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NUCLEAR PRODUCTION DEPARTMENT

July 16, 1982

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

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station  
Units 1 and 2  
Docket Nos. 50-416 and 50-417  
File 0260/8010/L-334.0/  
L-350.0/L-860.0  
Fire Protection, Revised  
FSAR 9.5 and 9A  
AECM-82/324

In response to outstanding items 1(a) and 1(b) as identified in Attachment 1 to the Grand Gulf Operating License (NPF-13), Mississippi Power & Light (MP&L) submits this letter and attached information. These items stem from site inspections of fire protection systems by the NRC fire protection regional inspector, Bill Miller, and are identified as Inspector Unresolved Items 81-48-01 and 82-34-01.

As a result of these inspections and due to efforts internal to MP&L to provide a clear and consistent presentation of the fire protection program in the FSAR, a review of the subject systems and program was conducted. This review has resulted in proposed revisions to the Grand Gulf Final Safety Analysis Report, Section 9.5 and Appendix 9A. These revisions are considered to be clarifications and updates to the existing document, intended to address the regional inspector's concerns and other review findings. As discussed in Attachment 1, our review revealed certain areas which did not meet our design requirements for smoke detector coverage. Smoke detection will be provided for these areas prior to initial criticality. It is MP&L's opinion that these FSAR revisions provide an improved document for the purposes of implementation and inspection.

A summary description of the proposed changes is provided for your information as Attachment 1 to this letter. The proposed changes are provided as Attachment 2 and are intended for FSAR Amendment 56, scheduled for August, 1982. The entire Section 9.5.1 and Appendix 9A, including revised and unrevised text pages, are included for your convenience. Changes are indicated by change bars in the margin.

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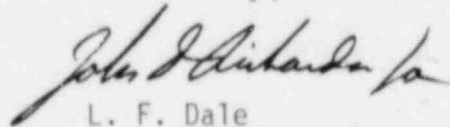
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AECM-82/324  
July 16, 1982

Item 1(a) of Attachment 1 to the Grand Gulf Operating License, regarding automatic sprinkler coverage in the auxiliary building was addressed in the MP&L letter, AECM-82/211 dated May 20, 1982. The contested fire protection areas were discussed in a meeting with your staff (J. Stang, Chemical Engineering Branch), on June 10, 1982. The resolution for 2 of these areas is documented in the errata to Supplement No. 2 to the Grand Gulf SER (NUREG-0831). No additional sprinkler coverage was required for the subject areas (1A215 and 1A314). With respect to the remaining area (1A424), MP&L contends that automatic sprinklers are not required on the basis of positions presented in AECM-82/211. However, consistent with NRC requests, MP&L commits to the installation of automatic sprinkler coverage for area 1A424 prior to the commencement of the first regularly scheduled refueling outage.

If further information is required, please advise.

Yours truly,



L. F. Dale  
Nuclear Project Manager

JGC/JDR:mm

Attachment

cc: Mr. N. L. Stampley (w/a)  
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Attachment 2 to this letter provides proposed revisions to FSAR Section 9.5.1 and Appendix 9A which are intended for FSAR Amendment 56, scheduled for August, 1982. As indicated below, these revisions are considered to be clarifications and updates to the existing document, intended to address the regional inspector's concerns and other review findings. As discussed in item d. below, our review revealed certain areas which did not meet our design requirements for smoke detector coverage. Smoke detection will be provided for these areas prior to initial criticality. It is MP&L's opinion that these FSAR revisions provide an improved document for the purposes of implementation and inspection. In general, these FSAR revisions can be grouped into the following categories:

- a. In order to decrease the extent of FSAR revisions that would be potentially necessary as a result of future design changes in the plant, Appendix 9A, Section 7.2 has been revised to delete any listings of redundant safe shutdown-related raceways. The applicable 7.2 subsections now include only an indication of whether redundant safe shutdown-related raceways are routed through a given exposure fire area or adjacent exposure fire area and the separation that exists between divisions. This listing of redundant safe shutdown-related raceways will, however, be maintained at the site.
- b. Appendix 9A, Section 7.2 and Table 9A-2 have been revised, as necessary, to indicate that hose streams and fire extinguishers are not necessarily in a given room but are accessible to the room. Figure 9.5-4 provides actual locations for hose stations and extinguishers.
- c. Appendix 9A, Section 7.2 and Table 9A-2 have been revised, as necessary, to clearly indicate the exact room location of smoke detectors. For the few instances where credit is taken for area coverage of a room by the smoke detectors located in an adjacent area, this has been clearly indicated.
- d. Appendix 9A, Section 7.2 and Table 9A-2 have been revised, as necessary, to indicate that area smoke detector coverage of a room may be provided by one or more detectors. Figures 9A-16 through 9A-33 provide the actual detector locations. Additionally, as a result of our in-house review, certain areas were identified which did not meet our design requirements for smoke detector coverage. These areas are: Rooms 1A108, 0C201, 0C216, Control Building HVAC Chase - El. 177' (area bounded by column lines 15.7-17.9 and J.8-K) and Control Building HVAC Chase - El. 189' (area bounded by column lines 18.9-20 and J.8-K).

Smoke detection will be provided for these areas prior to initial criticality.

- e. As discussed in the June 10, 1982 meeting between MP&L and NRC staff (Chemical Engineering Branch - J. Stang) on fire protection, Appendix 9A, Sections 2.0 and 7.2.1 have been revised to include a detailed discussion of the auxiliary building corridors at Els. 93' and 103' which are separated by metal grate floors. As detailed in these sections, extensive consideration has been given to the effects of and protection from a postulated exposure fire in any of these areas.

- f. Table 9A-2 has been revised to incorporate the latest values for electrical cable heat loads in the auxiliary, control, diesel generator buildings and standby service water pumphouse. These revised values provide an up-to-date tabulation of the maximum possible cable heat load in a given area. Original values listed in the table were based on preliminary design estimates of expected cable loads. The conservative basis for these revised values is discussed, in general, in Appendix 9A, Section 4.0, the notes and comments to Table 9A-2, and Table 9A-3.
- g. Table 9A-2 has been revised, as necessary, to clearly indicate the fire rating of walls that enclose a given area. Rated fire barriers are shown on Figures 9A-3 through 9A-9.
- h. Appendix 9A, Section 7.2.2 and Table 9A-2 have been revised, as necessary, to indicate which fire protection systems dedicated to Unit 2 are not required for Unit 1 operation and will not be provided prior to Unit 2 operation.

Attachment 2 to AECM-82/324

This attachment includes the following:

- a. A complete copy of text pages (revised and unrevised) to FSAR Section 9.5.1 and Appendix 9A.
- b. Copies of revised FSAR Figures 9.5-2, 9.5-4, 9A-3, 9A-4, 9A-16, 9A-17, 9A-22, 9A-28, 9A-29, 9A-30, 9A-32, 9A-33, 9A-36, 9A-38a, 9A-38b, 9A-40, 9A-42, 9A-43, 9A-45, 9A-46, 9A-47a, 9A-47b, 9A-48, 9A-49, 9A-50, 9A-51
- c. New FSAR Figure 9A-55
- d. Revised FSAR Q&R Page 9A-27

## 9.5 OTHER AUXILIARY SYSTEMS

### 9.5.1 Fire Protection System

#### 9.5.1.1 Design Bases

The bases for the design of the fire protection program are presented in detail in Appendix 9A, Fire Protection Program Review. The intent is to provide a defense-in-depth principle by achieving an adequate balance in:

- a. Preventing a fire from starting.
- b. Quickly detecting and extinguishing fires that occur, thus limiting fire damage.
- c. Designing safety-related systems so that a fire that occurs and burns out of control for considerable length of time, will not prevent safe shutdown.

In addition, fire protection systems are designed so that inadvertent operation or failure of any of these systems will not impair safety-related systems.

Fire protection system firewater and carbon dioxide pipelines, which penetrate the auxiliary buildings, are provided with redundant isolation valves at each penetration. The isolation valves will automatically close in the event of a LOCA. The isolation valves are designed to fail closed. At each fire water penetration, a 4-inch bypass pipeline around the isolation valves is provided. The 4-inch bypass line includes a normally closed 4-inch manual valve which can be operated locally or remotely. The isolation and bypass valves, with respective piping, are designed as seismic Category I.

Significant combustibles located within the Grand Gulf Nuclear Station are listed in Section 2.0 of Appendix 9A. Noncombustible or fire-resistant materials are used wherever practicable.

Possible fires that could affect safety-related systems and components are discussed in detail in Section 7.0 of Appendix 9A.

Fire protection while Unit 1 is in operation and Unit 2 is under construction and the provision for use of public fire departments are addressed in subsections A.8 and B.4, respectively, of Table 9A-1 of Appendix 9A. A comparison of Grand Gulf fire protection program with NRC Branch Technical Position APCS 9.5.1 is presented in Table 9A-1 of Appendix 9A.

Fire heat loads, estimated intensity of possible fires, estimated duration of possible fires, and other pertinent data are tabulated in Table 9A-2 of Appendix 9A.

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Seismic design requirements are imposed on fire protection systems on an individual basis. Every fire protection system component, which may damage safety-related systems or components as a result of its collapse due to an earthquake, is designed with seismic supports to prevent such occurrence.

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The following listed documents, codes, standards, and guidelines are referred to in the fire protection system designs:

- a. Documents from the American Nuclear Insurers (ANI):

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1. Basic Fire Protection for Nuclear Power Plants, April, 1976
  2. Specifications for Fire Protection of New Plant, ANI File No. NS-224 |46
- b. Pamphlets of the National Fire Protection Association (NFPA):
- 12 Carbon Dioxide Extinguishing Systems
  - 12A Halon 1301 Systems
  - 13 Sprinkler Systems, Installation
  - 14 Standpipe & Hose Systems
  - 15 Water Spray Fixed Systems
  - 20 Centrifugal Fire Pumps
  - 22 Water Tanks
  - 24 Outside Protection
  - 30 Flammable & Combustible Liquids Code
  - 37 Stationary Combustion Engines and Gas Turbines
  - 50A Gaseous Hydrogen Systems at Consumer Site
  - 70 National Electrical Code
  - 75 Electronic Computer/Data Processing Equipment
  - 78 Lightning Protection Code
  - 80 Fire Doors and Windows
  - 90A Air Conditioning and Ventilating Systems
  - 92M Waterproofing and Draining of Floors
  - 101 Code for Safety to Life from Fire in Buildings and Structures
  - 196 Fire Hose
  - 204 Guide for Smoke and Heat Venting
  - 214 Water Cooling Towers
  - 321 Basic Classification of Flammable Liquids |46
  - 803 Nuclear Power Plants
- c. Southern Standard Building Code
- d. Uniform Building Code

9.5.1.2 System Description

9.5.1.2.1 General Description

The fire protection system consists of two 300,000 gallon nominal capacity (maximum usable capacity - 291,358 gallons) water storage tanks at atmospheric pressure, one electrically driven 1500 gpm at 125 psig fire pump, two diesel-driven 1500 gpm at 125 psig fire pumps, one 30 gpm at 130 psig jockey fire pump, fire water yard mains, hydrants, standpipes, hose stations, sprinklers, deluge spray systems, automatic Halon 1301 systems, automatic carbon dioxide systems, hydrogen detectors, smoke detectors, ultraviolet flame detectors, manual alarms, fire barriers, fire stops, fire breaks, portable fire extinguishers, portable breathing apparatus, smoke and heat ventilation systems, and associated controls and appurtenances. | 51 |46 |46



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The fire pumps are sized such that the maximum design system demand for any non-safety-related areas can be supplied by any two operating fire pumps. The maximum design demand of any sprinkler or deluge system is 2717 gpm required for turbine building sprinkler system N1P64D129 or N21P64D129 shown in Figure 9A-4. Calculations (per NFPA13) show that the 2717 gpm demand with an additional 1000 gpm demand included for manual hose streams (a total of 3717 gpm) can be met if a 118 psig pressure is available at the pump discharge. Two fire pumps can deliver 3717 gpm at a discharge pressure of 118 psig.

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The maximum design demand of any sprinkler or deluge system covering safety-related equipment is the diesel generator building preaction sprinkler system N1P64D142A, B, C or N2P64D142A, B, C shown in Figure 9.A-5. Calculations shown the 987 gpm demand with an additional demand of 500 gpm included for manual hose streams (a total of 1487 gpm) can be met with a single fire pump running.

The fire-fighting water is taken from the two water storage tanks which are supplied by the plant service water system. Should the water level drop 18 inches below the overflow pipe, a solenoid-operated valve in an 8-inch fill line automatically opens and allows either tank to be refilled at a rate of 625 gpm. At the flow rate of 625 gpm, either storage tank can be refilled from empty in less than 8 hours. Figure 9.5-1 will be revised in a later amendment.

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The fire pump suction piping is arranged so that any pump can take suction from either water storage tank. An outside hose header test manifold equipped with six hose valves and a flowmeter in a recirculation path is provided for flow tests.

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If the plant should lose offsite power, the condensate and refueling water storage and transfer system would be inoperable. Therefore, a cross connection from the plant fire water system to the condensate and refueling water storage and transfer system has been provided just outside of containment as a backup fire water source. By realigning three manually operated valves, as shown on Figures 9.5-2 and 9.2-16, a continuous water supply to all fire suppression systems inside containment would be maintained.

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The fire protection system is designed to operate and/or fail without inducing failure of engineered safety features. No electrically conductive fire extinguishing agent is automatically released on relays, switchgear, motor control center, or other critical safeguard equipment unless safe shutdown capability can be maintained with the loss of the equipment.

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Electrical safety-related divisions and electrical cable protection are addressed in Section 7.1 of Appendix 9A. Areas and rooms within the station which contain electrical cables or components of the two electrical divisions, which can independently be used to shut down the nuclear reactor safely, are discussed in Sections 7.1 and 7.2 of Appendix 9A.

Ventilation systems, including smoke and heat removal systems, are discussed in further detail in Table 9A-1, Section D.4, of Appendix 9A and the individual system description in Sections 6.4 and 9.4. Appendix 9A contains the reference drawings of the Fire Protection Program Review.

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### 9.5.1.2.2 System Operation

#### 9.5.1.2.2.1 Water Supply

The jockey fire pump normally keeps the fire-fighting water system pressurized at 130-145 psig. Three fire pumps assure full required water flow as described in subsection 9.5.1.2.1. If a portion of the system is activated, the system pressure will drop, and a low-pressure switch in the electric fire pump controller will automatically start the electric motor-driven fire pump at 125 psig. When the motor-driven fire pump start cycle initiates, a time delay cycle for the two diesel-driven fire pumps begins. If the low pressure signal does not clear within 15 seconds of initiating the electric fire pump start, the first diesel-driven fire pump will automatically start. If the low pressure signal is not cleared within 30 seconds, the second diesel-driven fire pump automatically starts. Each diesel engine-driven fire pump is equipped with two sets of batteries and one battery charger to provide an independent starting capability. Fire pump start, failure to start, loss of power to electric motor-driven fire pump, and loss of battery charge on the diesel-driven fire pumps batteries are indicated in the control room. The fire pumps are shop and field tested to ensure that the performance of the pumps is equivalent to design considerations. Additional data on the fire pumps are located in Section 6.a of Appendix 9A.

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The electric motor-driven fire pump is supplied power through a motor control center located in the water treatment building. The power supply circuit to the electric motor-driven fire pump is protected by a load center supply circuit breaker, a load center feeder circuit breaker, and an electric fire pump motor controller circuit breaker. Selection and setting of the protective trip devices for the aforementioned circuit breakers is in accordance with the guidance provided in NFPA 20-1978 and has been approved for Grand Gulf's use by American Nuclear Insurers (ANI).

The electric fire pump motor controller circuit breaker provides for instantaneous short circuit protection and time delayed locked rotor current protection. The trip setting

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(adjusted to the manufacturer's recommendation) does not permit a circuit breaker trip at locked rotor current (LRC) unless LRC is sustained for at least 13 to 19 seconds. Locked rotor current (1050 amps) would be supplied for two to three times the normal starting time (5 to 6 seconds), permitting the normal starting of the motor without tripping the electric fire pump motor controller circuit breaker. This protective trip setting meets the guidance provided in NFPA 20: the electric fire pump motor controller circuit breaker shall have a time delay of not over 20 seconds, and the breaker shall permit normal starting of the motor without tripping.

Additional short circuit and cable protection is achieved by providing protective trips of the load center supply circuit breaker and the load center feeder breaker. The load center supply circuit breaker will not trip unless the sum of the LRC and the total of the other full load currents from loads connected to the load center is maintained for at least 40 to 65 seconds. The load center feeder breaker (which feeds the electric fire pump controller) will not trip unless LRC is maintained for at least 27 to 40 seconds. Therefore, the load center supply and the load center feeder circuit breakers will not open earlier than the electric fire pump motor controller circuit breaker.

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An outside, 12-inch cement-lined, cast iron, underground yard loop surrounds the entire power block and provides water to hydrants, wet standpipes, hose stations, deluge spray systems, and sprinkler systems. Post-indicator valves are provided for isolating portions of the systems, as required. Two-way hydrants are provided on the yard main at approximately 250-foot intervals. Provided for each hydrant is a hose house equipped with 250 feet of 2-1/2-inch, lined fire hose, two 2-1/2-inch adjustable spray nozzles, one crowbar, spanner wrenches, adjustable hydrant wrenches, and one fire axe. The fire water pumps are capable of providing water to any point in the station with the shortest leg of the main fire water loop out of service. |56

#### 9.5.1.2.2.2 Hose Stations

Wet standpipe hose stations are located throughout the plant to supply areas indicated in Table 9A-2 of Appendix 9A to assure hose stream plant coverage and to serve as backup for fixed suppression systems. Hose stations have 50, 75, or 100 feet of 1-1/2-inch, lined hose, as deemed necessary, and an adjustable nozzle. The fire brigade training includes the use of adjustable nozzles on various possible fires. Typical hose stations are shown in Figure 9.5-4. |44

#### 9.5.1.2.2.3 Sprinkler Systems

Wet-pipe sprinkler, dry-pipe sprinkler and pre-action sprinkler systems with fusible heads are provided as indicated in Table 9A-2 of Appendix 9A. The wet-pipe sprinklers and dry pipe sprinklers are activated by melting of the fusible element due to sufficiently high ambient temperature. Sprinkler systems protecting the cable spreading rooms are controlled by manually operated valves. Operation of the sprinkler system is signaled in the control room. The pre-action sprinklers include fixed temperature sensors. Upon sensing high ambient temperature, the manual pre-action systems signal the condition locally and in the control room so that an operator will know to investigate and determine whether or not to activate the system; the automatic pre-action systems are activated simultaneously with the signaling actions. The automatic pre-action systems may be manually operated. Localized high ambient temperatures melt the fusible element of sprinkler heads, so that the activated water flow will reach the areas on fire. All wet-pipe, dry-pipe, and pre-action sprinkler systems are designed and installed in accordance with NFPA 13. Also, all automatic sprinkler systems providing protection for redundant safe shutdown-related raceways have additional sprinkler heads located below obstructions such as ducts and cable trays. This configuration is shown in Figure 9A-54. A piping and instrumentation diagram of the sprinkler systems is given in Figures 9.5-1 through 9.5-3 and 9.5-7 through 9.5-8a. |46  
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#### 9.5.1.2.2.4 Deluge Spray Systems

Hydraulically designed deluge spray systems are provided with open spray nozzles as indicated in Table 9A-2 of Appendix 9A. |44

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With the exception of HVAC charcoal filter train systems, fixed temperature heat sensors detect high ambient temperature and activate the system automatically. The HVAC charcoal filter train systems can be manually activated after a high ambient temperature is detected by fixed temperature sensors and alarmed on the security and fire protection system console. Manual actuation of all deluge spray systems can be accomplished locally. Operation of a deluge spray system will alarm in the control room and locally. Water spray density is in accordance with NFPA 15. Deluge spray systems which protect engineered safety feature transformers

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include a deluge valve outside the area protected by the respective system. A piping and instrumentation diagram of the deluge spray water systems is presented in Figures 9.5-1 through 9.5-3 and 9.5-7 through 9.5-8a.

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#### 9.5.1.2.2.5 Gaseous Extinguishing Systems

Automatic carbon dioxide or automatic Halon 1301 total flooding gaseous, double shot extinguishing systems are provided where water is not a feasible fire fighting agent due to the presence of non-waterproof electrical components. These areas are noted in Table 9A-2 of Appendix 9A. Rate compensated heat detectors activate the automatic carbon dioxide systems and the automatic Halon 1301 system. Automatic controls close ventilation ductwork and doors, prior to discharge of the gaseous agent. For protection of equipment, several fan units are provided with interlocks which stop fan operation upon actuation of carbon dioxide and Halon 1301 systems. Carbon dioxide gas is stored in bulk quantity outdoors, separated from buildings. A carbon dioxide extinguishing system is designed to achieve a concentration of 30 volume percent within 2 minutes and a concentration of 50 volume percent within 7 minutes. A concentration of 30 volume percent will be maintained for not less than 20 minutes if enclosed rotating equipment is involved. Carbon dioxide storage capacity is sufficient to provide two actuations of the largest system.

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Halon 1301 for the computer room systems is stored in pressurized bottles located outside, but adjacent to the room protected. Halon 1301 for the PGCC systems is stored in pressurized bottles located inside the end of the control cabinets in the control room and the control cabinet area (El. 190'). The pressurized Halon 1301 bottles are provided with safety pressure relief valves. The computer room Halon 1301 systems are designed to provide a concentration of 5 to 7 volume percent in 10 seconds and a minimum final concentration of 5 volume percent for a soak time of 10 minutes. The PGCC Halon 1301 systems are designed to provide an initial concentration of 6 to 7 volume percent within 10 seconds and a final concentration greater than or equal to 20 volume percent for a soak time of 20 minutes.

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Prior to the automatic discharge of Halon 1301 or carbon dioxide into a room, a discharge alarm is sounded and a control room annunciator is provided to alert personnel of system activation. The local alarm provides personnel in the room adequate time to evacuate the area prior to system discharge. Controls of the Halon 1301 systems are provided locally in the computer room to abort the automatic discharge of Halon, if necessary. The annunciators in the control room, which indicate operation of any automatic fire suppression system, are initiated by control devices located outside of the respective fire area protected by the automatic gaseous fire suppression system.



This precludes damage of the control devices by the potential hazards associated with a fire in a protected area.

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A piping and instrumentation diagram of the gaseous extinguishing systems is presented in Figures 9.5-5 and 9.5-6.

#### 9.5.1.2.2.6 Hydrogen Detection

Hydrogen gas concentration detectors are included to sample the atmosphere in each battery room in the control building. The battery room hydrogen gas detector units continuously monitor ambient air, and upon detecting a hydrogen gas concentration of two percent or more, the units signal locally and in the control

room. Hydrogen gas detector units are also provided for the hydrogen offgas system and containment drywell. These units also signal a high hydrogen concentration in the control room and locally.

#### 9.5.1.2.2.7 Smoke and Fire Detection

Ionization smoke detectors and ultraviolet flame detectors are located as indicated in Table 9A-2 of Appendix 9A and shown on Figures 9A-16 through 9A-33. The smoke and flame detectors provide early warning capability to permit prompt action by the onsite fire brigade. The smoke and flame detectors signal in the control room and locally, but do not activate fire protection equipment except in the remote shutdown panel areas. The smoke detectors in the remote shutdown panel rooms activate an electrothermal link, thereby shutting the automatic fire door between the two divided panels. Several detectors are connected to each zone module; a signal from a detector identifies the respective zone. Proper functioning of each detector circuit is continuously monitored; malfunction is annunciated.

Area coverage by ionization smoke detectors or ultraviolet flame detectors is provided in all areas of the plant that contain or present an exposure fire hazard to safe shutdown or safety-related systems or components.

Activation of one or more ionization smoke detectors results in the following:

- a. Visual indication at each signalling detector in the form of an integral light.
- b. Local audible annunciation by means of fire bells.
- c. Visual and audible alarms at the local smoke detection panel.
- d. Visual and audible annunciation in the control room through the security and fire protection system monitoring console. In addition, the area where the signalling detector is located is identified through a CRT display in the control room.

#### 9.5.1.2.2.8 Manual Fire Alarms

Pull-type alarms are located as indicated in Table 9A-2 of Appendix 9A and shown on Figures 9.A-16 through 9.A-33. The alarms are manually activated by personnel and signal locally and in the control room. The alarms are divided into the same zones as the ionization smoke detectors; the signal from an alarm identifies the respective zone in the control room.

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9.5.1.2.2.9 Fire Barriers

Fire barriers, fire stops, and fire breaks are located as indicated in Table 9A-2 of Appendix 9A, and shown on Figures 9A-3 through 9A-9 in conformance with NFPA, ANI, and IEEE requirements as a means of passive fire protection. The fire barriers are capable of containing the effects of possible fires for the minimum amount of time for which the barrier is rated. Fire stops are located at every penetration through a fire barrier. The fire stops have the same fire-retention rating as the respective fire barrier. Fire breaks are located in vertical electrical cable raceways, not more than 20 feet apart, to prevent the spread of a possible fire by means of electrical cable.

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9.5.1.2.2.10 Portable Extinguishers

Portable fire extinguishers are located as indicated in Table 9A-2 of Appendix 9A. Portable fire extinguishers are selected for an area after an evaluation of the type of combustibles present, in order to match properly the type of extinguisher to the service required. Water extinguishers are strategically located for use in spaces which contain safe shutdown-related equipment.

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9.5.1.2.2.11 Breathing Apparatus

Portable breathing apparatus and required appurtenances are available to be issued to the fire brigade. The breathing apparatus is required by the fire fighters when fighting fires in smoke filled areas or in areas where a fire might cause substances to release dangerous gases and vapors.

#### 9.5.1.2.2.12 Ventilation

Recirculating ventilation systems automatically cease to operate in case of fire to prevent spreading smoke and heat throughout the plant. Manual exhaust ventilation systems are available to remove smoke and heat.

#### 9.5.1.2.2.13 Power Supply

All control functions associated with the fire protection and detection systems are powered from an inverter which in turn is fed from one of the station BOP batteries. The battery is capable of supplying its connected loads for up to two hours following a total loss of charger input. Two 100 percent capacity battery chargers (fed from the Class IE ac system) are used to supply the dc loads under normal conditions. Upon loss of offsite power, these battery chargers can be manually connected to a standby diesel generator, thus allowing continued dc supply in excess of the two hour battery capacity. (This diesel generator feed is not available under LOCA conditions). In addition to the primary battery-inverter supply, an alternate power source is provided. During the time of Unit 1 operation and Unit 2 construction, this alternate source will be a feed from the Class 1E power system and will be from a different division than the backup source for the battery chargers. Upon the availability of Unit 2, the alternate source will be switched to a second battery-inverter system, identical to the one described above.

#### 9.5.1.3 Safety Evaluation

A detailed failure analysis on a room-by-room basis is included in Section 7.0 of Appendix 9A. The failure analysis investigates the consequences of a postulated fire and draws conclusions as to whether the fire may affect safety-related systems and components in each room within the safety-related portions of the plant. Specific data such as estimated fire heat load, combustibles, fire protection, etc., on a room-by-room basis, is presented in Table 9A-2 of Appendix 9A. |44

#### 9.5.1.4 Inspection and Testing Requirements

Inspection and testing of fire protection systems and components prior to placement in service is discussed in Table 9A-1 subsection C.0, of Appendix 9A. Inspection and testing after systems and components are in operation, are discussed in Appendix 9B, and Chapter 16. |44

#### 9.5.1.5 Personnel Qualification and Training

Qualification and training of personnel are discussed in Table 9A-1 subsection B.0 of Appendix 9A, and Section 2.0 of Appendix 9B. |44

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APPENDIX 9A

FIRE PROTECTION PROGRAM REVIEW

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1.0 INTRODUCTION

The purpose of this report is to review the fire protection program and systems of the Grand Gulf Nuclear Station Units 1 and 2 based on the positions presented in the Nuclear Regulatory Commission's Appendix A to Branch Technical Position APCS 9.5-1, dated August 23, 1976, for plants under construction before July 1, 1976. All references are to sections and subsections within this appendix. References to sections in the FSAR body will be clearly indicated.

The objectives of the review are:

1. To evaluate the fire protection program.
2. To identify all potential fire hazards which would prevent safe shutdown of the nuclear reactor.
3. To evaluate the capabilities of the present fire protection system designs.
4. To effect modifications, as required, to assure continuous safe operation and shutdown.

The Bechtel Power Corporation, acting as consultant to Mississippi Power & Light Company, has reviewed the Grand Gulf Nuclear Station fire protection program and systems. The review and evaluation were performed by Mr. J. J. Illan, senior mechanical engineer. The finished document was reviewed by Mr. G.M. Orihood, mechanical staff consultant fire protection engineer, and was developed in consultation with Mr. R. D. Angus, fire protection engineering specialist.

The resume for Mr. Angus is included following this section.

RESUME:           RODNEY D. ANGUS

EDUCATION:       B.S., Electrical Technology, New York Institute of Technology; Conference on the Practice of Loss Prevention, Factory Mutual; Fire Loss Management at AEC Facilities; University of Maryland Fire Service Extension; Fire Alarm Systems, College of the Desert; Construction Inspection and Building Codes, North Orange County Community College

SUMMARY:         Ten years experience in the nuclear power industry in fire protection engineering including two years in instrumentation and control engineering.

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EXPERIENCE:

Fire Protection Specialist, Bechtel Power Corporation, Gaithersburg, Maryland - Performed fire hazard analysis and fire protection program evaluations to assure fire protection defense-in-depth; consulted with all projects regarding fire protection.

Fire Protection Engineer, Bechtel Power Corporation, Norwalk, California - Developed design criteria, preliminary concepts, specifications, calculations, flow diagrams, and state-of-the-art fire protection principles for fossil and nuclear power plants; performed fire hazard analysis and prepared fire protection studies in response to the NRC Branch Technical Position (APCSB 9.5-1).

Fire Protection and Safety Engineer, Gilbert Associates, Inc., Reading, Pennsylvania - Reviewed power plant systems and evaluated hazardous areas and areas of high fire loading for fire protection system applications; prepared system descriptions, specifications, and designed fire protection systems.

Fire Protection Engineer, Westinghouse Electric Corporation/Bettis Atomic Power Laboratory, West Mifflin, Pennsylvania - Prepared proposals, specifications, and designs for fire protection system applications; conducted fire protection reviews, audits, inspection, and lectured on fire prevention and protection at the laboratory to new employees.

Instrumentation and Control Engineer, Westinghouse Electric Corporation/Bettis Atomic Power Laboratory, West Mifflin, Pennsylvania - Provided system responsibility for primary plant instrumentation for nuclear powered submarines.

PROFESSIONAL REGISTRATION:

Registered Professional Fire Protection Engineer, State of California, No. 321

PROFESSIONAL MEMBERSHIPS:

Member, Society of Fire Protection Engineers (National and Chesapeake Chapter)

Member, National Fire Protection Association

Former Member, Society of Fire Protection Engineers, Southern California-Arizona Chapter

Former Member, Los Angeles Fire Protection Forum



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Former Member, American Industries Fire Protection Association,  
Pittsburg, Pa.

Former Member, Institute of Electrical and Electronic Engineers

A major revision to the Fire Hazards Analysis to incorporate the  
results of the Safe Shutdown Analysis was conducted in January 1981.  
The review and evaluation was performed by W. O. Porter, Balance of  
Plant Group Leader, and D. J. Perrault, Fire Protection Engineer.

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2.0 RESULTS

A point-by-point comparison to determine compliance or noncompliance of the fire protection program and systems design with the positions in NRC Appendix A (BTP APCS 9.5-1) is presented in Table 9A-1. Positions where compliance is not realized are discussed.

An evaluation of potential fire hazards, including stationary and transient combustibles, was performed to determine whether any postulated fire could affect safety-related equipment, components, or cables required for safe shutdown of the plant, and appropriate protective features have been provided to ensure that redundant safe shutdown-related cables cannot be affected by the same fire.

Stationary combustibles, such as cable insulation, stored fuel, or equipment lubrication reservoirs, have been identified and evaluated for the safety of the plant. Table 9A-2 provides a description of each architectural area of the plant located within a seismic Category I structure and lists the major equipment installed in each area, the combustibles located in each area, the fire heat load, the fire duration and maximum temperature, and a summary of the fire protection measures available to each area.

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The following major stationary combustibles which present a significant hazard in the Grand Gulf Nuclear Station Units 1 and 2 were identified:

Electrical Cable	Heat of Combustion, Btu/lb	Ignition Temp, F	Remarks
9 kV power cable:			
HTK (N-98)	11,600	980	Data supplied by
PE jacket	14,070	800	manufacturer:
FR jacket (HC-711)	10,000	1,060	Kerite Co.
Permashield (PES-54)	13,400	1,095	
1 kV power and control cable			
	9,200 (avg)	750	Data supplied by manufacturer: Okonite Co.
Instrumentation cable	14,000	680	Data supplied by manufacturer: Raychem Corp.
Instrumentation cable			
EPOM insulation	10,000		Data supplied by manufacturer:
Hypalon jacket	9,330		Samuel Moore Co.
Mylar tape	8,880		
Silicon rubber insulation	1,160		

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Oil	Heat of Combustion,		Remarks
	Btu/lb	Btu/gal	
Diesel fuel oil No. 2	19,910	145,000	Estimated from published data
Lubricating oil	20,000	152,000	
Gasoline (unleaded)	20,000		

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	Heat of Combustion, Btu/lb	Density lb/ft <sup>3</sup>	Remarks
Air filter charcoal	14,000	34	Estimated from published data

Concrete Joint Fillers and Sealers	Heat of Combustion, Btu/lb	Density lb/ft <sup>3</sup>	Remarks
Expansion joint filler Nonbituminous filler and joint sealer cork	See Remarks	33	A uniform heat of combustion of 8,000 Btu/lb is assumed.
Rubber water stops	See Remarks	87	These materials are deep within narrow concrete spaces and are not expected to fully contrib- ute to a fire.
Preformed nonextruding and resilient bi- tuminous filler	See Remarks	33	
Preformed sponge rubber and plastic joint filler - Rodo- foam II	See Remarks	2	
Expansion and contrac- tion joint sealer	See Remarks	100	
Neoprene Gaskets	See Remarks	90	

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Motor Electrical Insul.	Heat of Combustion, Btu/lb	Ignition Temp, F	Remarks
	12,500	900	The weight of motor electrical insulation is estimated as 5 percent of the stator weight.

Stationary combustibles within the plant are controlled primarily by minimizing the use of combustible materials and isolating the combustible or avoiding the communication of combustibles by separation.

Transient combustibles could potentially damage safety-related equipment by fueling exposure fires within safety-related areas of the plant. Since transient combustibles would be difficult to identify or quantify, the hazard was evaluated as a zone of influence defined by barriers which would contain an exposure fire or, in the absence of barriers, by a postulated diameter of 50 feet. Safety-related equipment located within the exposure fire area or zone of influence were then reviewed for consequences of the fire. The review and the criteria used to provide adequate fire protection are described in Section 7.0. Results of the review are summarized by plant area in Section 7.2.

Most of the exposure fire areas described in Section 7.2 are the same as the architectural areas defined in Table 9A-2. However, due to the circular arrangement of the auxiliary building corridors, and since the effects of an exposure fire are not necessarily contained by an architectural area, if the area is not defined by contiguous fire barriers, some of the exposure fire areas discussed in Section 7.2 have different vertical boundaries than the areas defined in Table 9A-2. As described below, exposure fire areas 1A101, 1A114, 1A117, 1A120, 1A121, 1A122, and 1A123 located at elevations 93' and 103' of the auxiliary building are the exposure fire areas that are defined differently from their architectural boundaries.

As may be noted in Figure 9A-55, the auxiliary building north, south, and east corridors at elevations 93' and 103' actually contain two rooms in each corridor, 1A117 and 1A123, 1A114 and 1A122, and 1A101 and 1A121, respectively. Architecturally, rooms 1A123, 1A122, and 1A121 extend from the elevation 103' grating to the overhead (E.L. 116'-7½"), and rooms 1A117, 1A114, and 1A101 extend from the elevation 93' slab to the grating. Exposure fire areas located above the 103' grating have the same vertical boundaries as the corresponding architectural rooms. However, because the open grating utilized as a 103' elevation floor will not inhibit the effects of an exposure fire, exposure fire areas below the grating include the space of the 103' elevation area directly above.

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Because of the overlapping volumes of exposure fire areas 1A101 and 1A121, or 1A117 and 1A123, the electrical raceways actually located in architectural rooms 1A121 or 1A123 are also located in exposure fire areas 1A101 or 1A117. Coincidentally, since the open grating (approximately 75 percent open) allows free communication of the exposure fire, it also allows free communication of the sprays from the sprinklers installed to protect redundant safe shutdown-related cables located in areas 1A121 and 1A123; therefore, the same sprinklers provide protection to areas 1A101 and 1A117.

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For other safety-related areas of the plant, the exposure fire areas and architectural areas are the same. The effects of possible fires, whether from stationary or transient combustibles, are described in Section 7.2.

A study of the hazards of postulated combustion products revealed the following:

1. Gaseous postulated combustion products are toxic in sufficient concentrations to require the availability of breathing apparatus for use by the fire fighting brigade.
2. In areas such as the battery room, where sulfuric acid is present as an electrolyte, a postulated fire could cause enough emission of acid vapors into ambient air to present an increased health and corrosion hazard.
3. As these are postulated to appear, corrosive combustion products will not affect the performance of safety-related equipment necessary to shut down the nuclear reactor within the time span necessary for safe shutdown.

### 3.0 SCOPE

In an effort to determine the possible effect of potential fire hazards on safety-related systems and components which are required for safe nuclear reactor shutdown, all areas containing these systems and components were reviewed for fire detection and suppression capability.

The Grand Gulf Nuclear Station is designed to contain all safety-related systems and components in seismic Category I structures. Inspection reveals that, as a minimum, the seismic Category I structures are separated from the nonseismic structures by 3-hour rated fire barriers. A review of the areas in the nonseismic Category I structures adjacent to the 3-hour fire barriers identifies the greatest postulated fire hazard to be in the turbine building area 6 at El. 133-0. (Refer to Turbine Building Section in Table 9A-2.) This postulated fire would last approximately 2-1/2 hours, maximum. Therefore, the 3-hour fire barriers are adequate to isolate the safety-related systems and components from possible fires in the nonseismic Category I structures.

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Seismic Category I structures are protected from potential outdoor fire hazards by physical separation and barriers. The following is a summary of the potential fire hazards located outside the seismic Category I structures and a discussion of the protection afforded to the structures from the hazards:

- a. Bulk hydrogen is stored at a maximum pressure of 2200 psig in eighteen 20-foot long x 24-inch diameter cylinders on racks located 100 feet south of the radwaste building. There are no seismic Category I structures nearby, and the cylinders are oriented parallel to the nearest Category I structure.
- b. The fuel oil storage tanks are buried such that the tops of the tanks are 10 feet below grade. A discussion of a fire in these tanks is provided in subsection 2.2.3.1.2.
- c. A 250-gallon liquified petroleum gas tank is located 11 feet from the south wall of the water treatment building. NFPA requires that it be located at least 10 feet away from a structure. No Category I structures are located nearby.
- d. Two additional fuel tanks have been installed onsite in the vicinity of the warehouse. No seismic Category I structure is located within 200 feet of the tanks. The results of the hazards analysis show there is no danger from the addition of the two tanks.
- e. Electrical transformers are located 10 feet or more from seismic Category I structures. Any seismic Category I structure walls that are within 50 feet of a transformer are at least 2-hour fire rated. All transformers are surrounded by a gravel-filled pit and each is protected by an automatic deluge system which initiates an alarm in the control room and locally when the system actuates. The transformer pit is sized to

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contain the entire oil capacity of the respective transformer and approximately ten minutes of water flow from the respective deluge system.

Fire hydrants are located around the power block, such that all transformers can be reached by hydrant hose streams. Refer to Figure 9A-5 for an illustration of the transformer locations near the power block.

The locations and protective measures described are adequate to protect the seismic Category I structures from outdoor fire hazards and, therefore, will not prevent the plant from achieving safe cold shutdown.

As a result, only areas in seismic Category I structures are reviewed in this report. Specifically, these structures are the auxiliary, containment, control, diesel generator, and standby service water pumphouse buildings.

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#### 4.0 CRITERIA

The following criteria were used to make the evaluation of this report:

- a. Postulated fires are not considered as occurring concurrently with other plant accidents or the most severe natural phenomena.
- b. No postulated fire detection and suppression system failure will include both the primary and backup systems.
- c. Where a fire hazard is present, the design basis fire heat load considers the total heat energy which can be released through complete combustion of all combustible materials determined to be available for ignition within the immediate fire area being considered.
- d. The design basis fire heat load is computed using the following formula:

$$\text{Fire heat load, = } \frac{\text{Combustible quantity present, lb} \times \text{Combustible heat of combustion, Btu/lb}}{\text{Immediate surface fire area, sq ft}} \text{ Btu/sq ft}$$

For practicality, the "immediate surface fire area" will correspond to the designated rooms, illustrated in Figures 9A-1, 9A-2, and 9A-10 through 9A-15, in which each room is assigned a unique identifying number. The quantity of combustibles within each room or "immediate surface fire area" is deemed adequately distributed so that dividing the total combustion heat released within a room by the respective room floor area or "immediate surface fire area" yields the most realistic fire heat load obtainable. In this manner, we preclude dividing the combustion heat released by combustibles in an area by an unrealistic larger area.

However, in the few cases where combustibles are heavily concentrated in a "small area" within the room floor area or "immediate surface fire area," the total combustion heat released by the concentrated combustibles is divided by the "small area" these occupy, in order to obtain a more realistic fire heat load within the room in question. This more realistic fire heat load is reported in Table 9A-2 as additional information within the room in question. The few cases where this applies are the auxiliary building rooms 1A117, 1A123, 1A211, 1A316, and 1A417.

- e. Noncombustible materials are defined as:
- (1) Materials no part of which will ignite and burn when subjected to a fire.
  - (2) Materials having a structural base of noncombustible material, as defined in 4.e.(1), with a surfacing not over 1/16 inch thick, which has a flame-spread rating not higher than 50, as measured by ASTM E-84.
  - (3) Materials, other than as described in 4.e.(1) or 4.e.(2), having surface flame-spread, fuel-contribution ratings of 25-25 or less, as measured by ASTM E-84, and of such composition that surfaces that would be exposed by cutting through the material in any way would have flame-spread, fuel-contribution ratings of 25-25 or less, as measured by ASTM E-84.
- f. The fire duration estimate is based on the respective heat load of each area. Expected room temperatures are based on the estimated fire duration time. Table 9A-3 presents the guidelines for both parameters.
- g. In areas such as offices, dormitories, dining rooms, closets, etc., where contents are not presently defined, the fire heat load estimate is based on information presented in "Fire Protection Through Modern Building Codes," Fourth Edition, Part I/Chapter 3, by the American Iron & Steel Institute.
- h. Transient combustibles, such as solvents, lubricants, welding materials, rags, and packaging materials, were evaluated throughout the plant for effects on safe shutdown-related electrical cables based on a postulated exposure fire.
- i. The intent of the evaluation of the fire protection program and systems is to provide a defense-in-depth principle by achieving an adequate balance in:
- (1) Preventing a fire from starting
  - (2) Quickly detecting and extinguishing fires that occur, thus limiting fire damage
  - (3) Designing safety-related systems so that a fire that occurs and burns out of control for a considerable length of time will not prevent safe shutdown.

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- j. Where used herein, "insignificant combustible" is used as a relative term on a room-by-room basis with respect to additional combustibles present. This suggests that if the "insignificant combustible" is neglected, it is such a small percentage of the total amount of combustibles present that this omission will not affect the numerical estimate of the maximum fire duration and room temperature of the respective rooms, which are presented in Table 9A-2.
- k. Although all walls are reinforced concrete and impervious to fire, those with non-fire rated penetrations are not fire barriers and are not considered capable of containing a fire. Refer to the analysis in Section 7.2 and Table 9A-1, paragraph D.1.j.

5.0 METHODOLOGY

In order to review Grand Gulf Nuclear Station Units 1 and 2 fire prevention, detection, and suppression capabilities and determine compliance with the positions presented in NRC Appendix A to Branch Technical Position APCS 9.5-1, dated August 23, 1976, for plants under construction before July 1, 1976, the following systematic approach was established:

- a. A detailed room-by-room analysis of the Grand Gulf Nuclear Station, based on drawings, was executed to:
  - (1) Define the scope of this review
  - (2) Determine the boundaries of fire areas
  - (3) Document and quantify combustible materials
  - (4) Identify the presence of fire detection and suppression capabilities.

Figures 9A-3 through 9A-9, which are included with this review, illustrate the 3-hour-rated fire barriers which separate the seismic Category I structures from adjacent structures, documenting the conclusion presented in Section 3.0, and the 3-hour-rated and 2-hour-rated fire barriers throughout the plant. These figures identify each room within the seismic Category I structures and illustrate the physical size of the "immediate surface fire area" which is defined in subsection 4.d.

Figures 9A-16 through 9A-33 illustrate the location of smoke detectors and manual pull stations.

Equipment locations are shown on Figures 9A-36 through 9A-51.

Abbreviations, symbols, general notes, and cross-references are shown on Figure 9A-52.

- b. The fire detection and suppression capability in each area was evaluated based on the criteria presented in Section 4.0.
- c. Present fire detection and suppression system designs were reviewed against the positions presented in NRC Appendix A to Branch Technical Position APCS 9.5-1, on a point-by-point basis. Results are presented in Table 9A-1, in which exceptions are identified and discussed.
- d. A safe shutdown analysis was performed to ensure that no single postulated fire would compromise the safe shutdown capability of the plant.

6.0 FIRE PROTECTION SYSTEM DESCRIPTION

a. General

The fire protection system consists of an outside yard loop with three fire pumps and one jockey fire pump, fire water yard mains, hydrants, sprinkler systems, automatic deluge systems, automatic CO<sub>2</sub> systems, automatic Halon 1301 systems, standpipes, hose stations, portable fire extinguishers, ionization smoke detectors, hydrogen detectors, ultraviolet flame detectors, heat sensors, alarm systems, fire barriers, fire stops, fire breaks, portable breathing apparatus, smoke and heat ventilation systems, two fire water storage tanks, and associated piping, valves, and instrumentation. FSAR Figures 9.5-1 through 9.5-8a in FSAR Section 9.5 provide piping and instrumentation diagrams of the extinguishing systems. Figures 9A-3 through 9A-9 show the fire ratings of interior walls in the safety-related buildings. Figures 9A-16 through 9A-33 show the smoke detector and manual pull station locations.

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Three redundant fire pumps (one electric and two diesel driven) and closed-loop piping will ensure delivery of extinguishing water to any seismic Category I structure with two pumps (with one pump for non-seismic Category I structures) and one leg of the piping loop out of service.

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Area fire and smoke detection systems are provided for all areas that contain or present an exposure fire hazard to safe shutdown or safety-related systems or components.

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Fire Water Storage Tanks

Quantity  
Capacity, gallons

2  
300,000 (maximum  
usable - 291,358)

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Design pressure

Atmospheric

Fire Pumps

Type

Single-stage, split case,  
double-suction centrifugal

Quantity - electric motor  
driven  
Quantity - diesel engine  
driven

1  
2

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Capacity, gpm	1500 (each)	48
Head, psi	125 (net @ 1,500 gpm)	
Horsepower - electric motor driven, bhp	145	
Horsepower - diesel engine driven, bhp	145	46

Jockey Fire Pump

Type	Six-stage, vertical, centrifugal	
Quantity	1	
Capacity, gpm	30	46
Head, psi	130	
Horsepower, bph	3	

b. Operation

The fire protection system automatic wet pipe and dry pipe sprinklers discharge water on high ambient temperature. System actuation initiates both local and control room alarms. The automatic deluge and preaction systems activate on a signal from their rate compensated heat detector and also provide local and control room alarms. The manual deluge and sprinkler systems require operator action following automatic local and control room high temperature alarms. Ionization smoke detectors and ultraviolet flame detectors provide local and remote alarms but do not actuate fire extinguishing systems, except the sliding fire door in the remote shutdown panel rooms.

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A drop in pressure in the underground fire system piping (i.e., activation of any fixed water fire protection system, including hose stations) sequentially, automatically starts the electric motor driven fire pump and/or standby diesel engine driven fire pump.

A demand exceeding the capacity of one fire pump causes additional fire pumps to start. Makeup to the fire water storage tanks is described in FSAR subsection 9.5.1.2.1. System pressure is maintained at 130-145 psig by the jockey fire pump.

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Operation of a Halon 1301 or CO<sub>2</sub> system activates local and control room alarms. The Halon 1301 is stored in local bottles in the Unit 1 lower cable spreading room at El. 148-0; CO<sub>2</sub> is stored in central bulk storage tanks located outdoors. Halon 1301 for the control room PGCC Halon system is located as described in NEDO 10466A.

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Fire barriers are provided at every penetration of fire-rated floors and at every fire wall penetration. Breathing apparatus are available to be issued to fire fighting personnel.

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## 7.0 FIRE PROTECTION - SAFE SHUTDOWN ANALYSIS

Under normal operating conditions, normal power supplies and balance of plant systems and components are utilized in conjunction with the safety-related residual heat removal and standby service water systems to achieve an orderly, controlled plant shutdown and cooldown.

In the event of abnormal occurrences which could possibly disable routinely operable equipment, several high reliability and redundant safety-related systems are available to safely shut down the plant without the use of balance of plant systems. These systems include:

- Residual heat removal (RHR) A, B, and C systems
- Standby service water system
- Reactor core isolation cooling (RCIC) system
- Low-pressure core spray (LPCS) system
- High-pressure core spray (HPCS) system
- Automatic depressurization (ADS) system
- Containment isolation valves
- Ultimate heat sink
- Standby diesel generators
- Electric power and control systems
- Safety-related HVAC

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As discussed in FSAR subsection 6.3.1.1.2 and Chapter 15, these systems can be used in various combinations to mitigate the consequences of an accident. Detailed descriptions of these systems and the available modes of operation are given in the applicable FSAR subsections.

To protect the extensive reliability of the safe shutdown capabilities of Grand Gulf, a safe shutdown analysis was performed for all areas of the plant in which safety-related equipment, components, or cables are installed. Specifically, the intent of the safe shutdown analysis was to ensure that no single fire will prevent the plant from being safely shut down and from being maintained in a safe shutdown condition.

Safety-related equipment areas reviewed during the safe shutdown analysis are located in the auxiliary, control, containment, diesel generator, and standby service water pumphouse buildings. For each area, the analysis addressed possible ignition sources, installed and transient combustibles, and flame spread. Where inherent design features of safety-related equipment and installation were not adequate to comply with the Grand Gulf defense in depth fire protection design concept, additional fire protection measures were provided. As a minimum, all

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safety-related areas of the plant, except the containment, are provided with area smoke detection or flame detectors. Each area analyzed and the results of the analysis are discussed in Section 7.2 and summarized in Table 9A-2.

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The subjects of fire-fighting water drainage, ventilation, and wetting of electrical cables and equipment are addressed in Table 9A-1, subsections D.1.i, D.4, and D.3.c, respectively.

### 7.1 Power and Control Cable Fire Protection Analysis

Power and control cables are separated into three independent electrical divisions--I, II, and III--each serving separate safety-related systems. Operation of either Divisions I and III or II and III can be completely lost without affecting safe shutdown capability. Operation of Division I only or operation of Division II only is sufficient to achieve safe shutdown. The operability of either Division I or II is ensured by fire protection measures taken to ensure that a single fire can not disable both divisions. Separation criteria utilized during the installation of safety-related cables provide protection against disabling redundant safety-related equipment by a cable fire. To protect against the effects of an exposure fire from in situ or transient combustibles, each area of the plant with safety-related equipment installed was analyzed for the postulated exposure fire as described in subsection 7.1.5. Fire protection measures, in addition to separation, were provided where necessary.

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The criteria used for separation of safety-related cable trays and conduits are based on Regulatory Guide 1.75. The intent is to prevent a possible fire in one safety-related cable tray from spreading into a safety-related cable tray of a redundant electrical division and to prevent a possible fire in a non-safety-related cable tray from spreading into any safety-related cable tray.

#### 7.1.1 Separation Criteria for Safety-Related Cable Trays and Conduits Outside Cable Spreading Rooms

Safety-related cable trays are separated from other division safety-related cable trays a minimum of 5 feet vertically and 3 feet horizontally.

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Enclosed safety-related cable trays or safety-related cable conduits are separated a minimum of 1 inch from safety-related enclosed cable trays or safety-related cable conduits of other divisions.

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7.1.2 Separation Criteria for Safety-Related Cable Trays and Conduits Inside Cable Spreading Rooms

Safety-related cable trays inside the cable spreading rooms are separated from other division safety-related cable trays a minimum of 3 feet vertically and 1 foot horizontally.

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Enclosed safety-related cable trays and safety-related conduits are separated a minimum of 1 inch from enclosed safety-related cable trays and safety-related conduits of other divisions.

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7.1.3 Separation of Safety-Related Cables from Non-Safety-Related Cables

Both inside and outside the cable spreading rooms, if a non-safety-related cable is located in proximity to safety-related cables of electrical divisions, the non-safety-related cable will be considered as if it were safety-related. The separation criteria outlined in subsections 7.1.1 and 7.1.2 will then be maintained between the non-safety-related cable and the safety-related cables.

7.1.4 In addition to the separation criteria described in subsections 7.1.1, 7.1.2, and 7.1.3, the electrical cable insulation used is of the non-fire-propagating type and has passed either IEEE-383 or IPCEA S-19-81 flame retardance tests. If the physical separation criteria are not possible, approved fire barriers are used to separate electrical cable trays and conduits, in accordance with Regulatory Guide 1.75.

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7.1.5 Exposure Fire Analysis

To protect against the possibility of an exposure fire affecting redundant safe shutdown-related cables in Division I and Division II concurrently, the routing of all safe shutdown-related cables in either conduit or trays was evaluated as part of the safe shutdown analysis.

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Safe shutdown-related cables were identified as those cables necessary to ensure the function of the minimum safety-related equipment necessary to bring the plant to a cold shutdown condition and maintain the plant in a safe condition after shutdown. The equipment identified either: is operable from both the control room and the remote shutdown panel; is automatically started without operator action, or as in the case of ECCS room coolers; is started automatically when the associated

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safety-related component is started automatically or manually from either operating station. Cables analyzed for the effects of an exposure fire are part of the following systems:

- a. Automatic Depressurization System, A and B
- b. Residual Heat Removal System; A, B, and C Suppression Pool Cooling, and Decay Heat Removal Modes
- c. Reactor Core Isolation Cooling System
- d. Standby Service Water System, A and B
- e. Diesel Generators, A and B
- f. ECCS Rooms HVAC
- g. ESF Switchgear HVAC
- h. Standby Service Water Pump House HVAC
- i. Diesel Generator HVAC

Protecting at least one division of the essential equipment in the above listed systems from the effects of an exposure fire ensures that the safe shutdown capability of the plant will not be endangered by a single exposure fire coincident with a loss of offsite power.

To ensure that a postulated exposure fire can not increase the probability of a loss of coolant accident, cables essential to maintaining isolation at the primary coolant high to low pressure interfaces described in subsection 5.1.2 were also included in the exposure fire analysis.

The results of the Grand Gulf exposure fire review are included in the component fire protection analysis summarized in Section 7.2. The postulated exposure fire areas listed were determined by reviewing the physical characteristics of the area and by convenience of analysis. Where defined areas were not completely separated by a 3-hour fire rated barrier, such as in the auxiliary building corridors, the exposure fire area was analyzed individually and in conjunction with the adjacent area.

Each exposure fire area was investigated for the routing of any Division I or II cable associated with the above listed safety-related systems, whether the cables were routed in trays or conduit. The identified cables were then reviewed to determine whether the cable was essential to safe shutdown and, where cables in Division I and II were routed through the same or adjacent exposure fire areas, a redundancy evaluation was performed.

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Where redundant safe shutdown-related cables are identified as being routed within the same exposure fire area, the cable locations and the area within which the cables are routed were assessed for the hazard presented by the postulated exposure fire. Protection from an exposure fire is afforded by:

- a. Evaluating the possible transient combustibles within an area containing redundant opposite division cables and the characteristics of an exposure fire due to ignition of the transient combustibles.
- b. Rerouting the affected cables where possible and practical, or
- c. Installing additional fire protection measures, as applicable except where specifically described otherwise in Section 7.2. The following minimum fire protection measures are provided where the cable review indicated the need for additional fire protection measures to protect redundant safe shutdown-related cables routed in proximity to one another:
  - (1) Where redundant safe shutdown-related cables are routed through the same exposure fire area and separated by more than 50 feet, area smoke detection is provided.
  - (2) Where redundant safe shutdown-related cables are routed in the same exposure fire area and are separated by 20 to 50 feet, area smoke detection and automatic sprinkler protection is provided.
  - (3) Where redundant safe shutdown-related cables in the same exposure fire area are separated by less than 20 feet, area smoke detection, automatic sprinklers, and 1-hour fire-rated barriers separating Division I from Division II are provided.

In addition to the systems and fire protection measures installed to specifically protect the operation of at least one division in the event of an exposure fire, hose stations and water extinguishers are located in strategic areas of the seismic Category I buildings to provide a quick response capability by the plant fire brigade.

## 7.2 Component Fire Protection Analysis

The following room-by-room analysis summarizes the safety-related equipment and the fire protection measures provided in each area of the seismic Category I buildings. A listing of the

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redundant safe shutdown-related cables routed through each exposure fire area or an adjacent exposure fire area not separated by at least a 1-hour fire rated barrier is maintained at the site.

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Complete technical information regarding fire heat loads, fire protection, combustible materials and non-safety-related equipment for any given room are included in Table 9A-2. As noted in subsection 5.a.2, room numbers refer to the rooms as identified in Figures 9A-1, 9A-2, and 9A-10 through 9A-15.

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7.2.1 Auxiliary Building

7.2.1.1 Area 1A101 - Passage, El. 93 Feet

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Safety-related equipment contained:

Electrical cable

Redundant safe shutdown-related raceways:

This Combined Exposure Fire Area 1A101/1A121 contains redundant safe shutdown-related raceways (see discussion in Section 2.0). In addition, this area contains safe shutdown-related raceways which are redundant to raceways in adjacent Combined Exposure Fire Areas 1A114/1A122 and 1A117/1A123.

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Possible ignition sources:

Overheated electrical cable  
Exposure fire

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Consequences:

Since this area contains redundant safe shutdown-related cables in proximity to one another, the following fire protection measures have been provided: area coverage by ionization smoke detector(s), 1-hour fire barriers to isolate Division I from Division II cables, and a wet pipe sprinkler system covering the passage from column line G.4 to the east wall (column line G) and column line 10.5 to the north wall (column line 15.1) as shown in Figure 9A-3.

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In addition to the primary protection, hose stations and portable fire extinguishers are strategically located for use in this area.

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This area is below Area 1A121 (El. 103') and is separated from it by a metal grate floor. The ordinary wet pipe sprinkler system, ionization smoke detector(s), hose stations, and portable fire extinguishers are actually located in Area 1A121.

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Any fire originating in either Area 1A101 or 1A121 will be adequately detected and suppressed by the fire protection systems provided in Area 1A121.

Area 1A101 is also located adjacent to Areas 1A114 and 1A117 and is not separated from either area by a wall.

The closest safe shutdown-related cable in Area 1A114 that has a redundant cable located in Area 1A101 is separated from that redundant cable by more than 100 feet. Therefore, protection against the same exposure fire affecting redundant safe shutdown-related cables located in these adjacent areas is provided by distance.

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Safe shutdown-related cables located in adjacent Area 1A117 are located as close as 5 feet from redundant cables in Area 1A101 and are protected by the detector(s), barriers, and sprinklers described earlier.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capabilities would not be affected due to primary and secondary fire protection measures provided.

- 7.2.1.2 Room 1A102 - RHR A Heat Exchanger, El. 93 Feet  
Room 1A128 - RHR A Heat Exchanger, El. 108 Feet

Safety-related equipment contained:  
RHR A heat exchangers  
Electrical cable

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Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

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Since there is safety-related equipment in these areas, the following fire protection measures are provided: area coverage by ionization smoke detector(s) (located in Area 1A128) and accessibility to manual hose streams and portable fire extinguishers.

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A metal grate floor separates Area 1A102 from Area 1A128 (El. 108'), and a non-fire-rated wall separates these areas from Area 1A103. Area 1A128 is separated from Area 1A202 (El. 119') by a metal grate floor. Only Division I safe shutdown-related components are located in these areas.

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Therefore, if a fire occurred in this area, safe shutdown capabilities would not be affected because separate redundant systems are provided.

7.2.1.3 Room 1A103 - RHR A Pump, El. 93 Feet

Safety-related equipment contained:

RHR pump A  
RHR A jockey pump  
Suppression pool level monitors  
Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

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Consequences:

Since there is safety-related equipment in this area, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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A metal grate floor separates this area from Area 1A203 (El. 119') and a non-fire-rated wall separates this area from Area 1A102. Only Division I safe shutdown-related components are located in these three areas. Therefore, if a fire occurred in this area, safe shutdown capabilities would not be affected because separate redundant systems are provided.

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7.2.1.4 Room 1A104 - RCIC, El. 93 Feet

Safety-related equipment contained:

RCIC room cooler  
RCIC pump  
RCIC turbine  
RCIC turbine gland seal unit  
Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical motor or cable  
Spillage of lubricating oil over hot surfaces  
Exposure fire

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Consequences:

Since there is safety-related equipment in this area, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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An open stairwell separates this area from 1A204 (El. 119'). However, only Division I safe shutdown-related components are located in these two areas. If a fire occurred in either area, safe shutdown capabilities would not be affected because separate redundant systems are provided.

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7.2.1.5 Room 1A105 - RHR B Pump, El. 93 Feet

Safety-related equipment contained:

- RHR pump B
- RHR B jockey pump
- Suppression pool level monitors
- Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Overheated electrical motor or cable
- Exposure fire

Consequences:

Since there is safety-related equipment in this area, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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A metal grate floor separates this area from Area 1A205 (El. 119'), and a non-fire-rated wall separates this area from Area 1A106. Only Division II safe shutdown-related components are located in these three areas. Therefore, if a fire occurred in either area, safe shutdown capabilities would not be affected because separate redundant systems are provided.

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7.2.1.6 Room 1A106 - RHR B Heat Exchanger, El. 93 Feet  
Room 1A129 - RHR B Heat Exchanger, El. 108 Feet

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Safety-related equipment contained:

- RHR B heat exchanger
- Electrical cables

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Redundant safe shutdown-related raceways:

None

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since there is safety-related equipment in these areas, the following fire protection measures are provided: area coverage by ionization smoke detector(s) (located in Area 1A129) and accessibility to manual hose streams and portable fire extinguishers.

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A metal grate floor separates Area 1A106 from Area 1A129 (El. 108') and 1A206 (El. 119'), and a non-fire-rated wall separates this area from Area 1A105. Only Division II safe shutdown-related components are located in these four areas. Therefore, if a fire occurred in these areas, safe shutdown capabilities would not be affected because separate redundant systems are provided.

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7.2.1.7 Room 1A107 - Equipment Drain Transfer Tank, El. 93 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.8 Room 1A108 - Floor Drain Transfer Tank Room, El. 93 Feet |46

Safety-related equipment contained:  
Electrical cable

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Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

Since this area contains safety-related cables, area coverage by ionization smoke detector(s) will be provided. Manual hose streams and portable fire extinguishers are accessible.

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This area contains no safe shutdown-related equipment. Therefore, if a fire occurred, safe shutdown capability would not be affected.

7.2.1.9 Room 1A109 - HPCS Pump Room, El. 93 Feet

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Safety-related equipment contained:

- HPCS jockey pump
- HPCS room cooler
- HPCS pump
- Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Overheated electrical motor or cable
- Exposure fire

Consequences:

Since there is safety-related equipment in this area, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers. If a fire occurred in this area, safe shutdown capabilities would not be affected because separate redundant systems are provided.

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7.2.1.10 Room 1A111 - Piping Penetration, El. 93 Feet

Safety-related equipment contained:

- Electrical cable

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Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Overheated electrical cable
- Exposure fire

Consequences:

Since there is safety-related cable in this area, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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Area 1A111 is adjacent to Area 1A114 (El. 93'). Area 1A114 contains no safe shutdown-related cables which are redundant to cables in 1A111.

None of the cable contained in Area 1A111 is required for safe shutdown. Therefore, if a fire occurred, safe shutdown capability would not be affected.

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7.2.1.11 Area 1A114 - Fan Coil Area, El. 93 Feet

Safety-related equipment contained:

LPCS instrument panel  
Electrical cable

Redundant safe shutdown-related raceways:

Combined Exposure Fire Area 1A114/1A122 contains Division I safe shutdown-related raceways which are redundant to Division II raceways located in adjacent Area 1A120 and adjacent Combined Exposure Fire Area 1A101/1A121 (see discussion in Section 2.0).

Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

Area 1A114 is located adjacent to Area 1A111 and is below Area 1A122 (El. 103'). It is separated from 1A122 by a metal grate floor. This area is also adjacent to Areas 1A101 and 1A120 and is not separated from either area by a wall. The closest safe shutdown-related Division II raceways (conduit BRWG01 and tray BTWG04) are located in Area 1A120 more than 100 feet from the closest redundant Division I cable. Area 1A111 does contain safety-related cables, but none are required for safe shutdown. Therefore, protection against the same exposure fire affecting redundant safe shutdown-related cables located in these adjacent areas is provided by distance, plus area coverage ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capabilities would not be affected, since adequate separation is provided to ensure the operability of at least one division in the event of an exposure fire.

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7.2.1.12 Room 1A115 - Piping Penetration, El. 93 Feet

Safety-related equipment contained:  
Suppression pool level monitor  
Electrical cable

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Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

The following fire protection measures are provided in this area: area coverage by ionization smoke detectors and accessibility to manual hose streams and portable fire extinguishers.

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Area 1A115 is adjacent to Area 1A119. Also, a metal grate floor separates this area from Area 1A220 (El. 119'). These two areas do not contain any safe shutdown-related cables, which are redundant to cables in 1A115. Therefore, if a fire occurred in these areas, safe shutdown capabilities would not be affected.

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7.2.1.13 Room 1A116 - Piping Penetration, El. 93 Feet

Safety-related equipment contained:  
Suppression pool level monitor  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Safety-related cables are routed through this area. Therefore, the following fire protection measures are provided: area coverage by ionization smoke detectors and accessibility to manual hose streams and portable fire extinguishers.

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Area 1A116 is adjacent to Area 1A118. Also, a metal grate floor separates this area from Area 1A220 (El. 119'). These two areas do not contain any safe shutdown-related

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cables, which are redundant to cables in 1A116. Therefore, if a fire occurred in these areas, safe shutdown capability would not be affected.

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7.2.1.14 Area 1A117 - Miscellaneous Equipment Area, El. 93 Feet

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Safety-related equipment contained:

- RHR C instrument panel
- Electrical cable

Redundant safe shutdown-related raceways:

This Combined Exposure Fire Area 1A117/1A123 contains redundant safe shutdown-related raceways (see discussion in Section 2.0). In addition, this area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Area 1A120 and adjacent Combined Exposure Fire Area 1A101/1A121.

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Possible ignition sources:

- Overheated electrical motor or cable
- Exposure fire

Consequences:

Since this area contains redundant safe shutdown-related cables in proximity to one another, extensive fire protection measures are provided. These measures are described in subsection 7.2.1.1.

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Area 1A117 is below Area 1A123 (El. 103') and is separated from Area 1A123 by a metal grate floor. The ordinary wet pipe sprinkler system (covering the passage from column line G.4 to J.5 and 13.6 to 15.1), hose stations, and portable fire extinguishers are actually located in Area 1A123. Area coverage by ionization smoke detector(s) is provided in both Area 1A117 and 1A123. Any fire originating in either Area 1A117 or 1A123 will be adequately detected and suppressed by the fire protection systems provided in both areas.

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Area 1A117 is also adjacent to Areas 1A101 and 1A120 and is not separated from either area by a wall. The closest safe shutdown-related cable in Area 1A120 is located more than 100 feet from any redundant cable in this area. Therefore, protection against the same exposure fire affecting redundant safe shutdown-related cables located in these two adjacent areas is provided primarily by distance.

Safe shutdown-related cables located in Area 1A101 are as close as 5 feet to redundant cables in Area 1A117, but are protected by the measures described in subsection 7.2.1.1.

All cable trays and conduit are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire were to occur in this area, safe shutdown capability would not be affected due to primary and secondary fire protection measures provided.

7.2.1.15 Room 1A118 - RHR "C", El. 93 Feet

Safety-related equipment contained:

- RHR C room cooler
- RHR C pump
- RHR C jockey pump
- Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Overheated electrical motor or cable
- Exposure fire

Consequences:

Since there is safety-related equipment in this area, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

A non-fire-rated wall separates this area from Area 1A116. However, neither area contains any redundant safe shutdown-related components. If a fire occurred in these areas, safe shutdown capability would not be affected.

7.2.1.16 Room 1A119 - LPCS, El. 93 Feet

Safety-related equipment contained:

- LPCS pump
- LPCS room cooler

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LPCS jockey pump  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

Since there is safety-related equipment in this area, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

A non-fire-rated wall separates this area from Area 1A115. However, this adjacent area does not contain any safe shutdown-related components. If a fire occurred in these areas, safe shutdown capability would not be affected.

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7.2.1.17 Area 1A120 - CCW Pump and Heat Exchanger Area,  
El. 93 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
This area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Combined Exposure Fire Areas 1A114/1A122 and 1A117/1A123.

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Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

This area is adjacent to Areas 1A114 and 1A117 and is not separated from either area by a fire-rated wall. Areas 1A114, 1A117, and 1A120 contain safe shutdown-related cables which are redundant to one another. However, the minimum separation provided between these redundant safe shutdown-related cables is greater than 100 feet. The separation is the primary protection afforded against the same exposure fire affecting the redundant cables. In addition, area ionization smoke detector coverage and accessibility to manual hose streams and portable fire extinguishers have been provided. The available fire protection measures and the cable separation provided are adequate to ensure that the effects of a single exposure fire in this area will not affect safe shutdown capability.

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7.2.1.18 Area 1A121 - Corridor, El. 103 Feet

Safety-related equipment contained:

RCIC instrument panel  
RHR A instrument panel  
RHR B instrument panel  
RHR C instrument panel  
Electrical cable

Redundant safe shutdown-related raceways:

See subsection 7.2.1.1

Possible ignition sources:

Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains redundant safe shutdown-related cables routed in proximity to one another, fire protection systems described in subsection 7.2.1.1 are provided.

This area is above Area 1A101 (El. 93') and is separated from it by a metal grate floor. Any fire originating in either Area 1A101 or 1A121 will be adequately detected and suppressed by the fire protection systems in this area.

Area 1A121 is also located adjacent to Areas 1A122 and 1A123 and is not separated from either area by a wall. The minimum separation between redundant safe shutdown-related cables located in Areas 1A122 and 1A121 is greater than 100 feet. This separation and area ionization smoke detection protects the redundant cables from the effects of a single exposure fire.

Safe shutdown-related cables located in Area 1A123 are as close as 5 feet to redundant cables in Area 1A121 and are protected by the detection, sprinklers, and barriers described in subsection 7.2.1.1.

All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capability would be maintained due to primary and secondary fire protection measures provided.

7.2.1.19 Area 1A122 - Corridor, El. 103 Feet

Safety-related equipment contained:

Electrical cable

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Redundant safe shutdown-related raceways:  
See subsection 7.2.1.11

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

The only redundant safe shutdown-related cables located in this area are separated by a distance greater than 100 feet. This area is adjacent to Areas 1A108, 1A114, 1A120, and 1A121. Area 1A108 contains no safety-related equipment. Area 1A122 is above Area 1A114 and is separated from it by a metal grate floor. Areas 1A120 and 1A121, on the same elevation as 1A122, are adjacent to 1A122 and are not separated from 1A122 by a wall.

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A distance of more than 100 feet separates any redundant safe shutdown-related cables located within these adjacent areas. In addition to separation between redundant safe shutdown-related cables, area ionization smoke detection and accessibility to manual hose streams and portable fire extinguishers are provided.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type.

If a fire occurred in this area, safe shutdown capability would not be affected.

7.2.1.20 Area 1A123 - HPCS IP Area, El. 103 Feet

Safety-related equipment contained:  
HPCS instrument panel  
Electrical cable

Redundant safe shutdown-related raceways:  
See subsection 7.2.1.14

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

This area contains redundant safe shutdown-related cables in proximity to one another, which are protected by the same fire protection measures described in subsection 7.2.1.1.

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This area is above Area 1A117 (El. 93') and is separated from it by a metal grate floor. Any fire originating in either Area 1A117 or 1A123 will be adequately detected and suppressed by the fire protection systems in this area as described in subsection 7.2.1.14.

This area is also located adjacent to Areas 1A120 and 1A121 and is not separated from either area by a wall. Measures taken to ensure that redundant safe shutdown-related cables routed through adjacent Areas 1A120, 1A121, and 1A123 will not be affected by a single exposure fire are described in subsections 7.2.1.17 and 7.2.1.18.

All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type.

If a fire occurred in this area, safe shutdown capability would be maintained due to the primary and secondary fire protection measures provided.

7.2.1.21 Room 1A124 - Blowout Shaft, El. 108 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.22 Room 1A125 - Blowout Shaft, El. 108 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.23 Room 1A127 - Auxiliary Radwaste Pipe Tunnel, El. 79 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

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7.2.1.24 Room 1A130 - Transfer Pump Monorail, El. 103 Feet  
Room 1A131 - Floor Drain Transfer Pumps, El. 93 Feet

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Safety-related equipment contained:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

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Consequences:

There are no safety-related components in either of these rooms. A possible fire will not spread into areas containing safety-related components; therefore, safe shutdown capability will not be affected.

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7.2.1.25 Area 1A201 - Passage, El. 119 Feet

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Safety-related equipment contained:  
MSIV Leakage Control Div. I local panel  
Electrical cable

Redundant safe shutdown-related raceways:  
This area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Areas 1A211 and 1A215.

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Area 1A201 is located adjacent to Areas 1A211 and 1A215 and is not separated from either area by a fire-rated wall. Although no redundant safe shutdown-related cables are located within Area 1A201, cables redundant to safe shutdown-related cables in Area 1A201 are located in the adjacent areas.

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Safe shutdown-related cables in Area 1A211 are routed as close as 5 feet from redundant cables in Area 1A201. Based on the criteria described in subsection 7.1.5, area coverage by ionization smoke detectors, one-hour fire barriers to isolate the redundant cables from one another, and an automatic wet pipe sprinkler system have been provided to ensure that no single exposure fire will affect the safe shutdown capability. The sprinkler system covers the passage from column line J.5 to the east wall (column line G) and column line 13 to the north wall (column line 15.1), as shown by Figure 9A-4.

