, grease, and lubricating oil for maintenance activities, is approximately 880 Btu/ft^2 with an equivalent severity of less than 1 minute.

11. A 3-hour rated fire barrier will be provided for the pipe chase in fire zone 3-K-3 that communicates with fire area 3-CC.

12. The existing suppression and detection systems within each pump cubicle will provide early fire annunciation in the control room and also provide suppression capability, thereby limiting the potential for damage to the cubicle in which it originates or communication with adjacent zones.

13. Providing areawide detection and suppression throughout fire area AB-1, which contains zones 3-K-1, 3-K-2, and 3-K-3, would not enhance, to a significant degree, the protection of safe shutdown equipment provided by the current configuration.

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

Portions of this fire area were discussed in the Report on 10CFR50 Appendix R Review for Unit 1 issued on July 15, 1983, and are included herein for completeness.

Fire area CR-1, the control room complex, occupies the west end of the auxiliary building at elevation 140 feet and 163 feet. It encompasses the following fire zones:

a. Fire zone 8-A, Unit 1 Computer Room
b. Fire zone 8-C, Control Room
c. Fire zone 8-D, Unit 2 Computer Room
d. Fire zone 8-E, Office and Storage Room
e. Fire zone 8-F, Central Alarm Station
f. Fire zone 8-B-3, Unit 1 Control Room Ventilation Equipment Room
g. Fire zone 8-B-4, Unit 2 Control Room Ventilation Equipment Room

Fire Zone 8-A, Unit 1 Computer Room

This fire zone is located at the north end of the control room complex at elevation 140 feet. This zone is the Unit 1 counterpart of fire zone 8-D.

Fire Zone 8-C, Control Room

Fire zone 8-C is located in the west side of the auxiliary building at elevation 140 feet. This zone is separated from adjacent fire areas by 3-hour rated barriers with the following exception:

- A bulletproof and pressure tight door separates this zone from stairway S-1 (fire area AB-3) and from stairway S-5 (fire area AB-2).

Fire Zone 8-D, Unit 2 Computer Room

This fire zone is located at the south end of the control room complex at elevation 140 feet. It is separated from adjacent fire areas by 3-hour rated walls. It communicates with fire zone 8-C to the north and fire area 8-H to the west through unlabelled and oversized 3-hour rated equivalent doors, respectively. These barriers extend above the unrated suspended ceiling up to the rated concrete ceiling. The floor and ceiling of this fire zone are 3-hour rated. The duct penetration in the west wall is provided with a fire damper.

Fire Zone 8-E, Office and Storage Room

Fire zone 8-E is located on the west side of the auxiliary building at elevation 140 feet. This zone is separated from the turbine deck (fire area TB-7) and the stairway S-1 by 3-hour barriers and from fire zone 8-C by a 1-hour barrier with the following exceptions.

1. A bulletproof and pressure tight door separates this zone from the turbine deck (fire area TB-7)

2. Two unlabeled doors communicate with fire zone 8-C.

Fire Zone 8-F, Central Alarm Station

Fire zone 8-F is located on the west side of the auxiliary building at elevation 140 feet. This zone is separated from other fire areas by 3-hour barriers and from zone 8-C by a 1-hour barrier. A 3-hour rated bulletproof panel separates fire zone 8-F from the turbine deck (fire area TB-7) on the west wall. An unlabeled door communicates with fire zone 8-C.

Fire Zone 8-B-3, Unit 1 Control Room Ventilation Equipment Room

Fire zone 8-B-3 is located in the auxiliary building at elevation 163 feet. This zone is the Unit 1 counterpart of fire zone 8-B-4.

Fire Zone 8-B-4, Unit 2 Control Room Ventilation Equipment Room

Fire zone 8-B-4 is located in the auxiliary building at elevation 163 feet. This zone is separated from area AB-1 by a 3-hour rated barrier except for a 1-1/2-hour rated door to fire zone S-2. It is separated by a 1-1/2-hour rated door from zone 8-B-3, and communicates with the outdoors (area 34) through open louvers and ceiling penetration.

COMBUSTIBLES

Fire area CR-1 has an approximate floor area of 7,450 square feet. The in situ combustible loading within this fire area is approximately 29,420 Btu/ft^2 with an equivalent fire severity of 22 minutes. In situ combustible loading is composed primarily of electric cable insulation, paper in books, computer printouts, prints, etc., and combustible vinyl ceiling lighting diffusers.

Transient combustible loading is estimated to present an additional 3,160 Btu/ft^2 with an increased severity of 2.4 minutes. Anticipated transient combustibles are additional paper goods for copy machines, small amounts of cleaning solvents and rags, and fire brigade protection clothing.

MAJOR EQUIPMENT

Fire zone:

8-A:	Plant computer for Unit 1
8-D:	Plant computer for Unit 2
8-C:	Units 1 and 2 control boards and consoles
8-E:	Office furniture and equipment, and halon storage tanks
8-F:	Plant security consoles and monitors, and halon storage tanks
8-B-3:	Control room ventilation equipment including fans, air-conditioning equipment, and carbon and HEPA filters
8-B-4:	Control room ventilation equipment including fans, air-conditioning equipment, and carbon and HEPA filters.

For a listing of the raceways required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

DETECTION

Smoke detection is provided throughout zones 8-A, 8-B-3, 8-B-4, 8-C, 8-D, 8-E, and 8-F. Smoke detection in zone 8-C is provided inside cabinets and consoles. These systems alarm in this fire area.

SUPPRESSION

Wet pipe automatic sprinkler protection is provided for zones 8-B-3 and 8-B-4 and in the north side of 8-E. The water flow alarms annunciate in this fire area. Manual fire suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for zones in fire area CR-1.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire area CR-1 is made up of zones 8-A, 8-B-3, 8-B-4, 8-C, 8-D, 8-E, and 8-F. This fire area does not meet the requirements of Appendix R, Section III.G.3 in that a full area fixed suppression system is not provided in the fire area. The full area fixed suppression system is required for any fire area in which alternate shutdown capability has been provided.

Failure of the control room diesel generator alarm reset circuit could impair local control capability for the diesel generators.

Failure of the control circuit of the pressurizer PORV block valves 8000A, B, and C could impair the capability to close the valves. This would represent an adverse condition only if the pressurizer PORV valve, PCV-455C, 474, or 456 failed open with its corresponding block valve.

Either of these two conditions could degrade the alternate shutdown system.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.3 of Appendix R, which requires full area fixed suppression in any fire area for which alternate shutdown capability has been provided. The technical bases which justify the exemption request are detailed below.

1. Alternate shutdown capability is available outside of the fire area, should a fire occur in the control room.

2. The control room (fire zone 8-C) is separated from adjacent fire areas by 3-hour rated walls with 3-hour rated barriers, except for the bulletproof and pressure tight doors that lead to stairways S-1 and S-5. The office (fire zone 8-E) is also provided with a bulletproof and pressure tight door that leads to fire area TB-7.

Exemptions for these doors have been filed with the Unit 1 submittal to the NRC on the Report on 10CRF50 Appendix R Review. (Reference PGandE letter DCL-84-185 dated May 16, 1984.)

3. An exemption has been filed for the oversize 3-hour rated equivalent doors, located in fire zones 8-A and 8-D, with the Unit 1 submittal to the NRC on the Report on 10CFR50 Appendix R Review. (Reference PGandE letter DCL-84-185 dated May 16, 1984.)

4. The combustible loading in the fire area results in an equivalent fire severity of under 25 minutes.

5. Full area detection is provided in zones 8-A, 8-D, 8-E, and 8-F. In the control room itself, zone 8-C, smoke detectors are located inside the control panels containing all the electrical equipment and cabling within this zone. These panels are the most probable location for a fire. Any fire would immediately be detected and suppressed by the operators, who are on duty 24 hours a day.

6. Complete automatic suppression and area detection are provided in the control room ventilation equipment rooms, fire zones 8-B-3 and 8-B-4.

7. Portable fire extinguishers are located in the fire area for manual fire fighting purposes.

8. An isolation contact will be provided in the diesel generator local control panel to isolate the alarm reset circuit from the control room.

9. A disconnect switch for PCV-455C, 456, and 474 will be provided at the hot shutdown panel. This will ensure that these valves can be failed close in the event a hot short, due to a postulated fire in the cable spreading room, causes them to open prematurely.

10. An automatic suppression system in the control room may force a control room evacuation when it may not be necessary or advantageous to do so.

11. The addition of a fixed suppression system to provide coverage for the entire fire area would not enhance, to a significant degree, the protection of safe shutdown functions provided by the current configuration.

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

This fire area consists of the intake structure common to Units 1 and Unit 2 at all elevations exclusive of the saltwater pump cubicles. The fire area is divided into fire zones 30-A-5 and 30-B. This fire area represents the bulk of the intake structure, with the remaining floor area consisting of the auxiliary saltwater pump enclosures, fire areas 30-A-3 and 30-A-4 for Unit 2, and 30-A-1 and 30-A-2 for Unit 1. This fire area is remote from the balance of the plant structures. The individual fire zones are discussed below.

A. Fire Zone 30-A-5 – Circulating Water Pump Area

This fire zone comprises the bulk of the intake structure at elevation minus 2 feet. This zone is bounded by 3-hour rated fire barriers, with the exception of exterior doors and stairways and concrete machinery access plugs that communicate with the exterior. The walls between fire zone 30-A-5 and fire areas 30-A-1 through 30-A-4 are 3-hour rated with unrated steel watertight doors.

B. Fire Zone 30-B – Intake Structure Control Room

This zone is located at the intake structure at elevation 18 feet. This zone consists of two nonvital switchgear rooms (Units 1 and 2) plus nonvital intake structure control, 1-ton chlorine cylinders, evaporator and chlorination equipment room.

COMBUSTIBLES

Fire zone 30-A-5 of this fire area has an approximate floor area of 10,000 square feet. The in situ combustible loading within this fire zone is approximately 17,360 Btu/ft^2 with an equivalent fire severity of 13 minutes. In situ combustible loading is composed primarily of lubricating oil in the circulating water pumps.

Transient combustible loading is estimated to present an additional 1,240 Btu/ft^2 with an increased severity of 0.9 minutes. Anticipated transient combustibles are replacement lube oil for the circulating water pumps, cleaning solvents and rags, and ladders and scaffold (fire retardant treated).

Fire zone 30-B of this fire area has an approximate floor area of 1,800 square feet. The in situ combustible loading within this fire zone is approximately 760 Btu/ft^2 with an equivalent fire severity of 0.6 minutes. In situ combustible loading is composed primarily of electric cable insulation and electric panels.

Transient combustible loading is estimated to present an additional 777 Btu/ft^2 with an increased severity of 0.6 minutes. Anticipated transient combustibles are cleaning solvents and rags, procedures, drawings, and personnel protective equipment.

MAJOR EQUIPMENT

A. Fire Zone 30-A-5

Major equipment in fire zone 30-A-5 consists of the circulating water pumps (2 per unit for a total of four), auxiliary saltwater pump suction gate operators, intake coolers and pumps, screen wash pumps, screen refuse pumps, and circulating water pump discharge valves and piping.

B. Fire Zone 30-B

Major equipment in fire zone 30-B consists of the nonvital 480V intake structure switchgear, control panels, chlorine cylinders, and control rooms.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

30-A-5: Smoke detection is provided for this zone outside the ASW pump rooms and annunciates in the continuously manned control room.

30-B: Smoke detection is provided throughout the switchgear room in this zone and annunciates in the continuously manned control room.

SUPPRESSION

30-A-5: A heat-actuated, local application CO_2 suppression system is provided for each circulating water pump motor. Actuation of these suppression systems annunciate in the continuously manned control room. Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this zone.

30-B: Manual suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this zone.

DESCRIPTION OF MODIFICATON

STATEMENT OF PROBLEM

The power circuits for auxiliary saltwater pumps 2-1 and 2-2, and their respective exhaust fans E-104 and E-102, run in conduits embedded in the floor slab. The conduits for PS-186 and exhaust fan E-104 pass through junction box BJZ 114 mounted 4 feet off the floor on the outside of the northwest wall of fire area 30-A-3, with the starter for auxiliary saltwater pump gate, SW 2-8, mounted adjacent to it. Similarly, the conduits for pressure switch PS-185 and exhaust fan E-102 pass through junction box BJZ 110 mounted on the southeast wall of fire area 30-A-4, with the starter for auxiliary saltwater pump gate, SW 2-9, mounted adjacent to it. The redundant conduits, junction boxes, and starters are located more than 20 feet apart with no intervening combustibles; however, total area detection and suppression coverage is not provided.

PROPOSED MODIFICATION

A 3-hour fire rated enclosure will be provided around the conduits for one of the auxiliary saltwater pumps and its exhaust fan, as they come up out of the floor and into the bottom of the junction box, the junction box itself, and the starter located adjacent to it.

FIRE AREA: TB-7
TITLE: TURBINE BUILDING MACHINERY AREA
FIGURES: 3-1, 3-2, 3-3, and 3-4

AREA DESCRIPTION

PHYSICAL CHARACTERISTICS

This fire area is located in the turbine building and includes both Units 1 and 2 at all elevations. The Unit 2 side includes fire zones 19-A, 19-B, 19-C, 19-D, 23-E, and stairways S-6 and S-7. The Unit 1 fire zones 14-A, 14-D, and 12-E, and common zone 16 were part of the Unit 1 Report On 10CFR50 Appendix R Review, and are not included in this report due to the absence of Unit 2 safe shutdown systems and components.

Fire area TB-7 is separated from other Unit 2 fire areas by 3-hour rated barriers, except where identified in the description of the physical characteristics for each zone.

A. Fire Zone 19-A - Main Condenser, Feedwater, and Condensate Equipment Area

This fire zone comprises the bulk of the Unit 2 turbine building at elevations 85, 104, and 119 feet (below 140 feet). Fire zone 19-A is separated from adjacent fire areas by 3-hour rated fire barriers with the following exceptions:

1. Unrated walls, doors, and ventilation openings communicate with fire area 29 (outside) at all elevations.

2. Ventilation ducts without fire dampers communicate with fire area 6-B-5 and fire zone 19-C.

3. A supply duct, without a fire damper, passes from the 119-foot floor elevation of fire zone 19-A, down through the ceiling of fire area 19-E, and through the wall into fire area 4-B.

Within the subject zone are fire areas 19-E (component cooling water heat exchangers), 17 (the warehouse at elevation 123 feet), and 18

(turbine lube oil reservoir). These areas are separated from zone 19-A by 3-hour rated barriers with the following exceptions:

1. The supply duct, without fire damper, between 19-A and 4-B that passes through 19-E.

2. An unlabeled door/panel assembly and monorail in fire area 18.

B. Fire Zone 19-B - Nonvital Electrical Load Center

This zone is near the center of the turbine building at elevation 125 feet. It is adjacent to fire areas 17 to the north and 18 to the east, and would be classed as a fire area were it not for a nonrated panel constructed to 3-hour fire door specifications.

C. Fire Zone 19-C - Oil and Paint Storage Rooms

This fire zone is composed of three rooms at elevation 85 feet, an oil reclamation room, paint storage, and oil drum storage rooms. This zone is separated from other fire areas by a 3-hour rated barrier (the east wall adjoins outside fire area 29 without any penetrations). The middle room (paint storage) would be a 3-hour fire rated room, while the other two rooms have ventilation louvers into 19-A.

D. Fire Zone 19-D - Unit 2 Turbine Operating Deck

This fire zone consists of the Units 1 and 2 main turbine operating deck at elevation 140 feet. This zone is separated from the remaining portion of the Unit 2 fire area TB-7 by a concrete floor slab penetrated by open stairways and equipment hatches. Fire zone 19-D is separated from adjacent fire areas by 3-hour rated fire barriers, except for the exterior wall which is unrated and communicates with fire areas 29 and 34 (outdoors) and fire area CR-1 (fire Zone 8-E), which is provided with a bulletproof and pressure-tight door.

E. Fire Zone 23-E - Isophase Bus Area

This zone is located in the southeast portion of the turbine

building between elevations 104 and 140 feet. This fire zone is separated from adjacent fire areas by 3-hour rated fire barriers with the following exceptions:

1. The east wall separating 23-E from fire area 29 (outside) is a two-hour rated wall. There is a duct penetration with fire damper through this wall at elevation 127 feet.

2. A duct penetration without fire dampers communicates with fire area 24-E (4kV ventilating fan room).

3. There are two 1-1/2-hour rated fire doors connecting with zone 23-A and one door to 24-A in fire area TB-10, and another door connecting to the stairway leading down to fire area 20.

F. Fire Zone S-6 - Stairwell

This stairwell is in the southwestern portion of the turbine building, and extends from elevation 85 feet to the turbine deck at elevation 140 feet. Access to or egress from the stairwell is through a 3-hour rated door at elevation 85 feet, through 1-1/2-hour rated doors at elevations 104 and 119 feet, and is totally open to the turbine deck.

G. Fire Zone S-7 - Stairwell

This stairwell is at the south end of the turbine building and nearly centered between the east and west sides. It also runs from elevation 85 feet to the turbine deck, with access through 1-1/2-hour rated fire doors at all elevations, except at the turbine deck where it is completely open.

COMBUSTIBLES

A. Fire Zone 19-A

The in situ combustible loading in this zone is approximately 23,600 Btu/ft^2, with an equivalent severity of about 18 minutes due to electric cables and lubricating oil. Anticipated transients are

acetylene, fire-retardant treated wood, paper, rags, solvents, lubricating oil, and fuel oil. Transient combustible loading is estimated to present an additional 11,650 Btu/ft^2, with an increased severity of 9 minutes.

B. Fire Zone 19-B

The in situ fire loading is 7,260 Btu/ft^2 due to cable, or an equivalent fire severity of 5 minutes. Transient loading is negligible.

C. Fire Zone 19-C

Combustible material in these rooms is almost exclusively paint and oil in drums. Combustible loading would be high, but variable depending on the quantity of oil in storage.

D. Fire Zone 19-D

The in situ combustible loading in this fire zone is approximately 3,960 Btu/ft^2, with an equivalent severity of about 3 minutes due to hydrogen, grease, lubricating oil, and Class A combustibles in sprinklered office and shop areas. The anticipated transients are grease, paper, fire retardant treated wood, solvents, cable, and rags. Transients are anticipated to add approximately 2,900 Btu/ft^2 combustible loading and an increased fire severity of 2.2 minutes.

E. Fire Zone 23-E

The in situ combustible loading in this fire zone is approximately 3,400 Btu/ft^2, with an equivalent severity of 2.5 minutes due to cable and electrical equipment. The anticipated transients are grease, rags, paper, and solvents. Transients are anticipated to add approximately 780 Btu/ft^2, with an additional severity of 0.7 minutes.

F. Fire Zone S-6

The in situ combustible loading is negligible. Transients will also be negligible due to heavy traffic and nonstorage designation.

G. Fire Zone S-7

The in situ combustible loading and transients will be negligible for reasons of heavy traffic and nonstorage designation. There are four vital conduits that pass through this stairwell in the landing at elevation 104 feet.

MAJOR EQUIPMENT

A. Fire Zone 19-A

The major equipment in this zone consists of the main condenser, the condensate and feedwater equipment (pumps, heat exchangers, moisture separators, reheaters, feedwater heaters, etc.), hydrogen seal oil unit, lube oil centrifuge, service water cooling pumps and heat exchangers, carbon dioxide storage tank, seawater evaporator, nonvital battery rooms, calibration facility, and the ventilation system for the post-LOCA sample room (fire area 3-CC).

B. Fire Zone 19-B

Major equipment in this zone consists of switchgear for nonvital circuits.

C. Fire Zone 19-C

There is no significant equipment associated with these three oil and paint storage rooms.

D. Fire Zone 19-D

The major equipment in this zone consists of the main turbine generator, the overhead crane, the instrument repair shop, and non combustible offices. There is no safe shutdown equipment in this zone.

E. Fire Zone 23-E

The equipment in this zone includes the isophase buses and isophase bus cooler, the potential transformer, and the generator neutral grounding transformer. This equipment is utilized for the plant's electrical power generation. It is not safety-related and is not required for safe shutdown.

F. Fire Zone S-6

There is no major equipment in the stairwell.

G. Fire Zone S-7

There is no major equipment in the stairwell.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detectors are provided in 19-B. All of the other zones in this area have no detection.

SUPPRESSION

Fire Zone 19-A

Wet pipe automatic sprinkler protection is provided for this fire zone. Manual fire suppression capability, in the form of portable fire extinguishers and fire hose stations, is also available. Special hazard protection is provided by an automatic water spray system for the hydrogen seal oil unit and feedwater pump turbines. The water flow alarms for these systems annunciate in the continuously manned control room.

Fire Zone 19-B

Manual suppression in the form of CO_2 hose reel is within 10 feet of the west access door.

Fire Zone 19-C

All three rooms are fire protected by an automatic wet pipe sprinkler system with control room alarm. In addition, portable extinguishers are nearby and a hose reel is located within about 25 feet.

Fire Zone 19-D

Special hazard protection is provided by an automatic water spray system for exposed high pressure lube oil piping and turbine generator bearings Nos. 2 through 9. A heat-activated CO_2 system is provided for turbine generator bearing No. 10. The water flow alarms CO_2 system actuation in the continuously manned control room. Manual fire suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for this zone.

Fire Zone 23-E

Manual fire suppression capability, in the form of portable fire extinguishers and water and CO_2 hose stations, is available for this zone.

Fire Zone S-6

Manned suppression capability is provided in the vicinity at each landing elevation.

Fire Zone S-7

Manual suppression capability is provided in the vicinity at each landing elevation.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Fire zone 19-A located within fire area TB-7 does not meet the requirements of Appendix R, Section III.G.2 in that total area suppression and detection in combination with over 20 feet separation are not met. The following specific deviations apply:

1. Redundant low signal RPM indication circuits of diesel generator 2-1 (G bus) and 2-2 (H bus) are routed with separation less than 5 feet.

2. Conduits K4880 and K4881, with circuits for auxiliary saltwater system valves FCV-602 and FCV-603, are routed with separation less than 10 feet.

PROPOSED MODIFICATIONS

1. An isolator will be provided on each diesel generator RPM tach-pack to preclude a premature trip of a diesel generator due to a short circuit.

2. Three-hour rated fire barriers will be provided for conduits K4880 and K4881 and junction boxes BJD215 and BJD216 to preclude hot shorts causing inoperability or misoperation of FCV-603 and FCV-602.

FIRE AREA: TB-8 and TB-9
TITLE: DIESEL GENERATORS 2-1 and 2-2 (including air intakes and exhaust equipment)
FIGURES: 3-1 and 3-2

AREA DESCRIPTION

Fire areas TB-8 and TB-9 are separate fire areas containing emergency diesel generator 2-1 and 2-2, respectively, and their associated air supply and exhaust equipment. Two of three diesel generators are required for safe shutdown. (A third diesel, located in Unit 1, fire area TB-3, is common to both units.) These fire areas are situated side by side with fire area TB-9 located furthest north.

PHYSICAL CHARACTERISTICS

These areas are located at the southwest corner of the Unit 2 turbine building at elevation 85 and 107 feet. Fire areas TB-8 and TB-9 are divided into fire zones 22-A-1 and 22-A-2, and 22-B-1 and 22-B-2, respectively. The two fire zones in each fire area differentiate between the diesel generator engine rooms and the diesel generator radiator ventilation intake and exhaust rooms and engine exhaust pipe and silencer.

The subject fire areas are provided with curbs at door openings to the elevation 85 feet diesel generator rooms to contain any oil leakage. These rooms are also provided with a floor drain system that drains a postulated oil spill to the turbine building sump. Area fire barriers are 3-hour rated with the following exceptions:

1. The south barrier of fire zones 22-A-2 and 22-B-2 are provided with a common exhaust plenum and open louvers that communicate with fire area 34 outside. These louvers are provided as a ventilation exhaust path for the diesel generator radiator cooling air. The barriers separating fire zones 22-A-2 and 22-B-2 at elevation 104 feet stop about 2 feet short of these open louvers.

2. Fire zones 22-A-2 and 22-B-2 are separated from fire zone 24-E at elevation 107 feet by an irregularly shaped 3-hour rated barrier with unrated metal personnel and equipment wall hatches.

3. The west barriers of fire zones 22-A-2 and 22-B-2 at elevation 85 feet are open to the outside via air intake louvers. The wall separating the two fire zones at this elevation stops about two feet short of the open louvers. This two-foot gap is closed off by structural steel and sheet metal panels.

4. At elevation 85 feet, to the east of the cooling air exhaust plenum area, an unrated sheet metal hatch communicates the plenum area with an anteroom that, except for the unrated sheet metal hatch, is provided with three-hour barriers.

COMBUSTIBLES

Fire areas TB-8 and TB-9 at elevation 85 feet each have an approximate floor area of 1,100 square feet. The in situ combustible loading within each fire area is approximately 150,800 Btu/ft^2 with an equivalent severity of 113 minutes. In situ combustible loading is composed primarily of diesel fuel; lubricating oil filter media, and cable insulation are insignificant contributors to this fire load. Elevation 107 feet of fire areas TB-8 and TB-9 has no in situ combustible loading.

Transient combustible loading is estimated to present an additional 8,970 Btu/ft^2 with an increased severity of approximately 7 minutes. Anticipated transient combustibles are lubricating oil, solvent, and rags for cleaning grease.

MAJOR EQUIPMENT

Fire area TB-8 contains diesel generator 2-1 and its associated equipment. This equipment is required for safe shutdown.

Fire area TB-9 contains diesel generator 2-2 and its associated equipment. This equipment is required for safe shutdown.

For a listing of the raceway required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

DETECTION

Thermal detection systems are provided at elevation 85 feet of each diesel generator room and alarm in the continuously manned control room. No detection is provided at elevation 107 feet.

SUPPRESSION

Automatic total flooding CO_2 systems are provided for fire zones 22-A-1 and 22-B-1 and alarm in the continuously manned control room. Manual fire suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for use in fire areas TB-8 and TB-9.

DESCRIPTION OF DEVIATION

STATEMENT OF PROBLEM

Areas TB-8 and TB-9 constitute two separate fire areas. Due to sheet metal personnel and equipment hatches in fire barriers of these areas at elevation 107 feet, and the exhaust plenum and ventilation louvers in the west and south walls at elevations 107 feet and 85 feet, the fire area separation requirements of Appendix R, Section III.G.2(a) are not met.

BASIS FOR EXEMPTION REQUEST

An exemption is requested to Section III.G.2(a) of Appendix R which requires that three-hour rated fire barriers be provided to separate redundant trains of safe shutdown equipment. The technical bases that justify the exemption are detailed below.

1. The fire loading in fire zones 22-A-2 and 22-B-2 is low, resulting in an equivalent fire severity of 7 minutes for each zone due primarily to expected transient combustibles.

2. In the event of a postulated fire, fire zones 22-A-2 and 22-B-2 are isolated by 3-hour rated rolling doors from fire zones 22-A-1 and 22-B-1 respectively, thereby isolating the major source of combustibles from these fire zones with 3-hour rated barriers.

3. Fire zones 22-A-1 and 22-B-1 are provided with a heat-actuated total flooding CO_2 suppression system and an automatic smoke detection system. Manual fire suppression capabilities are provided for fire zones 22-A-2 and 22-B-2 in the form of portable extinguishers and fire hose stations located outside the area.

4. Major combustibles outside the building in the form of a transformer are located on the southeast side of the turbine building over 50 feet distant from the exhaust plenum and louvers. This transformer is a spare startup transformer and is normally not energized.

5. The equipment hatches at elevation 107 feet will be replaced with 3-hour rated labeled double doors. The personnel hatches will be removed and filled with material to achieve a 3-hour rated barrier.

6. The extension of the walls separating fire zones 22-A-2 and 22-B-2 at the west and south exterior walls at elevations 85 feet and 107 feet, respectively, and the installation of fire dampers over the ventilation louvers located in the exterior skin of the building would not enhance, to a significant degree, the fire protection capabilities beyond the measures provided by the current configuration.

FIRE AREA: TB-10, TB-11 and TB-12
TITLE: 4.16V F, G, and H BUS SWITCHGEAR AND CABLE SPREADING ROOMS
FIGURES: 3-2 and 3-3

AREA DESCRIPTION

Fire area TB-10, TB-11 and TB-12 are separate fire areas containing, respectively, the 4.16kV F, G, and H bus switchgear/cable spreading rooms. These areas are situated side by side. Fire area TB-10 (the 4.16kV F bus switchgear and cable spreading room) is north of TB-11, and TB-12 is south of TB-11. Due to similarities between these areas, they have been combined into one exemption request.

PHYSICAL CHARACTERISTICS

These fire areas are located in the southeast corner of the turbine building at elevations 104 and 119 feet. Fire area TB-10 consists of fire zones 23-A and 24-A, fire area TB-11 consists of fire zones 23-B and 24-B, and fire area TB-12 consists of fire zones 23-C and 24-C.

Fire Zone 23-A, 4.16kV F Bus Cable Spreading Room

The floor, ceiling, and walls are 3-hour rated barriers with the following exceptions:

1. The south wall east of column line D_1 and the east wall are 2-hour rated barriers.

2. Four doors are 1-1/2-hour rated barriers: one door in the south wall, one door in the north wall, one door in the east wall of the corridor, and one door in the west wall of the corridor.

3. Ventilation ducts are not fireproofed and have no fire dampers in their penetrations. The C_4 wall is penetrated by a duct without a fire damper which makes the corridor area (described above) part of this fire zone. There are three ceiling duct penetrations without

fire dampers: one communicates with fire zone 24-A, one communicates with fire zone 24-E, and one communicates with fire zone 24-D.

Fire Zone 24-A, 4.16kV F Bus Switchgear Room

The ceiling is 3-hour rated and includes a ventilation opening to fire zone 19-A with a 3-hour rated fire damper. The floor and walls are 3-hour rated with the following exceptions:

1. The south and east walls are 2-hour rated barriers.

2. The doors are 1-1/2-hour rated barriers.

3. There is an undampered ventilation opening in the floor which communicates with zone 23-A.

4. The air supply duct for this zone has a 1-1/2-hour fire damper where it penetrates the area boundary.

Fire Zone 23-B, 4.16kV G Bus Cable Spreading Room

The floor, ceiling, and walls are 3-hour rated barriers with the following exceptions:

1. The south and north walls east of column line D_1 and the east wall are 2-hour rated barriers.

2. Two doors are 1-1/2-hour rated barriers (one door in the south wall and one door in the north wall).

3. There are two 8-feet by 8-feet by 12-inches thick concrete equipment hatches (in the ceiling and floor).

4. The C_4 wall is penetrated by a duct without fire damper which makes the corridor area at the west end of the fire area a part of this fire zone. There is one ceiling duct penetration without fire damper which communicates with zone 24-E, and there is one ceiling ventilation opening which communicates with zone 24-B above (i.e., this same fire area).

Fire Zone 24-B, 4.16kV G Bus Switchgear Room

The floor, ceiling, and walls are 3-hour rated with the following exceptions:

1. The south, east, and north walls are 2-hour rated barriers.

2. The doors are 1-1/2-hour rated barriers.

3. There is a ventilation opening without a fire damper in the floor which communicates with zone 23-B.

4. The air supply duct for this zone has a 1-1/2-hour fire damper where it penetrates the area boundary.

Fire Zone 23-C, 4.16kV H Bus Cable Spreading

The floor and ceiling are 3-hour rated barriers except for a ventilation opening in the ceiling that communicates with fire zone 24-C above. The walls are 2-hour rated with the following exceptions:

1. The block wall just north of column line 34 between D and C_4 is 3-hour rated, as is the door in this wall.

2. The stairway wall is rated 3-hour and is penetrated by a ventilation duct without a fire damper. Eventually, this ducting penetrates into zone 24-E and has no fire dampers.

3. The stairway door and the east door into area 23-B are 1-1/2-hour rated.

Fire Zone 24-C, 4.16kV H Bus Switchgear Room

This fire zone is located between columns 34, 35, G, and D at elevation 119 feet in the turbine building.

The floor, ceiling, and walls are 3-hour rated with the following exceptions:

1. The south, north and east walls are 2-hour rated barriers.

2. The doors are 1-1/2-hour rated barriers.

3. There is a ventilation opening without a fire damper in the floor that communicates with zone 23-C.

4. The air supply duct for this zone has a 1-1/2-hour fire damper where it penetrates the area boundary.

COMBUSTIBLES

Fire zones 23-A, 23-B, and 23-C each have an approximate floor area in the cable spreading rooms of 860 square feet. The in situ combustible loading within each cable spreading room is approximately 14,200 Btu/ft^2, with an equivalent fire severity of about 11 minutes. In situ combustible loading is composed primarily of electric cable insulation.

Transient combustible loading is estimated to present an additional 7,900 Btu/ft^2 with an increased severity of about 6 minutes. Anticipated transient combustibles are additional cable on spools which could be present during modification work.

