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Robert L. Mittl General Manager Nuclear Assurance and Regulation

September 13, 1984

Director of Nuclear Reactor Regulation U.S. Nuclear Regulatory Commission 7920 Norfolk Avenue Bethesda, MD 20814

Attention: Mr. Albert Schwencer, Chief Licensing Branch 2 Division of Licensing

Gentlemen:

HOPE CREEK GENERATING STATION DOCKET NO. 50-354 FIRE PROTECTION

Enclosed for your review is revised FSAR Appendix 9A and FSAR Table 9A-1 and Tables 9A-11 through 9A-252 for the HCGS.

These revisions will be incorporated into FSAR Amendment 8. Should you have any questions in this regard, please contact us.

Very truly yours,

95.4912 (4M) 7.83

Attachment: HCGS FSAR Appendix 9A, Table 9A-1, Tables 9A-11 through 9A-252

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PDR

C D. W. Wagner USNRC Licensing Project Manager

W. H. Bateman USNRC Senior Resident Inspector

The Energy People

INSERT attached pages 1 through # 33 HCGS FSAR

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RHR) is used to fill up the reactor until the steam lines are flooded. With one or more SRVs open, water flows out the relief valve and back to the suppression pool. RHR suppression pool cooling mode cools the suppression pool as before. This mode is only used when a fire adversely affects the RHR shutdown cooling mode from both divisions.

## 9A.6.0 EXEMPTION REQUESTS

Per the provisions of 10 CFR 50, Appendix R and Generic Letter 81-12, HCGS requests exemption from the requirements of Appendix R, Section III.G for the following fire areas: reactor building; lower control equipment room area, encompassing the following fire zones, 5302, 5303 and 5316; main control room area, encompassing the following fire zones, 5502 through 5514, 5520, 5521, 5522, 5523 and 5525; upper control equipment room area, fire zone 5605; HVAC equipment room area, fire zone 5620; HVAC equipment room area, fire zone 5704; and the intake structure area. An exemption from Section III.G.2 requirements is requested for reactor building area, HVAC area 5704, and the intake structure area. An exemption from Section III.G.3 requirements is requested for: main control room area, upper and lower control equipment room areas, and HVAC equipment room areas 5620 and 5704. The exemption request is based on specific fire hazard analysis and effects on safe shutdown discussed below. The reactor building would be segmented into smaller fire areas which separate redundant safe shutdown divisions were it not for the specific deviations discussed below concerning the fire zone boundaries. Refer to the Fire Hazard Analysis Tabulation sheets of specific fire zones for additional information.

## 9A.6.1 Non-U.L. Rated Pressure Tight Doors and Panels in 3-Hour Fire Barriers

9A.6.1.a The doors in the following 3-hour fire barriers are pressure tight doors not qualified as 3-hour fire barriers by UL: Between HPCI room 4111 and RCIC room 4110; between SACS room 4309 and SACS room 4307; between the auxiliary building cable tray room 3314 and the reactor building MCC room 4310; between core spray room 4118 and 4101; between CRD room 4328 and the equipment airlock; the torus compartment doors zone 4102; and the main steam tunne? room 4316.

These doors have been fabricated in accordance with Underwriters Laboratories (UL) approved procedures for 3-hour-fire-rated doors. Certificates from the manufacturer are on file that

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verify the construction of the doors. They are not labeled because modifications necessary to satisfy pressure loadings are not incorporated into UL procedures. Pressure tight doors are required for overriding safety considerations to assure proper building venting following a high pressure pipe rupture or to contain flooding following a pipe break. Ionization detectors, water hose and portable extinguishers are provided in rooms adjacent to these doors.

Figure 9A-18 shows the outline of the pressure tight door used on HCGS. They are similar to doors accepted by the NRC staff as providing an equivalent level of fire protection to labeled fire doors. The equivalent fire loading in all areas adjacent to the PT doors is less than 30 minutes, except for 34 minutes in the auxiliary building cable tray room (3314). This latter room, however, is separated from the reactor building by two pressure tight doors in series, with an airlock betweep. See the appropriate fire drawings, Figure 9.5-3, or equipment location drawings, Figure 1.2-18.

9A.6.1.b The equipment access panels in the 3-hour fire barrier between SACS rooms 4309 and 4307 is a pressure tight panel and is not qualified as a 3-hour fire barrier by UL. The panel is fabricated out of heavy gage steel. The outline of the panel is shown on Figure 9A-17. Adjacent to the panel, on both sides, are areas of greater than 20 feet of clear space without combustibles. The panel is  $10' \times 22'$ , and does not extent up to the ceiling. The 6 feet between the top of the panel and the ceiling is a reinforced concrete 3-hour-rated fire barrier. This 6-foot section is a hot gas barrier and retards the effects of the fire from affecting the redundant division. Fire loading on either side of the barrier is low; 16 minutes and 8 minutes in 4309 and 4307, respectively. The pressure tight (leak tight) panel is required for overriding safety considerations of flood protection. Ionization type detectors, water hose and portable extinguishers cover both areas.

The combination of clear space, gas trap, low fire loading, detection and fire brigade action assures that one train of equipment necessary to achieve hot shutdown will be free from damage. May additional modifications to upgrade the access panel would not enhance fire protection safety above that provided by the existing configuration.

# 9A.6.2 Alternate Shutdown Without Fixed Suppression

9A 6.2.a Auxiliary building control equipment room 5302 contains both divisions of control panels and cable. Figure 9A-19 shows the equipment layout of this room. Alternative shutdown capability via the remote shutdown panel is provided for a fire in this zone. The RSP controls can achieve and maintaip hot and subsequent cold shutdown independently from the fire or effects of the fixe in zone 5302.