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The closest redundant safe shutdown-related cables located in adjacent Areas 1A201 and 1A215 are separated by more than 100 feet. Therefore, the area ionization smoke detection installed provides adequate protection against any postulated exposure fire. Manual hose streams and portable fire extinguishers are accessible from this area.

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All cable trays and conduit are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type.

If a fire occurred in this area, safe shutdown capability would not be affected due to primary and secondary fire protection measures provided.

7.2.1.26 Room 1A202 - RHR A Heat Exchanger Room, El. 119 Feet

Safety-related equipment contained:

RHR A heat exchangers  
Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

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Consequences:

Since this area does not contain any redundant safe shutdown-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is above Areas 1A102 (El. 93') and 1A128 (El. 108'), and below Area 1A303 (El. 139'). It is separated from these areas by a metal grate floor. In addition, this area is adjacent to Area 1A203 and is not separated from it by a fire-rated barrier. All of these areas contain only Division I safe shutdown-related cables. Therefore, if a fire occurred, safe shutdown capability would not be affected.

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7.2.1.27 Room 1A203 - Piping Penetration Room, El. 119 Feet

Safety-related equipment contained:

RHR A room cooler  
Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical motor or cable  
Electrical cable

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Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s), and accessibility to manual hose streams and portable fire extinguishers.

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This area is above Area 1A103 (El. 93') and is separated from it by a metal grate floor. In addition, this area is adjacent to Area 1A202 and is separated from it by a non-fire-rated barrier. All of these adjacent areas contain only Division I safe shutdown-related cables. Therefore, if a fire occurred, safe shutdown capability would not be affected.

7.2.1.28 Room 1A204 - Piping Penetration, El. 119 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s), and accessibility to manual hose streams and portable fire extinguishers.

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This area is above Area 1A104 (El. 93') and the areas are connected by an open stairwell. In addition, this area is adjacent to Area 1A223 (El. 128'). All of these areas contain only Division I safe shutdown-related cables. Therefore, if a fire occurred, safe shutdown capability would not be affected.

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7.2.1.29 Room 1A205 - Piping Penetration Room, El. 119 Feet

Safety-related equipment contained:  
RHR B room cooler  
Electrical cable

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s), and accessibility to manual hose streams and portable fire extinguishers.

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This area is above Area 1A105 (El. 93') and is separated from it by a metal grate floor. In addition, this area is adjacent to Area 1A206 and is separated from it by a non-fire-rated barrier. All of these areas contain only Division II safe shutdown-related cables. Therefore, if a fire occurred in this area, safe shutdown could be accomplished by utilizing Division I equipment.

7.2.1.30 Room 1A206 - RHR B Heat Exchanger Room, El. 119 Feet

Safety-related equipment contained:

RHR B heat exchangers  
Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Exposure fire  
Overheated electrical cable

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Consequences:

The following fire protection measures are provided in this area: area coverage by ionization smoke detector(s), and accessibility to manual hose streams and portable fire extinguishers.

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This area is above Areas 1A106 (El. 93') and 1A129 (El. 108'), and below Area 1A307 (El. 139'). It is separated from these areas by a metal grate floor. In addition, this area is adjacent to Area 1A205 and is separated from it by a non-fire-rated barrier. All of these areas contain only Division II safe shutdown-related cables. Therefore, if a fire occurred, safe shutdown capability would be maintained.

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7.2.1.31 Room 1A207 - Electrical Switchgear Division II,  
El. 119 Feet

Safety-related equipment contained:

Motor control centers  
6.9 kV switchgear  
ESF electrical switchgear room east cooler  
Electrical cable

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Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

The following fire protection measures are provided in this area: area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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Operative loss of the equipment within this room due to a possible fire will not affect safe shutdown capability because only Division II safe shutdown-related cables are contained in this area.

7.2.1.32 Room 1A208 - Electrical Switchgear Division I,  
El. 119 Feet

Safety-related equipment contained:

Motor control centers  
6.9 kV switchgear  
ESF electrical switchgear room east cooler  
Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

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Consequences:

The following fire protection measures are provided in this area: area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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Operative loss of the equipment within this room due to a possible fire will not affect safe shutdown capability because only Division I safe shutdown-related cables are contained in this area.

7.2.1.33 Room 1A209 - RWCU Recirculation Pump "A", El. 115 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

This area contains safety-related cables. Therefore, the following fire protection is provided: area coverage by ionization smoke detector(s), and accessibility to manual hose streams and portable fire extinguishers.

Operative loss of the equipment in this room due to a fire will not affect safe shutdown capability as these are not required for this purpose.

7.2.1.34 Room 1A210 - RWCU Recirculation Pump "B", El. 115 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

The following fire protection measures are provided in this area: area coverage by ionization smoke detector(s), and accessibility to manual hose streams and portable fire extinguishers.

Operative loss of the equipment in this room due to a fire will not affect safe shutdown capability as these are not required for this purpose.

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7.2.1.35 Area 1A211 - Miscellaneous Equipment Area, El. 119 Feet

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Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:

This area contains redundant safe shutdown-related raceways. In addition, there are safe shutdown-related raceways in this area which are redundant to raceways located in adjacent Areas 1A201 and 1A222.

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Area 1A211 contains redundant safe shutdown-related cables in proximity to one another. These cables are protected from being affected by the same exposure fire by the fire protection systems described in subsection 7.2.1.25.

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This area is located adjacent to Areas 1A201 and 1A222 and is not separated from either area by a wall. The closest safe shutdown-related cable in Area 1A222 that is redundant to a cable in Area 1A211 is more than 60 feet away from

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that cable. This separation and the installed area ionization smoke detection are adequate to protect these cables from the effects of the same exposure fire.

Safe shutdown-related cables located in adjacent Areas 1A211 and 1A201 which are redundant to one another and the fire protection provisions installed for those cables are described in subsection 7.2.1.25.

All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capability would not be affected due to primary and secondary fire protection measures provided.

7.2.1.36 Area 1A215 - Fan Coil Area, El. 119 Feet

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Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
This area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Areas 1A201 and 1A222.

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Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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Area 1A215 is located adjacent to Areas 1A201 and 1A222 and is not separated from either area by a wall. Both of these adjacent areas contain safe shutdown-related cables that are redundant to cables located in Area 1A215. However, adequate separation is provided to ensure redundant safe shutdown-related cables in these three areas are not affected by the same exposure fire as described in subsections 7.2.1.25 and 7.2.1.40.

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7.2.1.37 Room 1A219 - Electrical Switchgear Division I,  
El. 119 Feet

Safety-related equipment contained:  
Motor control center  
Load centers

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ESF electrical switchgear room west cooler  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

The following fire protection measures are provided: area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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Operative loss of the equipment within this room due to a possible fire will not affect safe shutdown capability because only Division I safe shutdown-related cables are contained in this area.

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7.2.1.38 Room 1A220 - Piping Penetration, El. 120 Feet

Safety-related equipment contained:  
Electrical cable

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Redundant safe shutdown-related raceways:  
None; however, adjacent Areas 1A115 and 1A116 do contain safe shutdown-related raceways which are redundant to one another.

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area is separated from Areas 1A115 (El. 93') and 1A116 (El. 93') by a metal grate floor. These adjacent areas contain redundant suppression pool level instruments and cabling that provide indication only for the remote shutdown panels. Simultaneous fires occurring in this room and the control room are not a credible event. Therefore, control room suppression pool level indication would be available in the event of an exposure fire in these areas and safe shutdown capability would be maintained.

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The following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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7.2.1.39 Room 1A221 - Electrical Switchgear Division II,  
El. 119 Feet

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Safety-related equipment contained:

Motor control center  
Load centers  
ESF electrical switchgear room west cooler  
Electrical cable

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

Area coverage by ionization smoke detector(s), an auto-  
matic total flooding CO<sub>2</sub> system, and manual hose stream  
and portable fire extinguisher accessibility are provided  
to ensure that a postulated fire would be contained.

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Operative loss of this equipment due to a possible fire  
will not affect safe shutdown capability, because only  
Division II safe shutdown-related cables are contained in  
this area.

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7.2.1.40 Area 1A222 - Motor Control Center Area, El. 119 Feet

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Safety-related equipment contained:

Motor control centers  
Load centers  
Electrical cable

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Redundant safe shutdown-related raceways:

This area contains redundant safe shutdown-related  
raceways. In addition, there are safe shutdown-  
related raceways in this area which are redundant to  
raceways located in adjacent Areas 1A211 and 1A215.

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Possible ignition sources:

Overheated electrical cable  
Exposure fire

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Consequences:

This area contains redundant safe shutdown-related cables that are routed in proximity to one another. These cables are protected from the effects of the same exposure fire by complete area coverage by ionization smoke detector(s) and an automatic wet pipe sprinkler system covering the area between column lines 8.0 and 12.0, as shown on Figure 9A-4. In addition to the primary protection, accessible manual hose streams and portable fire extinguishers are strategically located for use by the plant fire brigade. No one-hour fire barriers are provided because the two closest redundant cables are 29 feet apart.

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Area 1A222 is located adjacent to Areas 1A211 and 1A215 and is not separated from either area by a wall. Both of these adjacent areas contain safe shutdown-related cables which are redundant to cables located in Area 1A222. However, all of these redundant cables are separated by at least 60 feet. This separation, in conjunction with the area ionization smoke detection provided in all three areas, is adequate to protect any redundant safe shutdown-related cables from the same exposure fire.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capabilities would not be affected due to primary and secondary fire protection measures provided.

7.2.1.41 Area 1A223 - Passage, El. 128 Feet

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Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

The following fire protection measures are provided in this area: area coverage by ionization smoke detector(s) (located in adjacent Area 1A204) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Area 1A204 (El. 119'). These two areas contain only Division I safe shutdown-related cables. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.42 Room 1A224 - Pipe Chase, El. 128 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.43 Room 1A225 - Blowout Shaft, El. 128 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.44 Area 1A301 - Corridor, El. 139 Feet

Safety-related equipment contained:  
Electrical cables

Redundant safe shutdown-related raceways:  
This area contains Division I safe shutdown-related raceways which are redundant to Division II raceways located in adjacent Area 1A316.

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

Area 1A301 is located adjacent to Area 1A316 and is not separated from this area by a fire-rated wall. Although no redundant safe shutdown-related cables are located within Area 1A301, cables redundant to safe shutdown-related cables in Area 1A301 are located in Area 1A316.

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Safe shutdown-related cables in Area 1A316 are routed as close as 10 feet from redundant cables in Area 1A301. Based on the criteria described in Section 7.1.5, area coverage by ionization smoke detector(s), 1-hour fire-rated barriers to isolate the redundant cables from one another, and an automatic wet pipe sprinkler system have been provided to ensure that no single exposure fire will affect safe shutdown capability. The sprinkler system covers the passage from column line J.5 to the east wall (column line G) and column line 13 to the north wall (column line 15.1) as shown by Figure 9A-5.

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In addition to the protective measures described above, hose stations and portable fire extinguishers are strategically located for use in this area.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capability would not be affected due to primary and secondary fire protection measures provided.

7.2.1.45 Area 1A302 - Corridor, El. 139 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area does not contain any redundant safe shutdown-related cables, and the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

If a fire occurred in this area, safe shutdown capability would not be affected.

7.2.1.46 Room 1A303 - RHR Heat Exchanger, El. 139 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

Consequences:

This area does not contain any redundant safe shutdown-related cables, and the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

This area is above Areas 1A202 (El. 119'), 1A128 (El. 108'), and 1A102 (El. 93'), and is separated from these areas by metal grate floors. In addition, this area is

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adjacent to Area 1A304 and is not separated from it by a rated fire barrier. Since these adjacent areas contain only Division I safe shutdown-related cables, safe shutdown capability would be maintained if a fire occurred in any of these areas.

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7.2.1.47 Room 1A304 - Piping Penetration, El. 139 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

Area 1A304 is located adjacent to Area 1A303. Since these areas contain only Division I safe shutdown-related cables, and the following fire protection measures are provided: area coverage by ionization smoke detector(s), and manual hose stream and portable fire extinguisher accessibility. Therefore, if a fire occurred in this area, safe shutdown capability would be maintained by separate redundant Division II equipment.

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7.2.1.48 Room 1A305 - Main Steam Tunnel, El. 140 Feet

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Safety-related equipment contained:  
MSIV accumulators  
Main steam isolation valves  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Electrical cable

Consequences:

The following fire protection measures are provided for this area: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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Area 1A305 contains only Division I safe shutdown-related cables. Therefore, if a fire were postulated to occur in this area, safe shutdown capability would be maintained by separate redundant Division II equipment.

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7.2.1.49 Room 1A306 - Piping Penetration, El. 139 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area contains safety-related cables. Therefore, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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Area 1A306 is located adjacent to Area 1A307 and is not separated from it by a rated fire barrier. Since these areas contain only Division II safe shutdown-related cables, if a fire were postulated to occur in this area, safe shutdown capability would be maintained by separate redundant Division I equipment.

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7.2.1.50 Room 1A307 - RHR Heat Exchanger, El. 139 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

The following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is above Areas 1A106 (El. 93'), 1A129 (El. 108'), and 1A206 (El. 119'), and is separated from these areas by metal grate floors. In addition, this area is

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adjacent to Area 1A306 and is not separated from it by a rated fire barrier. Since all of these areas contain only Division II safe shutdown-related cables, a fire in this area would not affect safe shutdown capability.

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7.2.1.51 Room 1A308 - Electrical Penetration, El. 139 Feet

Safety-related equipment contained:

- Load centers
- 6.9 kV switchgear
- ESF electrical switchgear room cooler
- Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Overheated electrical motor or cable
- Exposure fire

Consequences:

Operative loss of the equipment in this room due to a possible fire will not affect safe shutdown capability because only Division II safe shutdown-related cables are located in this area. Fire protection measures installed to ensure that any postulated fire is contained include: area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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7.2.1.52 Room 1A309 - Electrical Penetration, El. 139 Feet

Safety-related equipment contained:

- Load centers
- ESF electrical switchgear room cooler
- Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Overheated electrical motor or cable
- Exposure fire

Consequences:

Operative loss of the equipment in this room due to a possible fire will not affect safe shutdown capability, because only Division I safe shutdown-related cables are located in this area. Fire protection measures provided to ensure that any postulated fire is contained include

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area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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7.2.1.53 Area 1A314 - Passage, El. 139 Feet

Safety-related equipment contained:

SRM/IRM preamplifier cabinets  
Electrical cable

Redundant safe shutdown-related raceways:

This area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Area 1A322.

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Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

This area is adjacent to Areas 1A302 and 1A322 and is not separated from either area by a wall. No safe shutdown-related cable in Area 1A302 is redundant to a cable in Area 1A314. Area 1A322 does contain safe shutdown-related cables which are redundant to cables located in Area 1A314. The minimum separation provided between these redundant cables is 45 feet; however, the cables in Area 1A322 are protected by an automatic wet pipe sprinkler system as described in subsection 7.2.1.58. This separation and the other fire protection measures provided (e.g., area smoke detection and accessibility to manual hose streams and portable fire extinguishers) are adequate to ensure that any postulated fire in this area will not result in the loss of safe shutdown capability.

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7.2.1.54 Area 1A316 - Motor Control Center, El. 139 Feet

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Safety-related equipment contained:

SRM/IRM preamplifier cabinet  
Electrical cable

Redundant safe shutdown-related raceways:

This area contains redundant safe shutdown-related raceways. This area also contains safe shutdown-related raceways which are redundant to raceways located in adjacent Areas 1A301 and 1A321.

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Redundant safe shutdown-related cables are routed in proximity to one another in this area. In addition, adjacent Area 1A301 has safe shutdown-related cables which are redundant to and routed in proximity to safe shutdown-related cables located in Area 1A316. The fire protection systems described in subsection 7.2.1.44 are adequate to protect all redundant safe shutdown-related cables described above.

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Area 1A316 is also adjacent to 1A321 and is not separated from the adjacent area by a wall. The closest redundant safe shutdown-related cable in Area 1A321 is located more than 140 feet from any redundant cable in Area 1A316. Therefore, these cables are protected from the effects of a single exposure fire by separation and area smoke detection.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capabilities would not be affected due to primary and secondary fire protection measures provided.

7.2.1.55 Room 1A318 - Electrical Penetration, El. 139 Feet

Safety-related equipment contained:

- Motor control center
- 6.9 kV switchgear
- ESF electrical switchgear room cooler
- Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Overheated electrical motor or cable
- Exposure fire

Consequences:

Operative loss of the equipment in this room due to a possible fire will not affect safe shutdown capability, because only Division I safe shutdown-related cables are located in this area. Fire protection measures installed to ensure that the postulated fire would be contained include: area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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7.2.1.56 Room 1A319 - RPV Instrumentation Test Room,  
El. 139 Feet, Raised Access Floor, El. 140 Feet

Safety-related equipment contained:

- Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Overheated electrical cable
- Exposure fire

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Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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There are no safe shutdown-related cables in this area; therefore, if a fire occurred, safe shutdown capabilities would not be affected.

7.2.1.57 Room 1A320 - Electrical Penetration, El. 139 Feet

Safety-related equipment contained:

Motor control center  
ESF electrical switchgear room cooler  
Electrical cable

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

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Consequences:

Operative loss of the equipment in this room due to a possible fire will not affect safe shutdown capability because only Division II safe shutdown-related cables are contained in this area. The following fire protection measures are provided: area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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7.2.1.58 Room 1A321 - Motor Control Center, El. 139 Feet

Safety-related equipment contained:

SRM/IRM preamplifier cabinet  
Electrical cable

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Redundant safe shutdown-related raceways:

This area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Areas 1A316 and 1A322.

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Possible ignition sources:

- Overheated electrical motor or cable
- Exposure fire

Consequences:

Area 1A321 is located adjacent to Areas 1A316, 1A322, 1A323, 1A324, and 1A326 and is not separated from any of these adjacent areas by a rated fire wall. A discussion of safe shutdown-related cables located in Area 1A316 and the relationship of those cables to safe shutdown-related cables in Area 1A321 is provided in subsection 7.2.1.54. Therefore, these cables are protected from the effects of a single postulated exposure fire by separation and the installation of area smoke detection. Areas 1A323, 1A324, and 1A326 do not contain any safe shutdown-related cables. A description of these areas is provided in subsections 7.2.1.60, 7.2.1.60.1, and 7.2.1.62.

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There are safe shutdown-related cables in Area 1A322 which are redundant to cables located approximately 23 feet away in Area 1A321. Additional protection for these cables has been provided in accordance with the criteria described in Section 7.1.5. As shown by Figure 9A-5, an automatic wet pipe sprinkler system which covers Areas 1A321 and 1A322 from column line 5.5 to column line 13.6 and column line P.4 to column line Q protects the redundant cables from the effects of a single exposure fire.

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In addition to the area smoke detection and the sprinkler system described, hose stations and portable fire extinguishers are strategically located for use in this area.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1 and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capability would not be affected due to primary and secondary fire protection measures provided.

7.2.1.59 Room 1A322 - Centrifugal Chiller Area, El. 139 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
This area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Areas 1A314 and 1A321.

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

Area 1A322 is adjacent to Areas 1A323 and 1A326. These areas do not contain any safe shutdown-related cables. There are safe shutdown-related cables which are redundant to one another located within Area 1A322, and there are safe shutdown-related cables in this area which are redundant to cables located in Area 1A321. Cables located in Areas 1A321 and 1A322 are protected by the fire protection measures, including an automatic wet pipe sprinkler system (covering the area from column lines P.4 to R and 5.5-10), discussed in subsection 7.2.1.58.

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Area 1A322 is located adjacent to Area 1A324 (El. 154') which contains no safe shutdown-related cables. Area 1A322 is also adjacent to and not separated from Area 1A314. Area 1A314 also contains safe shutdown-related cables which are redundant to cables located within Area 1A322. A discussion of these cables and the protective measures taken can be found in subsection 7.2.1.53.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1 and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capability would not be affected due to primary and secondary fire protection measures provided.

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7.2.1.60 Room 1A323 - Standby Gas Treatment, El. 139 Feet

Safety-related equipment contained:

Standby gas treatment system filter train  
Electrical cable

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Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical motor or cable

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s), a deluge system for the charcoal filters, and accessibility to manual hose streams and portable fire extinguishers.

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Area 1A323 is adjacent to Areas 1A321, 1A322, 1A324, and 1A326, but contains no safe shutdown-related cables. The equipment in this room is used to filter possibly radioactive ventilation exhaust from the auxiliary building following a LOCA or other plant accident which causes a release of radioactivity into the auxiliary building. Since a LOCA or other plant accident is not postulated to occur concurrently with a fire, loss of this equipment due to a possible fire will not affect safe shutdown capability.

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7.2.1.60.1 Room 1A324 - Roof, El. 154 Feet

Safety-related equipment contained:

Electrical cable

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Redundant safe shutdown-related raceways:

None



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Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

Area 1A324 is located adjacent to Areas 1A321, 1A322, 1A323, and 1A326, but contains no safe shutdown-related cables. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected. Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) (located in adjacent Areas 1A321 and 1A322) and accessibility to manual hose streams and portable fire extinguishers.

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7.2.1.61 Room 1A325 - Railroad Area, El. 133 Feet

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Safety-related equipment contained:

None

Possible ignition sources:

Exposure fire

Consequences:

Fire protection measures provided in this area include: an automatic dry pipe sprinkler system and accessibility to manual hose streams and portable fire extinguishers.

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No safe shutdown-related cables are located in this area; therefore, a fire in this area would not affect safe shutdown capability.

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7.2.1.62 Room 1A326 - Standby Gas Treatment Area, El. 139 Feet

Safety-related equipment contained:

Standby gas treatment filter train  
Electrical cable

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Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

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Area 1A326 is adjacent to Areas 1A322, 1A323, and 1A324, but contains no safe shutdown-related cables. Fire protection measures provided in this area and the consequences of a postulated fire are the same as described in subsection 7.2.1.60.

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7.2.1.63 Area 1A401 - Passage, El. 166 and 174 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
This area contains Division I safe shutdown-related raceways which are redundant to Division II raceways located in adjacent Area 1A417.

Possible ignition sources:  
Overheated electrical cables  
Exposure fire

Consequences:

Area 1A401 and adjacent Area 1A403 contain only Division I safe shutdown-related cables. Therefore, redundant safe shutdown-related cables are not located within these two areas. However, adjacent Area 1A417 has safe shutdown-related cables which are redundant to cables located in 1A401 and are routed such that separation between the redundant cables is as close as 5 feet. To ensure that an exposure fire in either 1A401 or 1A417 will not affect the redundant safe shutdown-related cables, an automatic wet pipe sprinkler system covering the corridor from column

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line J.5 to the east wall (column line G) and column line 11 to the north wall (column line 15.1) has been provided. This sprinkler system is shown on Figure 9A-6.

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In addition to the sprinkler system, and in accordance with the criteria specified in subsection 7.1.5, redundant safe shutdown-related cables in the adjacent areas are separated by 1-hour fire-rated barriers. Area smoke detection and accessibility to manual hose streams and portable fire extinguishers are provided.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1 and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capability would not be affected due to the primary and secondary fire protection measures provided.

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7.2.1.64 Room 1A402 - Main Steam Tunnel Roof, El. 174 Feet

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Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

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Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Areas 1A404, 1A439, and 1A440. Areas 1A439 and 1A440 contain no safety-related equipment. Area 1A404 contains no safe shutdown-related equipment. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.65 Area 1A403 - Passage, El. 166 Feet and El. 174 Feet

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Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

Since this area contains safety-related electrical cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Areas 1A401 (El. 174' and El. 166') and 1A420 (El. 166') and is not separated from either area by a wall. All three areas contain only Division I safe shutdown-related cables. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.66 Room 1A404 - Unassigned, El. 166 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area contains no safe shutdown-related equipment. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.67 Room 1A405 - Containment Ventilation Equipment Room,  
El. 166 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

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Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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No safe shutdown-related cables are located in this area. Therefore, if a fire occurred, safe shutdown capability would not be affected.

7.2.1.68 Room 1A406 - Containment Exhaust Filter and Vent,  
El. 166 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s), a deluge system for the charcoal filter train, and accessibility to manual hose streams and portable fire extinguishers.

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Only Division II safety-related cables are located in this area. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.69 Room 1A407 - Motor Control Center, El. 166 Feet

Safety-related equipment contained:  
Motor control center  
ESF electrical switchgear room cooler  
Electrical cable

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

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Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s), automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

Only Division II safety-related cables are located in this area. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected, because separate redundant systems are provided.

7.2.1.70 Room 1A410 - Motor Control Center, El. 166 Feet

Safety-related equipment contained:

Motor control center  
ESF electrical switchgear room cooler  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s), automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

Only Division I safety-related cables are located in this area. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected, because separate redundant systems are provided.

7.2.1.71 Area 1A417 - Miscellaneous Equipment Area, El. 166 Feet

Safety-related equipment contained:

Containment H<sub>2</sub> analyzer sample rack  
Drywell H<sub>2</sub> analyzer sample rack  
Electrical cable

Redundant safe shutdown-related raceways:

This area contains redundant safe shutdown-related raceways. This area also contains safe shutdown-related raceways which are redundant to raceways located in adjacent Areas 1A401 and 1A424.

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains redundant safe shutdown-related cables in proximity to one another, the fire protection measures described in subsection 7.2.1.63 are provided.

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This area is adjacent to Areas 1A401 and 1A424 and is not separated from either area by a wall. Safe shutdown-related cables located in Area 1A424 which are redundant to cables located in 1A417 are located more than 90 feet away from the 1A417 cables. Safe shutdown-related cables are located in Area 1A401 which are redundant to cables in Area 1A417, and the protection provided for these cables is discussed in subsection 7.2.1.63.

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All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable is of the non-flame-propagating type. If a fire occurred in this area, safe shutdown capability would not be affected due to primary and secondary fire protection measures provided.

7.2.1.72 Area 1A420 - Miscellaneous Equipment Area, El. 166 Feet

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Safety-related equipment contained:  
Drywell H<sub>2</sub> analyzer sample rack  
Containment H<sub>2</sub> analyzer sample rack  
Electrical cable

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Redundant safe shutdown-related raceways:  
This area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Area 1A428.

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Areas 1A403 and 1A428, and is not separated from any of these areas by a wall. Area 1A403 does not contain any safe shutdown-related cables that are redundant to safe shutdown-related cables in Area 1A420. Safe shutdown-related cables located in Area 1A428 which are redundant to cables in Area 1A420 are separated by a distance greater than 120 feet. Therefore, if a fire occurred, safe shutdown capability would not be affected.

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7.2.1.73 Area 1A424 - Set-Down Area, El. 166 Feet

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Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:

This area contains safe shutdown-related raceways which are redundant to raceways located in adjacent Areas 1A417 and 1A428.

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Possible ignition sources:

Overheated electrical cable  
Exposure fire

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Consequences:

Since the area contains safety-related electrical cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Areas 1A417, 1A427, and 1A428 and is not separated from any of these three areas by a wall. Area 1A427 does not contain any safe shutdown-related cables. Redundant safe shutdown-related cables located in Area 1A417 are located more than 90 feet from any redundant cable in this area, and the closest redundant safe shutdown-related cable in Area 1A428 is located more than 60 feet from any redundant cable in this area. Therefore, separation of the two divisions of safe shutdown-related components in these three adjacent areas is adequate to protect safe shutdown capability from the effects of a single fire.

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7.2.1.74 Area 1A427 - Spent Fuel Cask Handling Area, El. 166 Feet |46|56

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
See subsections 7.2.1.73 and 7.2.1.92 for a discussion  
of adjacent areas. |56

7.2.1.75 Room 1A428 - Passage, El. 166 Feet |46

Safety-related equipment contained:  
Fuel pool pump panel  
Electrical cable

Redundant safe shutdown-related raceways:  
This area contains redundant safe shutdown-related  
raceways. This area also contains safe shutdown-  
related raceways which are redundant to raceways  
located in adjacent Areas 1A420 and 1A424. |46|56

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

Redundant safe shutdown-related cables located in Area  
1A428 are separated from each other by a minimum distance  
of 100 feet. Therefore, these cables are protected from a  
single postulated fire by separation. In addition, the  
following fire protection measures are provided: area  
coverage by ionization smoke detector(s) and accessibility  
to manual hose streams and portable fire extinguishers. |56|56

Area 1A428 is adjacent to Areas 1A420, 1A424, and 1A434  
and is not separated from any of these areas by a wall.  
Area 1A434 contains no safe shutdown-related cables.  
Subsections 7.2.1.72 and 7.2.1.73 provide discussions of  
safe shutdown-related cables located in Areas 1A420 and  
1A424 relative to cables in Area 1A428. |46|5

Operative loss of the fuel pool pump panel due to a fire  
may cause the operative loss of the FPC and CU pumps.  
However, the ability to provide cooling for the spent fuel  
pool by RHR A or B systems serves as backup to this  
system. Therefore, safe shutdown capability would not be  
affected.

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7.2.1.76 Room 1A429 - Water Sampling Station, El. 166 Feet | 46

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.77 Room 1A430 - CRD Repair, El. 166 Feet | 46

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.78 Room 1A431 - Spent Fuel Pool, El. 167 Feet - 6 Inches | 46

Safety-related equipment contained:  
None | 56

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.79 Room 1A432 - FPC and CU Pump Room, El. 166 Feet | 46

Safety-related equipment contained:  
FPC and CU pumps  
Electrical cable | 46

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire | 46

Consequences:

This area contains safety-related equipment. Therefore, fire protection measures provided include: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers. | 46 | 56

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Loss of the equipment within this room due to a possible fire will not affect safe shutdown capability; the capability to cool the spent fuel pool with RHR A or B system serves as backup. If a fire occurred in this area, safe shutdown capability would not be affected.

7.2.1.80 Room 1A433 - FPC and CU Backwash Transfer Pump,  
El. 166 Feet

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Safety-related equipment contained:  
None

Possible ignition sources:  
Overheated electrical motor or cable

Consequences:

There is no safety-related equipment in this room, and a possible fire will not spread to an area containing a different system. If a fire occurred in this area, safe shutdown capability will not be affected.

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7.2.1.81 Area 1A434 - Passage, El. 166 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Area 1A428, but Area 1A434 contains no safe shutdown-related cables. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.82 Room 1A436 - FPC and CU Backwash Receiving Tank,  
El. 166 Feet

Safety-related equipment contained:  
None

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Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.83 Room 1A437 - Transfer Canal, El. 176 Feet - 6 Inches

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Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.84 Room 1A438 - Shipping Cask Storage Pool, El. 159 Feet -  
6 Inches

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Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.85 Room 1A439 - Blowout Shaft, El. 166 Feet

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Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.86 Room 1A440 - Blowout Shaft, El. 166 Feet

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Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable



7.2.1.87 Room 1A441 - RHR "B" Blowout Shaft, El. 166 Feet | 46

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.88 Room 1A442 - RHR "A" Blowout Shaft, El. 166 Feet | 46  
Room 1A444 - Inspection Area, El. 166 Feet | 56

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.89 Room 1A506 - Unassigned, El. 185 Feet | 46

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.90 Room 1A508 - Unassigned, El. 185 Feet | 56

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.91 Area 1A519 - Storage Area, El. 185 Feet | 56

Safety-related equipment contained:  
Electrical cable | 46

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:

Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

This area is adjacent to Areas 1A523, 1A524, and 1A528 and is not separated from any of these areas by a wall. Area 1A528 does not contain any safety-related components. Area 1A523 does not contain any safe shutdown-related cables, and Area 1A524 does not contain any safe shutdown-related cables which are redundant to cables in 1A519. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.92 Room 1A523 - Spent Fuel Hatch Area, El. 185 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related cable, the following fire protection is provided: area coverage by ionization smoke detectors (which are located on the eastern edge and directly above the open hatchway on El. 208') and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Areas 1A519, 1A528, 1A531, and 1A532 and is not separated from any of these areas by a fire wall. Areas 1A528, 1A531, and 1A532 do not contain any safety-related equipment. Area 1A519 contains safety-related cables; however, neither Area 1A519 nor this area contains any safe shutdown-related cables. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

The hatch opening in this room does not require a closure, since there are no redundant safe shutdown-related cables

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in Area 1A523; there are no safe shutdown-related cables in the proximity of the hatch opening in Area 1A523; and there are no ignition sources in the room below the hatch (Room 1A427). See subsection 7.2.1.106 for a discussion of the area above the hatchway.

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7.2.1.92.1 Room 1A524 - Platform, El. 195 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Areas 1A437 (El. 176'), 1A519, and 1A527 (El. 185') and is not separated from any of these rooms by a wall. There are no ignition sources in 1A437, and 1A519 and 1A527 do not contain any safe shutdown-related cables which are redundant to cables in 1A524. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

7.2.1.93 Room 1A525 - Transfer Tube, El. 182 Feet

Safety-related equipment contained:  
Fuel transfer tube

Redundant safety shutdown-related raceways:  
None

Possible ignition sources:  
None

Consequences:

Since the fuel transfer tube is constantly filled with water, fire is not a credible event.

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7.2.1.94 Area 1A527 - Load center Area, El. 185 Feet

Safety-related equipment contained:  
FPC and CU heat exchanger  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related components, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

This area is adjacent to Areas 1A524 and 1A538 (El. 195'), and is not separated from either area by a wall. Area 1A527 is also adjacent to Area 1A530 which does not contain any safe shutdown-related cables. Area 1A524 does not contain any safe shutdown-related cables which are redundant to cables in Area 1A527. Areas 1A538 and 1A527 do not contain any redundant safe shutdown-related cables. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

7.2.1.95 Room 1A528 - New Fuel Storage Vault, El. 185 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

7.2.1.96 Room 1A529 - FPC and CU Tank, El. 185 Feet

Safety-related equipment contained:

Electrical cable

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

Since there are no redundant safe shutdown-related cables located in this room, the loss of the safety-related cables in this room will not affect safe shutdown capability.

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7.2.1.97 Room 1A530 - Fuel Pool Filter Demineralizer,  
El. 180 Feet - 8 Inches

Safety-related equipment contained:  
None

Possible ignition sources:

Overheated electrical motor or cable  
Exposure fire

Consequences:

There is no safety-related equipment located in this room. If fire were to burn out of control it could spread and affect the cleanup portion of the FPC and CU system, which is not safe shutdown-related. Therefore, safe shutdown capability would not be affected.

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7.2.1.98 Room 1A531 - Piping Area, El. 185 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

Consequences:  
Not applicable

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7.2.1.99 Room 1A532 - Cask Washdown Area, El. 185 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
None

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Consequences: Not applicable	46
7.2.1.100 Room 1A533 - Fuel Pool F/D, El. 191 Feet	
Safety-related equipment contained: None	
Possible ignition sources: None	
Consequences: Not applicable	
7.2.1.101 Room 1A534 - Fuel Pool F/D, El. 191 Feet	46
Safety-related equipment contained: None	
Possible ignition sources: None	
Consequences: Not applicable	
7.2.1.102 Room 1A536 - Pipe Chase, El. 185 Feet	46
Safety-related equipment contained: None	
Possible ignition sources: None	
Consequences: Not applicable	
7.2.1.103 Room 1A537 - Drain Tank Area, El. 191 Feet	46
Safety-related equipment contained: None	
Possible ignition sources: None	
Consequences: Not applicable	
7.2.1.104 Room 1A538 - Platform, El. 195 Feet	46
Safety-related equipment contained: Electrical cable	46



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Redundant safe shutdown related-raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) (located in adjacent Area 1A527) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Area 1A527 (El. 185') and is not separated from it by a wall. No safe shutdown-related cables are contained in these two adjacent areas. Therefore, if a fire occurred, safe shutdown capability would not be affected.

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7.2.1.105 Room 1A539 - Cable Space, El. 185 Feet

Safety-related equipment contained:  
Electrical cable

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Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This room contains Division I safe shutdown-related cables and is isolated from other levels by fire stops. Ionization smoke detection and accessibility to manual hose streams and portable fire extinguishers are provided.

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Only Division I safe shutdown-related cables are located in this area. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.106 Area 1A602 - Storage Area, El. 208 Feet - 8 Inches

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Safety-related equipment contained:  
Electrical cable

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Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:

Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

This area is adjacent to Area 1A603 and is not separated from it by a wall. There are safety-related components located in Area 1A603; however, none are necessary for safe shutdown. The hatch opening in this room does not require a closure, since there are no redundant safe shutdown-related cables in proximity to the hatchway opening in Area 1A602 and there are no redundant safe shutdown-related cables in the room below (Room 1A523, spent fuel hatch area, El. 185'). A description of Area 1A523 is found in subsection 7.2.1.92. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

7.2.1.107 Area 1A603 - Passage, El. 208 Feet - 10 Inches

Safety-related equipment contained:

5-ton new fuel bridge crane  
New fuel inspection stand  
150-ton spent fuel cask crane  
Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electric motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

This area is adjacent to Areas 1A602 and 1A604 and is not separated from either area by a wall. None of these three adjacent areas contain any redundant safe shutdown-related cables. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.108 Area 1A604 - Fuel Handling Area, El. 208 Feet -  
10 Inches

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Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

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Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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This area is adjacent to Area 1A603 and is not separated from it by a wall. No safe shutdown-related cables are located in these two adjacent areas. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.109 Room 1A605 - Recirculation Fan Area, El. 228 Feet

Safety-related equipment contained:  
Recirculation fans  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electric motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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The recirculation fans are not needed for safe shutdown. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected.

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7.2.1.110 Room 1A606 - HVAC Units Area, El. 245 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

No safe shutdown-related cables are located in this area. Therefore, if a fire occurred, safe shutdown capability would not be affected.

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7.2.2 Control Building

- 7.2.2.1 Room OC101 - Disrobe Area, El. 93 Feet  
Room OC102 - Contaminated Linen, El. 93 Feet  
Room OC103 - Emergency Laundry, El. 93 Feet  
Room OC105 - Emergency Shower, El. 93 Feet  
Room OC106 - Corridor, El. 93 Feet  
Room OC107 - Clean Linen Area, El. 93 Feet  
Room OC108 - Corridor, El. 93 Feet  
Room OC110 - Storage, El. 93 Feet  
Room OC111 - First Aid, El. 93 Feet  
Room OC112 - Clean Area, El. 93 Feet  
Room OC113 - Locker, El. 93 Feet  
Room OC114 - Health Physicist, El. 93 Feet  
Room OC121 - Clean Janitor, El. 93 Feet  
Room OC122 - Drying Area, El. 93 Feet  
Room OC123 - Clean Shower, El. 93 Feet  
Room OC124 - Clean Toilet, El. 93 Feet  
Room OC127 - Janitor, El. 93 Feet  
Room OC129 - Contaminated Area, El. 93 Feet

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Safety-related equipment contained:  
None

Possible ignition sources:  
Overheated electrical cable  
Overheated combustible or flammable fluids

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Consequences:

All of the above rooms have area coverage by ionization smoke detector(s) (except OC105, OC106, OC112, OC121, and OC123) and accessibility to manual hose streams and portable fire extinguishers. In addition, Rooms OC102, OC103, OC107, OC110, OC113, OC121, and OC127 are protected by an automatic ordinary hazard wet pipe sprinkler system.

These rooms are grouped and isolated from the rest of the plant by 2-hour and 3-hour fire-rated barriers. If a fire occurred in any of these rooms, safe shutdown capability would not be affected.

- 7.2.2.2 Room OC104 - Sump, El. 93 Feet
- Room OC109 - Decontaminated Area, El. 93 Feet
- Room OC116 - Hot Machine Shop, El. 93 Feet

Safety-related equipment contained:

Electrical cable in Rooms OC116 and OC109

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electric motor or cable  
Overheated combustible or flammable fluids

Consequences:

Rooms OC109 and OC116 have area coverage by ionization smoke detector(s), and an automatic wet pipe sprinkler system is provided for Rooms OC104, OC109, and OC116. In addition, manual hose streams and portable fire extinguishers are available to all three rooms.

These rooms are grouped and isolated from the rest of the plant by 3-hour fire-rated barriers. If a fire occurred in any of these rooms, safe shutdown capability would not be affected.

- 7.2.2.3 Room OC115 - Corridor, El. 93 Feet
- Room OC117 - Corridor, El. 93 Feet

Safety-related equipment contained:

Electrical cable in Room OC115

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

The corridor area has area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers. |56

The corridor is isolated from the rest of the plant by 2-hour and 3-hour fire-rated barriers. If a fire occurred in the corridor, safe shutdown capability would not be affected.

- 7.2.2.4 Room OC125 - HVAC, El. 93 Feet  
Room OC126 - Sump, El. 93 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
Overheated electric motor or cable  
Exposure fire

Consequences:

These rooms have area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers. |46

These rooms are grouped and isolated from the rest of the plant by 2-hour fire-rated barriers. If a fire occurred in these rooms, safe shutdown capability would not be affected. |56

- 7.2.2.5 Room OC118 - Storage, El. 93 Feet  
Room OC119 - QA Office, El. 93 Feet  
Room OC120 - Chemical and Radiation Engineering,  
El. 93 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
Overheated electrical cable  
Overheated combustible and flammable fluids

Consequences:

Rooms OC118 and OC119 have area coverage by an automatic ordinary hazard wet pipe sprinkler system. In addition, |56



area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers is provided for all three rooms.

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These rooms are grouped and isolated from the rest of the plant by 2-hour fire-rated barriers. If a fire occurred in any of these rooms, safe shutdown capability would not be affected.

7.2.2.6 Room OC128 - Hot Water Heater, El. 93 Feet

Safety-related equipment contained:  
None

Possible ignition sources:  
Overheated electrical cable

Consequences:

If a fire occurred in this room, it would be contained by the 3-hour fire-rated barriers. Thus, safe shutdown capability would not be affected. The following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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7.2.2.7 Room OC201 - Stair, El. 111 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

If a fire occurred in the stairwell, it could spread to other levels of the stair tower; however, every level is bounded by 2- and 3-hour fire-rated barriers. Since this area contains safety-related cable, area coverage by ionization smoke detector(s) will be provided. Manual hose streams and portable fire extinguishers are accessible at each level. Safe shutdown capability would not be affected by a fire in this area.

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7.2.2.8 Room OC202 - Division I Switchgear Area (Unit 1),  
El. 111 Feet

Safety-related equipment contained:

Electrical switchgear of Division I  
Electrical cable

Redundant safe shutdown related raceways:

This area contains redundant safe shutdown-related  
raceways.

Possible ignition sources:

Overheated electrical cable  
Exposure fire

Consequences:

This area contains redundant safe shutdown-related cables routed in proximity to one another. In accordance with the criteria described in subsection 7.1.5, area smoke detection, 1-hour fire-rated barriers separating Division I and Division II redundant safe shutdown-related cables, and an automatic fire suppression system are provided to ensure that redundant cables will not be affected by the same exposure fire. However, because of the switchgear located in this area and the damage that could be inflicted on the switchgear by inadvertent actuation of a water system, the fire suppression system utilized is a total flooding automatic CO<sub>2</sub> system in lieu of a sprinkler system. In addition to the installed fire protection, hose stations and portable fire extinguishers are located adjacent to this area. Room OC202 is separated from all adjacent areas by 3-hour fire-rated walls. Therefore, if a fire occurred in this area, it would not spread to adjacent areas. All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire were postulated to occur in this area, safe shutdown capability would be maintained due to the primary and secondary fire protection measures described.

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7.2.2.9 Room OC203 - Division II Switchgear Area (Unit 2),  
El. 111 Feet

Safety-related equipment contained:  
Electrical switchgear of Division II  
Electrical cable

Redundant safe shutdown-related raceways:

Physical review of installed equipment and cables is essential to the Safe Shutdown Cable Analysis. Results will be provided in a later amendment after resumption of Unit 2 construction.

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area will contain safe shutdown-related cables upon completion of Unit 2, the following fire protection measures are provided: 3-hour fire-rated walls, area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

Cables installed in this area have no effect on the operation of Unit 1. However, to minimize risk, the majority of welding and burning operations required in this area will be completed prior to Unit 1 fuel load.

If any welding or cutting is done after Unit 1 startup, strict administrative controls (i.e., fire watches) will be in effect to minimize the possibility of a fire. If a fire were to occur, it would be confined to the area by the 3-hour fire-rated barriers.

All cable trays will be separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type.

A fire in this area will not affect Unit 1 safe shutdown capability. During construction of Unit 2, fire protection measures based on the criteria specified in subsection 7.1.5 will be provided as necessary to ensure safe shutdown capability of Unit 2 will be maintained.

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7.2.2.10 Room OC204 - Division III Battery (Unit 2), El.111 Feet

Safety-related equipment contained:  
Electric batteries of Division III  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related components, the following fire protection measures are provided: 3-hour fire-rated walls, area coverage by ionization smoke detector(s), and manual hose stream and portable fire extinguisher accessibility. In addition, a hazard due to excessive hydrogen accumulation is prevented by continuous operation of redundant ventilation systems and hydrogen detectors which alarm locally and in the control room.

Only Division I or Division II equipment is necessary to achieve safe shutdown. All equipment in this area is Division III equipment and the room is completely enclosed by a 3-hour fire-rated barrier. Therefore, a fire in this area will not affect safe shutdown capability.

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7.2.2.11 Room OC205 - Emergency Remote Shutdown Panel (Division II, Unit 2), El. 111 Feet

Safety-related equipment contained:  
Emergency remote shutdown panels  
Electrical cables

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains a large concentration of Division II safe shutdown-related cables, fire protection measures are provided. An ionization smoke detector is utilized to detect smoke and shut the sliding fire door which separates this area from the Division I shutdown

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panel room (OC205A). An automatic total flooding CO<sub>2</sub> system is provided, and manual hose streams and portable fire extinguishers are accessible. A lockout switch is provided for the CO<sub>2</sub> system to ensure operator safety while the remote shutdown panels are being utilized.

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Should a fire occur during Unit 2 construction, with Unit 1 operating, it would be confined to this area by the 3-hour fire-rated barriers. Therefore, safe shutdown capabilities of Unit 1 would not be affected. Safe shutdown capabilities of Unit 2 would not be affected, since only Division II safe shutdown-related cables are contained in this area.

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7.2.2.12 Room OC205A - Emergency Remote Shutdown Panel  
(Division I, Unit 2, El. 111 Feet)

Safety-related equipment contained:  
Emergency remote shutdown panels  
Electrical cable

Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains a large concentration of Division I safe shutdown-related cables, fire protection measures are provided. An ionization smoke detector is utilized to detect smoke and shut the sliding fire door which separates this area from the Division II shutdown panel room (OC205). An automatic total flooding CO<sub>2</sub> system is provided, and manual hose streams and portable fire extinguishers are accessible. A lockout switch is provided for the CO<sub>2</sub> system to ensure operator safety while the remote shutdown panels are being utilized.

Should a fire occur during Unit 2 construction, with Unit 1 operating, it would be confined to this area by the 3-hour fire-rated barriers. Therefore, safe shutdown capabilities of Unit 1 would not be affected. Safe shutdown capabilities of Unit 2 would not be affected, since only Division I safe shutdown-related cables are contained in this area.

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7.2.2.13 Room OC206 - Division II Battery (Unit 2), El. 111 Feet

Safety-related equipment contained:  
Electric batteries of Division II  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Fire protection measures provided for this area include: 3-hour fire-rated walls, area coverage by ionization smoke detector(s), and manual hose streams and portable fire extinguisher accessibility. In addition, a hazard due to excessive hydrogen accumulation is prevented by continuous operation of redundant ventilation systems and hydrogen detectors which alarm locally and in the control room.

If a fire occurred during Unit 2 construction, with Unit 1 operating, it would be confined to the area by the 3-hour fire-rated barriers and safe shutdown capabilities of Unit 1 would not be affected. Safe shutdown capabilities of Unit 2 would not be affected because only Division II equipment is contained in this area.

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7.2.2.14 Room OC207 - Division I Battery (Unit 1), El. 111 Feet

Safety-related equipment contained:  
Electric batteries of Division I  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

No redundant safe shutdown-related equipment is located within this area. Fire protection measures provided include: 3-hour fire-rated walls, area coverage by ionization smoke detector(s), and accessibility to manual

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hose streams and portable fire extinguishers. In addition, a hazard due to excessive hydrogen accumulation is prevented by continuous operation of redundant ventilation systems and hydrogen detectors which alarm locally and in the control room.

If a fire occurred, safe shutdown capability would not be affected because only Division I equipment is contained in this area and separate redundant equipment is available.

7.2.2.15 Room OC208 - Emergency Remote Shutdown Panel  
(Division II, Unit 1), El. 111 Feet

Safety-related equipment contained:  
Emergency remote shutdown panels  
Electrical cable

Redundant safe shutdown-related raceways:  
Division II safe shutdown-related raceways located in this area are redundant to Division I raceways located in adjacent Area OC208A.

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

The panel in this area can be utilized to shut down the plant with Division II equipment in the event of the control room becoming uninhabitable. Therefore, several Division II safe shutdown-related cables are routed through the area. To ensure that these cables and the Division II remote shutdown panel in this area and the Division I remote shutdown panel and safe shutdown-related cables in Area OC208A cannot be affected by the same fire, extensive fire protection measures are provided.

An ionization smoke detector is installed in each area, and either detector will cause the sliding 3-hour fire-rated door to slide shut automatically if smoke is detected. An automatic, total flooding CO<sub>2</sub> system which floods Areas OC208 and OC208A concurrently is provided, and manual hose streams and portable fire extinguishers are accessible.

A lockout switch is provided for the CO<sub>2</sub> system to ensure operator safety while the remote shutdown panels are being utilized. The protection described is adequate to ensure that safe shutdown capability would be maintained if a fire were postulated to occur in this area.

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7.2.2.16 OC208A Emergency Remote Shutdown Panel (Division I,  
Unit 1), El. 111 Feet

Safety-related equipment contained:  
Emergency remote shutdown panel  
Electrical cable

Redundant safe shutdown-related raceways:  
Division I safe shutdown-related raceways located in  
this area are redundant to Division II raceways  
located in adjacent Area OC208.

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area is similar to Area OC208, except the Division I  
remote shutdown panel and Division I safe shutdown-related  
cables are located within this area. Fire protection  
measures taken to ensure that safe shutdown capability  
can be maintained in the event of a fire in this area are  
the same as described in subsection 7.2.2.15.

7.2.2.17 Room OC209 - Division III Battery (Unit 1), El. 111  
Feet

Safety-related equipment contained:  
Electric batteries of Division III  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the  
following fire protection is provided: 3-hour fire-rated  
walls, area coverage by ionization smoke detector(s), and  
manual hose streams and portable fire extinguisher acces-  
sibility. In addition, a hazard due to excessive hydrogen  
accumulation is prevented by continuous operation of  
redundant ventilation systems and hydrogen detectors  
which alarm locally and in the control room.

If a fire occurred, safe shutdown capability would not be  
affected because Division III is not required for shutdown.

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7.2.2.18 Room OC210 - Division III Switchgear (Unit 1),  
El. 111 Feet

Safety-related equipment contained:  
Electrical switchgear of Division III  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

The following fire protection measures are provided in this area: 3-hour fire-rated barriers, area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

If a fire occurred, safe shutdown capability would not be affected, because Division III is not required for safe shutdown.

7.2.2.19 Room OC211 - Division II Battery (Unit 1), El. 111 Feet

Safety-related equipment contained:  
Electric batteries of Division II  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
  
Overheated electrical cable  
Exposure fire

Consequences:

Room OC211 is completely enclosed by 3-hour fire-rated barriers. Additional fire protection measures provided include: area coverage by ionization smoke detector(s) and manual hose streams and portable fire extinguishers. Also, a hazard due to excessive hydrogen accumulation is prevented by continuous operation of redundant ventilation systems and hydrogen detectors which alarm locally and in the control room.

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If a fire occurred, safe shutdown capability would not be affected because only Division II equipment is contained in this area. Separate redundant Division I equipment could be used to safely shut down.

7.2.2.20 Room OC212 - Division I Battery (Unit 2), El. 111 Feet

Safety-related equipment contained:  
Electric batteries of Division I  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area is enclosed by 3-hour fire-rated walls and the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers. In addition, a hazard due to excessive hydrogen accumulation is prevented by continuous operation of redundant ventilation systems and hydrogen detectors which alarm locally and in the control room.

If a fire occurred during Unit 2 construction, with Unit 1 operating, it would be confined to the area by the 3-hour fire-rated barriers and safe shutdown capabilities of Unit 1 would not be affected. Safe shutdown capabilities of Unit 2 would not be affected because only Division I equipment is contained in this area.

7.2.2.21 Room OC213 - Division III Switchgear (Unit 2), El. 111 Feet

Safety-related equipment contained:  
Electrical switchgear of Division III  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

This area is enclosed by 3-hour fire-rated walls, and the following fire protection measures are provided: area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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If a fire occurred during Unit 2 construction, with Unit 1 operating, it would be confined to the area by the 3-hour fire-rated barriers and safe shutdown capabilities of Unit 1 would not be affected. Safe shutdown capabilities of Unit 2 would not be affected because only Division III equipment is contained in this area.

7.2.2.22 Room OC214 - Division I Switchgear Area (Unit 2),  
El. 111 Feet

Safety-related equipment contained:  
Electrical switchgear of Division I  
Electrical cable

Redundant safe shutdown-related raceways:  
See subsection 7.2.2.9.

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area will contain safe shutdown-related cables upon completion of Unit 2. The following fire protection measures are provided: area coverage by ionization smoke detector(s), an automatic double-shot total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

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Cables installed in this area have no effect on the operation of Unit 1. However, to minimize risk, the majority of welding and burning operations required in this area will be completed prior to Unit 1 fuel load.

If any welding or cutting is done after Unit 1 startup, strict administrative controls (i.e., fire watches) will be in effect to minimize the possibility of a fire. If a fire were to occur, it would be confined to the area because of the 3-hour fire-rated barriers provided.

All cable trays will be separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable is of the non-flame-propagating type.

A fire in this area will not affect Unit 1 safe shutdown capabilities. During construction of Unit 2, fire protection measures based on the criteria specified in subsection 7.1.5 will be provided as necessary to ensure safe shutdown capability of Unit 2 will be maintained.

7.2.2.23 Room OC215 - Division II Switchgear Area (Unit 1),  
El. 111 Feet

Safety-related equipment contained:  
Electrical switchgear of Division II  
Electrical cable

Redundant safe shutdown-related raceways:  
This area contains redundant safe shutdown-related raceways.

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area contains redundant safe shutdown-related cables routed in proximity to one another. In accordance with the criteria described in subsection 7.1.5, area smoke detection, 1-hour fire-rated barriers separating Division I and Division II redundant safe shutdown-related cables, and an automatic fire suppression system are provided to ensure that redundant cables will not be



affected by the same exposure fire. However, because of the switchgear located in this area and the damage that could be inflicted on the switchgear by inadvertent actuation of a water system, the fire suppression system utilized is a total flooding automatic CO<sub>2</sub> system in lieu of a sprinkler system. In addition to the installed fire protection, hose stations and portable fire extinguishers are located adjacent to this area.

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Room OC215 is separated from all adjacent areas by 3-hour fire-rated walls. Therefore, if a fire occurred in this area it would not spread to adjacent areas. All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. If a fire were postulated to occur in this area, safe shutdown capability would be maintained due to the primary and secondary fire protection measures described.

7.2.2.24 Room OC216 - Corridor, El. 111 Feet

Safety-related equipment contained:  
Electrical cable

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Redundant safe shutdown-related raceways:  
None

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Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

This area is separated from all adjacent areas by 3-hour fire-rated barriers. Therefore, a fire in this area would not affect safe shutdown capabilities. Since this area contains safety-related cables, area coverage by ionization smoke detector(s) will be provided; and if a fire were to occur, manual hose streams and portable fire extinguishers are available for fighting the fire.

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7.2.2.25 Room OC301 - Passage, El. 133 Feet

Safety-related equipment contained:  
None

Redundant safe shutdown related raceways:  
None

Possible ignition sources:  
Exposure fire

Consequences:

If a fire occurred in the stairwell, it could spread to other levels of the stair tower; however, every level is bounded by 2-hour fire-rated barriers. Manual hose streams and portable fire extinguishers are accessible at each level. Safe shutdown capability would not be affected by a fire in this area.

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7.2.2.26 Room OC302 - HVAC Equipment, El. 133 Feet

Safety-related equipment contained:

Exhaust fans, safeguard switchgear and battery rooms  
Air handling units  
Control room air-conditioning unit  
Control room standby fresh air unit

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electric motor or cable  
Exposure fire

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Consequences:

Fire protection measures provided for this area include: area coverage by ionization smoke detector(s), a deluge water sprinkler protecting the fresh air unit internally from a charcoal fire, and accessibility to manual hose streams and portable fire extinguishers.

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Only Division II safe shutdown-related cables are located in this area. Therefore, if a fire occurred, safe shutdown could be accomplished using separate redundant Division I equipment.

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7.2.2.27 Room OC303 - HVAC Equipment, El. 133 Feet

Safety-related equipment contained:

Control room standby fresh air unit  
Exhaust fans, safeguard switchgear and battery rooms  
Air handling units  
Control room air-conditioning unit  
Electrical cable

Redundant safe shutdown-related raceways:

See subsection 7.2.2.9.

Possible ignition sources:

Overheated electric motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s), a deluge water sprinkler protecting the standby fresh air unit internally from a charcoal fire, and accessibility to manual hose streams and portable fire extinguishers.

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There are no redundant safe shutdown-related Unit 1 components located in this area. However, Unit 2 safe shutdown-related components will be installed. Present fire protection measures are adequate for Unit 1 operation. Prior to Unit 2 operation, this area will be reviewed in accordance with subsection 7.1.5, and additional fire protection measures will be provided as necessary.

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7.2.2.28 Room OC304 - Electrical Space, El. 133 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

Area OC304 is open to Areas OC412 (El. 148') and OC612 (El. 166' and 177'). Since only Division II cables are located in these areas, if a fire occurred, safe shutdown could be accomplished using separate redundant Division I equipment.

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7.2.2.29 Room OC305 - Electrical Space, El. 133 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

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credible event. Further fire protection features for the control room suspended ceiling area are as follows:

1. The absence of high voltage cables which would be the primary source of electrical self-ignition potential. All electrical cables are limited to 120 volts or less. Further, all electrical cables have been tested to certify compliance with IEEE No. 383 or IPCEA S-19-81 flame retardance tests. There is no floor area nor feasible storage area where transient combustibles could be stored. Therefore, exposure fires are not postulated.
2. Preventing a postulated fire in one electrical division from spreading to the other electrical division by adhering to Regulatory Guide 1.75 separation criteria. In addition, electrical cables for low voltage control power are either individually run in metal conduits or in totally enclosed, all metal solid bottom and top trays. Electrical cables for instrumentation are run in metal conduits, all-metal solid-bottom trays with solid metal covers, or in all-metal solid-bottom trays without covers. Where the instrumentation cables are in open top trays, the entire tray and cable installation is wrapped in fire-retardant material.
3. Providing fire-stop material for the cable trays, every ten feet, thus severely limiting the amount of combustible material which could become involved in a postulated fire. The fire-stops installed are in accordance with "A Preliminary Report on Fire Protection Research Program Fire Barriers & Fire Retardant Coating Tests," by Sandia Laboratories, dated September 1978 (NUREG/CR-0381 SAND 78-1456).
4. Providing early warning capability with the installation of ionization smoke detectors inside the suspended ceiling cavity, which alarm in the control room and assure prompt response by plant personnel. Ionization smoke detectors are located to provide complete area coverage.
5. Providing extinguishing agents in the vicinity of the area. Hose stations 54E and 54F, with 100 feet of hose each, are located near column line G-19 at elevations 166 feet -0 inch and 189 feet -0 inch, respectively, together with portable extinguishers, and are available and

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can be introduced to the suspended ceiling cavity by personnel.

The control room is constantly attended, and is also protected by ionization smoke detectors, precluding the possibility that a fire could originate in the control room and remain undetected for sufficient time to allow it to spread to the area above the suspended ceiling. The suspended ceiling panels can be easily removed to permit inspection and access. Such panels, however, would not be capable of retaining a quantity of Halon and, if Halon were used, leakage would pose a problem for the operations personnel below.

Due to the features described above, a fixed extinguishing system would be of limited value and will not be provided.

In the control room, a metal barrier separation will remain in place during Unit 2 construction. It consists of metal liner panels on structural steel supports below the suspended acoustic ceiling, and flat expanded metal above it. A hose station and portable fire extinguishers are accessible to the Unit 2 portion of the control room. All permanent and temporary penetrations will have 3-hour fire-rated seals. All permanent and temporary doors will be monitored by the SFPS computer.

Any postulated fire during construction on the Unit 2 side will not affect safe shutdown of Unit 1.

- 7.2.2.47 Room OC505 - Janitor Closet, El. 166 Feet  
Room OC507 - Auxiliary Instrument Shop, El. 166 Feet  
Room OC510 - Office, El. 166 Feet  
Room OC511 - Dining Area, El. 166 Feet  
Room OC512 - Kitchen, El. 166 Feet  
Room OC513 - Toilet, El. 166 Feet

Safety-related equipment contained:  
None

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

Consequences:

Since these areas do not contain any safe shutdown-related cables, if a fire occurred, safe shutdown capabilities would not be affected. All these rooms have

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area coverage by ionization smoke detector(s), are accessible to manual hose streams and portable fire extinguishers, and are separated, as a group, from the control room by a 2-hour fire-rated barrier.

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- 7.2.2.48 Room OC514 - Locker, El. 166 Feet  
Room OC506 - Shower and Drying Area, El. 166 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

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Consequences:

Since these areas contain safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) in OC514 and accessibility to manual hose streams and portable fire extinguishers.

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Only Division I safety-related cables are located in these areas, and they are separated from adjacent areas by 2- and 3-hour-rated fire barriers. Therefore, if a fire occurred, safe shutdown capabilities would not be affected.

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- 7.2.2.49 Room OC509 - Corridor, El. 166 Feet  
Room OC515 - Corridor, El. 166 Feet

Safety-related equipment contained:  
None

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

Consequences:

Since these areas do not contain any safety-related equipment and are separated from all adjacent areas by 2-hour fire-rated barriers, safe shutdown capabilities would not be affected in the event of a fire. Fire protection measures provided include: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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- 7.2.2.50 Room OC516 - Cable Space, El. 166 Feet  
Room OC517 - Cable Space, El. 166 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cables  
Exposure fire

Consequences:

Areas OC516 and OC517 each contain only a single division of safety-related cables. Area OC516 is adjacent to Areas OC502 and OC503 and is not separated from either area by a rated fire wall. Area OC517 is adjacent to Area OC504 and is not separated from it by a rated fire wall. In addition, both of these areas are adjacent to and open to the suspended ceiling space above Areas OC502, OC503, and OC504. If a fire occurred in either of these areas, safe shutdown capability would be maintained, due to the fire protection measures described in subsection 7.2.2.46.

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- 7.2.2.51 Room OC518 - Electrical Space, El. 166 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Area OC518 contains only Division I safety-related cables. If a fire occurred, safe shutdown capabilities would not be affected, since only one division would be lost. This room has area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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- 7.2.2.52 Room OC602 - Corridor, El. 177 Feet
- Room OC613 - Corridor, El. 177 Feet
- Room OC614 - Corridor, El. 177 Feet

Safety-related equipment contained:  
None

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

Consequences:

Since none of these areas contain safety-related equipment, if a fire occurred, safe shutdown capabilities would not be affected.

The following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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- 7.2.2.53 Room OC603 - Emergency Dormitory, El. 177 Feet
- Room OC616 - Storage Closet, El. 177 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

Since these areas contain safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) in OC603 and accessibility to manual hose streams and portable fire extinguishers.

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Only Division II safety-related cables are located in these areas, and they are separated from adjacent areas by 2- and 3-hour-rated fire barriers. Therefore, if a fire occurred, safe shutdown capability would not be affected.

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7.2.2.54 Room OC604 - Computer, El. 177 Feet

Safety-related equipment contained:  
None

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area contains the security and fire protection systems computer. The SFPS computer is not required for shutdown. Therefore, if a fire occurred, safe shutdown capabilities would not be affected.

The following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

- 7.2.2.55 Room OC605 - Janitor's Closet, El. 177 Feet  
Room OC606 - Men's Toilet, El. 177 Feet  
Room OC607 - Women's Toilet, El. 177 Feet  
Room OC611 - Electrical Space, El. 177 Feet  
Room OC615 - Storage Closet, El. 177 Feet

Safety-related equipment contained:  
None

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

Consequences:

Since none of these areas contain safety-related cables, if a fire occurred, safe shutdown capability would not be affected.

The following fire protection measures are provided: area coverage by ionization smoke detector(s) (for Rooms OC605 and OC611) and accessibility to manual hose streams and portable fire extinguishers.

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7.2.2.55.1 Room OC609 - Electrical Space, El. 177 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable

Consequences:

This room extends from the El. 166' slab to the base of the El. 189' slab. Since this area contains only Division I safety-related cables, if a fire occurred, safe shutdown capability would not be affected. This room is separated from the rest of the control building by 3-hour rated fire walls, and any fire originating in this room would be contained.

7.2.2.55.2 Room OC610 - Electrical Space, El. 177 Feet  
Room OC612 - Electrical Space, El. 177 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable

Consequences:

These rooms extend from the El. 166' slab to the base of the El. 189' slab. Since these areas contain only Division II safety-related cables, if a fire occurred, safe shutdown capability would not be affected. Area coverage by ionization smoke detector(s) for Room OC610 is provided by the detector(s) located in Room OC709. These rooms are separated from the rest of the control building by 3-hour rated fire walls, and any fire originating in these rooms would be contained. See subsections 7.2.2.28 and 7.2.2.30 for a discussion of adjacent areas.

7.2.2.56 Room OC608 - Technical Support, El. 177 Feet

Safety-related equipment contained:  
Electrical cable

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Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

Consequences:

Since this area contains safety-related cables, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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Only Division I safety-related cables are located in this area. Therefore, if a fire occurred, safe shutdown capability would not be affected.

7.2.2.57 Room OC701 - Corridor, El. 190 Feet

Safety-related equipment contained:  
None

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

Consequences:

Since these areas do not contain any safety-related equipment, if a fire occurred, safe shutdown capability would not be affected. Manual hose streams and portable fire extinguishers are accessible.

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7.2.2.58 Room OC702 - Upper Cable Spreading (Unit 1), El. 189 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

This area contains a high concentration of Division I safe shutdown-related cables. Therefore, the following fire protection measures are provided: area coverage by ionization smoke detector(s), an automatic total flooding CO<sub>2</sub> system, a backup fixed pipe water suppression system, and accessibility to manual hose streams and portable fire extinguishers.

All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1 and the cable insulation is of the non-flame-propagating type. If a fire occurred in this area, it could only affect one division of safe shutdown-related equipment. Therefore, safe shutdown capability would be maintained by separate redundant equipment.

7.2.2.59 Room OC703 - Control Cabinet Area (Unit 1),  
El. 190 Feet

Safety-related equipment contained:

Control cabinets  
Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical cable  
Exposure fire

Consequences:

Control cabinets located in this area are part of the PGCC and have been provided with an automatic Halon 1301 system for the floor sections. Additional fire protection measures in this area include 3-hour fire-rated barriers, area coverage by ionization smoke detector(s), a manual total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers.

Only Division I safe shutdown-related cables are located in this area. If a fire were postulated to occur, it would be contained, and safe shutdown could be accomplished by utilizing separate redundant Division II components.

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7.2.2.60 Room OC704 - Control Cabinet Area (Unit 2),  
El. 190 Feet

Safety-related equipment contained:  
Control cabinets  
Electrical cable

Redundant safe shutdown-related raceways:  
Refer to subsection 7.2.2.9.

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

The following fire protection measures are provided in this area: area coverage by ionization smoke detector(s), a manual total flooding CO<sub>2</sub> system, and accessibility to manual hose streams and portable fire extinguishers. An automatic Halon 1301 system for the floor sections will be provided prior to Unit 2 operation.

Prior to startup of Unit 2, this area will be reviewed in accordance with the criteria listed in subsection 7.1.5 and additional fire protection measures will be provided, if necessary.

7.2.2.61 Room OC705 - Upper Cable Spreading (Unit 2),  
El. 189 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
See subsection 7.2.2.9.

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

See subsection 7.2.2.9. In addition to fire protection measures described in subsection 7.2.2.9, a backup fixed pipe water suppression system has been provided.

7.2.2.62 Room OC707 - Instrument Motor Generator (Unit 1),  
El. 190 Feet

Safety-related equipment contained:  
Power panels

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Electrical cable

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Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cables  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: 3-hour fire-rated walls, area coverage by ionization smoke detector(s), and accessibility to manual hose streams and portable fire extinguishers.

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Only Division I safety-related equipment is contained in this area. Therefore, if a fire occurred, safe shutdown capability would not be affected.

7.2.2.63 Room OC708 - Instrument Motor Generator (Unit 2),  
El. 190 Feet

Safety-related equipment contained:  
Power panels

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Electrical cable

Redundant safe shutdown related raceways:  
Refer to subsection 7.2.2.9.

Possible ignition sources:  
Overheated electrical cables  
Exposure fire

Consequences:

Fire protection measures provided and the consequences of a postulated fire are the same as described in subsection 7.2.2.62.

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7.2.2.64 Room OC706 - Corridor, El. 190 Feet  
Room OC709 - Electrical Space, El. 190 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire

Consequences:

These areas contain safety-related cables. Fire protection provided includes: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers. | 56

None of the safety-related cables in these areas are required for safe shutdown. Therefore, if a fire occurred, safe shutdown capability would not be affected. See subsection 7.2.2.30 for a discussion of areas adjacent to Room OC709. | 56

7.2.2.65 Room OC710 - Elevator No. 1 Machine, El. 207 Feet  
-6 Inches | 56

Safety-related equipment contained:  
None

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electric motor or cable  
Exposure fire

Consequences:

Since this area does not contain any safety-related equipment, safe shutdown capability would not be affected if a fire occurred.

A manual hose stream and portable fire extinguishers are accessible to this area. | 56

7.2.2.66 Room OC711 - Passage, El. 190 Feet

Safety-related equipment contained:  
None

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Exposure fire

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Consequences:

Since this area does not contain any safety-related equipment, safe shutdown capability would not be affected if a fire occurred.

The following fire protection measures are provided: area coverage by ionization smoke detector(s) and manual hose streams and portable fire extinguishers are accessible.

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7.2.2.67 Room OC712 - HVAC Room (Unit 1), El. 189 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electric motor or cable  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: area coverage by ionization smoke detector(s) and accessibility to manual hose streams and portable fire extinguishers.

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None of the safety-related cables in this area are required for safe shutdown. Therefore, if a fire occurred, safe shutdown capability would not be affected.

7.2.2.68 Room OC713 - HVAC Room (Unit 2), El. 189 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
Refer to subsection 7.2.2.9.

Possible ignition sources:  
Overheated electric cable or motor  
Exposure fire

Consequences:

Since this area contains safety-related equipment, the following fire protection measures are provided: accessibility to manual hose streams and portable fire extinguishers. Area coverage by ionization smoke detector(s) will be provided prior to Unit 2 operation.

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Prior to startup of Unit 2, an exposure fire analysis of this area will be performed and additional fire protection measures will be provided, if required, in accordance with the criteria specified in subsection 7.1.5.

7.2.2.69 HVAC Chases, El. 111, 148, 166, 177, and 189 Feet

Safety-related equipment contained:  
Electrical cable

Redundant safe shutdown-related raceways:  
None

Possible ignition sources:  
Overheated electrical cable  
Exposure fire in accessible chases

Consequences:

All of these HVAC areas are separated from the rest of the control building by 2- and 3-hour rated fire walls. With the exception of three areas, these HVAC chases are inaccessible. Two of these three accessible areas contain safety-related cable, so area coverage by ionization smoke detectors will be provided. Manual hose streams and portable fire extinguishers are accessible to these rooms. The safety-related cables and HVAC equipment contained in these areas are not required for safe shutdown; therefore, if a fire occurred in these areas, safe shutdown capability would not be affected.

7.2.3 Containment Building

7.2.3.1 Room 1A110 - Suppression Pool Area, El. 93 Feet

Although the containment is normally accessible during operation, it is not a high traffic area and administrative controls are utilized to control material and personnel ingress and egress. Any maintenance operations are closely controlled to minimize worker exposure and control cleanliness within the containment. Therefore, protection against the effects of an exposure fire due to transient combustibles is provided primarily by the strict control of the combustible.

If an exposure fire were postulated, the design of the containment would limit the size of the exposure fire and the heat concentration. Except where specific concrete pads are installed for equipment installation, the levels of the containment are formed of grating floors that would not concentrate a liquid spill. The grated floors would also limit the rate of ambient temperature rise by allowing the heat and gases from the postulated fire to dissipate. Additional dissipation of

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heat and combustion gases would occur due to the continuous operation of a 500 cfm containment exhaust.

Detection of the postulated fire would be provided by ionization smoke detectors mounted in the ductwork of the containment cooling system and by redundant ambient temperature monitors installed to monitor the containment environment. The smoke detectors and the temperature monitors initiate alarms in the control room and alert the fire brigade.

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Safety-related equipment contained:

Electrical cable

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Redundant safe shutdown-related raceways:

Redundant safe shutdown-related raceways are located at El. 135'-4" and 161'-10".

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Possible ignition sources:

None at El. 93 feet

Above El. 93 feet, additional levels exist which are separated by grating floors. Starting at El. 139 feet, large concentrations of electrical cable in cable trays and cable conduits exist. An overheated electrical cable may be postulated to be an ignition source.

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Consequences:

Electrical cables of all three safety-related electrical divisions are located in this area. However, no redundant safe shutdown-related raceways are located within 45 feet of one another. In addition, the two closest redundant circuits are separated by the main steam pipe tunnel at El. 135'-4" and by the RWCU heat exchanger room (1A414) on El. 161'-10". Finally, all cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. Therefore, safe shutdown capability would be maintained. All areas in the containment building, except 1A112, drywell area, and 1A113, reactor vessel area, can be reached by the fire brigade without exposure to dangerous radiation levels. Multiple hose streams and portable fire extinguishers are accessible. Therefore, the Grand Gulf safe shutdown capability is adequately protected against the effects of an exposure fire.

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7.2.3.2 Room 1A112 - Drywell Area, El. 100 Feet

Safety-related equipment contained:

Drywell valve handling crane  
Main steam isolation valves (above El. 143')

Possible ignition sources:

Oil spill over hot surfaces  
Overheated electric motor or cable

Consequences:

The principal potential fire hazard in this area is the lubricating oil contained within the two reactor recirculation pump motors. Each motor utilizes self-lubricated bearings. An upper reservoir containing 52 gallons of lubricating oil surrounds the upper guide bearing and thrust bearing. A lower reservoir containing 7.5 gallons of lubricant surrounds the lower guide bearing. The reservoirs are formed by heavy bearing brackets and, for the lower reservoir, a 1-5/8" thick "oil pan." Details of this design are shown in Figures 9A-34 and 9A-35, Reactor Recirculation Pump Motor Assembly. The lubricating oil is cooled by cooling coils installed within the reservoirs.