Fire zones 24-A, 24-B, and 24-C each have an approximate floor area of 825 square feet. The in situ combustible loading within each zone is approximately 3,300 Btu/ft^2, with an equivalent fire severity of about 3 minutes. The in situ combustible loading is concentrated in the switchgear cubicles and consists primarily of electrical cable.

Transient combustible loading is estimated to present an additional 750 Btu/ft^2 with an increased severity of about 1 minute. Anticipated transient combustibles are solvents and rags used for the cleaning of switchgear components.

MAJOR EQUIPMENT

Fire areas TB-10, TB-11, and TB-12 house the F, G, and H bus 4.16kV switchgear and associated cable, respectively.

For a listing of the raceways required for safe shutdown routed through the subject fire area/zone, see Table 3-4.

ACTIVE FIRE PROTECTION CAPABILITY

DETECTION

Smoke detection systems provide 100% coverage throughout the switchgear and cable tray portion of the cable spreading rooms of each fire area and alarm in the continuously manned control room.

SUPPRESSION

Manual fire suppression capabilities, consisting of CO_2 hose reels, fire hose stations, and portable fire extinguishers, are available for use in these areas.

FIRE AREA: TB-10, TB-11 and TB-12
TITLE: 4.16V F, G, and H BUS SWITCHGEAR AND CABLE SPREADING ROOMS

DESCRIPTION OF MODIFICATION

STATEMENT OF PROBLEM

Fire areas TB-10, TB-11, and TB-12 do not meet the requirements of Appendix R, Section III.G.2(a) in that redundant trains are not separated by a 3-hour rated barrier. Fans in the adjacent fire zone 24-E supply ventilation air to the three 4kV cable spreading rooms through duct work without fire dampers; therefore, the potential exists for a fire in fire zone 24-E to spread to fire zones 23-A, 23-B, and 23-C.

PROPOSED MODIFICATIONS

Three-hour rated fire dampers will be installed within the ductwork from the fans in fire zone 24-E to the 4kV cable spreading rooms. One each will be installed at the duct penetration between fire zone 23-A, 23-B, and fire zone 24-E. Another will be installed at the duct penetration between fire zone 23-C and fire zone S-7 (Note: This duct continues into zone 24-E after passing through fire zone S-7).

TABLE 3-1

TABLE OF FIRE AREAS AND FIRE ZONES

Fire Area	Fire Zones Within the Fire Area	Description
3-D-1	-	RHR Pump and Hx Room
3-D-2	-	RHR Pump and Hx Room
3-I-1	-	Centrifugal Charging Pump Room
3-I-2	-	Reciprocating Charging Pump Room
3-T-1	-	Auxiliary Feedwater Pump Room
3-V-1	-	Ventilation Room
3-V-5	-	Ventilation Room
3-V-12	-	Ventilation Room
3-CC	-	Containment Penetration Area
4-B	-	Showers, Lockers, and Access Control
4-B-1	-	Access Control Area, G Bus Compartment
4-B-2	-	Access Control Area, H Bus Compartment
5-B-1	-	480V Vital Switchgear, F Bus
5-B-2	-	480V Vital Switchgear, G Bus
5-B-3	-	480V Vital Switchgear, H Bus
5-B-4	-	480V Nonvital Switchgear and Hot Shutdown Panel Area
6-B-1	-	Battery, Inverter, and dc Switchgear, F Bus
6-B-2	-	Battery, Inverter and dc Switchgear, G Bus
6-B-3	-	Battery, Inverter, and dc Switchgear, H Bus

TABLE 3-1 (cont'd)

Fire Area	Fire Zones Within the Fire Area	Description
6-B-4	-	Reactor Trip Switchgear
6-B-5	-	Electrical Area
7-B	-	Cable Spreading Room
7-D	-	Communications Room
8-H	-	Safeguards Room - Unit 2
9	9A, 9B, 9C	Containment Building
18	-	Turbine Lube Oil Reservoir
19-E	-	CCW Heat Exchangers
20	-	12kV Switchgear Room and CSR
22-C	-	Corridor Outside Diesel Generator Rooms
24-D	-	Excitation Switchgear Room
29	-	Unit 2 Main Transformers
30-A-3	-	Auxiliary Saltwater Pump 2-1 Vault
30-A-4	-	Auxiliary Saltwater Pump 2-2 Vault
33	-	Security Diesel Generator Room
34	-	Outside Building (Elevation 140 feet)
36	-	Technical Support Center
AB-1	3-A, 3-B-3, 3-C, 3-D-3, 3-F, 3-G, 3-J-1, 3-J-2, 3-J-3, 3-K-1, 3-K-2, 3-K-3, 3-L, 3-M, 3-N, 3-Q-2, 3-R, 3-S, 3-W, 3-X, 3-AA, 8-B-1, 8-B-2, S-2, S-3, S-4	Auxiliary Building

TABLE 3-1 (cont'd)

Fire Area	Fire Zones Within the Fire Area	Description
AB-2	8-B-5, 8-B-6, S-5	Electrical Area Ventilation Room
AB-3	8-B-7, 8-B-8, S-1	Electrical Area Ventilation Room
CR-1	8-A, 8-B-3, 8-B-4, 8-C, 8-D, 8-E, 8-F	Control Room
FB-2	3-U, 32	Fuel Handling Building
IS-1	30-A-5, 30-B	Circulating Water Pump Room Intake Structure Control Room
TB-7	12-E, 14-A, 14-D, 16, 19-A, 19-B, 19-C, 19-D, 23-E, S-6, S-7	Turbine Building
TB-8	22-A-1, 22-A-2	Emergency Diesel Generator 2-1
TB-9	22-B-1, 22-B-2	Emergency Diesel Generator 2-2
TB-10	23-A, 24-A	4.16kV Cable Spreading Room and Switchgear Room, F Bus
TB-11	23-B, 24-B	4.16kV Cable Spreading Room and Switchgear Room, G Bus
TB-12	23-C, 24-C	4.16kV Cable Spreading Room and Switchgear Room, H Bus
TB-13	21, 24-E, 25, 23-C-1	QA Document Storage Room, Switchgear Ventilation Fan Room, Travelling Crew Quarters, and Corridor Outside 4.16 kV Cable Spreading Rooms
V-3	3-V-2, 3-V-3, 3-V-4, 3-V-9	Ventilation Room
V-4	3-V-6, 3-V-7, 3-V-8, 3-V-10, 3-V-11	Ventilation Room

TABLE 3-2

DIABLO CANYON UNIT 2
10 CFR 50 APPENDIX R REVIEW
MINIMUM EQUIPMENT REQUIRED FOR SAFE SHUTDOWN

The following list represents the minimum equipment required to bring the plant to a COLD SHUTDOWN as defined by 10 CFR 50, Appendix R, Sections III.G.1(a) and (b).

While it is recognized that there may be alternate paths available to achieve a COLD SHUTDOWN, it is of interest to reduce to the maximum extent practical the list of equipment necessary to do so. This, in turn, reduces the number of circuits that must be evaluated and protected in the unlikely event of a postulated fire.

Systems and Active Components		Redundancy and/or Comments
1.	Emergency Power Supply	
a.	Diesel generators 2-1, 2-2, 1-3	2 of 3 required
b.	Diesel fuel oil transfer pumps O-1, O-2	1 of 2 pumps required
c.	Day tank level control valves: LCV-85, LCV-88 LCV-86, LCV-89 LCV-87, LCV-90	1 of 2 LCVs per day tank required
d.	125V dc batteries	2 of 3 required
e.	Battery chargers	2 of 5 required
f.	Inverters	2 of 4 required
g.	4kV power supplies to 480V load centers and load center transformers	2 of 3 required
h.	125V dc supplies to 4kV switchgear	2 of 3 required
i.	125V dc power supplies to main switchgear board	2 of 3 required
j.	Instrument ac power channels	2 of 4 channels required

TABLE 3-2 (cont'd)

Systems and Active Components	Redundancy and/or Comments
2. Auxiliary Feedwater System	
a. Auxiliary feedwater (AFW) pumps: turbine-driven AFW pump 2-1 and electric motor-driven AFW pumps 2-2 and 2-3	1 of 3 pumps required
b. Associated steam supply valves for AFW pump 2-1:	Applicable only to AFW pump 2-1
FCV-95, FCV-152, FCV-15,	Required for AFW pump 2-1
FCV-37, FCV-38	1 of 2 valves required for AFW pump 2-1
c. Associated level control valves:	
Pump 2-1: LCV-107, LCV-108	1 of 2 valves required for pump 2-1
Pump 2-2: LCV-110, LCV-111	1 of 2 valves required for pump 2-2
Pump 2-3: LCV-113, LCV-115	1 of 2 valves required for pump 2-3
d. Water supply and associated valves:	1 of 2 water supplies required
1) Condensate storage tank, or	No valves required
2) Fire water storage tank FCV-436, FCV-437	1 of 2 valves required for fire water storage tank. Can be manually operated if required.
3. Residual Heat Removal System *	
a. RHR pumps 2-1 and 2-2	1 of 2 pumps required
b. RHR heat exchangers 2-1 and 2-2	1 of 2 Hx required
c. RHR valves:	
HCV-637, HCV-638 (RHR flowpath)	1 of 2 valves required
8809A, 8809B (RHR flowpath)	1 of 2 valves required
8700A, 8700B (RHR suction)	1 of 2 valves required
8716A, 8716B (RHR flowpath)	1 of 2 valves required.

* Components of RHR system are required for COLD SHUTDOWN.

TABLE 3-2 (cont'd)

Systems and Active Components	Redundancy and/or Comments
d. RHR heat sink:	
Component cooling water (CCW) system	See Item 5
Auxiliary saltwater (ASW) system	See Item 6
e. RHR valves 8701 and 8702 (hot leg RHR suction)	1 of 2 required to maintain reactor coolant pressure boundary during HOT SHUTDOWN. Can be manually opened for COLD SHUTDOWN. Valve power circuits are normally racked out at the motor control center
4. Charging and Boration	
a. Centrifugal charging pumps 2-1, 2-2 reciprocating pump 2-3 (used as backup to 2 centrifugal pumps)	1 of 3 pumps required
b. Charging pump cooling:	
CCW system	See Item 5
ASW system	See Item 6
c. Centrifugal charging pump 2-1 and 2-2 auxiliary lube oil pumps.	Only utilized to start charging pumps. Can be bypassed
d. Charging and boration flowpath:	1 flowpath required
1) Using boric acid tanks:	
Boric acid tanks	1 of 2 tanks required
Boric acid transfer pumps	1 of 2 pumps required
Boric acid filter	Only flowpath required
Valve 8104	Required for boric acid tank flowpath
Charging pumps	1 of 3 pumps required
Valve FCV-128	Required for centrifugal charging pumps. Two manual bypass flowpaths
and a) Charging through reactor coolant pump seal via RCP seal injection	No additional components required

TABLE 3-2 (cont'd)

Systems and Active Components	Redundancy and/or Comments
b) Charging through regenerative HX and valves HCV-142, 8108, 8107, and:	All these valves required for this flowpath
(1) Valve 8145 and 8148, charging to auxiliary pressurizer spray	1 of 2 valves required for pressurizer auxiliary spray
or (2) Valve 8146, charging to loop 3 cold leg	Valve required
or (3) Valve 8147, charging to loop 4 cold leg	Valve required
or 2) Using boron injection tanks (BITs):	
Refueling water storage tank	Required for this flowpath
Valves 8805A, 8805B	1 of 2 valves required
Charging pumps	1 of 3 pumps required
Valve FCV-128	Required for reciprocating charging pump
Valve 8803A, 8803B	1 of 2 valves required
Boron injection tank	Required
Valves 8801A, 8801B	1 of 2 valves required
5. Component Cooling Water System	
a. CCW pumps 2-1, 2-2, and 2-3	1 of 3 pumps required
b. CCW heat exchangers 2-1, 2-2	1 of 2 Hx required
c. CCW valves:	
FCV-355 (CCW Misc. Service Header)	Required for reciprocating charging pump 1-3 cooling, Can be opened manually if required
FCV-430, FCV-431 (CCW vital service headers)	1 of 2 valves required
FCV-364, FCV-365 (CCW to RHR Hx)	1 of 2 valves required for RHR system cooling. Valves required for COLD SHUTDOWN. Manual operation assumed in event of failure of remote control

TABLE 3-2 (cont'd)

Systems and Active Components	Redundancy and/or Comments
d. CCW pump 2-1, 2-2, 2-3 auxiliary lube oil pumps	Only required to start CCW pump. Can be bypassed.
e. CCW heat sink:	
ASW system	See Item 6
6. Auxiliary Saltwater System	
a. Auxiliary saltwater (ASW) pumps, 2-1, 2-2	1 of 2 pumps required
b. ASW valves:	
FCV-602, FCV-603 (ASW to CCW Hx)	1 of 2 valves required
7. Main Steam System	
a. 10% steam dump valves: PCV-19, PCV-20, PCV-21, PCV-22	1 of 4 valves required. Backup to 10% steam dump valves provided by main steam code safety valves
b. Steam generator blowdown isolation valves: FCV-760, FCV-761, FCV-762, FCV-763	Required to close to maintain water inventory for safe shutdown
8. Instrumentation	
a. Steam generator level:	1 steam generator required for cooldown
SG 1-1: LT-516, LT-517, LT-518, LT-519	1 of 4 LTs required
SG 1-2: LT-526, LT-527, LT-528, LT-529	
SG 1-3: LT-536, LT-537, LT-538, LT-539	
SG 1-4: LT-546, LT-547, LT-548, LT-549	
b. Steam generator pressure:	1 steam generator required for cooldown
Loop 1: PT-514, PT-515, PT-516	1 of 3 PTs required for that loop
Loop 2: PT-524, PT-525, PT-526	
Loop 3: PT-534, PT-535, PT-536	
Loop 4: PT-544, PT-545, PT-546	

TABLE 3-2 (cont'd)

Systems and Active Components	Redundancy and/or Comments
c. Reactor coolant system temperature: Loop 1: TE-413A, TE-413B Loop 2: TE-423A, TE-423B Loop 3: TE-433A, TE-433B Loop 4: TE-443A, TE-443B	1 loop required for cooldown
d. Reactor coolant system or pressurizer pressure: PT-403, PT-405, PT-406, PT-455, PT-456, PT-457, PT-474	1 of 3 wide range PTs required Wide range Narrow range
e. Pressurizer level: LT-459, LT-460, LT-461, LT-406	1 of 4 required
f. Neutron source range flux monitors: NE-31, NE-32, NE-51, NE-52	1 of 4 required
9. Ventilation for Safe Shutdown Equipment	
a. 480V switchgear room and inverter room supply and exhaust fans:*	
S-45, S-46	1 of 2 required
E-45, E-46	1 of 2 required
Dampers HD45, HD46	1 of 2 required
b. 4.16kV switchgear room supply fans: S-67, S-68, S-69*.	2 of 3 required
c. ASW pump room exhaust fans: E-102, E-104	1 of 2 required
10. Reactor Coolant System	
a) Pressurizer power-operated relief valves PCV-455C, 474, 456 and block valves 8000A, B, and C	Block valve required to prevent LOCA due to stuck open PORV

* Portable fans are available in the event these fans are unavailable due to a fire.

TABLE 3-3

POTENTIAL SPURIOUS MALFUNCTIONS THAT COULD AFFECT SAFE SHUTDOWN

Potential Spurious Component	System	Effect of Malfunction	Resolution
8166 8167	CVCS	Spurious opening of all valves in series will result in uncontrolled excess letdown.	Manually fail (fails HCV-123 closed on loss of electrical power) to isolate excess letdown.
LCV-459 LCV-460 8149A 8149B 8149C	CVCS	Spurious opening of LCV-459 and LCV-460 and either orifice isolation valve will result in uncontrolled letdown.	For this extremely improbable condition to exist, 3 valves in series must fail open. If this were to occur, the letdown system can be isolated by manually failing either LCV-459 or LCV-460 at the dc panel or at the solenoid associated with the valves.
8078 A 8078 B 8078 C 8078 D	RCS	Spurious opening of pressurizer or reactor head vent valves will result in breach of RCS boundary.	Procedural detection and subsequent opening of dc supply circuit to the valves.
8982A 8982B	RHR	Spurious opening of the containment sump isolation valves, when in shutdown cooling mode (RHR), will divert RCS water to the containment sump.	Valve line up will be checked prior to RHR system operation.
8701 8702	RHR	Spurious opening of both RHR/RCS boundary isolation valves, when not in shutdown cooling mode, will result in breach of the RCS boundary.	Valves are closed and breakers are racked out at the MCC.

TABLE 3-3 (cont'd)

Potential Spurious Component	System	Effect of Malfunction	Resolution
9003 A 9003 B	RHR	Spurious opening of any of the containment spray headers isolation valves, when in shutdown cooling, will divert RCS water to the containment.	Valve line up will be checked prior to RHR system operation.
8804 A 8807 A 8807 B	RHR	Spurious opening of the RHR/CVCS/SIS pump suction tie lines will divert RCS water to the pressurizer relief tank (PRT) through the charging pump suction safety valve RV52SWB.	This condition would be procedurally detected; however, low flow would exist through the relief valve to the PRT. Affected valves can be manually closed if necessary.
Auxiliary Saltwater Pump Inlet Gates 2-8 and 2-9	ASW	Spurious closing of both of these normally open gates would isolate the auxiliary saltwater pumps from their supply source.	The starter box for the motor to gate 2-8 has been provided with a 3-hour fire barrier, insuring that at least one auxiliary saltwater pump inlet gate will remain open.

TABLE 3-4

COMPUTER TABULATION OF SAFE SHUTDOWN
CIRCUITS FOR FIRE AREAS/ZONES REQUIRING EXEMPTIONS

This table contains the results of the computer sort of safe shutdown equipment and raceway by vitality and fire zone for those fire areas in which exemptions have been requested.

Sections A through D below provide a description of the coding used to define the information contained in the computer tabulation.

A. General Safe Shutdown Component Code

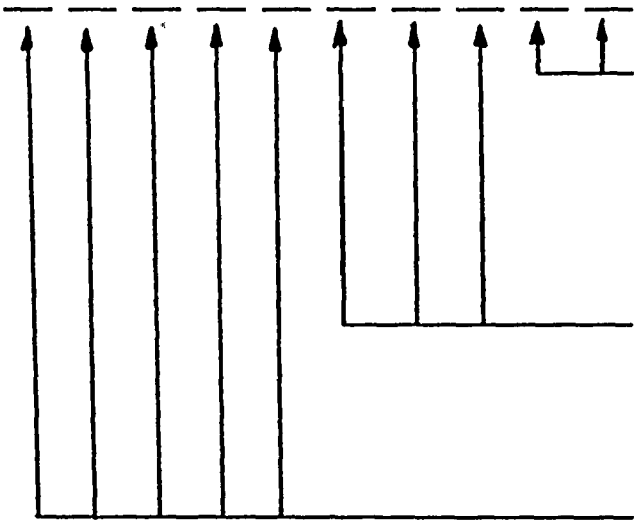
ALOP	=	Auxiliary Lube Oil Pump
ASPE	=	Auxiliary Saltwater Pump Room Exhaust Fan
ASWP	=	Auxiliary Saltwater Pump
BAXFRP	=	Boric Acid Transfer Pump
CCWP	=	Component Cooling Water Pump
CP	=	Charging Pump
DCHPNL	=	DC Panel Powered from H Bus
DFTP	=	Diesel Fuel Transfer Pump
DSGEN	=	Diesel Generator
FCV	=	Flow Control Valve
IY	=	DC Inverter
LCV	=	Level Control Valve
LT	=	Level Transmitter
NISNE	=	Nuclear Instrumentation System Neutron Flux Detector
PCV	=	Pressure Control Valve
PP	=	Pump
PT	=	Pressure Transmitter
PY	=	Instrumentation AC Power Panel
RHRP	=	Residual Heat Removal Pump
TE	=	Temperature Element
VV	=	Valve

B. General Safe Shutdown System Code

System Code		System Description
AF	=	Auxiliary Feedwater System
AS	=	Auxiliary Saltwater System
CB	=	Charging and Boration System
CC	=	Component Cooling Water System
EP	=	Emergency Power System
IT	=	Instrumentation
MS	=	Main Steam System
RC	=	Reactor Coolant System
RH	=	Residual Heat Removal System
VE	=	Ventilation Equipment System

C. General Interpretation of Fire Area/Zone Coding

Fire zone:



These two spaces are used for indicating if the raceway/circuit is embedded.
Blank Spaced = Exposed
EF = Embedded From
ET = Embedded To

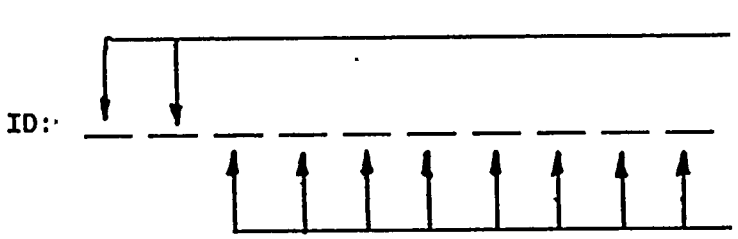
These three spaces are used for indicating the floor elevation where the raceway/circuit/ component can be found.

These five spaces are used for indicating the fire zone/area. (See Figures 3-1 through 3-27 for fire area/zone boundaries.)

Example: 3CC 085EF

Embedded at elevation 85 feet of Fire Area 3-CC.

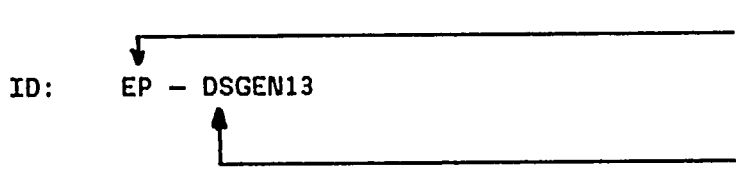
D. General Interpretation of Safe Shutdown Device (ID) Coding



These two spaces are used for identifying safe shutdown system. (See safe shutdown system code.)

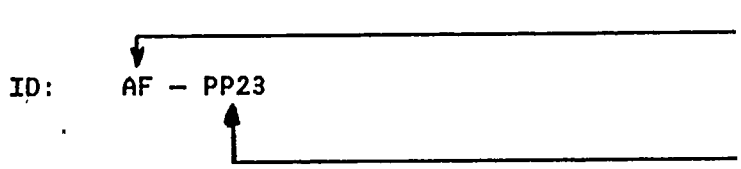
These eight spaces are used for identifying safe shutdown component. (See safe shutdown component code.)

Examples:



Emergency Power System

Diesel Generator 1-3



Auxiliary Feedwater

Auxiliary Feedwater Pump 2-3

TABLE 3-4

COMPUTER TABULATION OF FIRE AREA/ZONE v. RACEWAY

REPORT 9: FIREZONES AND IDS - RACEWAYS

FIREZONE	ID	RACEWAYS							
OUTDOOR EF	AS-ASWP21	0670	0683	0684					
	AS-ASWP22	0700	0703						
	EP-DSGEN13	0682							
	VEASPE102	0715							
	VEASPE104	0684							
OUTDOOR ET	AS-ASWP21	0769	0770	0775	0973	0989	0991	1009	1010
		1011	2104	2106	2107				
	AS-ASWP22	0777	0785	0983	0986	1015	1017	2100	2102
	EP-DSGEN13	2105							
	VEASPE102	0777	0986	1015	4735				
	VEASPE104	0770	0973	1009	2107				
S4	AF-PP22	6998							
	AF-PP23	6993							
S7	EP-DFTP01	2608							
	EP-DSGEN22	2607	2608	2609					
	VE4KVH2S67	2978							
UNIT1	EP-DSGEN13	7202							
19A 085	AS-FCV602	4881							
	AS-FCV603	4880							
	CC-FCV355	4788							
	CC-FCV430	4881							
	CC-FCV431	4880							
	EP-DSGEN21	A308							
	EP-DSGEN22	A303							
19A 104	AF-LCV113	T243							
	AF-LCV115	T243							
	EP-DSGEN21	T113							
	EP-DSGEN22	A303	T554						
19E	AS-FCV602	4839	4846	4866	4881				
	AS-FCV603	4847	4849	4867	4880				
	CC-FCV355	4788							
	CC-FCV430	4839	4878	4881					
	CC-FCV431	4849	4879	4880					
	EP-DSGEN21	A308	D350						
20 076	AF-PP22	2663							
	AF-PP23	2664							
	AS-ASWP21	2664							
	AS-ASWP22	2667							
	CB-CP21	2664							
	CB-CP22	2667							
	CC-CCWP21	2664							
	CC-CCWP22	2667							
	CC-CCWP23	2663							
	EP-DSGEN21	2040							
	EP-DSGEN22	2766							
	VEASPE102	2667							

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE	ID	RACEWAYS						
20 076EF	AF-LCV110	0511						
	AF-LCV111	0511						
	AF-LCV113	0567						
	AF-LCV115	0567						
	AF-PP22	0503	0513	0514	0515	0516		
	AF-PP23	0548	0565	0569	0570	0572		
	AS-ASWP21	0565	0569	0570				
	AS-ASWP22	0537	0540					
	CB-ALOP21	0572						
	CB-ALOP22	0541						
	CB-CP21	0550	0569	0570	0572			
	CB-CP22	0532	0533	0537	0540	0541		
	CB-CP23	0525	0533	0540	0541			
	CC-ALOP21	0571	0572					
	CC-ALOP22	0536	0541					
	CC-ALOP23	0516						
	CC-CCWP21	0553	0565	0569	0570	0572		
	CC-CCWP22	0526	0536	0537	0540	0541		
	CC-CCWP23	0504	0511	0513	0514	0516		
	EP-DFTP01	0509						
	EP-DFTP02	0540						
	EP-DSGEN13	0514	0567	0570	0571	0572		
	EP-DSGEN21	0538	0539	0540	0541	0566	0570	0571
	EP-DSGEN22	0510	0514	0515	0516	0539	0540	0541
	EP-4KVLC2F	0549	0570	0571				
	EP-4KVLC2G	0529	0539					
	EP-4KVLC2H	0505	0515					
	RH-RHRP21	0528	0533	0540				
	RH-RHRP22	0500	0511	0516				
	VEASPE102	0537	0541					
	VEASPE104	0567	0572					
	VE4KVF2S69	0571						
	VE4KVG2S68	0541						
	VE4KVH2S67	0514						
20 085	AF-LCV110	2409						
	AF-LCV111	2409						
	AF-LCV113	2533						
	AF-LCV115	2533						
	AF-PP22	2406	2410	2413	2663			
	AF-PP23	2439	2446	2447	2536	2539	2664	
	AS-ASWP21	2536	2539	2621	2622	2623	2664	
	AS-ASWP22	2429	2549	2610	2616	2667		
	CB-ALOP21	2447						
	CB-ALOP22	2429						
	CB-CP21	2443	2447	2539	2664			
	CB-CP22	2417	2423	2429	2667			
	CB-CP23	2422	2429	2549				
	CC-ALOP21	2446	2447					
	CC-ALOP22	2429	2549					
	CC-ALOP23	2413						
	CC-CCWP21	2441	2536	2539	2664			
	CC-CCWP22	2417	2421	2429	2433	2667		
	CC-CCWP23	2403	2410	2412	2413	2663		

FIREZONE		ID	RACEWAYS							
20	085	EP-DFTP01	2412							
		EP-DFTP02	2417							
		EP-DSGEN13	2412	2446	2447	2533	2536	2539	2620	
		EP-DSGEN21	2040	2429	2430	2431	2446	2539	2549	2612
		EP-DSGEN22	2409	2410	2411	2412	2413	2429	2431	2602
			2766							
		EP-4KVLC2F	2437	2447	2539					
		EP-4KVLC2G	2426	2430						
		EP-4KVLC2H	2402	2413						
		RH-RHRP21	2417	2419	2429	2433				
		RH-RHRP22	2405	2410	2413					
		VEASPE102	2429	2667						
		VEASPE104	2447	2622	2623					
		VE4KVF2S69	2446							
		VE4KVG2S68	2429							
		VE4KVH2S67	2410							
20	085EF	AS-ASWP21	2104	2106	2107					
		AS-ASWP22	2100	2102						
		EP-DSGEN13	2105							
		EP-DSGEN21	2127							
		EP-DSGEN22	2130							
		VEASPE104	2107							
21		VE4KVH2S67	2979	2980						
22A1		EP-DFTP01	2504	2505	2506	2508				
		EP-DFTP02	2484	2511	2513	2514	2515	2516	2518	
		EP-DSGEN21	A305	A307	2239	2452	2482	2485	2486	2487
			2488	2497	2502	2511	2512	2518	2520	2521
			2523	2528	2529	2531	2560			
		EP-DSGEN22	2484							
22A1	ET	EP-DSGEN21	2127							
22B1		EP-DFTP01	2427	2451	2470	2472	2473	2474		
		EP-DFTP02	2492	2493	2494	2495				
		EP-DSGEN22	A300	A302	2240	2404	2427	2435	2450	2467
			2470	2471	2476	2477	2478	2479	2480	2498
			2499	2500	2501	2543				
22B1	ET	EP-DSGEN22	2130							
22C		EP-DFTP01	2427	2504	2608					
		EP-DFTP02	2484	2518	2619					
		EP-DSGEN21	A307	A308	2239	2485	2518	2560	2604	2613
			2617	2618	2619	2692				
		EP-DSGEN22	A302	A303	2240	2427	2467	2484	2607	2608
			2609	2617	2618	2693				

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE	ID	RACEWAYS							
23A	AF-LCV113	2533	2876						
	AF-LCV115	2533	2876						
	AF-PP23	FDA	FDAA	FDC	FDCA	FDCB	FDD	FDDA	FDDB
		FDDC	2439	2446	2447	2536	2539	2664	2721
	AS-ASWP21	FDAB	FDAC	FDC	FDCA	FDCB	FDCC	FDCD	FDD
		FDDA	FDDB	FDDC	FDDD	2536	2539	2621	2622
		2623	2664	2690	2720				
	AS-ASWP22	2637							
	CB-ALOP21	FDC	FDCA	2447					
	CB-CP21	FDB	FDC	FDCA	FDD	FDDA	2443	2447	2539
		2664	2722						
	CC-ALOP21	FDC	FDCA	FDD	FDDA	2446	2447		
	CC-CCWP21	FDB	FDC	FDCA	FDD	FDDA	FDDB	FDDC	FDDD
		2441	2536	2539	2664	2723			
	EP-DSGEN13	FDAB	FDAC	FDC	FDCA	FDCB	FDCC	FDCD	FDD
		FDDA	FDDB	FDDC	2446	2447	2533	2536	2539
		2620	2654	2660	2687				
	EP-DSGEN21	FDD	FDDA	FDDB	FDDC	FDDD	2040	2446	2539
		2604	2613	2692	2793				
	EP-4KVLC2F	FDA	FDAA	FDC	FDCA	2437	2447	2539	
	VEASPE104	FDC	FDCA	FDCB	FDD	FDDA	FDDB	FDDC	FDDD
		2447	2622	2623					
	VE4KVF2S69	FDD	FDDA	FDDB	FDDC	FDDD	2446	2650	2746
23B	AS-ASWP21	2669	2690	2691					
	AS-ASWP22	GDBB	GDBC	GDC	GDCA	GDCB	GDD	GDDB	GDDC
		GDDD	2429	2549	2610	2616	2637	2667	2688
		2717							
	CB-ALOP22	GDD	GDDA	2429					
	CB-CP22	GDB	GDBA	GDC	GDCA	GDD	GDDA	2417	2423
		2429	2667	2718					
	CB-CP23	GDA	GDC	GDCA	GDD	GDDA	2422	2429	2549
	CC-ALOP22	GDD	2429	2549					
	CC-CCWP22	GDA	GDC	GDD	GDDA	GDDB	GDDC	2417	2421
		2429	2433	2667	2719				
	EP-DFTP02	GDD	GDDA	GDDB	GDDC	GDDD	2417	2619	
	EP-DSGEN13	2687							
	EP-DSGEN21	GDBC	GDC	GDCA	GDCB	GDCC	GDCD	GDD	GDDA
		GDDB	GDDC	GDDD	2429	2430	2431	2549	2612
		2617	2618	2619	2669	2688	2691	2692	2793
	EP-DSGEN22	GDD	GDDA	GDDB	GDDC	GDDD	2429	2431	2617
		2618	2688	2689	2693				
	EP-4KVLC2G	GDA	GDD	GDDA	2426	2430			
	RH-RHRP21	GDB	GDBA	GDC	GDCA	GDCB	GDD	GDDA	GDDB
		2417	2419	2429	2433				
	VEASPE102	GDD	GDDA	GDDB	2429	2667	2717		
	VE4KVG2S68	GDC	GDCA	GDCB	GDCC	GDCD	2429	2649	