Fire zone 5302 could contain a maximum of 31,368 Abs of cable insulation for a total burning time of 21 minutes. There are no power cables in this zone. The cables are fire retardant qualified per IENE-383. Zone 5302 in combination with the corridor 5303 define a fire area surrounded by 3-hour fire barriers (walls, cailing, floor, openings, etc). Both ionization and photoelectric detection are provided for this area. This room is accessible for manual firefighting; the cable trays are above the rows of panels. Suppression can be by water hose, CO<sub>2</sub> hose and/or portable extinguishers. Addition of a fixed suppression system covering the cable tray areas can be detrimental to the solid state logic and may compound a safe shutdown from the main control room (requiring use of the RSP) and therefore result in a decrease in plant safety.

The alternate shutdown capability provides assurance that one train of equipment necessary to achieve hot and subsequent cold shutdown is free of fire damage. The concentration of cable provides only 21 minutes of burning time in an area surrounded by 3 hour fire barriers. Therefore, the addition of a fixed fire suppression system required by I/I.G.3 will not enhance fire protection safety above that provided by the existing configuration.

9A.6.2.b Auxiliary Building Main Control Room (MCR), fire zone 5509 and 5510, contain both safe shutdown divisions of panels, control cable and instrumentation cable. This area is continuously manned. The safe shutdown cable is not exposed, but is contained below the MCR panels. Transient combustibles are administratively controlled. Alternate shutdown capabilities are provided at the Remote Shutdown Panel. The RSP controls can achieve and maintain hot and subsequent cold shutdown independently from a postulated fire or effects of a fire in the MCR (5510). The MCR is defined by 1-hour and 3-hour fire barrier walks and 3-hour fire barrier floor and ceiling. The in situ combustibles are limited to paper and similar transient materials.

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The equivalent burn time is less than 1 minute. The MCR has ionization detection. Detectors are also located in the main console and vertical boards 10C650, 10C651, respectively. Suppression can be handled by portable extinguishers, water hose and/or CO2 hose.

The alternate shutdown capability provides assurance that one train of equipment necessary to achieve hot and subsequent cold shutdown is free of fire damage. There is not a large quanity of combustibles and the area is continually staffed. Therefore, the addition of a fixed fire suppression system required by III.G.3 will not enhance fire protection safety above that provided by the existing configuration.

9A.6.2.c Auxiliary Building Diesel Area, elevation 163'-6", fire zone 5605, is a 1E panel room which contains logic cabinets for the main control room. Figure 9A-20 shows the equipment layout of this room. Both divisions of redundant logic and instrumentation are in panels therein. The panels have less than 20 feet of separation between redundant divisions. All cable are bottom entry. There are no in situ or transient combustibles in this zone. Transient combustibles are administratively controlled.

Alternate shutdown capabilities are provided at the RSP. The RSP controls can achieve and maintain not and subsequent cold shutdown independently from a postulated fire or effects of a fire in fire zone 5605. This fire zone is completely defined by 3-hour fire barrier walls, floor and cailing. Both ionization and photoelectric type detection cover this area. Suppression can be handled by portable extinguishers and/or water hose. Addition of a fixed suppression system covering the panels can be detrimental to the solid state logic and may compound a safe shutdown from the main control room (requiring use of the RSP) and therefore result in a decrease in plant safety.

The alternate shutdown capability provides assurance that one train of equipment necessary to achieve hot and subsequent cold shutdown is free of fire damage. There are no combustibles in this area to burn. Therefore, the addition of a fixed fire suppression system required by III.G.3 will not enhance fire protection safety above that provided by the existing configuration.

9A/6.2.d Diesel area, elevation 163'-6", fire zone 5620, contains both divisions of air handling units for the equipment on elevation 163'-6" and their associated control panels (AVH408,

BVH408, AC486 and BC486). The only 1E equipment required for safe shutdown located on elevation 163'-6" are the switchgear room unit coolers (zones 5606 and 5629) and the 1E panels in zone 5605. The switchgear room unit coolers do not rely on AVH408 or BVH408 for cooling. Loss of the MCR 1E panel room is backed up by use of the remote shutdown panel. See deviation 9A.6.2.c.

The air handling units are approximately 14 feet apart and are metal construction. The in situ combustibles are contained in two Division II cable trays. These could contain a maximum of 2257 lbs of insulation or less than 3 minutes of equivalent burn time. Both ionization and photoelectric detection is used in this area and suppression can be by water hose or portable extinguishers. Since the congestion is negligible, the addition of a fixed suppression system will not enhance fire fighting capability.

Assumed loss of both air handling units due to a transient fire will not have an immediate effect on safe shutdown logic or instrumentation in the MCR. If the IE panel logic is eventually affected by high ambient temperatures, the unaffected instrumentation and/or controls on the RSP can be utilized.

The RSP provides assurance that one train of equipment necessary to achieve hot and subsequent cold shutdown is free of fire damage. There are very few combustibles in this area. Therefore, separation of the equipment or addition of a fixed fire suppression system will not enhance fire protection safety above that provided by the existing configuration.

9A.6.2.e Diesel area, fire zone 5704, elevation 178', contains redundant divisions of safe shutdown equipment. The following redundant safe shutdown equipment are located at elevation 178': All 4 D-G HVAC control panels (C483), both Control Equipment Room air handling units (VH407), and both Control Area chilled water units (chiller K403 and pump P414). See fire drawing Figure 9.5-7 and/or equipment location drawing Figure 1.2-39.

The Air Handling Units AVH407 and BVH407 are enclosed in metal casings, are connected by both HVAC supply and return duct, and are physically separated by 6 ft. Loss of these VH407 units would cause a loss of air conditioning to the Control Room HVAC rooms 5602 and 5630, electrical access area 5501, control equipment mezz. 5403, control equipment room 5302, cable spread toom 5202, battery and equipment rooms 5105, 5128, 5102, 5103, 5104, 5126, and corridors 5525, 5404, 5303.