Since the bearings are self-lubricated and the oil is cooled within the reservoir, a pressurized oil system is neither required nor utilized. This design also minimizes piping connections to the oil reservoir. As may be noted from the referenced figures, connections are limited to atmospheric vents, drains, fill connections, and level monitoring connections. The heavy construction and non-pressurized design of this lubricating system minimizes the susceptibility of the system to leakage. Also, if a leak were to occur, ignition enhancing spray would be unlikely. Therefore, an exposure fire due to ignition of the recirculation pump lubricating oil is not credible and additional fire protection measures for the recirculation pumps is not required.

The drywell is inaccessible during operation and when opened, stringent administrative controls are implemented to monitor personnel and equipment ingress and egress. Therefore, an exposure fire from transient combustibles is not postulated. Since exposure fire hazards do not exist in the drywell, this area was not included in the exposure fire analysis described in subsection 7.1.5.

If a cable fire were postulated in the drywell, it would be detected by three dual thermocouples that are provided

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to monitor the drywell ambient air temperature. At each location, one thermocouple element monitors and signals the ambient temperature to the plant computer. The other thermocouple element monitors the ambient temperature and initiates alarms in the control room when the ambient temperature reaches or exceeds 145 F. The normal ambient temperature in the drywell is 135 F. Thermocouples M51-TE-N029-1&2 and M51-TE-N031-1&2 are located in the lower drywell area. Thermocouples M51-TE-N027-1&2 are located in the upper drywell area. These thermocouples are illustrated in Figure 9.4-13.

Once detected, the postulated cable fire would be extinguished by the fire brigade using portable fire extinguishers and hose stations available in the containment. Cable separation as described in Section 7.1 would ensure that redundant safety-related divisions would not be affected.

7.2.3.3 Room 1A113 - Reactor Vessel Area, Inside Drywell,  
El. 94 Feet

Safety-related equipment contained:

Reactor vessel  
Control rod drive assemblies  
Electrical cables

Possible ignition sources:

Overheated electric motor or cable

Consequences:

If a fire were postulated in this area, control rod drives and reactor core instrumentation could be affected. This unlikely event would not prohibit safe shutdown capability because the standby liquid control system, located in Room 1A512 and completely separated from this area, may be used to provide reactivity control in the event that an insufficient number of control rods are inserted. However, this is not a realistic event as there are no credible ignition sources that would cause a fire in this area. All power and lighting cables in this area are totally enclosed in conduit, prohibiting the spread of a fire postulated from this source. Cables connected to the sump pump electric motors at El. 93' are also totally enclosed in conduits; again, a possible fire could not spread. All the cables which run into this room from the surrounding Room 1A112 drywell, are totally enclosed in conduit and the conduits are encased with concrete at the wall. All the electrical cables in the open cable trays at El. 113'

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and 115' are low energy level instrumentation cables serving only solid state components and are highly unlikely ignition sources. Also, the estimated maximum temperature in this room presented in Table 9A-2 is based on the simultaneous complete combustion of all combustibles present. This event is not credible because all the electrical cables in this room, which are the only combustibles present, have been tested to certify compliance with IEEE 383 or ICEA S-19-81, Flame Retardance Tests, and therefore can not burn simultaneously from a single ignition source.

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Protection against an exposure fire in this area affecting safe shutdown capability is as described in subsection 7.2.3.2.

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7.2.3.4 Room 1A126 - Weir Wall Area, El. 93 Feet

Safety-related equipment contained:

None

Possible ignition sources:

None

Consequences:

Not applicable

7.2.3.5 Room 1A310 - Main Steam Pipe Tunnel, El. 140 Feet

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Safety-related equipment contained:

Electrical cable

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Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Overheated electric motor or cable

Consequences:

Only Division I safe shutdown-related raceways are contained in this area; therefore, if a fire occurred, safe shutdown capability would not be affected. An exposure fire in this area is not credible because the area is inaccessible during normal operation. When accessible, administrative controls, as described in subsection 7.2.3.1, are enforced.

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7.2.3.6 Room 1A311 - CRD Hydraulic Control Area, El. 139 Feet

Safety-related equipment contained:

Instrument panel D, main steam flow and recirculation  
Instrument rack, recirculation pump "B"  
RPIS multiplexing units  
Control rod drive hydraulic control  
Instrument panel D, reactor vessel pressure and level  
Instrument rack, jet pump E  
Instrument panel B, reactor vessel pressure and level  
Instrument panel B, main steam flow  
Electrical cable

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Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Overheated electric motor or cable

Consequences:

Only Division II safe shutdown-related raceways are contained in this area; therefore, if a fire occurred, safe shutdown capability would not be affected. Since the CRD hydraulic units utilize water as a hydraulic fluid, leakage from these units would not constitute an exposure fire hazard. An exposure fire caused by transient combustible material is not credible as described in subsection 7.2.3.1.

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However, if a fire were postulated, operative loss of the control rod drive hydraulic control units in this area would not affect safe shutdown capability, since affected control rods may be inserted by operation of the ball type check valves within the control rod drive housings, located underneath the reactor pressure vessel, for reactor operating pressures above 600 psig. Furthermore, insertion of control rods by operation of the hydraulic control units in area 1A313, in combination with manual operation of the standby liquid control system, will also shut down the nuclear reactor.

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7.2.3.7 Room 1A313 - CRD Hydraulic Control Area, El. 139 Feet

Safety-related equipment contained:

Instrument panel C, reactor vessel pressure and level  
Instrument rack recirculation pump A

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Instrument panel C, main steam flow and recirculation  
Control rod drive hydraulic control units  
RPIS multiplexing unit  
Instrument rack, jet pump A  
Instrument panel A, main steam flow  
Instrument panel A, reactor vessel pressure and level

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Overheated electric motor or cable

Consequences:

Protection and consequences of a postulated fire are the same as described in subsection 7.2.3.6, except that the alternate means of controlling reactivity would be insertion of control rods by operation of the hydraulic control units in Area 1A311, in combination with manual operation of the standby liquid control system.

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7.2.3.8 Room 1A411 - Unassigned, El. 170 Feet

Safety-related equipment contained:

Electrical cable

46

Redundant safe shutdown-related raceways:

None

48

Possible ignition sources:

Overheated electrical cable

46

Consequences:

As described in subsection 7.2.3.1.

46

7.2.3.9 Room 1A414 - RWCU Heat Exchanger, El. 166 Feet

Safety-related equipment contained:

Electrical cable

46

Redundant safe shutdown-related raceways:

None

48

Possible ignition sources:

Overheated electrical cables

Consequences:

Consequences of possible electrical cable fires in the containment building are discussed in subsection 7.2.3.1.

The areas containing reactor water cleanup equipment are divided by concrete shield walls, as shown by Figure 9A-13, which, although not provided with fire doors, would provide some containment of any postulated exposure fire. Also, in the event that a fire were to occur in this area, duct mounted smoke detectors would initiate an alarm in the control room.

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7.2.3.10 Room 1A419 - RWCU Pump, El. 166 Feet

Safety-related equipment contained:

Electrical cable

46

Redundant safe shutdown-related raceways:

None

48

Possible ignition sources:

Overheated electric motor or cable

Consequences:

As described in subsection 7.2.3.9.

46

7.2.3.11 Room 1A421 - RWCU Backwash Tank, El. 161 Feet

Safety-related equipment contained:

Electrical cable

46

Redundant safe shutdown-related raceways:

None

48

Possible ignition sources:

Overheated electrical cable

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Consequences:

As described in subsection 7.2.3.9.

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7.2.3.12 Room 1A425 - Containment Fuel Pool, El. 167 Feet

| 46

Safety-related equipment contained:

None

Possible ignition sources:

None

Consequences:

Not applicable

7.2.3.13 Room 1A443 - Valve Access Area, El. 173 Feet

Safety-related equipment contained:

Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical cable

Consequences:

As described in subsection 7.2.3.9.

7.2.3.14 Room 1A507 - RWCU Heat Exchanger, Room El. 185 Feet

46

Safety-related equipment contained:

Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated cable

Consequences:

As described in subsection 7.2.3.9. No safe shutdown-related cables are located in this area.

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7.2.3.15 Room 1A509 - Miscellaneous Equipment Area, El. 184 Feet | 46

Safety-related equipment contained:

Electrical cables

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Overheated electrical cables

Consequences:

Only Division I safe shutdown-related raceways are contained in this area; therefore, if a fire occurred, safe shutdown capability would not be affected. Protection provided against the effects of postulated exposure and electrical cable fires in the containment building are as discussed in subsection 7.2.3.1.

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7.2.3.16 Room 1A510 - Steam Separator Storage Area

Safety-related equipment contained:

None

Possible ignition sources:

None

Consequences:

Not applicable

7.2.3.17 Room 1A512 - Standby Liquid Control System Area,  
El. 185 Feet

| 46

Safety-related equipment contained:

Instrument panel, standby liquid control system  
Standby liquid control system storage tank  
Drywell purge compressor unit  
Electrical cable

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Oil spill over hot surfaces  
Overheated electric motor or cable

Consequences:

Operative loss of the standby liquid control system due to a possible fire will not affect safe shutdown capability. This system serves only as manual backup for the control rod drive system and sufficient separation is provided to ensure both systems can not be affected by the same fire. Protection against the consequences of a transient combustible exposure fire or an electrical cable fire are discussed in subsection 7.2.3.1. In addition, the filter train is protected by a manual water deluge system.

| 56

The drywell purge compressors present a potential in situ exposure fire hazard due to the use of a 55-gallon capacity oil lubrication system. However, the drywell purge compressors do not normally operate and are run only every 92 days for approximately 15 minutes to meet technical specification surveillance requirements. This short operating time experienced by these compressors makes oil leaks unlikely. In the event that a leak were to occur a curbed area around each compressor would retain the lubricant. The purge compressors are not required for safe shutdown and safe shutdown-related cables are not routed in proximity to this area.

| 46

7.2.3.18 Room 1A513 - Drywell Head Area, El. 184 Feet

Safety-related equipment contained:

Electrical cables

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Overheated electrical cables

Consequences:

No safe shutdown related cables are located in this area.

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7.2.3.19 Room 1A514 - Sample Area, El. 185 Feet

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Safety-related equipment contained:

Drywell purge compressor unit (adjacent to the area)  
Electrical cables

| 46

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Oil spill over hot surfaces  
Overheated electric motor or cable

Consequences:

For Area 1A514 within the shield wall, as described by subsection 7.2.3.9. For the curbed area adjacent to Room 1A514A, as described by subsection 7.2.3.17.

7.2.3.20 Room 1A515 - Pump Area, El. 185 Feet

| 46

Safety-related equipment contained:

Electrical cable

Redundant safe shutdown-related raceways:

None

| 48

Possible ignition sources:

Overheated electric motor or cable

Consequences:

As described by subsection 7.2.3.9.

7.2.3.21 Room 1A516 - Filter Demineralizer Area, El. 185 Feet

Safety-related equipment contained:

Electrical cable

| 46

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Overheated electrical cable

Consequences:

Same as described in subsection 7.2.3.9. No safe shutdown-related cables are located in this area.

7.2.3.22 Room 1A517 - Filter Demineralizer Area, El. 185 Feet

Safety-related equipment contained:

Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electrical cable

Consequences:

Same as described in subsection 7.2.3.3.9.

7.2.3.23 Room 1A520 - Steam Dryer Storage Area, El. 184 Feet

Safety-related equipment contained:

None

Possible ignition sources:

None

Consequences:

Not applicable

7.2.3.24 Room 1A601 - Reactor Containment Area, El. 208 Feet

Safety-related equipment contained:

Hydrogen recombiner  
Fuel preparation machine  
Refueling platform  
Containment polar crane  
Electrical cable

Redundant safe shutdown-related raceways:

None

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Possible ignition sources:

Overheated electrical cable or motor

Consequences:

The oil reservoirs in the polar crane gear boxes may be postulated to be in situ exposure fire hazards. However, the crane can only be operated with personnel in attendance. Therefore, any lubricant leakage would be noted before a fire hazard evolved.

Operative loss of the equipment within this room due to a possible fire will not affect safe shutdown capability. These components are not required for safe shutdown.

Consequences of possible electrical cable fires in the containment building are discussed in subsection 7.2.3.1.

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7.2.4 Diesel Generator Building

7.2.4.1 Room 1D301 - Corridor, El. 133 Feet

Safety-related equipment contained:

Electrical cable

Redundant safe shutdown-related raceways:

This area contains redundant safe shutdown-related raceways.

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Possible ignition sources:

Overheated electrical cable  
Exposure fire

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Consequences:

Area 1D301 is separated from the diesel generator bays and the auxiliary building by 3-hour fire-rated walls. This area contains redundant safe shutdown-related cables routed approximately 20 feet from one another. These cables are required for safe shutdown only if a loss of offsite power occurs. In accordance with the criteria described in subsection 7.1.5, area coverage by ionization smoke detectors and an automatic preaction sprinkler



system is provided to protect the redundant cables from the effects of a single exposure fire.

In addition to the primary protection, hose stations and portable fire extinguishers are strategically located for use in this area.

All cable trays are separated in accordance with Regulatory Guide 1.75, as outlined in Section 7.1, and the cable insulation is of the non-flame-propagating type. Therefore, if a fire occurred in this area, safe shutdown capability would not be affected with or without loss of offsite power due to primary and secondary fire protection measures provided.

- 7.2.4.2 Room 1D302, Dry Tank Area, El. 133 Feet
- Room 1D310, Relay and Control Panel Area, El. 133 Feet
- Room 1D403, Platform, El. 158 Feet

Safety-related equipment contained:

- Fuel oil day tank
- Standby diesel generator
- Lube oil sump tank
- Lube oil cooler
- Jacket water standpipe
- Jacket water cooler
- Electrical cable

Redundant safe shutdown-related raceways.

None

Possible ignition sources:

- Oil spill over hot surfaces
- Overheated electric motor or cable
- Exposure fire

Consequences:

These areas comprise the diesel generator bay. Each diesel generator bay contains equipment associated with a single division and is separated from every other diesel generator bay and from corridor 1D301 by 3-hour fire-rated barriers. The design of the diesel generator building is such that the roof of each bay is structurally separate to ensure that any postulated loss of integrity due to a fire would not affect adjacent bays.

No redundant safe shutdown-related equipment or cables are located within any diesel generator bay. However, because of combustibles associated with a diesel, extraordinary

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fire protection measures have been provided. Area fire detection coverage is available through the installation of ultraviolet flame detectors. A 3/3000 density automatic, air supervised, preaction sprinkler system designed for complete coverage of the bay, including the area above and below the HVAC platform, is provided. In addition to the installed fire protection systems, portable fire extinguishers are available within each diesel generator bay and in corridor 1D301. Two hose stations are located in corridor 1D301 and fire hydrants are located in the yard in the vicinity of the diesel generator building.

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The fire protection measures described are adequate to ensure that a fire postulated in the diesel generator building would not prevent an orderly safe shutdown even if a loss of offsite power is postulated coincident to the fire.

- 7.2.4.3 Room 1D303, Day Tank Area, El. 133 Feet
- Room 1D308, Relay and Control Panel Area, El. 133 Feet
- Room 1D402, Platform, El. 158 Feet

Safety-related equipment contained:

- Fuel oil day tank
- Standby diesel generator
- Lube oil sump tank
- Lube oil cooler
- Jacket water standpipe
- Jacket water cooler
- Electrical cable

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

- Oil spill over hot surfaces
- Overheated electric motor or cable
- Exposure fire

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Consequences:

Fire protection measures provided and the consequences of a fire in this area are the same as described in subsection 7.2.4.2.

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- 7.2.4.4 Room 1D304, Day Tank Area, El. 133 Feet  
Room 1D306, Relay and Control Panel Area, El. 133 Feet  
Room 1D401, Platform, El. 158 Feet | 46

Safety-related equipment contained:

Fuel oil day tank  
HPCS diesel generator  
Exhaust silencer  
Air intake filter  
Compressed air supply unit skid  
Diesel generator room outside air fan  
Electrical cable | 46

Redundant safe shutdown-related raceways: | 46

None

Possible ignition sources:

Oil spill over hot surfaces  
Overheated electric motor or cable  
Exposure fire | 46

Consequences:

The fire protection measures provided and the consequences of a fire in this area are described in subsection 7.4.2. However, this diesel generator is Division III and is not required for safe shutdown. | 46

7.2.5 Standby Service Water Pump House

- 7.2.5.1 Standby Service Water Pump House and Valve House,  
El. 133 Feet | 56

Safety-related equipment contained:

Standby service water pumps  
Outside air fans  
HPCS service water pump  
Electrical cable | 46

Redundant safe shutdown-related raceways:

None

Possible ignition sources:

Overheated electric motor or cable  
Exposure fire | 46

Consequences:

Two independent, separate standby service water pump houses and valve houses are provided. One pump house contains two standby service water pumps, served by Division I; one pump for Unit 1 and one pump for Unit 2. The other pump house contains two standby service water pumps, served by Division II; one pump for Unit 1 and one pump for Unit 2. In this way, operative loss of the equipment in either pump house due to a possible fire would not affect safe shutdown capability, because both Unit 1 and Unit 2 will have a backup pump available in the other pump house.

Fire protection is in the form of area coverage by ionization smoke detector(s) and hydrant hose streams located for use in the area.

TABLE 9A-1

FIRE PROTECTION PROGRAM COMPARISON  
WITH NRC REQUIREMENTS

47

Point-by-point comparison of the fire protection program of the Grand Gulf Nuclear Station Units 1 and 2, with the positions of the Nuclear Regulatory Commission's Appendix A to Branch Technical Position APCS 9.5-1, dated August 23, 1976, for plants under construction before July 1, 1976.

<u>Appendix A Position</u>	<u>Grand Gulf Station Position</u>	
A. <u>Overall Requirements of Nuclear Plant Fire Protection Program</u>		
1. Personnel	Comply. See Fire Protection Program (Appendix 9B).	56
a. Layout Coordination and System Design Requirements		46
b. Design and Maintenance		
c. Fire Prevention Activities		
d. Fire Brigade Training		
2. Design Basis	Comply. Fire hazard analysis results were used to improve existing designs, as practicable.	
3. Backup	Comply. Hose streams and portable water and dry chemical fire extin- guishers are provided throughout the plant.	46
4. Single Failure Criterion	Comply. Redundant fire pumps, piping, and fire suppression means are pro- vided. The diesel generator building has a single supply for sprinkler systems and hose stations. However, fire hydrants are available in the vicinity.	46

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TABLE 9A-1 (Cont.)

5.	Fire Suppression Systems	Comply. Inadvertent operation of the fire suppression systems presents no safe shutdown problem.	
6.	Fuel Storage Areas	Comply. Fire protection programs will be operative before receiving fuel.	56
7.	Fuel Loading	Comply. Fire protection programs will be operative before fuel load.	56
8.	Multiple-Reactor Sites	Comply. Operative Unit 1 will be protected from hazards in Unit 2 while Unit 2 is under construction.	
9.	Simultaneous Fires	Comply. Possible fires are postulated as presented in Section 4.0, Criteria.	
B.	<u>Administrative Procedures, Controls, and Fire Brigade</u>		
1.	Providing Administrative Procedures	Comply. See Fire Protection Program (Appendix 9B).	56
			46
2.	Bulk Storage of Combustibles	Comply. See Fire Protection Program (Appendix 9B).	56
3.	Special Actions and Procedures	Comply. The Fire Protection Program procedures provide for these items:  Fire protection organization Fire protection equipment maintenance Cutting, welding, and hot work Self-inspection Coordination of fire protection during operation/construction period Fire protection test Impairment procedure Fire brigade Control of combustibles	56



TABLE 9A-1 (Cont.)

4.	Public Fire Department Response	Comply. See Fire Protection Program (Appendix 9B).	46	56
5.	Fire Brigade	Comply. See Fire Protection Program (Appendix 9B).		56
	a. Equipment Testing and Maintenance	Provisions are made in Appendix 9B.		
	b. Basic Training	Comply. See Fire Protection Program (Appendix 9B).		56

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TABLE 9A-1 (Cont.)

c. Proper Shift Coverage	Comply. See Fire Protection Program (Appendix 9B).	46   56
d. Recommended Standard (NFPA 27)	Provisions have been made for:  Organization, training, fire drills, inspection, maintenance, and courses in fire protection in the Fire Protection Program (Appendix 9B).	46   56
C. <u>Fire Protection Quality Assurance Program</u>	Courses in fire protection - Fire Brigade Procedure	
C.1 Design, Procurement, and Construction Phase	<p>The Quality Assurance Program for fire protection during the design, procurement, and construction phases is controlled by Engineering, Procurement, Construction, Checkout and Turnover, and Quality Assurance department procedures. Some of these procedures are similar to those used for safety-related activities and some are written to address non-safety-related activities and are part of existing project manuals previously reviewed by Quality Assurance.</p> <p>Verification of the effectiveness of the Quality Assurance Program for fire protection is accomplished through design document review, inspections, surveillance and monitoring, tests, and audits.</p> <p>Systems, components, and structures covered by the program are:</p> <ol style="list-style-type: none"> <li>1. Automatic pre-action sprinklers</li> <li>2. Automatic wet-pipe sprinklers</li> <li>3. Water spray systems</li> <li>4. Automatic carbon dioxide systems</li> </ol>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">421.3 421.1, 421.2</p>

TABLE 9A-1 (Cont.)

5. Halon 1301 systems
6. Standpipes
7. Fire and smoke detection and alarm systems
8. Fire doors and fire dampers
9. Fire walls
10. Penetration seals
11. Fireproofing of structural steel
12. Fire water pump house components

The quality assurance criteria that apply to fire protection during the design, procurement, and construction phases are described as follows:

1. Design Control and Procurement Control

a. Review and Approval

Several levels of design review and approval are applied to the design aspects of the Grand Gulf fire protection system. Applicable standard procedures of the Project Engineering Procedures Manual are utilized during initial design and during the performance of any design changes. These procedures include:

- (1) Checking and review by design and engineering level personnel within the project engineering team having technical qualifications comparable to those of the engineer or designer who originated the work.
- (2) Review and approval by the originating engineering discipline.
- (3) Review and approval by the Project Engineer or the cognizant Assistant Project Engineer.

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421.1, 421.2

TABLE 9A-1 (Cont.)

In addition to the reviews performed by Project Engineering, a staff fire protection specialist is consulted by the design engineer, as necessary, to ensure design adequacy.

Technical aspects of the procurement documents are also prepared by Project Engineering in accordance with the above procedures. Technical changes in procurement documents are subject to the same degree of design control as was exercised in the preparation of the original document.

421.1, 421.2

b. Codes and Standards

Codes, standards, and guidelines which control the design, materials, fabrication, installation, and testing of fire protection systems and components are specified in the applicable design documents and in the engineering specifications for procurement of systems and components. Conformance with the applicable codes and standards is ensured by standard document reviews, as described in Part a, and vendor certification provided with the shipment. Deviations from specified codes and standards are documented and reviewed by Project Engineering. Deviations or changes from applicable standards dispositioned "use-as-is" must be justified and approved. The justification and approval shall also be documented and filed.

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c. New Designs and Plant Modifications

New designs and plant modifications to the fire protection systems which may affect fire protection capabilities are subjected to the

TABLE 9A-1 (Cont.)

standard review procedures described in Part a. These reviews specifically include the following:

- (1) Wiring isolation and cable separation are reviewed for compliance with Regulatory Guide 1.75, as specified in Appendix 3A.
- (2) Safe shutdown-related cable routings are reviewed for impact on the safe shutdown analysis described in Appendix 9A to ensure that adequate protection is provided against the effects of exposure fires on redundant safe shutdown-related components.
- (3) During the design and construction phase, isolation of new or modified rooms by the use of fire-rated barriers (walls, floors, ceilings, penetrations, and doors) is determined by Project Engineering. Any deviations from design that occur during construction are permanently documented in accordance with standard procedures. The level of review provided for deviations or modifications of fire-rated barriers is the same as required for the initial design. Barrier requirements are summarized in the Fire Hazards Analysis within Appendix 9A.

d. Review and Concurrence in Fire Protection Requirements and Quality Adequacy in Procurement Documents

Procurement documents are reviewed as described in Part a. Additional review of technical specifications is performed by the Bechtel Quality Engineering organization to verify that quality requirements are

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TABLE 9A-1 (Cont.)

correctly stated, inspectable, and controllable, and that there are adequate acceptance and rejection criteria.

Field Engineering procedures provide instructions for control of construction activities including:

- (1) Receipt and control of Project Engineering design documents
- (2) Field Engineering detail design work including field change requests
- (3) Incorporation of design changes including field change requests
- (4) Review of supplier and contractor drawings as delegated by Project Engineering.

2. Instructions, Procedures, and Drawings

The written instructions and procedures used to implement the Bechtel Quality Assurance Program for fire protection and the activities affecting quality during the engineering, procurement, and construction phases of the project are contained in the following manuals and documents:

- a. Quality Assurance Department Procedures Manual (QADPM), which defines responsibilities and outlines quality assurance activities.
- b. Project Engineering Procedures Manual (PEPM), which contains procedures for operation and control of the Engineering Department.
- c. Procurement Supplier Quality Department Manual (PSQDM), which contains source inspection instructions, guidelines, and procedures.

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TABLE 9A-1 (Cont.)

- d. Construction Work Plan Procedures Manual (WP/P), which contains procedures for operation and control of the Construction Department as of October 1, 1975.

Inspections, tests, and administrative controls are accomplished in the following manner:

- (1) Requirements for instructions, procedures, and drawings are defined in the Work Plan/Procedures Program. Contractor and supplier activities are accomplished in accordance with Project Engineering approved drawings and specifications, with monitoring and surveillance by the Bechtel Contracts Administration Department.
  - (2) The installation or application of penetration seals and fire-retardant coatings is performed in accordance with the Work Plan/Procedures Program for Bechtel and Project Engineering approved drawings and details for contractors.
- e. Checkout and Turnover Organization Manual (CTOM), which contains procedures and guidance for preparing test procedures and performing system and component tests.

Written, formal instruction from Project Engineering to suppliers and contractors is in the form of engineering specifications, drawings, and drawing change notices. These documents contain, reference, or require procedures and instructions, as appropriate, and provide necessary acceptance criteria. These documents, when approved by Project Engineering, provide authorization for construction work.

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TABLE 9A-1 (Cont.)

The sequence of actions for preparation, review, and control of instructions, procedures, and drawings depends upon the type of instructions, procedures, or drawings and is described in the appropriate manuals.

For example, the sequence of actions governing preparation, review, and control of drawings prepared by Project Engineering personnel is described by procedures contained in the Project Engineering Procedures Manual. Also, review and control of vendor drawings is described in the same manual, although the sequence of actions for preparation, review, and control of these drawings is different. The sequence of actions described in the Bechtel procedures provides for specified drawings, procedures, and instructions to be reviewed and approved by the responsible design discipline. The sequence of actions is subject, when applicable, to review and concurrence by interfacing disciplines at the cognizant design engineering level, and by off-project specialists, as required.

Similarly, the sequence of actions for preparation, review, and control of various instructions and procedures, including those applicable to the fire protection systems, fire retardant coatings, and the installation of penetration seals, are described in the applicable manual. Such procedures are reviewed and concurred with by interfacing departments and disciplines, where required.

Appropriate acceptance criteria, both quantitative and qualitative, are described in the applicable instructions, procedures, or drawings. This requirement is defined in department procedures and applies to instructions, procedures, and drawings prepared by Bechtel Project Engineering or by suppliers.

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TABLE 9A-1 (Cont.)

Bechtel procurement documents require suppliers and contractors to submit specified drawings and procedures to Bechtel for approval prior to start of fabrication or construction. Bechtel review of these documents is performed to determine that interfacing design features are compatible with overall design and installation requirements, and that procedures are acceptable.

Verification that work is accomplished in accordance with approved instructions, procedures, and drawings is obtained through the various levels of surveillance, inspection, and audit.

3. Control of Purchased Material, Equipment, and Services

The Bechtel Fire Protection Quality Assurance Program includes a comprehensive system to ensure that purchased material, equipment, and services conform to the procurement documents. This system is described below.

- a. The Bechtel Procurement Department maintains a current list of bidders acceptable to the Corporation. The list is reviewed periodically to verify the adequacy of each vendor for specific services, materials, or equipment. Note: Suppliers for the fire protection system may not have been chosen from this list of bidders, as it is only mandatory for safety-related equipment. Due to the importance of fire protection equipment, nationally recognized suppliers may have been chosen by Project Engineering to supply equipment used.
- b. Source inspection has been provided for major CO<sub>2</sub> system components and the fire pumps. The Grand Gulf fire protection design incorporates standard, commercially available equipment and materials which are verified by receipt inspection and, in addition, are subjected to site testing.

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TABLE 9A-1 (Cont.)

4. Inspection
- c. The purchase order or subcontract contains the requirements for engineering and quality verification documentation to be submitted by the seller. Drawings and/or documents may be required to be submitted to Project Engineering for review only or for approval prior to proceeding with the work. Drawings and/or documents are specified for "review only" or "prior approval required" commensurate with the complexity of the equipment involved. Drawings and documents are reviewed for interface information and for compliance to requirements of the purchase order or subcontract.
  - d. Receiving inspections and related documentation requirements are established by the Project Engineering specifications, and implementation is defined in the Work Plan/Procedures Program.
    - a. Fire protection systems and components are inspected and tested during and after installation to ensure conformance with design requirements. Appropriate records are maintained which document the tests and inspections.
    - b. Items such as emergency lighting, communication equipment, penetration seals, fire-rated barriers, fire-retardant applications, and electrical cable routing are inspected to ensure proper installation.
    - c. All new cable and wire installations and modifications will be processed in accordance with Regulatory Guide 1.75 and Appendix 9A, Section 7.1. During the design and construction phase, compliance with this requirement

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TABLE 9A-1 (Cont.)

will be verified by routine inspection of drawings by the electrical engineering discipline, augmented by site inspections as necessary.

- d. Inspections and approvals are by Bechtel, American Nuclear Insurers (ANI), and Middle South Services Risk Control consultants, not by the equipment supplier.
- e. Bechtel installations, inspections, and verifications are performed by Field Engineering in accordance with the Work Plan/Procedure Program.

Contractor installations, inspections, and verifications are performed by the contractor in accordance with the requirements of Project Engineering specifications and Project Engineering approved design drawings and are monitored by Field Contracts Administration Department personnel.

5. Test and Test Control

Installation testing is accomplished as follows:

- a. Installations completed by Bechtel are tested in accordance with procedures contained and approved in the Construction Work Plan/Procedures Manual and Project Engineering specifications.
- b. Installations completed by contractors are tested in accordance with procedures approved by Project Engineering and in accordance with the requirements of the Project Engineering specification.
- c. Completed installations are tested by the Checkout and Turnover Organization (CTO) or the contractor (at the direction of MP&L) to

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TABLE 9A-1 (Cont.)

demonstrate the functional reliability of the installation in accordance with CTO procedures or the Project Engineering approved contractor procedures as applicable. Qualifications of personnel performing these tests are controlled by the Checkout and Turnover Organization Manual or the contractor manual.

- d. Vendor test results are documented and evaluated by Project Engineering, Middle South Services Risk Control consultants, and ANI. Installation tests performed in the field are evaluated by the Bechtel Checkout and Turnover Organization in accordance with the applicable technical requirements established and documented by Project Engineering. Test results are retained as part of the permanent plant documentation.

6. Inspection, Test, and Operating Status

Inspection, test, and operating status are identified as follows:

- a. Inspection status is controlled through initiated documentation.
- b. Test status is provided for as follows:
  - (1) Construction tests are performed in accordance with procedures or instructions, and appropriate tags are placed on the hardware as required by the Construction Work Plan/Procedures Program.
  - (2) CTO tests are performed in accordance with CTO procedures, and appropriate tags are placed on the hardware as required by the CTO manual.

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TABLE 9A-1 (Cont.)

7. Nonconforming Items

- a. The Bechtel Quality Assurance Program provides measures which control materials, parts, or components not conforming to prescribed requirements in order to prevent their inadvertent use or installation. Bechtel field procedures and practices incorporate measures for material control, including identification and/or segregation of nonconforming items.
- b. The identification, documentation, segregation, review, disposition, and notification to the affected organization of nonconforming materials, parts, components, or services are procedurally controlled by the WP/P and the Project Engineering Procedures Manual.
- c. For nonconforming items that may be made usable through rework or repair, or that can be used "as is," reports are prepared for resolution and approval unless repair or rework can be accomplished by use of prior-approved procedures. Nonconformance reviews and dispositions are performed in accordance with the project procedures, and records of documentation and resolution are retained in permanent plant document files.

8. Corrective Action

- a. The Bechtel Quality Assurance Program applied to fire protection requires implementation of a corrective action program. This includes reporting of significant deficiencies, malfunctions, deviations, defective material, etc. that cannot be resolved at the site and/or require management attention, and that may necessitate changes in program procedures or practices. Routine occurrences or rework generally

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TABLE 9A-1 (Cont.)

anticipated for the activity involved are not normally included in the corrective action program.

- b. Measures are established in the Construction Work Plan/Procedures Program that provide for the identification and disposition of conditions adverse to quality. Condition Reports (CR), Deficiency Reports (DR), and Nonconformance Reports (NCR) are used to identify situations which are not acceptable in accordance with design documents. They contain the tools for tracking and identifying corrective action to return the condition to conformance. These documents are reviewed by Project Engineering when the disposition is "use-as-is" or "repair."

9. Records

- a. Records required by instructions, procedures, and drawings are kept to furnish documentary evidence of quality-related activities such as inspection results, audits, nonconforming items, corrective actions, construction, maintenance, modifications, and manufacturers' data. Records are identifiable and retrievable as required by procedures.

- b. These records are available for audit by MP&L and regulatory agencies during the design, procurement, and construction phases of the project. The project will maintain these records in compliance with Bechtel practices regarding retention, location, duration, and responsibility until they are turned over to the project.

10. Audits

Project Quality Assurance performs monitoring and audits of fire protection activities to the degree and frequency necessary to assure conformance to governing functional procedures.

421.3

TABLE 9A-1 (Cont.)

As a minimum, fire protection activities covered by the program will be audited once per year, or once during the life of the work activity, to assure conformance with governing procedures, specifications, and standards. Periodic monitoring activities shall be conducted on an unscheduled basis as deemed necessary by Quality Assurance.

Monitoring and auditing shall be conducted in accordance with Quality Assurance department procedures.

Audits shall be performed on a scheduled basis to cover all facets of the Quality Assurance Program described herein.

C.2 Startup Testing and Operational Phases

Upon turnover of a fire protection partial from the Bechtel Checkout and Turnover Organization (CTO) to the MP&L Startup Organization, the Fire Protection QA Program comes under the management control of the MP&L QA organization. The scope of authority and responsibilities associated with this control are defined in Policy 1 of the MP&L Operational Quality Assurance Manual. The Fire Protection QA Program for GGNS Units 1 and 2 during these phases is described in the following Policies of the MP&L Operational Quality Assurance Manual (MPL-TOP-1A), as modified by Notes 1 through 5.

1. Policy 3 - Design Control (See Note 1)
2. Policy 4 - Procurement Document Control
3. Policy 5 - Instructions, Procedures, and Drawings (See Note 2)
4. Policy 7 - Control of Purchased Material, Equipment and Services (See Note 3)

421.3

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TABLE 9A-1 (Cont.)

5. Policy 10 - Inspection
6. Policy 11 - Test Control
7. Policy 14 - Inspection, Test, and Operating Status
8. Policy 15 - Nonconforming Materials, Parts, and Components
9. Policy 16 - Corrective Action
10. Policy 17 - Quality Assurance Records
11. Policy 18 - Audits
12. (See Notes 4 and 5)

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- NOTES:
1. Maintenance is allowed to make minor design changes during procedurally controlled work, if approved by engineering, provided (1) the change does not affect operation of the system; (2) a design change is initiated per the appropriate procedure within five working days.
  - 2.(a) In some situations where sufficient documentation is not available to allow the preparation of a detailed procedure prior to the activity being performed, the engineer may write the procedure as the work function (valve breakdown, etc.) takes place, and appropriate reviews and evaluations occur after the fact.
  - (b) In some situations during work evaluation where sufficient documentation is not available to allow the preparation of a detailed procedure prior to the activity performed (i.e., first time work function is performed), craft Supervisors may prepare the procedure as the work function takes place, providing the procedure is submitted within five working days for appropriate reviews and evaluations.
  - 3.(a) The supplier of equipment and material does not have to have a ANSI N45.2 QA Program or be a qualified supplier under the MP&L QA Program. For such "commercial off-the-shelf" equipment and material, conformance to Procurement Documents

TABLE 9A-1 (Cont.)

will be ensured by one or more of the following: examination of items upon delivery (or prior to installation), inspection and audit at the source, or objective evidence of quality furnished by the supplier.

- (b) Material/equipment will be replaced and maintained at equal to or better than original. Should the material/equipment purchased be nonsafety-related, appropriate engineering procedures will require the engineer to specify material/equipment to be used per the appropriate work document. Should the material/equipment not be an identical replacement, the engineer shall visually ensure that material/equipment is adequate and appropriately documented.

The appropriate engineering procedures which require the engineer to specify material/equipment are reviewed by a quality organization (Plant Quality) who ensures that quality requirements are addressed. The engineer's implementation of the procedure is subject to periodic inspection or monitoring by a quality organization and to periodic audit by Quality Assurance.

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4. In general, the fire protection systems (water systems only) in the following plant areas are included under the Operational Quality Assurance Program.
1. Control Building Elevations 111', 133', 148', 166', and 189'
  2. Auxiliary Building (all elevations)
  3. Containment and Drywell (all elevations)
  4. Diesel Generator Building
  5. Standby Service Water Pump House
  6. Firewater Pump House components, which include the Diesel and Electric driven pumps and drivers, associated controls, and auxiliaries

TABLE 9A-1 (Cont.)

5. The QA activities which apply to the Fire Protection System are under the management control of the MP&L QA organization. The specific organizations which exercise this control are quality assurance, plant quality, nuclear plant engineering, plant technical support (engineering), maintenance, and operations.

This is accomplished by plant technical support, maintenance, and operations implementing respective Fire Protection QA Program elements in accordance with procedures which address incorporation of suitable requirements (including QA). These procedures are reviewed by plant quality for inclusion of applicable quality requirements. Plant quality then inspects to ensure implementation of procedures. QA then audits periodically to verify that plant technical support, plant quality, maintenance, and operations functions are accomplished in accordance with procedures. The above provide confidence to management responsible for fire protection. QA verifies the effectiveness of the QA activities for fire protection through review, monitoring, and audits.

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Nuclear Plant Engineering implements the design control element of the Fire Protection QA Program once the fire protection system is turned over to the plant maintenance and operations. This is accomplished in accordance with Nuclear Plant Engineering procedures which address incorporation of suitable requirements (including QA). These procedures are reviewed by Quality Assurance for inclusion of applicable quality requirements. Quality Assurance then monitors and periodically audits to verify that the Nuclear Plant Engineering functions are accomplished in accordance with these procedures.

D. General Guidelines for Plant Protection

1. Building Design

a(1) Isolate Non-Redundant Safety Systems from Hazards

Redundant safety-related cable trays are installed to the requirements of Regulatory Guide 1.75 so that a possible fire in any safety-related cable



TABLE 9A-1 (Cont.)

a(2) Separate Redundant  
Safety Systems

tray would not spread into a redundant safety-related cable tray and so that a possible fire in any non-safety-related cable tray would not spread into any safety-related cable tray. No provisions are currently made for the use of fire-retardant coatings. Fire breaks or batteries are used in vertical cable trays and conduits every 20 feet or less and where required to separate redundant safe shutdown-related cables.

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Refer to Section 7.0 for a detailed discussion of fire protection for those areas where the separation criteria presented in D.1.a(1) and D.1.a(2) are not strictly adhered to.

b. Fire Hazard Analysis

Comply. A fire hazards analysis is presented in Table 9A-2 and discussed in Section 7.0. Maintenance is addressed in Fire Protection Program (Appendix 9B).

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c. Cable Spreading Room

Separate cable spreading rooms are provided for Units 1 and 2 separated by 3-hour fire-rated barriers. Upper and lower cable spreading rooms are provided for each unit and are separated by 3-hour fire-rated barriers. Cable spreading rooms do not contain redundant safe shutdown related cables. Smoke detectors, an automatic double-shot total flooding carbon dioxide system, and two hose stations with portable water and dry chemical fire extinguishers are provided for fire detection and suppression.

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TABLE 9A-1 (Cont.)

d.	Non-Combustibles	Comply. The subject materials have an ASTM E-84 rating of 25-25 or less for flame spread and fuel contribution. All insulation, radiation shielding, and soundproofing material is noncombustible in areas containing safety-related equipment.	013.44
e.	Metal Deck Roofing	Comply. Metal deck roofing is non-combustible.	
f.	Concealed Spaces	Suspended ceilings and supports are non-combustible. Concealed spaces are devoid of combustibles unless as identified in subsection 7.2.2.46.	46
g.	Indoor Dry Transformers	Comply. Indoor transformers are either dry type or cooled with non-combustible liquid.	
h.	Transformer Oil Spill Hazard	Comply. Outdoor transformers are separated by fire barriers and protected with automatic water spray.	46
i.	Floor Drains	Comply. Floor drains are sized to handle water flow from existing water sprinkler systems and hose streams.	
j.	Three-Hour Fire Barriers	Comply. Penetrations and doors have the same fire rating as the respective fire barrier. Three-hour fire-rated barriers are illustrated in Figures 9A-3 through 9A-9. All concrete walls are reinforced and impervious to fire. Penetrations through non-rated fire barriers are not provided with fire rated penetration closures.	013.34
		Duct penetrations in fire-rated walls which are larger than 48 inches in any direction utilize two 1½-hour, UL-rated, curtain-type fire dampers in series, in accordance with NFPA 803-1978, Paragraph 7-3.2.3.	9 46 013.39 48
		Duct penetrations in fire-rated walls of sizes up to 48 in. x 48 in. utilize a single 3-hour UL-rated curtain-type fire damper.	7 6 013.25
		Duct penetrations in fire-rated floors utilize trap-door-type fire dampers. The fire doors carry a 3-hour UL label.	

TABLE 9A-1 (Cont.)

Fire dampers are arranged to close automatically and to remain tightly closed upon the operation of a fusible link or an electrothermal link.

013.9  
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Installation details for fire dampers in ventilation ducts are illustrated in Figure 9A-53. The space between the fire damper sleeve and the sides of the penetration is closed as described on Figure 9A-53.

Doors for installation in fire-resistive openings will meet the required rating. The UL label on the doors will indicate the approved fire test rating for the door. For further clarification of door ratings, see Figures 9A-3 through 9A-8. For special doors, there is written certification that the doors meet UL label construction for specified fire ratings. Fire doors are controlled by administrative procedures and/or alarms supervised on the SFPS computer.

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All concrete joint seals are rated 3 hours as per ASTM E-119.

2. Control of Combustibles

a. Isolation of Safety Systems from Combustibles

Comply. Safety-related systems are separated or protected from combustibles as discussed in Section 7.0.

b. Bulk Gas Storage

Comply. Bulk flammable gases are stored outdoors.

c. Use of Plastic Materials

Comply. The use of plastic materials is minimal.

d. Storage of Flammable

There are no flammable liquids stored in large quantities in the Seismic Category I structures. Actual quantities are taken into account in the hazard analysis of Table 9A-2 and Section 7.0.

TABLE 9A-1 (Cont.)

3. Electrical Cable Construction,  
Cable Trays, and Cable Penetra-  
tion

a. Non-Combustible Tray  
Construction

Comply. Cable tray materials are  
non-combustible.

b. Cable Spreading Room

Refer to Section F.3

c. Cable Water Spray Outside  
Spreading Room

As discussed in Appendix 9A, Section  
7.1.5, automatic sprinkler protection  
is provided where redundant safe shut-  
down-related cables are routed in the  
same exposure fire area and are  
separated by less than 50 feet.

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Cable construction is such as to allow  
water spraying of cable trays without  
faulting. The cable termination points  
do not require weatherproof terminal  
boxes or cabinets. Only equipment on  
fire will be wetted with hose streams  
by the trained fire brigade, and exist-  
ing water sprinkler systems are located  
so as to avoid wetting electrical  
equipment within the buildings, except  
where installed to protect electrical  
equipment.

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d. Fire-Barrier Penetration

Comply. Fire-barrier penetrations  
equal the fire rating of the respective  
barrier.

e. Fire Breaks

Fire breaks or stops in cable trays  
are presently included in vertical  
runs, spaced every 20 ft or less, and  
in horizontal runs as described in  
subsection 7.2.2.46.

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f. Cable Flame Test

With the exception of those cables  
listed in subsection 8.3.3.1, electrical  
cables in trays and conduits have been  
tested to certify compliance with IEEE  
No. 383 or ICEA S-19-81 flame retardance  
tests.

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g. Non-Toxic New Cable

Comply. To the extent practical, new  
cable installed will be constructed such  
that it will not give off corrosive  
gases while burning.

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TABLE 9A-1 (Cont.)

- |                                     |                                                                                                                                                         |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| h. Cable Tray Usage                 | Comply. No storage will be permitted on cable trays.                                                                                                    |
| i. Venting Cable Tunnels and Chases | Comply. Electrical chases in seismic Category I structures are separated at each elevation by a fire-barrier floor. Tunnels can be manually ventilated. |

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TABLE 9A-1 (Cont.)

- j. Cables in Control Room      Comply. Cables entering the control room terminate there. Cables routed in underfloor trenches (PGCC) are discussed in subsection 7.2.2.46. |46
4. Ventilation
- a. Venting Combustion Products Evaluation      Smoke removal from buildings containing safety-related equipment or potential sources of radioactivity is achieved as follows:
1. Drywell - Smoke removal from the drywell can be achieved by remote manual positioning of valves and dampers to utilize the containment cooling system charcoal filter trains in an exhaust mode. In this way, smoke can be exhausted at a rate of approximately 6,000 CFM, until such time as the filters become clogged. The radiation level of these exhaust gases is continuously monitored, and upon detection of high radiation level, an alarm signals so that exhausting can be manually terminated if so desired.
  2. Containment - Upon detection of smoke in the containment building, the air recirculation fans will automatically shutdown to limit the spread of smoke. Smoke can be exhausted by the containment ventilation exhaust fans at a rate of approximately 500 CFM, until such time as filters become clogged. Similarly, additional ventilation capacity of approximately 6,000 CFM is available by remote manual positioning of valves and dampers to utilize the containment cooling system charcoal filter trains in an exhaust mode. The radiation level of these gases is monitored continually, and upon detection of high radiation levels, an alarm signals so that the exhausting can be manually terminated if desired.



TABLE 9A-1 (Cont.)

3. Auxiliary building - Upon detection of smoke in the auxiliary building, the air recirculation fans will automatically shut down to limit the spread of smoke. Smoke can be exhausted by the fuel handling area exhaust fans at a rate of approximately 12,000 cfm. Additional smoke venting is available by remote manual initiation of the fuel pool sweep exhaust fans; however, this would only serve the fuel pool area of the auxiliary building. Any smoke exhausted from the auxiliary building is monitored in the ductwork.
4. Control building - Upon detection of smoke in the control building, the air recirculation fans will automatically shut down to limit the spread of smoke. Smoke venting is available, by manual initiation of the control building purge fan, at a rate of approximately 8,000 cfm. This fan is capable of exhausting the upper and lower cable spreading rooms, the HVAC equipment area, and the main control room. Since no significant sources of radioactivity are present in the control building, these exhaust gases are not monitored for radioactivity levels.
5. Radwaste building - The radwaste building contains no safety-related equipment; however, smoke removal is available at a rate of approximately 50,000 cfm, by using the radwaste building exhaust filter trains, until such time as the filters become clogged. Exhaust gases are continuously monitored for radioactivity, and an alarm is given to allow the venting to be manually terminated, if so desired.
6. Turbine building - Upon detection of smoke in the turbine building, fans capable of recirculating

TABLE 9A-1 (Cont.)

smoke to other areas are automatically shut down. Smoke can be exhausted by utilizing the turbine building charcoal filter train and fans, at a rate of approximately 10,000 cfm, until such time as the filters become clogged. Should the filters become clogged, a manually controlled bypass is available to bypass the filters and allow smoke removal to continue. The exhaust gases are continuously monitored for radioactivity; an alarm is given to allow the venting to be manually terminated, if so desired. Smoke can be exhausted from the turbine building at a rate of approximately 19,000 cfm by manual initiation of the turbine building smoke exhaust fans. During this mode, the turbine building exhaust charcoal filter train and fans are shut down by a control interlock. Additional smoke venting in the turbine building is available through automatic roof hatches located above the operating floor. Heat and smoke vents are provided on a ratio of 1 to 100 sq. ft. of turbine building operating floor area.

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b. Failure or Inadvertent Operation of Ventilation Exhaust Systems

All safety-related ventilation exhaust systems include separate redundant components so that a single failure will not prevent safe shutdown of the reactor. Inadvertent operation of any exhaust ventilation system will merely exhaust to atmosphere. Such discharges are monitored for the drywell, containment, auxiliary, and radwaste buildings. Inadvertent operation of the turbine building smoke exhaust fans will result in unmonitored discharge; however, this is considered to be a remote possibility, and levels are expected to be low. There are no significant sources of radioactivity in the control building. Inadvertent operation of a recirculation ventilation system during a fire would

TABLE 9A-1 (Cont.)

	possibly spread smoke into all areas served by the system. Spreading smoke will not prevent the operation of safety-related equipment but could cause the fire brigade visibility problems. To preclude this, recirculating ventilation systems are provided with smoke detectors which automatically shut down the fans.	
c. Ventilation Systems Power Supply	Power supply for and control cables of ventilation systems are located in accordance with Regulatory Guide 1.75. In addition, safety-related systems include redundant components.	
d. Charcoal Filter Fire Suppression	Comply. Charcoal filter trains located in the safety-related structures and within the scope of this report are protected in accordance with Regulatory Guide 1.52. All charcoal filters except offgas adsorbers in the radwaste building are provided with manual deluge systems. The offgas adsorbers are equipped with 1½-inch hose connections.	46
e. Separation of Supply and Exhaust	Comply. Supply and exhaust points are adequately separated.	
f. Stairwell Smoke Infiltration	Smoke infiltration in stairwells is minimized by normally closed fire doors installed at each level. Stairwells are enclosed by 2-hour fire rated construction.	46
g. Smoke and Heat Venting Volume Flow for Cable Spreading Rooms, Diesel Fuel Oil Storage Area, and Switchgear Rooms	Comply. The minimum ventilation requirements are met or exceeded.	
h. Breathing Apparatus	Comply. Breathing apparatus and appurtenances are provided as required.	
i. Automatic Vent Closure for Gas Suppression System	Comply. Vents will close and ventilation will cease prior to firing gas fire suppression systems.	

TABLE 9A-1 (Cont.)

5. Lighting and Communication			
a. Fixed Lighting	The fixed emergency and essential lighting system consists of the following:		46
	1. Essential (normal) AC lighting is installed in the control room, remote safe-shutdown panel rooms, Class 1E switchgear rooms, RPS motor generator sets and inter-connected areas. These lights are connected to Class 1E power supplies and are operated from the diesel generators upon loss of offsite power.		46
	2. Emergency AC lighting in the control room is connected via inverters to the station Class 1E batteries which have a 4-hour minimum rating.		46
	3. Individual DC lighting units are provided for general plant exit lighting. These units as purchased have a minimum of one-half hour. Special units with 8-hour lamp life are used in areas essential to safe shutdown and egress routes from these areas.	013.11	46
		013.27	46
b. Portable Lights	Comply. Portable lights are provided as required.		
c. Emergency Communication	Comply. Emergency communication is provided as required.		
d. Protection of Fixed Radio Repeaters	Comply. Fixed radio repeaters are protected from exposure fire damage.		
E. <u>Fire Detection and Suppression</u>			
1. Fire Detection			
a. System Compliance with NFPA 72 D	Functional requirements of NFPA72D-1975 are adhered to except that the wiring from the SFPS multiplexers to local control panels is Class B.		46

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FSAR

TABLE 9A-1 (Cont.)

b. Control Room and Local Alarm	Comply. Fire alarms annunciate in the Control Room and locally.	
c. Distinctive Fire Alarms	Comply. Fire alarms are distinctive and unique.	
d. System Connection to Emergency Power	The fire detection and protection system is independent of off-site power. The smoke detection system, computer room Halon system, CO <sub>2</sub> system and security and fire protection system (SFPS) multiplexers and computers are powered by 120 Vac which is supplied by inverters which in turn are connected to the non-IE station battery. The plant deluge systems are connected directly to the non-IE station battery which is kept charged by the battery chargers. Thus all of these systems are still powered upon loss of off-site power. The PGCC Halon fire control panels are fed from 120 Vac power panels which are lost on loss of off-site power. Each fire control panel is equipped with a battery standby power unit that will supply power in the event of primary power failure. The main CO <sub>2</sub> storage tank and supply valves are fed from a 480 Vac source which is connected to the IE supply and is shed only on a LOCA. Since fires are not postulated concurrent with a LOCA, this power is available for all postulated fire situations, including loss of off-site power.	51 46 51
2. Fire Protection Water Supply Systems		
a. Underground Yard Fire Main Loop	Comply. ANSI and AWWA standards are used. Lock-open valves with visual indicators are used. Service and sanitary water are separate.	46
b. Cross Connection of Fire Main Loop	Comply. Fire loop sectional division is provided. Two 300,000 gal tanks supply water for both units.	
c. Water Capacity with Inactive Pump	Comply. Three fire water pumps are provided as described in FSAR subsection 9.5.1.2.1.	46

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FSAR

TABLE 9A-1 (Cont.)

d. Two Separate Reliable Water Supplies	Comply. Two 300,000 gallon tanks (maximum usable capacity - 291,358 gallons) are capable of supplying fire water to the largest demand deluge or sprinkler system (plus 500 gpm for manual hose streams) in a safety-related area of the plant for a 2-hour duration. Tank fill rates are discussed in FSAR subsection 9.5.1.2.1.	51
		46
e. Water Supply Basis	Comply. Two 300,000 gallon tanks (maximum usable capacity - 291,358 gallons) supply water (see FSAR subsection 9.5.1.2.1).	51
		46
f. Lake as Water Supply	Not Applicable.	
g. Outside Manual Hose Installation	Comply. Hydrants are approximately 250 ft apart. Curb valves and hose houses are provided for each hydrant, with appurtenances provided based on needs in each area.	46
3. Water Sprinklers and Hose Standpipe Systems		
a. Connections to Water Main	Both the primary and secondary fire-fighting water systems share the same header connections to the plant underground water main. However, two independent header connections to the plant underground water main and section control valves are provided.	46
b. Valve Supervision	Comply. An adequate management supervision program is provided, including locking yard section valves with tamper-proof seals and periodic inspection. Valves for all of the sprinkler and deluge systems are provided with electrical supervision. Should the normal valve position change it will alarm, both visually and audibly, in the control room.	013.30
c. Automatic Sprinkler System (NFPA 13 and 15)	Comply. Functional requirements of NFPA 13 and 15 are adhered to.	



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FSAR

TABLE 9A-1 (Cont.)

d. Interior Hose Installations	Comply. All interior locations can be reached with at least one effective hose stream with no more than 100 feet of hose. Risers are 4 inch minimum with 2-1/2 inch minimum for a single hose.	46
e. Hose Nozzles	All hose stations within the buildings, with the exception of the fire hose nozzles on elevation 208' in and out of the containment, include an adjustable nozzle from straight-stream to 90 degrees fog, with shutoff capability. The fire hose nozzles in and out of the containment on elevation 208' are straight-stream nozzles only. Plant personnel are instructed in the proper application of hose streams to the various possible fire hazards.	49

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FSAR

TABLE 9A-1 (Cont.)

f. Use of Foam for Fire Protection	Not Applicable. No foam systems are utilized.	
4. Halon Suppression Systems	Comply. Functional requirements of NFPA 12A are adhered to.	46
5. Carbon Dioxide Suppression Systems	Comply. Functional requirements of NFPA 12 are adhered to.	46
6. Portable Extinguishers	Comply. Portable extinguishers are UL and FM listed and have been selected according to local fire hazards.	
F. <u>Guidelines for Specific Plant Areas</u>		
1. Primary and Secondary Containment		
a. Normal Operation	Comply. Fire protection is consistent with the results of the fire hazards analysis. Manual hose stations, smoke detectors, and portable extinguishers are provided to protect areas outside the drywell.	46
b. Refueling and Maintenance	Comply. Hose stream, portable extinguishers, and breathing apparatus are provided.	
2. Control Room		
	Comply. Ionization smoke detectors, portable extinguishers (water and Halon), hose streams, and breathing apparatus are provided. Walls, floor, ceiling, and doors surrounding the control room complex are 3-hr fire rated. Control room smoke venting by manual initiation of smoke exhaust fan is available. PGCC is protected in accordance with NEDO 10466-A.	46
		46
3. Cable Spreading Room		
	A discussion of fire protection measures provided and the effects of a postulated fire is given in subsections 7.2.2.34, 7.2.2.36, 7.2.2.58 and 7.2.2.61.	46
	Two standard size doorways, one single the other double, are provided at opposite ends of the control room (about 60 ft apart), to facilitate exit	46

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FSAR

TABLE 9A-1 (Cont.)

	and entrance and permit the introduction of hose streams and additional fire extinguishers.	
	A discussion of cable spreading room separation is given in Section D.1.C of Table 9A-1.	
4. Plant Computer Room	Comply. The plant computers are not safety-related however, the room is isolated from the rest of the plant by 3-hr fire-rated barriers. Manual hose stations, ionization smoke detectors, and automatic Halon 1301 suppression systems are provided. Portable water and dry chemical fire extinguishers are available.	46
5. Switchgear Rooms	Comply. Each room is isolated from the rest of the plant by 3-hr fire-rated barriers. Ionization smoke detectors, automatic CO <sub>2</sub> suppression systems, portable water and dry chemical fire extinguishers, and hose streams are provided.	46
6. Remote Safety Related Panels	Comply. Ionization smoke detectors, automatic CO <sub>2</sub> suppression system, portable water and Halon extinguishers, hose streams, and 3-hr fire-rated barriers are provided to separate the panels of each division and from the remainder of the plant.	46
7. Station Battery Rooms	Comply. Three-hour rated enclosures, adequate ventilation, ionization smoke detectors, and hydrogen detectors are provided.	
8. Turbine Lubrication and Control Oil Storage and Use Areas	Comply. Three-hour fire rated barriers and sprinkler systems are provided.	46
9. Diesel Generator Areas	Comply. Three-hour fire rated areas, ultraviolet flame detectors, pre-action sprinklers, hose streams, and portable water and dry chemical fire extinguishers are provided.	46
10. Diesel Fuel Oil Storage Areas	Comply. Diesel fuel oil storage tanks are buried outdoors.	

TABLE 9A-1 (Cont.)

11. Safety-related Pumps	Comply. Backup pumps are provided for all safety-related pumps. The hazards analysis in Section 7.0 demonstrates that a single fire will not affect main and backup pumps. Area detection is provided as described in Section 7.0.	46
12. New Fuel Area	The fire hazards analysis reveals that transient combustibles represent the only fire potential in the new fuel area and spent fuel pool area. These areas are locked and protected by 3-hr fire-rated walls, smoke detection, hose streams, and portable water and dry chemical fire extinguishers are provided. Entrance to these areas are controlled by administrative procedures to preclude introduction of unnecessary combustibles. No additional fire protection is deemed necessary. The spent fuel pool is cooled by the FPC and CU pumps and heat exchangers; in addition, backup cooling capability is provided by RHR "A" and "B" systems.	46
13. Spent Fuel Pool Area		46
14. Radwaste Building	Smoke detectors in the radwaste building are located strategically, but not throughout the building. Hose streams and portable extinguishers are provided. The radwaste building is separated from the rest of the power block by 3-hr fire rated barriers, as illustrated in Figures 9A-3, 9A-4, and 9A-5. Automatic sprinklers are provided for the hydraulic baler and oil separator.	46
15. Decontamination Areas	Comply. The hot machine shop in the control building is protected by an automatic sprinkler system, hose streams, and portable water and dry chemical fire extinguishers. The ventilation system can be isolated as required.	46
16. Safety-Related Water Tanks	Not applicable. Cooling tower basins store the necessary water.	
17. Cooling Towers	Comply. Non-combustible construction is used.	

013.15

TABLE 9A-1 (Cont.)

18. Miscellaneous Areas	Comply. Safety-related equipment is isolated from these areas. See Section 3.0, Scope.	
G. <u>Special Protection Guidelines</u>		
1. Welding and Cutting, Acetyleneoxygen Fuel Gas Systems	Comply. See Fire Protection Program (Appendix 9B).	56
2. Storage Areas for Dry Ion Exchange Resins		46
3. Hazardous Chemicals		
4. Materials Containing Radioactivity		

TABLE 9A-2  
FIRE HAZARDS TABULATION

Fire Hazards Tabulation of Grand Gulf Nuclear Station Units 1 and 2, Based on Criteria and Methodology Presented in Sections 4.0 and 5.0, in Compliance With the Requirements of NRC's Appendix A to Branch Technical Position APCS 9.5-1, August 23, 1976, for Plants Under Construction. A detailed analysis of the consequences in each room due to a possible fire is presented in Section 7.0.

Notes:

- (1) Where no fire heat loads are indicated, the figures are insignificant (e.g., cables are run in conduit) and the fire heat load is expected to be small. ("Insignificant" is used as defined in Section 4.j.)
- (2) Heat load contribution by concrete joint sealers (\*) is expected to be less than that tabulated, as these materials are used to fill very small spaces deep between concrete joints.
- (3) In areas where combustible material quantities are indeterminate (\*\*), estimated fire heat loads are used, as presented in Fire Protection Through Modern Building Codes, 4th edition, American Iron and Steel Institute.
- (4) Only fire-rated walls which enclose one room are tabulated. Fire-rated walls enclosing several rooms are shown in Figures 9A-3 through 9A-9.
- (5) As a conservative estimate, the electrical cable trays are assumed 100 percent full of instrument cable.
- (6) Refer to note on Table 9A-3.
- (7) Hose streams and portable fire extinguishers are not necessarily located in the listed room, but are accessible to the room.
- (8) Due to communication between areas above/below grating, heat load is based on areas both above and below the grating.
- (9) Areas noted have common ceiling space where cable trays are located. Electrical cable loading in these areas is 19,604 Btu/sq ft.

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AUXILIARY BUILDING

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Passage (1A101) 93 Area bounded by column lines 5.5-15.1 & G-G.4,		Smoke Detection (in 1A121) Wet Pipe Sprinkler (Columns 10.5-15.1 & G-G.4) in 1A121 1-hr Rated Fire Barriers for Redundant Safe Shutdown Cables Portable Extinguishers Hose Streams 3-hr Rated Fire Wall for East and West Walls (Columns 6.5-13.5 only)	Electrical Cable	44,761	3/4 hr 1650 F	Including cables in Area 1A121 from column lines 5.5-15.1 & G-G.4 (Note 8)
RHR A Heat Exchanger 93 (1A102) Area bounded by column lines 6.5-7.5 & G.4-H	Residual Heat Rem. Heat Exch. A (2)	Hose Stream Portable Ex- tinguisher Smoke Detection (in 1A128) 3-hr Rated Fire Walls Except North Wall	Electrical Cable	12,564	<1/2 hr <1575 F	Including cables in Area 1A128 from column lines 6.5-7.5 & G.4-H
RHR A Pump (1A103) 93 Area bounded by column lines 7.5-9 & G.4 - Containment Wall	Residual Heat Rem. Pump A RHR Room A Sump Pump (2) RHR A Jockey Pump Suppression Pool Level Monitors	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except South Wall	Electrical Cable Concrete Joint Sealers	12,571 3,253*	<1/2 hr <1575 F	

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AUXILIARY BUILDING

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
RCIC (1A104) 93 Area bounded by column lines 9-11 & G.4 - Containment Wall	Reactor Core Isln. Cooling Rm. Cooler RCIC Pump RCIC Turbine RCIC Turbine Gland Seal Unit RCIC Room Sump Pump	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Smoke Detection	Lubricating Oil  Electrical Cable Concrete Joint Sealers	152,000  21,046 2,120*	2-1/2 hr 1850 F	
RHR B Pump (1A105) 93 Area bounded by column lines 11 - 12.5 & G.4 - Containment Wall	Residual Heat Rem. Pump B RHR Room B Sump Pump (2) RHR B Jockey Pump Suppression Pool Level Monitors	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except North Wall	Electrical Cable Concrete Joint Sealers	24,229 3,046*	1/2 hr 1575 F	
RHR B Heat Exchanger (1A106) 93 Area bounded by column lines 12.5-13.5 & G.4-H	Residual Heat Rem. Heat Exch. B (2)	Hose Stream Portable Ex- tinguisher Smoke Detection (in 1A129) 3-hr Rated Fire Walls Except South Wall	Electrical Cable	2,051	<1/4 hr <1000 F	
Equip. Drain Transfer Tank (1A107) 93 Area bounded by column lines 7-7.7 & H-H.7	Equip. Drain Transfer Tank	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls for North and East Walls				
Floor Drain Transfer Tank (1A108) 93 Area bounded by column lines 6.2-7 & H-H.7	Floor Drain Transfer Tank	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls for South and East Walls Smoke Detection	Electrical Cable	Note (1)		

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AUXILIARY BUILDING

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
HPCS Pump (1A109) 93 Area bounded by column lines 12.3-13.8 & H-K	High Pressure Core Spray Jockey Pump HPCS Room Cooler HPCS Room Sump Pump (2) HPCS Pump	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	7,678 3,176*	<1/2 hr <1575 F	
Piping Penetration (1A111) 93 Area bounded by column lines 6.2 - Containment Wall & J-K.2		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls for Ctmt. Wall and East Wall	Concrete Joint Sealers Electrical Cable	10,672* Note (1)	<1/2 hr <1575 F	
Fan Coil Area (1A114) 93 Area bounded by column lines 5.5-7.5 & G.4-Q	S. Equip. Drain Sump Pump (2) S. Floor Drain Sump Pump (2) Refueling Water Trans- fer Pump (2) Chem. Waste Sump Pump (2) Low Pressure Core Spray Instr. Panel Aux. Bldg. Fan Coil Unit Personnel Decontam. Station	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for North Wall (Columns K.5-Q and G.4-J)	Electrical Cable Concrete Joint Sealers	55,724 277*	3/4 hr 1650 F	Including cables in Area 1A122 from column lines 5.5-7.5 & G.4-Q (Note 8)
Piping Penetration (1A115) 93 Area bounded by column lines 7.5-10 & Containment Wall - P.4	Suppression Pool Level Monitor	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except West Wall	Concrete Joint Sealers Electrical Cable	4,576* Note (1)	<1/4 hr <1000 F	

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Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Piping Penetration (1A116) 93 Area bounded by column lines 10-12.5 & Containment Wall - P.4	Suppression Pool Level Monitor	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except West Wall Smoke Detection	Concrete Joint Sealers  Electrical Cable	4,576*  Note (1)	<1/4 hr <1000 F	
Miscellaneous Equip. Area (1A117) 93 Area bounded by column lines 12.5-15.1 & G.4-R	N. Equip. Drain Sump Pump (2) N. Floor Drain Sump Pump (2) Control Rod Drive Pump (2) CRD Drive Water Filter (2) RHR C Instrument Panel	Smoke Detection 3-hr Rated Fire Wall for South Wall Portable Ex- tinguishers Hose Streams Wet Pipe Sprinklers (Columns G.4-J.5) in 1A123	Electrical Cable Concrete Joint Sealers	61,803 150*	1 hr 1700 F	Including cables in Area 1A123 from column lines 13.6-15.1 & G.4-R (Note 8)
RHR C Room (1A118) 93 Area bounded by column lines 10-12.5 & P.4-Q	RHR C Room Sump Pump (2) RHR C Room Cooler RHR Pump C RHR C Jockey Pump	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except East Wall	Electrical Cable	21,652	<1/2 hr <1575 F	
LPCS Room (1A119) 93 Area bounded by column lines 7.5-10 & P.4-Q	Low Pressure Core Spray Pump LPCS Room Cooler LPCS Room Sump Pump (2) LPCS Jockey Pump	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except East Wall	Electrical Cable	9,891	<1/2 hr <1575 F	
CCW Pump & Heat Exch. Area (1A120) 93 Area bounded by column lines 5.5-12.5 & Q-R	Standby Service Water Loop B Sample Rack Component Cooling Water Heat Exch. (3) CCW Pump (3) SSW Loop A Sample Rack	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for East Wall (Columns 7.5-12.5)	Electrical Cable	30,057	1/2 hr 1575 F	

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AUXILIARY BUILDING

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Corridor (1A121) 103 Area bounded by column lines 5.5-15.1 & G-G.4	Reactor Core Isolation Cooling Instr. Panel Residual Heat Removal Instr. Panels A, B, and C	Smoke Detection Wet Pipe Sprinklers (Columns 10.5-15.1 & G-G.4) 3-hr Rated Fire Walls for East and West Walls 1-hr Rated Fire Barriers for Redundant Safe Shutdown Cables Portable Ex- tinguishers Hose Streams	Electrical Cable	44,761	<3/4 hr <1650 F	Including cables in Area 1A101 from column lines 5.5-15.1 & G-G.4 (Note 8)
Corridor (1A122) 105 Area bounded by column lines 5.5-6.2 & G.4-Q		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for North Wall	Electrical Cable Concrete Joint Sealers	55,724 1,210	3/4 hr 1650 F	Including cables in Area 1A114 from column lines 5.5-7.5 & G.4-Q (Note 8)
HPCs Area (1A123) 103 Area bounded by column lines 13.6-15.1 & G.4-R	High Pressure Coolant Spray Instr. Panel CRD Pump Suction Filter (2)	Smoke Detection Wet Pipe Sprin- klers (Columns G.4-J.5) 1-hr Rated Fire Barriers for Redundant Safe Shutdown Cables Portable Ex- tinguishers Portable Hose Streams 3-hr Rated Fire Wall for South Wall	Electrical Cable Concrete Joint Sealers	61,803 918*	1 hr 1700 F	Including cables in Area 1A117 from column lines 12.5-15.1 & G.4-R (Note 8)

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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments	
Blowout Shaft (1A124) 108 Area bounded by column lines 11-11.5 & G.9-H.5	Blowout Panel	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls for South and West Walls	Concrete Joint Sealers	94,300*	1-1/4 hr 1750 F		56
Blowout Shaft (1A125) 108 Area bounded by column lines 8.5-9 & G.9-H.5	Blowout Panel	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls for North and West Walls	Concrete Joint Sealers	94,300*	1-1/4 hr 1750 F		56
Aux. Radwaste Pipe Tunnel (1A127) 79 - G & 5.5		Hose Stream Portable Ex- tinguisher	Concrete Joint Sealers	*			46
RHR A Heat Exchanger (1A128) 108 Area bounded by column lines G.5-7.5 & G-G.4	Res. Heat Rem. Heat Exh. A (2)	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except North Wall	Electrical Cable	12,564	<1/2 hr <1575 F	Including cables in Area 1A102	56
RHR B Heat Exchanger (1A129) 108 Area bounded by column lines 12.5-13.5 & G.4-H	Res. Heat Rem. Heat Exh. B (2)	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except North Wall	Electrical Cable	2,051	<1/4 hr <1000 F	Including cables in Area 1A106	56
Transfer Pump Monorail Room (1A130) 103 Area bounded by column lines 6.2-7.8 & H.7-J.3	3-ton Monorail	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except East Wall	Electrical Cable	Note (1)			56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Floor Drain Transfer Pump (1A131) 93 Area bounded by column lines 6.2-7.8 & H.7-J.3	Equip. Drain Transfer Pump (2) Floor Drain Transfer Pump (2)	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except East Wall	Electrical Cable	Note (1)		
Passage (1A201) 119 Area bounded by column lines 5.5-15.1 & G-G.4	MSIV Leak Control Division I Local Panel	Smoke Detection Wet Pipe Sprinkler (Column 13-15.1) 3-hr Rated Fire Walls for East and West Walls (Columns 6.5-13.6) 1-hr Rated Fire Barriers for Redundant Safe Shutdown Cables Portable Ex- tinguishers Hose Streams	Electrical Cable	125,000	<1-3/4 hr <1825 F	
RHR A Heat Exch. (1A202) 119 Area bounded by column lines 6.5-7.5 & G.4-H	Res. Heat Rem. Heat Exch. A (2)	3-hr Rated Fire Walls except North Wall Hose Stream Portable Ex- tinguisher Smoke Detection	Electrical Cable	8,189	<1/2 hr <1575 F	
Piping Penetration (1A203) 119 Area bounded by column lines 7.5-9 & G.4 - Cntmt. Wall	RHR A Room Cooler	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except South Wall	Electrical Cable Concrete Joint Sealers	6,000 640*	<1/2 hr <1575 F	