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE	ID	RACEWAYS							
23C	AF-LCV110	2409	2878						
	AF-LCV111	2409	2878						
	AF-PP22	HDB	HDBA	HDC	HDD	HDDA	HDDB	HDDC	2406
		2410	2413	2663	2700				
	CC-ALOP23	HDC	HDCA	HDD	HDDA	2413			
	CC-CCWP23	HDA	HDC	HDCA	HDCB	HDCC	HDD	2403	2410
		2412	2413	2663	2716				
	EP-DFTP01	HDC	HDCA	HDCB	HDCC	HDCD	2412	2608	
	EP-DSGEN13	HDD	HDDA	HDDB	HDDC	HDDD	2412	2686	
	EP-DSGEN22	HDBB	HDBC	HDC	HDCA	HDCB	HDCC	HDCD	HDD
		HDDA	HDDB	HDDC	HDDD	2404	2409	2410	2411
		2412	2413	2602	2607	2608	2609	2652	2672
		2686	2689	2714	2763	2766	2794	2795	
	EP-4KVLC2H	HDA	HDAA	HDD	HDDA	2402	2413		
	RH-RHRP22	HDA	HDC	HDD	HDDA	2405	2410	2413	
	VE4KVH2S67	HDD	HDDA	HDDB	HDDC	HDDD	2410	2744	2978
23C1	EP-DFTP01	2608							
	EP-DSGEN22	2607	2608	2609					
	VE4KVH2S67	2978							
23E	EP-DSGEN13	2654	2819						
	EP-DSGEN21	2653	2820						
	EP-DSGEN22	2652	2821						
24A	AF-LCV113	2876							
	AF-LCV115	2876							
	AF-PP23	2721							
	AS-ASWP21	2720							
	CB-CP21	2722							
	CC-CCWP21	2723							
	EP-DSGEN13	2654	2660						
24B	AS-ASWP21	2669							
	AS-ASWP22	2717							
	CB-CP22	2718							
	CC-CCWP22	2719							
	EP-DSGEN21	2669	2793						
	VEASPE102	2717							
	VE4KVG2S68	2649	2853	2854					
24C	AF-LCV110	2878							
	AF-LCV111	2878							
	CC-CCWP23	2716							
	EP-DSGEN22	2672	2714						
	VE4KVH2S67	2744							

FIREZONE	ID	RACEWAYS							
24D	EP-DSGEN13	2654							
	EP-DSGEN21	2653							
	EP-DSGEN22	2652							
	VE4KVG2S68	2853							
24E	VE4KVF2S69	2650	2808						
	VE4KVG2S68	2806	2853						
	VE4KVH2S67	2979	2980						
29	AF-FCV37	5836	5867	5907					
	AF-LCV107	5800	5824	5826	5835	5972			
	AF-LCV110	K545	T239	T241	5836	5867	5868	5875	5913
		7636	7800	7802					
	AF-LCV111	K545	T239	T240	5836	5867	5869	5875	7636
		7800	7802						
	IT-PT514	T611	T620	T621					
	IT-PT515	T613	T622						
	IT-PT516	T610							
	IT-PT524	T606	T608	T620	T621				
	IT-PT525	T602	T609	T622					
	IT-PT526	T612							
	MS-PCV19	5813	5822	5824	5826	5835	5839	5844	5847
		5849	5860	5861	5862	5873			
	MS-PCV20	5813	5822	5824	5826	5835	5839	5844	5847
		5849	5860	5863	5864	5873			
3AA	CB-VV8104	5960	9112	9712	9775	9804			
	CB-VV8805A	9113	9714						
	CB-VV8805B	5960	9713						
	MS-FCV151	9778							
	MS-FCV154	9778	9779						
	MS-FCV157	9746	9782						
	MS-FCV160	9746	9782						
	MS-FCV244	9111	9712						
	MS-FCV246	9111	9712						
	MS-FCV248	9114	9715						
	MS-FCV250	9114	9715						
3C	VEASPE102	7242							
3C EF	VEASPE102	4735							
3CC 085	AF-FCV37	5836	6732						
	AF-FCV95	7264							
	AF-LCV107	5835							
	AF-LCV110	T239	T333	5836	6739				
	AF-LCV111	T239	T333	5836	6739				
	CB-HCV142	6893	6980						
	CB-VV8108	6101	6104	6113	6325	6326			
	CB-VV8805A	8533	8534						
	CB-VV8805B	9241	9243						
	CC-FCV364	6987	6988	6989					
	CC-FCV365	6980	6984	6985	6986				
	EP-DSGEN21	2704							

FIREZONE	ID	RACEWAYS							
3CC 085	EP-DSGEN22	2706							
	IT-PT403	K204							
	IT-PT405	K205							
	IT-PT514	T621							
	IT-PT515	T622							
	IT-PT516	T610							
	IT-PT524	T621							
	IT-PT525	T622							
	IT-PT526	T612							
	MS-PCV19	5835	5849						
	MS-PCV20	5835	5849						
3CC 085EF	AF-PP22	6998							
	AF-PP23	6993							
	CB-ALOP21	6991							
	CB-ALOP22	6994							
	CB-CP21	6991							
	CB-CP22	6994							
	CB-CP23	6994							
	CC-ALOP21	6991							
	CC-ALOP22	6994							
	CC-ALOP23	6997							
	CC-CCWP21	6991							
	CC-CCWP22	6994							
	CC-CCWP23	6997							
3CC 085ET	AF-LCV110	0511	6955						
	AF-LCV111	0511	6955						
	AF-LCV113	0567	6937						
	AF-LCV115	0567	6937						
	AF-PP22	0503	0513	0514	0515	0516	6954	6957	6960
		6961							
	AF-PP23	0548	0565	0569	0570	0572	6935	6939	6940
		6942							
	AS-ASWP21	0565	0569	0570	6935	6939	6942		
	AS-ASWP22	0537	0540	6946	6949				
	CB-ALOP21	0572	6940						
	CB-ALOP22	0541	6947						
	CB-CP21	0550	0569	0570	0572	6935	6942	6972	
	CB-CP22	0532	0533	0537	0540	0541	6946	6949	6951
		6974							
	CB-CP23	0525	0533	0540	0541	6949	6951	6975	
	CC-ALOP21	0571	0572	6941					
	CC-ALOP22	0536	0541	6947					
	CC-ALOP23	0516	6957						
	CC-CCWP21	0553	0565	0569	0570	0572	6935	6939	6940
		6942	6970						
	CC-CCWP22	0526	0536	0537	0540	0541	6946	6947	6949
		6973							
	CC-CCWP23	0504	0511	0513	0514	0516	6954	6956	6957
		6961	6977						
	EP-DFTP01	0509	6959						
	EP-DFTP02	0540	6949						
	EP-DSGEN13	0514	0567	0570	0571	0572	6936	6937	6940
		6941	6942	6960					

FIREZONE	ID	RACEWAYS							
3CC 085ET	EP-DSGEN21	0538	0539	0540	0541	0566	0570	0571	6941
		6942	6947	6949	6952	6953			
	EP-DSGEN22	0510	0514	0515	0516	0539	0540	0541	6947
		6949	6952	6957	6960	6961			
	EP-4KVLC2F	0549	0570	0571	6934	6941	6942		
	EP-4KVLC2G	0529	0539	6944	6952				
	EP-4KVLC2H	0505	0515	6960	6962				
	RH-RHRP21	0528	0533	0540	6949	6951	6976		
	RH-RHRP22	0500	0511	0516	6956	6957	6979		
	VEASPE102	0537	0541	6946	6947				
	VEASPE104	0567	0572	6940					
	VE4KVF2S69	0571	6941						
	VE4KVG2S68	0541	6947						
	VE4KVH2S67	0514	6961						
3CC 100	AF-FCV37	DU05	6497	6555	6732				
	AF-FCV38	DU01	6125	6126	6132	6135			
	AF-FCV95	7264							
	AF-LCV107	DU03	5835	6247					
	AF-LCV108	DU04	6494						
	AF-LCV110	7365	7516	7633	7636				
	AF-LCV111	7365	7516	7633	7636				
	AF-LCV113	DU02	T161	T243	6132	6135	6204	6481	7453
		7511	7685	7861					
	AF-LCV115	DU02	T161	T243	6132	6135	6204	6481	7453
		7511	7685	7861					
	CB-HCV142	6980							
	CB-VV8104	6304	9503						
	CB-VV8107	DU02	6204	6268	6278	6329	6345	6397	
	CB-VV8108	DU04	6326						
	CB-VV8145	7365	7515	7633	7634	7635			
	CB-VV8146	JNK	6232						
	CB-VV8147	JNK	6232						
	CB-VV8148	7622							
	CB-VV8801A	DU02	6204	6253	6397				
	CB-VV8801B	DU04	6252	6254	6355	6494			
	CC-FCV364	6989							
	CC-FCV365	6980							
	EP-DSGEN21	2704							
	EP-DSGEN22	2706							
	IT-LT406	T189	8766						
	IT-LT459	T351							
	IT-LT460	T355							
	IT-LT461	T358							
	IT-LT516	T189	8766						
	IT-LT517	T362							
	IT-LT518	T358							
	IT-LT519	T355							
	IT-LT526	T189	8766						
	IT-LT527	T362							
	IT-LT528	T358							
	IT-LT529	T351							
	IT-LT536	T189	8766						
	IT-LT537	T362							
	IT-LT538	T358							

FIREZONE	ID	RACEWAYS					
3CC 100	IT-LT539	T350					
	IT-LT546	T189	8766				
	IT-LT547	T362					
	IT-LT548	T358					
	IT-LT549	T354					
	IT-PT403	K204	T358				
	IT-PT405	K205	T362				
	IT-PT406	T189	8766				
	IT-PT455	T351					
	IT-PT456	T355					
	IT-PT457	T358					
	IT-PT474	T362					
	IT-PT514	T294	T305	T353	T621		
	IT-PT515	T296	T357	T622			
	IT-PT516	T365	T610				
	IT-PT524	T294	T305	T353	T621		
	IT-PT525	T296	T357	T622			
	IT-PT526	T361	T612				
	IT-PT534	T353					
	IT-PT535	T357					
	IT-PT536	T361					
	IT-PT544	T353					
	IT-PT545	T357					
	IT-PT546	T365					
	IT-TE413A	T924	T925	T926	8766		
	IT-TE413B	T924	T925	T926	8766		
	IT-TE423A	T924	T925				
	IT-TE423B	T924	T925				
	IT-TE433A	T260					
	IT-TE433B	T260					
	IT-TE443A	T260					
	IT-TE443B	T260					
	MS-FCV151	6271	6278	6283	6301		
	MS-FCV154	6273	6278	6283	6301		
	MS-FCV157	6280	6281	6282	6289	6290	6305
	MS-FCV160	6275	6281	6282	6289	6290	6305
	MS-FCV244	6254	6272	6287	6327	6341	6494
	MS-FCV246	6254	6272	6287	6327	6341	6494
	MS-FCV248	6541	6543				
	MS-FCV250	6541	6543				
	MS-FCV760	DU04	6207				
	MS-FCV761	DU04	6207				
	MS-FCV762	DU06	6215				
	MS-FCV763	DU06	6215				
	MS-PCV19	5835	5849	6001	6002		
	MS-PCV20	5835	5849	6001	6002		
	RC-PCV455C	7622					
	RC-PCV456	6463					
	RC-PCV474	6455	7510				
	RC-VV8000A	DU01	DU02	6230	6231		
	RC-VV8000B	DU04	6206				
	RC-VV8000C	DU06	6214	6215			
	VE480LCE46	7365	7516	7679	7684	7688	7692
	VE480LCS45	DU01	6081	6086	6138	6246	

FIREZONE	ID	RACEWAYS							
3CC 115	AF-FCV37	6488	6497						
	AF-FCV38	6125	6126	6148	6476	6491	6495		
	AF-FCV95	7264							
	AF-LCV108	5971	6437	6454	6489	6494			
	AF-LCV113	K542	T161	T244	T246	6140	6141	6481	7511
		7600	7861	7868	7869				
	AF-LCV115	K542	T161	T245	T246	6140	6142	6481	7511
		7600	7861	7868	7869				
	CB-HCV142	6478	6980						
	CB-VV8104	6304							
	CB-VV8145	7634							
	CB-VV8146	JNK	6232	7759					
	CB-VV8147	JNK	6232	7759					
	CB-VV8148	7607	7622						
	CB-VV8801B	6490	6494						
	CC-FCV364	6479	6989						
	CC-FCV365	6478	6980						
	EP-DSGEN21	2704							
	EP-DSGEN22	2706	2708						
	IT-LT406	T189	8766	8767					
	IT-LT516	T189	8766	8767					
	IT-LT526	T189	8766	8767					
	IT-LT536	T189	8766	8767					
	IT-LT546	T189	8766	8767					
	IT-NISNE31	6211	6406						
	IT-NISNE32	6203	6402						
	IT-PT403	K204							
	IT-PT405	K205							
	IT-PT406	T189	8766	8767					
	IT-PT514	T305							
	IT-PT515	T296							
	IT-PT516	T610	T672						
	IT-PT524	T305							
	IT-PT525	T296							
	IT-PT526	T298	T612	T673					
	IT-PT534	T696							
	IT-PT535	T791							
	IT-PT536	T298	T788						
	IT-PT544	T696							
	IT-PT545	T791							
	IT-PT546	T648							
	IT-TE413A	T925	T938	T983	8766	8767			
	IT-TE413B	T925	T938	T983	8766	8767			
	IT-TE423A	T925	T938	T983					
	IT-TE423B	T925	T938	T983					
	IT-TE433A	T260	T908						
	IT-TE433B	T260	T908						
	IT-TE443A	T260	T908						
	IT-TE443B	T260	T908						
	MS-FCV151	6301	9778						
	MS-FCV154	6301	9778	9779					
	MS-FCV157	6305	9782						
	MS-FCV160	6305	9782						
	MS-FCV244	6490	6494						

FIREZONE	ID	RACEWAYS			
3CC 115	MS-FCV246	6490	6494		
	MS-FCV248	6543			
	MS-FCV250	6543			
	MS-FCV760	T027	6207		
	MS-FCV761	T027	6207		
	MS-FCV762	T026	6215		
	MS-FCV763	T026	6215		
	MS-PCV19	6001	6002	6120	6123
	MS-PCV20	6001	6002	6120	6123
	MS-PCV21	6499	6556		
	MS-PCV22	6499	6556		
	RC-PCV455C	7607	7622		
	RC-PCV456	6463	7606		
	RC-PCV474	6455	7510	7600	
	RC-VV8000A	6230	6231		
	RC-VV8000B	6206			
	RC-VV8000C	6214	6215		
3CC 115EF	IT-LT459	T351			
	IT-LT460	T355			
	IT-LT461	T358			
	IT-LT517	T362			
	IT-LT518	T358			
	IT-LT519	T355			
	IT-LT527	T362			
	IT-LT528	T358			
	IT-LT529	T351			
	IT-LT537	T362			
	IT-LT538	T358			
	IT-LT539	T350			
	IT-LT547	T362			
	IT-LT548	T358			
	IT-LT549	T354			
	IT-NISNE31	6406			
	IT-NISNE32	6402			
	IT-PT403	T358			
	IT-PT405	T362			
	IT-PT455	T351			
	IT-PT456	T355			
	IT-PT457	T358			
	IT-PT474	T362			
	IT-PT514	T353			
	IT-PT515	T357			
	IT-PT516	T365			
	IT-PT524	T353			
	IT-PT525	T357			
	IT-PT526	T361			
	IT-PT534	T353			
	IT-PT535	T357			
	IT-PT536	T361			
	IT-PT544	T353			
	IT-PT545	T357			
	IT-PT546	T365			
	MS-FCV760	T700			
	MS-FCV761	T700			

FIREZONE	ID	RACEWAYS							
3CC 115EF	MS-FCV762	T704							
	MS-FCV763	T704							
3D1	RH-RHRP21	6976							
3D2	RH-RHRP22	6979							
3D3	CB-VV8803A	8820	8823						
	CB-VV8803B	8819	8825						
3G	CB-CP23	8807	8830						
3I1	CB-ALOP21	7047	7049	7050	7051	7052			
	CB-ALOP22	7057	8811	8812	8813	8814	9171		
	CB-CP21	7047	7049	7053					
	CB-CP22	7054	7057	8811					
	CB-CP23	7057	8807						
	CB-VV8803A	7048	8820						
	CB-VV8803B	7058	8819						
3I1 EF	CB-CP21	6972							
	CB-CP22	6974							
3I2	CB-CP23	6975	8807	8830					
3K1	CC-ALOP21	7011	7018	7019	7059	7060	7082		
	CC-CCWP21	7011	7059	7074	7076	7077	7082	7093	7094
3K1 EF	CC-CCWP21	6970							
3K2	CB-ALOP21	7047							
	CB-ALOP22	7057							
	CB-CP21	7047							
	CB-CP22	7057							
	CB-CP23	7057							
	CB-VV8803A	7048							
	CB-VV8803B	7058							
	CC-ALOP21	7059							
	CC-ALOP22	7012	7022	7028	7061	7062	7083		
	CC-CCWP21	7059	7076						
	CC-CCWP22	7012	7061	7075	7083	7095	7096	7097	
3K2 EF	CC-CCWP22	6973							
3K2 ET	CB-ALOP21	6991							
	CB-ALOP22	6994							
	CB-CP21	6991							
	CB-CP22	6994							
	CB-CP23	6994							
	CC-ALOP21	6991							
	CC-ALOP22	6994							
	CC-CCWP21	6991							
	CC-CCWP22	6994							

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE		ID	RACEWAYS							
3K3		CB-ALOP21	7047							
		CB-ALOP22	7057							
		CB-CP21	7047							
		CB-CP22	7057							
		CB-CP23	7057							
		CB-VV8803A	7048							
		CB-VV8803B	7058							
		CC-ALOP23	7013	7025	7026	7063	7064	7084		
		CC-CCWP23	6977	7013	7064	7081	7084	7098	7099	7100
3K3	ET	CC-ALOP23	6997							
		CC-CCWP23	6997							
3L		CB-ALOP22	7227	9171						
		CB-VV8104	5960	7229	9112					
		CB-VV8805A	7223	8534	9113					
		CB-VV8805B	5960	7229	9241					
		CBBAXFRP21	7223							
		CBBAXFRP22	7229							
		MS-FCV244	9111	9315						
		MS-FCV246	9111	9315						
		MS-FCV248	9114	9313						
		MS-FCV250	9114	9313						
3L	ET	AF-PP22	6998							
		AF-PP23	6993							
3T2		AF-PP22	6998							
		AF-PP23	6993							
3V3		AF-PP22	6998							
		AF-PP23	6993							
3X		CB-VV8104	5960	9112	9484	9503	9506			
		CB-VV8805A	9113							
		CB-VV8805B	5960							
		CBBAXFRP21	9123	9440						
		CBBAXFRP22	9129	9441						
		MS-FCV244	9111							
		MS-FCV246	9111							
		MS-FCV248	9114							
		MS-FCV250	9114							
30A3		VEASPE104	1368							
30A3	EF	AS-ASWP21	1011							

REPORT 9: FIREZONES AND IDS - RACEWAYS

FIREZONE		ID	RACEWAYS				
30A3	ET	AS-ASHP22	1046				
		VEASPE104	1013				
30A4		VEASPE102	1370				
30A4	EF	AS-ASHP22	1017				
30A4	ET	AS-ASHP21	1047				
		VEASPE102	1279				
30A5	EF	AS-ASHP21	1009	1010	1011	1047	
		AS-ASHP22	1015	1017	1046		
		VEASPE102	1015	1279			
		VEASPE104	1009	1013			
34		MS-PCV21	6499	6505	6506		
		MS-PCV22	6499	6557	6582		
34	140	MS-PCV21	6556				
		MS-PCV22	6556				
4B		AF-LCV110	T333				
		AF-LCV111	T333				
		AF-LCV113	6937				
		AF-LCV115	6937				
		AF-PP23	6935	6939	6940	6942	
		AS-ASHP21	6935	6939	6942		
		AS-FCV602	7237	7249			
		AS-FCV603	7236	7248			
		CB-ALOP21	6940	7029	7030		
		CB-ALOP22	7227				
		CB-CP21	6935	6942			
		CB-VV8104	7229				
		CB-VV8803A	7029	7030			
		CB-VV8805A	7223				
		CB-VV8805B	7229				
		CBBAXFRP21	7223				
		CBBAXFRP22	7229				
		CC-ALOP21	6941	7029	7030		
		CC-CCWP21	6935	6939	6940	6942	
		CC-FCV355	7211	7235	8621		
		CC-FCV430	7208	7237	7249		
		CC-FCV431	7201	7236	7248		
		EP-DSGEN13	6936	6937	6940	6941	6942
		EP-DSGEN21	6941	6942			
		EP-4KVLC2F	6934	6941	6942		
		EP-4KVLC2G	6944				
		EP-4KVLC2H	6962				
		VEASPE102	7200				
		VEASPE104	6940				
		VE4KVF2S69	6941				

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE	ID	RACEWAYS							
4B1	AF-FCV95	7264							
	AS-ASWP22	6946	6949						
	CB-ALOP22	6947	7031						
	CB-CP22	6946	6949	6951					
	CB-CP23	6949	6951						
	CB-VV8803B	7032							
	CC-ALOP22	6947	7031	7032					
	CC-CCWP22	6946	6947	6949					
	EP-DFTP02	6949							
	EP-DSGEN21	6947	6949	6952	6953				
	EP-DSGEN22	6947	6949	6952					
	EP-4KVLC2G	6944	6952						
	RH-RHRP21	6949	6951						
	VEASPE102	6946	6947						
	VE4KVG2S68	6947							
4B2	AF-LCV110	T333	6739	6955					
	AF-LCV111	T333	6739	6955					
	AF-PP22	6954	6957	6960	6961				
	CC-ALOP23	6957	7033	7034					
	CC-CCWP23	6954	6956	6957	6961				
	EP-DFTP01	6959							
	EP-DSGEN13	6960							
	EP-DSGEN22	6957	6960	6961					
	EP-4KVLC2H	6960	6962						
	RH-RHRP22	6956	6957						
	VE4KVH2S67	6961							
5B1	AF-FCV38	DU01	FNA	FNAA	FNAB	FNAC	FNAE	FNAF	FNIC
	AF-LCV113	DU02	FNEA	FNEB	FNEC	FNG	FNI	FNIA	6756
		6937	7452	7453	7500				
	AF-LCV115	DU02	FNEA	FNEB	FNEC	FNG	FNI	FNIA	6756
		6937	7452	7453	7500				
	AF-PP23	FNI	FNIA	FNJ	FNJA	6935	6939	6940	6942
	AS-ASWP21	FNJ	FNJA	6935	6939	6942			
	CB-ALOP21	FNAA	FNAB	FNC	FNI	FNIC	6940	7029	7030
		7315	7330	7400	7431				
	CB-CP21	FNJ	FNJA	6935	6942				
	CB-VV8107	DU02	FNAA	FNAB	FNC	FNEA	FNEB	FNEC	FNG
		FNIC	FNJA	7409					
	CB-VV8801A	DU02	FNA	FNAA	FNAB	FNB	FNE	FNEA	FNEB
		FNEC	FNF	FNIC	FNJA	7409			
	CB-VV8803A	FNA	FNAA	FNAB	FNB	FNI	FNIA	FNIC	7029
		7030	7400						
	CB-VV8805A	FNA	FNAA	FNAB	FNAE	FNAF	FNB	FNIC	7223
	CBBAXFRP21	FNIC	7223	7309					
	CC-ALOP21	FNA	FNAA	FNAB	FNB	FNC	FNEB	FNH	FNI
		FNJ	6941	7029	7030	7316	7400	7431	
	CC-CCWP21	FNI	FNIA	FNJ	FNJA	6935	6939	6940	6942
	CC-FCV430	FNAA	FNAB	FNC	FNIC	7208			
	EP-DSGEN13	FNA	FNAA	FNAB	FNAE	FNI	FNIA	FNJ	FNJA
		6936	6937	6940	6941	6942	7202	7315	
	EP-DSGEN21	FNE	FNEA	FNEB	FNEC	FNEF	FNEG	FNJ	FNJA
		6941	6942	7459					

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE	ID	RACEWAYS							
5B1	EP-4KVLC2F	FNJ	FNJA	6934	6941	6942			
	EPDCFPNL21	FNE	FNEA	FNEB	FNF	7401			
	EPDCFPNL23	FNEA	FNEB	FNG	FNJA	7459			
	IT-IY21	6851	6872						
	IT-LT459	T651							
	IT-PT455	T651							
	IT-PT514	T651							
	IT-PT524	T651							
	IT-PT534	T651							
	IT-PT544	T651							
	RC-VV8000A	DU01	DU02	FNAB	FNAC	FNE	FNEA	FNEB	FNEC
		FNEF	FNEG	FNF	FNIC				
	VEASPE104	FNA	FNAA	FNAB	FNAE	FNAF	FNB	FNI	6940
		7315							
	VE4KVF2S69	FNE	FNEA	FNEB	FNEC	FNEF	FNEG	FNJ	6941
		7409							
	VE480LCS45	DU01	FNA	FNAA	FNAB	FNAC	FNAE	FNAF	
5B1 EF	AF-LCV113	7284							
	AF-LCV115	7284							
	AF-PP23	7284							
	AS-ASWP21	7284							
	CB-CP21	7284							
	CBBAXFRP21	7298							
	CC-CCWP21	7284							
	IT-LT459	7285							
	IT-PT455	7285							
	IT-PT514	7285							
	IT-PT524	7285							
	IT-PT534	7285							
	IT-PT544	7285							
5B2	AF-FCV95	GNIF	7264	7331	7427	7505			
	AF-LCV107	DU03	GNEA	GNEB	GNEC	GNG	GNIA	5973	5974
	AF-LCV108	DU04	GNAC	GNAD	GNEA	GNEB	GNG	GNIA	GNIF
		5973	5974						
	AS-ASWP22	GNJ	GNJC	6946	6949				
	CB-ALOP22	GNAA	GNAB	GNAC	GNC	GNI	GNIF	6947	7031
		7227	7317	7331	7432				
	CB-CP22	GNJ	GNJC	6946	6949	6951			
	CB-CP23	GNJ	GNJC	6949	6951				
	CB-VV8104	GNH	GNIF	7229	7331				
	CB-VV8108	DU04	GNAA	GNAB	GNAC	GNAD	GNC	GNIF	
	CB-VV8801B	DU04	GNA	GNAA	GNAB	GNAC	GNAD	GNB	GNIF
	CB-VV8803B	GNA	GNAA	GNAB	GNAC	GNBA	GNBB	GNBC	GNBD
		GNI	GNIA	GNIF	7032	7432			
	CB-VV8805B	GNA	GNAA	GNAB	GNB	GNIF	7229		
	CBBAXFRP22	GNH	GNIF	7229	7310				
	CC-ALOP22	GNA	GNAA	GNAB	GNAC	GNBB	GNBC	GNBD	GNI
		GNIF	6947	7031	7032	7331	7403		
	CC-CCWP22	GNI	GNIA	GNJ	GNJC	6946	6947	6949	
	CC-FCV431	GNA	GNAA	GNAB	GNBB	GNBC	GNBD	GNIF	7201
	EP-DFTP02	GNE	GNEA	GNEB	GNFB	GNFC	GNFD	GNJ	6949
		7460							
	EP-DSGEN21	GNE	GNEA	GNEB	GNFB	GNFC	GNFD	GNI	GNIA

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE		ID	RACEWAYS							
5B2		EP-DSGEN21	GNJ	GNJC	6947	6949	6952	6953	7472	
		EP-DSGEN22	GNEA	GNEB	GNG	GNI	GNIA	GNJ	GNJC	6947
			6949	6952	7472					
		EP-4KVLC2G	GNJ	GNJC	6944	6952				
		EPDCGPNL22	GNE	GNEA	GNFB	GNFC	GNFD	GNIF		
		EPDCHPNL21	7402							
		EPDCHPNL22	7402							
		IT-IY22	6854	6855						
		IT-LT460	T653							
		MS-FCV760	DU04	GNAB	GNAC	GNAD	GNIF			
		MS-FCV761	DU04	GNAB	GNAC	GNAD	GNIF			
		RC-VV8000B	DU04	GNA	GNAA	GNAB	GNAC	GNAD	GNBA	GNBB
			GNE	GNEA	GNFA	GNFB	GNIF			
		RH-RHRP21	GNJ	GNJC	6949	6951				
		RH-VV8701	GNA	GNAA	GNAB	GNBB	GNBC	GNBD	GNIF	
		VEASPE102	GNAA	GNAB	GNAC	GNC	GNI	6946	6947	7200
			7317							
		VE4KVG2S68	GNAA	GNAB	GNAC	GNC	GNI	6947	7432	
5B2	EF	AF-FCV95	7299							
		AF-LCV107	7293							
		AF-LCV108	7293							
		AS-ASWP22	7286							
		CB-CP22	7286							
		CB-VV8104	7297							
		CBBAXFRP22	7297							
		CC-CCWP22	7286							
		IT-LT460	7287							
		VEASPE102	7286	7293						
5B3		AF-FCV37	DU05	HNA	HNAA	HNAB	HNAE	HNAF	HNF	HNFA
			HNFB	HNFC	HNFE	HNFF	HNJD			
		AF-LCV110	HNAC	HNFB	HNI	HNJ	HNJA	HNJD	6739	6757
			6955	7436	7439	8039				
		AF-LCV111	HNAC	HNFB	HNI	HNJ	HNJA	HNJD	6739	6757
			6955	7436	7439	8039				
		AF-PP22	HNJ	HNK	6954	6957	6960	6961		
		CC-ALOP23	HNA	HNAA	HNAB	HNAC	HNAE	HNAF	HND	HNJ
			HNJD	6957	7033	7034	7311	7407	7433	
		CC-CCWP23	HNJ	HNJA	HNK	6954	6956	6957	6961	
		CC-FCV355	HNAA	HNAB	HNC	HNJD				
		EP-DFTP01	HNF	HNFA	HNFB	HNH	HNK	6959	7301	
		EP-DSGEN13	HNK	6960						
		EP-DSGEN22	HNF	HNFA	HNFB	HNG	HNJ	HNJA	HNK	6957
			6960	6961	7461					
		EP-4KVLC2H	HNK	6960	6962					
		EPDCHPNL21	HNF	HNFE	HNH					
		EPDCHPNL22	HNF	HNFE	HNH					
		EPDCHPNL23	HNF	HNFA	HNFB	HNFE	HNFF	7404		
		IT-IY23	6865	6868						
		IT-IY24	6864	6865	6867					
		MS-FCV762	DU06	HNAC	HNJD					
		MS-FCV763	DU06	HNAC	HNJD					
		RC-VV8000C	DU06	HNA	HNAA	HNAB	HNAC	HNAE	HNAF	HNJD
		RH-RHRP22	HNAC	HNJ	HNJD	6956	6957	7433		

REPORT 9: FIREZONE - IDS - RACEWAYS

FIREZONE		ID	RACEWAYS							
5B3		RH-VV8702	HNAA	HNAB	HNC	HNJD				
		VE4KVH2S67	HNF	HNFA	HNFB	HNFE	HNFF	HNK	6961	7461
		VE480LCE46	7437	7439						
5B3	EF	AF-LCV110	7288							
		AF-LCV111	7288							
		AF-PP22	7288							
		CC-CCWP23	7288							
5B4		AF-FCV95	7427	7613						
		AF-LCV110	T333	T386	7365	7435	7436	7439	7441	7617
			8039							
		AF-LCV111	T333	T386	7365	7435	7436	7439	7441	7617
			8039							
		AF-LCV113	T243	7500						
		AF-LCV115	T243	7500						
		AS-FCV602	7237							
		AS-FCV603	7236							
		CB-VV8145	7365	7617						
		CC-FCV355	7235	8621						
		CC-FCV430	7237							
		CC-FCV431	7236							
		EP-DSGEN13	7202							
		EP-DSGEN21	T113	T114						
		EP-DSGEN22	T554							
		MS-PCV19	TSAB	T076	T078	7350				
		MS-PCV20	TSAB	T077	T078	7350				
		MS-PCV21	TSAB	T077	T078	7350				
		MS-PCV22	TSAB	T076	T078	7350				
		VE480LCE46	7365	7439	7441					
5B4	ET	AF-FCV95	7299							
		AF-LCV107	7293							
		AF-LCV108	7293							
		AF-LCV110	7288							
		AF-LCV111	7288							
		AF-LCV113	7284							
		AF-LCV115	7284							
		AF-PP22	7288							
		AF-PP23	7284							
		AS-ASWP21	7284							
		AS-ASWP22	7286							
		CB-CP21	7284							
		CB-CP22	7286							
		CB-VV8104	7297							
		CBBAXFRP21	7298							
		CBBAXFRP22	7297							
		CC-CCWP21	7284							
		CC-CCWP22	7286							
		CC-CCWP23	7288							
		IT-LT459	7285							
		IT-LT460	7287							
		IT-PT455	7285							
		IT-PT514	7285							
		IT-PT524	7285							