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The Diesel Generator HVAC panels provide control and instrumentation for the D-G air handling units at elevation 77' of the diesel area. There is 20 feet of separation between the divisionalized DG HVAC panels B&DC483 and A&CC483 and their associated conduit with no intervening combustibles.

The chillers (K403) supply chilled water to the air handling units in room 5620, the Technical Support Center (TSC) air handling unit and the Remote Shutdown Panel (RSP) room air handling unit. There is 4 ft between chiller skids.

Fire zone 5704 is a very large room, 9300 ft<sup>2</sup>, with very low congestion. The maximum in situ cable loading could be 2580 lbs in a metal covered, non-1E, cable tray with an equivalent fire burn time of 1.0 minute. The area is monitored by both ionization and photoelectric detection. Suppression can be by water hose or portable extinguishers. All walls, floor or ceiling are either 3-hour fire barriers or adjacent to the outside. All cable are routed in conduit, except for the small section of non-1E cable tray as stated above. There are no other combustibles on this floor. Transient combustibles are administratively controlled to limit access to this area. There are no maintenance activities which involve more than small quanties of hand held grease or oil fubrication in this area. There are no oil bath lubrication systems which would require transit of oil changes at this elevation.

Conservative assumptions were used in analyzing the effects of a postulated fire on safe shutdown and/or radioactive release.

- Transient combustibles of sufficient quanity is temporarily stationed there which when ignited could affect equipment on this floor.
- 2) No fire watch.
- 3) Off-site power lost or available, whichever is worse.
- High outside ambient air temperature.
- 5) Conservative, computer generated, heat transfer calculations.
- 6) Solid state electronics fail (includes spurious actuation) at their qualification limit of 104°F room temperature.

Based on this, the following summarizes the effects of loss of certain combinations of equipment (based on their proximity to each other).

If a fire disabled both air handling units' power cable, temperature would start to rise and may eventually affect the control equipment room panels. No effect on cabling or use of batteries is postulated since the cable is not temperature sensitive and the batteries will cease to be required after the Diesel Generators start (assuming LOP). The heat load into 8630 is very small and therefore loss of Control Room HVAC is not postulated. Control and instrumentation from the remote shutdown panel will be available to aid the main control room operators. Loss of RSP air handling unit is not postulated since its motor is cooled by itself.

If a fire took out both chillers, it may affect equipment on elevation 163'-6" due to a lack of chilled water to VH408. Depending on seasonal temperatures, this may eventually heat up the 1E panel room (5605), and eventually affect the solid state logic used for main control room instrumentation. Remote Shutdown Panel instrumentation and controls would not be affected for more than 24 hours. This is based on a calculation which assumed total loss of HVAC to the Remote Shutdown Panel room. Since, in this scenario, air flow to the RSP room would not be interrupted, then the actual time limit to reach the qualification limit of 104°F will be longer. This is more than ample time for a safe orderly shutdown. Control Room habitability will not be affected during this period.

A transient fire which affects D-G HVAC Division I panels will eventually affect operation of Division I diesel generators. The same fire is not postulated to affect the Division II panels and subsequently Division II diesel generators since the panels and associated cable are greater than 20 feet apart.

If a fire affected both air handling units and both chillers, the effect would be no different than loss of both chillers as described above.

If the fire were to effect the A&C Diesel Generator HVAC panels and both chiller units, the effect would be the same as loss of both chillers, as described above, except that loss of the RSP HVAC (on the A diesel) is also postulated.

Loss of both air handling units and the Division II D-G HVAC panels would only be a concern on high ambient temperature days. This concern would be for the long-term heat up of the Control Equipment room at elevation 102 and the possible effect on the solid state electronics therein. Major Division I equipment can be controlled from the switchgear room for use in long-term shutdown outside the main control room if this scenario were to come about.

A fire in this area would be of limited severity and duration and the dual detection system provides an early warning system. The probability is very low that an exposure fire of sufficient magnitude to damage redundant safe shutdown divisions could occur prior to response of the fire brigade. The installation of a fixed fire suppression system will not significantly enhance the safe shutdown capability.

# 9A.6.3 Separation of Redundant Division by Non U.L. Rated Barriers

9A.6.3.a The torus compartment contains both divisions of safe shutdown cable. Rooms on the Southern half of the reactor building elevations 54%77 contain Division II safe shutdown cable and equipment. Rooms on the Northern balf of the reactor building elevations 54%77 contain Division I safe shutdown cable and equipment. The penetration sealing through the 3-foot thick wall are 3-hour fire rated, however, the blowout panels, HVAC duct and pressure tight doors are not U.L. fire rated and the ceiling beams are not fireproofed.

The torus compartment consists of a cylindrical room covering elevation 54' to 100' plus four pipeways connected by grating at elevation 102'. The HVAC duct for supply and exhaust to the torus compartment and connecting pipeway fire areas have redundant pressure tight isolation dampers controlled by redundant pipe break detection temperature elements in their respective fire areas. The duct section which includes the dampers and penetration are made of steel pipe. The torus compartment duct penetrations are located as follows: The 26 inch diameter supply penetrates from room 4201 at elevation 95 feet; the 26 inch diameter return penetrates to room 4215 at elevation 86 1/2 feet. The equivalent fire load in 4201 and 4215 is 34 minutes and 37 minutes, respectively. The ceiling is at 99'-9". The elevation 102' pipeway duct penetrations are located below elevation 125.5'. The duct is 12 inch and 14 inch diamater supply with 12 inch diameter return. The equivalent fire load ranges from 37 minutes to 11 minutes. There is ionization detection and water hose or portable extinguishers in all areas which contain the isolation dampers. This pipe ducting, regendant pressure tight isolation dampers and redundant agtuation temperature elements required for overriding safety feasons provide a level of fire stop equivalent to the technical requirements of Appendix R.