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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Piping Penetration (1A204) 119 Area bounded by column lines 9-11 & G.4-G.7		Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except West Wall	Electrical Cable Concrete Joint Sealers	23,400 530*	<1/2 hr <1575 F	013.44   56
Piping Penetration (1A205) 119 Area bounded by column lines 11-12.5 & G.4 - Cntmt. Wall	Res. Heat Rem. Room Cooler B	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except North Wall	Electrical Cable Concrete Joint Sealers	17,500 640*	<1/2 hr <1575 F	013.44   56
RHR Heat Exchanger (1A206) 119 Area bounded by column lines 12.5-13.5 & G.4-H	RHR Heat Exch. B (2)	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except South Wall	Electrical Cable	Note (1)		46   56
Electrical Switchgear (1A207) 119 Area bounded by column lines 12.3-13.8 & H-K	Motor Control Center Room East Cooler Motor Control Center 6.9 kV Switchgear (2)	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	38,200 1,935*	1/2 hr 1575 F	56
Electrical Switchgear (1A208) 119 Area bounded by column lines 6.2-7.8 & H-K	Motor Control Center Room East Cooler Motor Control Center Panel 6.9 kV Switchgear (2)	Auto. CO <sub>2</sub> System Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	48,200 1,463*	3/4 hr 1650 F	56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
RWCU Recirc. Pump A (1A209) 115 Area bounded by column lines 9-10 G.7 - Cntmt. Wall	RWCU Recirc. Pump B	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls for North and West Walls	Concrete Joint Sealers Electrical Cable	11,821* Note (1)	<1/2 hr <1575 F	013.44 013.44 56
RWCU Recirc. Pump B (1A210) 115 Area bounded by column lines 10-11 & G.7 - Cntmt. Wall	RWCU Recirc. Pump A	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls for South and West Walls	Concrete Joint Sealers Electrical Cable	12,560* Note (1)	<1/2 hr <1575 F	013.44 56
Miscellaneous Area (1A211) 119 Area bounded by column lines 12.5-15.1 & G.4-P.4	SRM/IRM Drive Control Cabinet	Smoke Detection Wet Pipe Sprinkler (Column G-J.5) 1-hr Rated Fire Barriers for Redundant Safe Shutdown Cables Portable Ex- tinguishers Hose Stream 3-hr Rated Fire Walls for South Wall	Electrical Cable Concrete Joint Sealers	157,703 520*	2 hr 1825 F	013.44 46 56
Fan Coil Area (1A215) 119 Area bounded by column lines 5.5-7.5 & G.4-P.4	Aux. Bldg. Fan Coil Unit Emergency Decontam. Station	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for North Wall	Electrical Cable Concrete Joint Sealers	98,000 555*	1-1/4 hr 1750 F	013.44 56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Electrical Switchgear (1A219) 119 Area bounded by column lines 7.5-9 & Cntmt. Wall - P.4	Motor Control Center Room West Cooler Load Center Load Center	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	51,400 1,692*	3/4 hr 1650 F	56
Piping Penetration (1A220) 120 Area bounded by column lines 9-11 & Cntmt. Wall - P.4		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Smoke Detection	Concrete Joint Sealers Electrical Cable	1,078* Note (1)	<1/4 hr <1000 F	56
Electrical Switchgear (1A221) 119 Area bounded by column lines 11-12.5 & Cntmt. Wall - P.4	Load Center Room West Cooler Load Center Motor Control Center	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	51,400 1,692*	3/4 hr 1650 F	56
Motor Control Center Area (1A222) 119 Area bounded by column lines 5.5-15.1 & P.4-R	Component Cooling Water Chem. Addition Tank Motor Control Center Load Center Load Center Motor Control Center Motor Control Center Load Center Load Center Motor Control Center	Smoke Detection Wet Pipe Sprinkler (Column 8-12) Portable Ex- tinguisher Hose Stream 3-hr Rated Fire Wall for East Wall (Columns 7.5-12.5)	Electrical Cable Concrete Joint Sealers	58,647 213*	3/4 hr 1650 F	46 013.44
Passage (1A223) 128 Area bounded by column lines 9-11 & G.8 - Cntmt. Wall		Hose Stream Portable Ex- tinguisher Smoke Detection (in 1A204) 3-hr Rated Fire Walls Except East Wall	Concrete Joint Sealers Electrical Cable	1,190* Note (1)	<1/4 hr <1000 F	56 56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Pipe Chase (1A224) 128 - H & 10 Area bounded by column lines 9.8-10.2 & G.8 - Cntmt. Wall		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall	Concrete Joint Sealers	3,580*	<1/4 hr <1000 F	56
Blowout Shaft (1A225) 128 - H & 9 Area bounded by column lines 9-9.8 & H - Cntmt. Wall		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall	Concrete Joint Sealers	5,453*	<1/4 hr <1000 F	56
Corridor (1A301) 139 Area bounded by column lines 11-15.1 & G-G.4	Motor Control Center	Smoke Detection Wet Pipe Sprinkler (Column 13-15.1) 1-hr Rated Fire Barriers for Redundant Safe Shutdown Cables Portable Ex- tinguishers Hose Stream 3-hr Rated Fire Walls	Electrical Cable	119,073	1-1/2 hr 1800 F	013.44  56
Corridor (1A302) 139 Area bounded by column lines 5.5-9 & G-G.4	Motor Control Center	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall Except South Wall (2-hr Rated)	Electrical Cable	129,458	<1-3/4 hr <1825 F	013.44  56
RHR A Heat Exch. (1A303) 139 Area bounded by column lines 6.5-7.5 & G.4-H		Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall Except North Wall	Electrical Cable	Note (1)		56  56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Piping Penetration (1A304) 139 Area bounded by column lines 7.5-9 & G.4 - Cntmt. Wall		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except South Wall	Concrete Joint Sealers Electrical Cable	1,850* Note (1)	<1/4 hr <1000 F	013.44   56
Main Steam Tunnel (1A305) 140 Area bounded by column lines 9-11 & G - Cntmt. Wall	MSIV Accumulator (4) Tunnel Cooler	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	Note (1) 1,331*	<1/4 hr <1000 F	013.44   56
Piping Penetration (1A306) 139 Area bounded by column lines 11-12.5 & G.4 - Cntmt. Wall		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except North Wall	Concrete Joint Sealers Electrical Cable	1,850* Note (1)	<1/4 hr <1000 F	013.44   46   56
RHR B Heat Exch. (1A307) 139 Area bounded by column lines 12.5-13.5 & G.4-H		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except South Wall	Electrical Cable	Note (1)		
Elect. Penetration (1A308) 139 Area bounded by column lines 12.3-13.8 & H-K	Load Center Room Cooler Load Center 6.9 kV Switchgear	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	122,941 1,606*	<1-3/4 hr <1825 F	013.44   56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Elect. Penetration (1A309) 139 Area bounded by column lines 6.2-7.8 & H-K	Load Center Room Cooler Load Center	Auto. CO <sub>2</sub> System Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	115,506 1,491*	1-1/2 hr 1800 F	013.44   56
Passage (1A314) 139 Area bounded by column lines 5.5-7.5 & G.4-P.4	Plant Chilled Water Chemical Feed Tank Plant Chilled Water Pump (2) Auxiliary Bldg. Secondary Chilled Water Pump Emergency Decontam. Station SRM/IRM Preamplifier Cabinet Signal Isolating Cabinet Remote Multiplex SRM/IRM Preamplifier Cabinet A	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for North Wall 2-hr Rated Fire Wall for South Wall (Columns G-K)	Electrical Cable Concrete Joint Sealers	152,010 425	2 hr 1825 F	46   013.44   56   56   56

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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Motor Control Center (1A316) 139 Area bounded by column lines 12.5-15.1 & G.4-N, 12.5-13.6 & N-P.4	Motor Control Center	Smoke Detection			<3-1/2 hr	56
	Remote Multiplexer	Wet Pipe	Electrical Cable	247,741	<1970 F	
	Control Rod Drive Vessel Temp. Recorder Panel	Sprinkler (Column G.4-J.5)	Concrete Joint Sealer	775*		
Motor Control Center SRM/IRM Preamplifier Cabinet D Signal Isolating Cabinet	Motor Control Center	1-hr Rated Fire				56
	SRM/IRM Preamplifier	Barriers for				
	Cabinet D Signal Isolating Cabinet	Redundant Safe Shutdown Cables Portable Extinguishers Hose Stream				
Electrical Penetration (1A318) 139 Area bounded by column lines 7.5-9 & Cntmt. Wall - P.4	Room Cooler	3-hr Rated Fire				56
	6.9 kV Switchgear	Wall for South and West Walls (Except for Columns 12.5-13.6)				
	Motor Control Center Remote Multiplexer	2-hr Rated Fire Wall for North Wall				
RPV Instrumentation Test Room (1A319) 139 Area bounded by column lines 9-11 & Cntmt. Wall - P.4	Room Cooler	Auto. CO <sub>2</sub>	Electrical Cable	87,920	1-1/4 hr	56
	6.9 kV Switchgear	System	Concrete Joint Sealer	2,240*	1750 F	
	Motor Control Center Remote Multiplexer	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls				
RPV Instrumentation Test Room (1A319) 139 Area bounded by column lines 9-11 & Cntmt. Wall - P.4	Room Cooler	Hose Stream	Concrete Joint Sealer	4,244*	1/2 hr	56
	6.9 kV Switchgear	Portable Ex- tinguisher	Electrical Cable	33,314	<1575 F	
	Motor Control Center Remote Multiplexer	Smoke Detection 3-hr Rated Fire Walls				

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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Duration and Room Temperature	Comments
Electrical Room Penetration (1A320) 139 Area bounded by column lines 11-12.5 & Cntmt. Wall - P.4	Motor Control Center Room Cooler	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealer	58,080 2,240*	3/4 hr 1650 F	013,44   56
Motor Control Center (1A321) 139 Area bounded by column lines 10-13.6 & P.4-Q, 12.5-13.6 & Q-R	SRM/IRM Preamplifier Cabinet B Aux. Bldg. Fan Coil Unit	Smoke Detection Wet Pipe Sprinkler (Column 10-13.6 & P.4-Q) Portable Extinguisher Hose Stream 3-hr Rated Fire Wall for North and East Walls	Electrical Cable	113,484	1-1/2 hr 1800 F	013,44   56 013,44   56
Centrifugal Chiller Area (1A322) 139 Area bounded by column lines 5.5-10 & P.4-R	Fire Zone Panel Centrifugal Chiller (3)	Smoke Detection Wet Pipe Sprinkler (Column 5.5-10) Portable Extinguisher Hose Stream 3-hr Rated Fire Wall for East (Except for Columns 5.5-7.5) and West Walls	Electrical Cable Concrete Joint Sealers	49,150 216*	3/4 hr 1650 F	46   013,44   56 013,44
Standby Gas Treatment Area (1A323) 139 Area bounded by column lines 10.3-12.5 & Q-Q.5	SGTS A Standby Gas Treat- ment System Filter Train	Deluge Water Sprinkler pro- tecting char- coal filters only Hose Stream Portable Ex- tinguisher Smoke Detection	Electrical Cable Concrete Joint Sealers Charcoal	9,565 1,706* 128,147	2 hr 1825 F	56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Roof (1A324) 154 Area bounded by column lines 10-12.4 & Q-R	Auxiliary Bldg. Fan Coil Unit	Hose Stream Portable Ex- tinguisher Smoke Detection (in 1A321 and 1A322) 3-hr Rated Fire Wall for West Wall	Electrical Cable Motor Electrical Insulation Concrete Joint Sealers	2,750	<1/4 hr <1000 F	56
Railroad Area (1A325) 133 Area bounded by column lines 13.6-15.1 & N-R		Auto. Water Sprinkler Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Concrete Joint Sealers	279*	<1/4 hr <1000 F	46   56
Standby Gas Treatment Area (1A326) 139 Area bounded by column lines 10-12.5 & Q.5-R	SGTS B Standby Gas Treat- ment System Filter Train	Deluge Water Sprinkler protecting charcoal filters only Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for West Wall	Electrical Cable Concrete Joint Sealers Charcoal	4,304 674* 101,168	1-1/2 hr 1800 F	46   56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Passage (1A401) 166 Area bounded by column lines 10-15.1 & G-G.4		Smoke Detection Wet Pipe Sprinkler (Column 11-15.1) 1-hr Rated Fire Barriers for Redundant Safe Shutdown Cables Portable Extin- guishers Hose Stream 3-hr Rated Fire Wall for East and West Walls (Columns 11-13)	Electrical Cable Concrete Joint Sealers	68,571 269*	1 hr 1700 F	56
Main Steam Tunnel Roof (1A402) 174 Area bounded by column lines 9-11 & G.4-G.8		Hose Stream Portable Ex- tinguisher Smoke Detection 2-hr Rated Fire Wall for North Wall 3-hr Rated Fire Wall for East Wall	Electrical Cable	Note (1)		56 46
Passage (1A403) 166 Area bounded by column lines 5.5-10 & G-G.4		Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for East and West Walls	Electrical Cable Concrete Joint Sealers	56,506 207*	3/4 hr 1650 F	56
Unassigned (1A404) 166 Area bounded by column lines 7.5-9 & G.4 - Contmt. Wall		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except North Wall	Concrete Joint Sealers Electrical Cable	450* Note (1)	<1/4 hr <1000 F	56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Cntmt. Vent. Equipment (1A405) 166 Area bounded by column lines 11-12 & G.4 - Cntmt. Wall	Cntmt. Purge Com- pressor Drywell Cntmt. Purge Fan Cntmt. Vent. Supply Fan Cntmt. Exh. Filter Instr. Rack	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for East and West Walls 2-hr Rated Fire Wall for South Wall	Electrical Cable Concrete Joint Sealers	5,781 450*	<1/4 hr <1000 F	56
Cntmt. Exh. Filter & Vent (1A406) 166 Area bounded by column lines 12-12.5 & G.4-H.4	Cntmt. Vent. Exhaust Fans (2) Cntmt. Exh. Charcoal Filter Train	Deluge Water Sprinkler for Filter Train Smoke Detection Portable Ex- tinguisher Hose Stream 3-hr Rated Fire Wall for North Wall	Charcoal Electrical Cable	122,336 14,457	1-3/4 hr 1825 F	56
Motor Control Center (1A407) 166 Area bounded by column lines 12.5-13.8 & H-H.7	Motor Control Center Room Cooler	Auto. CO <sub>2</sub> Sys. Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for South and West Walls Smoke Detection	Electrical Cable Concrete Joint Sealers	52,381 1,600*	3/4 hr 1650 F	56
Motor Control Center (1A410) 166 Area bounded by column lines 6.2 & 7.8 & H-H.7	Room Cooler Motor Control Center	Auto. CO <sub>2</sub> Sys. Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Smoke Detection	Electrical Cable Concrete Joint Sealer	49,274 1,354*	3/4 hr 1650 F	56

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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Misc. Equip. Area (1A417) 166 Area bounded by column lines Cntmt. Wall - 15.1 & G.4-L	Cntmt. Vent. Rad. Monitor Sample Rack Cntmt. H <sub>2</sub> Analyzer Sample Rack B Drywell H <sub>2</sub> Analyzer Sample Rack B Fission Prod. Mon- itor Sample Rack Load Center Emergency Decontam. Station	Smoke Detection Wet Pipe Sprinkler (Column G.4-J.5) 1-hr Rated Fire Barriers for Redundant Safe Shutdown Cables Portable Extin- guishers Hose Stream 3-hr Rated Fire Wall for South Wall and West Wall (to Column 13.8) 2-hr Rated Fire Wall for North Wall	Electrical Cable Concrete Joint Sealer	54,230 572*	3/4 hr 1650 F	48   56
Misc. Equip. Area (1A420) 166 Area bounded by column lines 5.5 - Cntmt. Wall & G.4-M	Drywell H <sub>2</sub> Analyzer Sample Rack A Cntmt. H <sub>2</sub> Analyzer Sample Rack A FPC & CU Filter Demin. Control Panel	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for North Wall 2-hr Rated Fire Wall for South Wall (see Fig. 9A-6)	Electrical Cable Concrete Joint Sealers	54,079 450*	3/4 hr 1650 F	46   48   56
Set-Down Area (1A424) 166 Area bounded by column lines 12.5-15.1 & L-P, 12.5-13.6 & P-R		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for South Wall 2-hr Rated Fire Wall for North Wall	Electrical Cable Concrete Joint Sealers	38,372 931*	1/2 hr 1575 F	56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Spent Fuel Cask Handling Area (1A427) 166 Area bounded by column lines 13.6-15.1 & P-R		Hose Stream Portable Ex- tinguisher	Concrete Joint Sealers	513*	<1/4 hr <1000 F	
Passage (1A428) 166 Area bounded by column lines 5.5-12.5 & M-P.4	Aux. Bldg. Fan Coil Unit Misc. Control Panel FPC & CU Filter/ Demin. I.R. FPC & CU Filter/ Demin. Control Panel Booster Compressor (2) Fuel Pool Pump Panel Motor Control Center	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for East and West Walls (see Fig. 9A-6)	Electrical Cable Concrete Joint Sealers	69,283 522*	1 hr 1700 F	
Water Sampling Station (1A429) 166 Area bounded by column lines 6.4-7 & P.4-P.6		Hose Stream Portable Ex- tinguisher				
Control Rod Drive Repair (1A430) 166 Area bounded by column lines 11-13.4 & P.4-R		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls for South and West Walls				
Spent Fuel Pool (1A431) 167 Area bounded by column lines 8-10.5 & P.4-R	Fuel Prep. Mech. (2), El. 208'-10" Fuel Handling Plat- form, El. 208'-10"	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls for East, South, and West Walls				
FPC & CU Pump (1A432) 166 Area bounded by column lines 7-8 & P.4-Q	FPC & CU Pump (2)	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for North Wall	Electrical Cable	Note (1)		

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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
FPC & CU Backwash Transfer Pump (1A433) 166 Area bounded by column lines 6.2-7 & P.7-Q	FPC & CU Backwash Transfer Pump (2)	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North Wall	Electrical Cable	Note (1)		56 013.44
Passage (1A434) 166 Area bounded by column lines 5.5-6.2 & P.4-R	Motor Control Center	Hose Stream Portable Ex- tinguisher Smoke Detection 2-hr Rated Fire Walls	Concrete Joint Sealers Electrical Cable	1,086* 2,523	<1/4 hr <1000 F	48 56
FPC & CU Backwash Receiving Tank (1A436) 166 Area bounded by column lines 6.4-8.5 & Q-R	FPC & CU Backwash Receiving Tank	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North and West Walls				46 56
Transfer Canal (1A437) 176 Area bounded by column lines 10.7-11 & P.4-Q.7	Fuel Transfer Mech., El. 184'-6"	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for East Wall				56
Shipping Cask Storage Pool (1A438) 159 Area bounded by column lines 11-12 & Q-R		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North and East Walls				56
Blowout Shaft (1A439) 166 Area bounded by column lines 10-11 & G.8 - Cntmt. Wall		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall	Concrete Joint Sealers	3,773*	<1/4 hr <1000 F	56



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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Blowout Shaft (1A440) 166 Area bounded by column lines 9-10 & G.8 - Cntmt. Wall		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall				56
RHR Room B Blowout Shaft (1A441) 166 Area bounded by column lines 12.5-13.5 & G.7-H		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall				56
RHR A Blowout Shaft (1A442) 166 Area bounded by column lines 6.4-7.5 & G.7-H		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West and North Walls				56
Inspection Area (1A444) 166 Area bounded by column lines 10.7-11 & P.4-Q.7		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for East Wall				46 56
Unassigned (1A506) 185 Area bounded by column lines 11.6-13.8 & H-L		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for Cmt. Wall	Concrete Joint Sealers	990*	<1/4 hr <1000 F	56
Unassigned (1A508) 185 Area bounded by column lines 6.2-8.4 & H-L.7		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for Cmt. Wall	Concrete Joint Sealers	1,664*	<1/4 hr <1000 F	56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Storage Area (1A519) 185 Area bounded by column lines 11.9-15.1 & L-P.4	Aux. Bldg. Fan Coil Unit Fuel Pool Sweep Supply Fan (2)	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except North Wall (2-hr) and West Wall (Columns 13-15.1)	Electrical Cable	19,916	<1/2 hr <1575 F	
Spent Fuel Hatch Area (1A523) 185 Area bounded by column lines 13.6-15.1 & P-R		Hose Stream Portable Ex- tinguisher Smoke Detection (Located on El. 208')	Concrete Joint Sealers Electrical Cable	827* Note (1)	<1/4 hr <1000 F	
Platform (1A524) 195 Area bounded by column lines 10.2-11 & Ctmt. Wall - P.4		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for East Wall	Electrical Cable	235,714	3 hr 1900 F	
Transfer Tube (1A525) 182 Area bounded by column lines 10.2-11 & Ctmt. Wall-P.4	Fuel Transfer Tube	3-hr Rated Fire Wall for West Wall	Concrete Joint Sealers	11,490*	<1/2 hr <1575 F	
Load Center Area (1A527) 185 Area bounded by column lines 5.5-10.2 & M-Q	Load Center Motor Control Center FPC & CU Heat Exch. (2) Emergency Decontam. Station	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls Except South Wall and West Wall (Columns 5.5-8)	Electrical Cable Concrete Joint Sealers	61,500 1,015*	<1 hr <1700 F	Including cables in Area 1A538

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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
New Fuel Storage Vault (1A528) 185 Area bounded by column lines 11-13 & P.4-P.7		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls				56
FPC & CU Tank Room (1A529) 180 Area bounded by column lines 6.2-7.5 & P.4-P.7	FPC & CU Precoat Tank FPC & CU Precoat Tank Pump FPC & CU Resin Tank	Hose Stream Smoke Detection Portable Ex- tinguisher 3-hr Rated Fire Wall for North Wall	Electrical Cable	Note (1)		013.44   56
Fuel Pool Filter Demin (1A530) 180 Area bounded by column lines 6.2-7.5 & P.7-R	FPPD Holding Pump (2)	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North Wall	Electrical Cable	Note (1)		013.44   56
Piping Area (1A531) 185 Area bounded by column lines 11-13.8 & P.4-R		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls for South and East Walls				46   56
Cask Washdown Area (1A532) 185 Area bounded by column lines 12.3-13.3 & Q-Q.8		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for South Wall				56
Fuel Pool F/D (1A533) 191 Area bounded by column lines 7.5-8.4 & Q.2-R	Fuel Pool Filter Demineralizer	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North Wall				56
Fuel Pool F/D (1A534) 191 Area bounded by column lines 6.5-7.5 - Q.2-R	Fuel Pool Filter Demineralizer	Hose Stream Portable Ex- tinguisher				56

TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Pipe Chase (1A536) 185 Area bounded by column lines 8-13 & Q.8-R		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for East Wall (see Fig. 9A-7)				
Drain Tank Area (1A537) 191 Area bounded by column lines 7.3-8.4 & P.4-Q.2	Drain Tank	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North Wall				
Platform (1A538) 195 Area bounded by column lines 6-6.5 & P.4-R		Hose Stream Portable Ex- tinguisher Smoke Detection (in 1A527) 2-hr Rated Fire Wall for South Wall	Electrical Cable	See Comments		Included in Area 1A527
Cable Space (1A539) 185 Area bounded by column lines 14.5-15.1 & G-H		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for North Wall	Electrical Cable	115,911	1-1/2 hr 1800 F	
Storage Area (1A602) 208 Area bounded by column lines 10-15.1 & L-P.4	New Fuel Inspection Stand Storage Area	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for Ctmt. Wall (see Fig. 9A-8)	Electrical Cable Concrete Joint Sealers	14,875 470*	<1/2 hr <1575 F	

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TABLE 9A-2 AUXILIARY BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Passage (1A603) 208 Area bounded by column lines 5.5-10 & M-P.4	5-Ton New Fuel Bridge Crane New Fuel Inspection Stand Control Console Hydraulic Power Unit Emergency Decont Station 150-Ton Spent Fuel Cask Crane	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for Ctmt. Wall	Electrical Cable Concrete Joint Sealers	17,740 360*	<1/2 hr <1575 F	013.44   56
Fuel Handling Area (1A604) 208 Area bounded by column lines 5.5-15.1 & P.4-R	Standby Service Water Fill Tank	Hose Stream Portable Ex- tinguisher Smoke Detection	Electrical Cable Concrete Joint Sealers	591 32*	<1/4 hr <1000 F	96   013.44   56
Recirc. Fan Area (1A605) 228 Area bounded by column lines 5.5-10 & M-P.4, 10-15.1 & L-P.4	Recirc. Fan (2) Fuel Handling Area Radiation Monitor Sample Station	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for Ctmt. Wall	Electrical Cable Concrete Joint Sealers	32,255 818*	1/2 hr 1575 F	013.44   56
HVAC Units Area (1A606) 245 Area bounded by column lines 5.5-10 & P-R	Area Fan Coil Unit Exhaust Fan (2) Supply Fan (2) Exhaust Fan Chilled Water Ex- pansion Tank	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for East Wall	Electrical Cable	Note (1)		013.44   56

TABLE 9A-2  
CONTROL BUILDING

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Disrobe Area (0C101) 93 Area bounded by column lines 19.8-20.5 & G-G.3		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for East Wall	Electrical Cable AISI Estimate	(Note 9) 11,200**	1/2 hr 1575 F	013.44   56
Contaminated Linen (0C102) 93 Area bounded by column lines 19.4-19.8 & G-G.3		Smoke Detection Hose Stream Portable Ex- tinguisher Wet Pipe Sprinkler 3-hr Rated Fire Wall for East Wall	Electrical Cable AISI Estimate	(Note 9) 40,000**	3/4 hr 1650 F	013.44   56
Emergency Laundry (0C103) 93 Area bounded by column lines 18.8-19.4 & G-G.6		Smoke Detection Hose Stream Portable Ex- tinguisher Wet Pipe Sprinkler 2-hr Rated Fire Wall for South and West Walls	Electrical Cable AISI Estimate	(Note 9) 40,000**	3/4 hr 1650 F	013.44   56 46
Sump (0C104) 93 Area bounded by column lines 16.6-17.2 & G-G.2	Hot Machine Shop Sump Pumps (2)	Hose Stream Portable Ex- tinguisher Wet Pipe Sprinkler 3-hr Rated Fire Wall for North and East Walls	Concrete Joint Sealers	368*	<1/4 hr <1000 F	013.44   56
Emergency Shower (0C105) 93 Area bounded by column lines 19.8-20.1 & G.3-G.4		Hose Stream Portable Ex- tinguisher				56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Emergency Shower (OC106) 93 Area bounded by column lines 20.1-20.4 & G.3-G.5		Hose Stream Portable Ex- tinguisher	Electrical Cable	(Note 9)	<1/2 hr <1575 F	56
Clean Linen (OC107) 93 Area bounded by column lines 20.6-21.3 & G.2-G.7		Smoke Detection Hose Stream Portable Ex- tinguisher Wet Pipe Sprinklers	Electrical Cable	(Note 9)	<1/2 hr <1575 F	56
Drying Area (OC108) 93 Area bounded by column lines 19.8-20.1 & G.4-G.7		Smoke Detection Hose Stream Portable Ex- tinguisher	Electrical Cable	(Note 9)	<1/2 hr <1575 F	56
Decontaminated Area (OC109) 93 Area bounded by column lines 17-18.4 & G.3-H		Wet Pipe Sprinkler Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for East and North Walls	Electrical Cable	12,222	<1/2 hr <1575 F	46 56
Storage (OC110) 93 Area bounded by column lines 18.9-19.5 & G.6-G.7		Smoke Detection Hose Stream Portable Ex- tinguisher  2-hr Rated Fire Walls	Electrical Cable AISI Estimate	(Note 9) 33,600**	3/4 hr 1650 F	56
First Aid (OC111) 93 Area bounded by column lines 19.5-20.2 & G.4-G.8		Smoke Detection Hose Stream Portable Ex- tinguisher	Electrical Cable	(Note 9)	<1/2 hr 1575 F	56



TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Clean Area (OC112) 93 Area bounded by column lines 20.1-20.7 & G.6-G.9		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for West Wall	Electrical Cable	(Note 9)	<1/2 hr <1575 F	56
Locker (OC113) 93 Area bounded by column lines 21-22.8 & G-H.8		Wet Pipe Sprinkler Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North and East Walls	Electrical Cable AISI Estimate	(Note 9) 11,200**	<1/2 hr <1575 F	013.44 56
Health Physicist's (OC114) 93 Area bounded by column lines 18.9-20.2 & G.8-H		Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for West and South Walls	Electrical Cable AISI Estimate	(Note 9) 67,200**	1-1/4 hr 1750 F	013.44 46 56
Corridor (OC115) 93 Area bounded by column lines 18.9-18.7 & G-K.5		Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls Smoke Detection	Electrical Cable	12,485	<1/2 hr <1575 F	013.44 56
Hot Machine Shop (OC116) 93 Area bounded by column lines 15-17 & G-H, 15-18.4 & H-K	Engine Lathe Six-ft Radial Drill Hydraulic Press horizontal Mill Vertical Mill Crane Welding Tools & Equip. SST-Lined Floor	Wet Pipe Sprinkler Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except West Wall	Electrical Cable AISI Estimate	3,857 75,200**	1 hr 1700 F	013.44 56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Corridor (0C117) 93 Area bounded by column lines 18.8-21 & G.9-H.3		Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls	Electrical Cable	(Note 9)	<1/2 hr <1575 F	56
Storage (0C118) 93 Area bounded by column lines 19.5-20 & H.4-J		Smoke Detection Hose Stream Portable Ex- tinguisher Wet Pipe Sprinkler 2-hr Rated Fire Wall for East and West Walls	Electrical Cable AISI Estimate	(Note 9) 33,600**	3/4 hr 1650 F	56
QA Office (0C119) 93 Area bounded by column lines 20-21 & H.4-J		Smoke Detection Hose Stream Portable Ex- tinguisher Wet Pipe Sprinkler 2-hr Rated Fire Wall for East and West Walls	Electrical Cable AISI Estimate	(Note 9) 104,800**	1-3/4 hr 1825 F	56 46
Chemical & Radiation (0C120) 93 Area bounded by column lines 18.8-19.5 & H.4-J		Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall Except North Wall	Electrical Cable AISI Estimate	(Note 9) 67,200**	1-1/4 hr 1750 F	56
Clean Janitor's (0C121) 93 Area bounded by column lines 20.7-21 & H.7-J.3		Hose Stream Portable Ex- tinguisher Wet Pipe Sprinkler	AISI Estimate Electrical Cable	52,000** (Note 9)	1 hr 1700 F	56 013.44

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Drying Area (0C122) 93 Area bounded by column lines 21.8-22.7 & H.8-J.5		Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North Wall	Electrical Cable	(Note 9)	<1/2 hr <1575 F	56
Clean Shower (0C123) 93 Area bounded by column lines 21.8-22.7 & J.5-K		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for North Wall	Electrical Cable	(Note 9)	<1/2 hr <1575 F	56
Clean Toilet (0C124) 93 Area bounded by column lines 20.7-21.8 & H.8-K		Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for South Wall	AISI Estimate Electrical Cable	11,200** (Note 9)	<1/2 hr <1575 F	56
HVAC (0C125) 93 Area bounded by column lines 18.8-20.7 & J-K	Access Control Area Fan Coil Unit Access Control Area Exhaust Fan Acid Neutralizer Sump	Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls	Electrical Cable	4,463	<1/4 hr <1000 F	56
Sump (0C126) 93 Area bounded by column lines 20-21 & J.5-K	Control Bldg. Sanitary Sump Pump (2)	Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for North and West Walls	Concrete Joint Sealers	194*	<1/4 hr <1000 F	56

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TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Hot Janitor's (OC127) 93 Area bounded by column lines 20.6-21.2 & G.1-G.2		Hose Stream Portable Ex- tinguisher Smoke Detection Wet Pipe Sprinkler 3-hr Rated Fire Wall for East Wall	AISI Estimate	52,000**	3/4 hr 1650 F	56
Hot Water Heater (OC128) 93 Area bounded by column lines 17.6-18.4 & H-H.3	Hot Water Heater	Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Walls	Electrical Cable	Note (1)		56
Contaminated Area (OC129) 93 Area bounded by column lines 20.4-20.7 & G.1-G.7		Hose Stream Portable Ex- tinguisher Smoke Detection				56
Stair (OC201) 111 Area bounded by column lines 17.2-18.9 & G.1-G.2		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Smoke Detection	Electrical Cable Concrete Joint Sealers	15,714 475*	<1/2 hr <1575 F	46   56
Division I Switchgear Area (OC202) 111 Area bounded by column lines 15-18.9 & G.1-G.7	Switchgear (5) Inverter Portable Eyewasher & Shower	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	66,719 55*	1 hr 1700 F	56
Division II Switchgear Area (OC203) 111 Area bounded by column lines 18.9-22.8 & G.1-G.7	Switchgear (5)	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	66,094 50*	1 hr 1700 F	56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temp ature	Comments
Division III Battery (0C204) 111 Area bounded by column lines 21.2-22.8 & G.7-H	Electric Batteries	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls H <sub>2</sub> Detection	Electric Batteries Electrical Cable	14,286 17,460	1/2 hr 1575 F	56
Emergency Remote Shutdown Panel (0C205) 111 Area bounded by column lines 20.9-21.4 & G.7-H	Control Panel	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Concrete Joint Sealers Electrical Cable	59* 73,333	1 hr 1700 F	56
Emergency Remote Shutdown Panel (0C205A) 111 Area bounded by column lines 20.4-21.4 & G.7-H	Control Panel	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Concrete Joint Sealers Electrical Cable	59* 73,333	1 hr 1700 F	46   56
Division II Battery (0C206) 111 Area bounded by column lines 18.9-19.6 & G.6-H.1	Electric Batteries	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls H <sub>2</sub> Detection	Concrete Joint Sealers Electric Batteries Electrical Cable	200* 52,381 Note (1)	3/4 hr 1650 F	56
Division I Battery (0C207) 111 Area bounded by column lines 18.1-18.9 & G.6-H.1	Electric Batteries	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls H <sub>2</sub> Detection	Concrete Joint Sealers Electric Batteries Electrical Cable	30* 52,381 Note (1)	3/4 hr 1650 F	56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Emergency Remote Shutdown Panel (0C208) 111 Area bounded by column lines 16.6-17.1 & G.7-H	Control Panel	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable	73,333	1 hr 1700 F	56
Emergency Remote Shutdown Panel (0C208A) 111 Area bounded by column lines 17.1-17.6 & G.7-H	Control Panel	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable	73,333	1 hr 1700 F	56
Division III Battery (0C209) 111 Area bounded by column lines 15-16.6 & G.7-H	Electric Batteries	Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls H <sub>2</sub> Detection	Electrical Cable Concrete Joint Sealers Electric Batteries	17,460 230* 11,765	1/2 hr 1575 F	56 46
Division III Switchgear (0C210) 111 Area bounded by column lines 15.1-17.5 & G.8-H.8	Switchgear (3) Transformer	Auto. CO <sub>2</sub> System Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	38,973 449*	1/2 hr 1575 F	56
Division II Battery (0C211) 111 Area bounded by column lines 18.1-18.9 & H.1-I	Electric Batteries	Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls H <sub>2</sub> Detection	Electric Batteries Electrical Cable	52,381 Note (1)	3/4 hr 1650 F	56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Division I Battery (0C212) 111 Area bounded by column lines 18.9-19.6 & H.1-H.9	Electric Batteries	Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls H <sub>2</sub> Detection	Concrete Joint Sealers Electric Batteries Electrical Cable	210* 52,381 Note (1)	3/4 hr 1650 F	56
Division III Switchgear (0C213) 111 Area bounded by column lines 20.4-22.8 & G.8-H.8	Switchgear (3) Transformer	Auto. CO <sub>2</sub> System Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	38,973 147*	1/2 hr 1575 F	56
Division I Switchgear (0C214) 111 Area bounded by column lines 18.9-22.8 & H.8-K	Switchgear (5)	Auto. CO <sub>2</sub> System Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	66,719 37*	1 hr 1700 F	46 56
Division II Switchgear (0C215) 111 Area bounded by column lines 15-18.9 & H.8-K	Switchgear (5)	Auto. CO <sub>2</sub> System Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	66,094 55*	1 hr 1700 F	56



TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Corridor (0C216) 111 Area bounded by column lines 18.5-18.9 & J.4-K		Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls Smoke Detection	Electrical Cable	Note (1)		56
Passage (0C301) 133 Area bounded by column lines 17.2-18.9 & G.1-G.2		Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls				56
HVAC Equipment (0C302) 133 Area bounded by column lines 15.1-18.9 & G.1-K	Air Handling Unit (2) Switchgear Battery Room Exch. Fan (2) Control Room A/C Unit Standby Fresh Air Unit Utility Exch. Fan Freon Detection Panel	Deluge Water Sprinkler Protecting Standby Fresh Air Unit In- ternally from Char- coal Fire Smoke Detec- tion Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls	Charcoal Electrical Cable  Concrete Joint Sealers	2,720 232  76*	<1/4 hr <1000 F	46 56 013.44

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
HVAC Equipment (0C303) 133 Area bounded by column lines 18.9-22.8 & G.1-K	Standby Fresh Air Unit Secondary Chilled Water Pumps (2) Switchgear Battery Room Exch. Fan (2) Control Bldg. Fan Coil Unit Computer Rooms Fan Coil Unit Control Room A/C Unit Air Handling Units (2) Freon Detection Panel	Deluge Water Sprinkler Protecting Standby Fresh Air Unit In- ternally from Char- coal Fire Smoke Detec- tion Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls	Charcoal Electrical Cable  Concrete Joint Sealers	2,454 929  71*	<1/4 hr <1000 F	56 013.44
Electrical Space (0C304) 133 Area bounded by column lines 22.7-22.8 & J.9-K		Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except West Wall (2-hr)	Electrical Cable	159,107	2 hr 1825 F	46 56
Electrical Space (0C305) 133 Area bounded by column lines 20.2-20.7 & J.8-K		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except West Wall (2-hr) Smoke Detection	Electrical Cable	166,019	2-1/4 hr 1850 F	56 56 56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Electrical Space (0C306) 133 Area bounded by column lines 17.7-18.2 & J.8-K		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except West Wall (2-hr) Smoke Detection	Electrical Cable	Note (1)		56
Electrical Space (0C307) 133 Area bounded by column lines 15.1-15.3 & J.8-K		Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except West Wall (2-hr)	Electrical Cable	295,952	4 hr 2000 F	56
Corridor (0C308) 133 Area bounded by column lines 18.6-18.9 & J.3-K.5		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Smoke Detection	Electrical Cable	Note (1)		46 56
Lobby (0C309) 133 Area bounded by column lines 17.6-18.6 & K-K.5		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls	AISI Estimate	8,800**	<1/2 hr <1575 F	56
Corridor (0C401) 148 Area bounded by column lines 18.7-19.1 & G.1-G.5		Hose Stream Smoke Detection Portable Ex- tinguisher 2-hr Rated Fire Walls Except West Wall (3-hr)	Electrical Cable	38,547	1/2 hr 1575 F	

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments	
Lower Cable Spreading Room (Unit 1) (0C402) 148 Area bounded by column lines 15.2-18.9 & G.1-K minus computer room	12 Halon 1301 Pressurized Tanks 186 lbs each	Auto. CO <sub>2</sub> System Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Minimum Except Corridor Stair Walls (2-hr) Manual Sprinkler System	Electrical Cable Instrument Cable Concrete Joint Sealers	162,970 4,260 21*	2-1/2 hr 1850 F	Halon 1301 tanks will not be haz- ardous at an ambient temperature of 2325 F	56
Computer & Control Panel (0C403) 148 Area bounded by column lines 16-18.9 & G.5-H.8	BOP Computer Cabinets NSS Computer Cabinets Control Cabinets	Auto. Halon System Smoke Detec- tion Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	109,529 120*	1-1/2 hr 1800 F		56
Computer & Control Panels (0C404) 148 Area bounded by column lines 18.9-22 & G.5-H.8	BOP Computer Cabinets NSS Computer Cabinets Control Cabinets	Auto. Halon System Smoke Detec- tion Hose Stream Portable Ex- tinguishers 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	109,529 120*	1-1/2 hr 1800 F		56

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TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Lower Cable Spreading Room (0C405) (Unit 2) 148 Area bounded by column lines 18.9-22.8 & G.1-K minus computer room		Auto. CO <sub>2</sub> System Smoke Detec- tion Hose Stream Portable Ex- tinguishers 3-hr Rated Fire Walls Minimum Except Corridor Walls (2-hr) Manual Sprinkler System	Electrical Cable Instrument Cable Concrete Joint Sealers	162,970 3,704 16*	2-1/4 hr 1850 F	013.44   56
Instrument Motor Generator (0C406) 148 Area bounded by column lines 18.9-20.3 & J.3-J.7	RPS Motor Generator Set	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguishers 3-hr Rated Fire Walls	Concrete Joint Sealers Electrical Cable	337* Note (1)	<1/4 hr <1000 F	46   56
Instrument Motor Generator (0C407) 148 Area bounded by column lines 17-18.3 & J.3-J.7	RPS Motor Generator Set	Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguishers 3-hr Rated Fire Walls	Concrete Joint Sealers Electrical Cable	206* Note (1)	<1/4 hr <1000 F	56
Corridor (0C408) 148 Area bounded by column lines 18.6-18.9 & H.8-K.5		Hose Stream Portable Ex- tinguishers 2 & 3-hr Rated Fire Walls Smoke Detection	Electrical Cable	12,222	<1/2 hr <1575 F	013.44   56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Electrical Space (0C409) 148 Area bounded by column lines 17.9-18.4 & J.8-K		Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Minimum Except West Wall (2-hr)	Electrical Cable	41,905	<3/4 hr <1650 F	56
Battery (0C410) 148 Area bounded by column lines 15.7-17 & J.5-J.7	Electric Batteries	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electric Batteries Electrical Cable	133,330 11,000	1-3/4 hr 1825 F	56
Battery (0C411) 148 Area bounded by column lines 20.9-22.5 & J.5-J.7	Electric Batteries	Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Concrete Joint Sealers Electric Batteries Electrical Cable	426* 133,330 Note (1)	1-3/4 hr 1825 F	46 56
Electrical Space (0C412) 148 Area bounded by column lines 22.6-22.8 & J.8-K		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except West Wall (2-hr) Smoke Detection	Electrical Cable	Note (1)		56
Passage (0C501) 166 Area bounded by column lines 17.2-18.9 & G.1-G.2		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Minimum				

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TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Instrument Rack Area (OC502) 166 Area bounded by column lines 20.7-23.8 & G.1-J	Control Panels	Smoke Detection Hose Stream Portable Ex- tinguishers 2-hr Rated Fire Wall for West Wall 3-hr Rated Fire Wall for Perimeter Halon 1301 for Floor Sections	Electrical Cable Concrete Joint Sealers	57,775 104*	3/4 hr 1650 F	013,44   56
Control Room Area (OC503) 166 Area bounded by column lines 17.1-20.7 & G.1-J	Control Panels Peak Recording Ac- celerograph Aux. Electrical Control BB	Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for West Wall 3-hr Rated Fire Wall for Perimeter Halon 1301 for Floor Sections	Instrument Cable Concrete Joint Sealers	8,312 35*	<1/2 hr <1575 F	013,44   56
Beneath Control Room Floor	Power Generation Control Complex				Refer to sub- section 7.2.2.46	46   56
Instrument Rack Area (OC504) 166 Area bounded by column lines 15.1-17.1 & G.1-J	Control Panels	Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for West Wall 3-hr Rated Fire Wall for Perimeter Halon 1301 for Floor Sections	Electrical Cable Concrete Joint Sealers	57,773 103*	3/4 hr 1650 F	013,44   56



TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Janitor's Closet (OC505) 166 Area bounded by column lines 15.1-15.3 & J-J.2		Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for East Wall 3-hr Rated Fire Wall for South Wall	AISI Estimate	52,000**	3/4 hr 1650 F	56
Shower & Drying Area (OC506) 166 Area bounded by column lines 15.3-15.8 & J-J.2		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for East and North Walls Smoke Detection (in OC514)	Electrical Cable	Note (1)		56 46
Auxiliary Instrument Shop (OC507) 166 Area bounded by column lines 19.7-22.8 & J-K		Smoke Detection Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls	AISI Estimate	75,200**	1 hr 1700 F	013.44 56
Corridor (OC509) 166 Area bounded by column lines 18-20.7 & J-J.3		Hose Stream Portable Ex- tinguisher Smoke Detection 2-hr Rated Fire Walls				013.44
Office (OC510) 166 Area bounded by column lines 17.5-18.4 & J.3-J.8		Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall	Concrete Joint Sealers AISI Estimate	190* 30,400**	1/2 hr 1575 F	013.44 56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Dining Area (OC511) 166 Area bounded by column lines 17-17.5 & J-J.8		Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for East Wall	AISI Estimate	28,800**	<1/2 hr <1575 F	
Kitchen (OC512) 166 Area bounded by column lines 16.3-17.0 & J-J.8		Hose Stream Portable Ex- tinguisher Smoke Detection 2-hr Rated Fire Wall for East Wall 3-hr Rated Fire Wall for West Wall	AISI Estimate	28,800**	<1/2 hr <1575 F	
Toilet (OC513) 166 Area bounded by column lines 15.9-16.3 & J.3-J.8		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall	AISI Estimate	11,200**	<1/2 hr <1575 F	
Locker (OC514) 166 Area bounded by column lines 15.1-15.9 & J.3-J.8		Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West and South Walls	AISI Estimate Electrical Cable	11,200** Note (1)	<1/2 hr <1575 F	
Corridor (OC515) 166 Area bounded by column lines 18.6-18.9 & J-K.5		Hose Stream Portable Ex- tinguishers 2-hr Rated Fire Walls Smoke Detection				

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TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Cable Space (0C516) 166 Area bounded by column lines 18.8-19.2 & G.1-G.2		Hose Stream Portable Ex- tinguishers Smoke Detection 3-hr Rated Fire Wall for East Wall 2-hr Rated Fire Wall for South Wall	Electrical Cable	Note (1)		56
Cable Space (0C517) 166 Area bounded by column lines 17.1-17.2 & G.1-G.2		Hose Stream Portable Ex- tinguisher Smoke Detection 3-hr Rated Fire Wall for East Wall 2-hr Rated Fire Wall for North Wall	Electrical Cable	Note (1)		56
Electrical Space (0C518) 166 Area bounded by column lines 20-20.7 & J.8-K		Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls Smoke Detection	Electrical Cable	114,074	1-1/2 hr 1800 F	46 56
Viewing Gallery (0C601) 177 Area bounded by column lines 17.1-20.7 & H.1-H.8		Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for West Wall				56
Corridor No. 1 (0C602) 177 Area bounded by column lines 16.8-19.5 & J.1-J.2		Smoke Detection Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls	Concrete Joint Sealers	104*	<1/4 hr <1000 F	56

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TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Emergency Dormitory (0C603) 177 Area bounded by column lines 20.9-22.8 & J.1-J.8		Smoke Detection Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls	Concrete Joint Sealers AISI Estimate Electrical Cable	70* 22,400** Note (1)	<1/2 hr <1575 F	56
Computer (0C604) 177 Area bounded by column lines 17.9-18.6 & J.3-J.8	Computer	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable	Note (1)		56
Janitor's Closet (0C605) 177 Area bounded by column lines 19.7-20.9 & J.5-J.8		Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall 2-hr Rated Fire Wall for North Wall	AISI Estimate	52,000**	3/4 hr 1650 F	56
Men's Toilet (0C606) 177 Area bounded by column lines 17.3-17.9 & J.3-J.8		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall 2-hr Rated Fire Wall for East Wall	AISI Estimate	11,200**	<1/2 hr <1575 F	56
Women's Toilet (0C607) 177 Area bounded by column lines 16.9-17.3 & J.3-J.8		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall for West Wall 2-hr Rated Fire Wall for East Wall	AISI Estimate	11,200**	<1/2 hr <1575 F	56

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TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Tech. Support Room (OC608) 177 Area bounded by column lines 15.1-16.9 & H.8-J.8		Smoke Detection Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls	Concrete Joint Sealers AISI Estimate Electrical Cable	74* 37,600** Note (1)	1/2 hr 1575 F	56
Electrical Space (OC609) 166, 177 Area bounded by column lines 15.1-15.3 & J.8-K		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Minimum	Electrical Cable	Note (1)		56 013.44
Electrical Space (OC610) 166, 177 Area bounded by column lines 17.9-18.3 & J.8-K		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Minimum Smoke Detection	Electrical Cable	Note (1)		56
Electrical Space (OC611) 177 Area bounded by column lines 20-20.7 & J.8-K		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Minimum Smoke Detection	Electrical Cable	114,074	1-1/2 hr 1800 F	56 46
Electrical Space (OC612) 166, 177 Area bounded by column lines 22.6-22.8 & J.8-K		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Minimum	Electrical Cable	Note (1)		56 56
Corridor (OC613) 177 Area bounded by column lines 18.6-18.9 & J.5-K		Hose Stream Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls Smoke Detection				
Corridor No. 2 (OC614) 177 Area bounded by column lines 19.6-21 & J.1-J.3		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Smoke Detection				56

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TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Storage Closet (OC615) 177 Area bounded by column lines 22.4-22.6 & J.8-K		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Except East Wall				
Storage Closet (OC616) 177 Area bounded by column lines 22.4-22.8 & H.8-J.2		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls for East and South Walls Smoke Detection (in OC603)	Electrical Cable	Note (1)		56
Corridor (OC701) 189 Area bounded by column lines 17.3-18.5 & G.1-G.2		Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls				56
Upper Cable Spreading Room (OC702) (Unit 1) 189 Area bounded by column lines 15.1-18.6 & G.1-J.5 minus control panel room		Auto. CO <sub>2</sub> System Smoke Detection Portable Ex- tinguisher 3-hr Rated Fire Walls Except South Wall Manual Sprinkler System	Electrical Cable Instrument Cable Concrete Joint Sealers	134,699 2,357 60*	1-3/4 hr 1825 F	56
Control Cabinet Area (OC703) 190 Area bounded by column lines 17-18.9 & G.4-H.9	Control Cabinets	Manual CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Halon 1301 for Floor Section	Electrical Cable Concrete Joint Sealers Sealers	26,240 99*	<1/2 hr <1575 F	56

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Control Cabinet Area (0C704) 190 Area bounded by column lines 18.9-20.7 & G.4-H.9	Control Cabinets	Manual CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable Concrete Joint Sealers	26,240 154*	<1/2 hr <1575 F	013.44 56
Upper Cable Spreading Room (0C705) (Unit 2) 189 Area bounded by column lines 19.2-22.8 & G.1-J.5 minus control panel room		Auto. CO <sub>2</sub> System Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Manual Sprinkler System	Electrical Cable Instrument Cable Concrete Joint Sealers	134,699 2,186 67*	1-3/4 hr 1825 F	013.40 46 56
Corridor (0C706) 189 Area bounded by column lines 18.6-18.9 & J.1-K.5		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Minimum Smoke Detection	Electrical Cable	9,625	<1/2 hr <1575 F	56
Instrument Motor Generator (0C707) 189 Area bounded by column lines 16.9-18.6 & J.5-J.8	RPS Motor Generator Set RPS Power Distribu- tion Panel Inverter	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Concrete Joint Sealers Electrical Cable	130* 15,865	<1/2 hr <1575 F	56
Instrument Motor Generator (0C708) 189 Area bounded by column lines 18.9-20.3 & J.5-J.8	RPS Motor Generator Set RPS Power Distribu- tion Panel Inverter	Smoke Detection Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls	Electrical Cable	15,865	<1/2 hr <1575 F	013.44 56



TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dera- tion and Room Temperature	Comments
Electrical Space (0C709) 189 Area bounded by column lines 17.9-18.3 & J.8-K		Hose Stream Smoke Detection Portable Ex- tinguisher 3-hr Rated Fire Walls Except South Wall	Electrical Cable	91,666	1-1/4 hr 1750 F	56
Elevation No. 1 Machine (0C710) 207 Area bounded by column lines 18.6-18.9 & K-K.5	Elevator Machinery	Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Wall for North Wall	Electrical Cable	Note (1)		56
Passage (0C711) 189 Area bounded by column lines 18.4-19.2 & G.1-G.2		Hose Stream Smoke Detection Portable Ex- tinguisher 2 & 3-hr Rated Fire Walls				46
HVAC Room (0C712) 189 Area bounded by column lines 15.5-18 & J.3-K	Smoke Purge Fan	Hose Stream Smoke Detection Portable Ex- tinguisher 3-hr Rated Fire Walls Except South and East Walls (2-hr)	Electrical Cable	Note (1)		56
HVAC Room (0C713) 189 Area bounded by column lines 20.7-22.4 & J.3-K		Hose Stream Portable Ex- tinguisher 2-hr Rated Fire Walls Except West Wall	Electrical Cable	Note (1)		56
HVAC Chase 111 Area bounded by column lines 21.4-21.8 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr)				56

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TABLE 9A-2, CONTROL BUILDING (Cont.)

<u>Room Name (Number)</u> <u>Elevation, ft</u> <u>Column Location</u>	<u>Major Equipment</u> <u>(Quantity)</u>	<u>Fire</u> <u>Protection</u>	<u>Combustible Materials</u>	<u>Fire Heat</u> <u>Load,</u> <u>Btu/sq ft</u>	<u>Maximum</u> <u>Fire Dura-</u> <u>tion and</u> <u>Room</u> <u>Temperature</u>	<u>Comments</u>
HVAC Chase 148 Area bounded by column lines 15.7-17.9 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr)				
HVAC Chase 148 Area bounded by column lines 16-16.6 & H.8-J.2		3-hr Rated Fire Walls				
HVAC Chase 148 Area bounded by column lines 18.9-20 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr) Portable Ex- tinguisher Hose Stream	Electrical Cable	Note (1)		
HVAC Chase 148 Area bounded by column lines 21.4-22 & H.8-J.2		3-hr Rated Fire Walls				
HVAC Chase 148 Area bounded by column lines 20.9-22.5 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr)				
HVAC Chase 166 Area bounded by column lines 21.3-22.1 & J-J.2		2-hr Rated Fire Walls				
HVAC Chase 166 Area bounded by column lines 15.9-16.5 & J-J.2		2-hr Rated Fire Walls				
HVAC Chase 166 Area bounded by column lines 15.7-17.9 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr)				
HVAC Chase 166 Area bounded by column lines 18.9-20 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-Hr)				

TABLE 9A-2, CONTROL BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
HVAC Chase 166 Area bounded by column lines 20.7-22.5 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr)				
HVAC Chase 177 Area bounded by column lines 15.7-17.9 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr) Hose Stream Portable Extinguisher Smoke Detection	Electrical Cable	Note (1)		
HVAC Chase 177 Area bounded by column lines 18.9-20 & J.8-K		3-hr Rated Fire Walls				
HVAC Chase 177 Area bounded by column lines 20.7-22.5 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr)				
HVAC Chase 189 Area bounded by column lines 18.9-20 & J.8-K		3-hr Rated Fire Walls Except West Wall (2-hr) Portable Ex- tinguisher Smoke Detection Hose Stream	Electrical Cable	Note (1)		

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TABLE 9A-2  
CONTAINMENT BUILDING

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Suppression Pool Area (1A110) 93  Area bounded by column lines 7-13 & H.5-M.6 minus reactor and drywell Elevation 139'  Elevation 166'  Elevation 185'	T.I.P. Drive Mech. (3) Disposal Cask (El. 120') Disposal Bin (El. 120') Rad. Monitor (El. 120')	Portable Ex- tinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temper- ature Sensors  Hose Stream  Hose Stream  Hose Stream 3-hr Rated Fire Wall for Ctmt. Wall	Electrical Cable  Electrical Cable  Electrical Cable	148,520  44,253  60,275	2 hr 1825 F 3/4 hr 1650 F 3/4 hr 1650 F	
Drywell Area (1A112) 100 Area bounded by column lines 8.5-11.7 & J.8-M.2 minus reactor area	Reactor Recirc. Pump (2) Drywell Cooler (2) SRM/IRM Motor Modules (2) Drywell Cooler El. 139' (2) Drywell Cooler El. 161' (6) Drywell Valve Handling Crane	Portable Extinguisher Redundant Ambient Temperature Sensors Hose Stream	Electrical Cable Lubricating Oil	30,716 5,025	1/2 hr 1575 F	013.44 46
Reactor Vessel Area (1A113) 94 Area bounded by column lines 9.5-10.5 & K.5-L.5	Drywell Floor Drain Sump Pump (2) Drywell Chem. Waste Sump Pump Drywell Equip. Drain Sump Cooler Drywell Equip. Drain Sump Pump Equip. Handling Platform Reactor Vessel (El. 119') Control Rod Drive Assemblies	Portable Ex- tinguisher Redundant Ambient Temperature Sensors Hose Stream	Electrical Cable	57,600	3/4 hr 1650 F	013.44

TABLE 9A-2, CONTAINMENT BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Weir Wall Area (1A126) 93						
Main Steam Pipe Tunnel (1A310) 140 Area bounded by column lines 9-11 & H.5-J.5	Main Steam Tunnel Cooler	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Ex- haust Ductwork Redundant Ambient Temper- ature Sensors	Electrical Cable	Note (1)		
CRD Hydraulic Control Area (1A311) 139 Area bounded by column lines 12-13.5 & K-M	Main Steam Flow & Recirc. Instr. Panel D Recirc. Pump B Instr. Rack Cntmt. Equip. Drain Sump Pump (2) RPS Multiplexing Unit CRD Hydraulic Con- trol Units (14) Reactor Vessel Press. & Level Instr. Panel D Jet Pump E Instr. Rack Reactor Vessel Level & Press. Instr. Panel B Main Stream Flow Instr. Panel B Drywell Cooler Instr. Rack Cntmt. Cooler (3) (El. 161') Cntmt. Chem. Waste Sump Pump (2) (El. 161') SLC Sys. Drains Cool. Drums (El. 161')	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Exhaust Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	113,100	1-1/2 hr 1800 F	

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TABLE 9A-2, CONTAINMENT BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments		
CRD Hydraulic Control Area (1A313) 139 Area bounded by column lines 6.5-7.8 & K-M	Reactor Vessel Level & Press. Instr. Panel C	Hose Stream Portable Ex- tinguisher			1-1/2 hr 1800 F	56		
	Drywell Cooler Instr. Rack	Smoke Detection in HVAC Exhaust Ductwork	Electrical Cable	113,100				
	Recirc. Hydraulic Power Unit (2)	Redundant Ambient Temperature Sensors						
	Recirc. Pump A Instr. Rack							
	Main Steam Flow & Recirc. Instr. Panel C							
	Cntmt. Floor Drain Sump Pump (2)							
	CRD Hydraulic Control Units (14)							
	RPIS Multiplexing Unit							
	Jet Pump A Instr. Rack							
	Main Steam Flow Instr. Panel A							
	Reactor Vessel Level & Press. Instr. Panel A							
	CRD Instr. Local Panel							
	(1A411) 170 Area bounded by column lines 8.8-11.2 & H.6-H.7		Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Exhaust Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	Note (1)			56
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TABLE 9A-2, CONTAINMENT BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
RWCU Heat Exch. (1A414) 166 Area bounded by column lines 9-11 & H.8-J.5	RWCU Regen. Ht. Exch. (3) RWCU Non-Regen. Ht. Exch. (2)	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	38,151	1/2 hr 1575 F	
RWCU Pump (1A419) 166 Area bounded by column lines 7.2-8.2 & J.8-K.2	RWCU Backwash Transfer Pump	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	Note (1)		56
RWCU Backwash Tank (1A421) 161 Area bounded by column lines 7.2-7.9 & K.2-L	RWCU Backwash Receiving Tank	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	Note (1)		46  56
Containment Fuel Pool (1A425) 167 Area bounded by column lines 9-10.5 & M.7-N		Hose Stream Portable Ex- tinguisher Pool is filled with water				



TABLE 9A-2, CONTAINMENT BUILDING (Cont.)

<u>Room Name (Number)</u> <u>Elevation, ft</u> <u>Column Location</u>	<u>Major Equipment</u> <u>(Quantity)</u>	<u>Fire Protection</u>	<u>Combustible Materials</u>	<u>Fire Heat Load,</u> <u>Btu/sq ft</u>	<u>Maximum Fire Duration and Room Temperature</u>	<u>Comments</u>
Valve Access Area (1A443) 173 Area bounded by column lines 7.2-7.8 & L-L.6		Hose Stream Portable Extinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	Note (1)		56
Heat Exch. Area (1A507) 185 Area bounded by column lines 9-11 & H.8-J.3	RWCU Ht. Exch. Regenerative (3) RWCU Non-Regen. Ht. Exch. (2)	Hose Stream Portable Extinguisher Smoke Detection in Building Exhaust Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	Note (1)		56
Miscellaneous Equip. Area (1A509) 184 Area bounded by column lines 7.5-9 & J-K.2	Oxygen Analyzer RWCU Filter Demineralizer Instrument Rack RWCU Filter Demineralizer Control Panel	Hose Stream Portable Extinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	15,288	<1/2 hr <1575 F	46 013.50   56
Steam Separator Storage Area (1A510) 184 Area bounded by column lines 9-11 & J.3-K.2		Hose Stream Portable Extinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temperature Sensors				

TABLE 9A-2, CONTAINMENT BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Standby Liquid Control Sys. Area (1A512) 185 Area bounded by column lines 11-12.5 & K.5-L.7	Standby Liquid Control Sys. Instrument Panel	Charcoal in Filter Train Protected by Internal Manual Water Deluge	Charcoal Lubricating Oil	47,775 5,344	1 hr 1700 F	56 013.44
	Standby Liquid Control Storage Tank Test Tank Emergency Eye-wash Station Cntmt. Cooling Sys. Charcoal Filter Train (2) Cntmt. Cooling Filter Instrument Rack Drywell Purge Compressor Unit		Electrical Cable	23,727		
Drywell Head Area (1A513) 184 Area bounded by column lines 9.2-10.8 & K.3-L.7		Hose Stream Portable Extinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	Note (1)		46  56
Sample Area (1A514) 185 Area bounded by column lines 8.3-9 & K.3-L.7	Cntmt. Sample Station Precoat Pump Resin Metering Pump Resin Feed Tank Precoat Tank	Hose Stream Portable Extinguisher Smoke Detection in HVAC Ductwork Redundant Ambient Temperature Sensors	Electrical Cable	72,214	1 hr 1700 F	56

TABLE 9A-2, CONTAINMENT BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Area West Adjacent to Room 1A514 185 Area bounded by column lines 8.3-9 & L.7-N.1	Drywell Purge Compressor Unit	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Duct- work Redundant Ambient Temperature Sensors	Lubricating Oil	17,100	<1/2 hr <1575 F	013.44   56
Pump Area (1A515) 185 Area bounded by column lines 7.5-8.3 & K.3-L.7	Holding Pump (2)	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Duct- work Redundant Ambient Temperature Sensors	Electrical Cable	66,659	1 hr 1700 F	013.44   36 46
Filter Demin. Area (1A516) 185 Area bounded by column lines 7-7.5 & K.3-L	Cleanup Filter Demin.	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Duct- work Redundant Ambient Temperature Sensors	Electrical Cable	Note (1)		56

TABLE 9A-2, CONTAINMENT BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Filter Demin. Area (1A517) 185 Area bounded by column lines 7-7.5 & L-L.7	Cleanup Filter Demin.	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Duct- work Redundant Ambient Temperature Sensors	Electrical Cable	Note (1)		56
Steam Dryer Storage Area (1A520) 184 Area bounded by column lines 9-10.5 & L.7-N	Fuel Transfer Mechanism (in north-adjacent room)	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Duct- work Redundant Ambient Temperature Sensors				46
Reactor Containment Area (1A601) 208 Area bounded by column lines 9-11 & J.3-N	Hydrogen Recombiner (2) Head Holding Pedestal Aux. Platform Fuel Prep. Machine Refueling Platform Cntmt. Polar Crane Radiation Monitor Disposal Bin Control Console Hydraulic Power Unit	Hose Stream Portable Ex- tinguisher Smoke Detection in HVAC Duct- work Redundant Ambient Temperature Sensors	Lubricating Oil Electrical Cable	4,260 Note (1)	<1/4 hr <1000 F	013.44   56

TABLE 9A-2

DIESEL GENERATOR BUILDING

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Corridor (1D301) 133 Area bounded by column lines 5.5-12.5 & R		Hose Stream Portable Ex- tinguisher Smoke Detection Auto. Pre- action Water Sprinkler 3-hr Rated Fire Walls on East and West Sides	Concrete Joint Filters Electrical Cable	8,394 49,704	3/4 hr 1650 F	56
Area A: (1D302, 1D310, 1D403) 133, 137 & 158 Area bounded by column lines 7-9 & R-West Wall	Fuel Oil Day Tank Standby Diesel Generator Air Intake Filter Exhaust Silencer Lube Oil Cooler Lube Oil Sump Tank Jacket Water Stand- pipe Air Intake Silencer Jacket Water Cooler Sump Pump Starting Air Storage Tank (2) Starting Air Dryer (2) Startup Air Moist. Sep. (2) Starting Air Compressor (2) Resistor Control Panel Relay Panel Motor Control Center Diesel Gen. Room Fan Coil Unit Diesel Gen. Room Outside Air Fan Diesel Gen. Bldg. Crane	Auto. Pre-action Water Sprinkler Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Wall Ultraviolet Flame Detection	Fuel Oil No. 2 Lubricating Oil  Electrical Cable	21,673 72,236  33,892	2 hr 1825 F	013.44 56 46

TABLE 9A-2, DIESEL GENERATOR BUILDING (Cont.)

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Area B: (1D303, 1D308, 1D402) 133, 137 & 158 Area bounded by column lines 9-11 & R-West Wall	Fuel Oil Day Tank Standby Diesel Generator Lube Oil Sump Tank Lube Oil Cooler Jacket Water Standpipe Air Intake Silencer Jacket Water Cooler Exhaust Silencer Sump Pump Air Intake Filter Starting Air Storage Tank (2) Starting Air Dryer (2) Starting Air Com- pressor (2) Starting Air Mois- ture Septr. (2) Resistor Control Panel Relay Panel Motor Control Center Diesel Generator Bldg. Crane	Auto. Pre-action Water Sprinkler Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Ultraviolet Flame Detection	Fuel Oil No. 2 Lubricating Oil  Electrical Cable	31,673 77,236  32,418	1-3/4 hr 1825 F	
Area C: (1D304, 1D306, 1D401) 133, 136 & 158 Area bounded by 11-13 & R-West Wall	Fuel Oil Day Tank HPCS Diesel Generator Exhaust Silencer (2) Air Intake Filter (2) Sump Pump Compressed Air Supply Unit Skid Control Panel Diesel Generator Room Fan Coil Unit Diesel Generator Room Outside Air Fan Diesel Generator Bldg. Crane	Auto. Pre-action Water Sprinkler Hose Stream Portable Ex- tinguisher 3-hr Rated Fire Walls Ultraviolet Flame Detection	Fuel Oil No. 2  Electrical Cable	31,673  12,483	3/4 hr 1625 F	

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TABLE 9A-2

STANDBY SERVICE WATER PUMP HOUSE

Room Name (Number) Elevation, ft Column Location	Major Equipment (Quantity)	Fire Protection	Combustible Materials	Fire Heat Load, Btu/sq ft	Maximum Fire Dura- tion and Room Temperature	Comments
Standby Service Water Pumphouse 133	Standby Service Water Pump (2) Outside Air Fan (2) HPCS Service Water Pump	Smoke Detection Hydrant Hose Streams	Electrical Cable	107,705	1-1/2 hr 1800 F	46   013.44   56



TABLE 9A-2  
TURBINE BUILDING

The following tabulated areas which are not within the scope of this report are included to substantiate the conclusion presented in Section 3.0, Scope. Since no safety-related components are located in the turbine building, this tabulation is presented only to identify possible fire hazards which may affect components in the auxiliary building and control building. The fire heat load tabulated in each area is estimated up to column line F, 25 feet into the turbine building. Areas 4, 5, and 6 in the Unit 1 turbine building correspond to areas 16, 17, and 18, respectively, in the Unit 2 turbine building.

<u>Turbine Building Area</u>	<u>Elevation Ft</u>	<u>Combustible</u>	<u>Fire Heat Load BTU/ft<sup>2</sup></u>	<u>Maximum Fire Duration and Room Temperature</u>
4	93	Electrical Cable	120,720	1½ hr - 1800 F
5	93	Electrical Cable	107,030	1½ hr - 1750 F
6	93	Electrical Cable	100,180	1½ hr - 1750 F
4	113	Electrical Cable	152,070	2 hr - 1825 F
5	113	Electrical Cable	116,400	1½ hr - 1800 F
6	113	Electrical Cable	168,290	2 hr - 1825 F
4	133	Electrical Cable	205,050	2½ hr - 1860 F
5	133	Electrical Cable	108,110	1½ hr - 1750 F
6	133	Electrical Cable	198,200	2½ hr - 1850 F
4	166	Electrical Cable	170,810	2 hr - 1825 F
5	166	Electrical Cable	173,330	2 hr - 1825 F
6	166	Electrical Cable	190,270	2½ hr - 1850 F

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TABLE 9A-3

FIRE DURATION AND TEMPERATURE RISE RELATED TO  
COMBUSTIBLE HEAT LOAD (\*)

Potential Heat Load, Btu/ft sq	Fire Severity Duration, hr	Maximum Temperature Rise, F
40,000	1/2	1,575
80,000	1	1,700
120,000	1-1/2	1,800
160,000	2	1,825
240,000	3	1,900
320,000	4-1/2	2,040
380,000	7	2,250
423,000	8	2,325
500,000	9	2,400

\* Fire Protection Handbook by the National Fire Protection Association, Section 6.

Note: The fire severity duration and maximum room temperature rise presented in this table are based primarily on ordinary combustibles (represented in tests with waste lumber) burning in a brick, wood-joisted building. The Grand Gulf Nuclear Station buildings are primarily of reinforced concrete and the principal combustible is electrical cable insulation. Reinforced concrete will not contribute to a fire. The rate of heat release of the electrical cable insulation found in cable trays and cable conduits in the Grand Gulf Nuclear Station is less than that of ordinary combustibles, as these electrical cables meet the requirements of IEEE-383 or ICEA S-19-81 flame retardance tests. Therefore, for a specific fire heatload, the fire duration of possible fires in the Grand Gulf Nuclear Station is expected to be longer than the tabulated values, but the severity and maximum room temperature rise are expected to be less than the tabulated values.

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TABLE 9A-4

FIRE PROTECTION PROGRAM COMPARISON  
WITH APPENDIX R TO 10 CFR 50

On October 27, 1980 the Nuclear Regulatory Commission approved a rule concerning fire protection. The rule and its Appendix R were developed to establish the minimum acceptable fire protection requirements necessary to resolve certain areas of concern in contrast between the NRC staff and licensees of plants operating prior to January 1, 1979.

This fire protection rule does not apply to Grand Gulf Nuclear Station; however, as a result of a meeting held with the NRC staff on June 30, 1981 and at the staff's request, a comparison of the Grand Gulf Nuclear Station fire protection program to the requirements outlined by 10 CFR 50, Appendix R, Sections II and III is given below:

<u>Appendix R Requirement</u>	<u>Grand Gulf Nuclear Station Position /Discussion</u>
II. General Requirements	
A. Fire Protection Program	Comply. Details of the program are given in Appendix 9B.
B. Fire Hazards Analysis	The Grand Gulf fire hazards analysis is described in detail in Appendix 9A, Section 7.0, and summarized in Table 9A-2. The fire hazards analysis included the identification of potential in situ and transient fire hazards and the determination of the consequences of a fire in any location on the ability to safely shut down the plant. Where necessary, specific fire protection measures were provided to ensure that safe shutdown capability was maintained in the event that a postulated fire were to occur.

TABLE 9A-4 (Cont.)

- C. Fire Prevention Features
1. Comply. As discussed in Appendix 9A, Section 7.2 all in situ fire hazards have been identified, and suitable fire protection measures have been provided.
  2. Comply. Details are provided in Section 9B.4, Maintaining Fire Protection.
  3. Comply. As described in Appendix 9A, Section 7.2 and shown on Figures 9A-16 through 9A-33 and 9A-36 through 9A-51, fire detection systems, portable extinguishers, and standpipe and hose stations are installed in strategic locations throughout the plant.
  4. Comply. As described in Appendix 9A, Section 7.2 and as shown on Figures 9A-3 through 9A-9, fire barriers and automatic fire suppression systems have been installed in the plant where required to protect redundant safe shutdown-related systems and components.
  5. See the discussions of items III.H and III.I.
  6. Comply. Fire detection and suppression systems have been designed by the Architect Engineer and approved for use by American Nuclear Insurers (ANI). Installation of the systems was performed by trade craftsmen. Maintenance and testing is performed in accordance with approved maintenance and surveillance procedures and the Grand Gulf Technical Specifications under the supervision of personnel properly qualified

TABLE 9A-4 (Cont.)

by experience and training in fire protection systems.

7. Comply. Surveillance procedures have been established and are performed in accordance with the requirements of the Grand Gulf Technical Specifications and the Grand Gulf Operations Manual.

D. Alternative or Dedicated Shutdown Capability

As discussed in Appendix 9A, Section 7.2, suitable fire protection measures have been provided to ensure that a fire in any area of the plant will not affect safe shutdown capability. Therefore, alternate or dedicated shutdown capability for a specific area is neither necessary nor required.

As discussed in Appendix 9A, subsection 7.2.2.46, an exposure fire in the control room which disables both divisions of redundant systems is not considered a credible event. However, in response to an NRC request, electrical isolation will be provided between the control room and the Division 1 remote shutdown panel prior to startup after the first regularly scheduled refueling outage. See the response to Question 013.18.

III. Specific Requirements

A. Water Supplies for Fire Suppression Systems

Comply. As described in subsection 9.5.1.2.1, the Grand Gulf fire protection water supply system consists of two 300,000-gallon nominal capacity water storage tanks at atmospheric pressure and

TABLE 9A-4 (Cont.)

	<p>three 1500 gpm fire pumps (one electric, two diesel). Each of the three fire pumps has the capability to take suction from either water storage tank. Therefore, an adequate fire water source is constantly available.</p>
B. Sectional Isolation Valves	<p>Comply. As described in subsection 9.5.1.2.2.1 and shown on Figures 9.5-2 and 9.5-3, post indicator valves are provided to permit isolation of portions of the 12-inch underground fire main loop for maintenance or repair without interrupting the entire water supply.</p>
C. Hydrant Isolation Valves	<p>Comply. As shown on Figures 9.5-2, 9.5-3, and 9.5-8, valves are installed to permit isolation of outside hydrants from the fire main for maintenance or repair without interrupting the water supply to automatic or manual fire suppression systems in any area containing or presenting a fire hazard to safety-related or safe shutdown equipment.</p>
D. Manual Fire Suppression	<p>Comply. As discussed in subsection 9.5.1.2.2.2 and shown on Figures 9.5-2, 9.5-3, 9.5-7, and 9.5-8, standpipes and hose streams are strategically located throughout the plant. All areas containing safety-related or safe shutdown equipment are designed to permit effective functioning by the plant fire brigade.</p>



TABLE 9A-4 (Cont.)

All fire suppression systems located inside containment are supplied by the condensate and refueling water storage and transfer system (CRWST) with backup supply available from the fire water loop. The capacity, adequacy, and reliability of the CRWST system is described in the response to Question 013.31.

Hose stations located inside containment are provided with sufficient lengths of hose to reach any location inside the drywell with an effective hose stream.

E. Hydrostatic Hose Tests

Comply. All fire hose shall be tested annually to a pressure of 150 psi or 50 psi above the maximum fire main operating pressure, whichever is greater.

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F. Automatic Fire Detection

Comply. As described in subsection 9.5.1.2.2.7 and shown on Figures 9A-16, 9A-17, 9A-22, and 9A-28 through 9A-33, automatic fire and smoke detectors are installed in all areas of the plant that contain or present a potential exposure fire hazard detrimental to safe shutdown or to the operation of safety-related systems or equipment.

All control functions associated with the fire and smoke detection systems are powered from an inverter which is fed from one of the station's BOP batteries. Upon loss of offsite power,



GG  
FSAR

TABLE 9A-4 (Cont.)

battery chargers can be manually connected to one of the standby diesel generators, thereby providing a continued dc power supply for a time period in excess of the normal

TABLE 9A-4 (Cont.)