FIREZONE	ID	RACEWAYS							
5B4 ET	IT-PT534	7285							
	IT-PT544	7285							
	VEASPE102	7286	7293						
6B1	AF-FCV38	DU07	DU13	FNIB	FNID				
	AF-LCV113	FNIB	PPAC	PPB	3567	7326			
	AF-LCV115	FNIB	PPAC	PPB	3567	7326			
	AF-PP23	DU07	DU08	FNIB	FNJB	FNJC	PPAA	PPAC	PPAD
	AS-ASWP21	DU08	FNJB	FNJC	PPAA	PPAC	PPAD		
	AS-FCV602	DU08	FNJC	PPAA	PPAC	PPAD			
	CB-CP21	DU08	FNJB	FNJC	PPAA	PPAC	PPAD		
	CB-VV8107	DU08	DU13	FNID	FNJB	FNJC			
	CB-VV8146	ERAA							
	CB-VV8147	ERAA							
	CB-VV8801A	DU08	DU13	FNID	FNJB	FNJC			
	CB-VV8803A	DU07	DU13	FNIB	FNID				
	CB-VV8805A	DU13	FNID						
	CBBAXFRP21	DU13	FNID						
	CC-CCWP21	DU07	DU08	FNIB	FNJB	FNJC	PPAA	PPAC	PPAD
	CC-FCV430	DU13	FNID						
	EP-DSGEN13	DU07	DU08	FNIB	FNJB	FNJC	PPAA	PPAC	PPAD
	EP-DSGEN21	DU08	FNJB	FNJC	PPAA	PPAC	PPAD		
	EP-4KVLC2F	DU08	FNJB	FNJC					
	EPDCFPNL23	FNJB	PPAA	PPAC	7654				
	EPDCHPNL22	7783							
	IT-IY21	PPAA	PPAD	7655					
	IT-LT406	DU08	FNJC	PPAC	PPB				
	IT-LT459	DU08	FNJC	PPAC	PPB	T651			
	IT-LT516	DU08	FNJC	PPAC	PPB				
	IT-LT526	DU08	FNJC	PPAC	PPB				
	IT-LT529	DU08	FNJC	PPAC	PPB				
	IT-LT536	DU08	FNJC	PPAC	PPB				
	IT-LT539	DU08	FNJC	PPAC	PPB				
	IT-LT546	DU08	FNJC	PPAC	PPB				
	IT-NISNE31	DU08	FNJC	PPAC	PPB	7333			
	IT-PT403	DU08	FNJC	PPAC	PPB				
	IT-PT406	DU08	FNJC	PPAC	PPB				
	IT-PT455	DU08	FNJC	PPAC	PPB	T651			
	IT-PT514	DU08	FNJC	PPAC	PPB	T651			
	IT-PT524	DU08	FNJC	PPAC	PPB	T651			
	IT-PT534	DU08	FNJC	PPAC	PPB	T651			
	IT-PT544	DU08	FNJC	PPAC	PPB	T651			
	IT-PY21	PPAA	PPB	7655					
	IT-TE413A	DU08	FNJC	PPAC	PPB				
	IT-TE413B	DU08	FNJC	PPAC	PPB				
	MS-FCV248	6543							
	MS-FCV250	6543							
	MS-PCV19	7350							
	MS-PCV20	DU08	FNJC	PPAC	PPB	7350			
	MS-PCV21	DU08	FNJC	PPAC	PPB	7350			
	MS-PCV22	7350							
	RC-PCV474	DU08	FNJC	PPAA	PPAC	PPAD			
	RC-VV8000A	DU13	FNID						

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE	ID	RACEWAYS						
6B1 ET	EPDCFPNL21	7451						
	EPDCHPNL21	7457						
	EPDCHPNL22	7457						
6B2	AF-FCV95	DU14	GNIG	7610	7612			
	AF-LCV107	DU09	GNIB					
	AF-LCV108	DU09	GNIB					
	AS-ASWP22	DU10	GNJA	GNJB	RPA	RPAC	RPAD	
	AS-FCV603	DU10	GNJB	RPA	RPAC	RPAD		
	CB-CP22	DU10	GNJA	GNJB	RPA	RPAC	RPAD	
	CB-CP23	DU10	GNJA	GNJB	RPA	RPAC	RPAD	
	CB-HCV142	DU10	GNJB	RPA	RPAC	RPAD		
	CB-VV8104	DU14	GNIG					
	CB-VV8108	DU14	GNIG					
	CB-VV8146	ERAB	RPE	RPEB				
	CB-VV8147	ERAB	RPE	RPEB				
	CB-VV8148	DU10	GNJB	RPA	RPAC	RPAD		
	CB-VV8801B	DU14	GNIG					
	CB-VV8803B	DU09	DU14	GNIB	GNIG			
	CB-VV8805B	DU14	GNIG					
	CBBAXFRP22	DU14	GNIG					
	CC-CCWP22	DU09	DU10	GNIB	GNJA	GNJB	RPA	RPAC RPAD
	CC-FCV365	DU10	GNJB	RPA	RPAC	RPAD		
	CC-FCV431	DU14	GNIG					
	EP-DSGEN21	DU09	DU10	GNIB	GNJA	GNJB	RPA	RPAC RPAD
	EP-DSGEN22	DU09	DU10	GNIB	GNJA	GNJB	RPA	RPAC RPAD
	EP-4KVLC2G	DU10	GNJA	GNJB				
	EPDCFPNL23	7654						
	EPDCGPNL22	GNIG	5969					
	EPDCHPNL22	7783						
	IT-IY22	RPA	RPAC	7661				
	IT-IY24	RPA	RPAC	7668				
	IT-LT460	DU10	GNJB	RPAD	RPC	T653		
	IT-LT519	DU10	GNJB	RPAD	RPC			
	IT-LT549	DU10	GNJB	RPAD	RPC			
	IT-NISNE32	DU10	GNJB	RPAD	RPC	7334		
	IT-PT456	DU10	GNJB	RPAD	RPC			
	IT-PT515	DU10	GNJB	RPAD	RPC			
	IT-PT525	DU10	GNJB	RPAD	RPC			
	IT-PT535	DU10	GNJB	RPAD	RPC			
	IT-PT545	DU10	GNJB	RPAD	RPC			
	IT-PY22	RPAC	RPC	7661				
	MS-FCV760	DU10	DU14	GNIG	GNJB	RPA	RPAC	RPAD
	MS-FCV761	DU10	DU14	GNIG	GNJB	RPA	RPAC	RPAD
	MS-PCV19	DU10	GNJB	RPAD	RPC			
	MS-PCV22	DU10	GNJB	RPAD	RPC			
	RC-PCV455C	DU10	GNJB	RPA	RPAC	RPAD		
	RC-VV8000B	DU14	GNIG					
	RH-RHRP21	DU10	GNJA	GNJB	RPA	RPAC	RPAD	
	RH-VV8701	DU14	GNIG					

FIREZONE		ID	RACEWAYS						
6B2	EF	EPDCHPNL21	7457						
		EPDCHPNL22	7457						
6B2	ET	EPDCGPNL22	7458						
6B3		AF-FCV37	DU15	HNJE					
		AF-FCV95	7612						
		AF-LCV110	HNJB	SPAC	SPC				
		AF-LCV111	HNJB	SPAC	SPC				
		AF-PP22	DU12	HNJB	HNKA	SPAC	SPE		
		CB-VV8145	DU11	HNJC	SPA	SPAC	SPE	7615	7616
		CC-CCWP23	DU11	DU12	HNJB	HNJC	HNKA	SPAC	SPE
		CC-FCV355	DU15	HNJE					
		CC-FCV364	DU11	HNJC	SPA	SPAC	SPE		
		EP-DSGEN13	DU12	HNKA					
		EP-DSGEN22	DU11	DU12	HNJB	HNJC	HNKA	SPAC	SPE
		EP-4KVLC2H	DU12	HNKA					
		EPDCFPNL23	7654						
		IT-IY23	SPA	SPAC	SPE	7673			
		IT-IY24	7668						
		IT-LT406	8767						
		IT-LT461	DU11	HNJC	SPAC	SPC			
		IT-LT516	8767						
		IT-LT517	8690						
		IT-LT518	DU11	HNJC	SPAC	SPC			
		IT-LT526	8767						
		IT-LT527	8690						
		IT-LT528	DU11	HNJC	SPAC	SPC			
		IT-LT536	8767						
		IT-LT537	8690						
		IT-LT538	DU11	HNJC	SPAC	SPC			
		IT-LT546	8767						
		IT-LT547	8690						
		IT-LT548	DU11	HNJC	SPAC	SPC			
		IT-PT403	DU11	HNJC	SPAC	SPC			
		IT-PT405	8690						
		IT-PT406	8767						
		IT-PT457	DU11	HNJC	SPAC	SPC			
		IT-PT516	8690						
		IT-PT526	DU11	HNJC	SPAC	SPC			
		IT-PT536	DU11	HNJC	SPAC	SPC			
		IT-PT546	8690						
		IT-PY23	SPAC	SPC	7673				
		IT-PY24	8690	8710					
		IT-TE413A	8767						
		IT-TE413B	8767						
		MS-FCV762	DU11	DU15	HNJC	HNJE	SPA	SPAC	SPE
		MS-FCV763	DU11	DU15	HNJC	HNJE	SPA	SPAC	SPE
		MS-PCV19	8690						
		MS-PCV20	DU11	HNJC	SPAC	SPC			
		MS-PCV21	DU11	HNJC	SPAC	SPC			
		MS-PCV22	8690						
		RC-PCV456	DU11	HNJC	SPA	SPAC	SPE		
		RC-VV8000C	DU15	HNJE					

REPORT 9: FIREZONE IDS - RACEWAYS

FIREZONE		ID	RACEWAYS				
6B3		RH-RHRP22	DU15	HNJB	HNJE	SPAC	SPE
		RH-VV8702	DU15	HNJE			
6B3	ET	EPDCFPNL23	7464				
		EPDCHPNL23	7465				
6B4		AF-FCV95	7612	7613			
		AF-LCV110	7604	7617			
		AF-LCV111	7604	7617			
		CB-VV8145	7605	7615	7617		
		CB-VV8148	7573	7603	7607		
		IT-LT517	8690				
		IT-LT527	8690				
		IT-LT537	8690				
		IT-LT547	8690				
		IT-PT405	8690				
		IT-PT516	8690				
		IT-PT546	8690				
		IT-PY24	8690				
		IT-TE433A	T907	T908			
		IT-TE433B	T907	T908			
		IT-TE443A	T907	T908			
		IT-TE443B	T907	T908			
		MS-PCV19	8690				
		MS-PCV22	8690				
		RC-PCV455C	7573	7603	7607		
		RC-PCV456	7605	7606	7746		
6B5		AS-FCV602	7237	7494			
		AS-FCV603	7236	7495			
		CB-VV8146	ERA	ETAC			
		CB-VV8147	ERA	ETAC			
		CC-FCV355	7235	7496	8621	8659	
		CC-FCV430	7237	7494			
		CC-FCV431	7236	7495			
		EP-DSGEN21	T114				
		EP-DSGEN22	T554				
		MS-FCV248	6543	8617			
		MS-FCV250	6543	8617			
		MS-PCV19	TSAC	7350			
		MS-PCV20	TSAC	7350			
		MS-PCV21	TSAC	7350			
		MS-PCV22	TSAC	7350			
7A		IT-TE433A	X453				
		IT-TE433B	X453				
		IT-TE443A	X453				
		IT-TE443B	X453				

FIREZONE	ID	RACEWAYS							
7B	AF-FCV37	DU15	6488	7721	7882	8642			
	AF-FCV38	DU07	DU13	6148	7701	7806	7811	7819	7820
	AF-FCV95	DU14	7816	7845					
	AF-LCV107	DU09	7708	7845					
	AF-LCV108	DU09	7708	7845					
	AF-LCV110	K191	K192	K193	K195	K197	T386	T881	7531
		7543	7552	7604	8040				
	AF-LCV111	K191	K192	K193	K195	K197	T386	T881	7531
		7543	7552	7604	8040				
	AF-LCV113	K158	K159	K160	K162	K163	T830	7216	7600
		7601	8009						
	AF-LCV115	K158	K159	K160	K162	K163	T830	7216	7600
		7601	8009						
	AF-PP22	DU12	7718	7721	7890	8641	8718		
	AF-PP23	DU07	DU08	7706	7819	7862	8719		
	AS-ASWP21	DU08	7706	7808	7821	7825	8719	8720	
	AS-ASWP22	DU10	7711	7840	7847	8724	8727	8732	
	AS-FCV602	DU08	7494	7703	7808	7979			
	AS-FCV603	DU10	7495	7711	7847	7865	7987	8724	8725
	CB-CP21	DU08	7704	7812					
	CB-CP22	DU10	7714	7778	7867				
	CB-CP23	DU10	7714	7778	7867				
	CB-HCV142	DU10	6082	6466	6478	7711	7847	8723	
	CB-VV8104	DU14	7816	7842	7847	7851	7858	7867	
	CB-VV8107	DU08	DU13	6268	7704	7805	7806	7812	8720
	CB-VV8108	DU14	7846	7851	7858	7867	8732		
	CB-VV8145	DU11	7531	7543	7552	7605	7716	7895	7903
		8040							
	CB-VV8146	ATBC	DRDE	DRDF	DRDG	DTAE	DTAI	ERB	ERBD
		ERBE	ERBF	ERBG	ERBY	ERI	ERLC	ERLE	ETAD
		7759	7776						
	CB-VV8147	ATBC	DRDE	DRDF	DRDG	DTAE	DTAI	ERB	ERBD
		ERBE	ERBF	ERBG	ERBY	ERI	ERLC	ERLE	ETAD
		7759	7776						
	CB-VV8148	DU10	7250	7258	7260	7265	7603	7711	7847
		8723							
	CB-VV8801A	DU08	DU13	7704	7805	7806	7812	8720	
	CB-VV8801B	DU14	6490	7708	7844	7846	7866	8639	8732
	CB-VV8803A	DU07	DU13	7700	7805	7806	7812	8720	
	CB-VV8803B	DU09	DU14	7713	7844	7846	7866	8639	8732
	CB-VV8805A	DU13	6334	6349	7805	7806	7812	7813	7817
		7818	8720						
	CB-VV8805B	DU14	6335	6532	7842	7843	7844	7846	7866
		8639	8723	8732					
	CBBAXFRP21	DU13	7563	7805	7811	7813	7821	7822	7831
		7986							
	CBBAXFRP22	DU14	7844	7851	7858	7867	7874	7877	8723
	CC-CCWP21	DU07	DU08	7701	7706	7808	7821	7825	8719
		8720							
	CC-CCWP22	DU09	DU10	7711	7713	7840	8726	8727	8732
	CC-CCWP23	DU11	DU12	7716	7721	7829	7830	7880	7895
		7912	7913	7914	7923	8640	8665	8666	8729
	CC-FCV355	DU15	7496	7853	7880	7896	7905	7908	8619
		8659							

REPORT 9: FIREZONES [illegible]OS - RACEWAYS

FIREZONE	ID.	RACEWAYS							
7B	CC-FCV364	DU11	6467	6479	7716	7880	7895		
	CC-FCV365	DU10	6083	6085	6466	6478	7711	7987	8725
	CC-FCV430	DU13	7494	7807	7808				
	CC-FCV431	DU14	7495	7840	7841	7865	8726	8727	
	EP-DSGEN13	DU07	DU08	DU12	T777	7700	7701	7703	7704
		7706	7718	7744	7809	7814	7815	7829	7830
		7835	7862	7890	7899	7903	8336	8337	8338
		8339	8367	8641	8666	8718	8720	8728	8729
		8772							
	EP-DSGEN21	DU08	DU09	DU10	T114	T776	2704	4929	7706
		7711	7712	7713	7714	7715	7856	7864	7865
		7873	7945	8335	8338	8721	8732		
	EP-DSGEN22	DU09	DU10	DU11	DU12	T554	T775	2708	7711
		7716	7718	7720	7721	7744	7832	7856	7864
		7890	7910	7923	8619	8641	8658	8718	8729
	EP-4KVLC2F	DU08	7704	7809					
	EP-4KVLC2G	DU10	7712	8335					
	EP-4KVLC2H	DU12	7720	7890	8641				
	IT-LT406	DU08	7703	7989					
	IT-LT459	DU08	RNAA	RNAB	T324	T400	T448	T451	T537
		T650	T651	7703	7989				
	IT-LT460	DU10	RNBA	RNBB	T456	T470	T653	T685	T953
		7954	7955	7956					
	IT-LT461	DU11	RNCA	RNCC	T433	T482	T504	T507	7962
		7963	7964						
	IT-LT516	DU08	7703	7989					
	IT-LT517	RNDA	RNDB	T452	T532	T536	T688	8662	8663
		8690							
	IT-LT518	DU11	RNCA	RNCC	T433	T482	T506	7962	7963
		7964							
	IT-LT519	DU10	RNBA	RNBB	T457	T470	7954	7955	7956
	IT-LT526	DU08	7703	7989					
	IT-LT527	RNDA	RNDB	T452	T532	T536	T688	8662	8663
		8690							
	IT-LT528	DU11	RNCA	RNCC	T433	T483	T506	7962	7963
		7964							
	IT-LT529	DU08	RNAA	RNAB	T383	T385	T401	T416	T418
		7703	7989						
	IT-LT536	DU08	7703	7989					
	IT-LT537	RNDA	RNDB	T452	T532	T536	T688	8662	8663
		8690							
	IT-LT538	DU11	RNCA	RNCC	T433	T483	T506	7962	7963
		7964							
	IT-LT539	DU08	RNAA	RNAB	T383	T385	T401	T416	T418
		7703	7989						
	IT-LT546	DU08	7703	7989					
	IT-LT547	RNDA	RNDB	T452	T532	T536	T688	8662	8663
		8690							
	IT-LT548	DU11	RNCA	RNCC	T433	T483	T506	7962	7963
		7964							
	IT-LT549	DU10	RNBA	RNBB	T403	T457	T953	7954	7955
		7956							
	IT-NISNE31	DU08	7706	7818	7976	8719			
	IT-NISNE32	DU10	7711	7778	7843	7978			
	IT-PT403	DU08	DU11	RNCA	RNCC	T072	T388	T392	T396

FIREZONE	ID	RACEWAYS							
7B	IT-PT403	T400	T448	T451	7949	7950	7962	7963	7964
	IT-PT405	RNDA	RNDB	T452	T458	T515	T536	8662	8663
		8690							
	IT-PT406	DU08	7703	7989					
	IT-PT455	DU08	RNAA	RNAB	T324	T389	T400	T401	T424
		T448	T451	T537	T650	T651	7703	7989	
	IT-PT456	DU10	RNBA	RNBB	T450	T456	T470	7954	7955
		7956							
	IT-PT457	DU11	RNCA	RNCC	7962	7963	7964		
	IT-PT474	RNDA	RNDB						
	IT-PT514	DU08	RNAA	RNAB	T324	T383	T385	T401	T416
		T418	T537	T650	T651	7703	7989		
	IT-PT515	DU10	RNBA	RNBB	T403	T457	T953	7954	7955
		7956							
	IT-PT516	RNDA	RNDB	T452	T532	T536	T688	8662	8663
		8690							
	IT-PT524	DU08	RNAA	RNAB	T324	T383	T385	T401	T416
		T418	T537	T650	T651	7703	7989		
	IT-PT525	DU10	RNBA	RNBB	T457	T470	7954	7955	7956
	IT-PT526	DU11	RNCA	RNCC	T433	T482	T506	7962	7963
		7964							
	IT-PT534	DU08	RNAA	RNAB	T324	T383	T385	T401	T416
		T418	T537	T650	T651	7703	7989		
	IT-PT535	DU10	RNBA	RNBB	T403	T457	T953	7954	7955
		7956							
	IT-PT536	DU11	RNCA	RNCC	T433	T482	T506	7962	7963
		7964							
	IT-PT544	DU08	RNAA	RNAB	T324	T383	T401	T416	T418
		T537	T650	T651	7703	7989			
	IT-PT545	DU10	RNBA	RNBB	T403	T457	T953	7954	7955
		7956							
	IT-PT546	RNDA	RNDB	T452	T532	T536	T688	8662	8663
		8690							
	IT-PY24	8662	8663	8690					
	IT-TE413A	DU08	K155	K157	K158	K160	K161	K162	K163
		T983	7703	7989					
	IT-TE413B	DU08	K155	K157	K158	K160	K161	K162	K163
		T983	7703	7989					
	IT-TE423A	K155	K157	K158	K160	K161	K162	K163	T983
	IT-TE423B	K155	K157	K158	K160	K161	K162	K163	T983
	IT-TE433A	K171	K175	K176	K177	K179	K180	T907	
	IT-TE433B	K171	K175	K176	K177	K179	K180	T907	
	IT-TE443A	K171	K175	K176	K177	K179	K180	T907	
	IT-TE443B	K171	K175	K176	K177	K179	K180	T907	
	MS-FCV151	7818	7820	9756					
	MS-FCV154	7818	7820	9756					
	MS-FCV157	7261	9746						
	MS-FCV160	7261	9746						
	MS-FCV244	6490	7713	7842	7847	7864	8646		
	MS-FCV246	6490	7713	7842	7847	7864	8646		
	MS-FCV248	7817	7879	7932	8617	8645	8667	9715	
	MS-FCV250	7817	7879	7932	8617	8645	8667	9715	
	MS-FCV760	DU10	DU14	7336	7711	7816	7845	7847	7854
		7866	7927	7929	8723				
	MS-FCV761	DU10	DU14	7336	7711	7816	7845	7847	7854

FIREZONE		ID	RACEWAYS							
7B		MS-FCV761	7866	7927	7929	8723				
		MS-FCV762	DU11	DU15	7337	7716	7895	7903	7904	7912
			7916	7917	7923	8641	8642			
		MS-FCV763	DU11	DU15	7337	7716	7895	7903	7904	7912
			7916	7917	7923	8641	8642			
		MS-PCV19	DU10	TRAB	TRAC	TRBG	TRBH	TRD	TRDA	TRDD
			TRDE	TRGK	TRHC	TRHK	TRHY	TSAD	T238	6123
			6255	6256	6349	6350	6532	6591	7221	7226
			7350	7954	7956	7957	8690	8695	8696	8697
			8698							
		MS-PCV20	DU08	DU11	TRA	TRAB	TRBG	TRBH	TRD	TRDA
			TRDD	TRDE	TRGH	TRHK	TRHP	TRHR	TRHX	TSAD
			T073	6123	6255	6256	6349	6350	6532	6591
			7221	7226	7350	7716	7895	7903	7904	7949
			7950	8640	8641					
		MS-PCV21	DU08	DU11	TRA	TRAB	TRBG	TRBH	TRD	TRDA
			TRDD	TRDE	TRGH	TRHK	TRHP	TRHR	TRHX	TSAD
			T073	6255	6256	6257	6349	6350	6532	6556
			6591	7221	7226	7350	7716	7895	7903	7904
			7949	7950	8640	8641				
		MS-PCV22	DU10	TRAB	TRAC	TRBG	TRBH	TRD	TRDA	TRDD
			TRDE	TRGK	TRHC	TRHK	TRHY	TSAD	T238	6255
			6256	6257	6349	6350	6532	6556	6591	7221
			7226	7350	7954	7956	7957	8690	8695	8696
			8697	8698						
		RC-PCV455C	DU10	7017	7228	7250	7258	7260	7265	7603
			7711	7847	8723					
		RC-PCV456	DU11	7531	7533	7535	7543	7552	7605	7716
			7895	7903	8040					
		RC-PCV474	DU08	7157	7191	7193	7194	7216	7600	7601
			7703	7986						
		RC-VV8000A	DU13	7805	7812					
		RC-VV8000B	DU14	7844	7851	7866	8639			
		RC-VV8000C	DU15	7261	7743	8642				
		RH-RHRP21	DU10	7714	7840	8727				
		RH-RHRP22	DU15	7853	7880	7896				
		RH-VV8701	DU14	7844	7866	8639				
		RH-VV8702	DU15	7743	8642					
7B	ET	IT-LT459	T351							
		IT-LT460	T355							
		IT-LT461	T358							
		IT-LT517	T362							
		IT-LT518	T358							
		IT-LT519	T355							
		IT-LT527	T362							
		IT-LT528	T358							
		IT-LT529	T351							
		IT-LT537	T362							
		IT-LT538	T358							
		IT-LT539	T350							
		IT-LT547	T362							
		IT-LT548	T358							
		IT-LT549	T354							
		IT-NISNE31	6406							

FIREZONE		ID	RACEWAYS		
7B	ET	IT-NISNE32	6402		
		IT-PT403	T358		
		IT-PT405	T362		
		IT-PT455	T351		
		IT-PT456	T355		
		IT-PT457	T358		
		IT-PT474	T362		
		IT-PT514	T353		
		IT-PT515	T357		
		IT-PT516	T365		
		IT-PT524	T353		
		IT-PT525	T357		
		IT-PT526	T361		
		IT-PT534	T353		
		IT-PT535	T357		
		IT-PT536	T361		
		IT-PT544	T353		
		IT-PT545	T357		
		IT-PT546	T365		
		MS-FCV760	T700		
		MS-FCV761	T700		
		MS-FCV762	T704		
		MS-FCV763	T704		
8B2	EF	CB-VV8104	9712		
		CB-VV8805A	9714		
		CB-VV8805B	9713		
		MS-FCV151	9756	9778	
		MS-FCV154	9756	9778	9779
		MS-FCV157	9746		
		MS-FCV160	9746		
		MS-FCV244	9712		
		MS-FCV246	9712		
8C		AF-LCV110	K197	7552	
		AF-LCV111	K197	7552	
		AF-LCV113	K163	7216	
		AF-LCV115	K163	7216	
		CB-VV8145	7552		
		CB-VV8148	7265		
		EP-DSGEN13	T777		
		EP-DSGEN21	T776		
		EP-DSGEN22	T775		
		IT-LT459	T451		
		IT-LT461	T507		
		IT-LT517	T532		
		IT-LT518	T506		
		IT-LT519	T457		
		IT-LT527	T532		
		IT-LT528	T506		
		IT-LT529	T418		
		IT-LT537	T532		
		IT-LT538	T506		
		IT-LT539	T418		
		IT-LT547	T532		

REPORT 9: FIREZONES - IDS - RACEWAYS

FIREZONE	ID	RACEWAYS						
8C	IT-LT548	T506						
	IT-LT549	T457						
	IT-NISNE31	6406	7976					
	IT-NISNE32	6402	7978					
	IT-PT403	T451						
	IT-PT405	T458						
	IT-PT455	T424	T451					
	IT-PT456	T450						
	IT-PT514	T418						
	IT-PT515	T457						
	IT-PT516	T532						
	IT-PT524	T418						
	IT-PT525	T457						
	IT-PT526	T506						
	IT-PT534	T418						
	IT-PT535	T457						
	IT-PT536	T506						
	IT-PT544	T418						
	IT-PT545	T457						
	IT-PT546	T532						
	IT-TE413A	K163						
	IT-TE413B	K163						
	IT-TE423A	K163						
	IT-TE423B	K163						
	IT-TE433A	K177						
	IT-TE433B	K177						
	IT-TE443A	K177						
	IT-TE443B	K177						
	MS-PCV19	6559	8696	8698				
	MS-PCV22	6559	8696	8698				
	RC-PCV455C	7265						
	RC-PCV456	7552						
	RC-PCV474	7216						
9A	IT-LT406	X283	X398	X404				
	IT-LT459	X149	X166	X168	X530	X564	X594	X681
	IT-LT460	X140	X141	X150	X161	X162	X164	X165 X562
	IT-LT461	X120	X144	X145	X170	X172	X561	
	IT-LT516	X283	X392	X393				
	IT-LT517	X103	X128	X190	X191			
	IT-LT518	X120	X144	X145	X187			
	IT-LT519	X140	X141	X150	X185			
	IT-LT526	X283	X393	X394				
	IT-LT527	X103	X128	X190	X193	X195		
	IT-LT528	X120	X144	X145	X170	X196	X561	
	IT-LT529	X149	X166	X197	X530	X564	X594	
	IT-LT536	X283	X403	X404				
	IT-LT537	X124	X177					
	IT-LT538	X108	X125	X178				
	IT-LT539	X011	X112	X121	X180	X712	X746	
	IT-LT546	X283	X405	X414				
	IT-LT547	X127	X139	X173				
	IT-LT548	X108	X204	X582				
	IT-LT549	X034	X176	X505	X558			
	IT-NISNE31	1501	1590					

REPORT 9: FIREZONES AND IDS - RACEWAYS

FIREZONE	ID	RACEWAYS							
9A	IT-NISNE32	1505	1592						
	IT-PT405	X127	X139	X720	X728	X734			
	IT-PT406	X283	X405	X415					
	IT-PT455	X149	X166	X197	X530	X564	X594		
	IT-PT456	X036	X044	X045	X047	X105	X109	X198	
	IT-PT457	X120	X144	X145	X170	X172	X561		
	IT-PT474	X103	X128	X190	X193	X195			
	IT-TE413A	X469							
	IT-TE413B	X469							
	IT-TE423A	X469							
	IT-TE423B	X469							
	IT-TE433A	X463							
	IT-TE433B	X463							
	IT-TE443A	X463							
	IT-TE443B	X463							
	MS-FCV760	1456	1653	1733	1734	1780	1785		
	MS-FCV761	1456	1653	1720	1724	1726	1733	1734	1785
		1959	1960	1964	1965				
	MS-FCV762	1453	1454	1736	1741	1745	1747	1779	1975
	MS-FCV763	1453	1454	1774	1775				
	RC-PCV455C	1908	1909	1917					
	RC-PCV456	1846	1847	1854	1857				
	RC-PCV474	1921	1986						
	RC-VV8000A	1689	1769	1863	1962	1974			
	RC-VV8000B	1720	1724	1726	1728	1732	1733	1960	
	RC-VV8000C	1454	1736	1747	1749	1790	1975		
9B	IT-NISNE31	1501							
	IT-NISNE32	1505							
	IT-TE413A	X469	X471	X472					
	IT-TE413B	X469	X470						
	IT-TE423A	X469	X471	X473	X474				
	IT-TE423B	X469	X471	X473	X475				
	IT-TE433A	X430	X458	X459	X463	X466	X467		
	IT-TE433B	X430	X458	X459	X463	X466	X468		
	IT-TE443A	X430	X458	X459	X463	X465			
	IT-TE443B	X458	X459	X463	X464				
	MS-FCV760	1787	1963						
	MS-FCV761	1784	1963						
	MS-FCV762	1791							
	MS-FCV763	1788							
	RC-PCV455C	1917							
	RC-PCV456	1857							
	RC-PCV474	1921							
	RC-VV8000A	1752							
	RC-VV8000B	1768							
	RC-VV8000C	1730							

REPORT 9: FIREZONES - RACEWAYS

FIREZONE	ID	RACEWAYS		
9C	IT-NISNE31	1650		
	IT-NISNE32	1642		
	RC-PCV455C	1742	1751	1917
	RC-PCV456	1757	1764	1857
	RC-PCV474	1772	1782	1921
	RC-VV8000A	1752		
	RC-VV8000B	1768		
	RC-VV8000C	1730		

GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:
   - 2HR 2 HOUR RATING
   - 1HR 1 HOUR RATING
   - NR NONRATED
2. DOOR DESIGNATIONS ARE AS FOLLOWS.
   - A 3 HOUR RATED FIRE DOOR
   - B 1½ HOUR RATED FIRE DOOR
   - C ¾ HOUR RATED FIRE DOOR
   - D 1½ HOUR RATED EXTERIOR FIRE DOOR
   - U UNLABELED DOOR
   - O OPENING IN FIRE BARRIER
   - X DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III.G WAS SUBMITTED TO THE NRC.
3. THIS DRAWING WAS TAKEN FROM DWG. NO. 500964
4. VENTS ARE FLOOR VENTS UNLESS NOTED AS CEILING VENTS

LEGEND:
- FIRE AREAS
- FIRE ZONES

THIS DRAWING IS TO BE USED FOR **FIRE PROTECTION ONLY**

REFERENCE DWG 500964

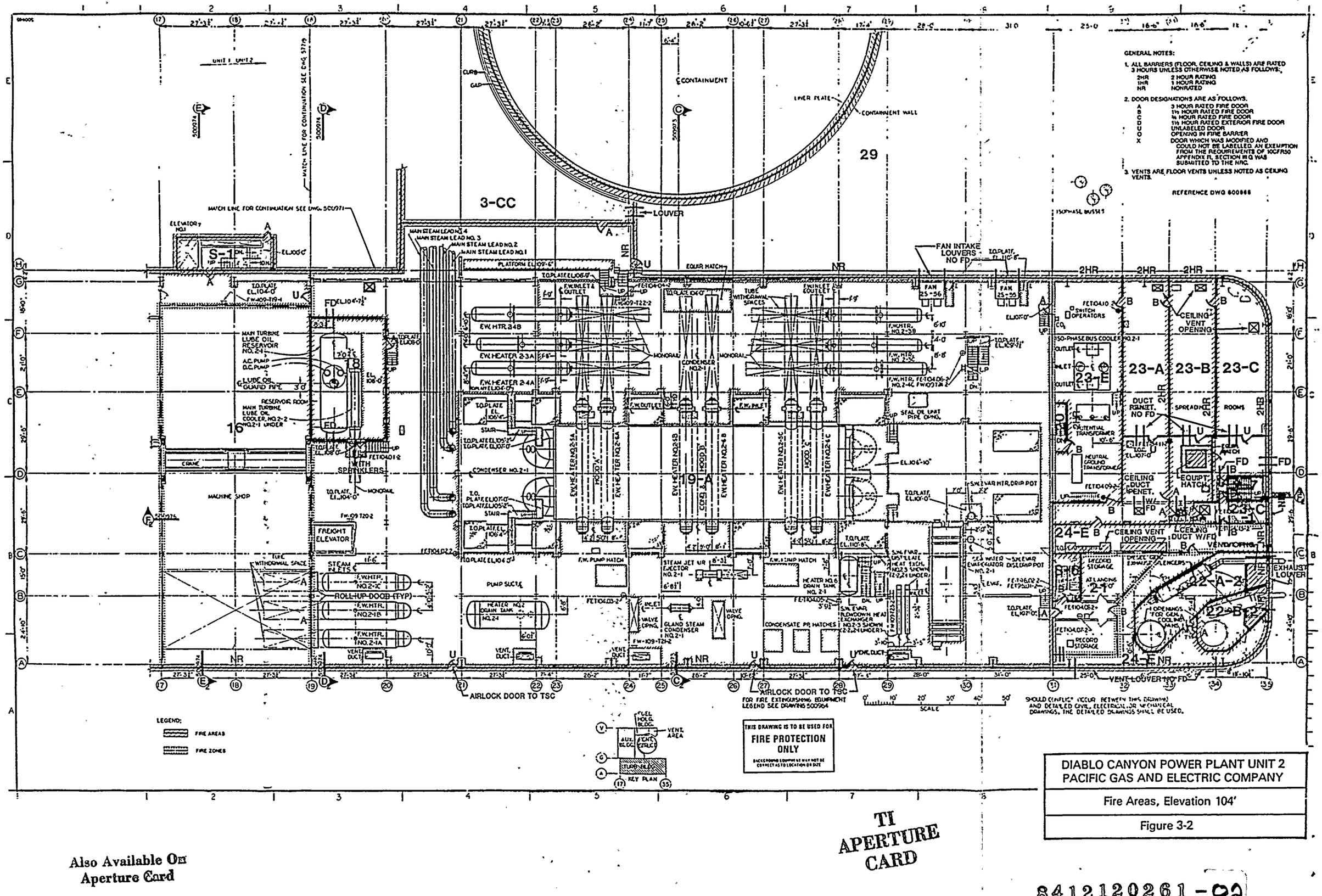
KEY PLAN

SCALE 0' 10' 20' 30' 40' 50'

DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 85'

Figure 3-1



DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 104'

Figure 3-2

GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:
   - 2HR 2 HOUR RATING
   - 1HR 1 HOUR RATING
   - NR NONRATED
2. DOOR DESIGNATIONS ARE AS FOLLOWS:
   - A 3 HOUR RATED FIRE DOOR
   - B 1½ HOUR RATED FIRE DOOR
   - C ¾ HOUR RATED FIRE DOOR
   - D 1½ HOUR RATED EXTERIOR FIRE DOOR
   - U UNLABELED DOOR
   - O OPENING IN FIRE BARRIER
   - X DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED, AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III.G WAS SUBMITTED TO THE NRC.