The four pipeways and the main torus compartment have pressure tight doors the justification for these is given in exemption 98.6.1.a.

There are pressure relieving blowout panels on the west side of the toxus room. These panels are required for overriding safety reasons to protect the RHR, HPCI and RCIC rooms from overpressure due to pipe break. Outline of the 1/4" thick, steel, blowout panels are shown in Figures 9A-15 and 9A-16. These panels are set to relieve at 1/4 psid. There are no redundant safe shutdown cable in the torus compartment which can be reached by a 20-foot diameter fire in either the RHR, HPCI or RCIC rooms. If a fire were to affect both the HPCI and RCIC cabling or valves inside the torus compartment, shutdown method 3 or 4 using ADS and RHR could be used. The panels only open with the higher pressure in the pump room. The blowout panels will fully close (to less than 0.125 inch gap) after the pressure differential decreases to zero. The fire load in the RHR (Div. I), HPCI, RCIC and RHR (Div. II) rooms with blowout panels in them is 28, 20, 9 and 22 minutes, respectively. Ionization detectors are located in these rooms. Water hose or portable extinguishers can be used in these rooms and inside the torus compartment to suppress the fire.

The ceiling above the torus compartment is rated and sealed as a 3-hour fire barrier; however, the exposed beams are not fireproofed. The fire loading in the torus compartment, fire zone 4102, is very low and zero transient combustibles are expected. Refer to the justification in Section 9A.6.4.a. The overall fire load is less than three minutes.

Because of the wide separation, high ceilings, low in situ fire loading and early fire detection system there is a low probability that an exposure fire can damage redundant safe shutdown equipment prior to the response of the fire brigade.

9A.6.3.b Passageway 4207 separates Division I in 4211/4209 from Division II in 4205. The north wall is 12 inches thick reinforced concrete and has 3-hour fire barrier sealant in the penetrations. Two HVAC ducts penetrate the wall without fire dampers and the door is a pressure tight door, as stated in 9A.6.1.a. This creates a non-U.L. rated fire barrier. Refer to Figure 9.5-2.

The redundant safe shutdown cable is greater than 150 feet apart. Ionization detection is provided and water hose or portable

extinguishers are available for suppression. The equivalent fire load is 16 min (16,850 lb), 64 min (3,300 lbs) and 19 min (7000 lbs) for fire zones 4209/4211, 4207 and 4205, respectively. The 38 x 26 inch duct and the 32 x 16 inch duct penetrate the wall at 87 and 91 foot elevation, respectively. The ceiling is at elevation 100', therefore, there will be a hot gas trap above the duct of greater than seven feet.

This combination of wide separation, low in situ fire loading, gas trap and sealed penetrations in one wall, second unrated wall, and early warning fire detection throughout, provides a low probability that an exposure fire can damage redundant safe shutdown equipment prior to the response of the fire brigade.

9A.6.3.c Elevation 77 of the reactor building, fire zone 4218, contains Division I safe shutdown cable. Fire zone 4201 contains Division II safe shutdown cable. These zones are separated by a 12 inch thick reinforced concrete wall with pipe, conduit and cable tray penetrations sealed for 3-hour fire barriers. The penetrations include a hollow metal core door and two HVAC duct which do not provide a 3-hour fire barrier. There are greater than 30 feet of horizontal distance without intervening combustibles or fire hazards in zone 4201. There are greater than 120 feet horizontal distance plus the wall between the redundant 1E divisions. There are 13,506 lbs (34 min) of combustibles in 4201 and 10,251 lbs (20 min) of combustibles in 4218. Both rooms contain ionization detection, and water hose and portable extinguishers are available for suppression.

The wall penetrations are sealed, therefore, the wall acts like a heat trap. Since the fire loading is low and the distance between 1E cable is great, the existing wall, door and HVAC duct will provide an adequate fire stop. The wall allows time for operator action to safely shut down and time for fire brigade action to suppress the fire before it spreads to the redundant division. Therefore, at least one train of equipment necessary to achieve hot shutdown from the main control room will be free of fire damage. Any additional modifications will not enhance fire protection safety above that provided by the existing condition.

9A.6.3.d Equipment airlock 4323 separates Division I in 4309, 4326 and 4328 from Division II in 4307, 4322 and 4303. The wall adjacent to 4309, 4326 and 4328 has been sealed as a 3-hour fire barrier. However this wall also contains a pressure tight door, as described in 9A.6.1.a, two HVAC ducts without fire damper and a pressure tight equipment access panel. This creates a non-U.D.

rated fire barrier in certain places. Refer to the fire drawing Figure 9.5-3.

The redundant safe shutdown cable are approximately 70 feet apart through two walls and a normally empty equipment airlock. The equivalent fire loading is low, less than 23 min in each room. The equipment airlock is used mostly during shutdown; however, a small amount of combustibles may pass through this zone during routine maintenance. Ionization detection is provided over these areas. Water hose and portable extinguishers are available for suppression.

Because of the wide separation, sealed wall, unrated wall, low in situ fire loading, clear space and early fire detection system, there is low probability that an exposure fire can damage redundant safe shutdown equipment prior to response of the fire brigade. The existing fire protection provided for this area provides a level of safety equivalent to the technical requirements of Section NI.G.