- two-hour battery capacity. For a further discussion of the fire and smoke detection system power supply, see subsection 9.5.1.2.2.13.
- G. Fire Protection of Safe Shutdown Capability
1. Comply. Active and passive fire protection measures have been provided to ensure hot and cold shutdown capability.
  2. Comply. As described in Appendix 9A, Section 7.2, automatic smoke detection and fire suppression systems and one-hour rated fire barriers have been provided outside of containment where three-hour rated fire barriers were not adequate to ensure that a single exposure fire could not affect redundant safe shutdown-related components.  
  
Inside containment, redundant safe shutdown-related components are separated by at least 45 feet, as described in Appendix 9A, subsection 7.3.2.1. Therefore, separation provides adequate protection against the effects of an exposure fire.
  3. Comply. Since the requirements for Sections G.1 and G.2 have been satisfied, alternate or dedicated shutdown capability is not required for any area in the plant.  
  
As discussed in Appendix 9A, subsection 7.2.2.46, an exposure fire in the control room which disables both divisions of redundant systems is not considered a credible event. However, in

TABLE 9A-4 (Cont.)

	<p>response to an NRC request, electrical isolation will be provided between the control room and the Division 1 remote shutdown panel prior to startup after the first regularly scheduled refueling outage. Also, see the response to Question 013.18.</p>
H. Fire Brigade	<p>Comply. The fire brigade will be staffed and equipped in accordance with the provisions stated. Further details are provided in the responses to Questions 013.16, 013.17, 422.18, 422.19, and 441.1, and by letter dated August 27, 1981 (AECM-81/331).</p>
I. Fire Brigade Training	<p>Comply. Additional information is available in subsection 13.2.4 and letter dated August 27, 1981 (AECM-81/331).</p>
J. Emergency Lighting	<p>Comply. As discussed in subsection 9.5.3.1.1 and Table 9A-1, Section D.5.a, eight-hour emergency lighting has been provided in the control room, remote shutdown panel areas, and in the access and egress routes thereto.</p>
K. Administrative Controls	<p>Comply. Additional information is provided in Appendix 9B, subsection 9B.8.</p>
L. Alternate or Dedicated Shutdown Capability	<p>As discussed in Appendix 9A, Section 7.2, a fire in any area of the plant will not affect safe shutdown capability. Therefore, alternate or dedicated shutdown capability for a specific area is neither necessary nor required.</p>

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TABLE 9A-4 (Cont.)

As discussed in Appendix 9A, subsection 7.2.2.46, an exposure fire in the control room which disables both divisions of redundant systems is not considered a credible event. However, in response to an NRC request, electrical isolation will be provided between the control room and the Division 1 remote shutdown panel prior to startup after the first regularly scheduled refueling outage. See the response to Question 013.18.

M. Fire Barrier Cable Penetration Seal Qualification

Comply. As discussed in subsection 9.5.1.2.2.9 and Table 9A-1, Section D.3, fire barrier cable penetration seals are qualified and tested in accordance with NFPA, ANI, and IEEE standards. The fire barrier penetration rating equals the fire rating of the respective barrier.

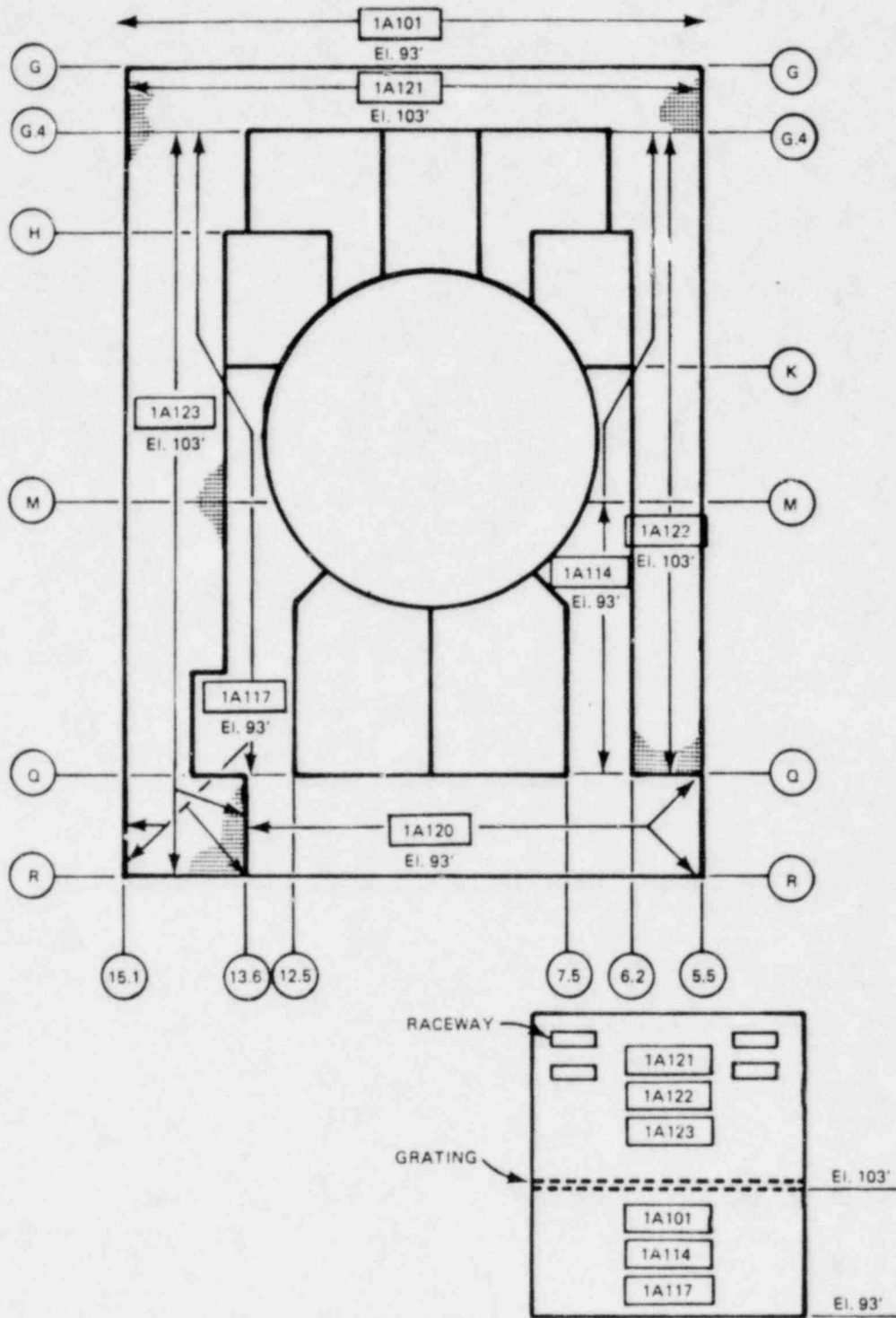
Additional information on this issue was provided to the NRC at the NRC staff's request by letter dated August 21, 1981 (AECM-81/309).

N. Fire Doors

Comply. Fire doors are provided with self-closing mechanisms. Fire doors, when used as security doors, are kept closed and electrically supervised. Other fire doors are kept locked and are periodically inspected to verify that the doors are in a closed position. The fire brigade leader has ready access to keys for any locked fire doors.

TABLE 9A-4 (Cont.)

O. Oil Collection System for Reactor Coolant Pump	An exposure fire due to the ignition of the recirculation pump lubricating oil is not a credible event. As described in Appendix 9A, subsection 7.2.3.2 and the response to Question 013.23, the heavy construction and non-pressurized design of the recirculation pumps' lubricating system minimizes the susceptibility of the system to leakage. The design of the recirculation pumps minimizes piping connections to atmospheric vents, drains, and fill connections. Therefore, an engineered oil containment and collection system is not required.
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ARCHITECTURAL/EXPOSURE FIRE AREAS  
 AUXILIARY BUILDING  
 EL. 93' AND 103'

Figure 9A-55

GG  
FSAR

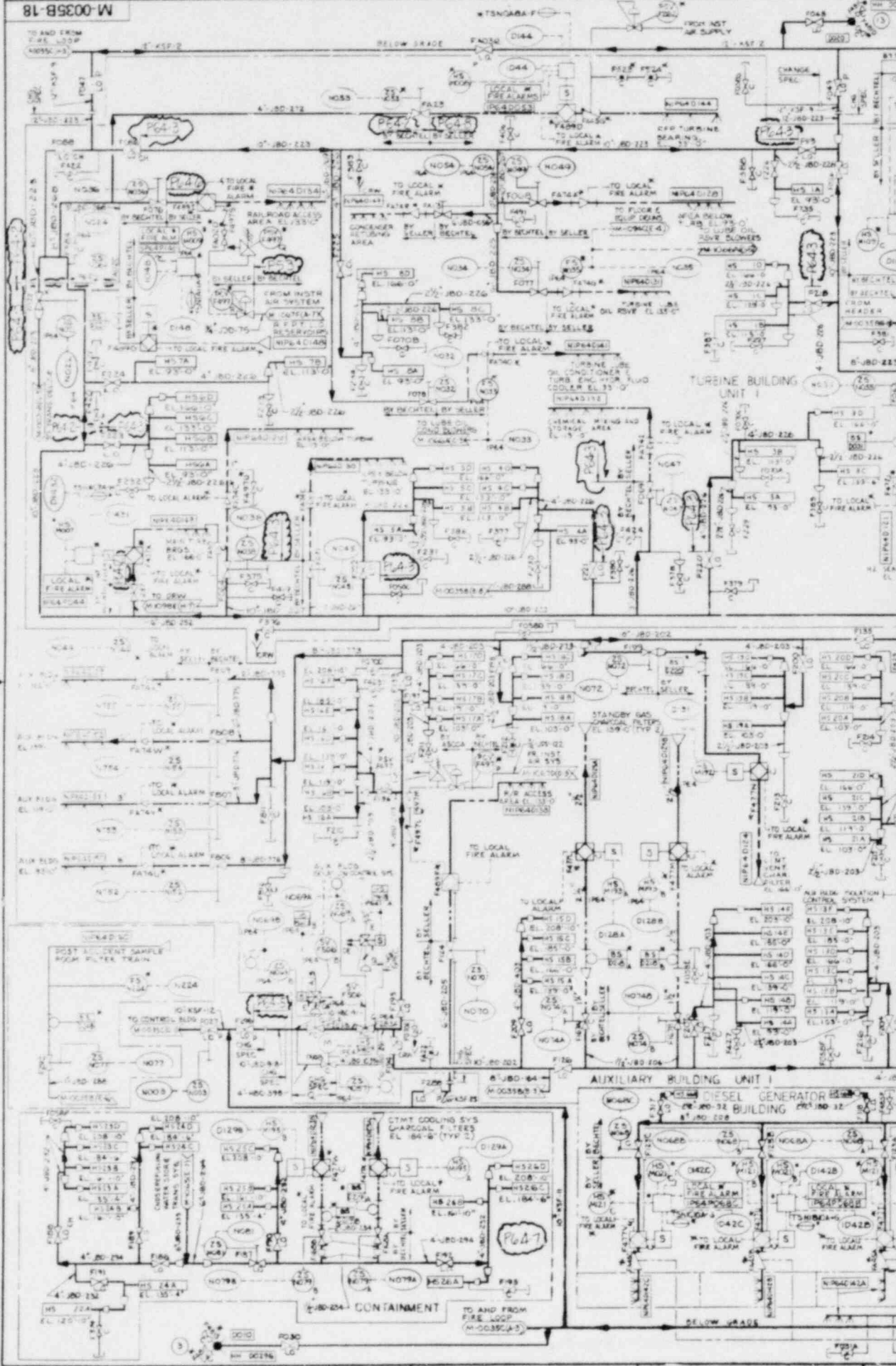
013.44 It is our position that you comply with Sections D.1(d) of Appendix A to BTP 9.5-1 by replacing all insulation, radiation shielding and sound-proofing materials that are other than noncombustible with noncombustible materials in all safety related areas of the plant.

RESPONSE

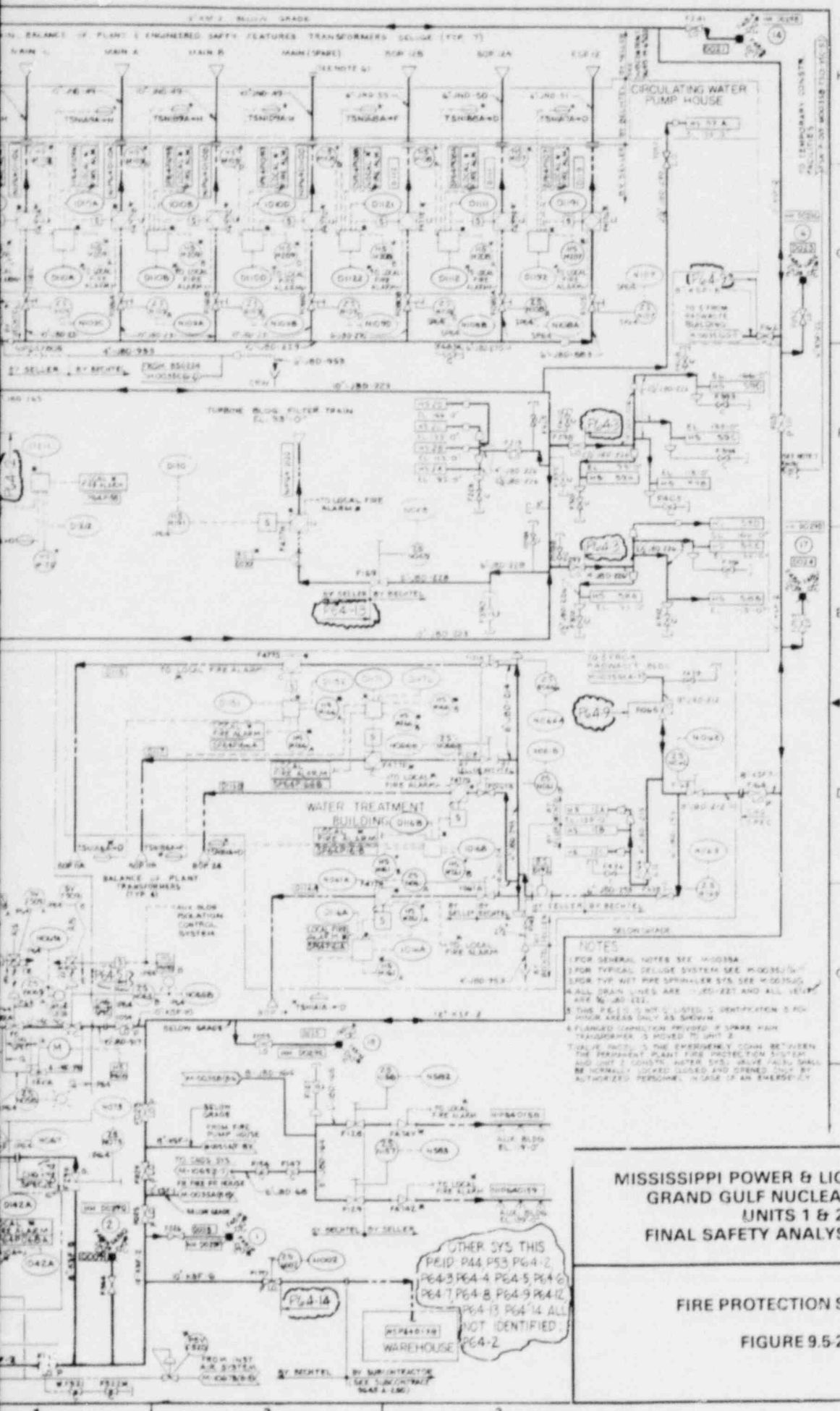
The response to this question is given in revised Table 9A-1, Section D.1.d, and in revised Table 9A-2, Sheets 2 through 17, 19, 21, 22, 24, 25, 26 through 32, 37, 38, 40, 41, 43 through 45, 47, 48, 50, 51, 54 through 56, and 59 through 64.

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NOTES  
 1 FOR GENERAL NOTES SEE W0050A  
 2 FOR TYPICAL DELUGE SYSTEM SEE W0050/D  
 3 FOR TYP. WET PIPE SPRINKLER SYS SEE W0050/G  
 4 ALL DRAIN LINES ARE 1/2" DIA. AND ALL VENTS ARE 1/2" DIA.  
 5 THIS P&ID IS NOT A LISTED IDENTIFICATION SYSTEM FOR AREA ONLY AS SHOWN  
 6 PLANGED COMPONENT PROVIDED IN SPARE MAIN TRANSFORMER IS MOVED TO UNIT 2  
 7 VALVE (V-10) IS THE EMERGENCY COAST BETWEEN THE TRAMPANT HEAT FIRE PROTECTION SYSTEM AND UNIT 2 COAST WATER SYS. VALVE (V-10) SHALL BE NORMALLY LOCKED CLOSED AND OPENED ONLY BY AUTHORIZED PERSONNEL IN CASE OF AN EMERGENCY

MISSISSIPPI POWER & LIGHT COMPANY  
 GRAND GULF NUCLEAR STATION  
 UNITS 1 & 2  
 FINAL SAFETY ANALYSIS REPORT

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FIRE PROTECTION SYSTEM  
 FIGURE 9.5-2

OTHER SYS THIS  
 P&ID P44 P53 P64-2  
 P64-3 P64-4 P64-5 P64-6  
 P64-7 P64-8 P64-9 P64-10  
 P64-11 P64-12 P64-13 P64-14 ALL  
 NOT IDENTIFIED  
 P64-2

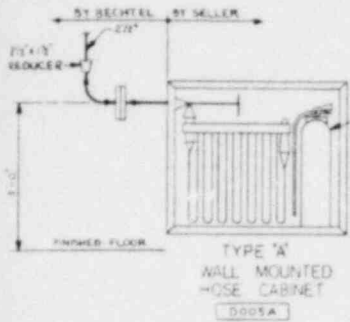
REPAIRING  
 WAREHOUSE

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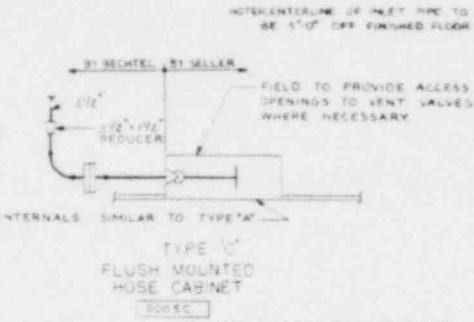
HOSE STATION VALVE NO.	BUILDING	LOCATION	ELEV.	COLUMN	HOSE STA. F.A.T.	TYPE	LENGTH FEET
1A (FA1A)	TURB BLDG	EL 11.0' 0"	A-3	B	C-2		100
1B (FA1B)		EL 11.0' 0"	A-5	B			100
1C (FA1C)		EL 11.0' 0"	B-5	B			100
1D (FA1D)		EL 11.0' 0"	A-5	D			100
2A (FA1E)	TURB BLDG	EL 9.0' 0"	D-2	D			50
2B (FA1F)		EL 9.0' 0"					
2C (FA1G)		EL 9.0' 0"					
2D (FA1H)		EL 9.0' 0"					
2E (FA1I)		EL 9.0' 0"					
2F (FA1J)		EL 9.0' 0"					
2G (FA1K)		EL 9.0' 0"					
2H (FA1L)		EL 9.0' 0"					
2I (FA1M)		EL 9.0' 0"					
2J (FA1N)		EL 9.0' 0"					
2K (FA1O)		EL 9.0' 0"					
2L (FA1P)		EL 9.0' 0"					
2M (FA1Q)		EL 9.0' 0"					
2N (FA1R)		EL 9.0' 0"					
2O (FA1S)		EL 9.0' 0"					
2P (FA1T)		EL 9.0' 0"					
2Q (FA1U)		EL 9.0' 0"					
2R (FA1V)		EL 9.0' 0"					
2S (FA1W)		EL 9.0' 0"					
2T (FA1X)		EL 9.0' 0"					
2U (FA1Y)		EL 9.0' 0"					
2V (FA1Z)		EL 9.0' 0"					
2W (FA1A)		EL 9.0' 0"					
2X (FA1B)		EL 9.0' 0"					
2Y (FA1C)		EL 9.0' 0"					
2Z (FA1D)		EL 9.0' 0"					
3A (FA1E)		EL 9.0' 0"					
3B (FA1F)		EL 9.0' 0"					
3C (FA1G)		EL 9.0' 0"					
3D (FA1H)		EL 9.0' 0"					
3E (FA1I)		EL 9.0' 0"					
3F (FA1J)		EL 9.0' 0"					
3G (FA1K)		EL 9.0' 0"					
3H (FA1L)		EL 9.0' 0"					
3I (FA1M)		EL 9.0' 0"					
3J (FA1N)		EL 9.0' 0"					
3K (FA1O)		EL 9.0' 0"					
3L (FA1P)		EL 9.0' 0"					
3M (FA1Q)		EL 9.0' 0"					
3N (FA1R)		EL 9.0' 0"					
3O (FA1S)		EL 9.0' 0"					
3P (FA1T)		EL 9.0' 0"					
3Q (FA1U)		EL 9.0' 0"					
3R (FA1V)		EL 9.0' 0"					
3S (FA1W)		EL 9.0' 0"					
3T (FA1X)		EL 9.0' 0"					
3U (FA1Y)		EL 9.0' 0"					
3V (FA1Z)		EL 9.0' 0"					
3W (FA1A)		EL 9.0' 0"					
3X (FA1B)		EL 9.0' 0"					
3Y (FA1C)		EL 9.0' 0"					
3Z (FA1D)		EL 9.0' 0"					
4A (FA1E)		EL 9.0' 0"					
4B (FA1F)		EL 9.0' 0"					
4C (FA1G)		EL 9.0' 0"					
4D (FA1H)		EL 9.0' 0"					
4E (FA1I)		EL 9.0' 0"					
4F (FA1J)		EL 9.0' 0"					
4G (FA1K)		EL 9.0' 0"					
4H (FA1L)		EL 9.0' 0"					
4I (FA1M)		EL 9.0' 0"					
4J (FA1N)		EL 9.0' 0"					
4K (FA1O)		EL 9.0' 0"					
4L (FA1P)		EL 9.0' 0"					
4M (FA1Q)		EL 9.0' 0"					
4N (FA1R)		EL 9.0' 0"					
4O (FA1S)		EL 9.0' 0"					
4P (FA1T)		EL 9.0' 0"					
4Q (FA1U)		EL 9.0' 0"					
4R (FA1V)		EL 9.0' 0"					
4S (FA1W)		EL 9.0' 0"					
4T (FA1X)		EL 9.0' 0"					
4U (FA1Y)		EL 9.0' 0"					
4V (FA1Z)		EL 9.0' 0"					
4W (FA1A)		EL 9.0' 0"					
4X (FA1B)		EL 9.0' 0"					
4Y (FA1C)		EL 9.0' 0"					
4Z (FA1D)		EL 9.0' 0"					
5A (FA1E)		EL 9.0' 0"					
5B (FA1F)		EL 9.0' 0"					
5C (FA1G)		EL 9.0' 0"					
5D (FA1H)		EL 9.0' 0"					
5E (FA1I)		EL 9.0' 0"					
5F (FA1J)		EL 9.0' 0"					
5G (FA1K)		EL 9.0' 0"					
5H (FA1L)		EL 9.0' 0"					
5I (FA1M)		EL 9.0' 0"					
5J (FA1N)		EL 9.0' 0"					
5K (FA1O)		EL 9.0' 0"					
5L (FA1P)		EL 9.0' 0"					
5M (FA1Q)		EL 9.0' 0"					
5N (FA1R)		EL 9.0' 0"					
5O (FA1S)		EL 9.0' 0"					
5P (FA1T)		EL 9.0' 0"					
5Q (FA1U)		EL 9.0' 0"					
5R (FA1V)		EL 9.0' 0"					
5S (FA1W)		EL 9.0' 0"					
5T (FA1X)		EL 9.0' 0"					
5U (FA1Y)		EL 9.0' 0"					
5V (FA1Z)		EL 9.0' 0"					
5W (FA1A)		EL 9.0' 0"					
5X (FA1B)		EL 9.0' 0"					
5Y (FA1C)		EL 9.0' 0"					
5Z (FA1D)		EL 9.0' 0"					
6A (FA1E)		EL 9.0' 0"					
6B (FA1F)		EL 9.0' 0"					
6C (FA1G)		EL 9.0' 0"					
6D (FA1H)		EL 9.0' 0"					
6E (FA1I)		EL 9.0' 0"					
6F (FA1J)		EL 9.0' 0"					
6G (FA1K)		EL 9.0' 0"					
6H (FA1L)		EL 9.0' 0"					
6I (FA1M)		EL 9.0' 0"					
6J (FA1N)		EL 9.0' 0"					
6K (FA1O)		EL 9.0' 0"					
6L (FA1P)		EL 9.0' 0"					
6M (FA1Q)		EL 9.0' 0"					
6N (FA1R)		EL 9.0' 0"					
6O (FA1S)		EL 9.0' 0"					
6P (FA1T)		EL 9.0' 0"					
6Q (FA1U)		EL 9.0' 0"					
6R (FA1V)		EL 9.0' 0"					
6S (FA1W)		EL 9.0' 0"					
6T (FA1X)		EL 9.0' 0"					
6U (FA1Y)		EL 9.0' 0"					
6V (FA1Z)		EL 9.0' 0"					
6W (FA1A)		EL 9.0' 0"					
6X (FA1B)		EL 9.0' 0"					
6Y (FA1C)		EL 9.0' 0"					
6Z (FA1D)		EL 9.0' 0"					

HOSE STATION VALVE NO.	BUILDING	LOCATION	ELEV.	COLUMN	HOSE STA. F.A.T.	TYPE	LENGTH FEET
28A (FA1E7)	TURB BLDG	EL 9.0' 0"	B-35	D	C-2		100
28B (FA1E8)		EL 9.0' 0"	B-35	D			100
28C (FA1E9)		EL 9.0' 0"	B-35	B			100
28D (FA1E0)		EL 9.0' 0"	B-35	B			100
29A (FA1E1)		EL 9.0' 0"	F-35	D	C-2		100
29B (FA1E2)		EL 9.0' 0"	F-35	D			100
29C (FA1E3)		EL 9.0' 0"	F-35	D			100
29D (FA1E4)		EL 9.0' 0"	F-35	B			100
30A (FA1E5)		EL 9.0' 0"	F-35	D	C-2		100
30B (FA1E6)		EL 9.0' 0"	F-35	D			100
30C (FA1E7)		EL 9.0' 0"	F-35	D			100
30D (FA1E8)		EL 9.0' 0"	F-35	B			100
30E (FA1E9)		EL 9.0' 0"	F-35	D			100
30F (FA1E0)		EL 9.0' 0"	F-35	D			100
30G (FA1E1)		EL 9.0' 0"	F-35	D			100
30H (FA1E2)		EL 9.0' 0"	F-35	D			100
30I (FA1E3)		EL 9.0' 0"	F-35	D			100
30J (FA1E4)		EL 9.0' 0"	F-35	D			100
30K (FA1E5)		EL 9.0' 0"	F-35	D			100
30L (FA1E6)		EL 9.0' 0"	F-35	D			100
30M (FA1E7)		EL 9.0' 0"	F-35	D			100
30N (FA1E8)		EL 9.0' 0"	F-35	D			100
30O (FA1E9)		EL 9.0' 0"	F-35	D			100
30P (FA1E0)		EL 9.0' 0"	F-35	D			100
30Q (FA1E1)		EL 9.0' 0"	F-35	D			100
30R (FA1E2)		EL 9.0' 0"	F-35	D			100
30S (FA1E3)		EL 9.0' 0"	F-35	D			100
30T (FA1E4)		EL 9.0' 0"	F-35	D			100
30U (FA1E5)		EL 9.0' 0"	F-35	D			100
30V (FA1E6)		EL 9.0' 0"	F-35	D			100
30W (FA1E7)		EL 9.0' 0"	F-35	D			100
30X (FA1E8)		EL 9.0' 0"	F-35	D			100
30Y (FA1E9)		EL 9.0' 0"	F-35	D			100
30Z (FA1E0)		EL 9.0' 0"	F-35	D			100
31A (FA1E1)		EL 9.0' 0"	F-35	D			100
31B (FA1E2)		EL 9.0' 0"	F-35	D			100
31C (FA1E3)		EL 9.0' 0"	F-35	D			100
31D (FA1E4)		EL 9.0' 0"	F-35	D			100
31E (FA1E5)		EL 9.0' 0"	F-35	D			100
31F (FA1E6)		EL 9.0' 0"	F-35	D			100
31G (FA1E7)		EL 9.0' 0"	F-35	D			100
31H (FA1E8)		EL 9.0' 0"	F-35	D			100
31I (FA1E9)		EL 9.0' 0"	F-35	D			100
31J (FA1E0)		EL 9.0' 0"	F-35	D			100
31K (FA1E1)		EL 9.0' 0"	F-35	D			100
31L (FA1E2)		EL 9.0' 0"	F-35	D			100
31M (FA1E3)		EL 9.0' 0"	F-35	D			100
31N (FA1E4)		EL 9.0' 0"	F-35	D			100
31O (FA1E5)		EL 9.0' 0"	F-35	D			100
31P (FA1E6)		EL 9.0' 0"	F-35	D			100
31Q (FA1E7)		EL 9.0' 0"	F-35	D			100
31R (FA1E8)		EL 9.0' 0"	F-35	D			100
31S (FA1E9)		EL 9.0' 0"	F-35	D			100
31T (FA1E0)		EL 9.0' 0"	F-35	D			100
31U (FA1E1)		EL 9.0' 0"	F-35	D			100
31V (FA1E2)		EL 9.0' 0"	F-35	D			100
31W (FA1E3)		EL 9.0' 0"	F-35	D			100
31X (FA1E4)		EL 9.0' 0"	F-35	D			100
31Y (FA1E5)		EL 9.0' 0"	F-35	D			100
31Z (FA1E6)		EL 9.0' 0"	F-35	D			100
32A (FA1E7)		EL 9.0' 0"	F-35	D			100
32B (FA1E8)		EL 9.0' 0"	F-35	D			100
32C (FA1E9)		EL 9.0' 0"	F-35	D			100
32D (FA1E0)		EL 9.0' 0"	F-35	D			100
32E (FA1E1)		EL 9.0' 0"	F-35	D			100
32F (FA1E2)		EL 9.0' 0"	F-35	D			100
32G (FA1E3)		EL 9.0' 0"	F-35	D			100
32H (FA1E4)		EL 9.0' 0"	F-35	D			100
32I (FA1E5)		EL 9.0' 0"	F-35	D			100
32J (FA1E6)		EL 9.0' 0"	F-35	D			100
32K (FA1E7)		EL 9.0' 0"	F-35	D			100
32L (FA1E8)		EL 9.0' 0"	F-35	D			100
32M (FA1E9)		EL 9.0' 0"	F-35	D			100
32N (FA1E0)		EL 9.0' 0"	F-35	D			100
32O (FA1E1)		EL 9.0' 0"	F-35	D			100
32P (							

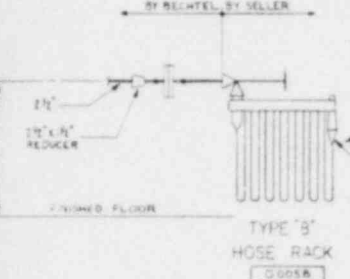
HOSE STATION DETAILS



- FIRE EXTINGUISHER
- TYPE A - 0002 WATER
  - TYPE B - 0003 CARBON DIOXIDE
  - TYPE C - 0004 DRY CHEMICAL
  - TYPE D - 0013 HALON 1211
- TYPE 1 - INSIDE HOSE RACK CABINET  
TYPE 2 - HUNG ON WALL  
TYPE 3 - HUNG ON FIRE EXT. STAND

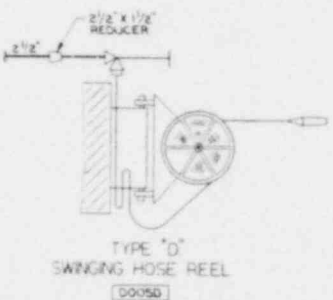


NOTE: HOSE SHALL CONSIST OF TWO 1/2\"/>



HOSE RACK UNIT CONSISTS OF 1/2\"/>

ADJUSTABLE NOZZLE FROM FULL STREAM TO NO-FOG WITH SHUT-OFF CAPABILITY.



NOTE: SWINGING HOSE REELS LOCATED IN THE CONTAINMENT BUILDING WILL NOT BE WALL MOUNTED SEE NOTE 3.

HOSE STATION (VALVE NO.)	LOCATION			TYPE	
	BUILDING	ELEV.	COLUMN	HOSE STA.	FIRE EXT. LENGTH FEET
02A (FA191)	PLUMB BLDG.	EL. 93'-0"	B-20	D	5.2
02B (FA192)		EL. 117'-0"			
02C (FA20A)		EL. 137'-0"			
02A (FA20B)	RADWASTE	EL. 93'-0"	C1-072	D	2.2
02B (FA20C)		EL. 116'-0"	C1-072		
02C (FA20D)		EL. 136'-0"	C1-080		
02A (FA20E)		EL. 93'-0"	D1-017	A	5.1
02B (FA20F)		EL. 117'-0"	D1-017	D	5.2
02A (FA20G)		EL. 93'-0"	A1-010		
02B (FA20H)		EL. 136'-0"	A-010		
02A (FA20I)		EL. 93'-0"	D-040		
02B (FA20J)		EL. 116'-0"	D-040		
02A (FA20K)	DOG BLDG.	EL. 137'-0"	A-11	B	1.4
02B (FA20L)		EL. 133'-0"	A-9		
02A (FA20M)		EL. 133'-0"	A-29		
02B (FA20N)		EL. 133'-0"	A-27		
02B (FA20O) RADIAL WELLS		EL. 96'-0"	C-1		
02A	CONTROL ROOM	EL. 99'-0"	H2-17.1	A	2
02D		EL. 99'-0"	H2-17.1		
02A		EL. 99'-0"	H2-20.7		
02B		EL. 99'-0"	H1-20.7		
02A	AUX. BLDG.	EL. 93'-0"	G-13 A		
02B		EL. 119'-0"	G-13		
02C		EL. 139'-0"	G-7		
02D		EL. 99'-0"	G-15		
02A	DOG BLDG.	EL. 135'-0"	WEST EXIT		
02B		EL. 133'-0"			
02C		EL. 133'-0"			

NOTES:

1. ALL HOSE STATIONS SHALL BE EQUIPPED WITH A PRESSURE RESTRICTING VALVE.
2. HOSE RACK UNITS MAY HAVE A 1/2" COMBINATION ANGLE PRESSURE REDUCING VALVE OR SEPARATE ANGLE & PRESSURE REDUCING VALVES.
3. REFER TO DAVIS 9645-C-1044F FOR DETAIL OF TYPE FIRE EXTINGUISHER & HOSE REEL STAND FOR CMT BLDG.
4. THE WALL HUNG FIRE EXTINGUISHERS LISTED WITH HOSE STATIONS 02A THROUGH 02D SHALL BE LOCATED IN A CONSPICUOUS & PRACTICAL LOCATION NEAR THE NORTH & SOUTH WALLS OF THE CONTROL BUILDING.
5. THE PRESSURIZED WATER FIRE EXTINGUISHERS LISTED WITH HOSE STATIONS 04E & 05R SHALL BE LOCATED ON THE EAST & WEST SIDES OF 00L BLDG. 05R.
6. THE FIRE EXTINGUISHERS HUNG ON FIRE HOSE REEL STANDS IN CMT SHALL BE HUNG AS FOLLOWS: A. ANSUL TYPE DRY CHEMICAL FIRE EXT. IN ANSUL TYPE BRACKETS PART NO. 53544 OR 53562 AS APPLICABLE. B. GRAVNER TYPE 9-12 HALON 1211 FIRE EXT. IN P.T.S. INTERNATIONAL MARKET STOCK NO. 49-0018-1.

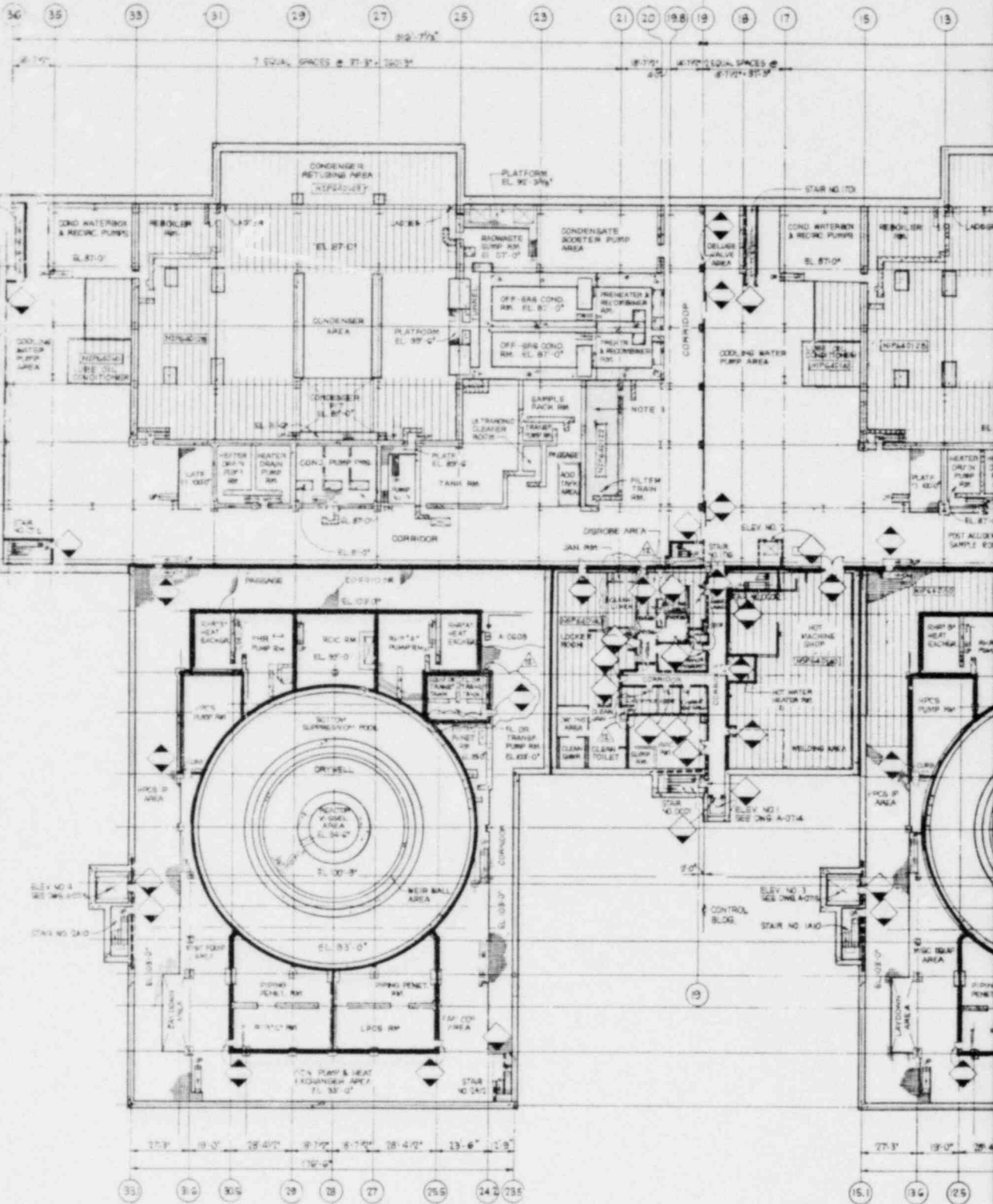
**MISSISSIPPI POWER & LIGHT COMPANY  
GRAND GULF NUCLEAR STATION  
UNITS 1 & 2  
FINAL SAFETY ANALYSIS REPORT**

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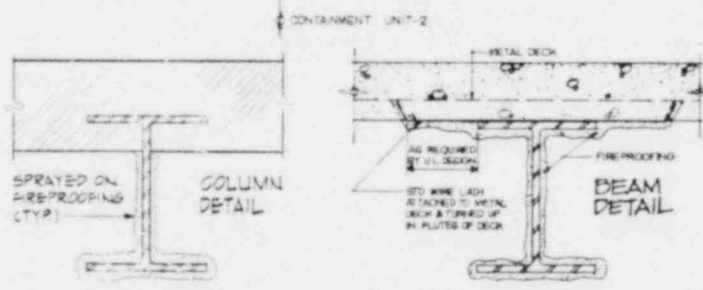
**FIRE PROTECTION SYSTEM**

**FIGURE 9.5-4**





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TYPICAL FIREPROOFING DETAILS  
SCALE: NOT TO SCALE

**SPECIAL NOTE**  
THE FOLLOWING SYSTEMS ARE NOT SHOWN ON DWGS P 0600 THRU A-0605

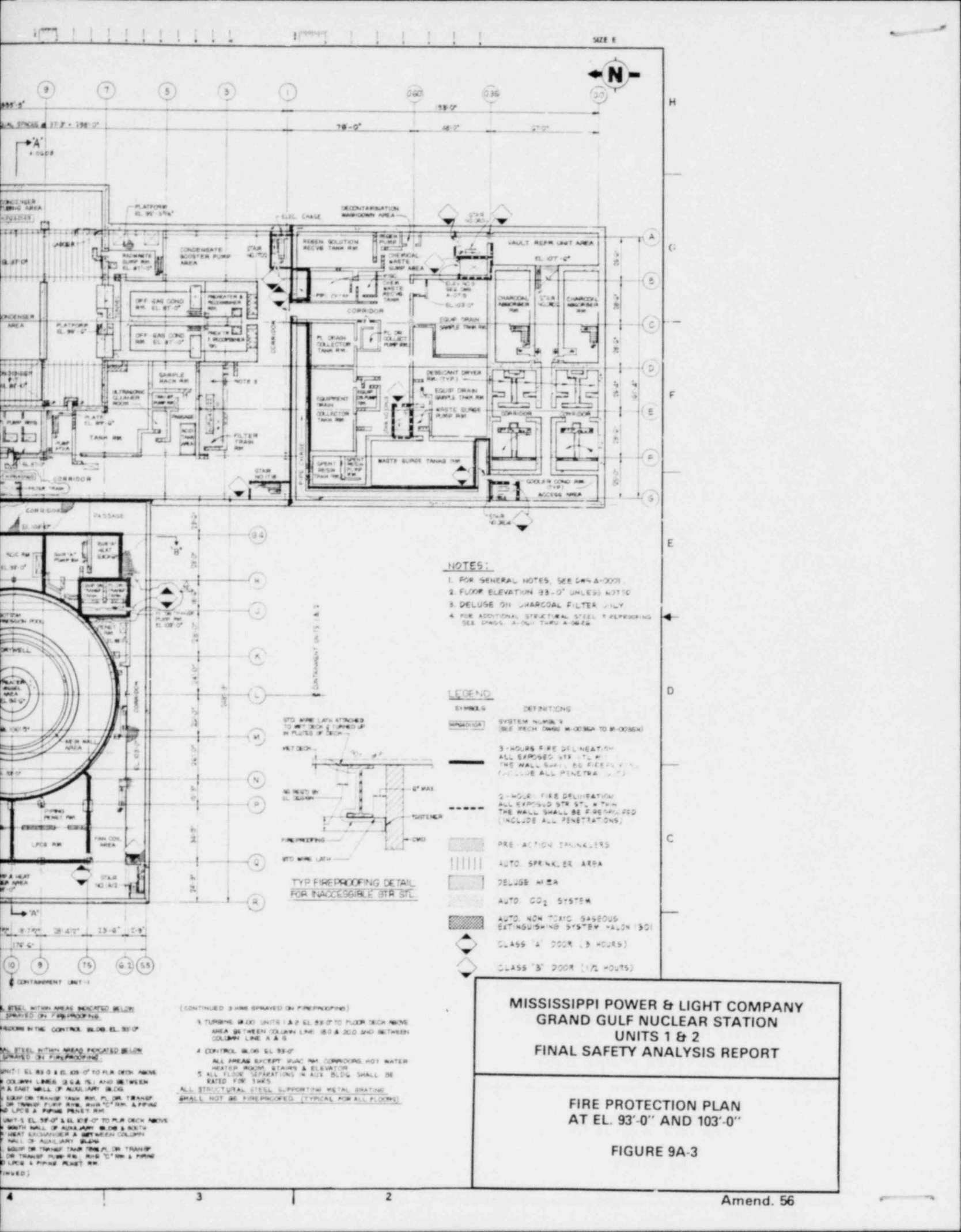
ALL EXPOSED SHALL BE CEILING  
HVAC P

ALL EXPOSED SHALL BE CEILING  
HVAC P

1. ALL UTIL  
AND COL  
HPT  
TAN  
PEN

2. ALL UTIL  
AND COL  
HPT  
TAN  
PEN

HVAC101A B C D  
HVPAD101A B C D  
HVPAD101D ESP 12 TRANSFORMER DELUGE  
HVPAD101E FIRE WATER PUMP HOUSE SPINKLER (SEE DWG A-0604)  
HVPAD101K RADIAL WELL SWITCHGEAR  
HVPAD101L TRANSFORMER DELUGE (SEE DWG 0604)

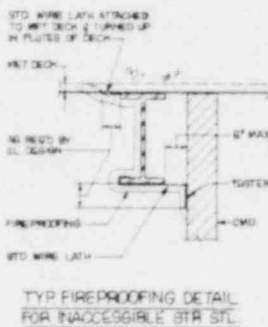


**NOTES:**

1. FOR GENERAL NOTES, SEE DWS A-0001
2. FLOOR ELEVATION 93'-0" UNLESS NOTED
3. DELUZE ON CHARCOAL FILTER JULY
4. FOR ADDITIONAL STRUCTURAL STEEL FIREPROOFING SEE DWS A-0011 THRU A-0022

**LEGEND**

SYMBOLS	DEFINITIONS
--- (dashed line)	SYSTEM NUMBER (SEE RECH DWG M-0056A TO M-0056H)
— (solid line)	3-HOUR FIRE DELINEATION ALL EXPOSED STR. STL. WITHIN THE WALL SHALL BE FIREPROOFED (INCLUDE ALL PENETRATIONS)
- - - - (long dashed line)	2-HOUR FIRE DELINEATION ALL EXPOSED STR. STL. WITHIN THE WALL SHALL BE FIREPROOFED (INCLUDE ALL PENETRATIONS)
▨ (diagonal hatching)	PRE-ACTION SPRINKLERS
▨ (vertical hatching)	AUTO. SPRINKLER AREA
▨ (horizontal hatching)	DELUZE AREA
▨ (cross-hatching)	AUTO. CO <sub>2</sub> SYSTEM
▨ (stippled pattern)	AUTO. NON TOXIC BASED EXTINGUISHING SYSTEM HALON 1301
◊ (diamond)	CLASS "A" DOOR (3 HOURS)
◊ (diamond)	CLASS "B" DOOR (1 1/2 HOURS)



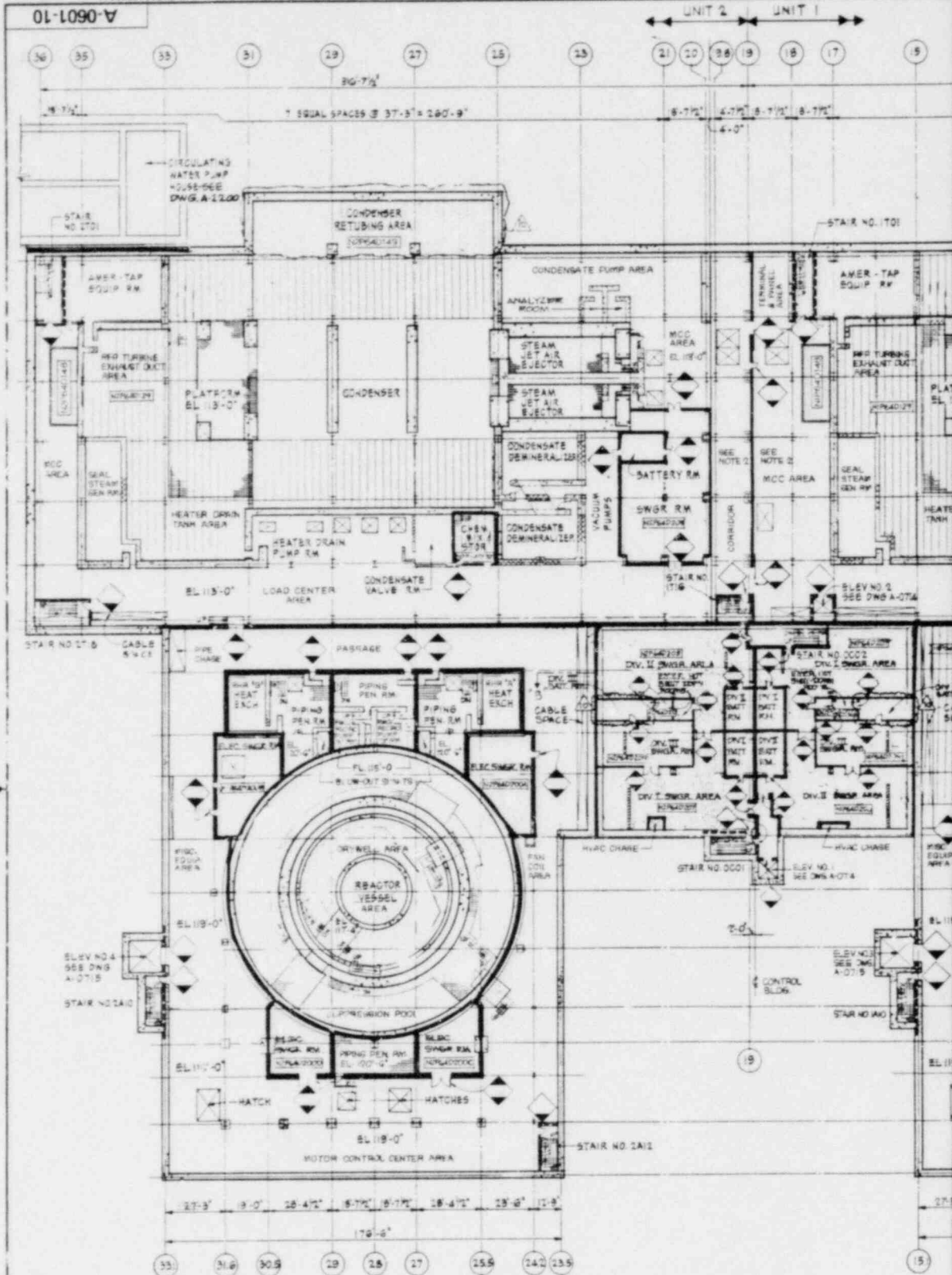
TYP FIREPROOFING DETAIL FOR INACCESSIBLE STR. STL.

- (CONTINUED 3 HRS SPRAYED ON FIREPROOFING)
3. TURBINE BLOOD UNITS 1 & 2, EL. 93'-0" TO FLOOR DECK ABOVE AREA BETWEEN COLUMN LINE 80 & 200 AND BETWEEN COLUMN LINE A & S
  4. CONTROL BLDG EL. 93'-0"
  - ALL AREAS EXCEPT HVAC RM, CONDENSER HOT WATER HEATER ROOM, STAIRS & ELEVATOR
  5. ALL FLOOR SEPARATIONS IN AUX. BLDG SHALL BE RATED FOR 3 HRS
- ALL STRUCTURAL STEEL SUPPORTING METAL BRACING SHALL NOT BE FIREPROOFED. (TYPICAL FOR ALL FLOORS)

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**FIRE PROTECTION PLAN  
AT EL. 93'-0" AND 103'-0"**

FIGURE 9A-3



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CONTAINMENT-UNIT 1

ALL EXPOSED STRUCTURAL STEEL WITHIN AREAS INDICATED BELOW SHALL RECEIVE 3 HRS SPRAYED ON FIREPROOFING

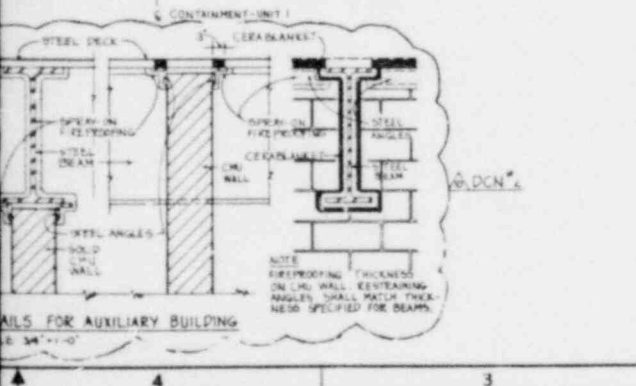
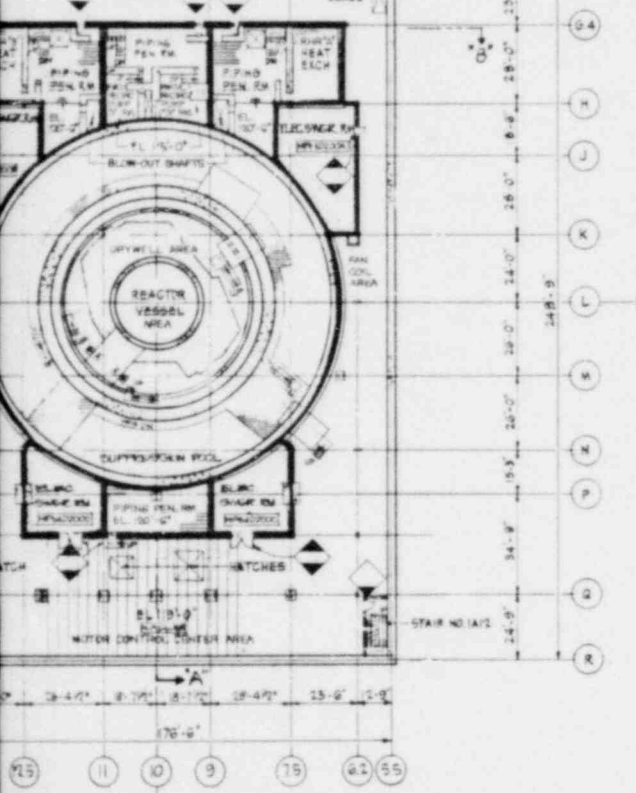
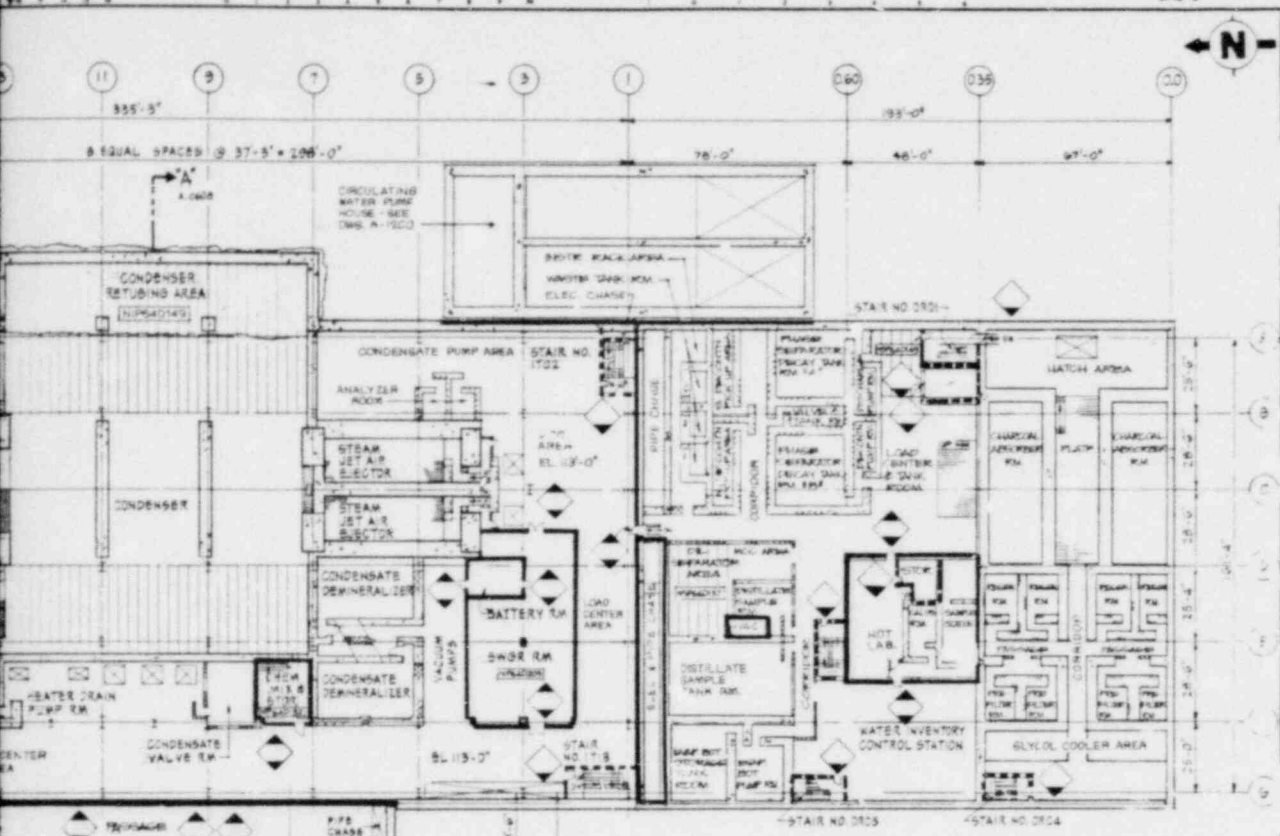
1. AUXILIARY BLDG UNIT 1 EL 115'-0" TO 120'-0" TO FL DECK ABOVE  
AREA BETWEEN COLUMN LINES Q & R AND BETWEEN COLUMN LINE H & EAST WALL OF AUXILIARY BLDG. SWGR RM & HEAT EXCHANGER RMS, RWQ RECIRC PUMP RMs "A" & "B", ELEC SWITCHGEAR RMs AND ALL PIPE PENETRATION RMs
2. AUXILIARY BLDG UNIT 2 EL 115'-0" TO 120'-0" TO FL DECK ABOVE  
AREA BETWEEN SOUTH WALL OF HEAT EXCH RM & SOUTH WALL OF AUXILIARY BLDG & BETWEEN COLUMN LINE H & EAST WALL OF AUXILIARY BLDG. SWGR RM & HEAT EXCHANGER RMs, RWQ RECIRC PUMP RMs "A" & "B", ELEC SWITCHGEAR RMs AND ALL PIPE PENETRATION RMs
3. TURBINE BLDG UNITS 1 & 2 EL 115'-0" TO FL DECK ABOVE  
AREA BETWEEN COL SWN LINES 150 & 200 & BETWEEN COLUMN LINES A & G. CHEMICAL VLN & STORAGE RMs, SWITCHGEAR RMs & BATTERY RMs

(CONTINUED)

(CONTINUED)

4. CONTROL BLDG EL 110'-0" TO FLOOR DECK ABOVE  
EMERGENCY HOT SHUTDOWN RMs, SWITCHGEAR RMs, & SWITCHGEAR AREAS
5. RADWASTE BLDG EL 115'-0" TO FLOOR DECK ABOVE  
RADIOACTIVE CHEMISTRY LABORATORY
6. ALL FLOOR SEPARATIONS IN AUX BLDG SHALL BE RATED FOR 3 HRS.





- NOTES:**
1. FOR GENERAL NOTES, SEE DWG A-0001.
  2. EMERGENCY EVACUATION INSTRUCTIONS SIGNS SHALL BE PROMINENTLY POSTED OUTSIDE ALL DOORWAYS WHICH ENTER AN AREA PROTECTED BY THE AUTOMATIC CO2 FIRE EXTINGUISHING SYSTEM (BY FIELD). THIS IS APPLICABLE TO ALL AREAS WITH CO2 FIRE PROTECTION SYSTEM. SEE DWGS A-0000, A-0001, A-0402, A-0603, A-0604, AND A-0605.
  3. FOR ADDITIONAL STRUCTURAL STEEL FRAMING SEE DWGS A-0411 THRU A-0414.

**LEGEND**

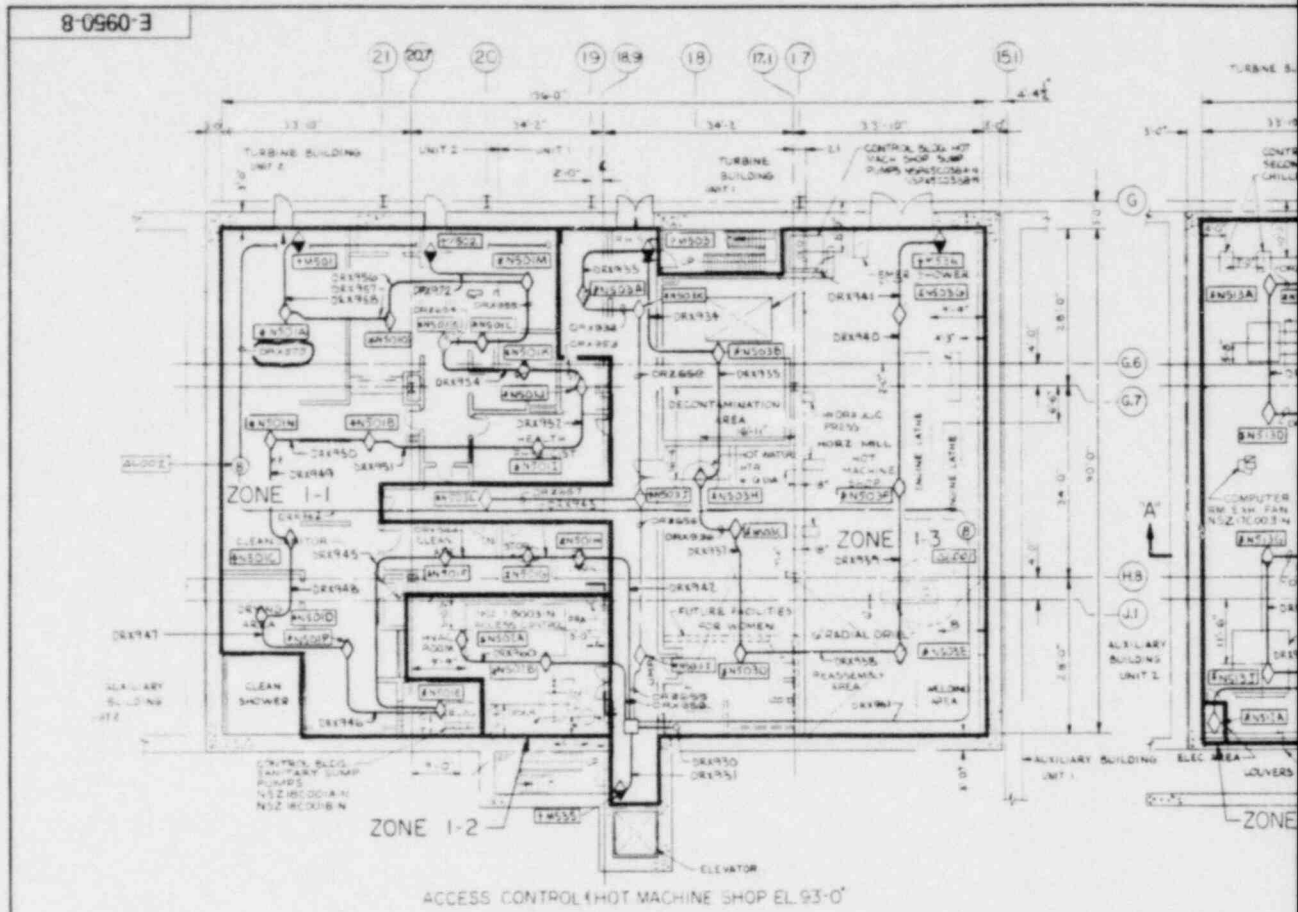
SYMBOLS	DEFINITIONS
XXXXXXXXXX	SYSTEM NUMBER (SEE WHICH DWG # 00000A TO # 00000Z)
—————	3-HOURS FIRE DELINEATION ALL EXPOSED STR. STL. WITHIN THE WALL SHALL BE FIREPROOFED (INCLUDE ALL PENETRATIONS)
- - - - -	2-HOURS FIRE DELINEATION ALL EXPOSED STR. STL. WITHIN THE WALL SHALL BE FIREPROOFED (INCLUDE ALL PENETRATIONS)
	PRE-ACTION SPRINKLER
	AUTO SPRINKLER AREA
	DELUGE AREA
	AUTO CO2 SYSTEM
	AUTO NON TOXIC GASEOUS EXTINGUISHING SYSTEM HALON 1301
▲▲▲▲▲	CLASS 'A' DOOR (3 HOURS)
◆◆◆◆◆	CLASS 'B' DOOR (1 1/2 HOURS)

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UNITS 1 & 2  
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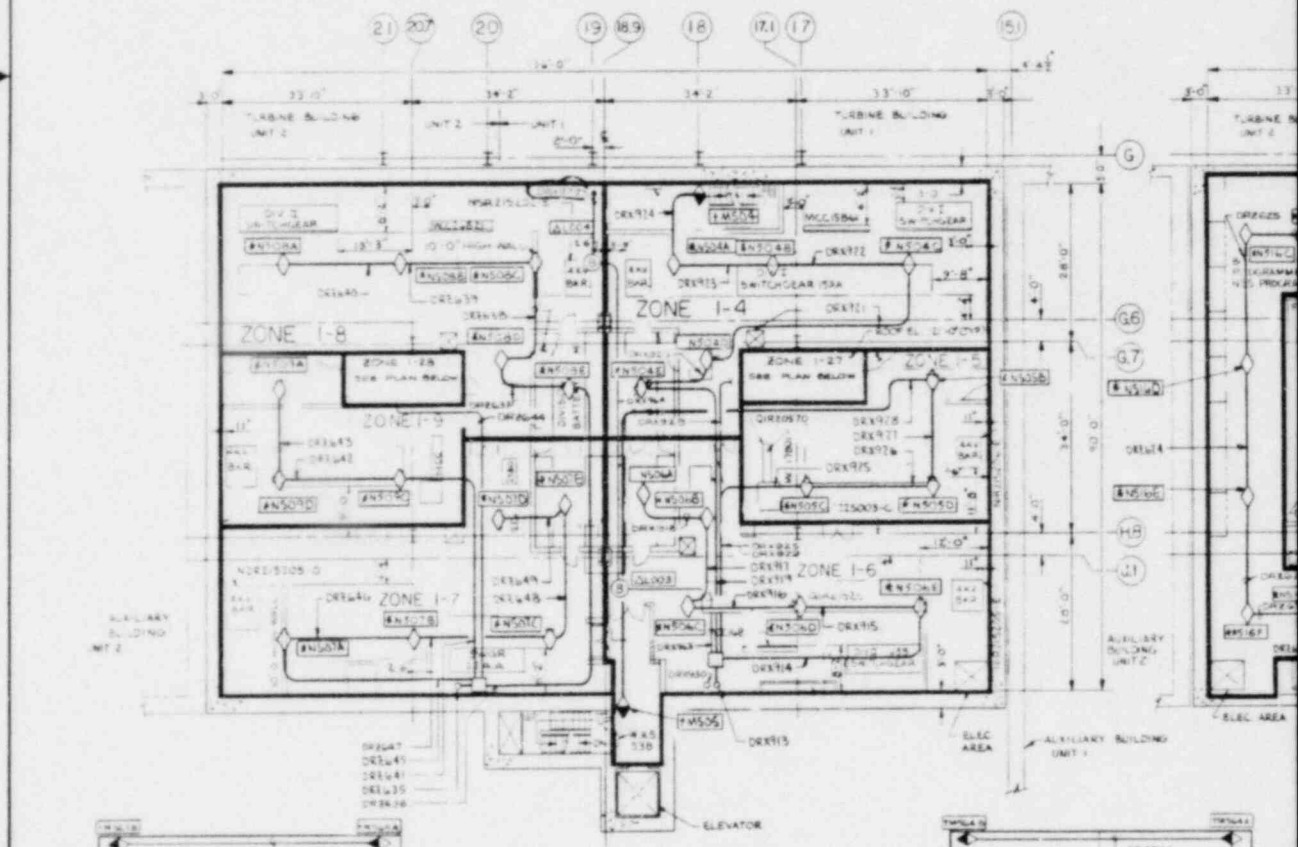
**FIRE PROTECTION PLAN  
AT EL. 111'-0", 113'-0", 118'-0"  
AND 119'-0"**

**FIGURE 9A-4**

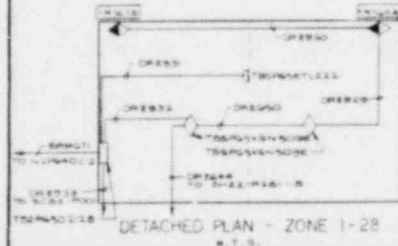
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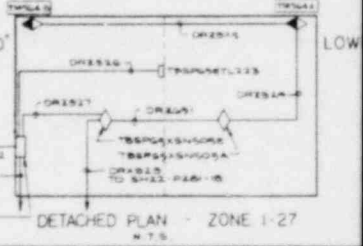
ACCESS CONTROL (HOT MACHINE SHOP EL. 93'-0")



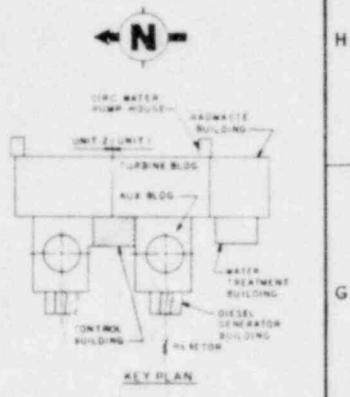
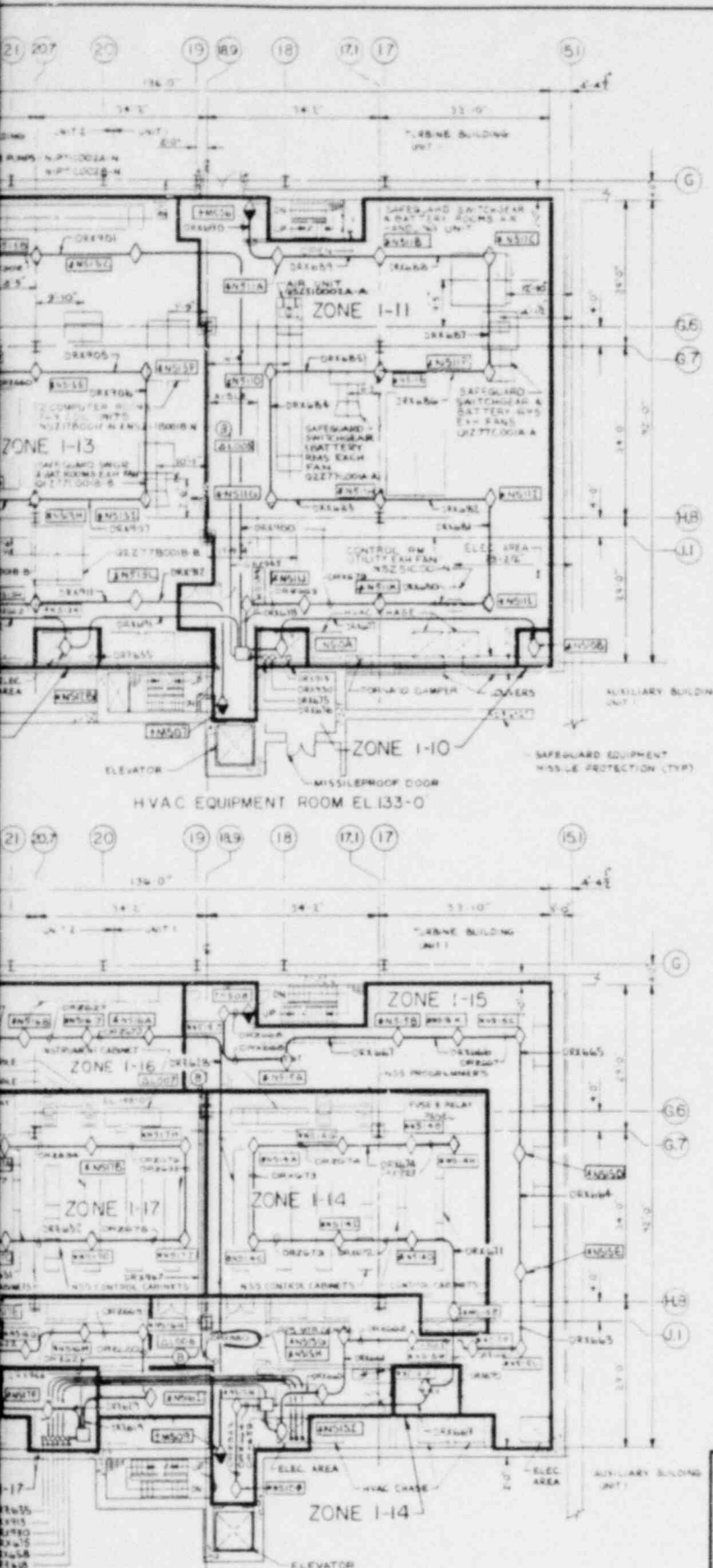
SAFEGUARD, SWITCHGEAR AND BATTERY ROOMS - EL. 111'-0"



DETAILED PLAN - ZONE 1-27



DETAILED PLAN - ZONE 1-27



- NOTES**
- FOR RACEWAY NOTES SYMBOLS AND DETAILS SEE DWG. 1-27P.
  - UNLESS OTHERWISE NOTED, ALL TRAY AND CREDIT NUMBERS SHOWN ON THIS DRAWING WILL BE PREFIXED BY FACILITY IN THE RACEWAY SCHEDULE.