   UNIT 1 UNIT 2
3. VENTS ARE FLOOR VENTS UNLESS NOTED AS CEILING VENTS.

REFERENCE DWG. 500966

MATCH LINE FOR CONTINUATION SEE DWG. 57220

MATCH LINE FOR CONT. SEE DWG. 500977

GAP
CURB
CONTAINMENT
LINER PLATE
CONTAINMENT WALL
MAIN STEAM BLOWOUT PANELS
LOUVER
3-CC
NO.3
NO.4
MAIN STEAM LEADS
FAN INTAKE LOUVERS NO FD
VENT FAN
CONDENSER
29
EARTHQUAKE JOINT
ISO PHASE BUSSES
FLOOR AND CEILING VENT OPENINGS (TYP)
PLAN AT EL.137'-2"
PLAN AT EL.130'-0"
24-E
25
S-1
DUCT WALL PENET NO FD
EQUIP. HATCH
ACCESS
MONORAIL
MOISTURE SEPARATOR REHEATER NO.2-2A
MOISTURE SEPARATOR REHEATER NO.2-2B
MOISTURE SEPARATOR REHEATER NO.2-2C
STEAM OUTLET
REHEATER HDRAIN TK. NO.2-2A
REHEATER HDRAIN TK. NO.2-2B
REHEATER HDRAIN TK. NO.2-2C
OPNG. FOR COLD REHEAT PIPE
MOTOR OPERATED DISCONNECT SWITCH
QA MATERIAL STORAGE
SPECIAL CONTROLLED ENVIRONMENT
WAREHOUSE EL.123'-0"
18
LUBE OIL RESERVOIR ROOM EL.104'-0"
19-A
23-E
24-A
24-B
24-C
24-D
24-E
416 KV BUS "F"
416 KV BUS "G"
QA MATERIAL STORAGE AREA
17
WIRE FABRIC FENCE AND GATES
SLIDING GATE
DSTR. PANEL FOR BOLT HEATERS
TRANSFORMER FOR BOLT HEATERS
ELECTRICAL LOAD CENTER ROOM
LIGHT TRANSFORMER DISTRIBUTION PANEL
ROLL-UP DOOR
WAREHOUSE OFFICE
FREIGHT ELEVATOR
RAMP UP
L.P. EXHAUST
HOOD 'A'
HOOD 'B'
HOOD 'C'
ELECTRO-HYDRAULIC CONTROL PANEL PLATFORM
GENERATOR BUSHING
DUCT PENET NO FD
VENT OPENINGS
FLOOR VENT OPENING NO FD
16
ROLL-UP DOOR (TYP) NO.2-2B
NO.2-2A
MAIN EQUIP HATCH
STEAM INLETS
VENT DUCT WALL PENET NO FD
F.W. HEATER (TYP) NO.2-2C
F.W. PUMP HATCH
CONDENSATE PUMP HATCHES
REHEATER HDRAIN TK. NO.2-1A
REHEATER HDRAIN TK. NO.2-1B
REHEATER HDRAIN TK. NO.2-1C
VENT. DUCT
ACCUM. 24C-3A
LUNCH ROOM 25
CHALK BOARD
BULLETIN BOARD
KITCHENETTE
LOCKER ROOM
JANITOR STORAGE ROOM
LOUVERS
FUEL HDLG. BLDG.
AUX. BLDG.
CONT. STRUCT.
TURB. BLDG.
VENT. AREA
KEY PLAN

LEGEND:
- FIRE AREAS
- FIRE ZONES

FOR FIRE EXTINGUISHING EQUIPMENT LEGEND SEE DRAWING 500964

SCALE 0' 10' 20' 30' 40' 50'

THIS DRAWING IS TO BE USED FOR FIRE PROTECTION ONLY

BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 119'

Figure 3-3

GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:
   - 2HR 2 HOUR RATING
   - 1HR 1 HOUR RATING
   - NR. NONRATED
2. DOOR DESIGNATIONS ARE AS FOLLOWS:
   - A 3 HOUR RATED FIRE DOOR
   - B 1½ HOUR RATED FIRE DOOR
   - C ¾ HOUR RATED FIRE DOOR
   - D 1½ HOUR RATED EXTERIOR FIRE DOOR
   - U UNLABELED DOOR
   - O OPENING IN FIRE BARRIER
   - X DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED. AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III.G WAS SUBMITTED TO THE NRC.

REFERENCE DWG 500987

CALLED NORTH

LEGEND:
- FIRE AREAS
- FIRE ZONES

THIS DRAWING IS TO BE USED FOR FIRE PROTECTION ONLY

SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 140'

Figure 3-4

8412120261-04

GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:

2HR	2 HOUR RATING
1HR	1 HOUR RATING
NR	NONRATED

2. DOOR DESIGNATIONS ARE AS FOLLOWS:

A	3 HOUR RATED FIRE DOOR
B	1½ HOUR RATED FIRE DOOR
C	¾ HOUR RATED FIRE DOOR
D	1½ HOUR RATED EXTERIOR FIRE DOOR
U	UNLABELED DOOR
O	OPENING IN FIRE BARRIER
X	DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED. AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III.G WAS SUBMITTED TO THE NRC.

3. THIS DRAWING WAS TAKEN FROM DWG. NO. 57722

THIS DRAWING IS TO BE USED FOR
FIRE PROTECTION ONLY
RACEWAY AND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

PLAN AT ELEVATION 54'-0"

LEGEND:
FIRE AREAS
FIRE ZONES

MONORAIL DETAIL

Also Available On Aperture Card

TI APERTURE CARD

SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED

DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 54' & 64'

Figure 3-5

8412120261-05

CALLED NORTH

GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:

2HR	2 HOUR RATING
1HR	1 HOUR RATING
NR	NON-RATED

2. DOOR DESIGNATIONS ARE AS FOLLOWS.

A	3 HOUR RATED FIRE DOOR
B	1½ HOUR RATED FIRE DOOR
C	¾ HOUR RATED FIRE DOOR
D	1½ HOUR RATED EXTERIOR FIRE DOOR
U	UNLABELED DOOR
O	OPENING IN FIRE BARRIER
X	DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED. AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III.G WAS SUBMITTED TO THE NRC.

3. THIS DRAWING WAS TAKEN FROM DWG. NO. 57723

THIS DRAWING IS TO BE USED FOR **FIRE PROTECTION ONLY**

BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

FLOOR, CEILING & WALL VENTILATION DUCT NO FD

DUCT PENETRATION NO FD

DUCT PENETRATIONS NO FD

VENT OPENING IN DOOR NO FD

FLOOR & CEILING VENT OPENINGS NO FD

CEILING VENT OPENING TO BE SEALED BY DCN

DUCT PENETRATIONS NO FD

FLOOR, CEILING & WALL PENETRATION NO FD

DUCT PENETRATIONS NO FD

DUCT PENETRATION NO FD

VENT OPENINGS NO FD

CEILING VENT OPENING TO BE SEALED BY DCN

DUCT PENETRATIONS NO FD

Also Available On Aperture Card

TI APERTURE CARD

SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

MATCH LINE FOR CONTINUATION SEE DWG. 57718

FOR FIRE EXTINGUISHING EQUIPMENT LEGEND SEE DWG. 57718

LEGEND:

FIRE AREAS

FIRE ZONES

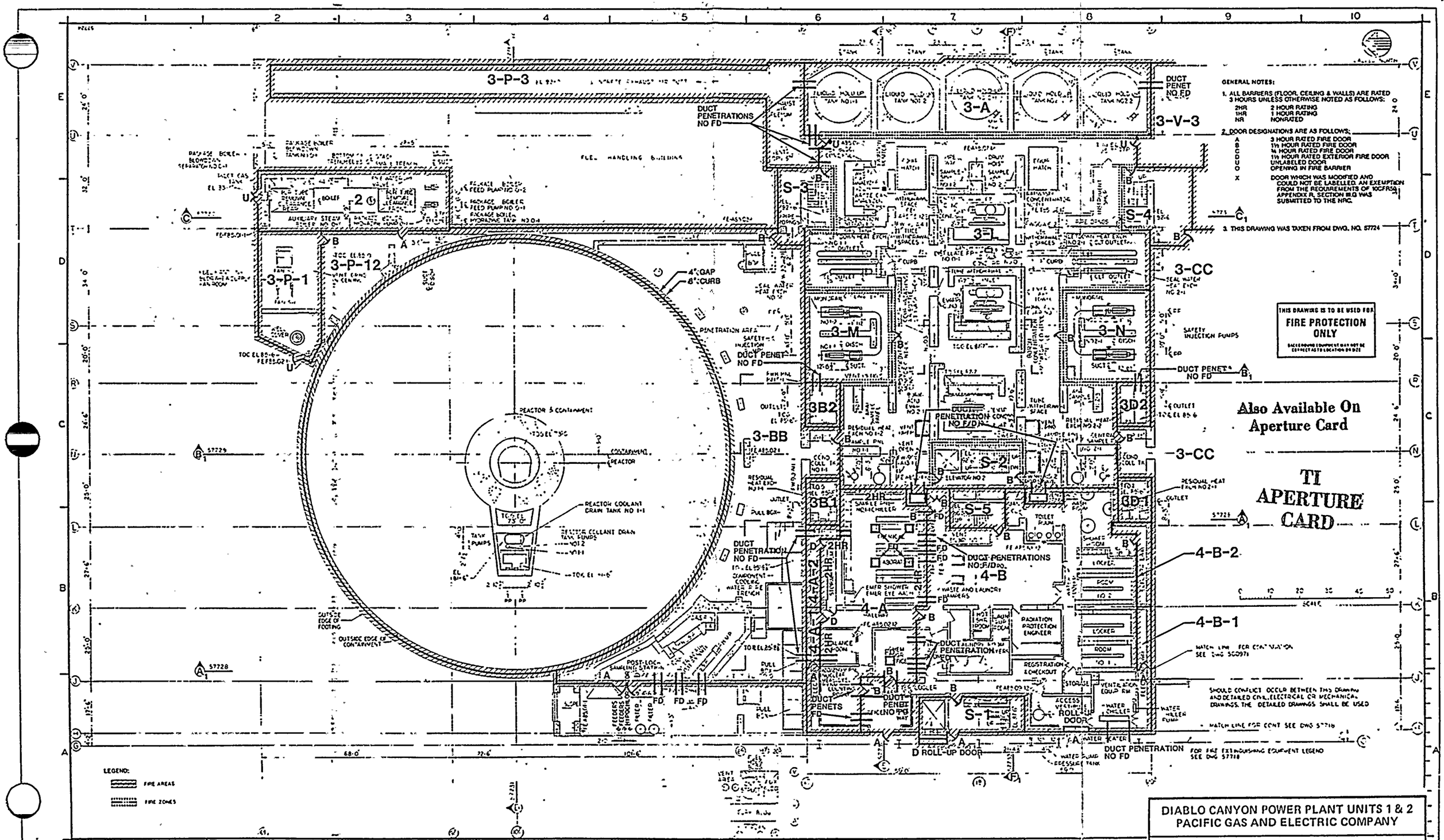
0' 10' 20' 30' 40' 50'
SCALE

DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 75'

Figure 3-6

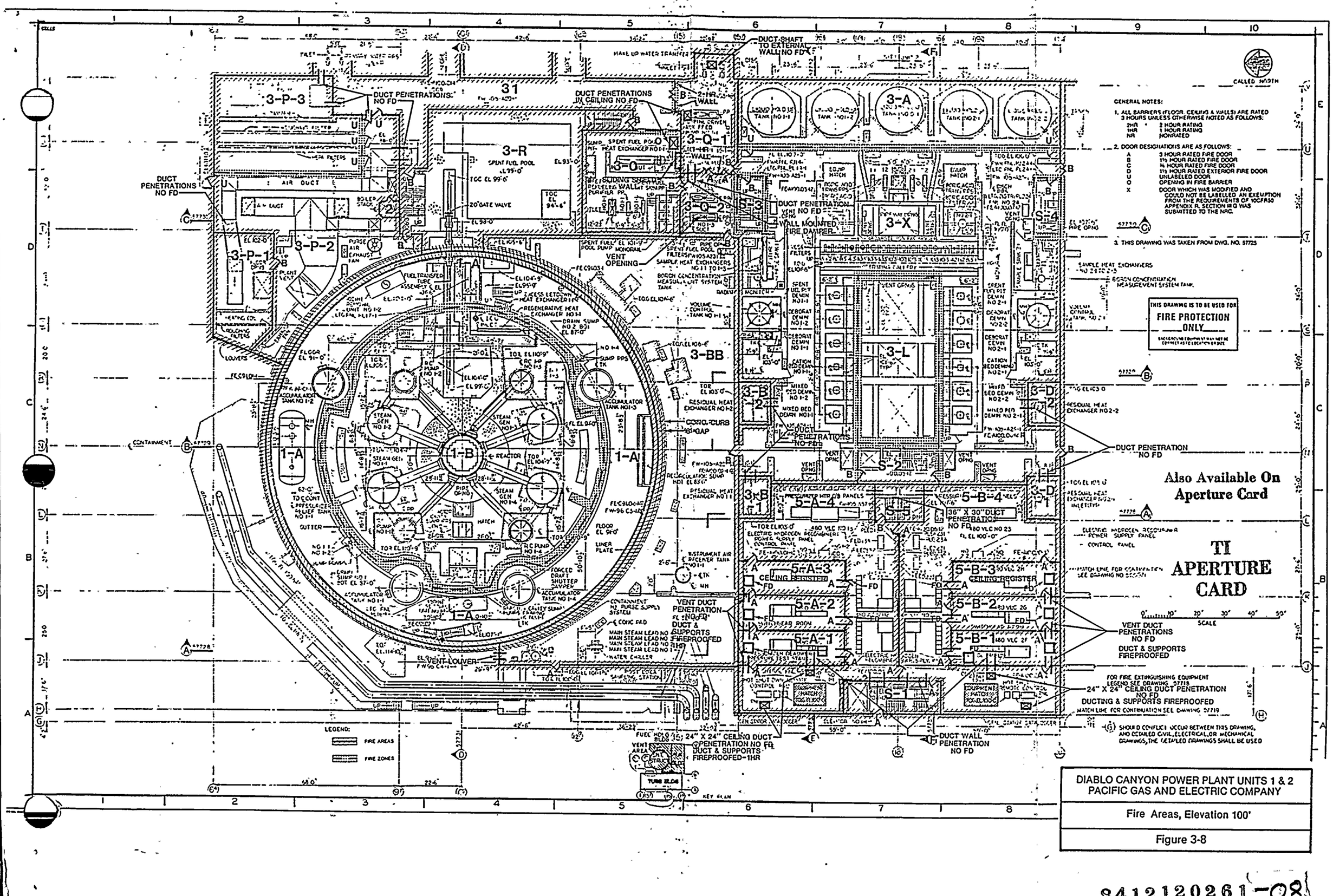
8412120261 -06



DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 85'

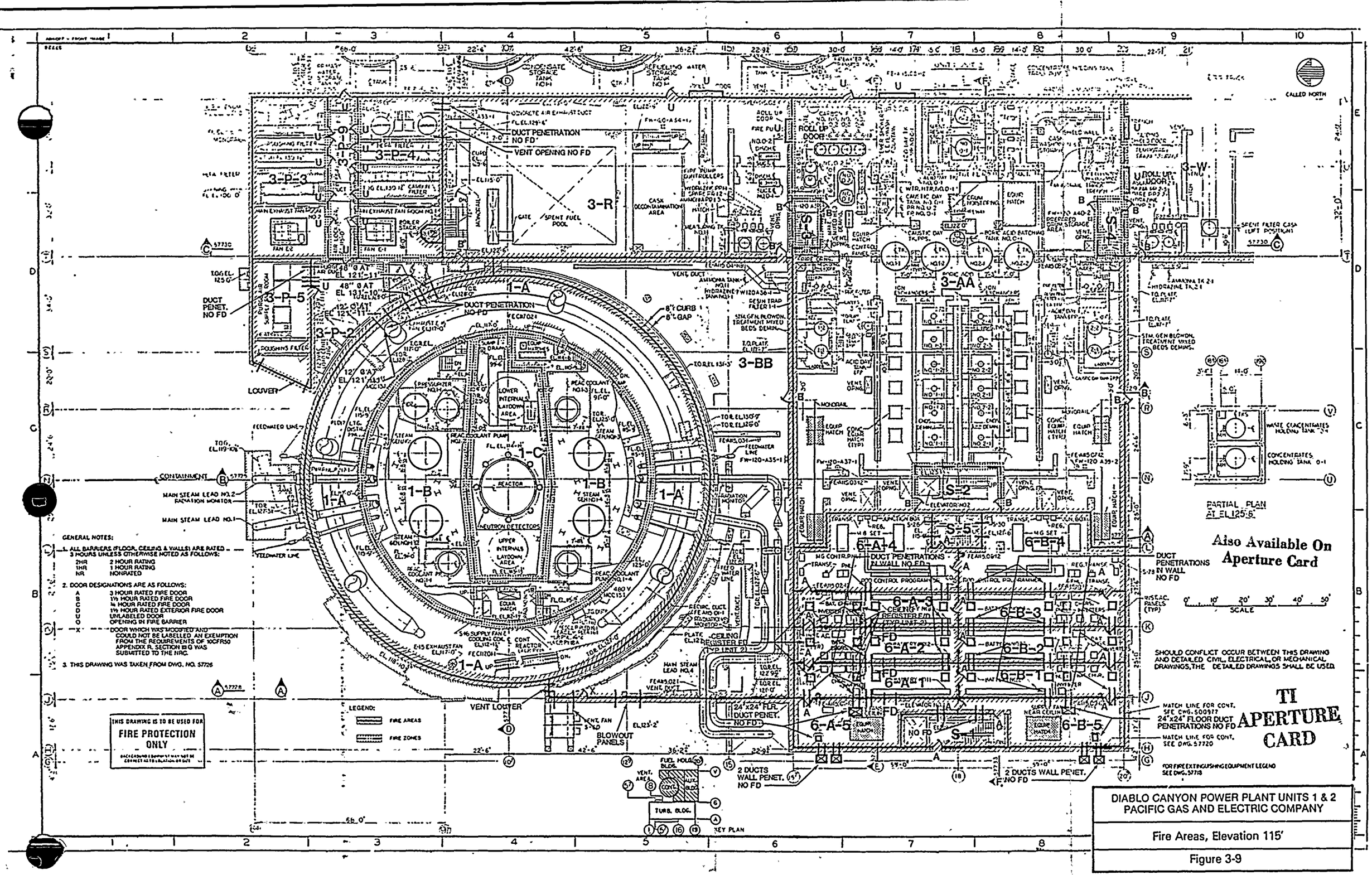
Figure 3-7



DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 100'

Figure 3-8



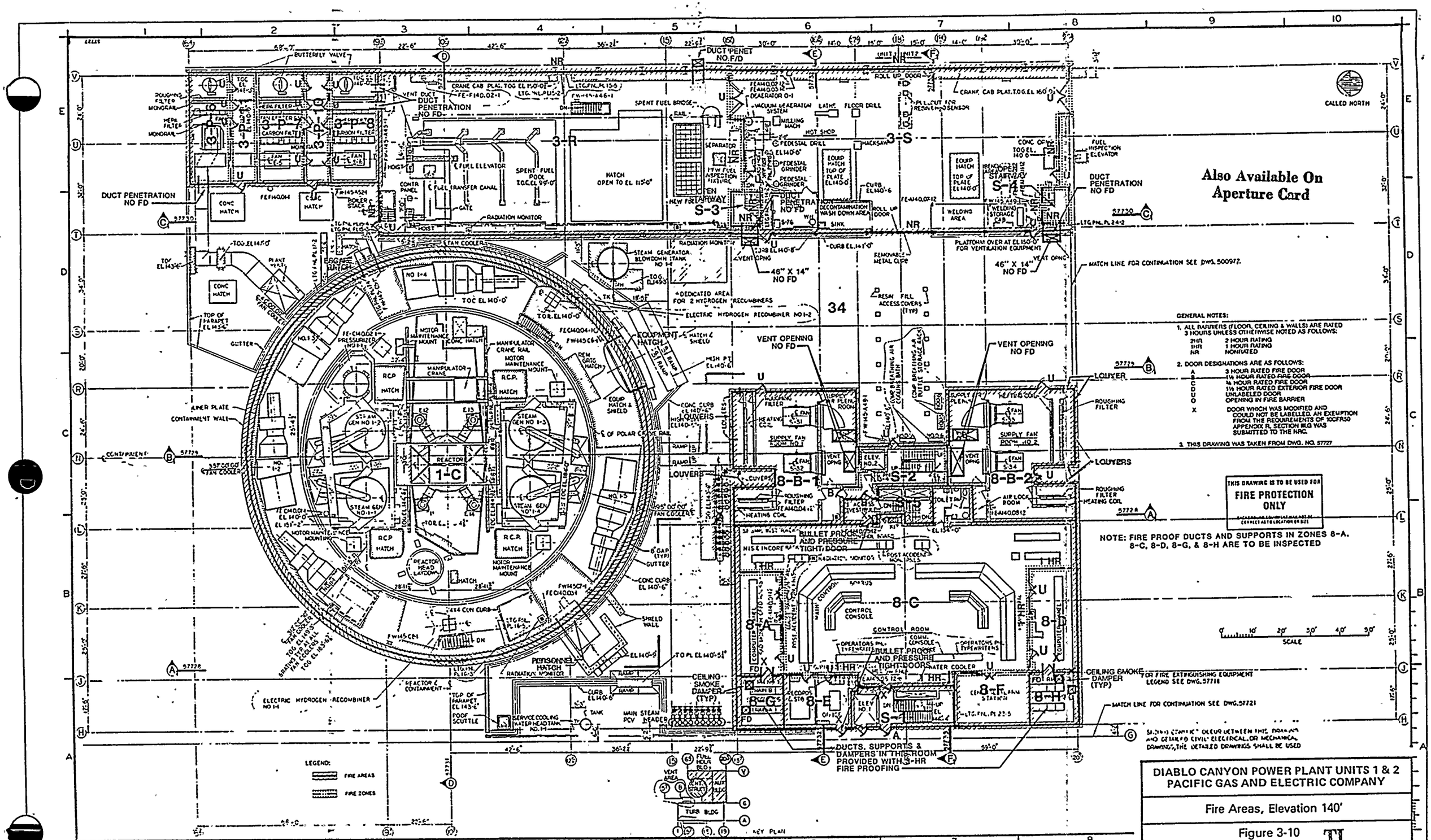
GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:
   - 2HR 2 HOUR RATING
   - 1HR 1 HOUR RATING
   - NR NONRATED
2. DOOR DESIGNATIONS ARE AS FOLLOWS:
   - A 3 HOUR RATED FIRE DOOR
   - B 1½ HOUR RATED FIRE DOOR
   - C ¾ HOUR RATED FIRE DOOR
   - D 1½ HOUR RATED EXTERIOR FIRE DOOR
   - U UNLABELED DOOR
   - O OPENING IN FIRE BARRIER
   - X DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED. AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III G WAS SUBMITTED TO THE NRC.
3. THIS DRAWING WAS TAKEN FROM DWG. NO. 57726

DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

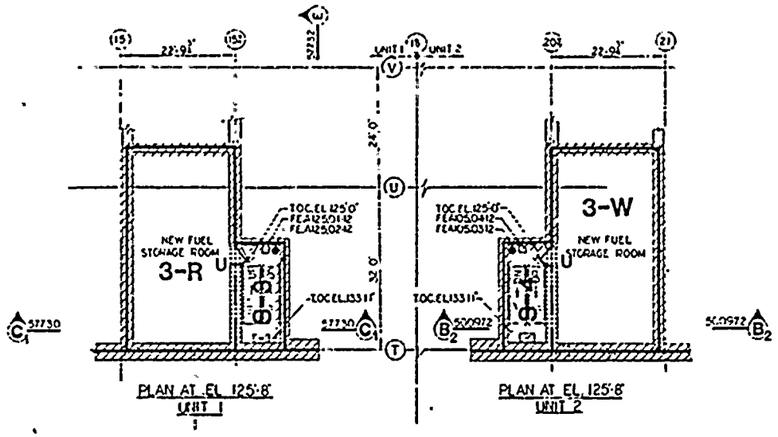
Fire Areas, Elevation 115'

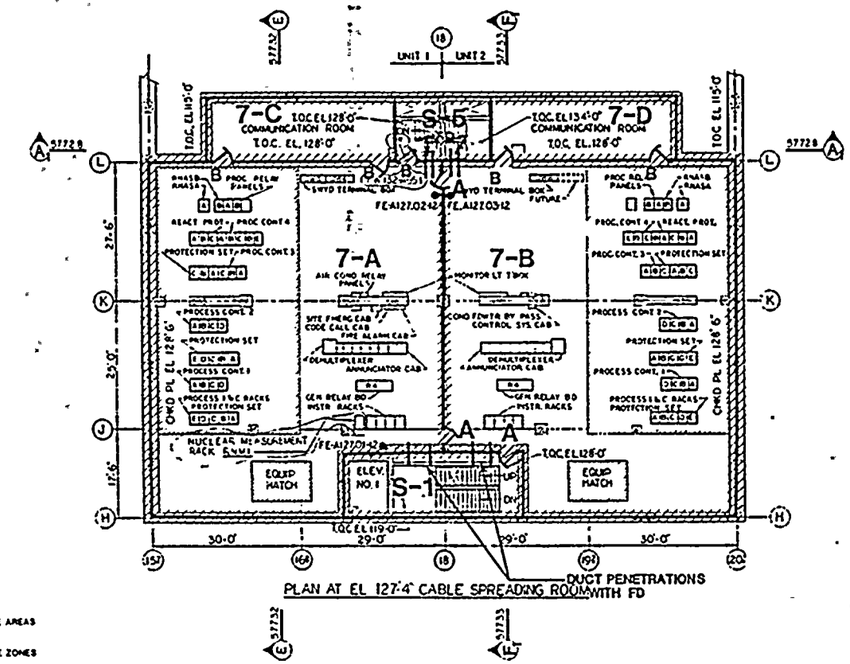
Figure 3-9

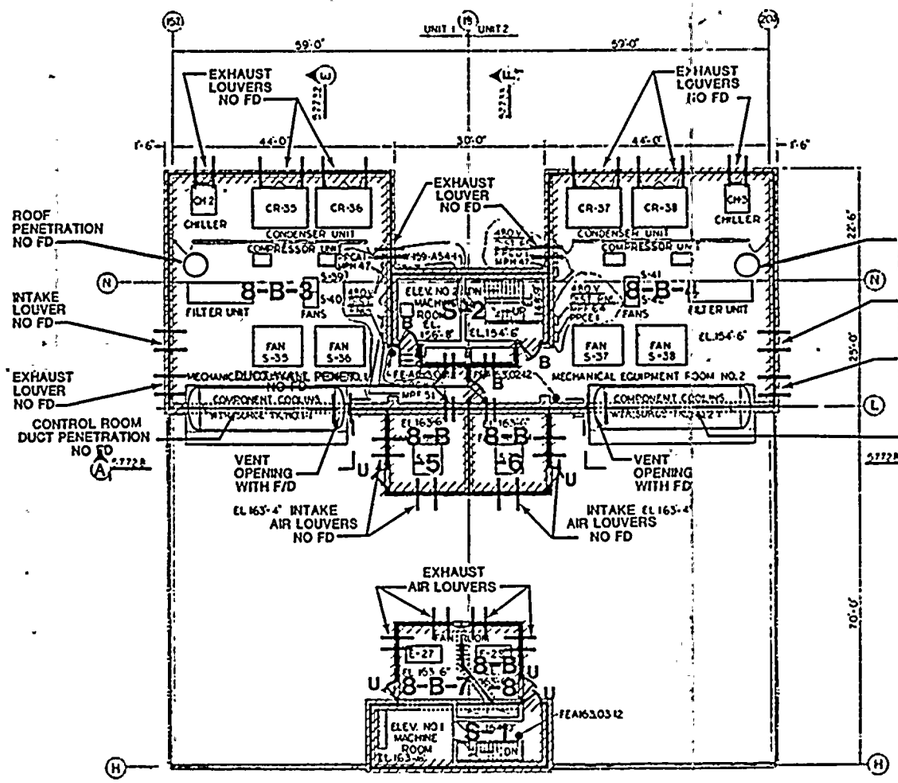


APERTURE CARD

8412120261-10







GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:
   - 2HR — 2 HOUR RATING
   - 1HR — 1 HOUR RATING
   - NR — NONRATED
2. DOOR DESIGNATIONS ARE AS FOLLOWS:
   - A — 3 HOUR RATED FIRE DOOR
   - B — 1½ HOUR RATED FIRE DOOR
   - C — ¾ HOUR RATED FIRE DOOR
   - D — 1½ HOUR RATED EXTERIOR FIRE DOOR
   - U — UNLABELED DOOR
   - O — OPENING IN FIRE BARRIER
   - X — DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED. AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III G WAS SUBMITTED TO THE NRC.
3. THIS DRAWING WAS TAKEN FROM DWG. NO. 57735