9A.6.3.e The ceiling slab at elevation 77', above the RCIC pump room (4110) and RCIC electrical room (4108), has been rated and sealed as a 3-hour fire barrier for the purpose of separating divisionalized fire areas per generic letter 83-33. However, the exposed structural steel beams supporting this slab have not been fireproofed. The Division I safe shutdown cable located in the fire area above 4110 and 4108 are 80 feet away. The equivalent fire load of 4110 and 4108 is 9 and 28 minutes, respectively. Failure of the ceiling/floor slab would not affect redundant safe shutdown equipment. Additional consideration was given to the fact that the commodities already installed and supported from the beams above 4109 and 4110 do not allow space for proper installation of fire proofing material. Since the fire loading is low, separation is large and failure of the beams would not be detrimental, fire proofing the exposed beams would not enchance safety above that already provided.

9A.6.3.f The ceiling/floor slab at elevation 102 between fire zones 4201 and 4301, has been rated and sealed as a 3-hour fire baprier for the purpose of separating divisionalized fire areas, per generic letter 83-33. The exposed structural steel beams supporting this slat have not been fire proofed. Zone 4201 is a Division II fire area. Zone 4301, although it contains a large amount of Division II cable above 4201, is a Division I fire area; the Division II cable in this area can be lost and still safely shut down using Division II safe shutdown equipment. The redundant Division I safe shutdown cable, from that located in

4201, is at the northern most wall of 4310 (there is no wall separating 4301 from 4310). Thus, the separation between fire zones is 60 feet at the closest location and 130 feet between the redundant safe shutdown divisions (Div II at elev. 77' and Div I at elev 102'). Failure of the ceiling/floor slab would not affect redundant safe shutdown equipment. The equivalent fire load of 4201 is 34 minutes, the majority of which is located at the MCC which is not directly under the rated ceiling area. Additional consideration was given to the fact that the commodities already installed and supported from the beams do not allow space for proper installation of fire proofing material.

Since the fire loading is low, separation is large, failure of the beams would not be detrimental and an early fire detection system is installed in these areas, there is a low probability that an exposure fire can damage redundant safe shutdown equipment prior to the response of the fire brigade.

9A.6.3.g The slab at elevation 102', between fire zones 4209 and 4307, has been rated and sealed as a 3-hour fire barrier for the purpose of separating divisionalized fire areas, per generic letter 83-33. The exposed structural steel beams supporting this slab have not been fire proofed. The Division I safe shutdown cable, located in zone 4211, is 80 feet away horizontally from the ceiling supporting zone 4307. (Fire zone 4211 is adjacent to fire zone 4209 without separating wall). Fire zone 4307 contains Division II Safety Auxiliary Cooling system pumps and heat exchangers. The equivalent fire load in 4209 is 16 minutes. The slab is constructed of reinforced concrete, 30 inches thick. Since the fire load is low, there is wide separation between divisions, the floor slab is thick, the slab does not directly separate redundant safe shutdown divisions and the ionization detectors provide an early fire detection system, there is a low probability that an exposure fire can damage redundant safe shutdown equipment prior to the response of the fire brigade. Additional consideration was also given to the fact that the commodities already installed and supported from the beams in this area do not allow space for proper installation of fire proofing material.

# 9A.€.4 Separation of Redundant Divisions by Distance

9A.6.4.a The torus compartment, zone 4102, is a cylindrical room with an OD of 82.5 feet and ID of 35.5 feet. It is 46 feet high and contains the suppression pool torus. The torus has a mean drameter of 56.3 feet, its centerline is at 72.3 feet, and it sits 3 feet off the floor. The room also contains pipe, valves

and four channels of 1E cable trays. Refer to FSAR Figures 9.5-1

RHR A&B, CS, HPCI and RCIC cable are routed through this room. The redundant 1E channels are widely separated, however, with a very low overall in situ congestion. At the closest point, redundant division cable trays are greater than 30 feet apart with no intervening combustibles. There are no transient or storage of combustibles in this area. There is very little usable space for storage. Access is via one of the locked doors at elevation 77 feet, a catwalk and stairs. The torus compartment is a high radiation area and thus limited access is allowed. This reduces the availability for using this area for storage.

The cables are fire retardant per IEEE-383 and the majority are located below elevation 72 feet. The high ceiling virtually eliminates the possibility of heat flux affecting redundant cable. The cables are concentrated as follows: Channel C, 1955 lbs, @NNE; Channel A, 1190 lbs, @ENE and 1445 lbs, @WNW; Channel B, 3683 lbs, @ESE; and Channel D, 1275 lbs, @SSE. The equivalent fire load is less than 3 minutes.

Appendix R, Section III.G.2 accepts an automatic suppression system with greater than 20 feet of separation without intervening combustibles plus detection for this situation. HCGS has heat actuated detectors in the trays to detect a challenge to the 1E cable. Water hose stations and portable extinguishers are provided for suppression in the torus compartment.

The high ceilings and physical horizontal separation limit propagation or heat damage to one channel of one division. Therefore, at least one train of equipment necessary to achieve cold shutdown will be free from damage. The level of safety provided in the torus compartment is equivalent to the technical requirements of Section III.G. Additional modifications required to meet III.G 2 will not enhance fire protection safety above that provided by the existing configuration.

9A.6.4.b Elevation 102' of the Reactor Building contains 7 fire zones with redundant safe shutdown cable. Fire zones 4326, 4328 and 4331 contain Division I safe shutdown cable tray. Fire zones 4317, 4320 & 4322 contain Division II safe shutdown cable tray. These areas are separated from each other by room 4315. All seven five zones form one fire area. Refer to fire drawing Figure 9.5-3.