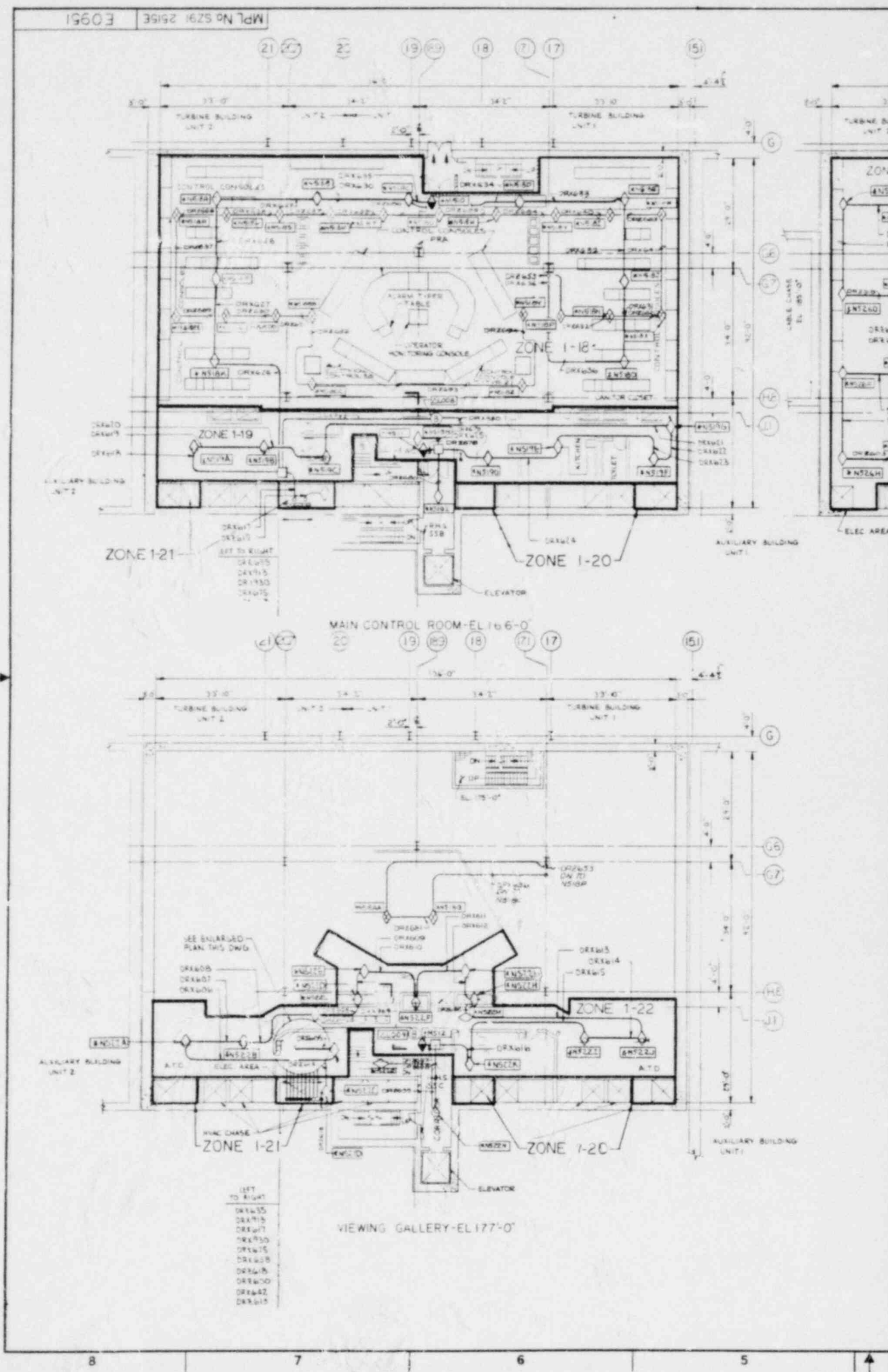
- SYMBOLS**
- ◇ IONIZATION DETECTORS
  - ◆ MANUAL PULL STATIONS
  - Ⓟ FIRE ALARM BELL
  - ★ ALL DETECTOR WGS TO BE PREFIXED BY 07620
  - † ALL MANUAL PULL STATION WGS TO BE PREFIXED BY 07620
  - △ ALL ALARM BELL WGS TO BE PREFIXED BY 07620

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 UNITS 1 & 2  
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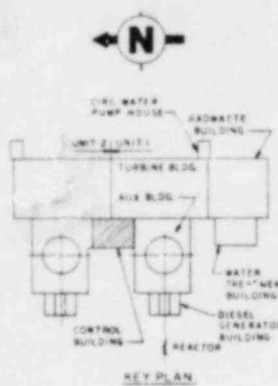
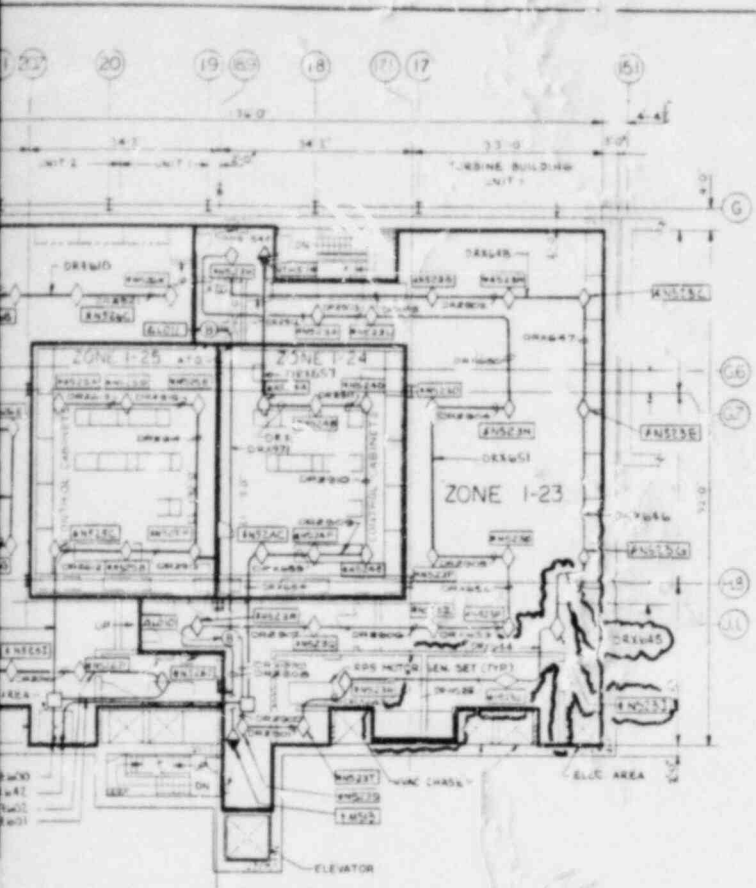
**RACEWAY PLAN CONTROL BUILDING  
 EL. 93'-0", 111'-0", 133'-0", & 148'-0"  
 FIRE & SMOKE DETECTION SYSTEM  
 UNITS 1 & 2**

**FIGURE 9A-16**



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- LEFT TO RIGHT
- DESK 35
  - DESK 15
  - DESK 17
  - DESK 30
  - DESK 15
  - DESK 18
  - DESK 10
  - DESK 42
  - DESK 15



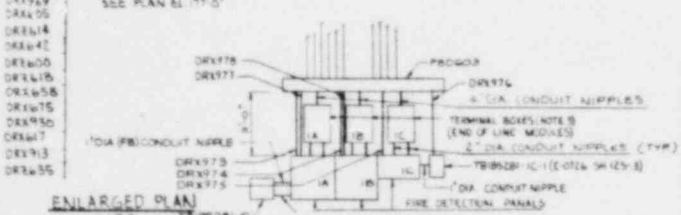
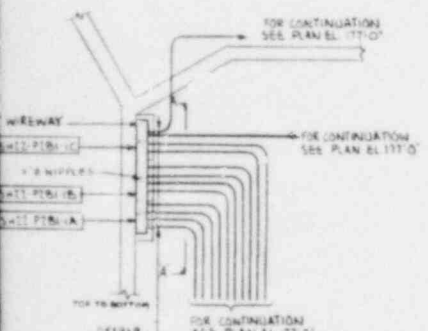
UPPER CABLE SPREADING ROOM-EL 189-0

**SYMBOLS**

- ◇ IONIZATION DETECTOR ABOVE SUSPENDED CEILING LEVEL
- ◇ IONIZATION DETECTOR LOCATED AT SUSPENDED CEILING LEVEL WITH 2" SQUARE BOX MOUNTED WITHIN RIGID PLUMB IN CEILING TILE BY FIELD
- ◇ MANUAL PULL STATION
- ⊙ FIRE ALARM BELL
- ALL DETECTOR NO. TO BE PREFIXED BY SPACE
- † ALL MANUAL PULL STATION NO. TO BE PREFIXED BY SPACE
- △ ALL ALARM BELL NO. TO BE PREFIXED BY SPACE

**NOTES**

1. FOR RACEWAY NOTES, SYMBOLS AND DETAILS, SEE DRG. 9-17B.
2. UNLESS OTHERWISE NOTED, ALL TRAY AND CONDUIT NUMBERS SHOWN ON THIS DRAWING WILL BE PREFIXED BY FACILITY IN THE RACEWAY SCHEDULE.
3. TERMINAL BOXES, TYPES 1A, 1B & 1C, ARE PREFIXED IN DRG. 9-17C, SH. 1A-23, AND SCHEDULED ON DRG. 9-17D, SH. 125-4.



**SECTION A-A**

N.T.S.

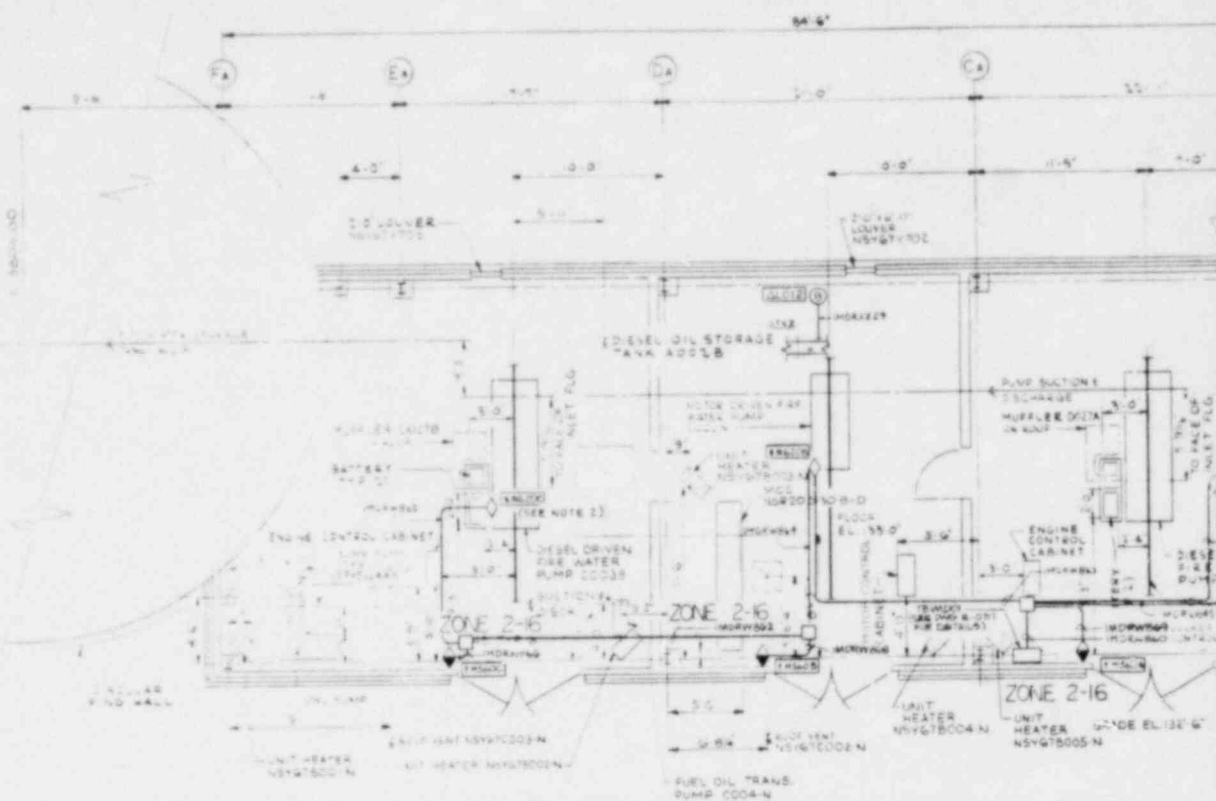
**MISSISSIPPI POWER & LIGHT COMPANY  
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UNITS 1 & 2  
FINAL SAFETY ANALYSIS REPORT**

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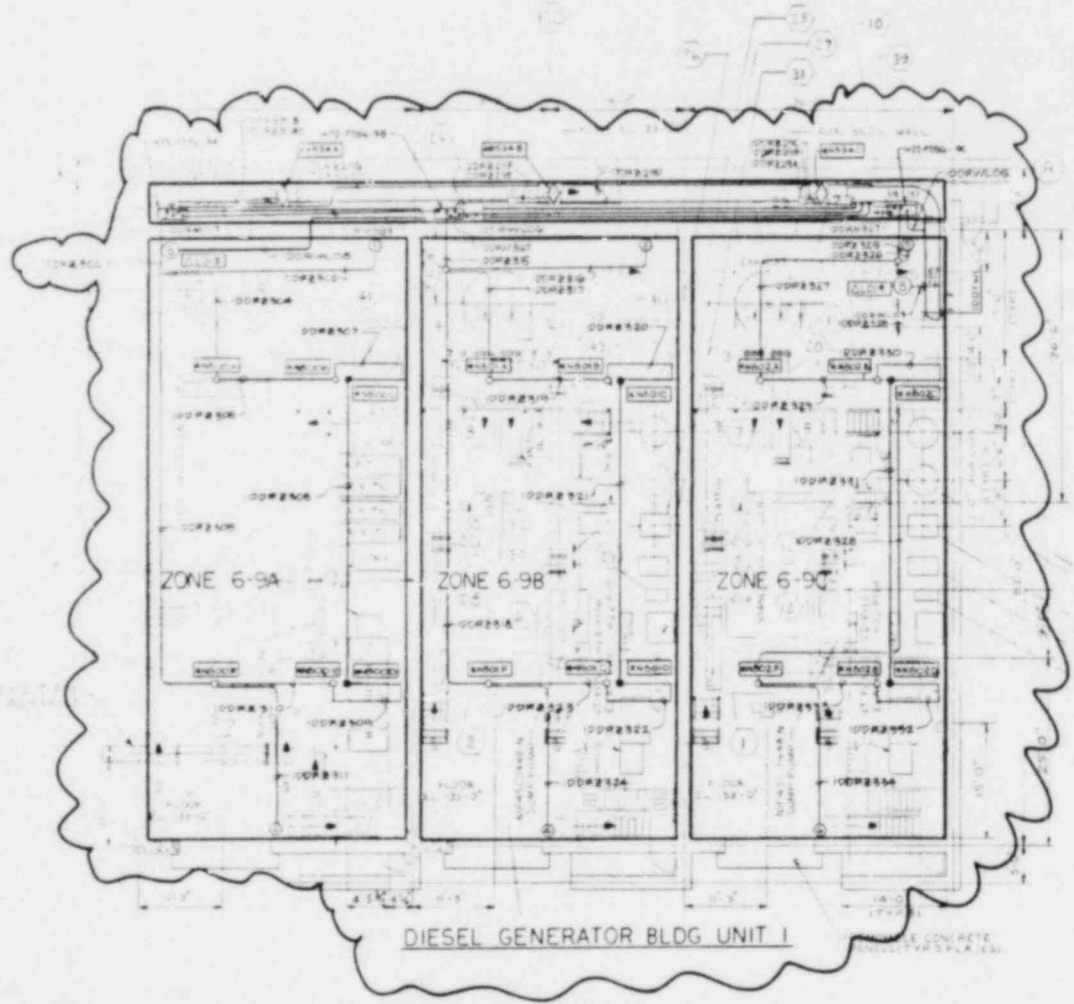
**RACEWAY PLAN CONTROL BUILDING  
EL. 166'-0", 177'-0" & 189'-0"  
FIRE & SMOKE DETECTION SYSTEM  
UNITS 1&2**

**FIGURE 9A-17**



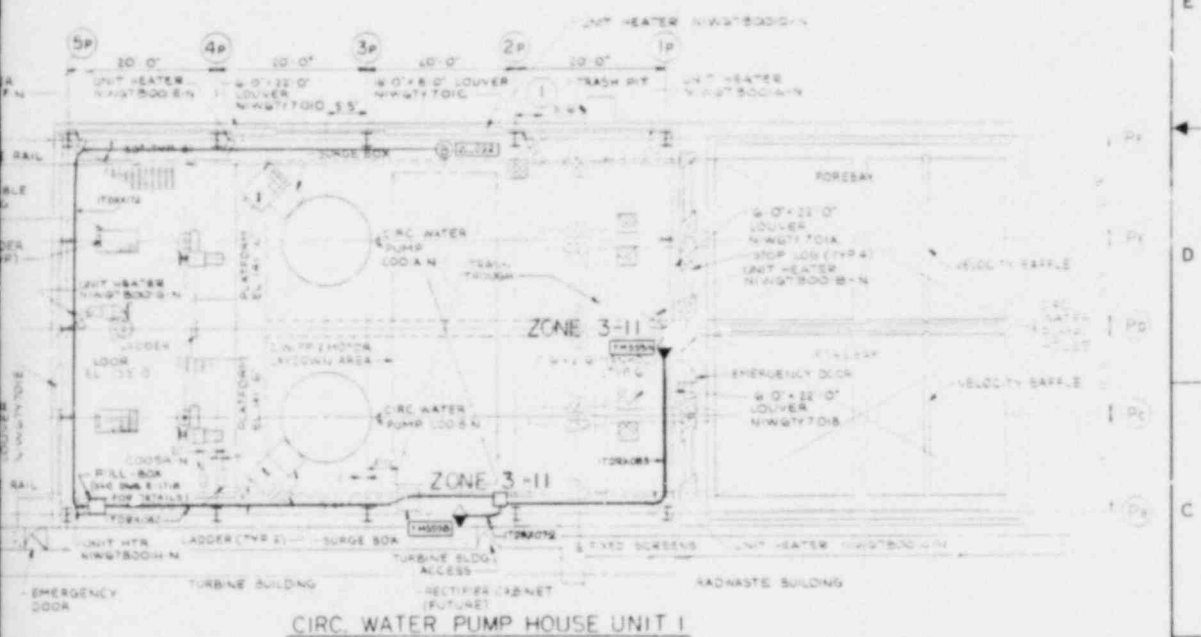
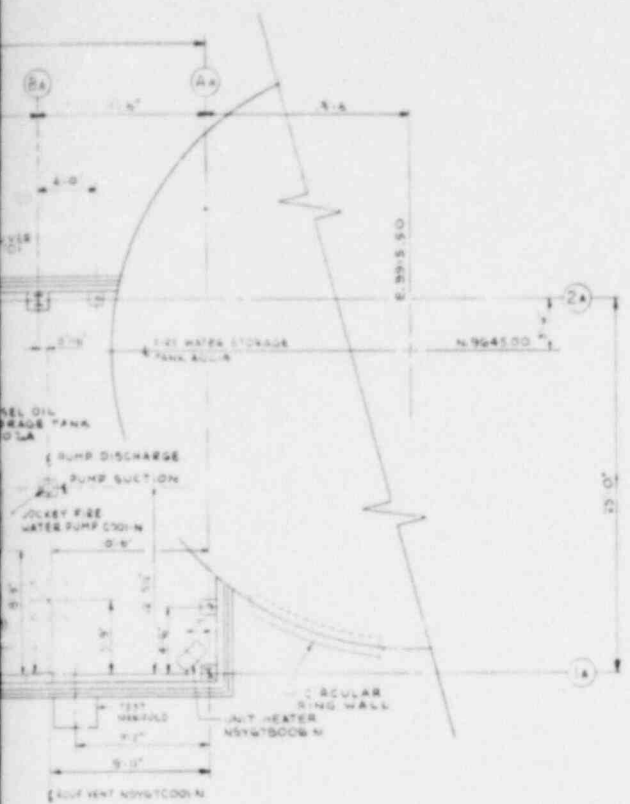


FIRE WATER PUMP HOUSE UNITS 1 & 2



DIESEL GENERATOR BLDG UNIT 1

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CIRC. WATER PUMP HOUSE UNIT I



- SYMBOLS**
- ◇ IONIZATION DETECTOR
  - MANUAL PULL STATION
  - FIRE ALARM BELL
  - ▲ ALL DETECTOR NPS TO BE PREFIXED BY SP5570
  - △ ALL PULL STATION NPS TO BE PREFIXED BY SP5570
  - ALL ALARM BELL NPS TO BE PREFIXED BY SP5570
  - ◻ ULTRA VIOLET PLANE DETECTOR
  - DETECTOR LOCATED UNDER MEZZANINE
  - DETECTOR LOCATED ON CEILING
  - ▲ ALL DETECTOR NPS TO BE PREFIXED BY SP5570
- NOTES**
1. FOR RACEWAY NOTED SYMBOLS AND DETAILS SEE SUB 4496
  2. END OF LINE RESISTOR SHALL BE INSTALLED AT SP55444-4C

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UNITS 1 & 2  
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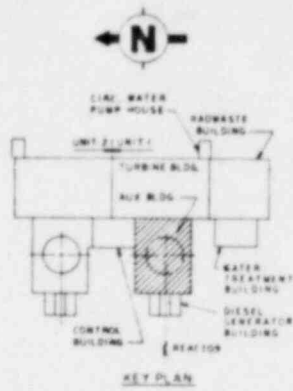
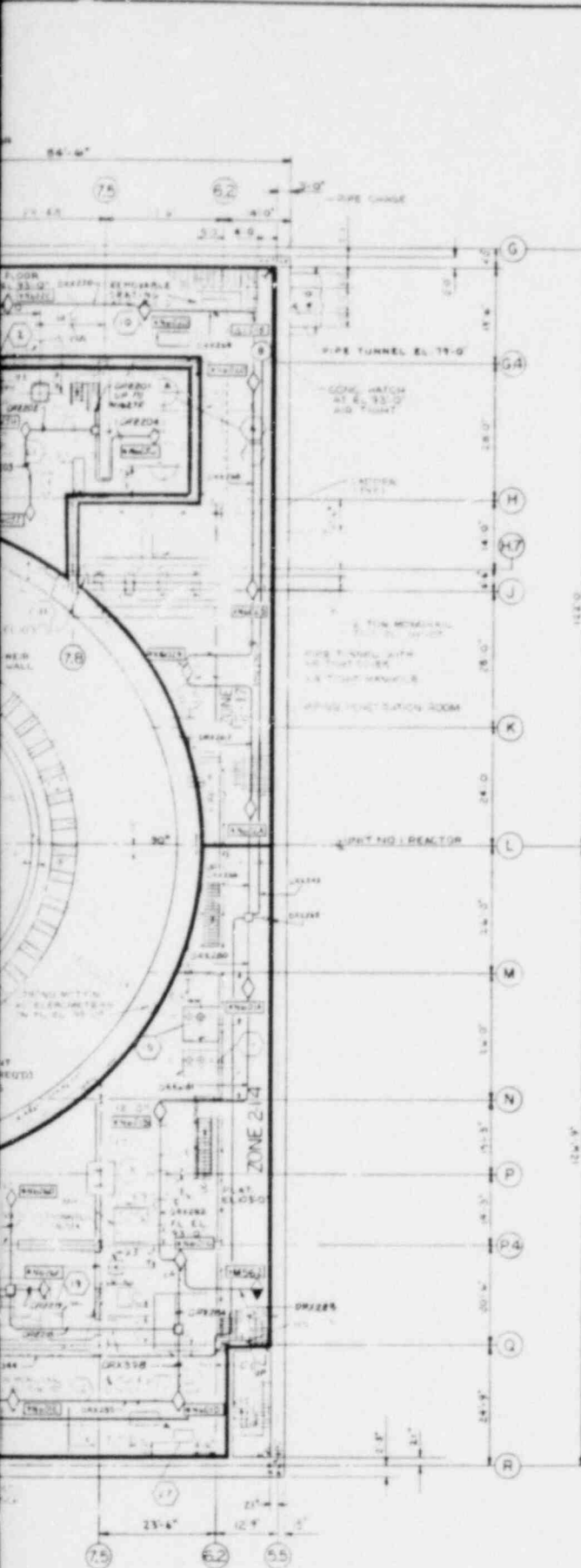
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**RACEWAY PLAN  
MISCELLANEOUS BUILDINGS  
FIRE & SMOKE DETECTION SYSTEM  
UNITS 1 & 2**

**FIGURE 9A-22**







**EQUIPMENT LIST**

ITEM NO.	DESCRIPTION	EQUIPMENT NO.
<b>DRYWELL WATER EQUIPMENT</b>		
20	REACTOR RECIRC. PUMP	2000000-1-A
21	REACTOR RECIRC. PUMP	2000000-2-A
22	DRYWELL OVERFLOW BATTERY CHARGE	2000000-3-A
23	DRYWELL OVERFLOW BATTERY CHARGE	2000000-4-A
24	DRYWELL OVERFLOW BATTERY CHARGE	2000000-5-A
25	DRYWELL OVERFLOW BATTERY CHARGE	2000000-6-A
26	DRYWELL OVERFLOW BATTERY CHARGE	2000000-7-A
27	DRYWELL OVERFLOW BATTERY CHARGE	2000000-8-A
<b>MISC. EQUIPMENT</b>		
28	DRYWELL COOLER	2000000-9-A
29	EQUIPMENT HANDING MATRICES	2000000-10-A
30	DRYWELL COOLER	2000000-11-A
31	DRYWELL COOLER	2000000-12-A

**SYMBOLS**

- ◇ IONIZATION DETECTOR
- ▽ MANUAL PULL STATION
- ⊙ FIRE ALARM BELL
- CALL DETECTOR WGS TO BE PREFIRED BY SPACED
- † ALL MANUAL PULL STATION WGS TO BE PREFIRED BY SPACED
- ⊙ ALL ALARM BELL WGS TO BE PREFIRED BY SPACED

**NOTES:**

1. FOR RACEWAY NOTES, SYMBOLS AND DETAILS SEE DWG. 9A-28.
2. UNLESS OTHERWISE NOTED, ALL TRAY AND CONDUIT NUMBERS SHOWN ON THIS DRAWING WILL BE PREFIRED BY FACILITY 1A, IN THE RACEWAY SCHEDULE.

**MISSISSIPPI POWER & LIGHT COMPANY  
GRAND GULF NUCLEAR STATION  
UNITS 1 & 2  
FINAL SAFETY ANALYSIS REPORT**

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**RACEWAY PLAN  
AUXILIARY BUILDING & CONTAINMENT  
EL. 93'-0" & 100'-9"  
FIRE & SMOKE DETECTION SYSTEM  
UNIT 1**

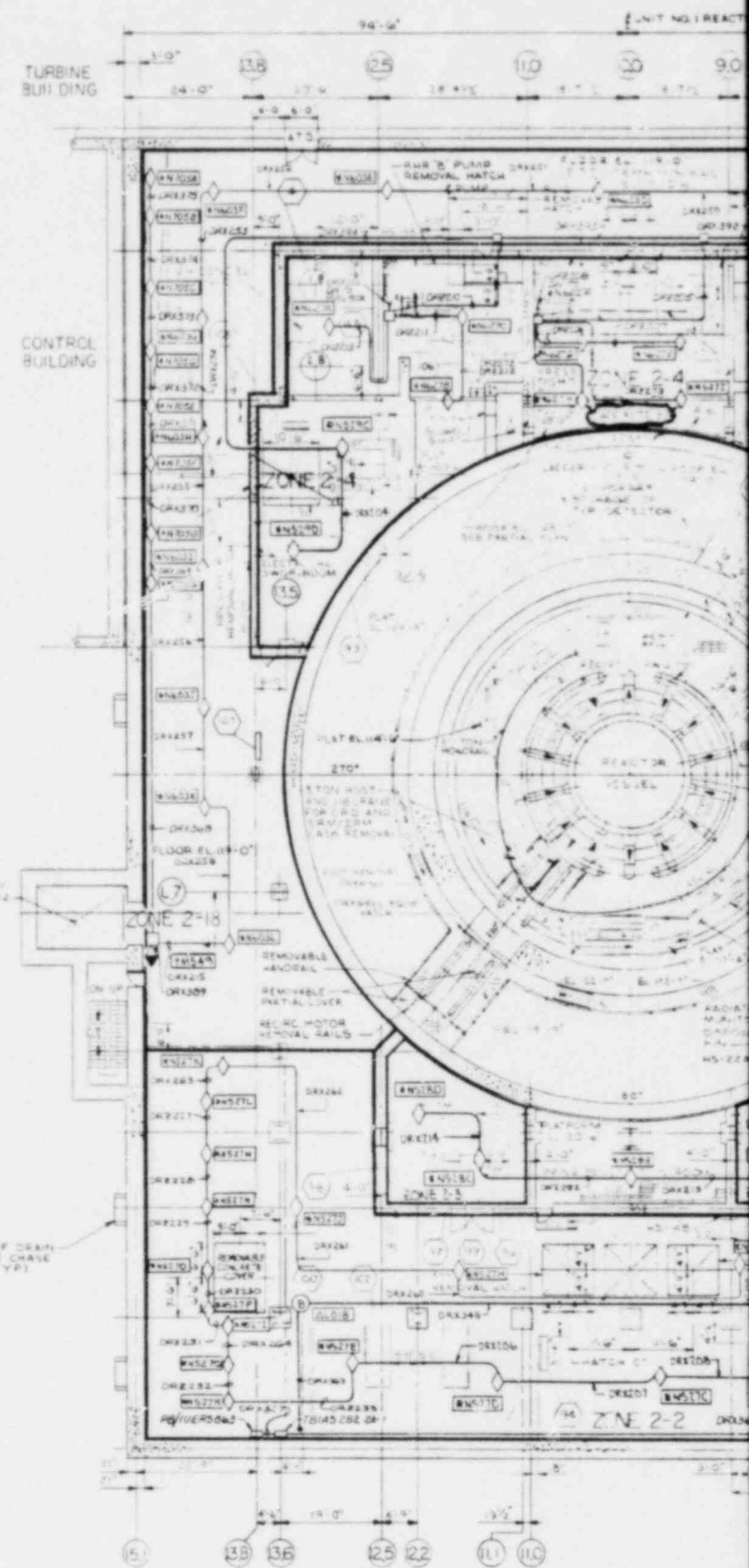
**FIGURE 9A-28**

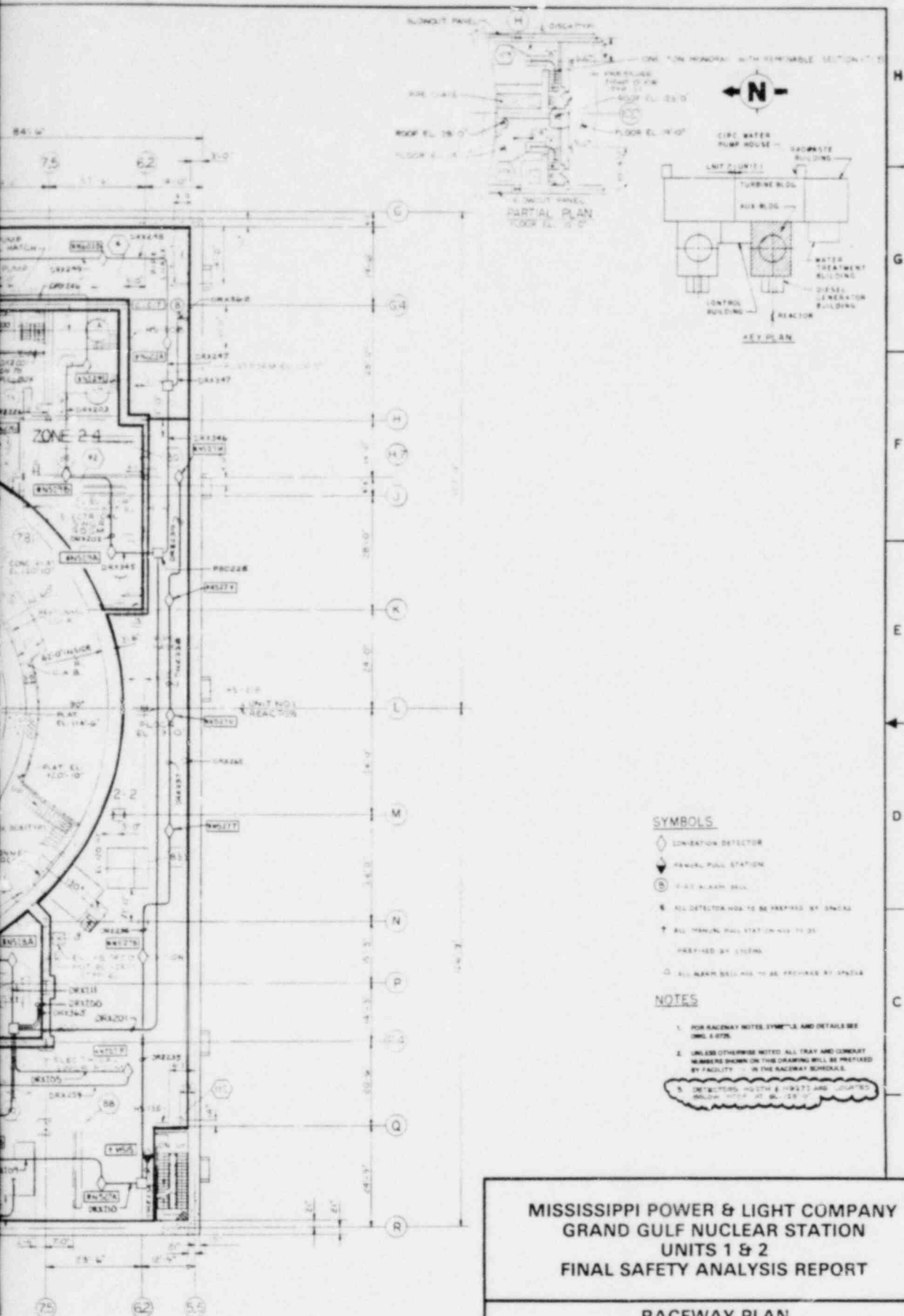
EQUIPMENT LIST

AUXILIARY BLDG. MAJOR EQUIPMENT

ITEM NO.	DESCRIPTION	EQUIPMENT NO.
1	ONE 4" PUMP COVER	0174000-A
2	ONE HEAT EXCHANGER (T)	0174000-A
3	ONE HEAT EXCHANGER (T)	0174000-B
4	ONE 2" PUMP COVER	0174000-A
5	ONE 2" PUMP COVER	0174000-B
6	ONE 2" PUMP COVER	0174000-A
7	ONE 2" PUMP COVER	0174000-B
8	ONE 2" PUMP COVER	0174000-A
9	ONE 2" PUMP COVER	0174000-B
10	ONE 2" PUMP COVER	0174000-A
11	ONE 2" PUMP COVER	0174000-B
12	ONE 2" PUMP COVER	0174000-A
13	ONE 2" PUMP COVER	0174000-B
14	ONE 2" PUMP COVER	0174000-A
15	ONE 2" PUMP COVER	0174000-B
16	ONE 2" PUMP COVER	0174000-A
17	ONE 2" PUMP COVER	0174000-B
18	ONE 2" PUMP COVER	0174000-A
19	ONE 2" PUMP COVER	0174000-B
20	ONE 2" PUMP COVER	0174000-A
21	ONE 2" PUMP COVER	0174000-B
22	ONE 2" PUMP COVER	0174000-A
23	ONE 2" PUMP COVER	0174000-B
24	ONE 2" PUMP COVER	0174000-A
25	ONE 2" PUMP COVER	0174000-B
26	ONE 2" PUMP COVER	0174000-A
27	ONE 2" PUMP COVER	0174000-B
28	ONE 2" PUMP COVER	0174000-A
29	ONE 2" PUMP COVER	0174000-B
30	ONE 2" PUMP COVER	0174000-A
31	ONE 2" PUMP COVER	0174000-B
32	ONE 2" PUMP COVER	0174000-A
33	ONE 2" PUMP COVER	0174000-B
34	ONE 2" PUMP COVER	0174000-A
35	ONE 2" PUMP COVER	0174000-B
36	ONE 2" PUMP COVER	0174000-A
37	ONE 2" PUMP COVER	0174000-B
38	ONE 2" PUMP COVER	0174000-A
39	ONE 2" PUMP COVER	0174000-B
40	ONE 2" PUMP COVER	0174000-A
41	ONE 2" PUMP COVER	0174000-B
42	ONE 2" PUMP COVER	0174000-A
43	ONE 2" PUMP COVER	0174000-B
44	ONE 2" PUMP COVER	0174000-A
45	ONE 2" PUMP COVER	0174000-B
46	ONE 2" PUMP COVER	0174000-A
47	ONE 2" PUMP COVER	0174000-B
48	ONE 2" PUMP COVER	0174000-A
49	ONE 2" PUMP COVER	0174000-B
50	ONE 2" PUMP COVER	0174000-A
51	ONE 2" PUMP COVER	0174000-B
52	ONE 2" PUMP COVER	0174000-A
53	ONE 2" PUMP COVER	0174000-B
54	ONE 2" PUMP COVER	0174000-A
55	ONE 2" PUMP COVER	0174000-B
56	ONE 2" PUMP COVER	0174000-A
57	ONE 2" PUMP COVER	0174000-B
58	ONE 2" PUMP COVER	0174000-A
59	ONE 2" PUMP COVER	0174000-B
60	ONE 2" PUMP COVER	0174000-A
61	ONE 2" PUMP COVER	0174000-B
62	ONE 2" PUMP COVER	0174000-A
63	ONE 2" PUMP COVER	0174000-B
64	ONE 2" PUMP COVER	0174000-A
65	ONE 2" PUMP COVER	0174000-B
66	ONE 2" PUMP COVER	0174000-A
67	ONE 2" PUMP COVER	0174000-B
68	ONE 2" PUMP COVER	0174000-A
69	ONE 2" PUMP COVER	0174000-B
70	ONE 2" PUMP COVER	0174000-A
71	ONE 2" PUMP COVER	0174000-B
72	ONE 2" PUMP COVER	0174000-A
73	ONE 2" PUMP COVER	0174000-B
74	ONE 2" PUMP COVER	0174000-A
75	ONE 2" PUMP COVER	0174000-B
76	ONE 2" PUMP COVER	0174000-A
77	ONE 2" PUMP COVER	0174000-B
78	ONE 2" PUMP COVER	0174000-A
79	ONE 2" PUMP COVER	0174000-B
80	ONE 2" PUMP COVER	0174000-A
81	ONE 2" PUMP COVER	0174000-B
82	ONE 2" PUMP COVER	0174000-A
83	ONE 2" PUMP COVER	0174000-B
84	ONE 2" PUMP COVER	0174000-A
85	ONE 2" PUMP COVER	0174000-B
86	ONE 2" PUMP COVER	0174000-A
87	ONE 2" PUMP COVER	0174000-B
88	ONE 2" PUMP COVER	0174000-A
89	ONE 2" PUMP COVER	0174000-B
90	ONE 2" PUMP COVER	0174000-A
91	ONE 2" PUMP COVER	0174000-B
92	ONE 2" PUMP COVER	0174000-A
93	ONE 2" PUMP COVER	0174000-B
94	ONE 2" PUMP COVER	0174000-A
95	ONE 2" PUMP COVER	0174000-B
96	ONE 2" PUMP COVER	0174000-A
97	ONE 2" PUMP COVER	0174000-B
98	ONE 2" PUMP COVER	0174000-A
99	ONE 2" PUMP COVER	0174000-B
100	ONE 2" PUMP COVER	0174000-A

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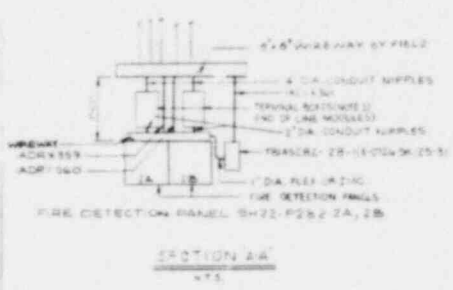
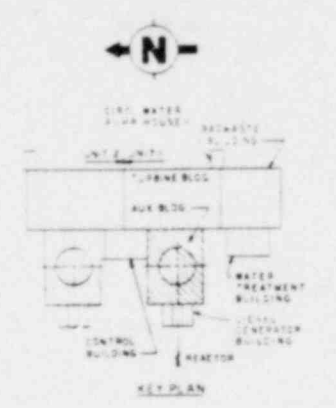
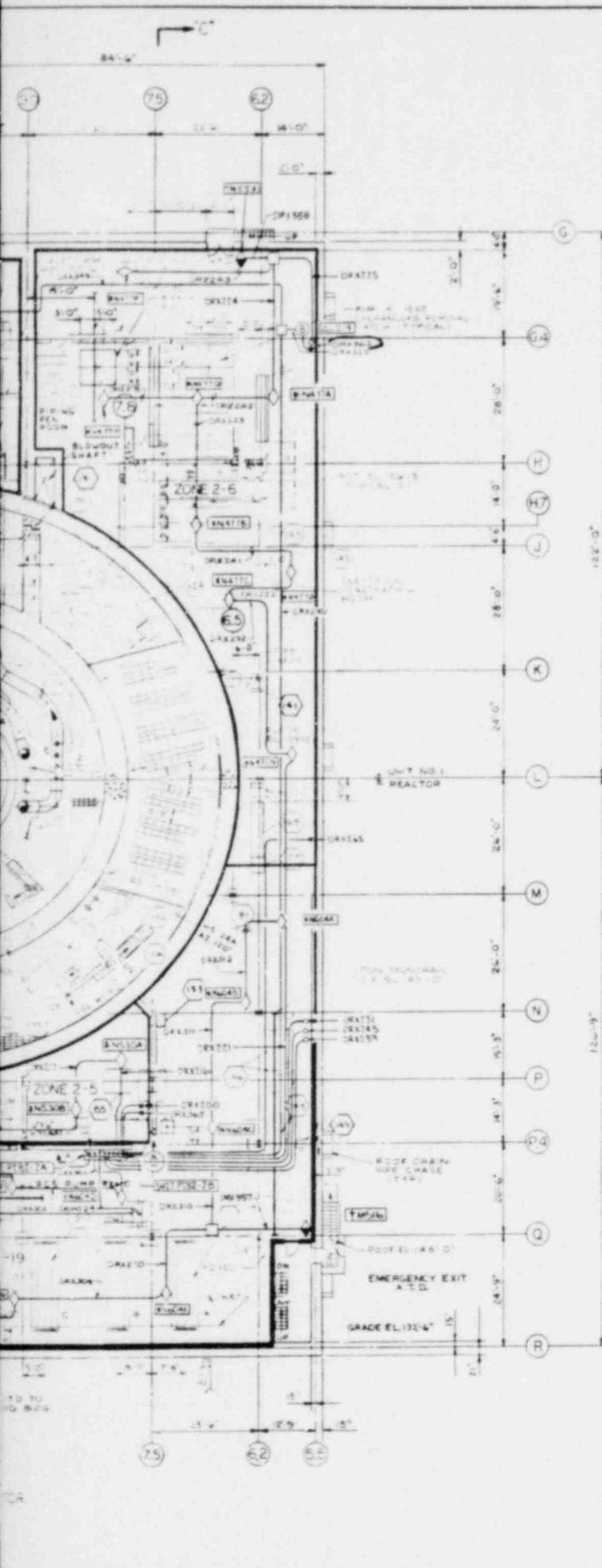
- SYMBOLS**
- ◇ LOCATION DETECTOR
  - ▼ MANUAL PULL STATION
  - ⊙ FIRE ALARM BELL
  - ⊕ ALL DETECTOR HOA TO BE PREPARED BY OWNER
  - ⊕ ALL MANUAL PULL STATION HOA TO BE PREPARED BY USER
  - ⊙ ALL BELL HOA TO BE PREPARED BY OWNER
- NOTES**
1. FOR RACEWAY NOTES SYMBOLS AND DETAILS SEE DWG. 4-078.
  2. UNLESS OTHERWISE NOTED ALL TRAY AND CONDUIT MARKING SHOWN ON THIS DRAWING WILL BE PREPARED BY FACILITY IN THE RACEWAY SUBSHELL.
  3. DETECTORS (WITH & WITHOUT) AND MANUAL PULL STATION TO BE EL. 114'-6".

**MISSISSIPPI POWER & LIGHT COMPANY  
 GRAND GULF NUCLEAR STATION  
 UNITS 1 & 2  
 FINAL SAFETY ANALYSIS REPORT**

---

**RACEWAY PLAN  
 AUXILIARY BUILDING & CONTAINMENT  
 EL. 119'-0", 120'-10" & 114'-6"  
 FIRE & SMOKE DETECTION SYSTEM  
 UNIT 1  
 FIGURE 9A-29**





**SYMBOLS**

- ◇ IONIZATION DETECTOR
- ▽ MANUAL PULL STATION
- FIRE ALARM BELL
- ALL DETECTOR WEL TO BE PROVIDED BY OTHER
- ▽ ALL MANUAL PULL STATION WEL TO BE PROVIDED BY OTHER
- ALL ALARM BELL WEL TO BE PROVIDED BY OTHER

**NOTES**

1. FOR RACEWAY NOTES SYMBOLS AND DETAILS SEE THIS SET.
2. UNLESS OTHERWISE NOTED ALL TRAY AND CONDUIT SHALL BE WORK ON THIS DRAWING WILL BE PROVIDED BY FACILITY IN THE RACEWAY SCHEDULE.
3. TERMINAL WIRE (TYPE) DA 412 ARE PURCHASED ON DWG 1-0111 SH 412 AND SCHEDULED ON DWG 1-0111 SH 412.

**MISSISSIPPI POWER & LIGHT COMPANY  
 GRAND GULF NUCLEAR STATION  
 UNITS 1 & 2  
 FINAL SAFETY ANALYSIS REPORT**

**RACEWAY PLAN  
 AUXILIARY BUILDING & CONTAINMENT  
 EL. 139'-0", 135'-4", 147'-7"  
 FIRE & SMOKE DETECTION SYSTEM  
 UNIT 1**

**FIGURE 9A-30**



EQUIPMENT LIST

EXHAUST BLDG. WATER EQUIPMENT

ITEM NO.	DESCRIPTION	EQUIPMENT NO.
21	REC. COOL.	FFUTURE
22	TR & CO. HEAT EXCHANGER	W148304
23	TR & CO. HEAT EXCHANGER	W148305
24	TR & CO. HEAT EXCH. TANK	W148306
25	TR & CO. HEAT EXCH. TANK	W148307
26	TR & CO. HEAT EXCH. TANK	W148308
27	TR & CO. HEAT EXCH. TANK	W148309
28	TR & CO. HEAT EXCH. TANK	W148310
29	TR & CO. HEAT EXCH. TANK	W148311
30	TR & CO. HEAT EXCH. TANK	W148312
31	TR & CO. HEAT EXCH. TANK	W148313
32	TR & CO. HEAT EXCH. TANK	W148314
33	TR & CO. HEAT EXCH. TANK	W148315
34	TR & CO. HEAT EXCH. TANK	W148316
35	TR & CO. HEAT EXCH. TANK	W148317
36	TR & CO. HEAT EXCH. TANK	W148318
37	TR & CO. HEAT EXCH. TANK	W148319
38	TR & CO. HEAT EXCH. TANK	W148320
39	TR & CO. HEAT EXCH. TANK	W148321
40	TR & CO. HEAT EXCH. TANK	W148322
41	TR & CO. HEAT EXCH. TANK	W148323
42	TR & CO. HEAT EXCH. TANK	W148324
43	TR & CO. HEAT EXCH. TANK	W148325
44	TR & CO. HEAT EXCH. TANK	W148326
45	TR & CO. HEAT EXCH. TANK	W148327
46	TR & CO. HEAT EXCH. TANK	W148328
47	TR & CO. HEAT EXCH. TANK	W148329
48	TR & CO. HEAT EXCH. TANK	W148330
49	TR & CO. HEAT EXCH. TANK	W148331
50	TR & CO. HEAT EXCH. TANK	W148332
51	TR & CO. HEAT EXCH. TANK	W148333
52	TR & CO. HEAT EXCH. TANK	W148334
53	TR & CO. HEAT EXCH. TANK	W148335
54	TR & CO. HEAT EXCH. TANK	W148336
55	TR & CO. HEAT EXCH. TANK	W148337
56	TR & CO. HEAT EXCH. TANK	W148338
57	TR & CO. HEAT EXCH. TANK	W148339
58	TR & CO. HEAT EXCH. TANK	W148340
59	TR & CO. HEAT EXCH. TANK	W148341
60	TR & CO. HEAT EXCH. TANK	W148342
61	TR & CO. HEAT EXCH. TANK	W148343
62	TR & CO. HEAT EXCH. TANK	W148344
63	TR & CO. HEAT EXCH. TANK	W148345
64	TR & CO. HEAT EXCH. TANK	W148346
65	TR & CO. HEAT EXCH. TANK	W148347
66	TR & CO. HEAT EXCH. TANK	W148348
67	TR & CO. HEAT EXCH. TANK	W148349
68	TR & CO. HEAT EXCH. TANK	W148350
69	TR & CO. HEAT EXCH. TANK	W148351
70	TR & CO. HEAT EXCH. TANK	W148352
71	TR & CO. HEAT EXCH. TANK	W148353
72	TR & CO. HEAT EXCH. TANK	W148354
73	TR & CO. HEAT EXCH. TANK	W148355
74	TR & CO. HEAT EXCH. TANK	W148356
75	TR & CO. HEAT EXCH. TANK	W148357
76	TR & CO. HEAT EXCH. TANK	W148358
77	TR & CO. HEAT EXCH. TANK	W148359
78	TR & CO. HEAT EXCH. TANK	W148360
79	TR & CO. HEAT EXCH. TANK	W148361
80	TR & CO. HEAT EXCH. TANK	W148362
81	TR & CO. HEAT EXCH. TANK	W148363
82	TR & CO. HEAT EXCH. TANK	W148364
83	TR & CO. HEAT EXCH. TANK	W148365
84	TR & CO. HEAT EXCH. TANK	W148366
85	TR & CO. HEAT EXCH. TANK	W148367
86	TR & CO. HEAT EXCH. TANK	W148368
87	TR & CO. HEAT EXCH. TANK	W148369
88	TR & CO. HEAT EXCH. TANK	W148370
89	TR & CO. HEAT EXCH. TANK	W148371
90	TR & CO. HEAT EXCH. TANK	W148372
91	TR & CO. HEAT EXCH. TANK	W148373
92	TR & CO. HEAT EXCH. TANK	W148374
93	TR & CO. HEAT EXCH. TANK	W148375
94	TR & CO. HEAT EXCH. TANK	W148376
95	TR & CO. HEAT EXCH. TANK	W148377
96	TR & CO. HEAT EXCH. TANK	W148378
97	TR & CO. HEAT EXCH. TANK	W148379
98	TR & CO. HEAT EXCH. TANK	W148380
99	TR & CO. HEAT EXCH. TANK	W148381
100	TR & CO. HEAT EXCH. TANK	W148382

MISC. EQUIPMENT

101	TR & CO. HEAT EXCH. TANK	W148383
102	TR & CO. HEAT EXCH. TANK	W148384
103	TR & CO. HEAT EXCH. TANK	W148385
104	TR & CO. HEAT EXCH. TANK	W148386
105	TR & CO. HEAT EXCH. TANK	W148387
106	TR & CO. HEAT EXCH. TANK	W148388
107	TR & CO. HEAT EXCH. TANK	W148389
108	TR & CO. HEAT EXCH. TANK	W148390
109	TR & CO. HEAT EXCH. TANK	W148391
110	TR & CO. HEAT EXCH. TANK	W148392
111	TR & CO. HEAT EXCH. TANK	W148393
112	TR & CO. HEAT EXCH. TANK	W148394
113	TR & CO. HEAT EXCH. TANK	W148395
114	TR & CO. HEAT EXCH. TANK	W148396
115	TR & CO. HEAT EXCH. TANK	W148397
116	TR & CO. HEAT EXCH. TANK	W148398
117	TR & CO. HEAT EXCH. TANK	W148399
118	TR & CO. HEAT EXCH. TANK	W148400
119	TR & CO. HEAT EXCH. TANK	W148401
120	TR & CO. HEAT EXCH. TANK	W148402

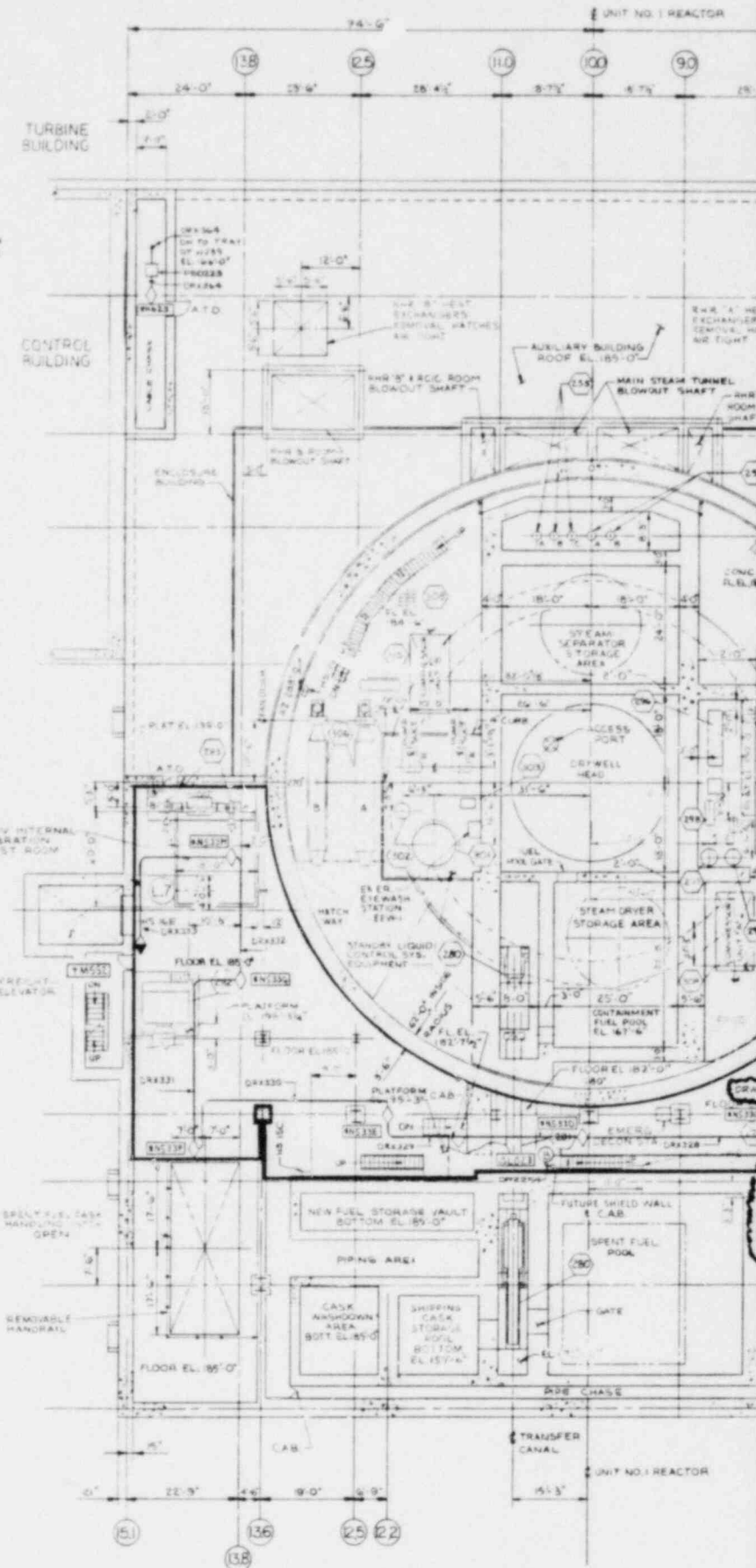
STATIONARY WATER EQUIPMENT

121	TR & CO. HEAT EXCH. TANK	W148403
122	TR & CO. HEAT EXCH. TANK	W148404
123	TR & CO. HEAT EXCH. TANK	W148405
124	TR & CO. HEAT EXCH. TANK	W148406
125	TR & CO. HEAT EXCH. TANK	W148407
126	TR & CO. HEAT EXCH. TANK	W148408
127	TR & CO. HEAT EXCH. TANK	W148409
128	TR & CO. HEAT EXCH. TANK	W148410
129	TR & CO. HEAT EXCH. TANK	W148411
130	TR & CO. HEAT EXCH. TANK	W148412
131	TR & CO. HEAT EXCH. TANK	W148413
132	TR & CO. HEAT EXCH. TANK	W148414
133	TR & CO. HEAT EXCH. TANK	W148415
134	TR & CO. HEAT EXCH. TANK	W148416
135	TR & CO. HEAT EXCH. TANK	W148417
136	TR & CO. HEAT EXCH. TANK	W148418
137	TR & CO. HEAT EXCH. TANK	W148419
138	TR & CO. HEAT EXCH. TANK	W148420
139	TR & CO. HEAT EXCH. TANK	W148421
140	TR & CO. HEAT EXCH. TANK	W148422
141	TR & CO. HEAT EXCH. TANK	W148423
142	TR & CO. HEAT EXCH. TANK	W148424
143	TR & CO. HEAT EXCH. TANK	W148425
144	TR & CO. HEAT EXCH. TANK	W148426
145	TR & CO. HEAT EXCH. TANK	W148427
146	TR & CO. HEAT EXCH. TANK	W148428
147	TR & CO. HEAT EXCH. TANK	W148429
148	TR & CO. HEAT EXCH. TANK	W148430
149	TR & CO. HEAT EXCH. TANK	W148431
150	TR & CO. HEAT EXCH. TANK	W148432

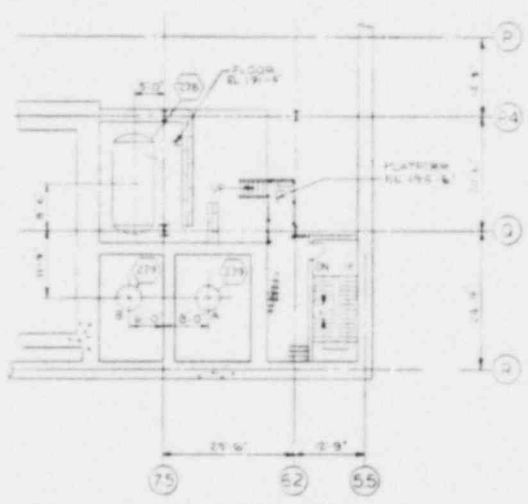
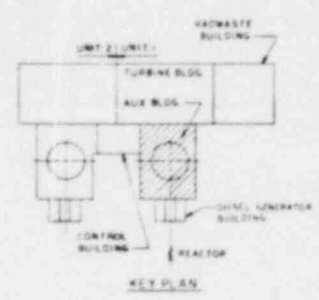
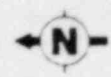
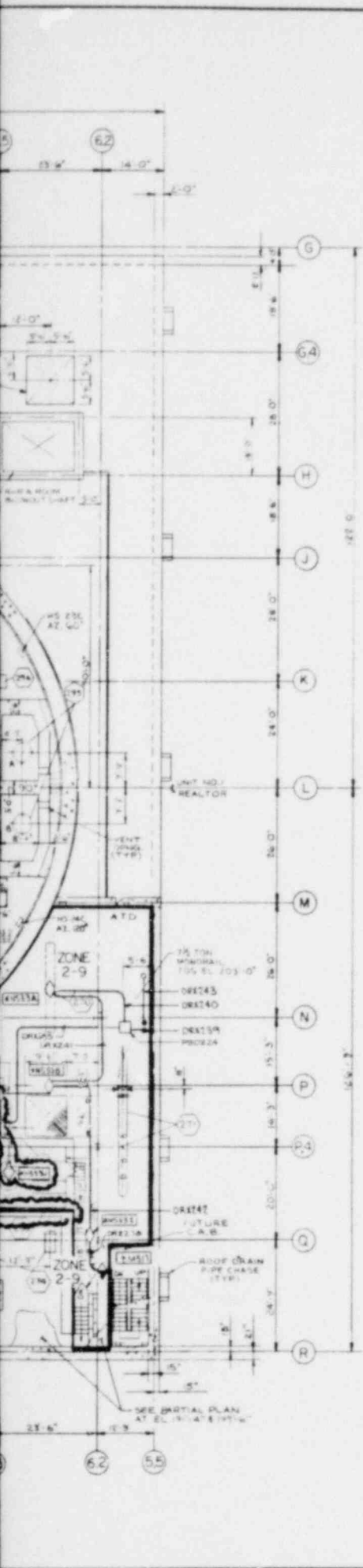
MISC. EQUIPMENT

151	TR & CO. HEAT EXCH. TANK	W148433
152	TR & CO. HEAT EXCH. TANK	W148434
153	TR & CO. HEAT EXCH. TANK	W148435
154	TR & CO. HEAT EXCH. TANK	W148436
155	TR & CO. HEAT EXCH. TANK	W148437
156	TR & CO. HEAT EXCH. TANK	W148438
157	TR & CO. HEAT EXCH. TANK	W148439
158	TR & CO. HEAT EXCH. TANK	W148440
159	TR & CO. HEAT EXCH. TANK	W148441
160	TR & CO. HEAT EXCH. TANK	W148442
161	TR & CO. HEAT EXCH. TANK	W148443
162	TR & CO. HEAT EXCH. TANK	W148444
163	TR & CO. HEAT EXCH. TANK	W148445
164	TR & CO. HEAT EXCH. TANK	W148446
165	TR & CO. HEAT EXCH. TANK	W148447
166	TR & CO. HEAT EXCH. TANK	W148448
167	TR & CO. HEAT EXCH. TANK	W148449
168	TR & CO. HEAT EXCH. TANK	W148450
169	TR & CO. HEAT EXCH. TANK	W148451
170	TR & CO. HEAT EXCH. TANK	W148452
171	TR & CO. HEAT EXCH. TANK	W148453
172	TR & CO. HEAT EXCH. TANK	W148454
173	TR & CO. HEAT EXCH. TANK	W148455
174	TR & CO. HEAT EXCH. TANK	W148456
175	TR & CO. HEAT EXCH. TANK	W148457
176	TR & CO. HEAT EXCH. TANK	W148458
177	TR & CO. HEAT EXCH. TANK	W148459
178	TR & CO. HEAT EXCH. TANK	W148460
179	TR & CO. HEAT EXCH. TANK	W148461
180	TR & CO. HEAT EXCH. TANK	W148462

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PARTIAL PLAN AT EL. 194'-4" & 195'-6"

**SYMBOLS**

- ◇ IONIZATION DETECTOR
- ▼ MANUAL PULL STATION
- Ⓢ T-32 B-ARM TELL
- Ⓢ ALL DETECTOR NOS. TO BE PREFIXED BY SPEAK
- Ⓢ ALL MANUAL PULL STATION NOS. TO BE PREFIXED BY SPTD
- Ⓢ ALL B-ARM TELL NOS. TO BE PREFIXED BY SPTA

**NOTES**

1. FOR RACEWAY NOTE SYMBOLS AND DETAILS SEE DWG. 9A-32B.
2. UNLESS OTHERWISE NOTED, ALL TRAY AND CONDUIT BUNDLING WORK ON THIS DRAWING WILL BE PREFIXED BY FACILITY 1A IN THE RACEWAY SCHEDULE.

**MISSISSIPPI POWER & LIGHT COMPANY  
GRAND GULF NUCLEAR STATION  
UNITS 1 & 2  
FINAL SAFETY ANALYSIS REPORT**

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**RACEWAY PLAN  
AUXILIARY BUILDING & CONTAINMENT  
EL. 184'-6" & 185'-0"  
FIRE & SMOKE DETECTION SYSTEM  
UNIT 1**

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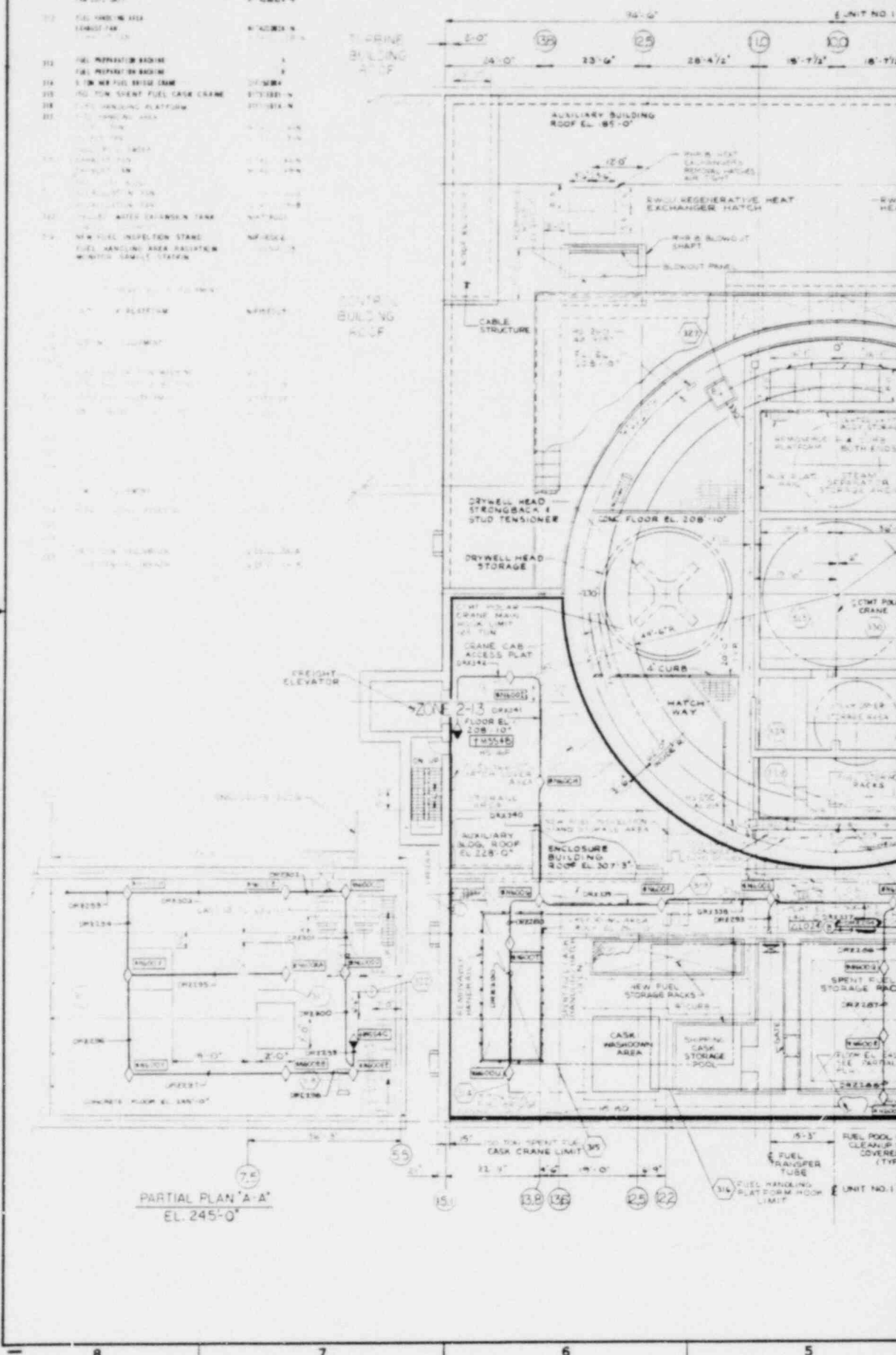
**FIGURE 9A-32**

EQUIPMENT LIST

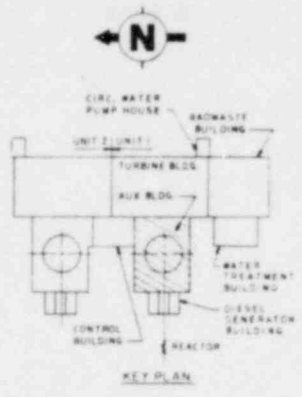
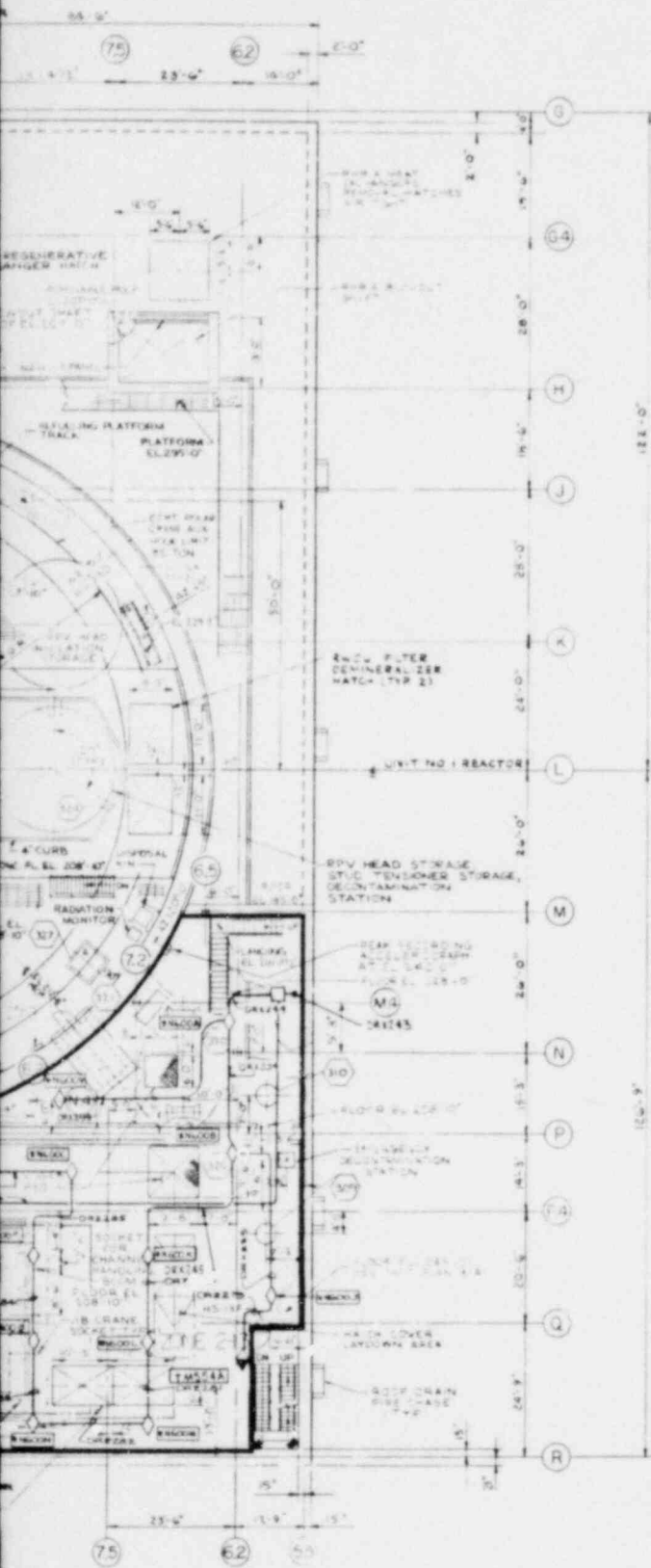
SUPPLIERS AND MAJOR EQUIPMENT

ITEM NO.	DESCRIPTION	QUANTITY	UNIT NO.
101	STANDARD SERVICE 570 GALL TANK	1	101
102	570 GALL TANK	1	102
103	FUEL HANDLING AREA	1	103
104	FUEL HANDLING AREA	1	104
105	FUEL HANDLING AREA	1	105
106	FUEL HANDLING AREA	1	106
107	FUEL HANDLING AREA	1	107
108	FUEL HANDLING AREA	1	108
109	FUEL HANDLING AREA	1	109
110	FUEL HANDLING AREA	1	110
111	FUEL HANDLING AREA	1	111
112	FUEL HANDLING AREA	1	112
113	FUEL HANDLING AREA	1	113
114	FUEL HANDLING AREA	1	114
115	FUEL HANDLING AREA	1	115
116	FUEL HANDLING AREA	1	116
117	FUEL HANDLING AREA	1	117
118	FUEL HANDLING AREA	1	118
119	FUEL HANDLING AREA	1	119
120	FUEL HANDLING AREA	1	120
121	FUEL HANDLING AREA	1	121
122	FUEL HANDLING AREA	1	122
123	FUEL HANDLING AREA	1	123
124	FUEL HANDLING AREA	1	124
125	FUEL HANDLING AREA	1	125
126	FUEL HANDLING AREA	1	126
127	FUEL HANDLING AREA	1	127
128	FUEL HANDLING AREA	1	128
129	FUEL HANDLING AREA	1	129
130	FUEL HANDLING AREA	1	130
131	FUEL HANDLING AREA	1	131
132	FUEL HANDLING AREA	1	132
133	FUEL HANDLING AREA	1	133
134	FUEL HANDLING AREA	1	134
135	FUEL HANDLING AREA	1	135
136	FUEL HANDLING AREA	1	136
137	FUEL HANDLING AREA	1	137
138	FUEL HANDLING AREA	1	138
139	FUEL HANDLING AREA	1	139
140	FUEL HANDLING AREA	1	140
141	FUEL HANDLING AREA	1	141
142	FUEL HANDLING AREA	1	142
143	FUEL HANDLING AREA	1	143
144	FUEL HANDLING AREA	1	144
145	FUEL HANDLING AREA	1	145
146	FUEL HANDLING AREA	1	146
147	FUEL HANDLING AREA	1	147
148	FUEL HANDLING AREA	1	148
149	FUEL HANDLING AREA	1	149
150	FUEL HANDLING AREA	1	150

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PARTIAL PLAN 'A-A'  
EL. 245'-0"



**SYMBOLS**

- ◇ IONIZATION DETECTOR
- ▽ MANUAL CALL STATION
- ⊕ FIRE ALARM BELL
- ALL DETECTOR SIG. TO BE PREFIXED BY "FACIL"
- † ALL CALL STATION SIG. TO BE PREFIXED BY "FACIL"
- △ ALL ALARM BELL SIG. TO BE PREFIXED BY "FACIL"

**NOTES**

1. FOR RACEWAY NOTES, SYMBOLS AND DETAILS SEE DWG. 9A-07B.
2. UNLESS OTHERWISE NOTED, ALL TRAY AND CONDUIT NUMBERS SHOWN ON THIS DRAWING WILL BE PREFIXED BY FACILITY IN THE RACEWAY SCHEDULE.