THIS DRAWING IS TO BE USED FOR
FIRE PROTECTION ONLY
BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

LEGEND:
- FIRE AREAS
- FIRE ZONES

Also Available On Aperture Card

TI APERTURE CARD

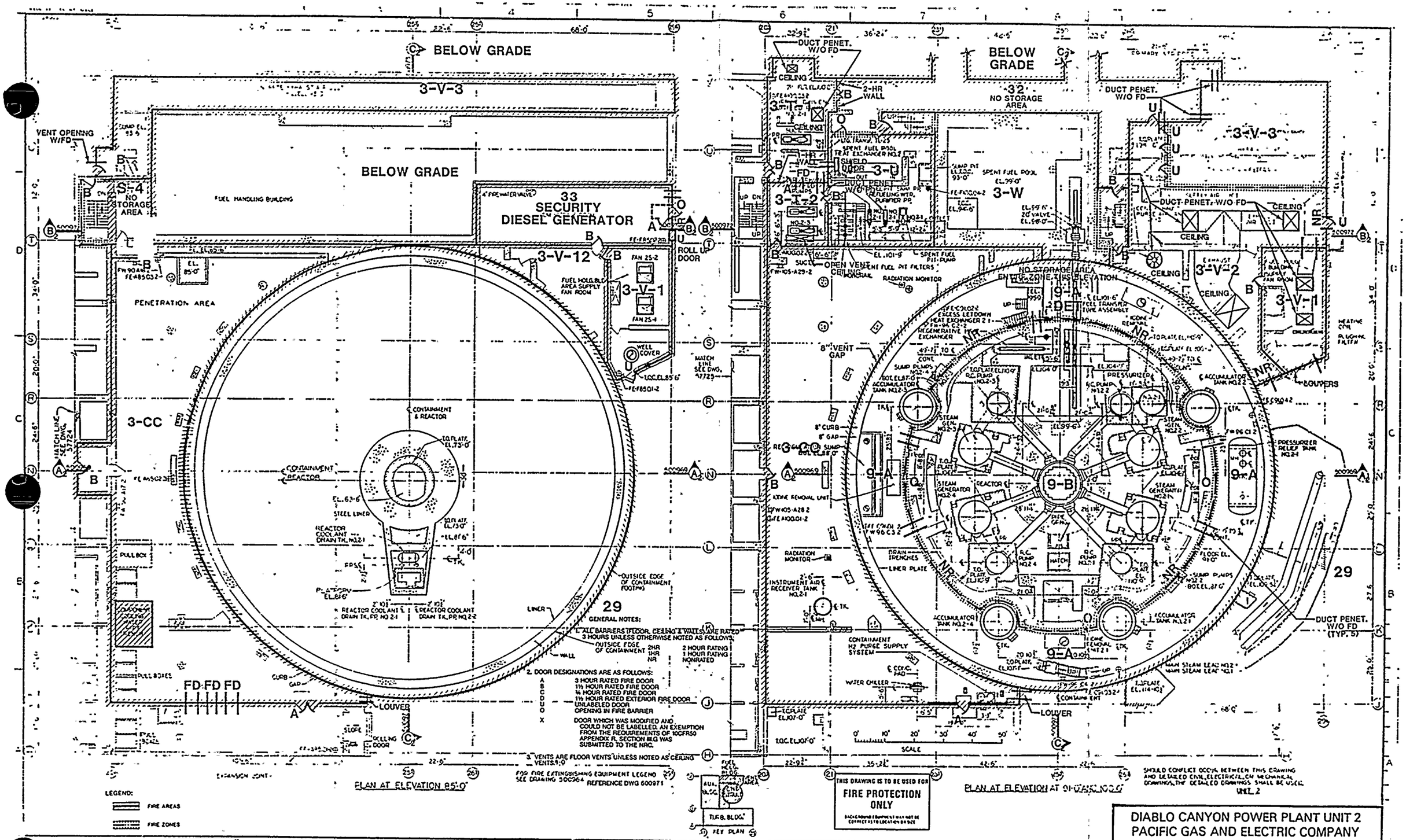
FOR FIRE EXTINGUISHING EQUIPMENT LEGEND SEE DWG. 57718

SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

0' 10' 20' 30' 40' 50' SCALE

DIABLO CANYON POWER PLANT UNITS 1 & 2 PACIFIC GAS AND ELECTRIC COMPANY
Fire Areas, Elevation 125'-8", 127'-4", & 163'-4"
Figure 3-11

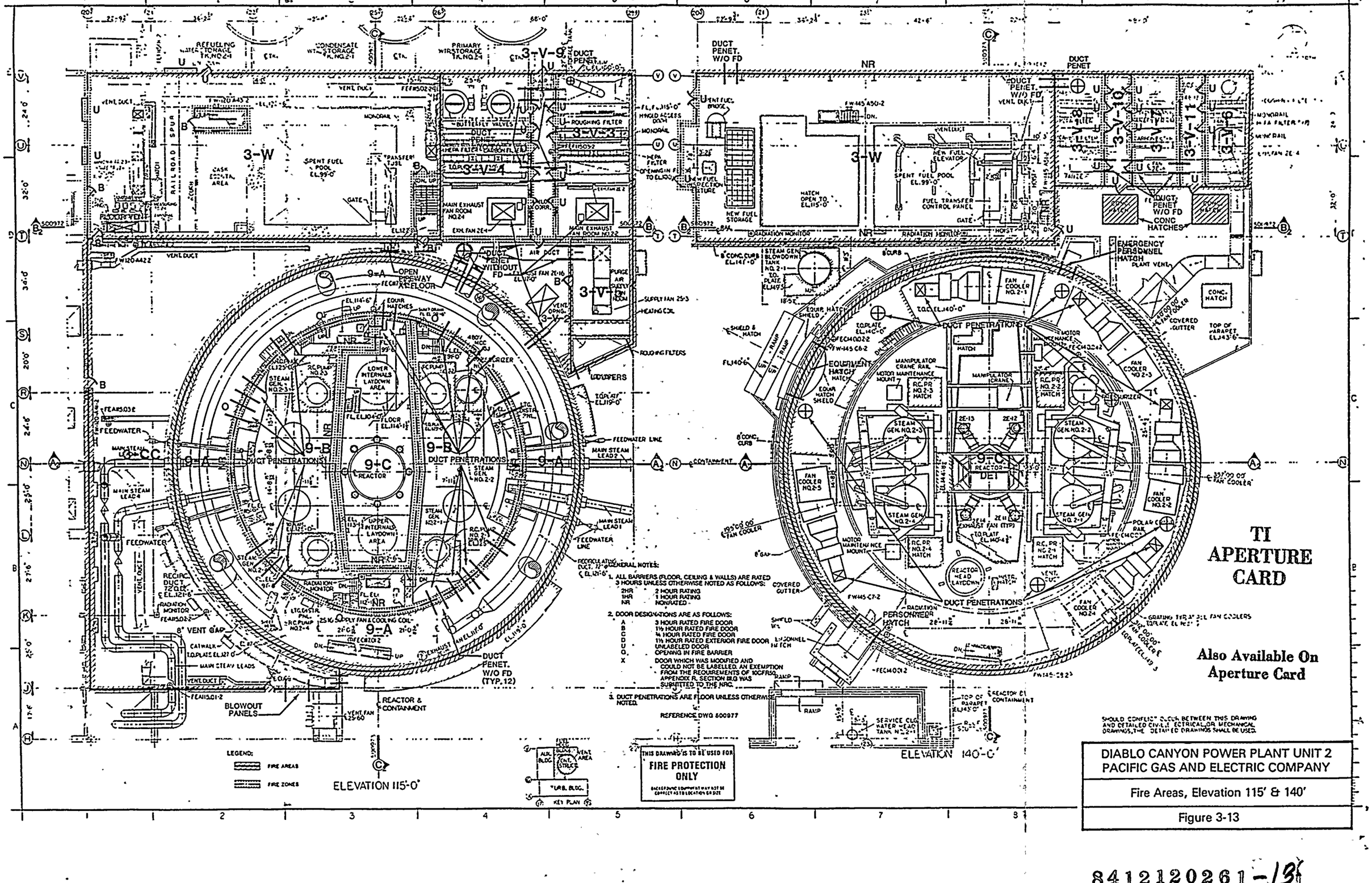
8412120261-11



DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 85' & 100'

Figure 3-12



TI APERTURE CARD

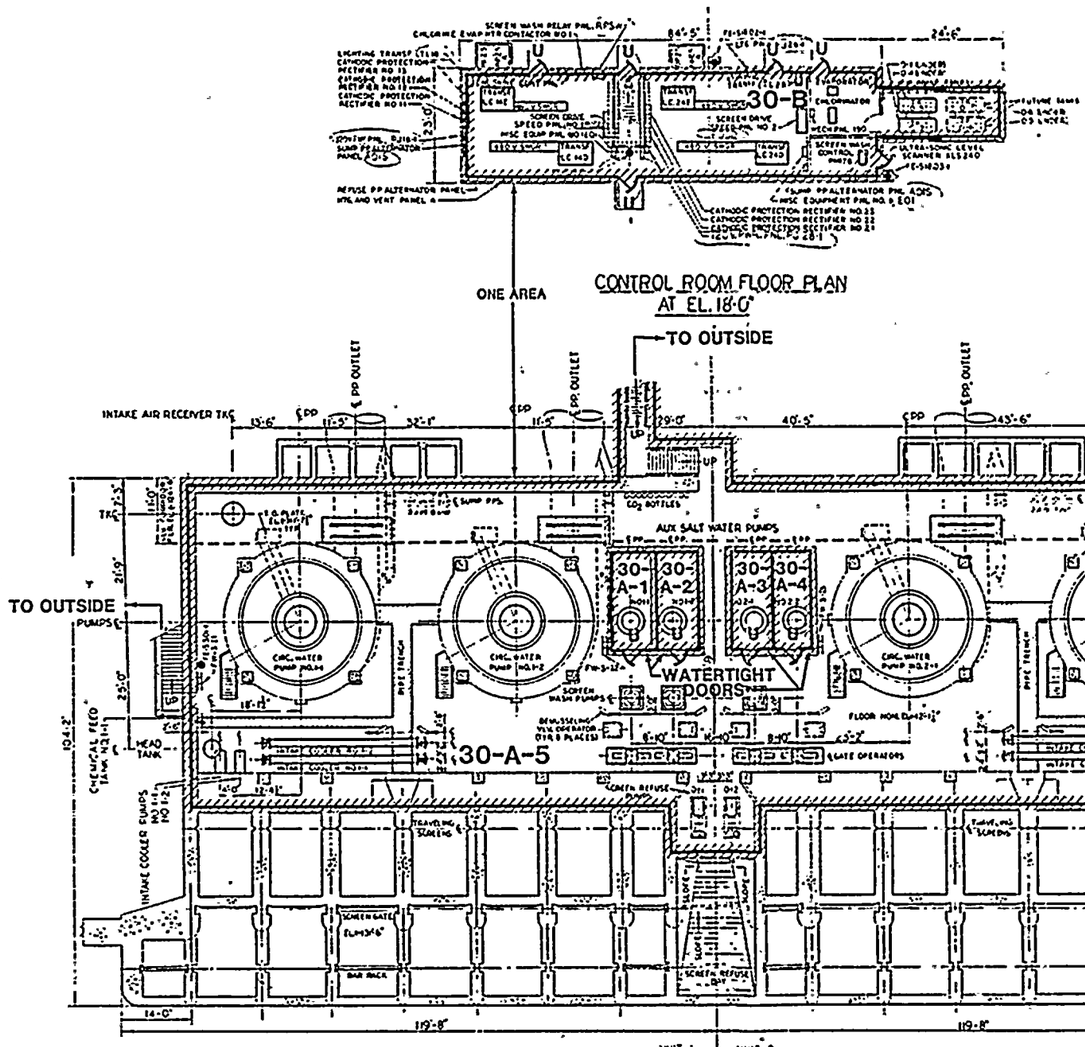
Also Available On Aperture Card

DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Elevation 115' & 140'

Figure 3-13

8412120261-13



CALLED NORTH

EQUIPMENT	ELEV
STRUCTURE SUMP PUMPS NO'S 1, 2	(-)12'-14"
INTAKE COOLERS 1, 2	(-)11'-10"
INTAKE COOLER PUMPS NO'S 1-1, 1-2	(-)12'-14"
COOLING WTR. STRS. TRAVELING SCREENS NO'S 1-1, 1-2	(-)12'-14"
SCREEN WASH PUMPS NO'S 1, 2	(-)10'-0"
CHEM. WASTE PUMPS NO'S 1, 2	(-)11'-10"
CHEMICAL FEED TANKS 1, 2	(-)10'-0"
AUX. SALT WTR. PUMPS NO'S 1, 2	(-)10'-0"
SCREEN WASH PUMPS NO'S 1, 2	(-)12'-14"

GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:
   - 2HR 2 HOUR RATING
   - 1HR 1 HOUR RATING
   - NR NONRATED
2. DOOR DESIGNATIONS ARE AS FOLLOWS:
   - A 3 HOUR RATED FIRE DOOR
   - B 1½ HOUR RATED FIRE DOOR
   - C ¾ HOUR RATED FIRE DOOR
   - D 1½ HOUR RATED EXTERIOR FIRE DOOR
   - U UNLABELED DOOR
   - O OPENING IN FIRE BARRIER
   - X DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED. AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III.G WAS SUBMITTED TO THE NRC.
3. THIS DRAWING WAS TAKEN FROM DWG. NO. 87729

Also Available On Aperture Card

TI APERTURE CARD

FOR FIRE EXTINGUISHING EQUIPMENT LEGEND SEE DWG. 57918

SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

0' 10' 20' 30' 40' 50'
SCALE

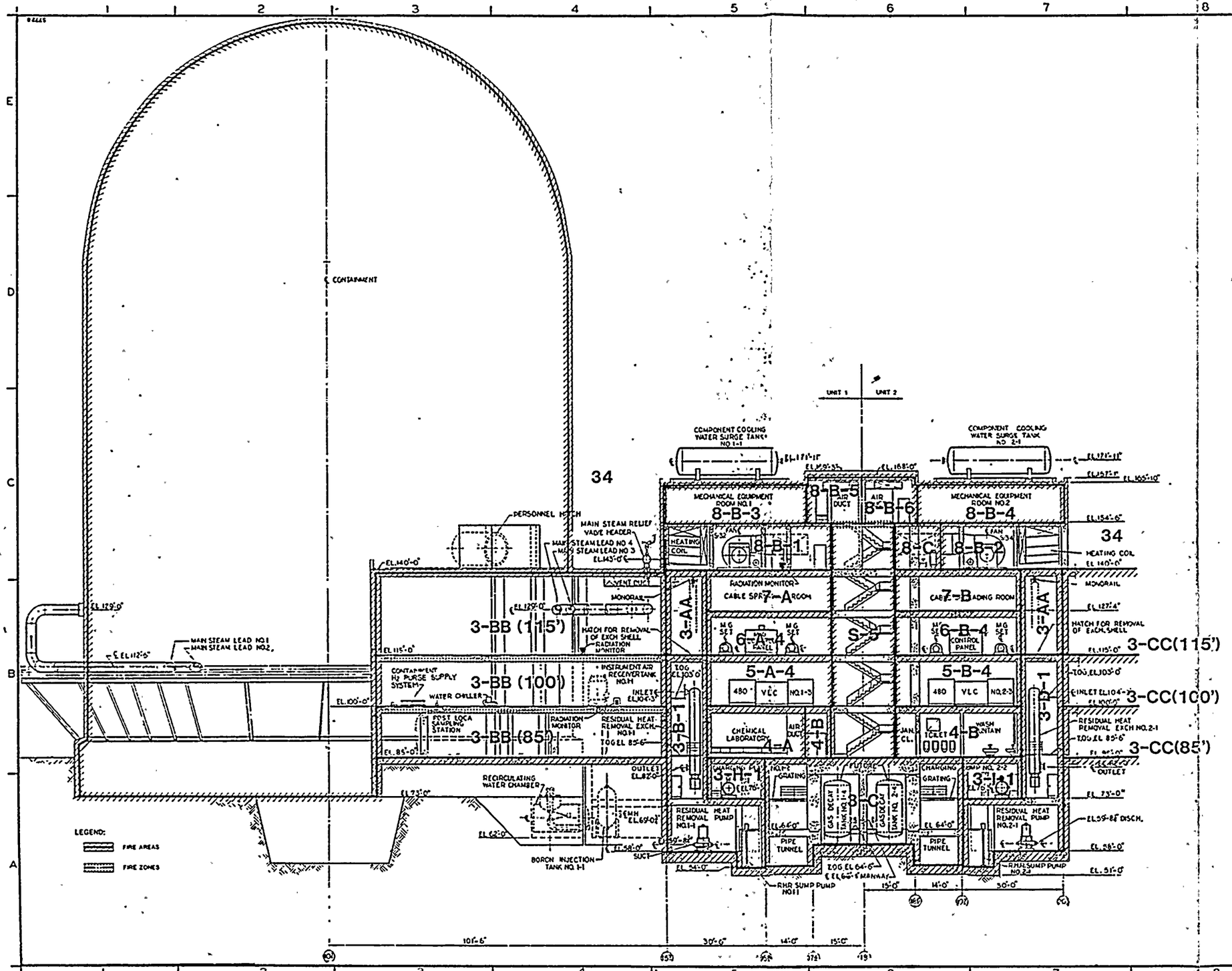
THIS DRAWING IS TO BE USED FOR
FIRE PROTECTION ONLY
BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Fire Areas, Intake Structure

Figure 3-14

8412120261-14



NOTE

1. THIS DRAWING WAS TAKEN FROM DWG. NO. 57728

Also Available On Aperture Card

TI APERTURE CARD

THIS DRAWING IS TO BE USED FOR FIRE PROTECTION ONLY

BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

SCALE 0' 10' 20' 30' 40' 50'

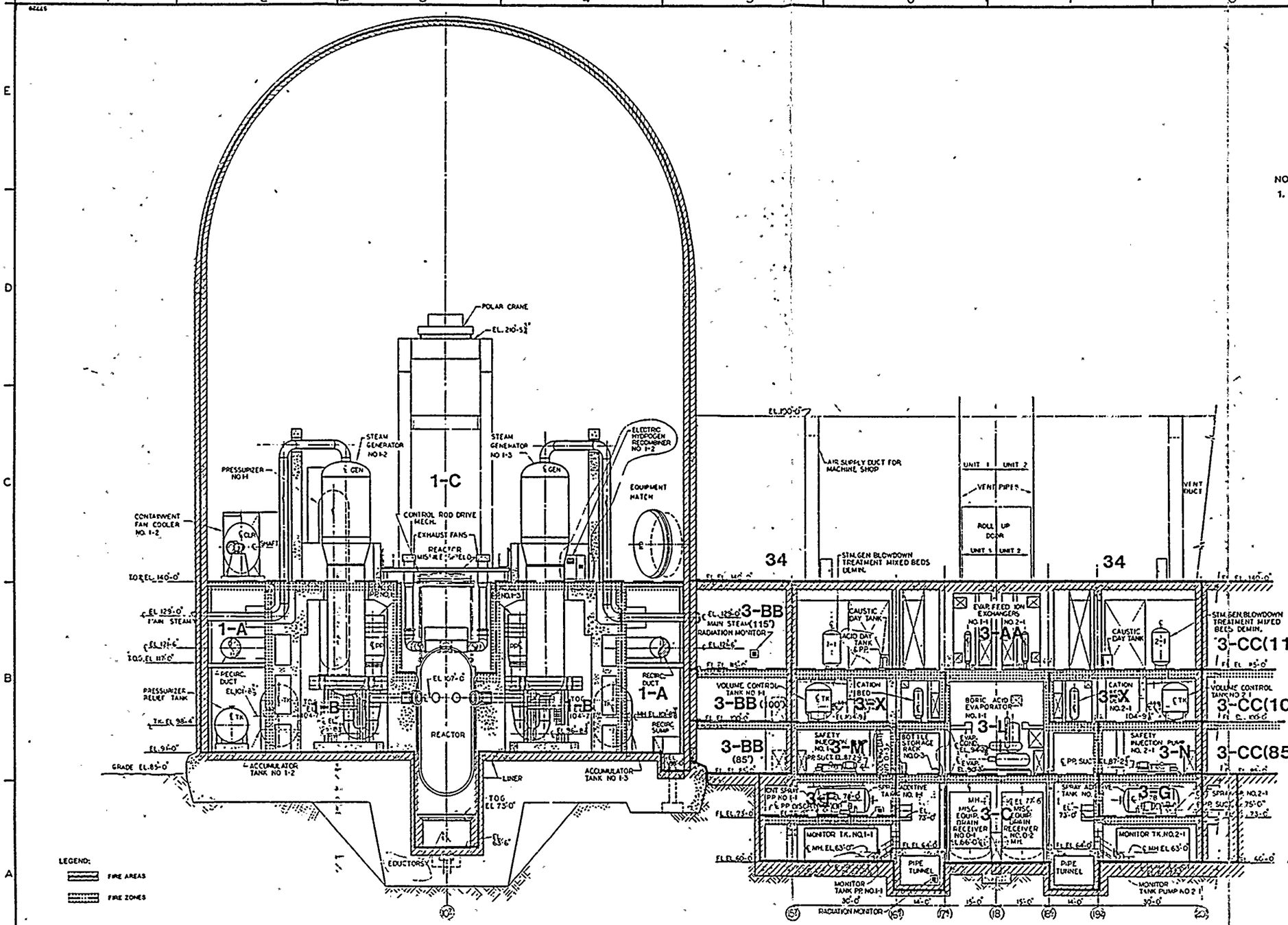
*OR FIRE EXTINGUISHING EQUIPMENT LEGEND SEE DRAWING NO 57728

SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Section A_1-A_1

Figure 3-15

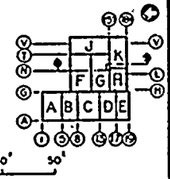


NOTE

1. THIS DRAWING WAS TAKEN FROM DWG. NO. 57729

TI APERTURE CARD

Also Available On Aperture Card



SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED

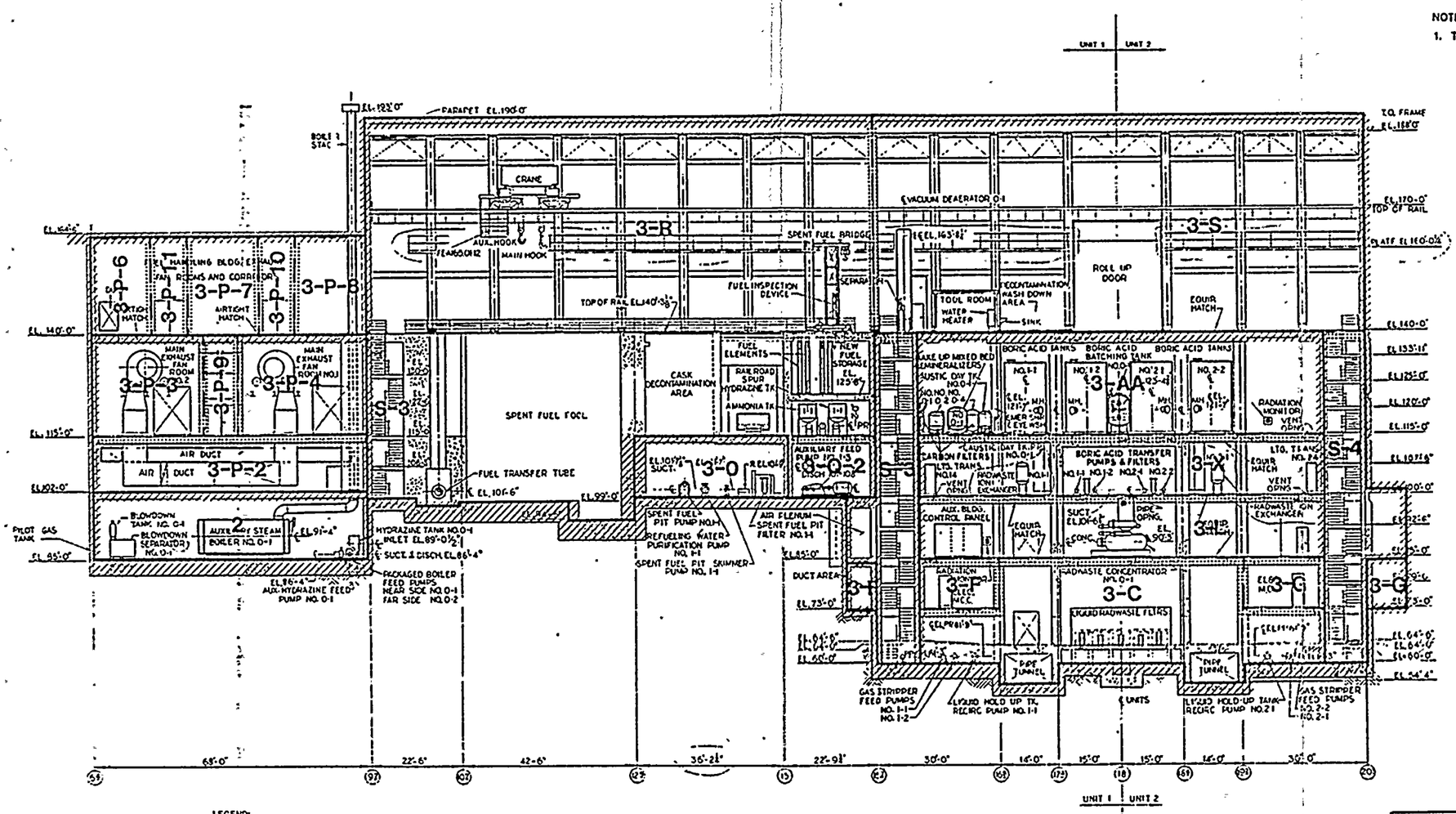
THIS DRAWING IS TO BE USED FOR **FIRE PROTECTION ONLY**

BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Section B_1-B_1
Figure 3-16

8412120261 -16

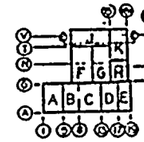


NOTE

1. THIS DRAWING WAS TAKEN FROM DWG. NO. 57730

TI APERTURE CARD

Also Available On Aperture Card



SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DWGS, THE DETAILED DRAWINGS SHALL BE USED.

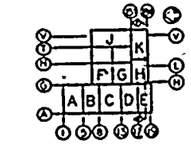
DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Section C_1-C_1

Figure 3-17

8412120261-17

NOTE
1. THIS DRAWING WAS TAKEN FROM DWG. NO. 57733



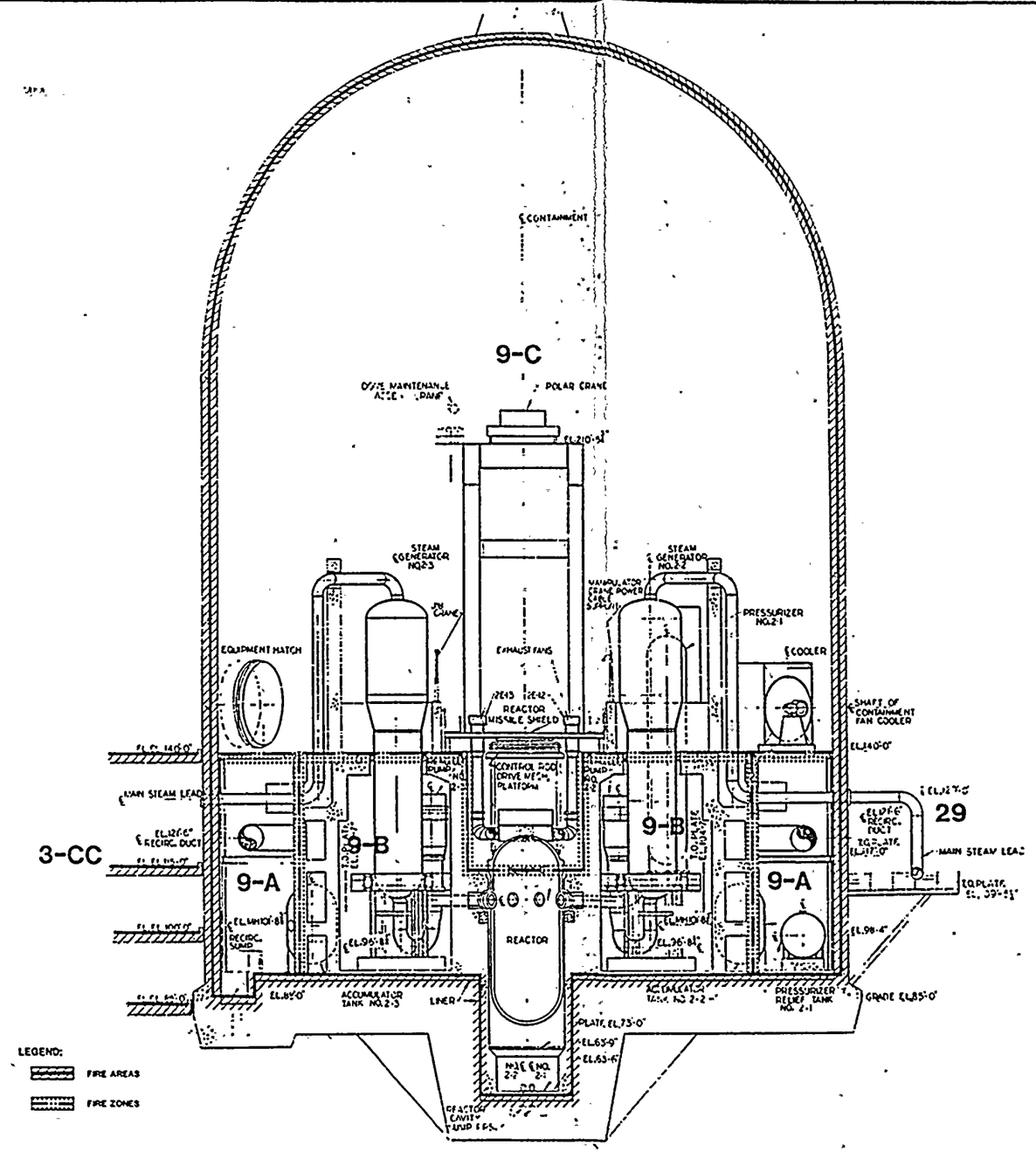
THIS DRAWING IS TO BE USED FOR
FIRE PROTECTION
ONLY

SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING, AND DETAILED CIVIL, ELECTRICAL OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

0' 10' 20' 30' 40' 50'
SCALE

DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Section F_1-F_1
Figure 3-18



NOTE
1. THIS DRAWINGS WAS TAKEN FROM DWG. NO. 500969

SCALE

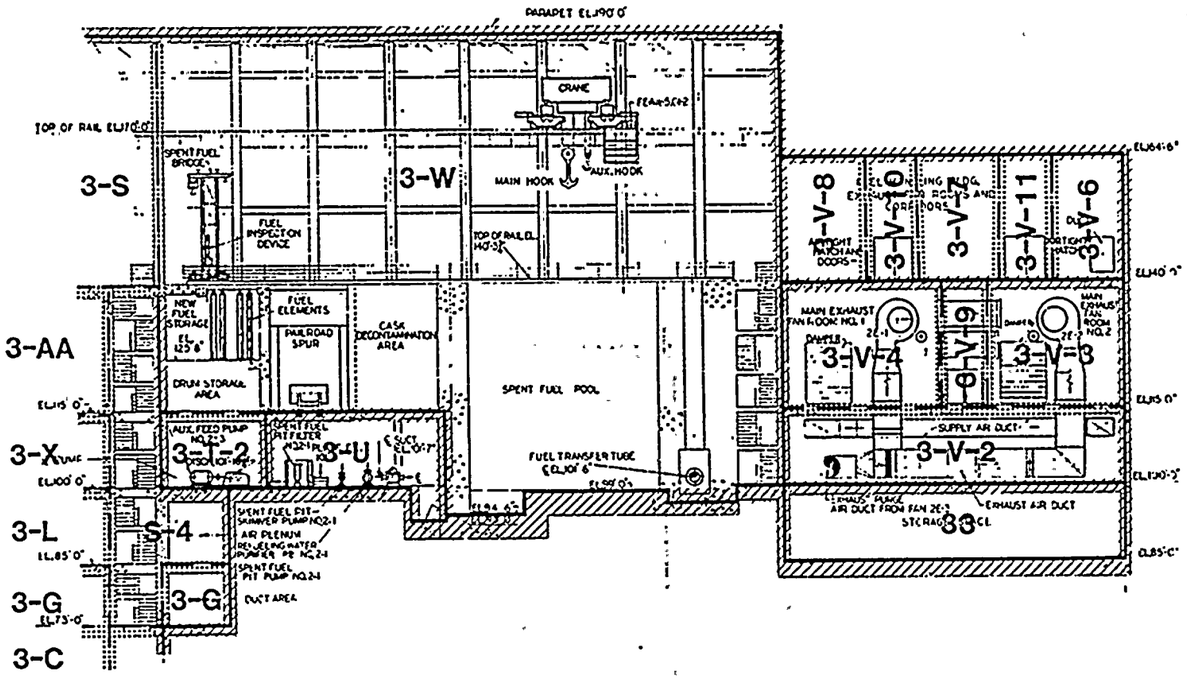
SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWING SHALL BE USED.

DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

Section A_2-A_2

Figure 3-19

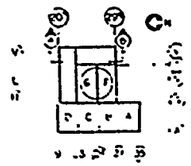
NOTE
1. THIS DRAWING WAS TAKEN FROM DWG. NO. 500972



LEGEND:
- FIRE AREAS
- FIRE ZONES

TI APERTURE CARD

Also Available On Aperture Card



SHOULD CONFLICT OCCUR BETWEEN THIS "E-MAP" AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

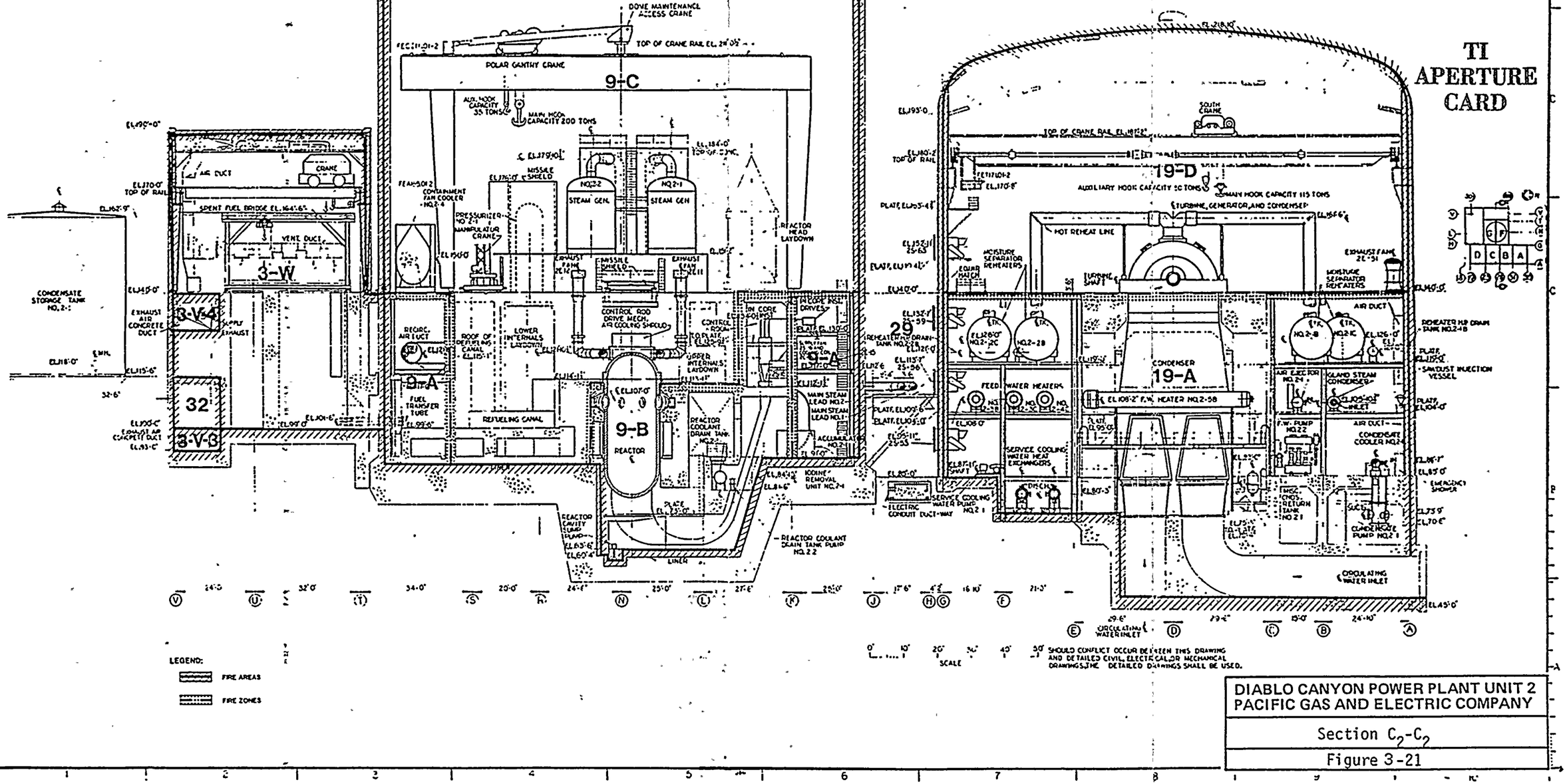
Section B_2-B_2

Figure 3-20

NOTE
1. THIS DRAWING WAS TAKEN FROM DWG. NO. 500973

Also Available On Aperture Card

TI APERTURE CARD



DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

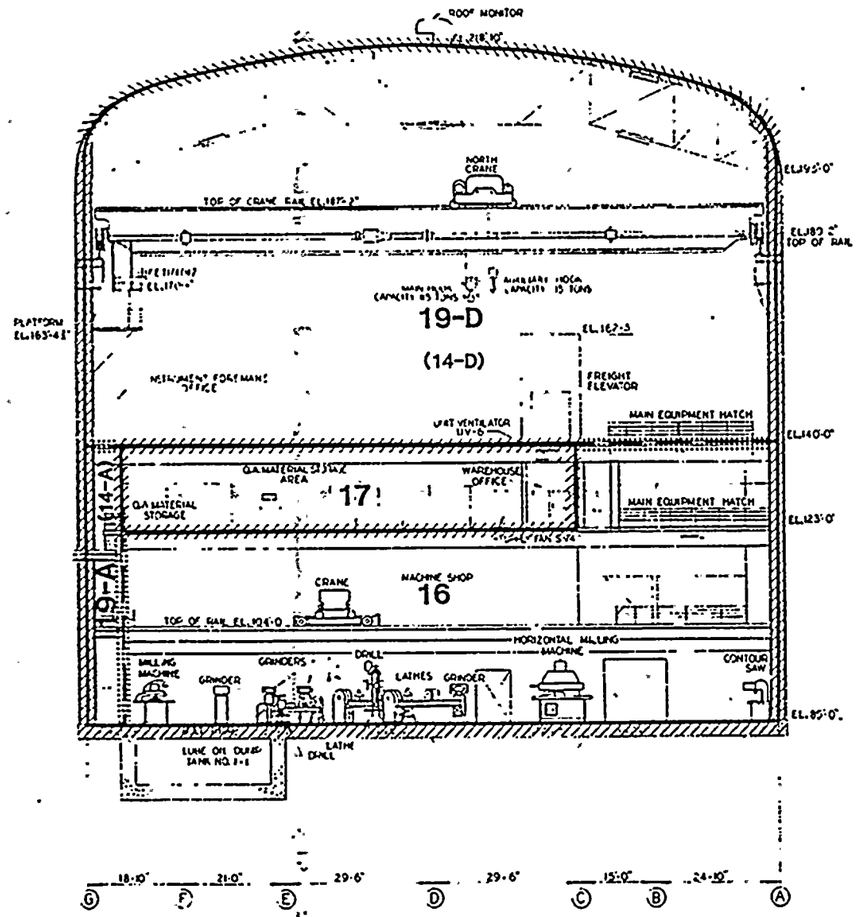
Section C_2-C_2

Figure 3-21

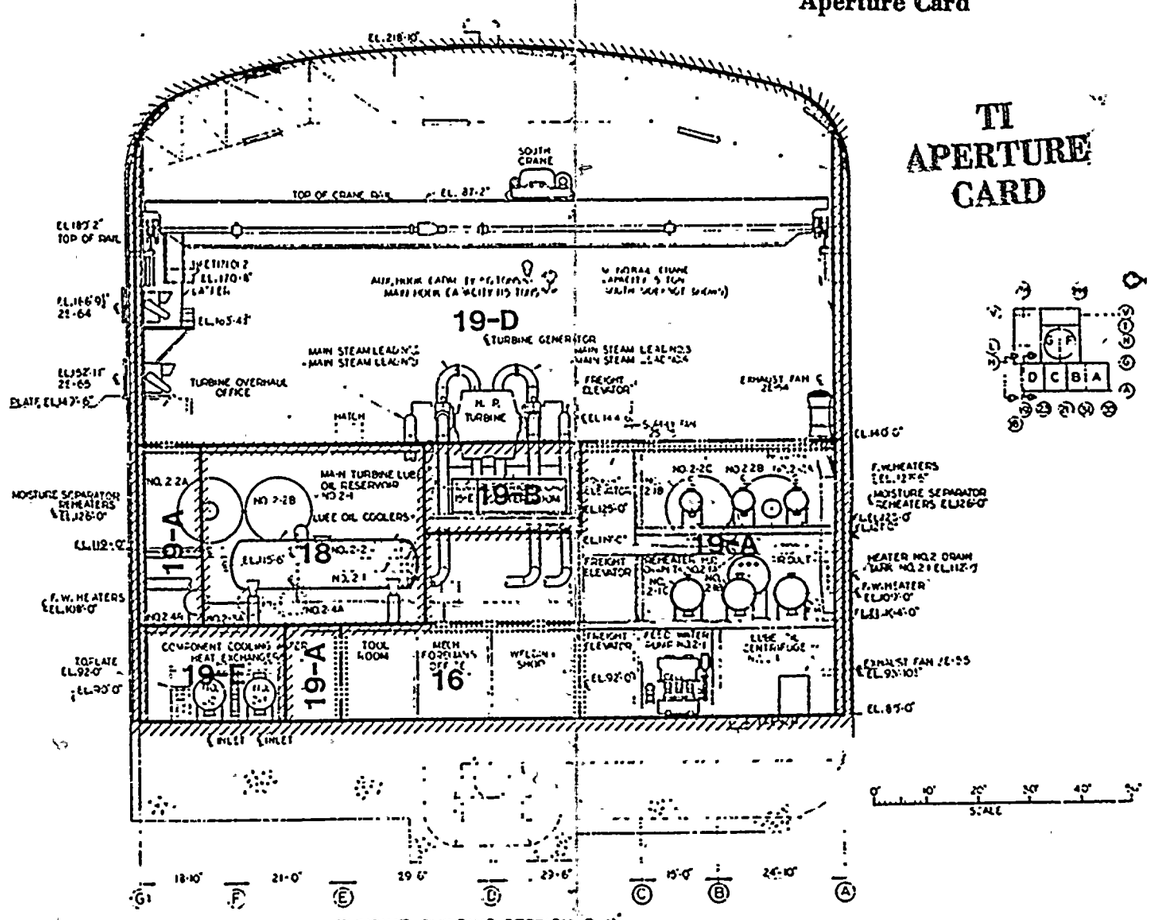
NOTE
1. THIS DRAWING WAS TAKEN FROM DWG. NO. 500974

Also Available On Aperture Card

TI APERTURE CARD



TURBINE BUILDING SECTION E-E



TURBINE BUILDING SECTION D-D

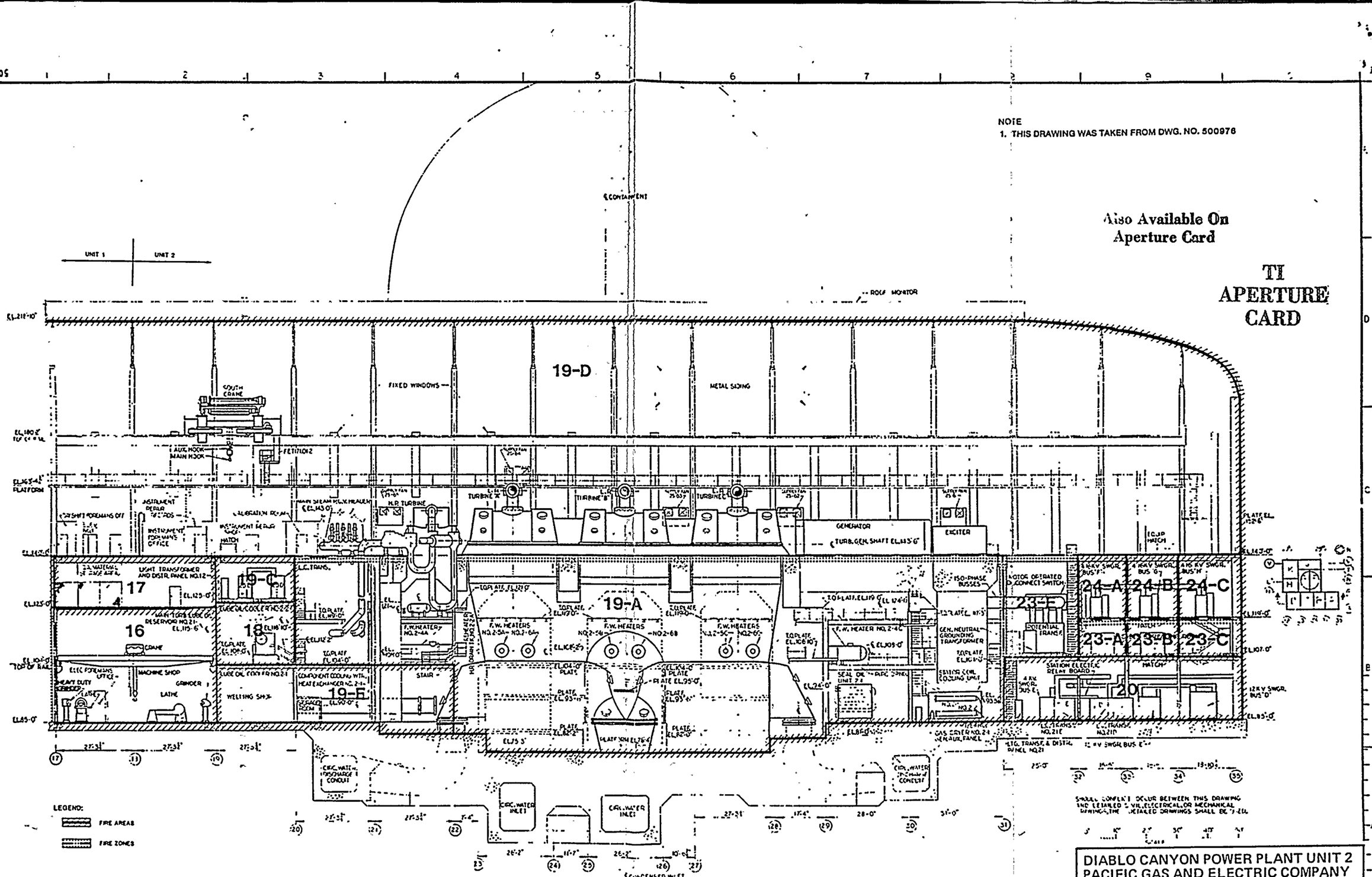
LEGEND:
- FIRE AREAS
- FIRE ZONES

WHERE CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED ELECTRICAL & MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

DIABLO CANYON POWER PLANT UNIT 2 PACIFIC GAS AND ELECTRIC COMPANY
Sections D_2-D_2 and E_2-E_2
Figure 3-22

8412120261 -22

NOTE
1. THIS DRAWING WAS TAKEN FROM DWG. NO. 500976

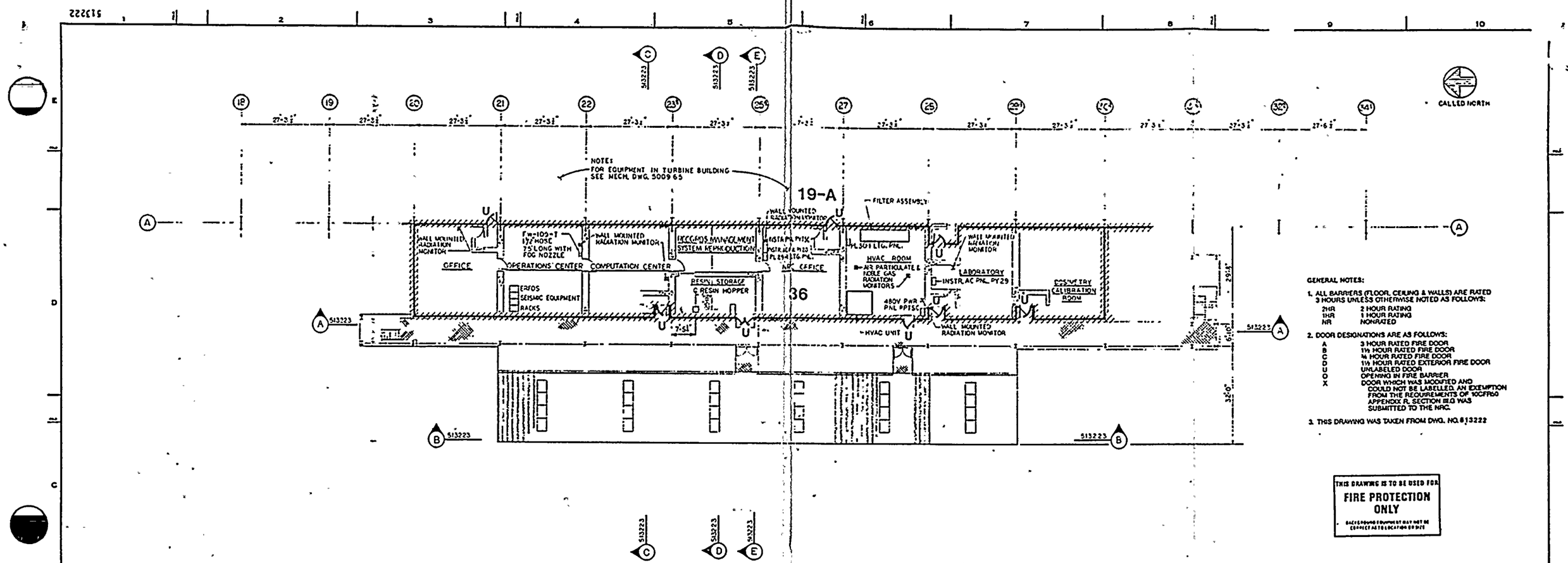


SHOULD CONFLICT OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE THE GUIDE.

DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

Section F_2-F_2

Figure 3-23



GENERAL NOTES:

1. ALL BARRIERS (FLOOR, CEILING & WALLS) ARE RATED 3 HOURS UNLESS OTHERWISE NOTED AS FOLLOWS:

2HR	2 HOUR RATING
1HR	1 HOUR RATING
NR	NONRATED

2. DOOR DESIGNATIONS ARE AS FOLLOWS:

A	3 HOUR RATED FIRE DOOR
B	1½ HOUR RATED FIRE DOOR
C	¾ HOUR RATED FIRE DOOR
D	1½ HOUR RATED EXTERIOR FIRE DOOR
U	UNLABELED DOOR
O	OPENING IN FIRE BARRIER
X	DOOR WHICH WAS MODIFIED AND COULD NOT BE LABELLED. AN EXEMPTION FROM THE REQUIREMENTS OF 10CFR50 APPENDIX R, SECTION III.G WAS SUBMITTED TO THE NRC.

3. THIS DRAWING WAS TAKEN FROM DWG. NO. 513222

THIS DRAWING IS TO BE USED FOR
FIRE PROTECTION ONLY
- BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

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SHOULD SCANTLY OCCUR BETWEEN THIS DRAWING AND DETAILED CIVIL, ELECTRICAL, OR MECHANICAL DRAWINGS, THE DETAILED DRAWINGS SHALL BE USED.

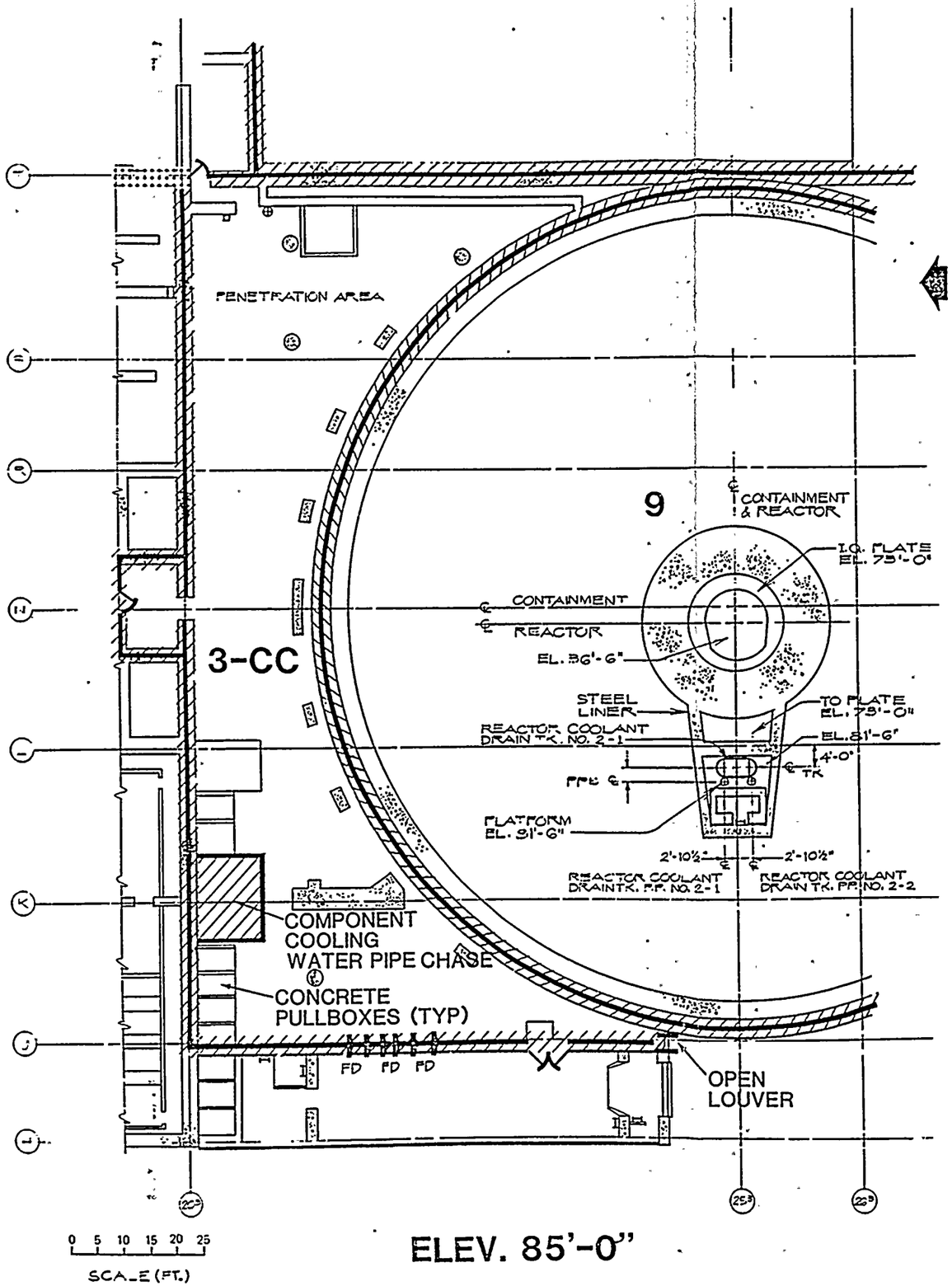
FOR FIRE EXTINGUISHING EQUIPMENT LEGEND SEE DWG 57718

DIABLO CANYON POWER PLANT UNITS 1 & 2
PACIFIC GAS AND ELECTRIC COMPANY

Technical Support Center

Figure 3-24

8412120261 -24



ELEV. 85'-0"

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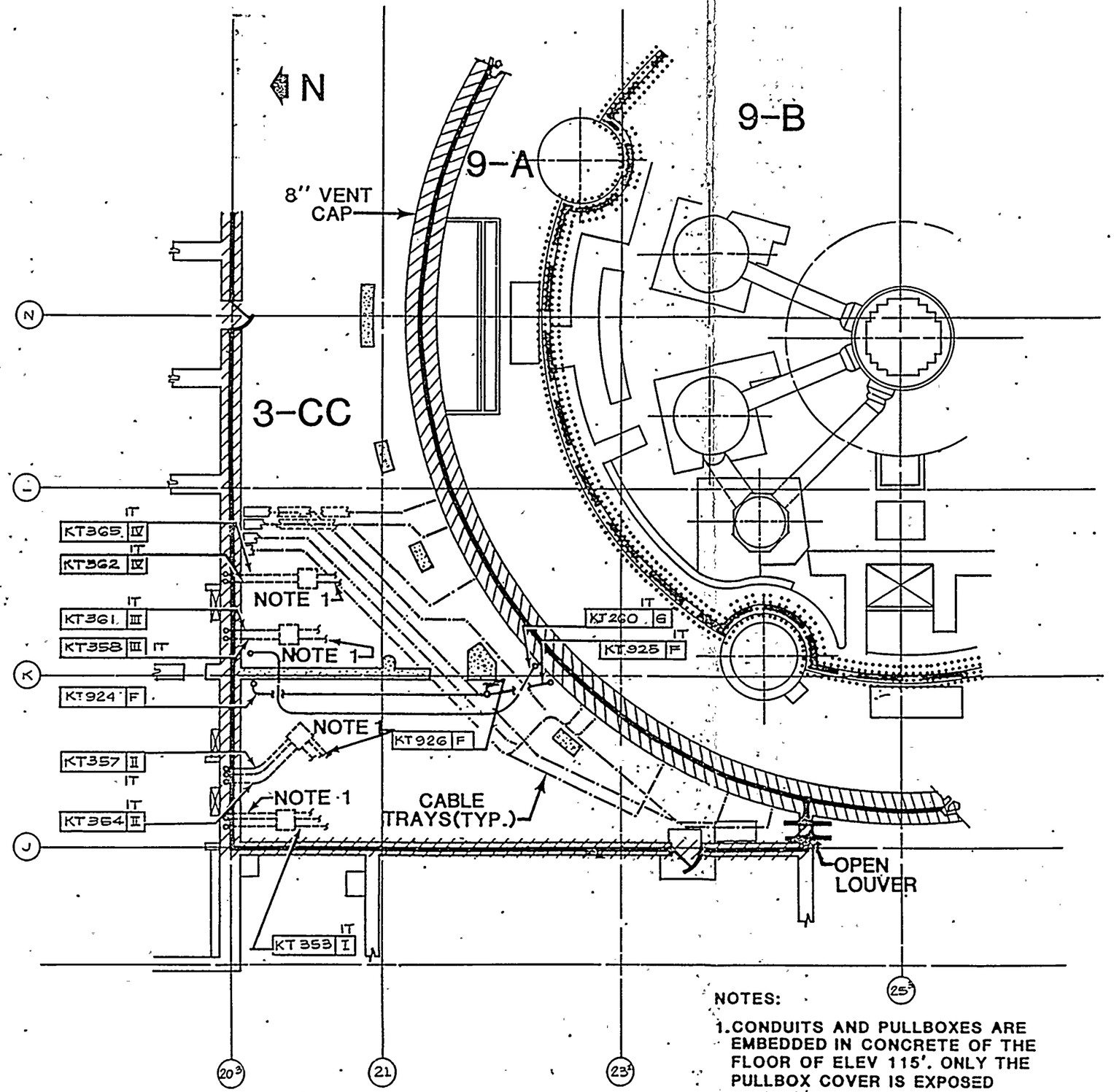
BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

Also Available On Aperture Card

TI
PERTURE
CARD

DIABLO CANYON POWER PLANT UNIT 2 PACIFIC GAS AND ELECTRIC COMPANY
Containment Penetration
Area - Elev. 85' - Figure 3-25



0 5 10 15 20 25

SCALE (FT.)

ELEV. 100'

NOTES:

1. CONDUITS AND PULLBOXES ARE EMBEDDED IN CONCRETE OF THE FLOOR OF ELEV 115'. ONLY THE PULLBOX COVER IS EXPOSED TO THE ENVIRONMENT AT ELEVATION 100'.

THIS DRAWING IS TO BE USED FOR

FIRE PROTECTION ONLY

BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

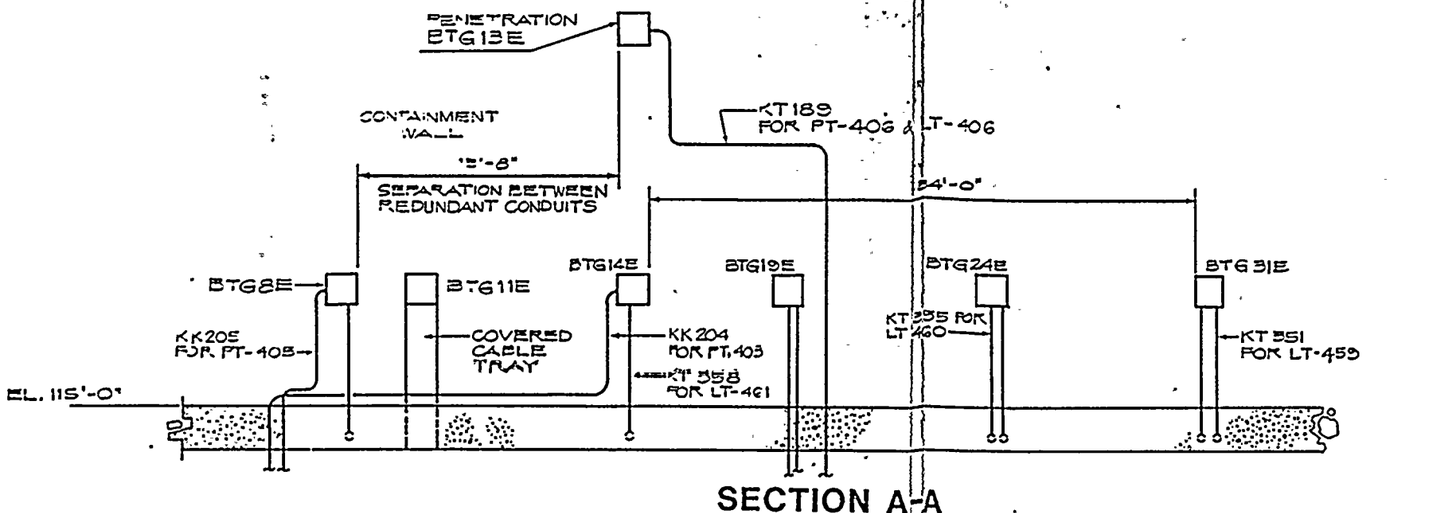
Also Available On Aperture Card

TI APERTURE CARD

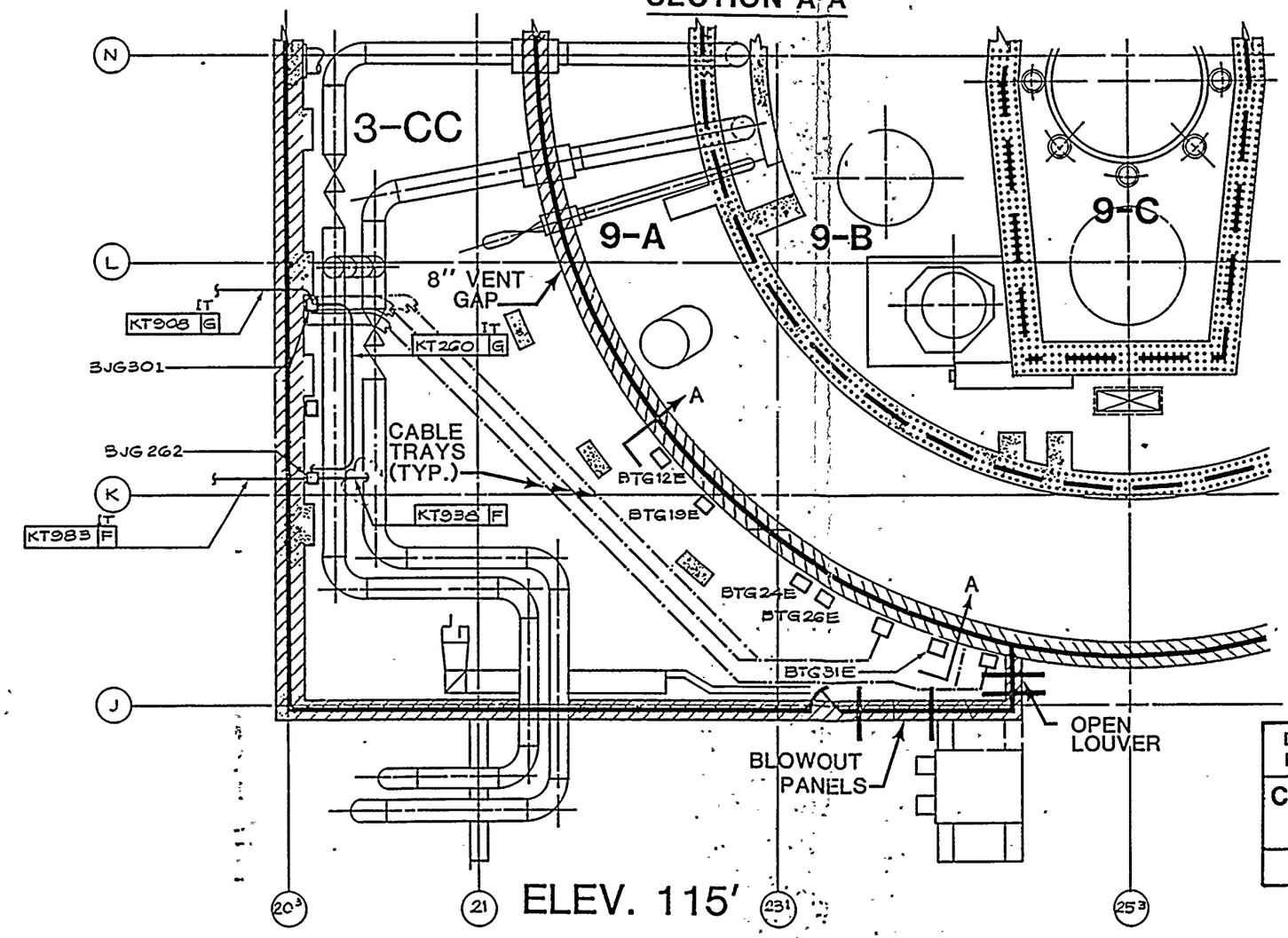
DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

CONTAINMENT PENETRATION AREA-ELEV.100'

FIGURE 3-26



SECTION A-A



ELEV. 115'

THIS DRAWING IS TO BE USED FOR
FIRE PROTECTION ONLY
BACKGROUND EQUIPMENT MAY NOT BE CORRECT AS TO LOCATION OR SIZE

Also Available On Aperture Card

TI APERTURE CARD

DIABLO CANYON POWER PLANT UNIT 2
PACIFIC GAS AND ELECTRIC COMPANY

CONTAINMENT PENETRATION AREA-ELEV. 115'

FIGURE 3-27

4.0 EMERGENCY LIGHTING CAPABILITY AND EVALUATION TO APPENDIX R, SECTION III.J

4.1 Emergency Lighting System Description

The emergency lighting system at DCPP consists of three independent systems:

- Emergency ac Lighting System, 120V ac

  The emergency ac lighting system is continuously energized. On loss of normal power supply to the vital G and H buses, the emergency diesel generators will start and pick up load in ten seconds. The emergency ac lighting system will then be powered continuously by the emergency diesel generators.