Zone 4315 provides an effective fire barrier separating the different division areas. Zone 4315 is approximately 60 feet long without any intervening combustibles. It has a low ceiling at elevation 119'-4-1/2" versus the high ceiling of the adjacent rooms, 4317 & 4331, at 129'-6". This tends to create a gas trap which precludes hot gases from a fire which might affect one division from affecting the other division as well. Channels C & D are greater than 100 feet apart. Channels A & B, which contain the majority of the safe shutdown cable, are separated by greater than 280 feet around the circumference. The combustibles in this fire area are made up mostly of cable insulation. / Fire zone 4331 contains 7773 lbs of insulation (20 minutes), fire zone 4328 contain 8,859 lbs of insulation (22 min.), fire zone 4326 contains 3564 lbs of insulation (23 min.) plus a small amount of assumed wood CRD crates, fire zone 4315 contains zero combustibles, fire zone 4317 contains 3189 Ibs of insulation (10 min.), fire zone 4320 contains 3630 lbs of insulation (11 min.) and fire zone 4322 contains 6,266 lbs of insulation (17 min.). Each fire zone has ionization type detectors and water hose and portable extinguishers gan be used for suppresion.

Appendix R accepts a 3-hour fire barrier or automatic suppression plus detection over areas containing redundant divisions. The physical configuration of distance between divisions, clear space and heat trap (low ceiling in 43/5) creates a fire barrier between redundant divisions. This, in combination with the low fire loading of in situ and transient combustibles plus fire retardant cable per IEEE-383 and detection, provides an effective alternative to Appendix R, Section III.G requirements. The existing configuration ensures that at least one train of equipment necessary to achieve hot and cold shutdown from the main control room will be free of fire damage. Additional modifications would not enhance fire protection safety above that provided by the existing condition.

9A.6.4.c Intake area, elevation 114, contains all four Service Water pump intake traveling screen motors (S501) and both supply fans (V558) for the traveling screen motor area. Refer to Figures 9.5-11, 9.5-12, 1.2-41 Section A-A and 1.2-40. Failure of this equipment does not have an immediate impact on the service water pumps' ability to supply cooling water. All the cable for power, instrumentation and control are routed in conduit and there are no other combustibles in this area. The floor grating will not contain a liquid (flammable or otherwise) and the motors are 5 HP. Access is by ladder, which tends to preclude use of the area for storage. Suppression is by water hose or portable extinguishers. Both ionization and photoelectric detection is provided.

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Because of the greater than 25 feet between redundant travelling water screen motors, zero in situ fire loading, and early fire detection system, there is a low probability that an exposure fire can damage redundant safe shutdown equipment prior to response of the fire brigade. Even if all the travelling water screen motors failed, there is an additional low probability that, because of the intake structure location, high debris load will be present to sufficiently plug the screens and affect the ability of the both divisions of service water pumps to deliver the required cooling water flow. Therefore the existing fire protection program for this area provides a level of safety equivalent to the technical requirements of Section II.G.

## 9A.7.0 WALKDOWN VERIFICATION

A walkdown will be performed by personnel knowledgeable in fire protection and nuclear safety after a significant portion of the HCGS plant features and equipment have been completed. The purpose of this walkdown will be to verify compliance to Appendix R commitments and make necessary enhancements. We expect this walkdown to take place in the year preceding initial fuel loading.

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#### HCGS

#### 9A.6.0 Fire Areas and Exemption Requests

Fire areas for the purposes of comparing HCGS to 10CFR50 Appendix R requirements are defined below. Deviations are noted from the definition of fire area given in generic Le tter 83-33. Since HCGS was requested to identify and justify any deviations from Appendix R, where HCGS fire protection program deviates an exemption is requested below. The exemption request is based on specific fire hazard analysis and effects on safe shutdown discussed with each deviation. Additional information for specific fire zones (architectural rooms) within the fire area can be found in the Fire Hazard Analysis Tabulation Sheets, Figures 9A-3 through 9A-252. Refer also to the Fire Protection and Detection Plan drawings for different plant elevations, Figures 9.5-1 through 9.5-12. The information and analysis performed on specific fire zones were combined to create the fire areas under discussion.

The plant is broken down into the following general fire areas, which are further defined in the sections indicated:

a. Turbine Building, 9A.6.1 Auxiliary Building, Radwaste Area, 9A.6.2 b. Electrical Access Area Division I, 9A.6.4 C. Electrical Access Area Division II, 9A.6.3 d. Auxiliary Building Control and Diesel Areas, 9A.6.5 ė. f. Reactor Building Drywell, 9A.6.6 Reactor Building elevation 132 and above, 9A.6.7 g. Reactor Building Division I, 9A.6.8 h. Reactor Building Division II, 9A.6.9 1. Reactor Building Torus room, 9A.6.10 1. k. Reactor Building Main Steam Tunnel, 9A.6.11 Technical Support Center, 9A.6.12 1. Remote Shutdown Panel Room, 9A.6.13 m. Service Water Intake Division I, 9A.6.14 n. Service Water Intake Division II, 9A.6.15 0. Traveling Screen Motor Room, 9A.6.16 p. Miscellaneous Areas, 9A.6.17 q.

#### 9A.6.1 Turbine Building

The entire turbine building from elevation 54 ft-0 in. to the roof, including the Administrative Facility and the turbine side of the steam tunnel, is one fire area. The architectural room numbers for rooms in this fire area are 1XXX, 1XX, 2XX and unoccupied space. There are no safe shutdown equipment or cable in this fire area. The turbine building fire area is defined by a rated wall adjacent to the auxiliary building and 2-hour and unrated exterior walls elsewhere. The stairwells are part of this fire area.

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## 9A.6.2 Radwaste Area

The radwaste area from elevation 54 ft to the roof, excluding several electrical access areas defined in 9A.6.3 and the remote shutdown panel room defined in 9A.6.13, forms one fire area. The architectural room numbers for rooms in this fire area are 3XXX and 5619. There is safe shutdown cable in rooms 3605, 5619, 3442, 3444, and 3414 of this fire area. This area is defined by fire barriers except as follows:

- a. The boundary walls between the Electrical Access Area Division II fire area and this fire area varies from unrated, 1 hour and 2 hour ratings. These walls do not separate redundant safe shutdown equipment.
- b. The wall separating Electrical Access Area Division I at elevation 137 from this fire area is not rated.
- c. Exterior walls or ceiling are not rated.