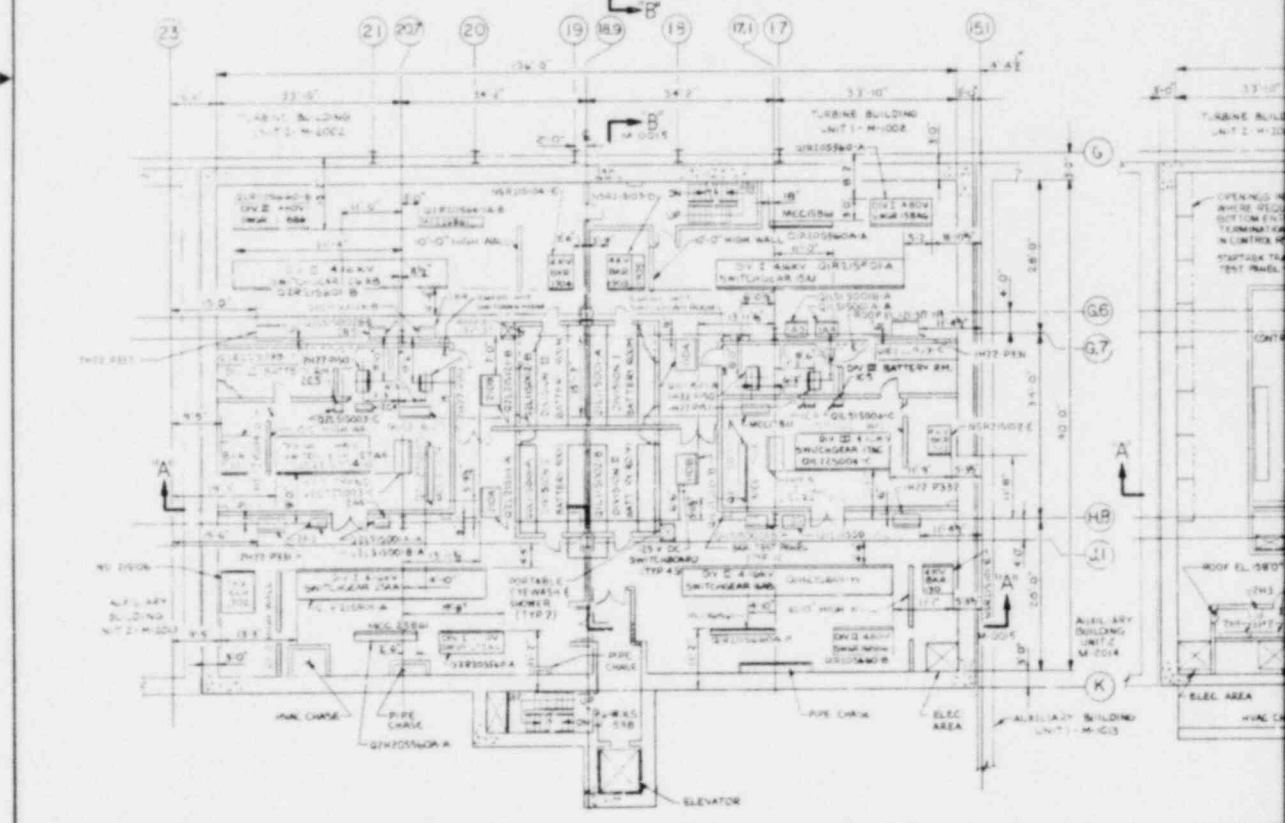
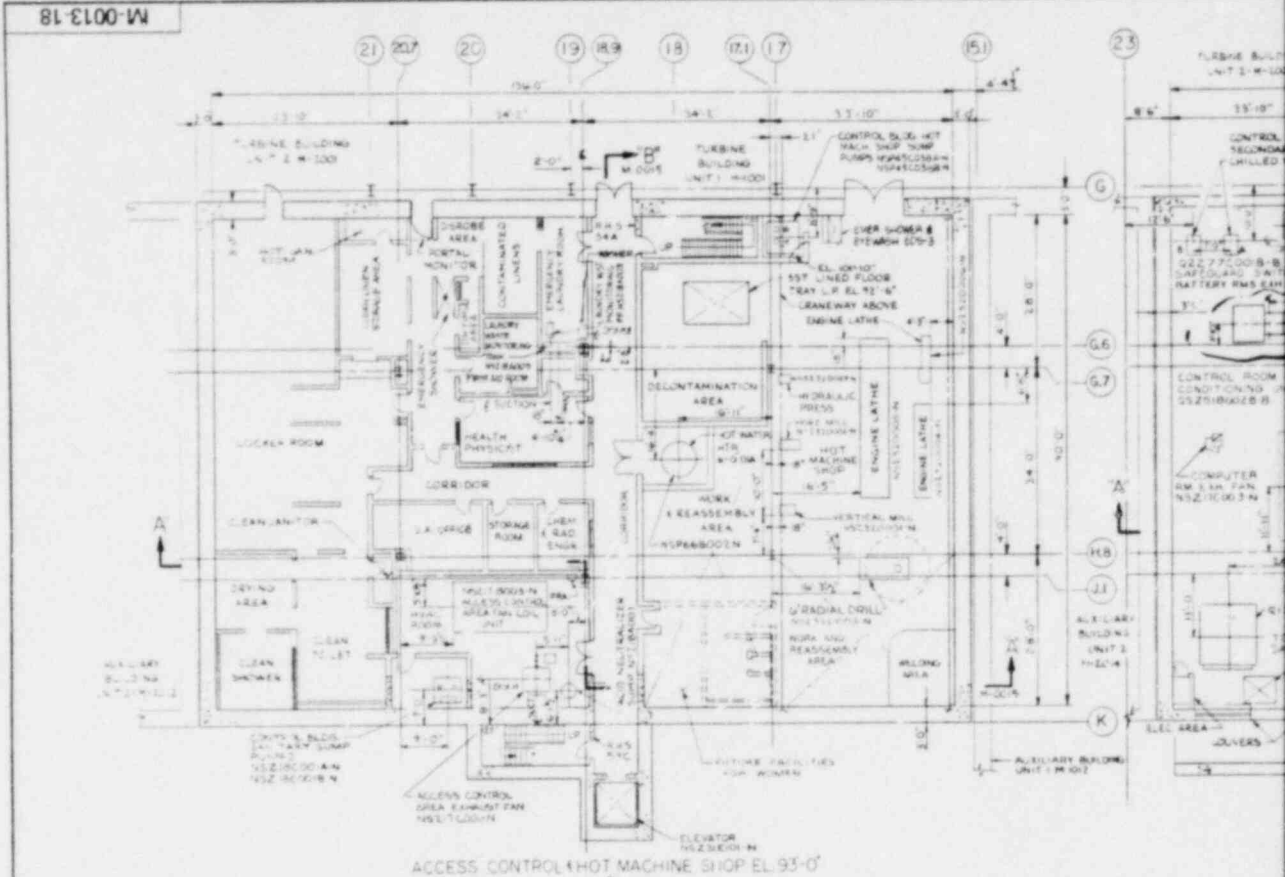
**MISSISSIPPI POWER & LIGHT COMPANY**  
**GRAND GULF NUCLEAR STATION**  
**UNITS 1 & 2**  
**FINAL SAFETY ANALYSIS REPORT**

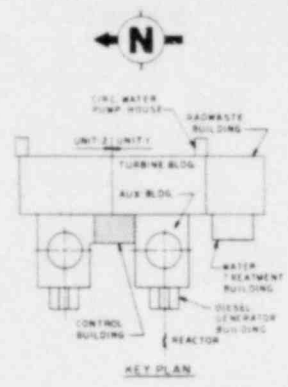
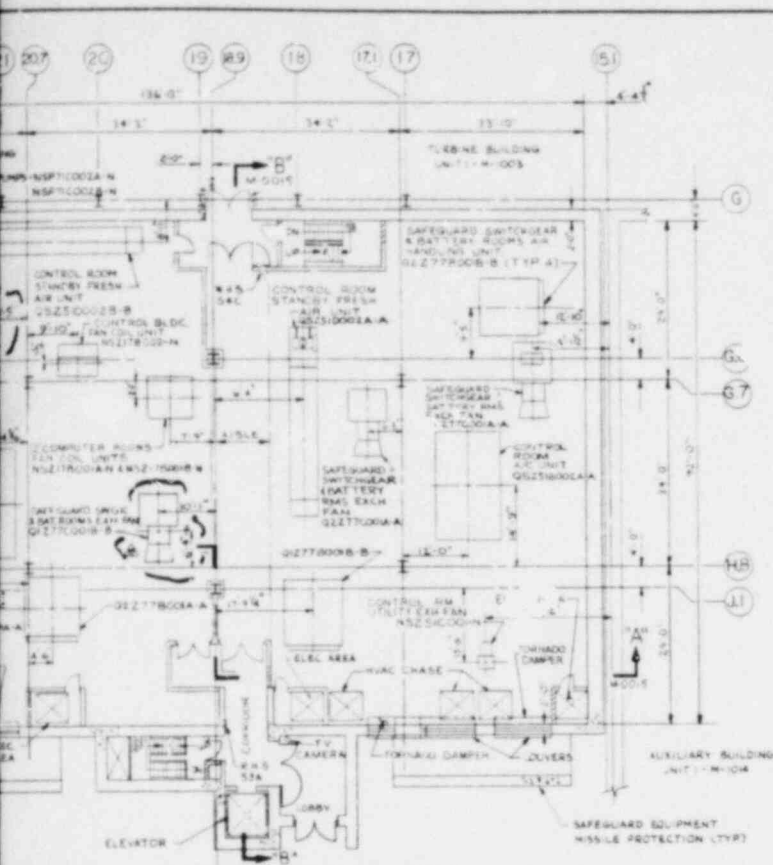
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**RACEWAY PLAN**  
**AUXILIARY BUILDING & CONTAINMENT**  
**EL. 208'-10"**  
**FIRE & SMOKE DETECTION SYSTEM**  
**UNIT 1**

**FIGURE 9A-33**

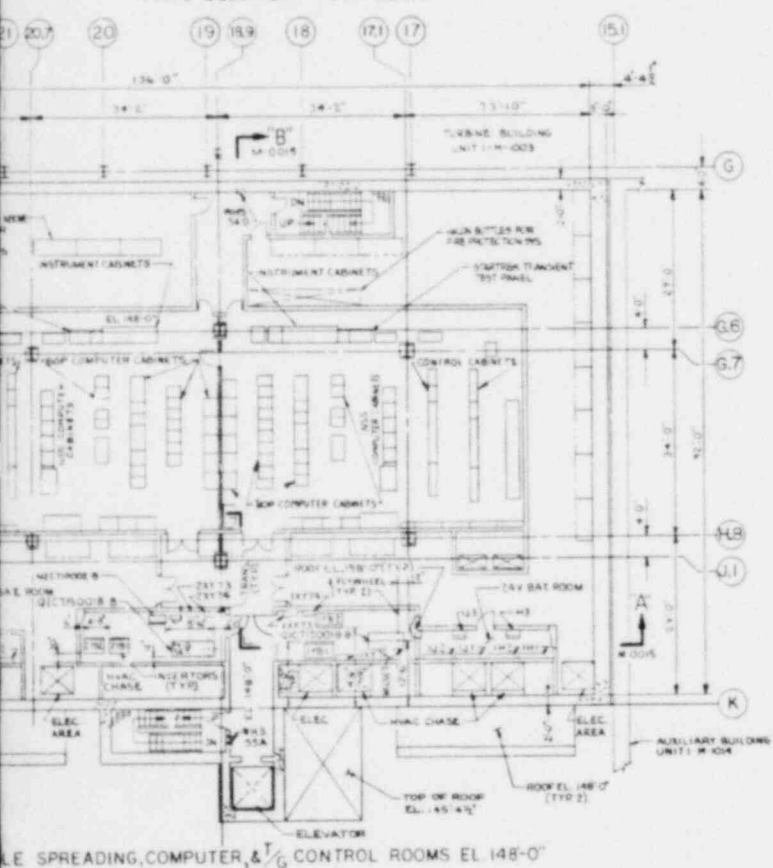
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**NOTES:**

1. FOR ROOM SIZES (OTHER DIMENSIONS NOT SHOWN) SEE KEY PLAN. IDENTIFICATIONS SEE DWGS. 9415-A, 9400-A & 9411-A, 9408-A & 9411-A, 9409-A & 9411-A.
2. FOR PANEL AND INSTRUMENT CABINET IDENTIFICATIONS SEE DWGS. 9415-A, 9400-A & 9411-A, 9408-A & 9411-A, 9409-A & 9411-A.
3. A.T.O. DESIGNATES AIR TIGHT DOOR.
4. R.W. DESIGNATES RELEASED WOLF STATION.
5. W.H. DESIGNATES WALL MOUNTED HOLE STATION.
6. P.H. DESIGNATES PEAK RECORDING ACCT. PROGRAM.
7. ALL INSTRUMENT PANELS WHICH ARE SHOWN ON THIS DRAWING WERE VERIFIED FOR ADDITIONAL INSTRUMENT PANELS NOT SHOWN. SEE DWGS. EL 93'-0" (TYD 1), EL 111'-0" (TYD 1), EL 113'-0" (TYD 1), EL 148'-0" (TYD 2).
8. FOR EQUIPMENT REMOVAL ACCESS OF CONTROL BUILDING SEE DRAWINGS M-421A, B & C.



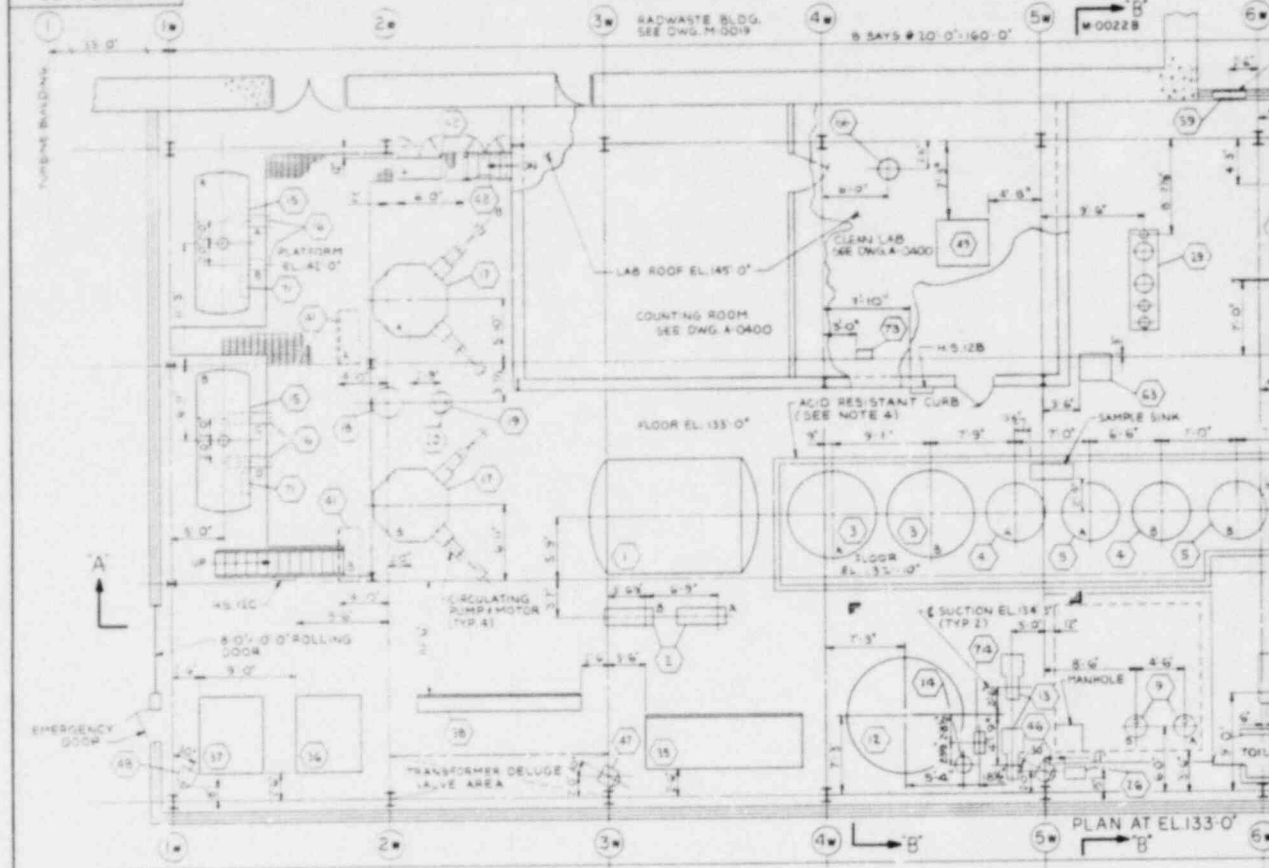
**MISSISSIPPI POWER & LIGHT COMPANY  
GRAND GULF NUCLEAR STATION  
UNITS 1 & 2  
FINAL SAFETY ANALYSIS REPORT**

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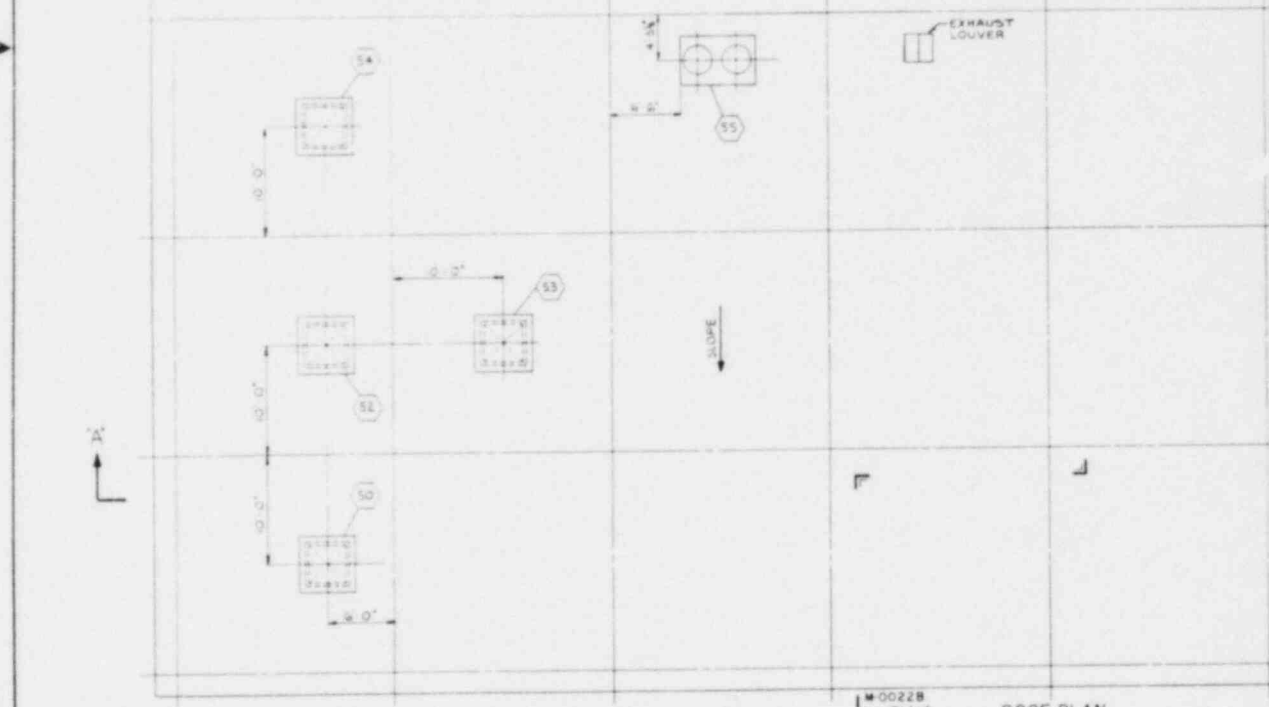
**EQUIPMENT LOCATION  
CONTROL BUILDING PLAN AT EL. 93'-0",  
111'-0", 113'-0", & 148'-0"  
UNITS 1 & 2**

**FIGURE 9A-36**

M-0022A-10



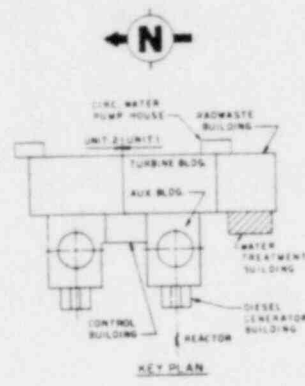
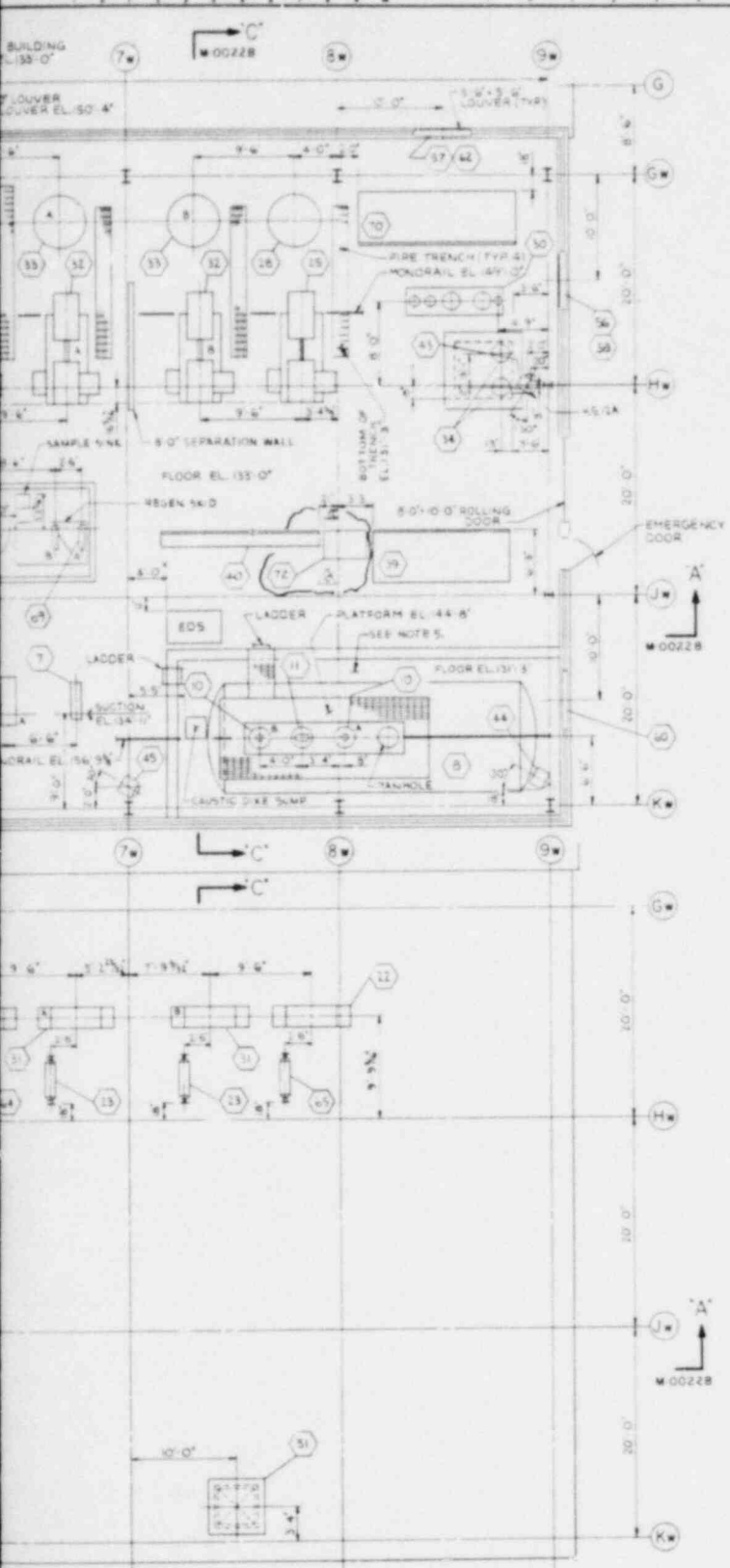
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EQUIPMENT LIST

ITEM NO.	DESCRIPTION	EQUIPMENT NO., ITEM NO.	DESCRIPTION	EQUIPMENT NO., ITEM NO.	DESCRIPTION	EQUIPMENT NO., ITEM NO.	DESCRIPTION
1	STAINLESS TANK	KSP10001	ROCK WATER JACKET	KSP10011	IMMERSIVE STE. PUMPS	KSP10011-A	WELLHEAD MILLER
2	CLEANING TANK PUMP	KSP10002-A	PUMP	KSP10012	ALUMINUM TANK	KSP10012-B	ALUMINUM TANK
3	ACTIVATED CARBON FILTERS	KSP10003	CATIONIC STE. TANK	KSP10013	HYPOCHLORITE DOSING TANK	KSP10013	HY. W.L. CHEMICAL FEED TANK
4	CATION EXCHANGERS	KSP10004	T.A. TREAT. W.W. TANK PUMPS	KSP10014-A	WELLHEAD MILLER	KSP10014-B	W.L. W.L. CHEMICAL FEED PUMPS
5	ANION EXCHANGERS	KSP10005	CATIONIC INJECTION PMP.	KSP10015	WELLHEAD MILLER	KSP10015	W.L. W.L. CHEMICAL FEED PUMPS
6	ROCK WATER TANK PUMPS	KSP10006	ELECTRIC IMMERSION HEATER	KSP10016-A	FLUORIDE PUMPS	KSP10016-B	ROCK. AIR COMP.
		KSP10007		KSP10016-C		KSP10016-D	ROCK. AIR COMP.
		KSP10008		KSP10016-E		KSP10016-F	ROCK. AIR COMP.
		KSP10009		KSP10016-G		KSP10016-H	ROCK. AIR COMP.
		KSP10010		KSP10016-I		KSP10016-J	ROCK. AIR COMP.
		KSP10011		KSP10016-K		KSP10016-L	ROCK. AIR COMP.
		KSP10012		KSP10016-M		KSP10016-N	ROCK. AIR COMP.
		KSP10013		KSP10016-O		KSP10016-P	ROCK. AIR COMP.
		KSP10014		KSP10016-Q		KSP10016-R	ROCK. AIR COMP.
		KSP10015		KSP10016-S		KSP10016-T	ROCK. AIR COMP.
		KSP10016		KSP10016-U		KSP10016-V	ROCK. AIR COMP.
		KSP10017		KSP10016-W		KSP10016-X	ROCK. AIR COMP.
		KSP10018		KSP10016-Y		KSP10016-Z	ROCK. AIR COMP.
		KSP10019		KSP10017		KSP10018	ROCK. AIR COMP.
		KSP10020		KSP10018		KSP10019	ROCK. AIR COMP.
		KSP10021		KSP10019		KSP10020	ROCK. AIR COMP.
		KSP10022		KSP10020		KSP10021	ROCK. AIR COMP.
		KSP10023		KSP10021		KSP10022	ROCK. AIR COMP.
		KSP10024		KSP10022		KSP10023	ROCK. AIR COMP.
		KSP10025		KSP10023		KSP10024	ROCK. AIR COMP.
		KSP10026		KSP10024		KSP10025	ROCK. AIR COMP.
		KSP10027		KSP10025		KSP10026	ROCK. AIR COMP.
		KSP10028		KSP10026		KSP10027	ROCK. AIR COMP.
		KSP10029		KSP10027		KSP10028	ROCK. AIR COMP.
		KSP10030		KSP10028		KSP10029	ROCK. AIR COMP.
		KSP10031		KSP10029		KSP10030	ROCK. AIR COMP.
		KSP10032		KSP10030		KSP10031	ROCK. AIR COMP.
		KSP10033		KSP10031		KSP10032	ROCK. AIR COMP.
		KSP10034		KSP10032		KSP10033	ROCK. AIR COMP.
		KSP10035		KSP10033		KSP10034	ROCK. AIR COMP.
		KSP10036		KSP10034		KSP10035	ROCK. AIR COMP.
		KSP10037		KSP10035		KSP10036	ROCK. AIR COMP.
		KSP10038		KSP10036		KSP10037	ROCK. AIR COMP.
		KSP10039		KSP10037		KSP10038	ROCK. AIR COMP.
		KSP10040		KSP10038		KSP10039	ROCK. AIR COMP.
		KSP10041		KSP10039		KSP10040	ROCK. AIR COMP.
		KSP10042		KSP10040		KSP10041	ROCK. AIR COMP.
		KSP10043		KSP10041		KSP10042	ROCK. AIR COMP.
		KSP10044		KSP10042		KSP10043	ROCK. AIR COMP.
		KSP10045		KSP10043		KSP10044	ROCK. AIR COMP.
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		KSP10052		KSP10050		KSP10051	ROCK. AIR COMP.
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		KSP10056		KSP10054		KSP10055	ROCK. AIR COMP.
		KSP10057		KSP10055		KSP10056	ROCK. AIR COMP.
		KSP10058		KSP10056		KSP10057	ROCK. AIR COMP.
		KSP10059		KSP10057		KSP10058	ROCK. AIR COMP.
		KSP10060		KSP10058		KSP10059	ROCK. AIR COMP.
		KSP10061		KSP10059		KSP10060	ROCK. AIR COMP.
		KSP10062		KSP10060		KSP10061	ROCK. AIR COMP.
		KSP10063		KSP10061		KSP10062	ROCK. AIR COMP.
		KSP10064		KSP10062		KSP10063	ROCK. AIR COMP.
		KSP10065		KSP10063		KSP10064	ROCK. AIR COMP.
		KSP10066		KSP10064		KSP10065	ROCK. AIR COMP.
		KSP10067		KSP10065		KSP10066	ROCK. AIR COMP.
		KSP10068		KSP10066		KSP10067	ROCK. AIR COMP.
		KSP10069		KSP10067		KSP10068	ROCK. AIR COMP.
		KSP10070		KSP10068		KSP10069	ROCK. AIR COMP.
		KSP10071		KSP10069		KSP10070	ROCK. AIR COMP.
		KSP10072		KSP10070		KSP10071	ROCK. AIR COMP.
		KSP10073		KSP10071		KSP10072	ROCK. AIR COMP.
		KSP10074		KSP10072		KSP10073	ROCK. AIR COMP.
		KSP10075		KSP10073		KSP10074	ROCK. AIR COMP.





- NOTES:**
- 1. E.D.S. - EMERGENCY DECONTAMINATION STATION
  - 2. FOR ADDITIONAL EQUIPMENT LIST SEE DWG. M-0022B.
  - 3. H.S. INDICATES FIRE HOSE STATION
  - 4. THE CURB AND THE ENTIRE AREA WITHIN THE CURB SHALL BE ADEQUATE TO WITHSTAND ACID CONCENTRATIONS AS FOLLOWS:  
MAX. 98% - 60' SALINE  
MIN. RANGE 4% TO 8%
  - 5. CAUSTIC STORAGE TANK FLOOR AND WALL AREAS TO BE EPOXY COATED.
  - 6. ALL INSTRUMENT RACKS INDICATED ON THIS DRAWING ARE SHOR FABRICATED. FOR ADDITIONAL INSTRUMENT RACKS SEE DRAWING P-10514.
  - 7. FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES AND PANELS SEE DRAWINGS S-00443, E-078 AND E-079.
  - 8. FOR EQUIPMENT REMOVAL ACCESS OF WATER TREATMENT BUILDING SEE DRAWING M-10040 & M-10041.

**MISSISSIPPI POWER & LIGHT COMPANY  
GRAND GULF NUCLEAR STATION  
UNITS 1 & 2  
FINAL SAFETY ANALYSIS REPORT**

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**EQUIPMENT LOCATION  
WATER TREATMENT BUILDING  
UNITS 1 & 2**

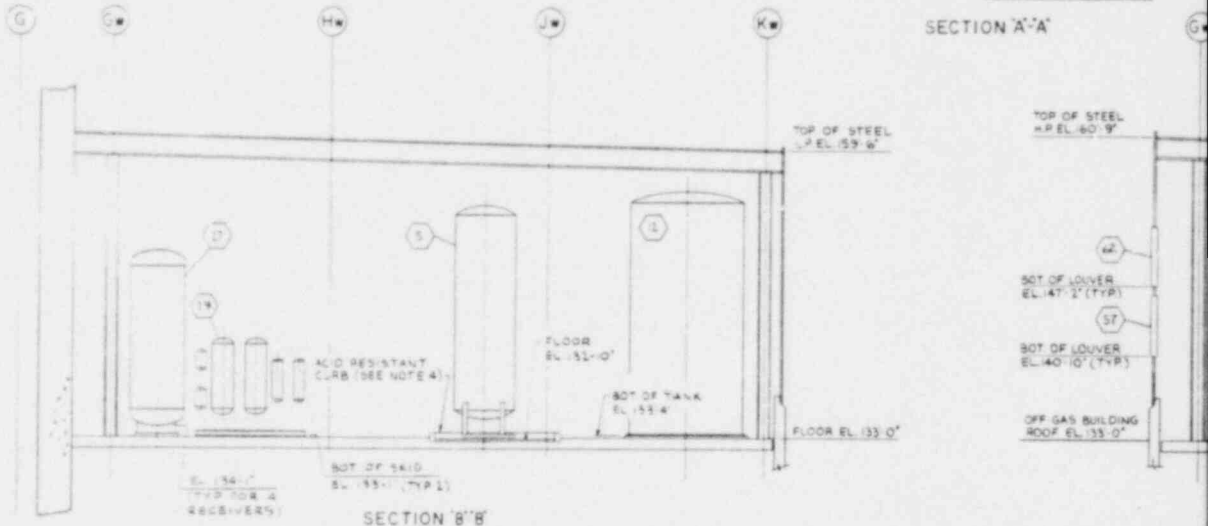
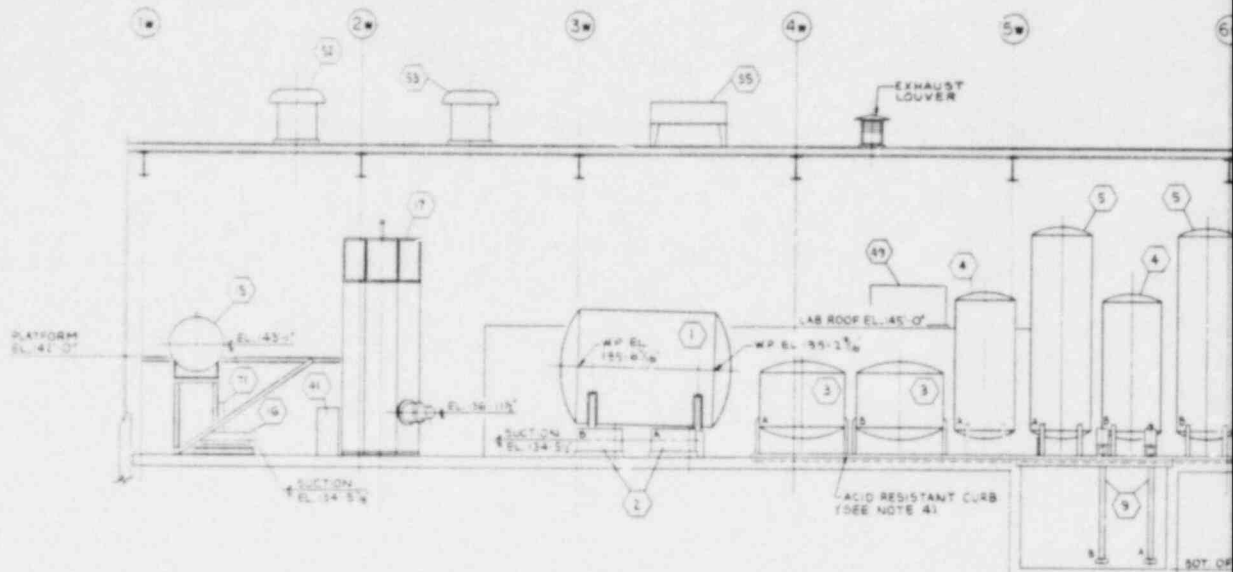
**FIGURE 9A-38a**

EQUIPMENT NO.	ITEM NO.	DESCRIPTION	EQUIPMENT NO.
WPT10001	16	WATER AIR COMP.	WPT10001-1
WPT10002	17	WASTIC STA. PUMP	WPT10002
WPT10003	18	WATER CONTROLLER	WPT10003
WPT10004	19	WATER AIR RECEIVER	WPT10004
WPT10005	20	WATER AIR RECEIVER	WPT10005
WPT10006	21	WATER AIR RECEIVER	WPT10006
WPT10007	22	WATER AIR RECEIVER	WPT10007
WPT10008	23	WATER AIR RECEIVER	WPT10008
WPT10009	24	WATER AIR RECEIVER	WPT10009
WPT10010	25	WATER AIR RECEIVER	WPT10010
WPT10011	26	WATER AIR RECEIVER	WPT10011
WPT10012	27	WATER AIR RECEIVER	WPT10012
WPT10013	28	WATER AIR RECEIVER	WPT10013
WPT10014	29	WATER AIR RECEIVER	WPT10014
WPT10015	30	WATER AIR RECEIVER	WPT10015
WPT10016	31	WATER AIR RECEIVER	WPT10016
WPT10017	32	WATER AIR RECEIVER	WPT10017
WPT10018	33	WATER AIR RECEIVER	WPT10018
WPT10019	34	WATER AIR RECEIVER	WPT10019
WPT10020	35	WATER AIR RECEIVER	WPT10020
WPT10021	36	WATER AIR RECEIVER	WPT10021
WPT10022	37	WATER AIR RECEIVER	WPT10022
WPT10023	38	WATER AIR RECEIVER	WPT10023
WPT10024	39	WATER AIR RECEIVER	WPT10024
WPT10025	40	WATER AIR RECEIVER	WPT10025
WPT10026	41	WATER AIR RECEIVER	WPT10026
WPT10027	42	WATER AIR RECEIVER	WPT10027
WPT10028	43	WATER AIR RECEIVER	WPT10028
WPT10029	44	WATER AIR RECEIVER	WPT10029
WPT10030	45	WATER AIR RECEIVER	WPT10030
WPT10031	46	WATER AIR RECEIVER	WPT10031
WPT10032	47	WATER AIR RECEIVER	WPT10032
WPT10033	48	WATER AIR RECEIVER	WPT10033
WPT10034	49	WATER AIR RECEIVER	WPT10034
WPT10035	50	WATER AIR RECEIVER	WPT10035
WPT10036	51	WATER AIR RECEIVER	WPT10036
WPT10037	52	WATER AIR RECEIVER	WPT10037
WPT10038	53	WATER AIR RECEIVER	WPT10038
WPT10039	54	WATER AIR RECEIVER	WPT10039
WPT10040	55	WATER AIR RECEIVER	WPT10040
WPT10041	56	WATER AIR RECEIVER	WPT10041
WPT10042	57	WATER AIR RECEIVER	WPT10042
WPT10043	58	WATER AIR RECEIVER	WPT10043
WPT10044	59	WATER AIR RECEIVER	WPT10044
WPT10045	60	WATER AIR RECEIVER	WPT10045
WPT10046	61	WATER AIR RECEIVER	WPT10046
WPT10047	62	WATER AIR RECEIVER	WPT10047
WPT10048	63	WATER AIR RECEIVER	WPT10048
WPT10049	64	WATER AIR RECEIVER	WPT10049
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WPT10051	66	WATER AIR RECEIVER	WPT10051
WPT10052	67	WATER AIR RECEIVER	WPT10052
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WPT10078	93	WATER AIR RECEIVER	WPT10078
WPT10079	94	WATER AIR RECEIVER	WPT10079
WPT10080	95	WATER AIR RECEIVER	WPT10080
WPT10081	96	WATER AIR RECEIVER	WPT10081
WPT10082	97	WATER AIR RECEIVER	WPT10082
WPT10083	98	WATER AIR RECEIVER	WPT10083
WPT10084	99	WATER AIR RECEIVER	WPT10084
WPT10085	100	WATER AIR RECEIVER	WPT10085



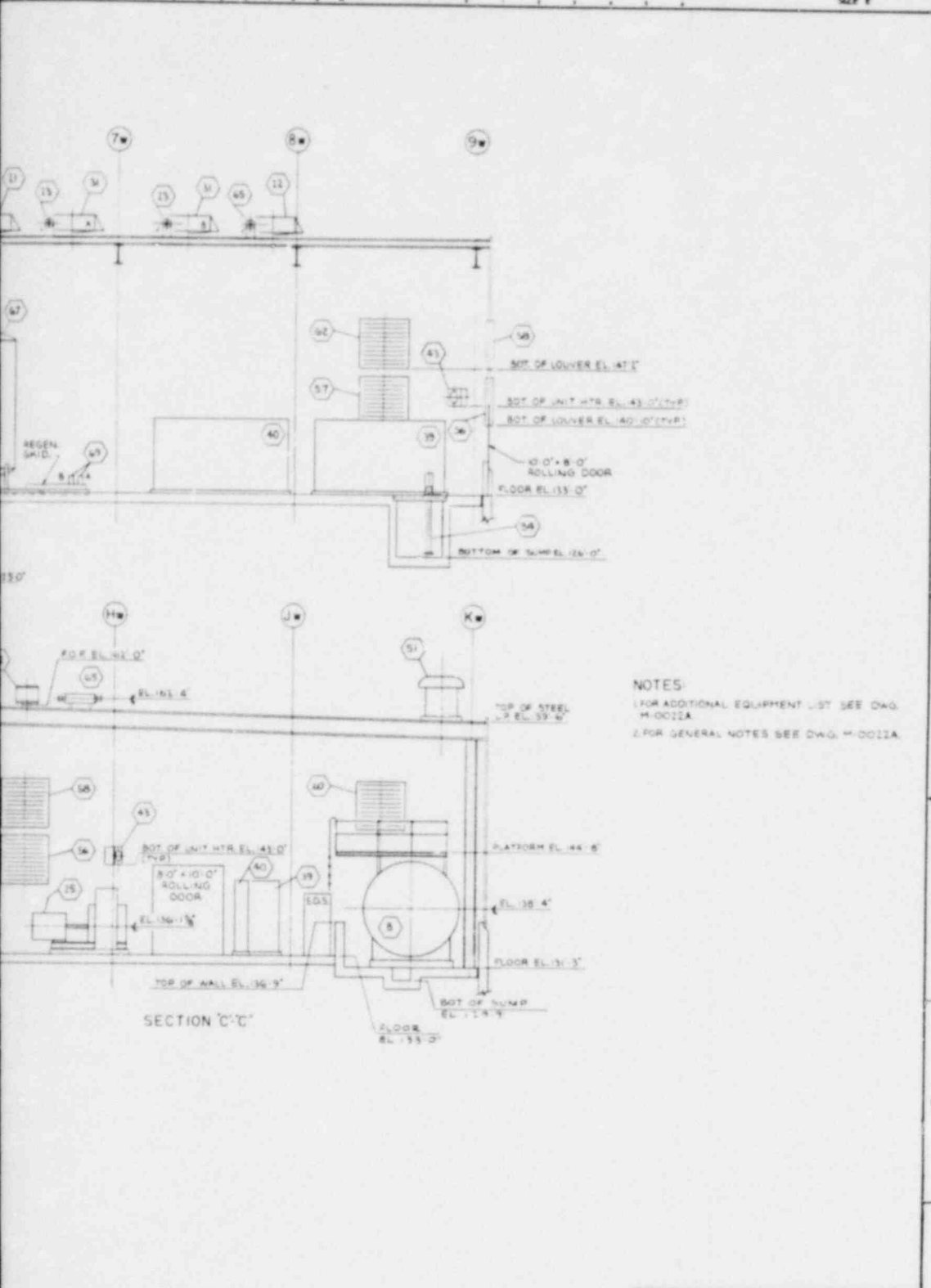
M-0022B-10

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### EQUIPMENT LIST

ITEM NO.	DESCRIPTION	EQUIPMENT NO.	ITEM NO.	DESCRIPTION	EQUIPMENT NO.
24	SILT WASTE SUMP PUMP	NSP45C045A-N NSP45C045B-N	62	AIR INTAKE LOUVER	NSK57701E-N
25	LOAD CENTER 22BEE	(SEE NOTE 4)	63	ANNUNCIATOR CABINET	SH22P312
26	HEATER	NSR20S110-D	64	INSTRUMENT AIR COMPRESSOR	NSP53000S
27	HEATER	NSR20S110-D	65	INSTRUMENT AIR COMPRESSOR	NSP53000S
28	REC 21B31	NSR20S110-D	66	BY-PASS SILENCER	NSP53000S
29	LOAD CENTER 22BEE	NSR20S110-D	67	CLEAN LAB HOT WATER HEATER	NSP68007-N NSP21A00S
30	REC 21B31	NSR20S110-D	68	HEATER TANK	NSP21C003A-N NSP21C003B-N
31	REC 21B31	NSR20S110-D	69	ACID INJECTION PUMPS	NSP21C003A-N NSP21C003B-N
32	REC 21B31	NSR20S110-D	70	LOAD CENTER 22BEE	NSR20S230-E
33	REC 21B31	NSR20S110-D	71	AUX AIR DEHEATER CONTROL PANEL	SH22-P188A SH22-P188B
34	REC 21B31	NSR20S110-D	72	HEAT TRACE PANEL	SH22-P005
35	REC 21B31	NSR20S110-D	73	VACUUM PUMP	NSK5AC001-N
36	REC 21B31	NSR20S110-D	74	HYPOCHLORITE PUMP	NSP68C004-N
37	REC 21B31	NSR20S110-D			
38	REC 21B31	NSR20S110-D			
39	REC 21B31	NSR20S110-D			
40	REC 21B31	NSR20S110-D			
41	REC 21B31	NSR20S110-D			
42	REC 21B31	NSR20S110-D			
43	REC 21B31	NSR20S110-D			
44	REC 21B31	NSR20S110-D			
45	REC 21B31	NSR20S110-D			
46	REC 21B31	NSR20S110-D			
47	REC 21B31	NSR20S110-D			
48	REC 21B31	NSR20S110-D			
49	REC 21B31	NSR20S110-D			
50	REC 21B31	NSR20S110-D			
51	REC 21B31	NSR20S110-D			
52	REC 21B31	NSR20S110-D			
53	REC 21B31	NSR20S110-D			
54	REC 21B31	NSR20S110-D			
55	REC 21B31	NSR20S110-D			
56	REC 21B31	NSR20S110-D			
57	REC 21B31	NSR20S110-D			
58	REC 21B31	NSR20S110-D			
59	REC 21B31	NSR20S110-D			
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61	REC 21B31	NSR20S110-D			
62	REC 21B31	NSR20S110-D			
63	REC 21B31	NSR20S110-D			
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66	REC 21B31	NSR20S110-D			
67	REC 21B31	NSR20S110-D			
68	REC 21B31	NSR20S110-D			
69	REC 21B31	NSR20S110-D			
70	REC 21B31	NSR20S110-D			
71	REC 21B31	NSR20S110-D			
72	REC 21B31	NSR20S110-D			
73	REC 21B31	NSR20S110-D			
74	REC 21B31	NSR20S110-D			



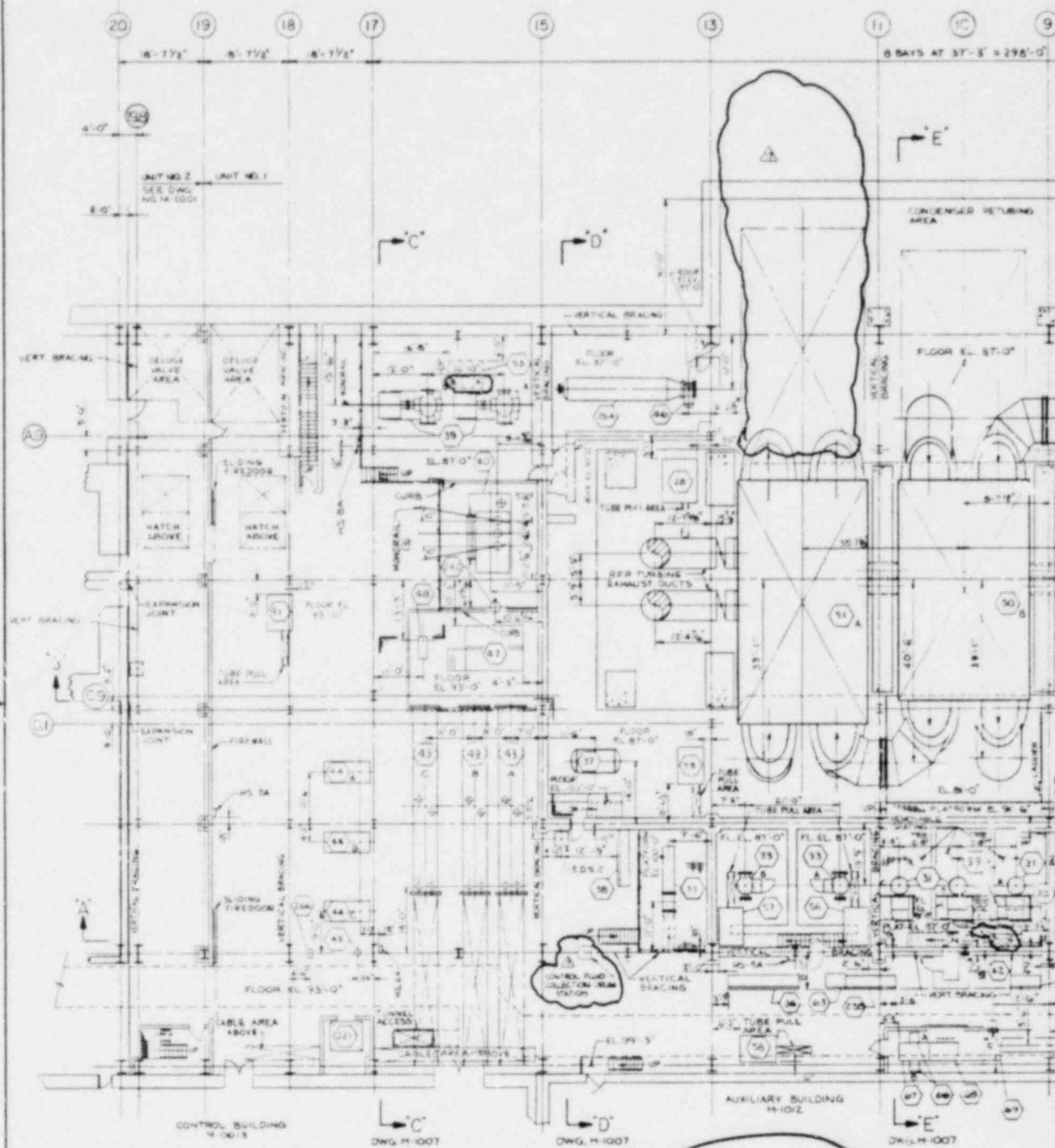
NOTES  
 1. FOR ADDITIONAL EQUIPMENT LIST SEE DWG. M-0012A.  
 2. FOR GENERAL NOTES SEE DWG. M-0012A.

MISSISSIPPI POWER & LIGHT COMPANY  
 GRAND GULF NUCLEAR STATION  
 UNITS 1 & 2  
 FINAL SAFETY ANALYSIS REPORT

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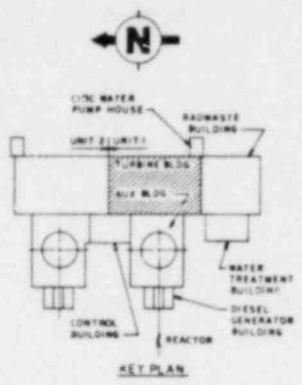
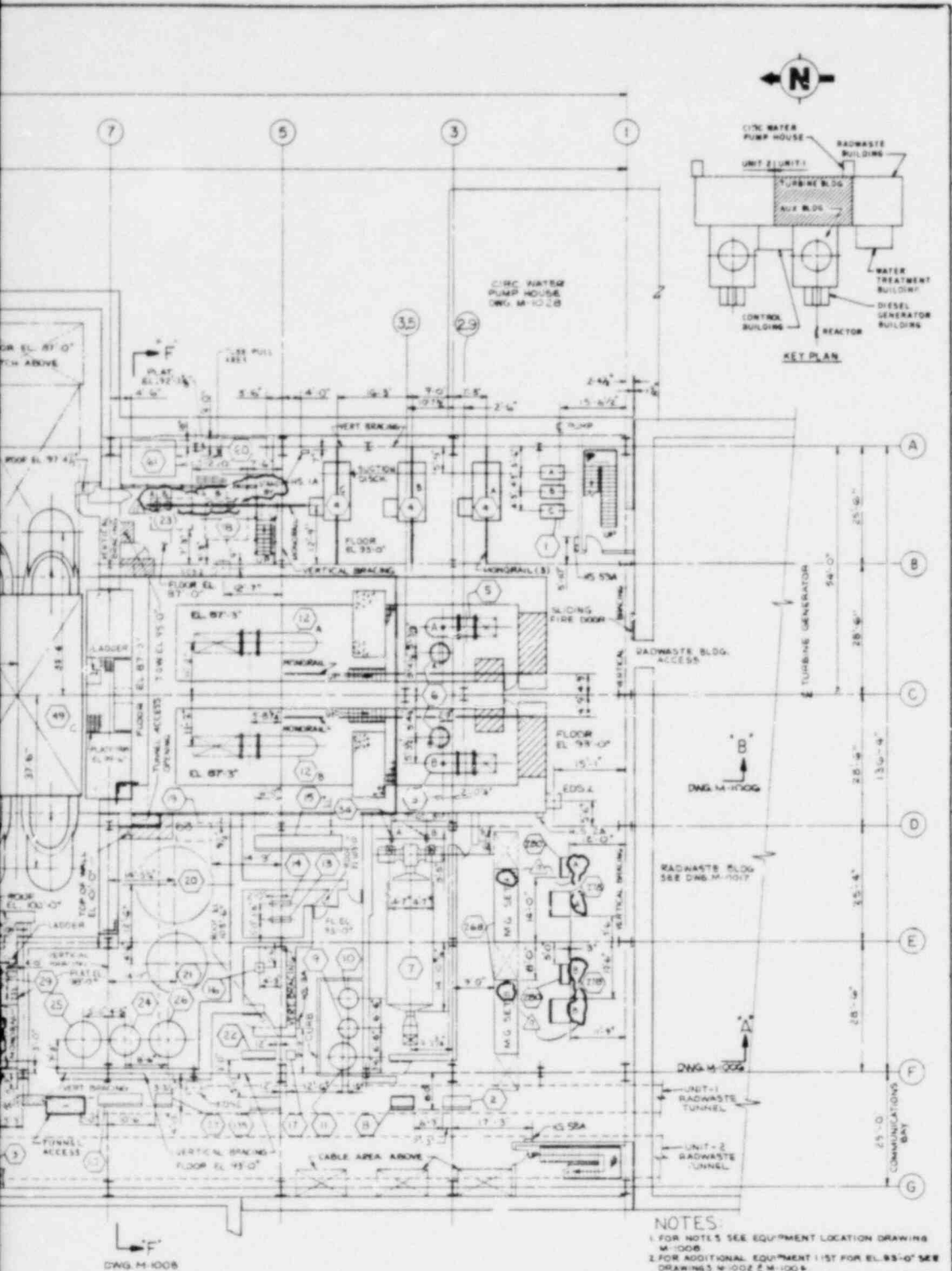
EQUIPMENT LOCATION  
 WATER TREATMENT BUILDING  
 SECTIONS "A-A," "B-B," "C-C"  
 UNITS 1 & 2

FIGURE 9A-38b



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NO.	DESCRIPTION	QUANTITY	UNIT	DESCRIPTION	QUANTITY	UNIT	DESCRIPTION
1	HEAVY STEAM CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
2	STEAM HEATING CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
3	STEAM HEATING CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
4	STEAM HEATING CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
5	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
6	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
7	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
8	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
9	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
10	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
11	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
12	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
13	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
14	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
15	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
16	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
17	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
18	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
19	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP
20	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP	1	NO.	CONDENSATE PUMP



- NOTES:**
1. FOR NOTES SEE EQUIPMENT LOCATION DRAWING M-1008
  2. FOR ADDITIONAL EQUIPMENT LIST FOR EL. 93'-0" SEE DRAWINGS M-1002 & M-1004
  3. ALL INSTRUMENT RACKS INDICATED ON THIS DWG ARE SHOP FABRICATED. FOR ADDITIONAL INSTR RACKS SEE DWG J 1501
  4. FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES AND DRAE. 3 SEE DRAWINGS E-1020 AND E-1041 THRU E 1045
  5. FOR EQUIPMENT REMOVAL ACCESS OF THE TURBINE BLDG. SEE DRAWINGS M-1004 THRU M-1007 AND M-1011

ITEM NO.	DESCRIPTION	EQUIPMENT NO.
15	FAN COIL UNIT	91141009
16	FAN COIL UNIT	91141010
17	FAN COIL UNIT	91141011
18	FAN COIL UNIT	91141012
19	FAN COIL UNIT	91141013
20	FAN COIL UNIT	91141014
21	FAN COIL UNIT	91141015
22	FAN COIL UNIT	91141016
23	3000 AMPER HOUR BATTERY BANK	91271001
24	POWER DISTRIBUTION RACK	91271002
25	SAMPLE PUMP	91271003
26	ELECTRIC CABLES & TUBING	91271004
27	REACTOR COOLANT & TOW AIRS	91271005
28	SAMPLE DISTRIBUTION	91271006
29	REACTOR COOLANT & TOW AIRS	91271007
30	INSTRUMENT PANEL	91271008
31	PORT ACCESS SAMPLE IN BATTERY BANK	91271009
32	REACTOR COOLANT & TOW AIRS	91271010
33	REACTOR COOLANT & TOW AIRS	91271011
34	REACTOR COOLANT & TOW AIRS	91271012
35	REACTOR COOLANT & TOW AIRS	91271013
36	REACTOR COOLANT & TOW AIRS	91271014
37	REACTOR COOLANT & TOW AIRS	91271015
38	REACTOR COOLANT & TOW AIRS	91271016
39	REACTOR COOLANT & TOW AIRS	91271017
40	REACTOR COOLANT & TOW AIRS	91271018
41	REACTOR COOLANT & TOW AIRS	91271019
42	REACTOR COOLANT & TOW AIRS	91271020
43	REACTOR COOLANT & TOW AIRS	91271021
44	REACTOR COOLANT & TOW AIRS	91271022
45	REACTOR COOLANT & TOW AIRS	91271023
46	REACTOR COOLANT & TOW AIRS	91271024
47	REACTOR COOLANT & TOW AIRS	91271025
48	REACTOR COOLANT & TOW AIRS	91271026
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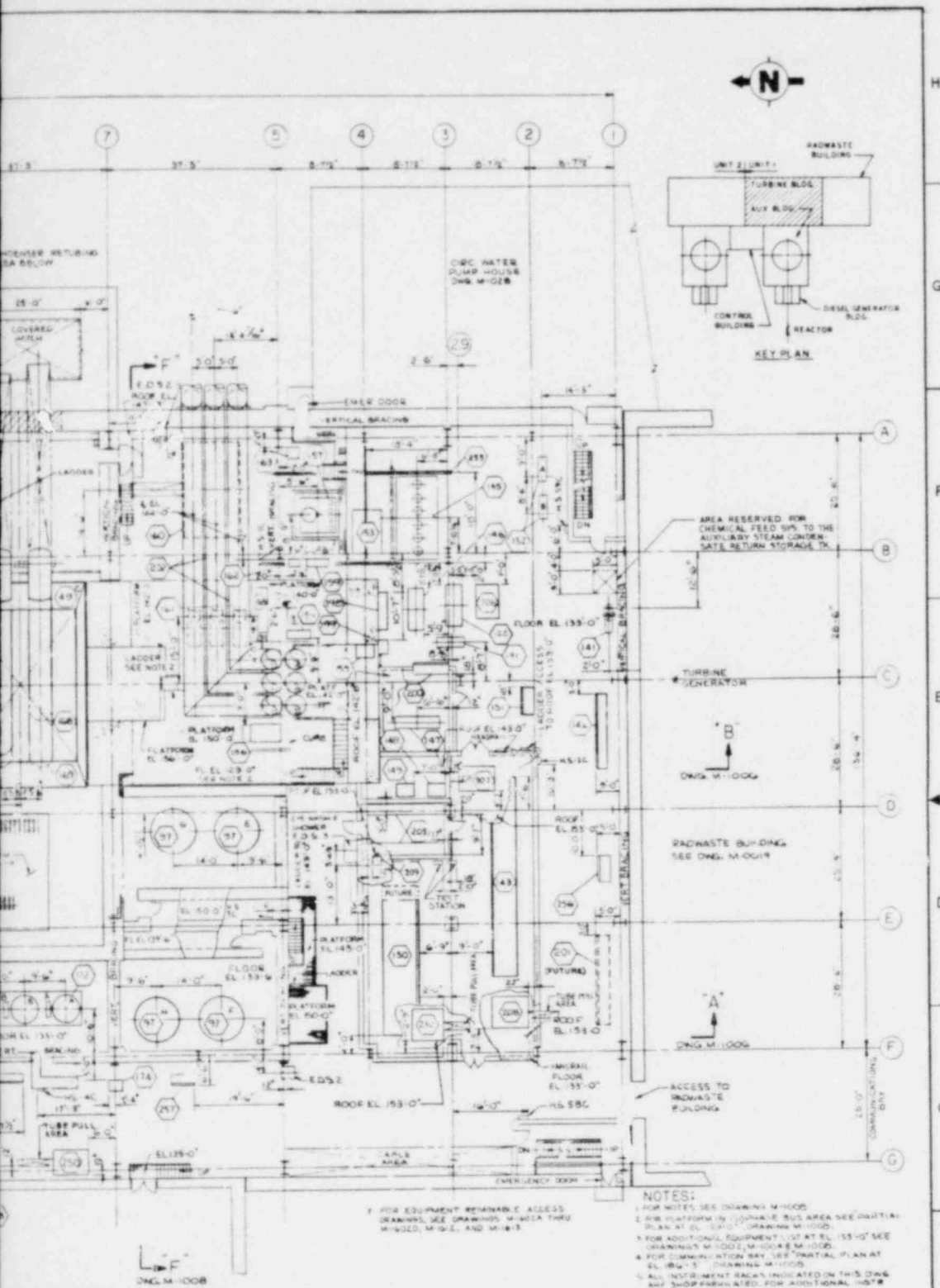
**MISSISSIPPI POWER & LIGHT COMPANY**  
**GRAND GULF NUCLEAR STATION**  
**UNITS 1 & 2**  
**FINAL SAFETY ANALYSIS REPORT**

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**EQUIPMENT LOCATION**  
**TURBINE BUILDING PLAN AT EL. 93'-0"**  
**UNIT 1**

**FIGURE 9A-40**





- NOTES:**
- 1 FOR NOTES SEE DRAWING M-1005
  - 2 FOR PLATFORM IN (3) SQUARE BUS AREA SEE PARTIAL PLAN AT EL. 137'-0" DRAWING M-1005
  - 3 FOR ADDITIONAL EQUIPMENT LIST AT EL. 155'-0" SEE DRAWINGS M-1002, M-1004 & M-1005
  - 4 FOR COMMUNICATION CAB SEE PARTIAL PLAN AT EL. 150'-3" DRAWING M-1005
  - 5 ALL INSTRUMENT RACKS INDICATED ON THIS DWG ARE SUSPENDED FOR ADDITIONAL HOIST RACKS SEE DRAWING J-1503
  - 6 FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES AND PANELS SEE DRAWING E-1622, E-1653 THRU E-1656 AND E-1657

DESCRIPTION	EQUIPMENT NO.
FAN 001-001	011-001-1
FAN 001-002	011-001-2
FAN 001-003	011-001-3
EXHAUST FAN	011-001-4
FAN 001-005	011-001-5
STYRENE FIBER COVER FRAME	011-001-6
MULTILAMINAR COVER PANEL	011-001-7
COVER 1000 VOLTS 30 AMP - 100' S.A.K.	011-001-8
MULTILAMINAR COVER PANEL	011-001-9
MULTILAMINAR COVER PANEL	011-001-10
MULTILAMINAR COVER PANEL	011-001-11
MULTILAMINAR COVER PANEL	011-001-12
MULTILAMINAR COVER PANEL	011-001-13
MULTILAMINAR COVER PANEL	011-001-14
MULTILAMINAR COVER PANEL	011-001-15
MULTILAMINAR COVER PANEL	011-001-16
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MULTILAMINAR COVER PANEL	011-001-100

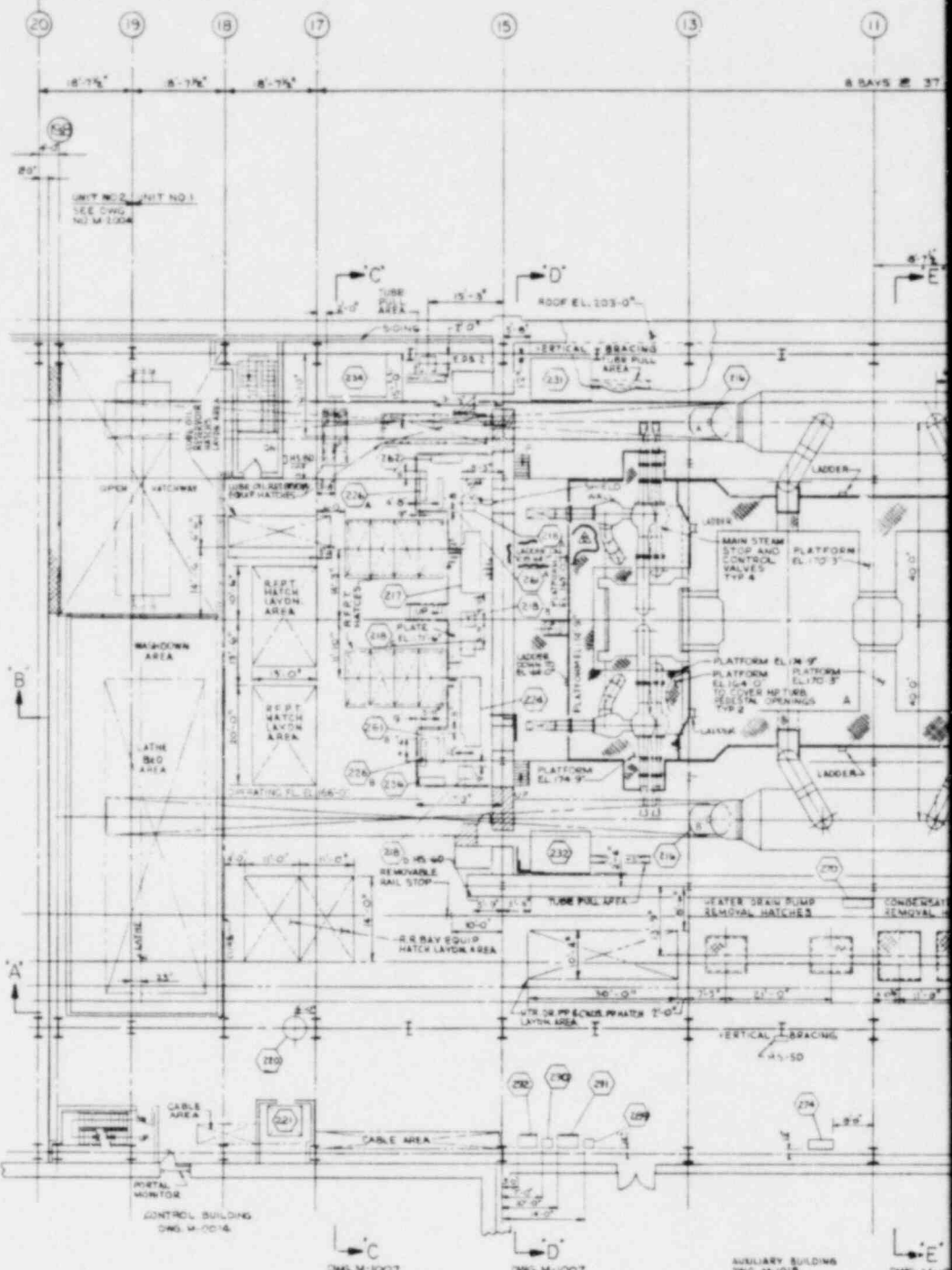
**MISSISSIPPI POWER & LIGHT COMPANY**  
**GRAND GULF NUCLEAR STATION**  
**UNITS 1 & 2**  
**FINAL SAFETY ANALYSIS REPORT**

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**EQUIPMENT LOCATION**  
**TURBINE BUILDING PLAN AT EL. 113'-0"**  
**UNIT 1**

**FIGURE 9A-42**



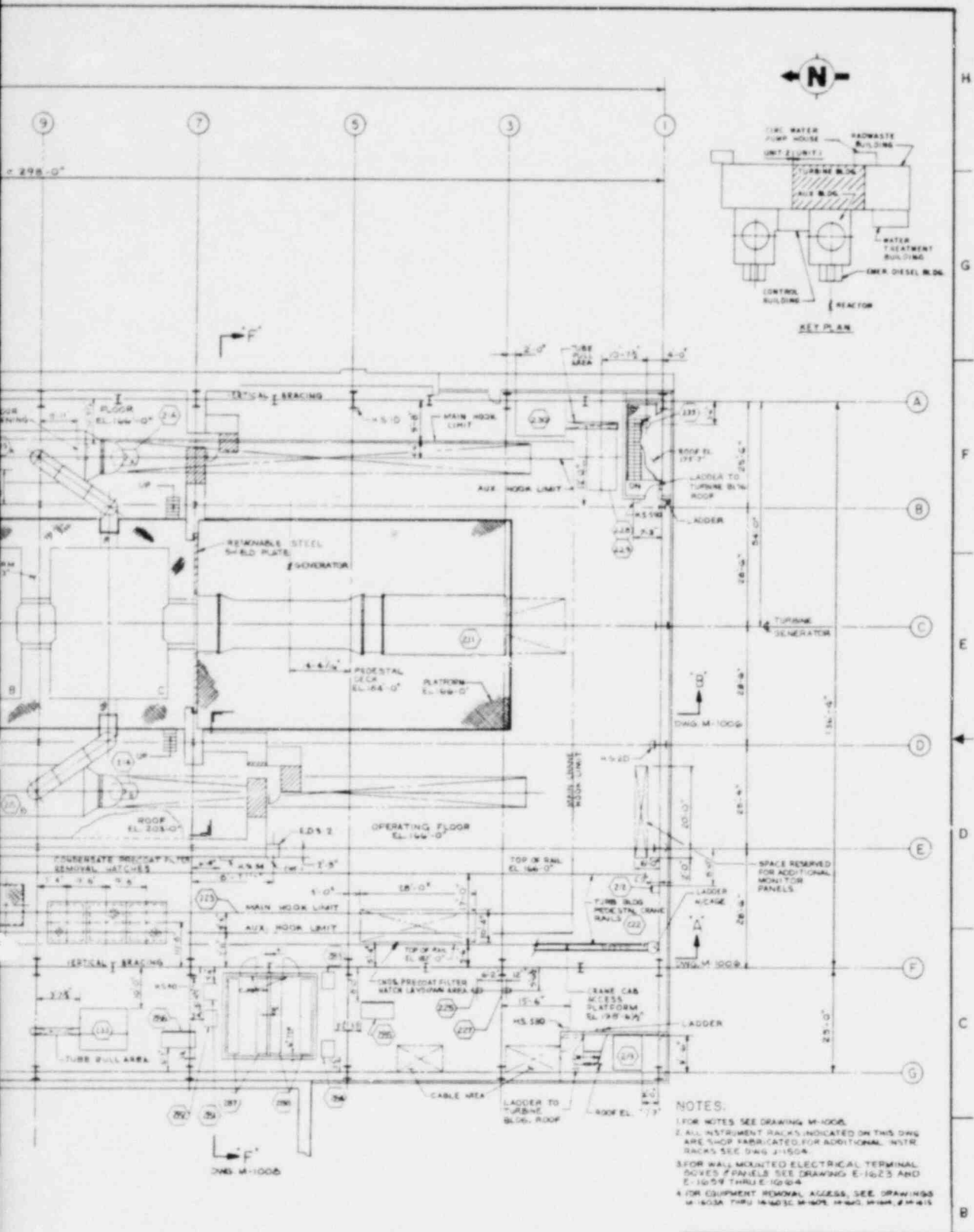


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### EQUIPMENT LIST

ITEM NO.	DESCRIPTION	EQUIPMENT NO.	ITEM NO.	DESCRIPTION	EQUIPMENT NO.
211	WATER		227	FAR CELL UNIT	R1048000-W
212	CONTROL BUILDING		228	FAR CELL UNIT	R1048000-W
213	UNIT NO. 2 UNIT NO. 1		229	FAR CELL UNIT	R1048000-W
214	SEE DWG NO M-1004		230	FAR CELL UNIT	R1048000-W
215	WASHDOWN AREA		231	FAR CELL UNIT	R1048000-W
216	WATER AREA		232	FAR CELL UNIT	R1048000-W
217	REPT HATCH LAYON AREA		233	FAR CELL UNIT	R1048000-W
218	REPT HATCH LAYON AREA		234	FAR CELL UNIT	R1048000-W
219	REPT HATCH LAYON AREA		235	FAR CELL UNIT	R1048000-W
220	REPT HATCH LAYON AREA		236	FAR CELL UNIT	R1048000-W
221	REPT HATCH LAYON AREA		237	FAR CELL UNIT	R1048000-W
222	REPT HATCH LAYON AREA		238	FAR CELL UNIT	R1048000-W
223	REPT HATCH LAYON AREA		239	FAR CELL UNIT	R1048000-W
224	REPT HATCH LAYON AREA		240	FAR CELL UNIT	R1048000-W
225	REPT HATCH LAYON AREA		241	FAR CELL UNIT	R1048000-W
226	REPT HATCH LAYON AREA		242	FAR CELL UNIT	R1048000-W
227	REPT HATCH LAYON AREA		243	FAR CELL UNIT	R1048000-W
228	REPT HATCH LAYON AREA		244	FAR CELL UNIT	R1048000-W
229	REPT HATCH LAYON AREA		245	FAR CELL UNIT	R1048000-W
230	REPT HATCH LAYON AREA		246	FAR CELL UNIT	R1048000-W
231	REPT HATCH LAYON AREA		247	FAR CELL UNIT	R1048000-W
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233	REPT HATCH LAYON AREA		249	FAR CELL UNIT	R1048000-W
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236	REPT HATCH LAYON AREA		252	FAR CELL UNIT	R1048000-W
237	REPT HATCH LAYON AREA		253	FAR CELL UNIT	R1048000-W
238	REPT HATCH LAYON AREA		254	FAR CELL UNIT	R1048000-W
239	REPT HATCH LAYON AREA		255	FAR CELL UNIT	R1048000-W
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244	REPT HATCH LAYON AREA		260	FAR CELL UNIT	R1048000-W
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276	REPT HATCH LAYON AREA		292	FAR CELL UNIT	R1048000-W
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285	REPT HATCH LAYON AREA		301	FAR CELL UNIT	R1048000-W
286	REPT HATCH LAYON AREA		302	FAR CELL UNIT	R1048000-W
287	REPT HATCH LAYON AREA		303	FAR CELL UNIT	R1048000-W
288	REPT HATCH LAYON AREA		304	FAR CELL UNIT	R1048000-W
289	REPT HATCH LAYON AREA		305	FAR CELL UNIT	R1048000-W
290	REPT HATCH LAYON AREA		306	FAR CELL UNIT	R1048000-W
291	REPT HATCH LAYON AREA		307	FAR CELL UNIT	R1048000-W
292	REPT HATCH LAYON AREA		308	FAR CELL UNIT	R1048000-W
293	REPT HATCH LAYON AREA		309	FAR CELL UNIT	R1048000-W
294	REPT HATCH LAYON AREA		310	FAR CELL UNIT	R1048000-W
295	REPT HATCH LAYON AREA		311	FAR CELL UNIT	R1048000-W
296	REPT HATCH LAYON AREA		312	FAR CELL UNIT	R1048000-W
297	REPT HATCH LAYON AREA		313	FAR CELL UNIT	R1048000-W
298	REPT HATCH LAYON AREA		314	FAR CELL UNIT	R1048000-W
299	REPT HATCH LAYON AREA		315	FAR CELL UNIT	R1048000-W
300	REPT HATCH LAYON AREA		316	FAR CELL UNIT	R1048000-W
301	REPT HATCH LAYON AREA		317	FAR CELL UNIT	R1048000-W
302	REPT HATCH LAYON AREA		318	FAR CELL UNIT	R1048000-W
303	REPT HATCH LAYON AREA		319	FAR CELL UNIT	R1048000-W
304	REPT HATCH LAYON AREA		320	FAR CELL UNIT	R1048000-W





- NOTES:
1. FOR NOTES, SEE DRAWING M-1006.
  2. ALL INSTRUMENT RACKS INDICATED ON THIS DWG ARE SHOP FABRICATED. FOR ADDITIONAL INSTR RACKS SEE DWG J-1504.
  3. FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES/PANELS SEE DRAWINGS E-16-23 AND E-16-24 THRU E-16-24.
  4. FOR EQUIPMENT REMOVAL ACCESS, SEE DRAWINGS M-1003A THRU M-1003C, M-1006, M-1007, M-1008, M-1009.