- Emergency dc Lighting System, 125V dc

  The 125V dc emergency lighting system is energized instantly upon loss of the emergency ac lighting system and is de-energized, after a five-second time delay, on return of power supply to the emergency ac lighting system. These lights are powered from the nonvital station batteries and will provide sufficient emergency lighting for at least one hour.

- Emergency Self-Contained Lighting, Sealed Beam Lights with 8-hour Battery Supply

  The emergency self-contained lighting units are located in various strategic areas of the plant which require lighting during safe shutdown. This lighting is either supplemental or additional to the emergency lighting system, so that adequate light would still be available should damage occur to either the emergency lighting circuits or the normal lighting circuits serving a particular area. The emergency self-contained lights are energized upon failure of the associated ac lighting system (either normal or emergency lighting) and subsequently de-energized when the associated ac lighting system is returned to service.

The fire area/zones required for safe shutdown presently served by the emergency self-contained light units are as follows:

	Fire Area (Zone)
Control Room	CR-1 (8-C)
Battery Rooms	6-B-1, 6-B-2, 6-B-3
Cable Spreading Rooms	7-B
Hot Shutdown Panel	5-B-4
4kV Vital Switchgear Rooms	TB-10 (24-A), TB-11 (24-B) TB-12 (24-C)
Diesel Generator Rooms	TB-8 (22-A-1), TB-9 (22-B-1)
(Unit 1)	TB-3 (11-C-1)
Dedicated Shutdown Instrument Panel	3-CC, Elevation 100
480V Vital Switchgear Rooms	5-B-1, 5-B-2, 5-B-3

In addition to the above three lighting systems, security perimeter lighting is available and is fed from the security diesel generator on loss of offsite power.

4.2 Method of Evaluation

The review for compliance with 10CFR50, Section III.J, was accomplished by reviewing those fire zones/areas that contained redundant safe shutdown circuits or components. Failure of redundant safe shutdown components/circuits in each of these zones/areas may require the control room operator to take manual action at a remote location. This location may be either in an area where a fire is postulated or in an area unaffected by the single fire. In either case, emergency lighting is needed for access and egress routes to that remote location from the control room. Generally, if a fire were to occur, the associated emergency ac lighting circuit, including feeder circuit that exists in the fire zone/area, was assumed to be lost. Loss of lighting circuits which may affect lighting in other zones/areas was also taken into consideration. This approach ensures that lighting along the entire access and egress route is accounted for when needed. If emergency ac lighting located in a postulated fire zone/area is needed, an evaluation was

made to determine if the emergency lighting circuit had adequate separation from the safe shutdown redundant circuits. This took into consideration distance, existing fire barriers, smoke detection, and sprinkler system capability similar to Appendix R, Section III.G.2 requirements. If a postulated fire could possibly communicate with other fire zones through openings, then the emergency ac lighting circuits in the adjoining zones were also evaluated to ensure that lighting for access and egress routes are available. If a fire occurred in an area and no manual action was required of the plant operators as a result of that fire, then the potential loss of emergency ac lights was not evaluated. (Safe shutdown can be achieved by the operators from the main control room where emergency lights exist.)

An analysis of the effects of a fire was performed to demonstrate that adequate lighting for access and egress routes to safe shutdown components is provided. The results of this analysis are summarized in Section 4.4.

4.3 Level of Illumination for Emergency Lighting

PGandE will engage in a program to review the plant emergency lighting to ensure that sufficient levels of illumination are provided to allow any needed operations of safe shutdown equipment and to ensure that access and egress routes to such equipment will have adequate illumination for the traversal of these routes.

4.4 Summary

Attached is an emergency lighting table matrix which identifies the type of emergency lighting available (see Legend on following page) for access and egress paths for those fire areas/zones that, due to a postulated fire, may require manual actuation of equipment by operations personnel. By locating the fire area/zone where a fire is postulated across the top of the matrix then reading down, the access/egress route and type of emergency lighting available are determined.

Legend

a – Access/egress route utilizes emergency ac lights

b – Access/egress route utilizes 8-hour battery pack lights

c – Location of safe shutdown component requiring operator action

d – Access/egress route utilizes dc lighting for up to 1 hour prior to start up of emergency diesel generator

e – ac security lighting for plant outdoor perimeter areas powered from a separate security diesel generator on loss of offsite power

Emergency Lighting Table Matrix

Postulated Fire Zone/Area Which May Require Manual Action Outside Control Room

Access/ Egress Path thru Fire Zone or Area	3I1 3K2 3K3	3L 3X 3AA	3CC 100'	3CC 115'	4B	5B4 19E	6B1 6B3	6B2	6B4	6B5	7B 8C 8H	24E
3C											a	
3D3											a,c	
3I1											a	
3L		a,b			a,b						a,b	
3X			a,b				a,b				a,b	
3AA			a,b						a,b			
3CC-85'		a,b,c			a,b,c						a,b,c	
3CC-100'			a,b,c				a,b,c				a,b,c	
3CC-115'			a,b,c						a,b,c			
5B1		a,c	a,c		a,c						a,c	
5B2		a,b,c	a,b,c		a,b,c						a,b,c	
5B4		a,b	a,b,c		a,b		a,b,c	a,b,c		a,b,c	a,b,c	
6B1			a,b	a,b					b		a,b,c	
6B2			a,b,c	a,b,c					b,c		a,b,c	
6B3			a,b,c	a,b,c					b,c		a,b,c	
6B5			a,b	a,b					b		a,b	
8C	a,b	a,b	a,b	a,b	a,b	b	a,b	a,b	a,b	b	a,b	
10											b,d	
11C1											b,c,d	
11D											b,d	
12E											b,d	
14A					b	b				b	b	
14D											a,d	a
19A					b	b				a,b	a,b,c	
19D	a										a,d	
19E				a,b,c	b,c	b,c				a,b,c	a,b,c	a
22A1											b,c,d	

Emergency Lighting Table Matrix

Postulated Fire Zone/Area Which May Require Manual Action Outside Control Room

Access/ Egress Path thru Fire Zone or Area	3I1 3K2 3K3	3L 3X 3AA	3CC 100'	3CC 115'	4B	5B4 19E	6B1 6B3	6B2	6B4	6B5	7B 8C 8H	24E
22B1											b,c,d	
22C											b,d	
24A	a,b,c										a,b,c d	b,c
24B	a,b,c										a,b,c d	b,c
24C											a,b,c d	b,c
24D	a,b										a,b,d	b
29											a,c,e	
34											a,c	
S1-140'	b	b	b	b	b	b	b	b	b	b	b	b
S1-128'		b	b	b	b	b	b	b	b	b	b	
S1-115'		b	b	b	b	b	b	b	b	b	b	
S1-100'		b	b		b	b	b	b	b	b	b	
S1-85'					b	b				b	b	
S2-140'		a	a		a		a		a		a	
S2-119'		a	a		a		a		a	a		
S2-104'		a	a		a		a			a		
S2-85'		a			a					a		
S2-73'										a		
S4-100'		b										
S5-140'		b	b		b		b		b	b		
S7-140'	a,b									a,b,d		b
S7-119'	a,b									a,d		b
S7-104'										a,d		
S7-85'										a,d		

4.5 Description of Deviation

STATEMENT OF PROBLEM

Section III.J of Appendix R requires that "emergency lighting units with at least an 8-hour battery power supply be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto."

Based on the foregoing system description, the emergency lighting system at DCPP is not in strict compliance with Section III.J.

BASIS FOR EXEMPTION

1. Three independent emergency lighting systems have been provided consisting of: ac lighting from the G and H bus of the emergency diesels, dc lighting for at least 1 hour from the nonvital station batteries, and self-contained sealed beam lights with 8-hour battery packs in selected key locations throughout DCPP.

2. Where manual operation of certain safe shutdown equipment is taken credit for, the emergency lighting systems that provide for light along the access and egress routes to this equipment have been evaluated to ensure that a reliable source of light is available.

3. Two light units with an 8-hour battery supply will be provided in fire area 19-E to provide sufficient light to allow for manual operation, if necessary, of the ASW supply valves FCV-602 and FCV-603. An additional light unit with an 8-hour battery supply will be located in the corridor area of fire zone 19-A (elevation 85 feet) to provide adequate lighting to access fire area 19-E from stairwell (S-1).

4. Two light units with an 8-hour battery supply will be provided to ensure sufficient light to access the refueling water storage tank discharge valves 8805A and 8805B. One light will be in the same

room as the valves (fire area 3-CC), and one will be in fire area 3-L such that the area from stairway S-2 to the door into 3-CC will be sufficiently lit.

5. Stairway S-2 normal ac lighting circuit will be changed so that these lights are fed from Unit 2 emergency ac. This new circuit will be in fire area 5-B-4 and fire zone S-2 only.

6. One 8-hour battery light will be added in stairway S-5 at elevations 140 feet such that there will be sufficient light to access stairway S-2 from the control room.

7. Three 8-hour battery lights will be added in fire area 24-D and two 8-hour battery lights will be added in stairway S-7 between elevations 140 and 119 feet to supply sufficient light to access the 4kV switchgear rooms.

8. In fire zone 3-X and fire area 3-CC (100 feet), an emergency ac lighting circuit will be connected to the existing fixtures above valves 8801A and B and the anteroom leading to these valves from fire zone 3-X. This will make the emergency lighting circuits for valves 8801A and B over 20 feet away from the redundant valve circuits without intervening combustibles.

9. Five normal ac lighting fixtures will be changed to emergency ac lighting fixtures in fire zone 19-A. Four will be above the 40% steam dump valves and one will be in the vestibule and between the turbine building and fire area 29 at elevation 100 feet. These will provide sufficient light to operate the 40% steam dump valves and sufficient light to access PCV-19 and 20.

10. The emergency ac lighting feeder in fire area 4-B for the auxiliary building lighting is 12.5 feet away from the safety circuit to valve 8805A. Loss of this safety circuit may require operator action at the valve. However, the combustible loading has an equivalent severity of about 2 minutes, and automatic suppression and detection are being provided. Based on the separation, the combustible loading, and the fire protection

measures provided, a fire would either affect the lighting circuit or the valve circuit but not both. Therefore, no modification is proposed.

11. Twenty-five feet of separation exists between required emergency ac lighting circuits to access 4kV switchgear rooms and 4kV ventilation fan circuits in fire zone 24-E. Failure of the 4kV ventilation circuits may require operator action to open up doors and to post portable fans to bring the 4kV switchgear room temperature down. Fire zone 24-E is part of fire area TB-13. Fire area TB-13 consists of fire zones 21, 23-C-1, 24-E, and 25; all except fire zone 23-C-1 have automatic suppression while only fire zones 21 and 24-E have automatic detection.

12. In the cable spreading room, which is provided with automatic suppression and detection, over five feet of separation exists between the emergency power circuits which would automatically start the diesel generators (thereby, supply emergency ac light) and the control circuits for the 10%, 35%, and 40% steam dump valves which are susceptible to a hot short. These circuits are all enclosed in rigid iron steel conduits and/or in a totally enclosed metal pull box. The only intervening combustibles are cable trays which have fire stops located within the 5 foot separation. Due to the fire protection features provided (see fire protection features identified in fire area 7B), the restricted access to this area, and the combustible loading consisting primarily of cable in fire stopped cable trays, no modification is proposed to provide additional dc or battery pack lights along the access/egress paths to these valves. Providing a 1-hour fire barrier between the emergency power circuit for the lighting system and the control circuits for the steam dump valves would not significantly enhance the fire protection system. Adequate ac emergency light should be available.

5.0 RCP OIL COLLECTION SYSTEM AND EVALUATION TO APPENDIX R, SECTION III.O

5.1 Background

In 1975, Pacific Gas and Electric Company (PGandE) provided a system to collect and contain a potential oil leak from the Westinghouse reactor coolant pump (RCP) motors. This system was provided in response to concern over industry experience with RCP lube oil fires in operating plants. The four RCPs were considered as two sets, two RCPs per set. A separate oil collection system was provided for each set. Each collection system was designed to collect and contain a potential oil spill of up to 50 gallons. Automatic smoke detection and wet pipe automatic sprinkler systems were installed to provide active fire protection for each RCP. NRC review and acceptance of the fire protection provision for the RCPs is contained within Supplement 8 to the Safety Evaluation Report (SSER), pages 9-13.

In March 1981, PGandE committed to provide a lube oil collection system consistent with the requirements of Appendix R, Section III.O. A review was made of the existing collection system and several modifications were made. The major modification involved replacing the two oil collection systems with one, and increasing the capacity of the collection tank to accommodate the entire lube oil inventory of one RCP motor. On July 15, 1983, an exemption from the requirements of Appendix R, Section III.O was requested for the RCP oil collection system on Unit 1. SSER 23 evaluated this request and approved the exemption. A similar exemption is being requested, herein, for the Unit 2 RCP oil collection system.

5.2 RCP Area Description

The RCPs are located in two areas within fire zone 9-B (fire area 9). Fire zone 9-B is separated from fire zone 9-A (containment penetration area) by a reinforced concrete shield wall which also serves as a support structure for the polar crane. This wall has numerous openings.

Fire zone 9-B is separated from fire zone 9-C (control rod drive area) by the elevation 140-foot floor slab and the reinforced concrete biological shield wall from elevation 140 feet to

approximately 110 feet. (See Figures 3-13 and 3-19.) The biological shield wall separates zone 9-B into two areas (north and south) above elevation 110 feet. Each RCP is above this elevation and therefore, the biological shield serves as a barrier between the north area in which RCPs 2-1 and 2-2 are located and the south area in which RCPs 2-3 and 2-4 are located. The north and south areas communicate through open areas from approximately elevation 110 feet to the containment floor slab at elevation 91 feet and through open ventilation gratings above each RCP at elevation 140 feet. Each RCP is separated from the others by a minimum of approximately 45 feet.

5.3 RCP Lubricating Oil System Description

The lubricating oil system for the RCP motor consists of two parts, the upper oil reservoir (240 gallons) and the lower oil reservoir (25 gallons). This system has two modes of operation: lifting of the thrust bearing just before RCP startup and normal lubrication of the upper and lower bearing assemblies.

The thrust bearing oil lift system consists of a motor, an oil pump, pressure gauge, pressure switch, selector valves, check valves, filter, relief valve, and orifice blocks mounted externally on the upper part of the motor casing.

An oil lift pressure of at least 500 psig is required to lubricate the thrust bearing during startup. The RCP startup procedure requires the oil lift pump to be run at least 2 minutes prior to startup of the RCP itself. The operation of the oil lift pump is continued for approximately 1 minute after the RCP is started. The oil lift pump is then shut down. RCP shutdown does not require oil lift pump operation.

After RCP startup, the thrust runner acts as an impeller and circulates oil in the upper bearing assembly and through an externally mounted vertical oil-to-water heat exchanger. Oil in the lower bearing assembly is cooled by an internally-mounted oil-to-water cooling coil. An upper and lower bearing oil pot is provided with a sight glass and a level switch. The level switch provides high and low oil level alarms in the continuously manned control room.

5.4 RCP Oil Collection System

Each RCP is equipped with an oil collection system to collect and contain any reasonable oil leak. The oil collection system consists of a series of collection pans surrounding each pump draining to a lube oil collection tank.

The collection pans surrounding each pump consist of 18-gauge sheet metal fastened to the platform grating at elevation 110 feet. Each pan has a minimum 1-7/8-inch rim and approximate collection area of 10 to 30 square feet. Each pan is connected to the adjacent pan by an overlapping joint and a mechanical fastener. All openings through and between the collection pans for conduit, pipes, etc., are surrounded by drip shields draining to the collection pans. A skirt is installed around the pump motor coupling to direct leaks on the outside of the motor casing (upper lube oil cooler, level instrumentation, etc.) to the collection pans below. The oil lift pump and piping is enclosed by a sheet metal shield. Spray from a potential oil lift pump leak would be confined to within the shield and the oil directed to the collection pans. Leaks internal to the motor casing are diverted to the collection pans below by a gutter inside the coupling area or collected above the main pump flange. The main pump flange is surrounded by a 2-inch rim with an overflow drain to the collection pans. All joints are caulked to prevent leakage.

Each collection pan is equipped with a 1-1/2-inch drain pipe connected to a 2-inch drain line. The drain lines for each pump connect to a 2-inch common header and enter the containment annulus through penetrations in the shield wall. The common header drain line is routed to an oil collection tank located under the fuel transfer canal in the containment annulus at elevation 91 feet.

The RCP oil collection tank has a 300-gallon capacity and is equipped with a valved drain, a 2-inch overflow, and a 2-inch vent. The vent is equipped with a flame arrester.

5.5 Active Fire Protection Capability

DETECTION

A smoke detector is provided between each RCP and the corresponding steam generator. Each detector is situated considering the ventilation flowpath around the RCP. Additional detectors are provided in the containment annulus in the exhaust air flowpath for zone 9-B. These detectors annunciate in the continually manned control room.

SUPPRESSION

A wet pipe automatic sprinkler system is provided for each RCP. The water flow alarm annunciates in the continually manned control room. The sprinkler system piping is designed such that a seismic event would not impact safety-related equipment due to sytem failure.

Manual fire suppression capability, in the form of portable fire extinguishers and fire hose stations, is available for use in the RCP areas.

5.6 Combustibles

The combustible loading for the RCP areas is included in the discussion of fire area 9.

5.7 Description of Deviation

STATEMENT OF PROBLEM

The above described RCP oil collection system is in compliance with Appendix R, Section III.O, and Item 2 of the NRC Staff position Paper, [1] except for drainage of an overflow..." to a safe location where the lube oil will not present an exposure fire hazard to or otherwise endanger safety related equipment." In the unlikely event of an overflow from a multiple RCP lube oil spill, RCP oil would be discharged from the RCP oil collection tank into the containment annulus floor trench at elevation 91 feet.

BASIS FOR EXEMPTION REQUEST

1. The RCP oil collection system including the oil collection tank and overflow piping has been designed to withstand the safe shutdown earthquake.

2. The RCP lube oil collection tank overflow pipe discharges downward to a recessed trench in the floor at elevation 91 feet, along the outside of the shield wall. This trench is sloped so any RCP lube oil overflow would flow to the containment drain sump.

3. The inlet of the overflow pipe of the oil collection tank is located 3 inches above the tank bottom, and will drain water off the bottom of the tank while containing the entire oil inventory of one RCP. The discharge is piped to the containment annulus trench such that splashing of the tank overflow in the trench is precluded. (See attached PGandE drawings 500971, Rev. 6, and 508935, Rev. 1.)

4. The Westinghouse RCP motor currently utilizes a high flashpoint (480°F) lubricating oil. The fire point of this oil is 520°F. Therefore, a high energy ignition source would be necessary to sustain combustion in the unlikely event a multiple RCP lube oil spill (greater than 300 gallons) occurs and oil is discharged through the overflow pipe.

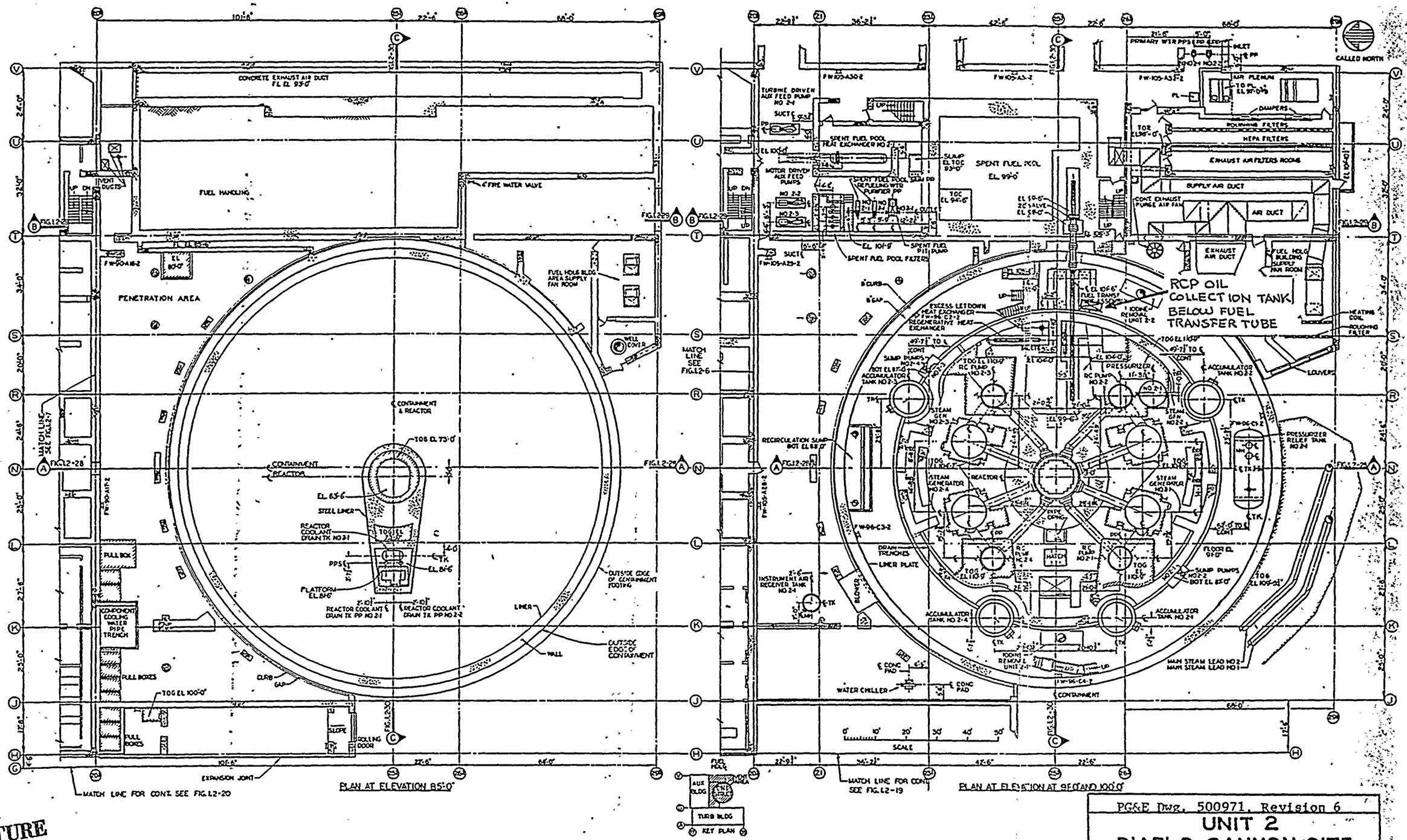
5. The lube oil flash point is sufficiently higher than any ignition sources in the vicinity of the tank overflow pipe or the anticipated flowpath of the overflowing oil.

(1) Presented in RH Vollmers' April 1, 1983 memorandum to D.G. Eisenhut concerning the oil collection system reactor coolant pumps, Florida Power and Light Company, St. Lucie 2-Docket No. 50-389 from J. Olshinski to D. Eisenhut.

6. Due to an oil-to-water heat exchanger serving each bearing assembly that maintains the oil temperature below 200°F, and since the heat exchanger discharge water and bearing temperature are monitored and alarm in the continuously manned control room, it is not deemed credible for the RCP lube oil to reach temperatures near its flash point.

7. There are only three safe shutdown functions located in the vicinity between 10 feet to 20 feet from the RCP oil collection tank: valve 8000C and PCV-456 for pressurizer pressure relief and LT-406 for pressurizer level measurement. These functions have been examined in detail in Section 3.0 of this report under fire area 9. A fire of 40 feet in diameter from the RCP oil spill collection tank would not jeopardize the safe shutdown of the plant.

8. Upgrading of the RCP oil collection tank capacity would not enhance, to a significant degree, the protection provided by the existing configuration.



TI APERTURE CARD

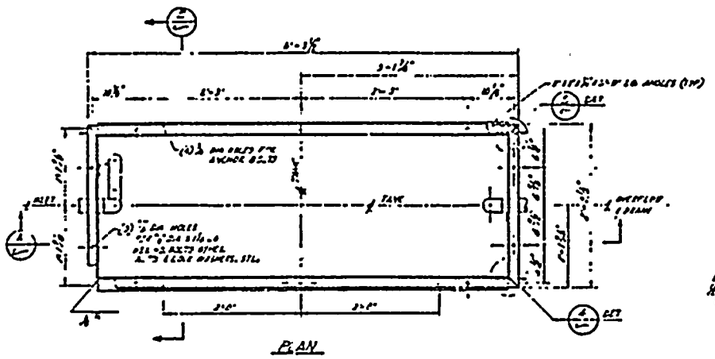
Also Available On Aperture Card

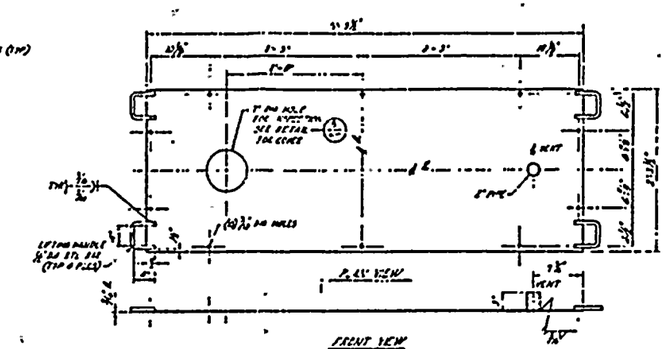
PG&E Dwg. 500971, Revision 6

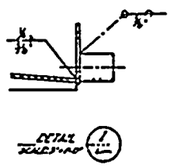
UNIT 2
DIABLO CANYON SITE

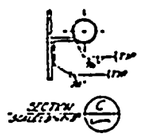
FIGURE 1.2-11
CONTAINMENT & AUXILIARY BUILDINGS
PLAN AT ELEV. 85, 91 & 100 FT.

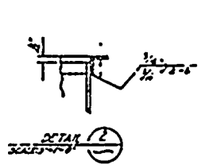
8412120261-28

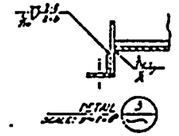


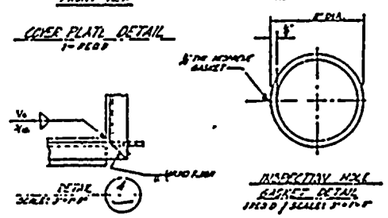


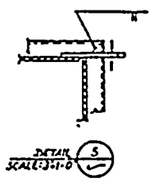


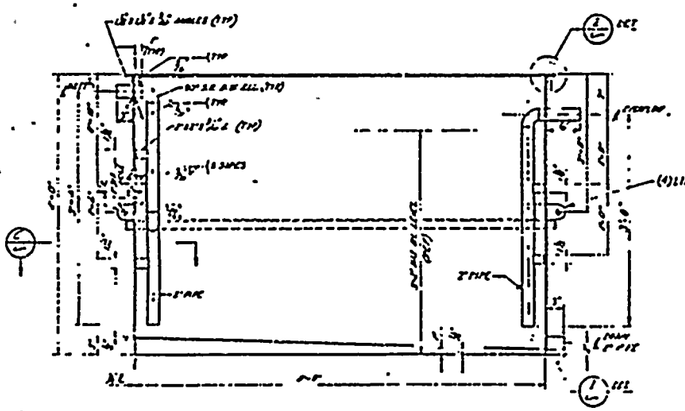


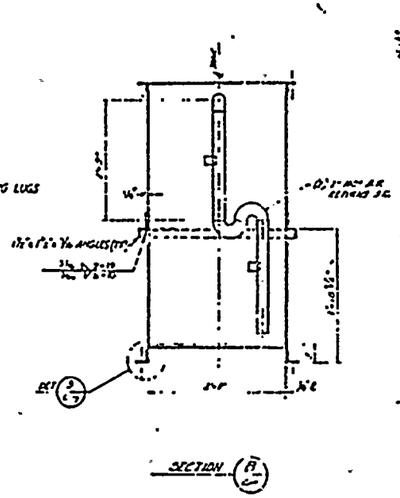


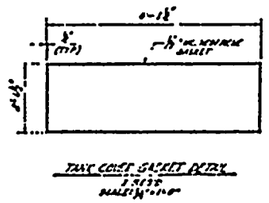


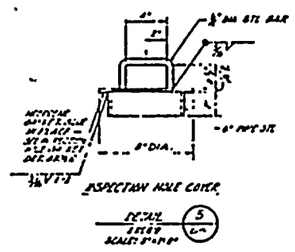












NOTES:

WELDING REQUIREMENTS

AWS D1.1

WELDER PROCEDURE SHALL BE SUBMITTED TO PGE FOR APPROVAL.

SPECIAL INSPECTION REQUIREMENTS

TANK SHALL UNDERGO WITNESSED LEAK TEST AT HYDROSTATIC PRESSURE TANK SHALL BE FILLED WITH WATER FOR 24 HOUR PERIOD WITH NO VISIBLE LEAKAGE AT WELD SEAMS

SURFACE PREPARATION AND PAINTING

EXTERIOR:

SAND BLAST NO 6 COMMERCIAL FINISH (SSPC-SP-6) PRIME WITH EPOXOLITE NO. 24 - 2 MILS DFT

INTERIOR:

SAND BLAST SSPC-SP-10, NEAR WHITE, BLAST CLEAN PER NACE WITH AMERLOCK NO. 66 EPOXY FINISH, 4 MILS DFT PRIMER WITH AMERLOCK NO. 66 EPOXY, TWO COAT WHITE FINISH, 8 MILS DFT 2 MILS COLOR WHITE

CLEANING:

AMERON PRODUCTS: DEGREASE PER SSPC-SP1 TO REMOVE ALL GREASE AND DIRT 50-60 MILS. BLAST SURFACES SHALL NOT BE LEFT OVERNIGHT BEFORE PRIMING.

DRAWING CHANGES:

SUPPLIER MAY PROPOSE CHANGES TO TANK DETAIL TO IMPROVE DESIGN AND/OR REDUCE COST. SUCH CHANGES SHALL BE APPROVED BY P.G.& E. PRIOR TO FABRICATION.

MATERIALS:

					PACIFIC GAS AND ELECTRIC COMPANY	508935

FIGURE 2