#### 9A.6.2.1 Exemption Requests

An exemption from Appendix R Section III.G.2 is requested a. for the two safe shutdown divisions which are separated by a 2 hour fire barrier. Elevation 124, rooms 3442, 3444, and 3414 contains Division II safe shutdown instrument distribution panel cable for SACS, Diesel Generators, 120 Vac, 125 Vdc, 250 Vdc, etc. The electrical access area Division I fire area, room 5501, contains Division I safe shutdown cable for the redundant systems. These two areas are separated by the unrated east wall of 5501 and a two hour fire rated ceiling above elevation 124 of the radwaste building. The radwaste building fire area is partially covered by an automatic sprinkler system. Elevation 137 of the radwaste fire area contains an automatic wet sprinkler throughout most of that elevation and covers the area adjacent to the unrated 3 foot thick wall separating these fire areas. Refer to Figures 9.5-4 and 9.5-5. The cable at elevation 124 is in conduit.

Based on the two hour fire barrier, coverage by wet sprinklers adjacent to the boundary, and physical distance between safe shutdown divisions, the existing separation provides an equivalent level of safety in excess of the technical requirements of III.G.2.

b. This fire area contains two separate channels of cable in conduit. Channel C at elevation 153 and channel B & D at elevation 124. Since these two areas are two floors apart there are 4 hours of equivalent fire barriers between them. Therefore, no exemption is requested.

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#### 9A.6.3 Electrical Access Area Division II

Several corridors between the auxiliary building and reactor building are used as cable access. The corridors carrying the Division II electrical cable are lumped into the electrical access Division II fire area. This fire area is made up of the following architectural rooms covering several floors. Refer to Figures 9.5-1, 2, 3, 4, and 5.

Elevation 54; 3110, 3110-1, and 5106 Elevation 77; 3204 and 5207 Elevation 102; 3301, 3302, 3303, 3304, 3314, 3342, and 5301 Elevation 124; 3425 and 5401 Elevation 130; 5423

Partial coverage by automatic suppression systems are provided in this area over cable concentrations in 3204, 5207, 3425, and 5401. This area is defined by fire barriers except as follows:

- a. The boundary walls between the radwaste fire area and this fire area range from unrated, 1-hour, and 2-hour fire barriers. These walls do not separate safe shutdown equipment.
- b. The ceiling above room 5423 is an unrated exterior ceiling and loes not separate safe shutdown equipment.
- c. The south wall of room 5423 is an unrated exterior wall and does not separate safe shutdown equipment.
- d. The reactor building personnel access door and equipment access doors between 3314 and 4301 are pressure tight doors not qualified as a 3-hour fire barrier by UL. This wall separates redundant electrical divisions.
- e. Two electrical bus ducts penetrate the 3-hour fire barrier between 5301 and 5339 without a fire stop. This wall separates redundant safe shutdown cable.
- f. The west wall of 5106 is an unrated exterior wall below grade.
- g. The stairwells are separate fire areas surrounded by 2-hour fire barriers.

## 9A.6.3.1 Exemption Requests

a. An exemption from Appendix R, Section III.G.2 is requested for the non-UL rated pressure tight doors between 3314 and 4301. The doors involved are a single pressure tight personnel access door, which is in series with a second pressure tight door, and the adjacent double wide pressure tight doors used for equipment access. They are located at approximately colums Md and 22 on Figure 9.5-3.

These doors, and other doors like them on HCGS have been fabricated in accordance with Underwriters Laboratories (UL) approved procedures for 3-hour-fire-rated doors. Certificates from the manufacturer are on file that verify the construction of the doors. They are not labeled because modifications necessary to satisfy pressure loadings are not incorporated into UL procedures. Pressure tight doors are required for overriding safety considerations to assure proper building venting. Ioniz ation detectors, and a water hose are provided in the reactor building. Ionization and photoelectric detectors and a water hose are provided in the electrical corridor.

Figure 9A-18 shows the outline of the pressure tight door used on HCGS. It is similar to doors accepted by the NRC staff as providing an equivalent level of fire protection to labeled fire doors.

The equivalent fire loading for the radwaste building corridor is 38 minutes and for the reactor building corridor is 42 minutes. The reactor building fire zone contains an automatic sprinkler system in the area adjacent to the above pressure tight doors.

- b. An exemption from Appendix R, Section III.G.2, is requested for the two electrical bus ducts penetrating the three hour fire barrier between zones 5301 and 5339. Fire zone 5339 contains an automatic sprinkler system and therefore will prevent the spread of fire between the fire areas without the need for a fire stop inside the bus duct.
- c. This fire area contains partial coverage by automatic water suppression systems in areas of high cable concentrations. Since this area does not utilize Appendix R, Section III.G.2.b, c or III.G.3 to justify safe shutdown, no exemption for partial coverage is requested.

## 9A.6.4 Eletrical Access Area Division I

The following architecture rooms (fire zones) combine to form one fire area covering several floors. Refer to Figures 9.5-2, 3, 4 and 5.

Elevation 77, electrical access 5237, Elevation 102, electrical access 5339, Elevation 124, electrical vault in 5401 connecting 5339 below to 5501 above. Elevation 130, electrical access and diesel intake 5450 (west of 5423) Elevation 137, corridor 5501. This fire area contains Division I safe shutdown cable and is completely defined by fire barriers as defined in NRC Generic Letter 83-33 except as noted below.