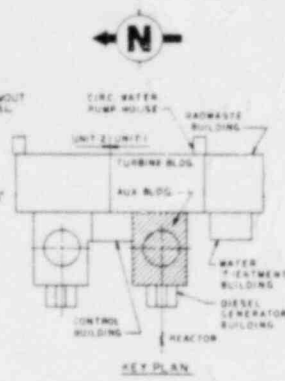
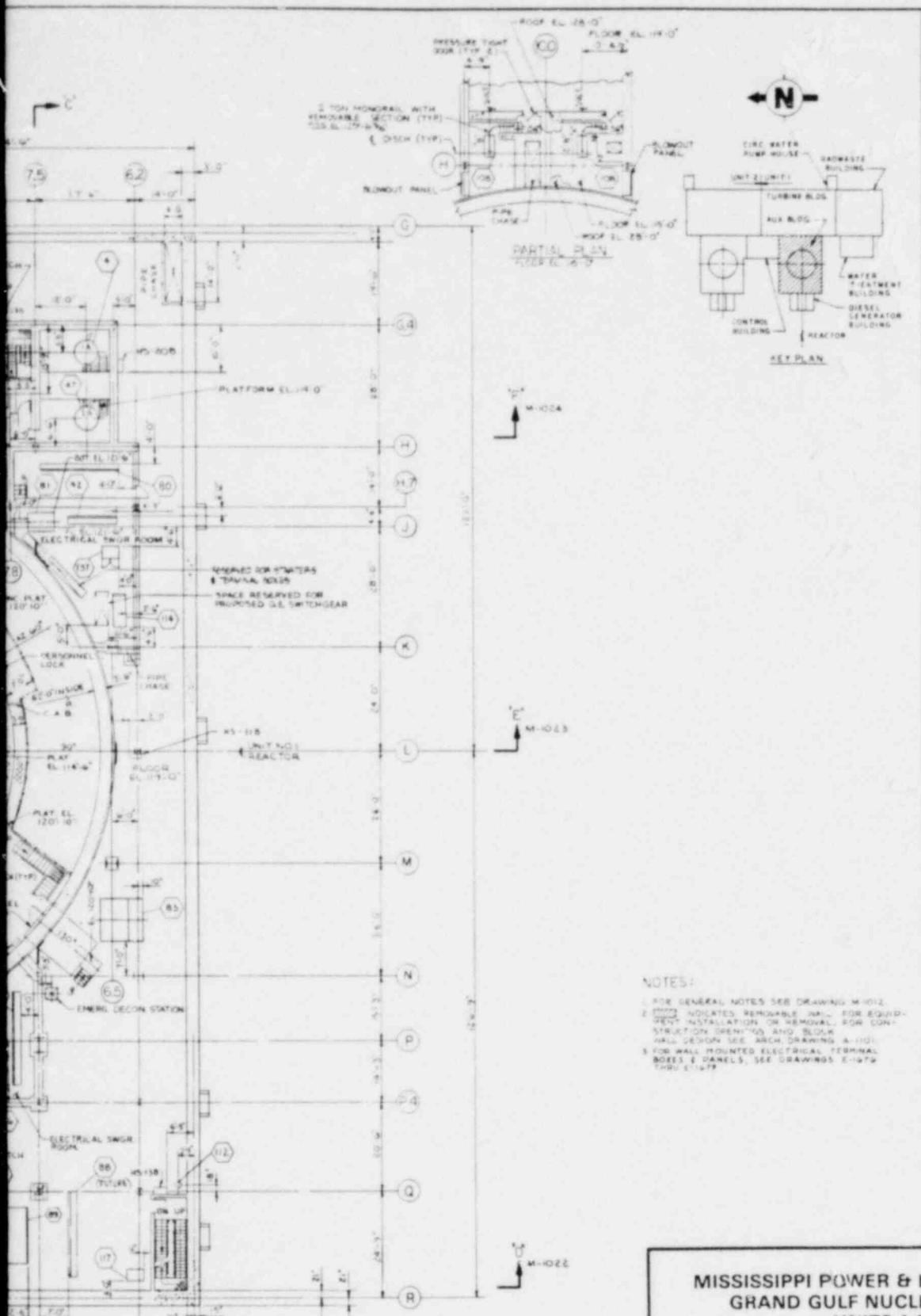
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**GRAND GULF NUCLEAR STATION**  
**UNITS 1 & 2**  
**FINAL SAFETY ANALYSIS REPORT**

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**EQUIPMENT LOCATION**  
**TURBINE BUILDING PLAN AT EL. 166'-0"**  
**UNIT 1**

**FIGURE 9A-43**





NOTES:  
 1. FOR GENERAL NOTES SEE DRAWING M-1012.  
 2. DASH INDICATES REMOVABLE WALL FOR EQUIPMENT INSTALLATION OR REMOVAL FOR CONSTRUCTION DRENCHING AND BLOCK WALL DESIGN SEE ARCH. DRAWING A-1101.  
 3. FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES & PANELS, SEE DRAWINGS E-1474 THROUGH E-1477.

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EQUIPMENT LOCATION  
 AUXILIARY BUILDING & CONTAINMENT  
 PLAN AT EL. 119'-0", 120'-10" & 114'-6"  
 UNIT 1

FIGURE 9A-45

EQUIPMENT LIST

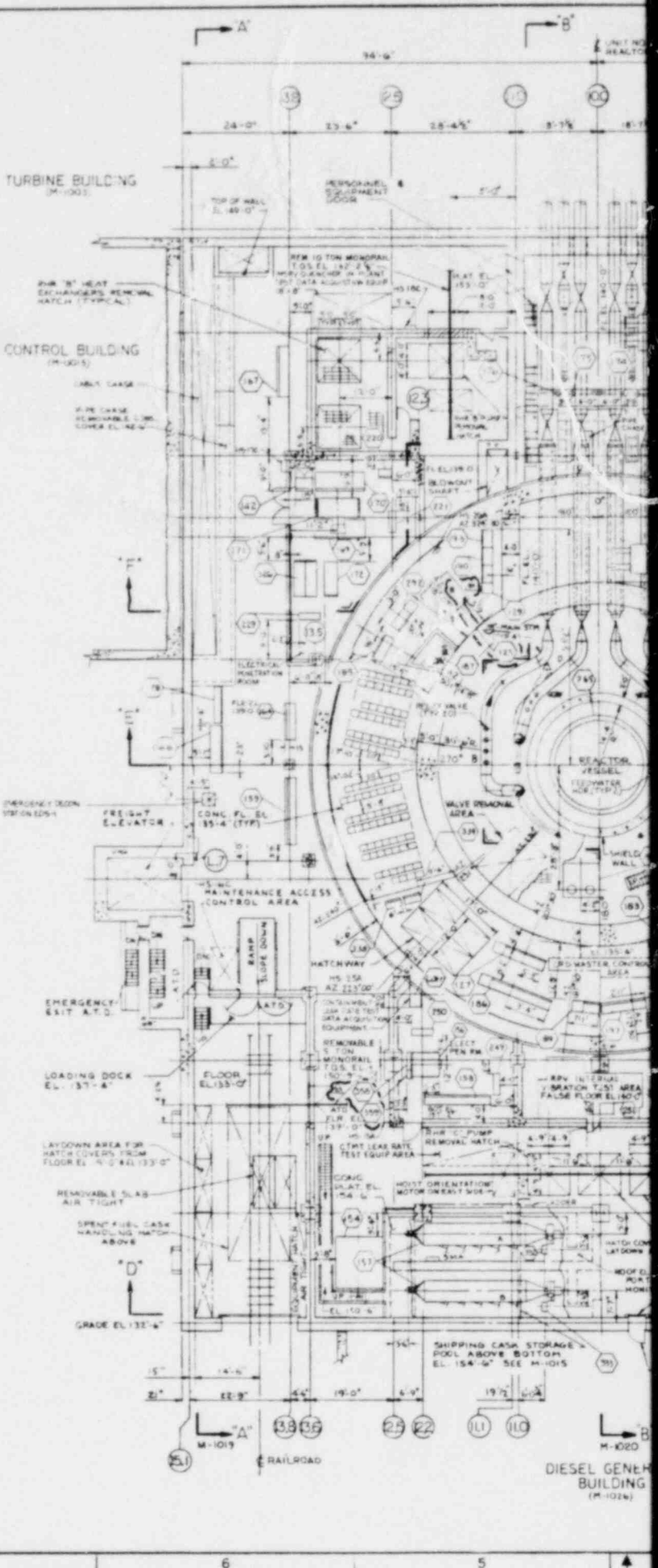
REACTOR BUILDING EQUIPMENT

ITEM NO.	DESCRIPTION	EQUIPMENT NO.
101	WATER TOWER	41000000 0
102	10" PUMP	4122 10170
103	10" PUMP	41000000 0
104	10" PUMP	41000000 0
105	10" PUMP	41000000 0
106	10" PUMP	41000000 0
107	10" PUMP	41000000 0
108	10" PUMP	41000000 0
109	10" PUMP	41000000 0
110	10" PUMP	41000000 0
111	10" PUMP	41000000 0
112	10" PUMP	41000000 0
113	10" PUMP	41000000 0
114	10" PUMP	41000000 0
115	10" PUMP	41000000 0
116	10" PUMP	41000000 0
117	10" PUMP	41000000 0
118	10" PUMP	41000000 0
119	10" PUMP	41000000 0
120	10" PUMP	41000000 0
121	10" PUMP	41000000 0
122	10" PUMP	41000000 0
123	10" PUMP	41000000 0
124	10" PUMP	41000000 0
125	10" PUMP	41000000 0
126	10" PUMP	41000000 0
127	10" PUMP	41000000 0
128	10" PUMP	41000000 0
129	10" PUMP	41000000 0
130	10" PUMP	41000000 0
131	10" PUMP	41000000 0
132	10" PUMP	41000000 0
133	10" PUMP	41000000 0
134	10" PUMP	41000000 0
135	10" PUMP	41000000 0
136	10" PUMP	41000000 0
137	10" PUMP	41000000 0
138	10" PUMP	41000000 0
139	10" PUMP	41000000 0
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142	10" PUMP	41000000 0
143	10" PUMP	41000000 0
144	10" PUMP	41000000 0
145	10" PUMP	41000000 0
146	10" PUMP	41000000 0
147	10" PUMP	41000000 0
148	10" PUMP	41000000 0
149	10" PUMP	41000000 0
150	10" PUMP	41000000 0
151	10" PUMP	41000000 0
152	10" PUMP	41000000 0
153	10" PUMP	41000000 0
154	10" PUMP	41000000 0
155	10" PUMP	41000000 0
156	10" PUMP	41000000 0
157	10" PUMP	41000000 0
158	10" PUMP	41000000 0
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160	10" PUMP	41000000 0
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162	10" PUMP	41000000 0
163	10" PUMP	41000000 0
164	10" PUMP	41000000 0
165	10" PUMP	41000000 0
166	10" PUMP	41000000 0
167	10" PUMP	41000000 0
168	10" PUMP	41000000 0
169	10" PUMP	41000000 0
170	10" PUMP	41000000 0
171	10" PUMP	41000000 0
172	10" PUMP	41000000 0
173	10" PUMP	41000000 0
174	10" PUMP	41000000 0
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176	10" PUMP	41000000 0
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178	10" PUMP	41000000 0
179	10" PUMP	41000000 0
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181	10" PUMP	41000000 0
182	10" PUMP	41000000 0
183	10" PUMP	41000000 0
184	10" PUMP	41000000 0
185	10" PUMP	41000000 0
186	10" PUMP	41000000 0
187	10" PUMP	41000000 0
188	10" PUMP	41000000 0
189	10" PUMP	41000000 0
190	10" PUMP	41000000 0
191	10" PUMP	41000000 0
192	10" PUMP	41000000 0
193	10" PUMP	41000000 0
194	10" PUMP	41000000 0
195	10" PUMP	41000000 0
196	10" PUMP	41000000 0
197	10" PUMP	41000000 0
198	10" PUMP	41000000 0
199	10" PUMP	41000000 0
200	10" PUMP	41000000 0

ITEM NO.	DESCRIPTION	EQUIPMENT NO.
201	DRYWELL BACKUP EQUIPMENT	
202	REACTOR VESSEL	41000000 0
203	DRYWELL COOLER	41000000 0
204	DRYWELL COOLER INSTR. RACK	41000000 0
205	DRYWELL COOLER INSTR. RACK	41000000 0

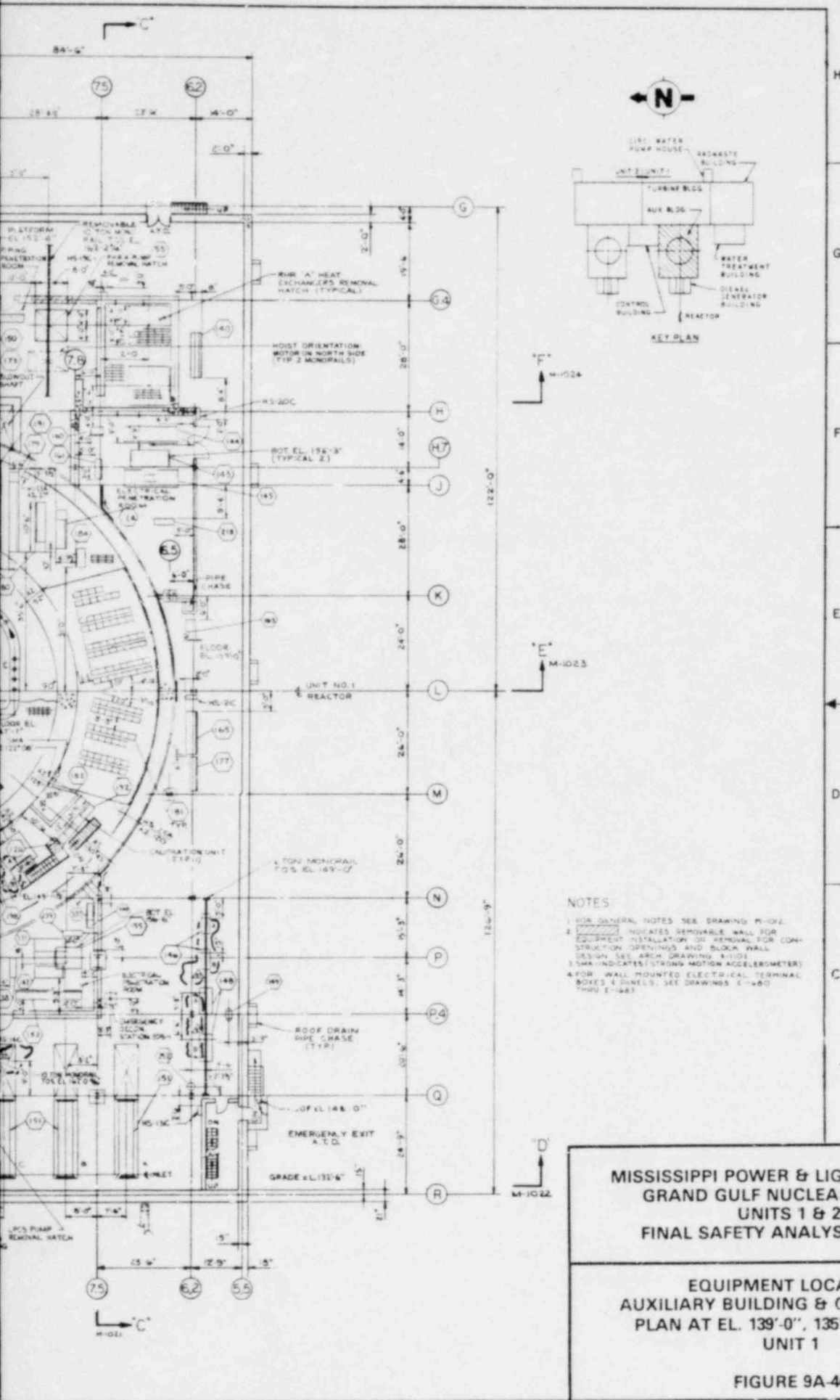
TURBINE BUILDING  
(M-1003)

CONTROL BUILDING  
(M-1005)



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DIESEL GENERATOR BUILDING  
(M-1020)



- NOTES**
1. FOR GENERAL NOTES SEE DRAWING M-1021.
  2. [Symbol] INDICATES REMOVABLE WALL FOR EQUIPMENT INSTALLATION OR REMOVAL FOR CONSTRUCTION OPENINGS AND BLOCK WALL DESIGN. SEE ARCH. DRAWING 8-1101.
  3. [Symbol] INDICATES STRONG MOTION ACCELEROMETER.
  4. FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES & PANELS, SEE DRAWINGS C-1480 THRU C-1483.

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**EQUIPMENT LOCATION**  
**AUXILIARY BUILDING & CONTAINMENT**  
**PLAN AT EL. 139'-0", 135'-4", & 147'-7"**  
**UNIT 1**

**FIGURE 9A-46**



EQUIPMENT LIST

MILITARY BLDG. MAJOR EQUIPMENT

ITEM NO.	DESCRIPTION	EQUIPMENT NO.
200	CONTAINMENT VENTILATION EXHAUST FANS	W144002A-N
201	MISC. CABINETS	Q142014201A
202	TOP FUEL TANK W/ COOLER (HOT EXHAUST) CARBONAL FILTER TRAIN	Q1448004A-A
203	WATER TANK	W144001
204	REC 1001	W144001-N
205	FPC & CD BACKWASH TRANSFER PUMP	W144002-N
206	FPC & CD BACKWASH RECEIVING TANK	W144001
207	WATER COMPRESSOR	W144001-A
208	WATER COMPRESSOR	W144001-A
209	CONTAINMENT PURGE COMPRESSOR	W144001-N
210	FPC & CD PUMPS	Q144001A-A-B
211	FPC & CD PUMP ROOM COOLER	W144001A
212	FPC & CD PUMP ROOM COOLER	Q144001A
213	REC 1002	W144001-B
214	REC 1003	W144001-C
215	REC 1004	W144001-D
216	REC 1005	W144001-E
217	CONTAINMENT VENTILATION SUPPLY FAN	W144001-N
218	CONTAINMENT VENTILATION SUPPLY FAN	W144001-N
219	SP. FUEL TANK W/ COOLER	Q144800A-B

MISC. EQUIPMENT

220	FUEL CONTROL PANEL	W144001
221	CONT. VENTILATION SUPPLY FAN	W144001-N
222	CONT. VENTILATION SUPPLY FAN	W144001-N
223	FUSION PRODUCTS MONITOR SAMPLE RACK	W144001-N
224	DRYELL N. ANALYZER SAMPLE RACK	W144001-N
225	DRYELL S. ANALYZER SAMPLE RACK	W144001-N
226	DRYELL W. ANALYZER SAMPLE RACK	W144001-N
227	DRYELL E. ANALYZER SAMPLE RACK	W144001-N
228	CONT. VENTILATION SUPPLY FAN	W144001-N
229	CONT. VENTILATION SUPPLY FAN	W144001-N
230	FUEL TANK PUMP PANEL	W144001
231	FUEL TANK PUMP PANEL	W144001

CONTAINMENT MAJOR EQUIPMENT

232	REC 1001	W144001-N
233	REC 1002	W144001-N
234	REC 1003	W144001-N
235	REC 1004	W144001-N
236	REC 1005	W144001-N
237	FPC & CD BACKWASH TRANSFER PUMP	W144002-N
238	TOP FUEL TANK W/ COOLER (HOT EXHAUST) CARBONAL FILTER TRAIN	Q1448004A-A
239	WATER TANK	W144001

MISC. EQUIPMENT

240	CONTAINMENT COOLER	W144001-N
241	CONTAINMENT COOLER	W144001-N
242	CONTAINMENT COOLER	W144001-N

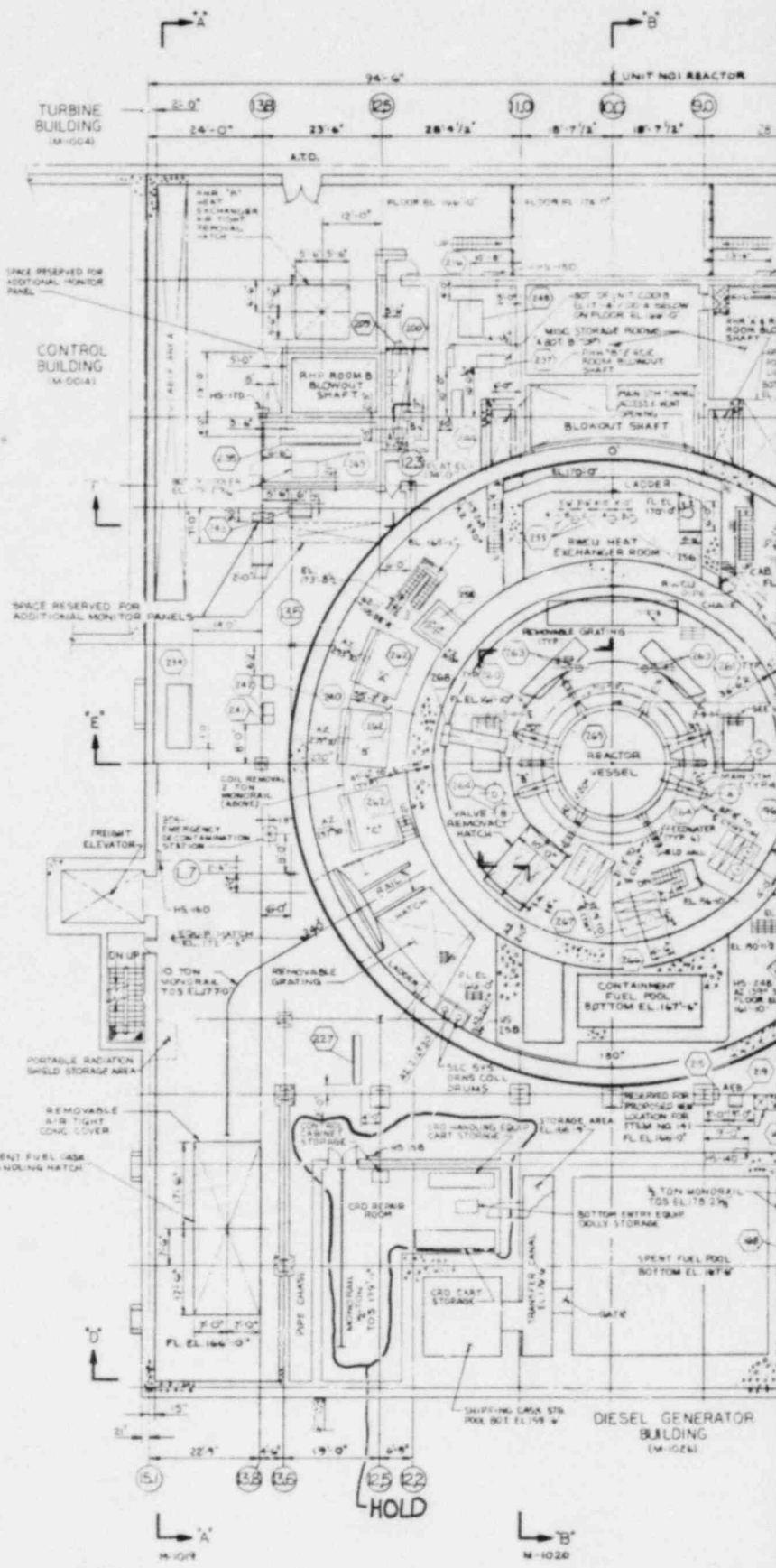
DRYELL MAJOR EQUIPMENT

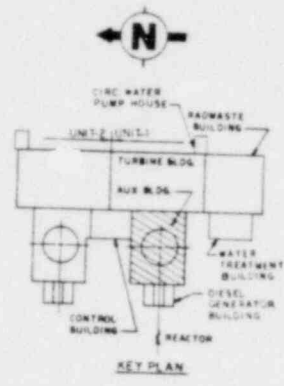
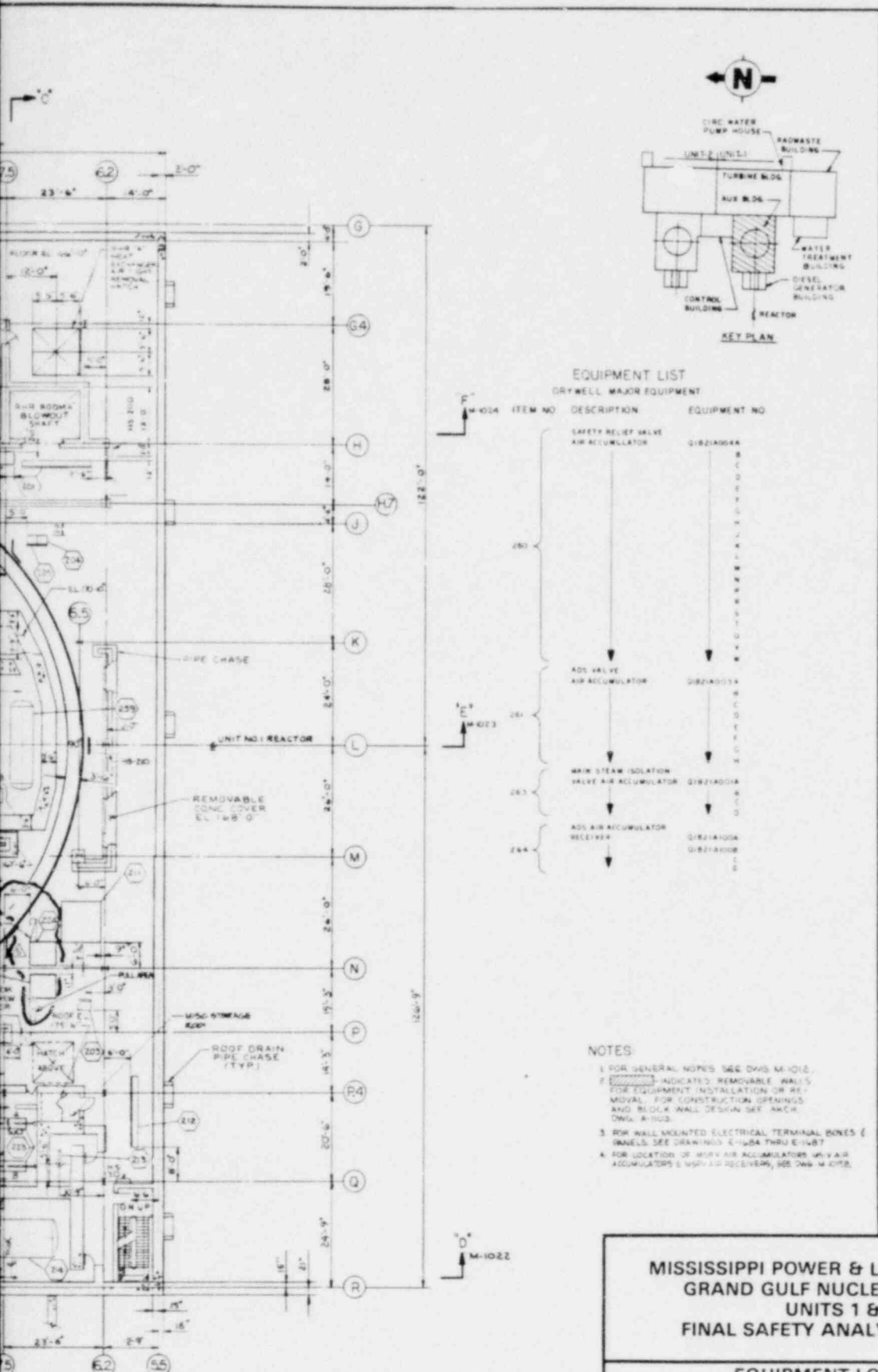
243	DRYELL ROOM	W144001
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MISC. EQUIPMENT

244	DRYELL COOLER	W144001-A-B
245	DRYELL COOLER	W144001-A-B
246	DRYELL COOLER	W144001-A-B
247	DRYELL VALVE HANDLING CRANE	Q144001-N

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**EQUIPMENT LIST**  
 DRYWELL MAJOR EQUIPMENT

ITEM NO.	DESCRIPTION	EQUIPMENT NO.
250	SAFETY RELIEF VALVE AIR ACCUMULATOR	Q1821A004 B C D E F G H I J K L M N P Q R
251	ADJ. VALVE AIR ACCUMULATOR	Q1821A014 B C D E F G H
253	MAIN STEAM ISOLATION VALVE AIR ACCUMULATOR	Q1821A01A B C D
254	ADJ. AIR ACCUMULATOR RECEIVER	Q1821A10A Q1821A10B C D

- NOTES:**
- FOR GENERAL NOTES SEE DWG. M-1012.
  - INDICATED REMOVABLE WALLS FOR EQUIPMENT INSTALLATION OR REMOVAL. FOR CONSTRUCTION OPENINGS AND BLOCK WALL DESIGN SEE ARCH. DWG. A-1103.
  - FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES (TMBs) SEE DRAWINGS E-1404 THRU E-1407.
  - FOR LOCATION OF MOVY AIR ACCUMULATORS AND AIR RECEIVERS, SEE DWG. M-1012.

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**UNITS 1 & 2**  
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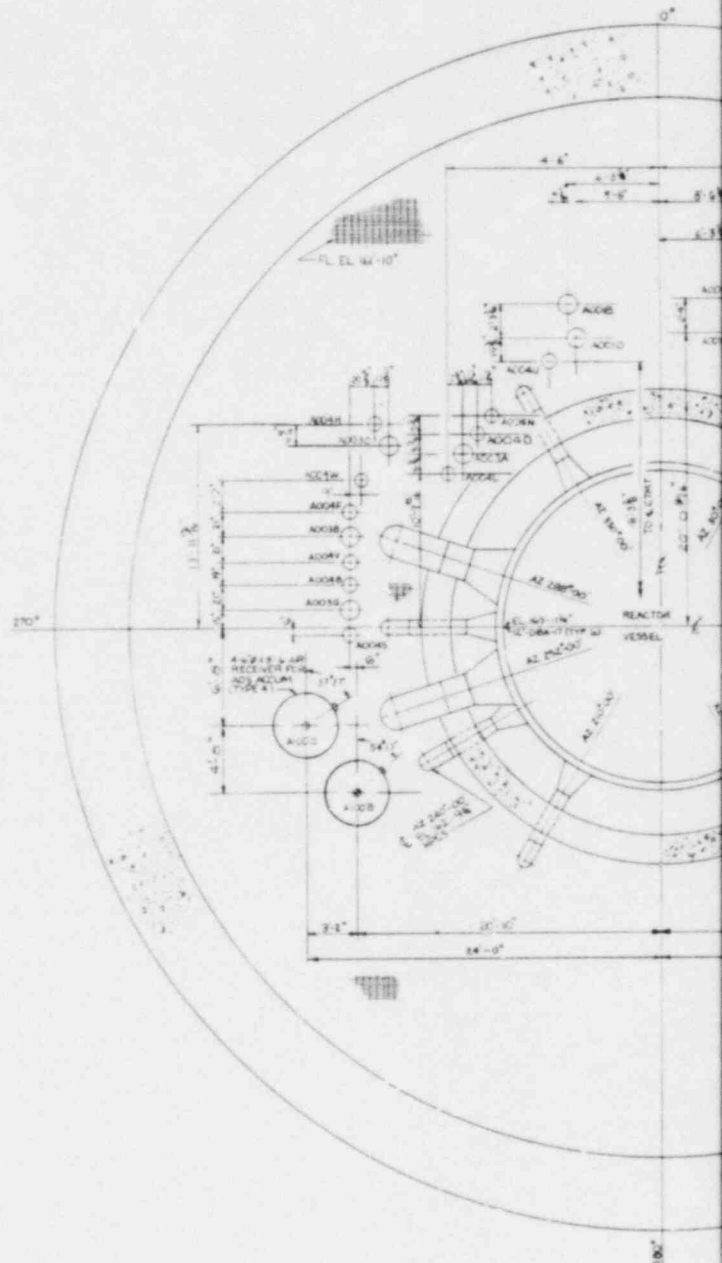
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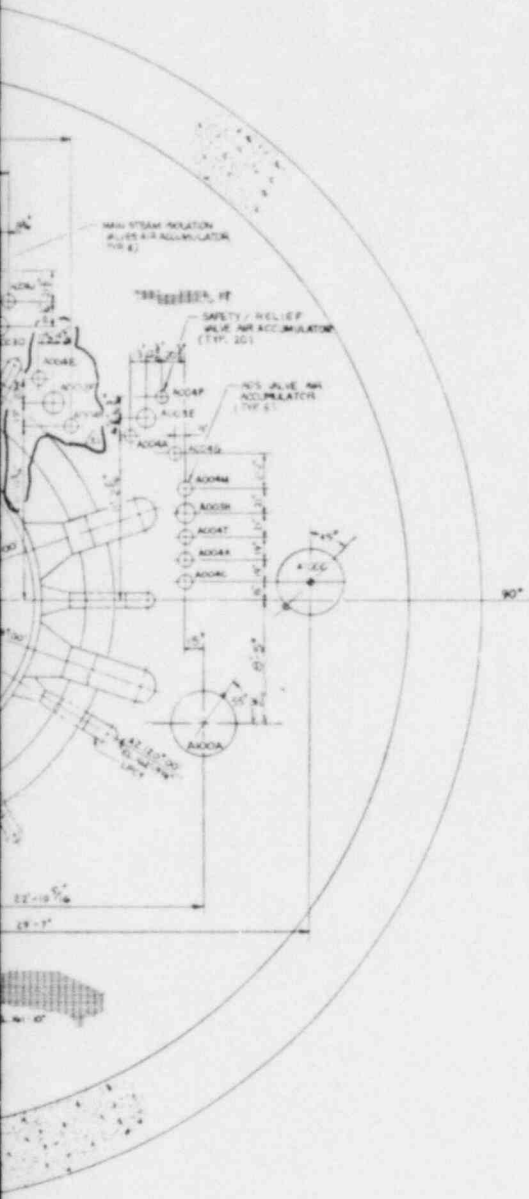
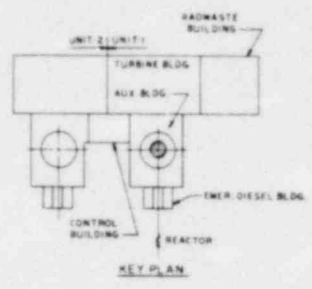
**EQUIPMENT LOCATION**  
**AUXILIARY BUILDING & CONTAINMENT**  
**PLAN AT EL. 161'-10" & 166'-0"**  
**UNIT 1**

**FIGURE 9A-47a**



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- NOTE:
1. FOR EQUIPMENT LIST SEE M-1015A
  2. ALL EQUIPMENT NOS ARE PRECEDED BY 20821
  3. NEEDLE ORIENTATION TO BE DETERMINED BY FIELD (SMALL PIPE GROUP)
  4. ELEVATION OF DISCHARGE NOZZLES WILL BE AS FOLLOWS:
    - A. 1 EL. 64'-5" ALL ACCUMULATORS EXCEPT A000A, A000E & A000F
    - B. 1 EL. 67'-4" ACCUMULATORS A000H, A000P
    - C. 1 EL. 65'-5" ACCUMULATOR A000K

H  
G  
F  
E  
D  
C

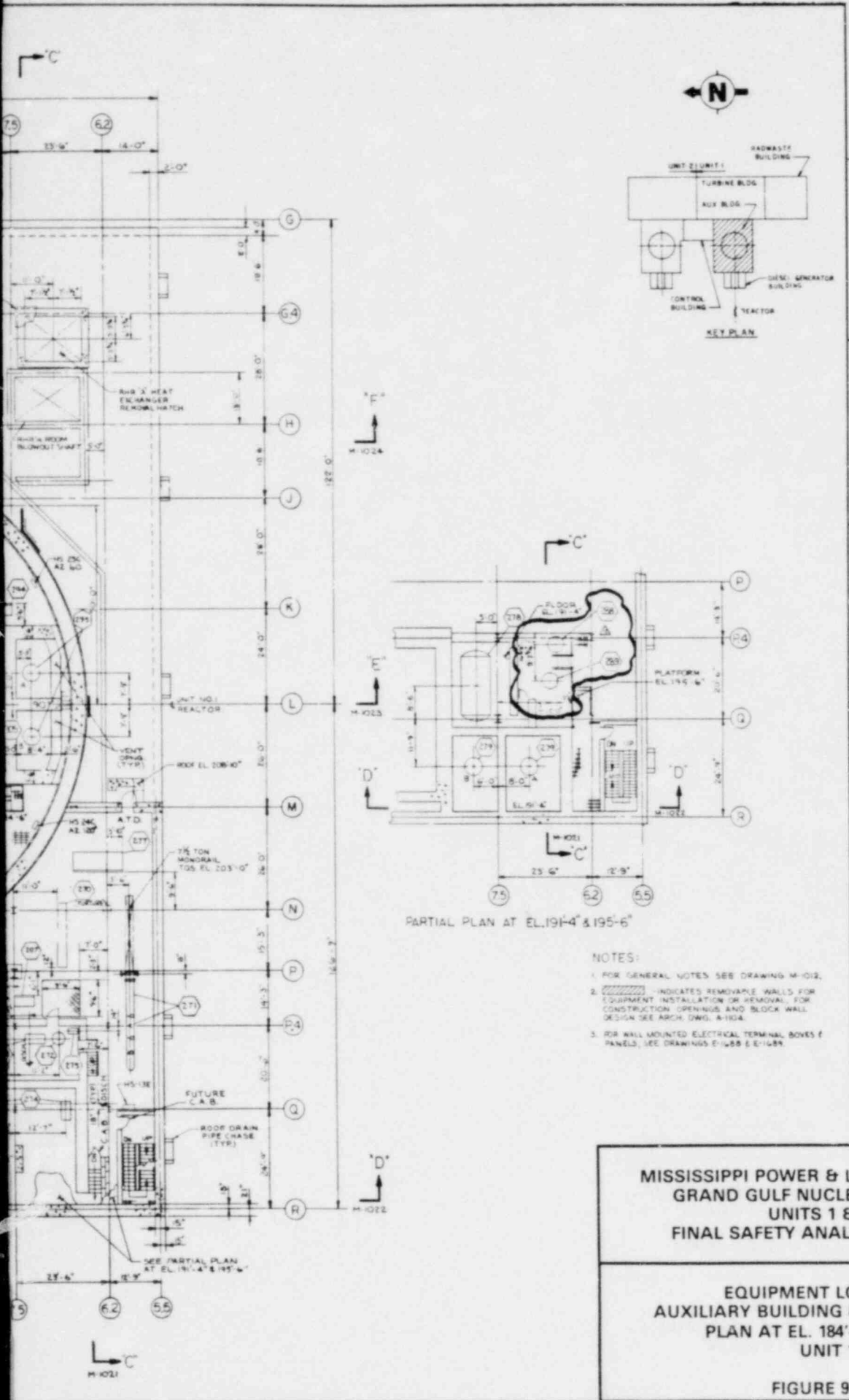
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 UNITS 1 & 2  
 FINAL SAFETY ANALYSIS REPORT

EQUIPMENT LOCATION  
 AUXILIARY BUILDING & CONTAINMENT  
 PLAN AT EL. 161'-0"  
 UNIT 1

FIGURE 9A-47b

4 | 3 | 2



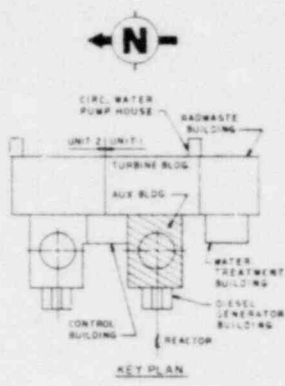
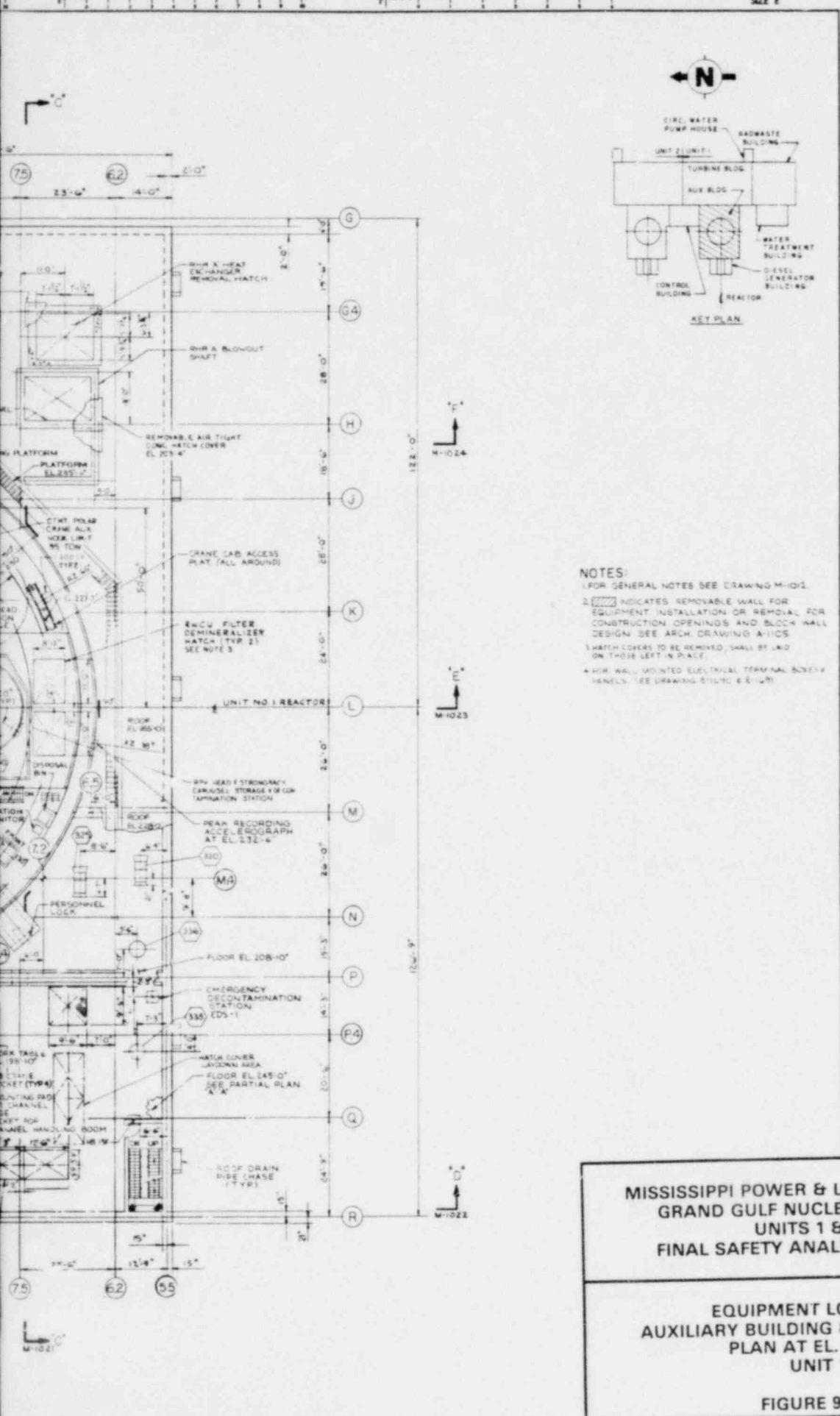


NOTES:

1. FOR GENERAL NOTES SEE DRAWING M-1012.
2. [Symbol: Dashed line] INDICATES REMOVABLE WALLS FOR EQUIPMENT INSTALLATION OR REMOVAL. FOR CONSTRUCTION OPENINGS AND BLOCK WALL DESIGN SEE ARCH. DWG. A-104.
3. FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES & PANELS, SEE DRAWINGS E-1458 & E-1459.

<p><b>MISSISSIPPI POWER &amp; LIGHT COMPANY</b>  <b>GRAND GULF NUCLEAR STATION</b>  <b>UNITS 1 &amp; 2</b>  <b>FINAL SAFETY ANALYSIS REPORT</b></p>
<p><b>EQUIPMENT LOCATION</b>  <b>AUXILIARY BUILDING &amp; CONTAINMENT</b>  <b>PLAN AT EL. 184'-6" &amp; 185'-0"</b>  <b>UNIT 1</b></p>
<p><b>FIGURE 9A-48</b></p>





- NOTES:**
1. FOR GENERAL NOTES SEE DRAWING M-1021.
  2. [Symbol] INDICATES REMOVABLE WALL FOR EQUIPMENT INSTALLATION OR REMOVAL FOR CONSTRUCTION OPENINGS AND BLOCK WALL DESIGN SEE ARCH. DRAWING A-1105.
  3. SWITCH COVERS TO BE REMOVED SHALL BE UNID. ON THOSE LEFT IN PLACE.
  4. 4" HIGH WALL MOUNTED ELECTRICAL TERMINAL BOXES & PANELS: SEE DRAWING 8-11-10 & 8-11-11.

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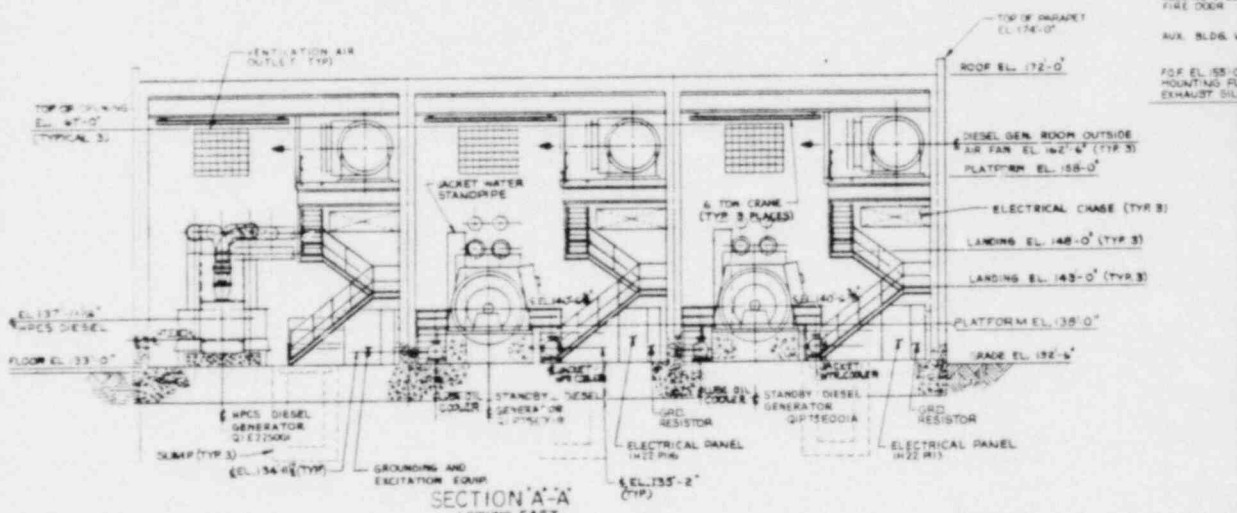
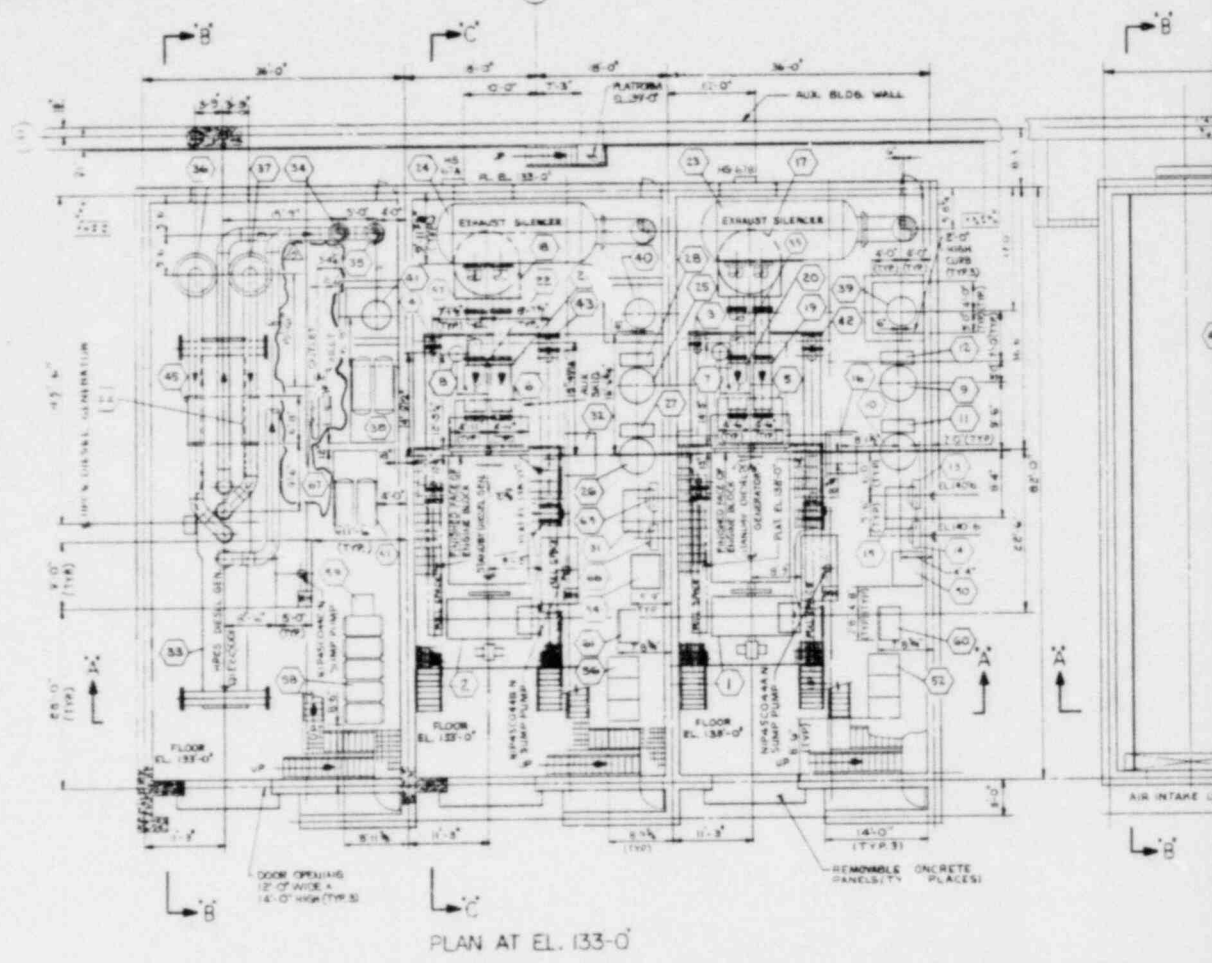
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**EQUIPMENT LOCATION  
 AUXILIARY BUILDING & CONTAINMENT  
 PLAN AT EL. 208'-10"**

**UNIT 1**

**FIGURE 9A-49**

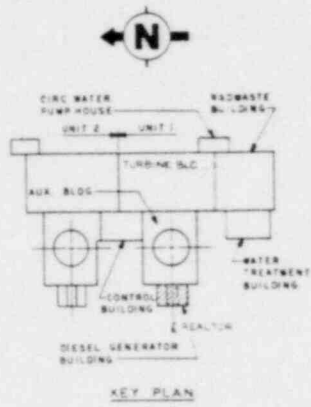
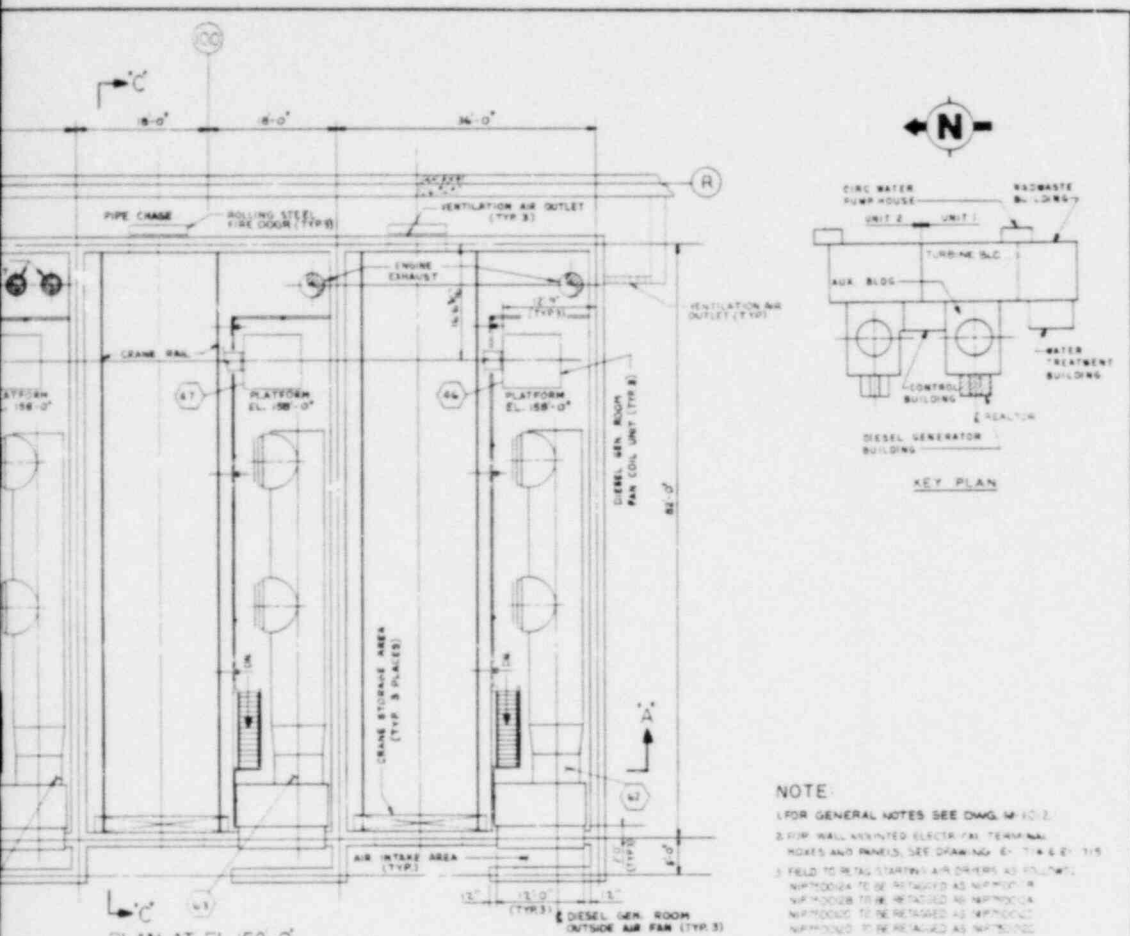




**EQUIPMENT LIST**  
DIESEL GEN. BLDG. MAJOREQUIP

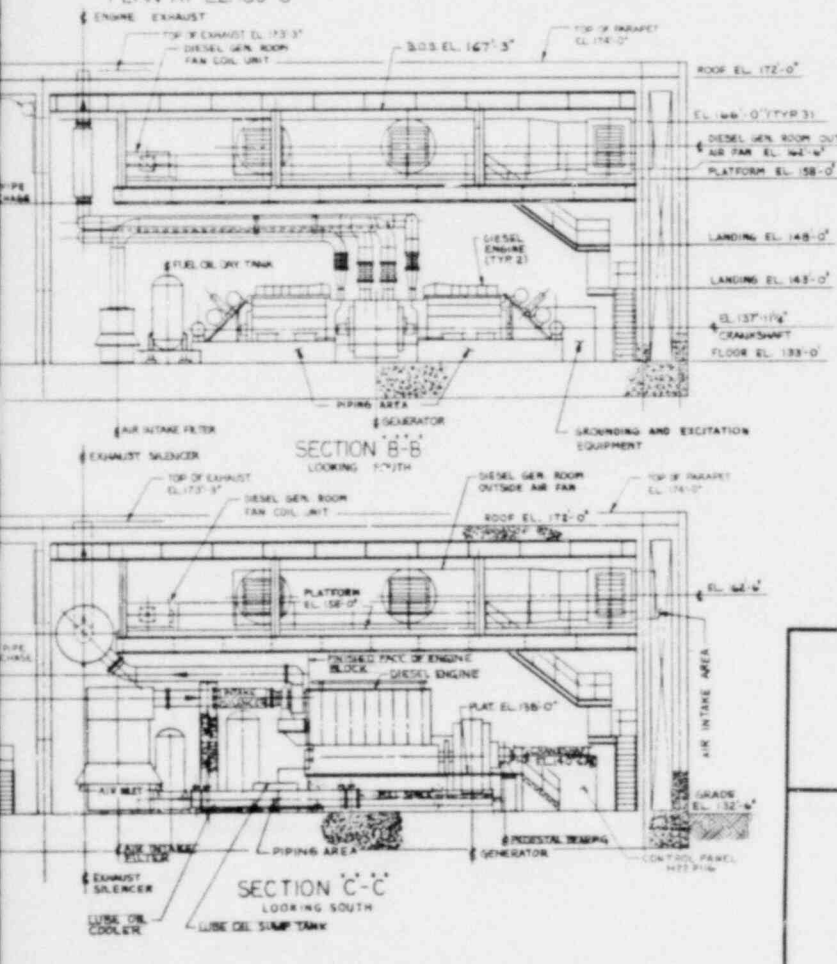
1	STANDBY DIESEL GENERATOR	Q175001A	26	STARTING AIR STORAGE TANK	Q175001D	51	AIR COMP SKID (ELC)	Q122500
2	STANDBY DIESEL GENERATOR	Q175001B	27	STARTING AIR DRYER	W175001E	52	RELAY PANEL	402P13
3	LAMP OIL COOLER	Q175001C	28	STARTING AIR DRYER	W175001F	53	CONTROL PANEL	402P14
4	LAMP OIL COOLER	Q175001D	29	STARTING AIR DRYER	W175001G	54	GRID RESISTOR	Q175001H
5	LAMP OIL PUMP TANK	Q175001E	30	STARTING AIR DRYER	W175001H	55	RELAY PANEL	402P15
6	LAMP OIL PUMP TANK	Q175001F	31	STARTING AIR COMPRESSOR	W175001I	56	RELAY PANEL	402P16
7	JACKET WATER STANDPIPE	Q175001G	32	STARTING AIR COMPRESSOR	W175001J	57	CONTROL PANEL	402P17
8	STARTING AIR STORAGE TANK	Q175001H	33	STARTING AIR COMPRESSOR	W175001K	58	CONTROL PANEL	402P18
9	STARTING AIR STORAGE TANK	Q175001I	34	EXHAUST SILENCER	Q122500	59	GEN. PROT. RELAY	402P19
10	STARTING AIR STORAGE TANK	Q175001J	35	EXHAUST SILENCER	Q122500	60	ELECT. PANEL	402P20
11	STARTING AIR DRYER	W175001A	36	AIR INTAKE FILTER	Q122500	61	ELECT. PANEL	402P21
12	STARTING AIR DRYER	W175001B	37	AIR INTAKE FILTER	Q122500	62	D.G. ROOM OUTSIDE AIR FAN	Q175001A
13	STARTING AIR COMPRESSOR	W175001C	38	AIR INTAKE FILTER	Q122500	63	D.G. ROOM OUTSIDE AIR FAN	Q175001B
14	STARTING AIR COMPRESSOR	W175001D	39	FUEL OIL DAY TANK	Q175001A	64	D.G. ROOM OUTSIDE AIR FAN	Q175001C
15	STARTING AIR COMPRESSOR	W175001E	40	FUEL OIL DAY TANK	Q175001B	65	STARTING AIR AFTER COOLER	W175001D
16	STARTING AIR COMPRESSOR	W175001F	41	FUEL OIL DAY TANK	Q175001C	66	STARTING AIR AFTER COOLER	W175001E
17	AIR INTAKE FILTER	W175001A	42	JACKET WATER COOLER	Q122500	67	STARTING AIR AFTER COOLER	W175001F
18	AIR INTAKE FILTER	W175001B	43	JACKET WATER COOLER	Q122500	68	STARTING AIR AFTER COOLER	W175001G
19	AIR INTAKE SILENCER	W175001A	44	AIR INTAKE SILENCER	Q122500	69	STARTING AIR AFTER COOLER	W175001H
20	AIR INTAKE SILENCER	W175001B	45	AIR INTAKE SILENCER	Q122500	70	STARTING AIR AFTER COOLER	W175001I
21	AIR INTAKE SILENCER	W175001C	46	AIR INTAKE SILENCER	Q122500	71	STARTING AIR AFTER COOLER	W175001J
22	AIR INTAKE SILENCER	W175001D	47	FAN COOL UNIT	W175001A	72	STARTING AIR AFTER COOLER	W175001K
23	EXHAUST SILENCER	W175001A	48	FAN COOL UNIT	W175001B	73	STARTING AIR AFTER COOLER	W175001L
24	EXHAUST SILENCER	W175001B	49	FAN COOL UNIT	W175001C	74	STARTING AIR AFTER COOLER	W175001M
25	STARTING AIR STORAGE TANK	Q175001C	50	GRID RESISTOR	W175001D	75	STARTING AIR AFTER COOLER	W175001N





**NOTE**

1. FOR GENERAL NOTES SEE DWG. M-10-2.
2. FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES AND PANELS, SEE DRAWING E-114 & E-115.
3. FIELD TO RETAG STARTING AIR DRIVERS AS FOLLOWS:  
 WHITEWOOD TO BE RETAGGED AS WHITEWOOD  
 WHITEWOOD TO BE RETAGGED AS WHITEWOOD  
 WHITEWOOD TO BE RETAGGED AS WHITEWOOD  
 WHITEWOOD TO BE RETAGGED AS WHITEWOOD



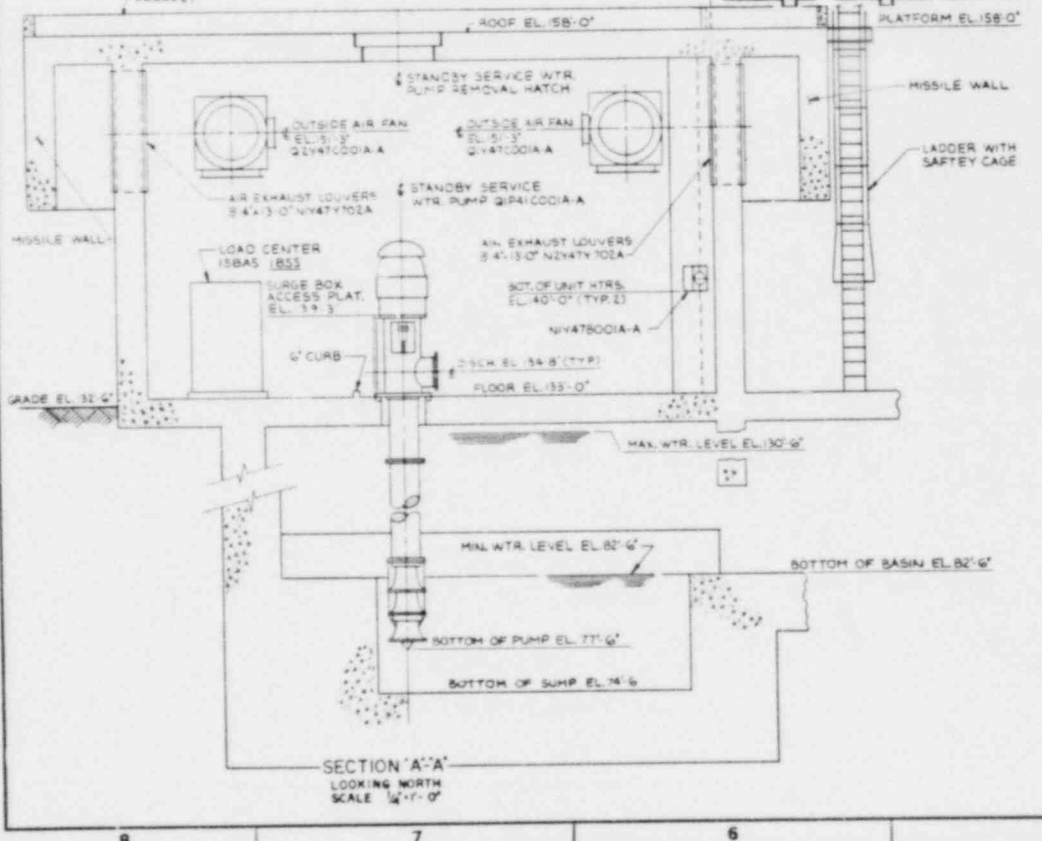
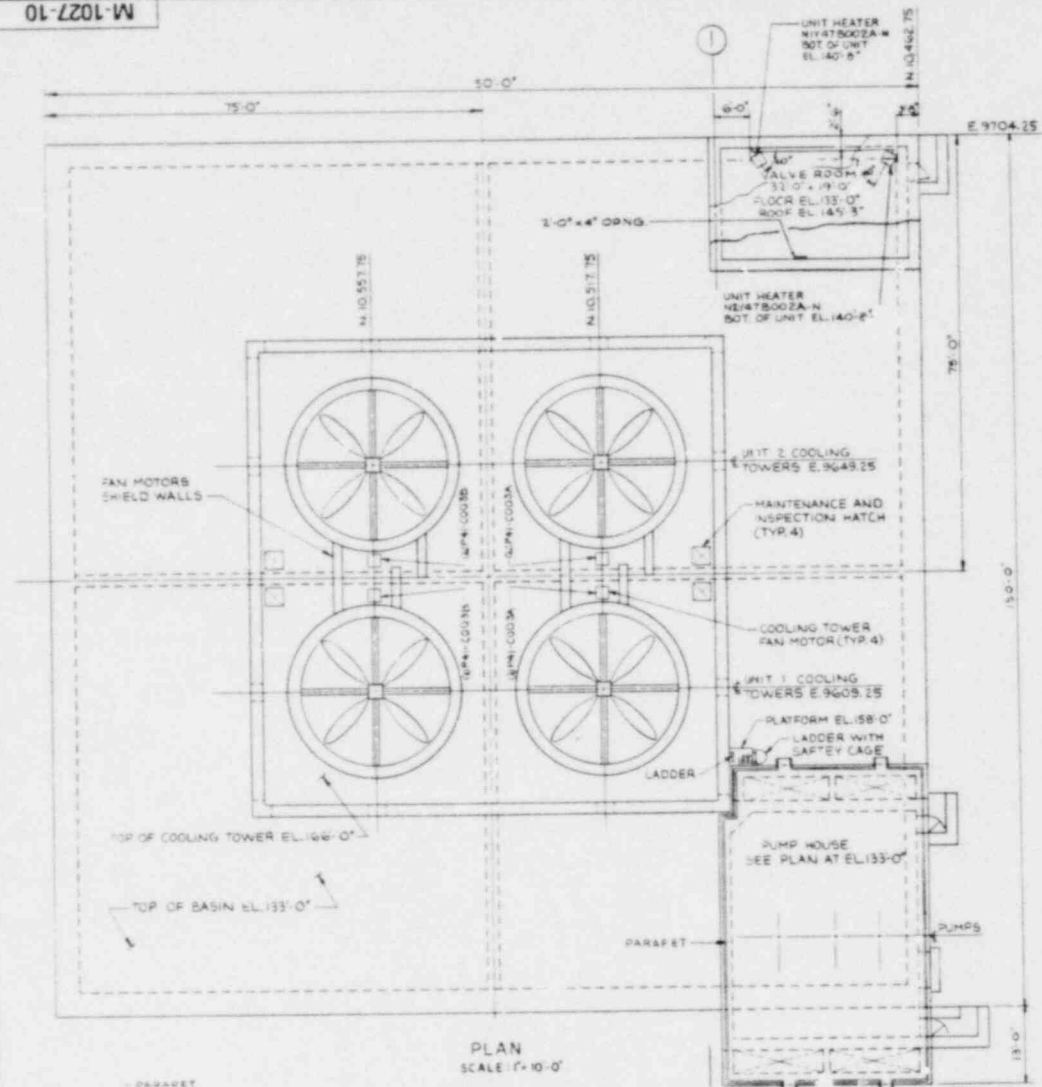
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 GRAND GULF NUCLEAR STATION  
 UNITS 1 & 2  
 FINAL SAFETY ANALYSIS REPORT

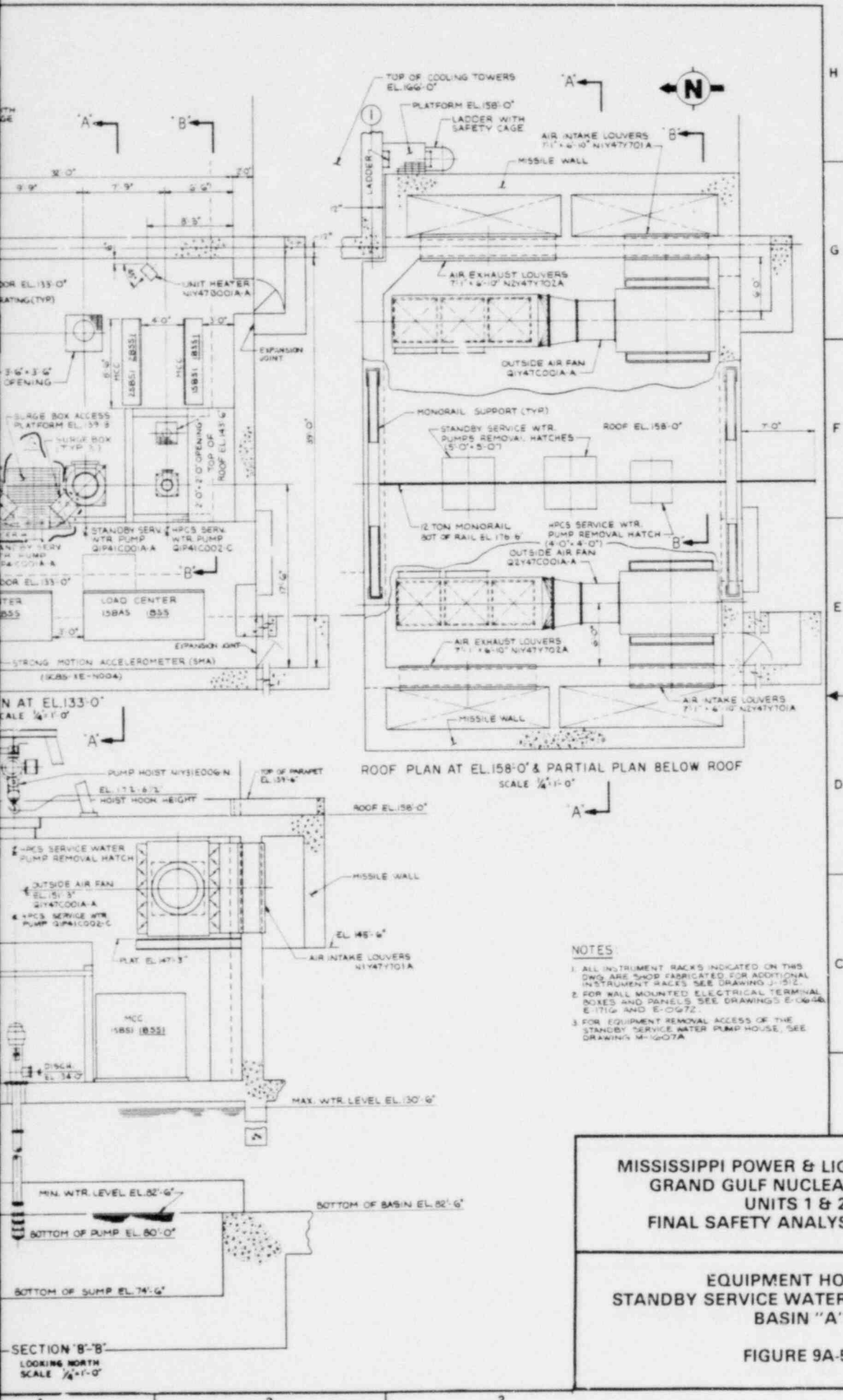
EQUIPMENT LOCATION  
 DIESEL GENERATOR BUILDING  
 UNIT 1

FIGURE 9A-50

01-ZZ01-W

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ROOF PLAN AT EL.158'-0" & PARTIAL PLAN BELOW ROOF  
SCALE 1/4"=1'-0"

- NOTES:
1. ALL INSTRUMENT RACKS INDICATED ON THIS DWG ARE SHOP FABRICATED FOR ADDITIONAL INSTRUMENT RACKS SEE DRAWING J-512.
  2. FOR WALL MOUNTED ELECTRICAL TERMINAL BOXES AND PANELS SEE DRAWINGS E-1716 AND E-0672.
  3. FOR EQUIPMENT REMOVAL ACCESS OF THE STANDBY SERVICE WATER PUMP HOUSE, SEE DRAWING M-1607A.

MISSISSIPPI POWER & LIGHT COMPANY  
 GRAND GULF NUCLEAR STATION  
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EQUIPMENT HOUSE  
 STANDBY SERVICE WATER PUMP HOUSE  
 BASIN "A"

FIGURE 9A-51