- a. The east boundary between 5501 and the radwaste fire area (zone 3504) is not rated.
- b. The ceiling above 5450 is an unrated exterior ceiling and does not separate safe shutdown equipment.
- c. The south wall of zone 5450 is an unrated exterior wall and does not separate safe shutdown equipment.
- d. Two electrical bus ducts penetrate the 3-hour fire barrier between 5339 and 5301 without a fire stop. This wall separates redundant safe shutdown cable.
- e. The west wall of 5450 is an unrated exterior wall and does not separate safe shutdown equipment.
- f. The west wall of 5237 is an unrated exterior wall below grade.
- g. The stairwells are separate fire areas surrounded by 2-hour fire barriers.

#### 9A.6.4.1 Exemption Requests

- a. An exemption from Appendix R, Section III.G.2 has been requested in 9A.6.3.16 for the two electrical bus ducts penetrating the 3-hour fire barrier between zones 5339 and 5301.
- b. This fire area contains partial coverage by automatic water suppression systems in areas of high cable concentrations. Since Appendix R, Section III.G.2.b, c or III.G.3 are not used to justify safe shutdown in this fire area, no exemption for partial coverage is requested.
- c. An exemption from Appendix R, Section III.G.2 was requested in 9A.6.2.1.a for the unrated east boundary of 5501 which separates redundant divisions

## 9A.6.5 Auxiliary Building, Control and Diesel Fire Areas

The remainder of the auxiliary building control and diesel area are fire areas as defined by rated fire barriers or outside walls on Figures 9.5-1 through 9.5-7 unless noted below. Most fire areas are a single room. Each fire area is defined by rated barriers as defined in NRC Generic Letter 83-33 except for barriers which

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border the building exterior. All stairwells and elevator shafts are fire areas from top to bottom. The electrical and HVAC chases are one fire area, such as, 5531 connects to 5405, 5323, 5203, 5419 and 5331. This is typical for 5531, 5532, 5533, 5534, and HVAC chase 5535.

## 9A.6.5.1 Exemption Requests

a. An exemption from Appendix R, Section III.G.3 requirement for a fixed fire suppression system is requested for the control equipment room (CER) fire area, room 5302.

Auxiliary building control equipment room 5302 contains both divisions of control panels and cable. Figure 9A-19 shows the equipment layout of this room. Alternative shutdown capability via the remote shutdown panel is provided for a fire in this area. The RSP controls can achieve and maintain hot and subsequent cold shutdown independently from the fire or effects of the fire in area 5302.

Fire area 5302 could contain a maximum of 31,368 lbs of cable insulation for a total burning time of 21 minutes. There are no power cables in this fire area. The cables are fire retardant qualified per IEEE-383. Area 5302 in combination with the corridor 5303 define a combined fire area surrounded by 3-hour fire barriers (walls, ceiling, floor, openings, etc.). Both ionization and photoelectric detection are provided for these areas. The CER is accessible for manual firefighting; the cable trays are above the rows of panels. Suppression can be by water hose, CO2 hose and/or portable extinguishers. Addition of a fixed suppression system covering the cable tray areas can be detrimental to the solid state logic and may compound a safe shutdown from the main control room (requiring use of the RSP) and therefore result in a decrease in plant safety.

The alternate shutdown capability provides assurance that one train of equipment necessary to achieve hot and subsequent cold shutdown is free of fire damage. Since the fire load is low and accessible for manual suppression, the addition of a fixed fire suppression system required by III.G.3 will not enhance fire protection safety above that provided by the existing configuration.

b. An exemption from Appendix R, Section III.G.3 requirement for a fixed suppression system is requested for the Main Control Room fire area. This fire area encompasses rooms 5509, 5510, and 5511, the watch engineers room, main control room and ready room respectively. Auxiliary Building Main Control Room (MCR) fire area contains both safe shutdown divisions of panels, control cable and instrumentation cable. This area is continuously manned. The safe shutdown cable is not exposed, but is contained below the MCR panels. Transient combustibles are administratively controlled. Alternate shutdown capabilities are provided in the Remote Shutdown Panel. The RSP controls can achieve and maintain hot and subsequent cold shutdown independently from a postulated fire or effects of a fire in the MCR. The MCR fire area is defined by 1-hour and 3-hour fire barrier walls and 3-hour fire barrier floor and ceiling. The in situ combustibles are limited to paper and similar transient materials. The equivalent burn time is less than 1 minute. The MCR has ionization detection. Detectors are also located in the main console and vertical boards 10C650, 10C651, respectively. Suppression can be handled by portable extinguishers and/or water hose.

The alternate shutdown capability provides assurance that one train of equipment necessary to achieve hot and subsequent cold shutdown is free of fire damage. There is not a large quantity of combustibles and the area is continually staffed. Therefore, the addition of a fixed fire suppression system required by III.G.3 will not enhance fire protection safety above that provided by the existing configuration.

c. An exmption from the requirements of Appendix R, Section III.G.3 for a fixed suppression is requested for the 1E panel room fire area. This fire area is at elevation 163 ft-6 in. of the auxiliary building diesel area and encompasses room 5605 only.

The 1E panel room contains logic cabinets for the main control room. Figure 9A-20 shows the equipment layout of this room. Both divisions of redundant logic and instrumentation are in panels therein. The panels have less than 20 feet of separation between redundant divisions. All cable are bottom entry. There are no in situ or transient combustibles in this area. Transient combustibles are administratively controlled.

Alternate shutdown capabilities are provided in the RSP. The RSP controls can achieve and maintain hot and subsequent cold shutdown independently from a postulated fire or effects of a fire in fire area 5605. This fire area is defined by 3-hour fire barrier walls, floor and ceiling, and an unrated exterior wall. Both ionization and photoelectric type detection cover this area. Suppression can be handled by portable extinguishers and/or water hose. Addition of a fixed suppression system covering the panels can be detrimental to the solid state logic and may compound a safe shutdown from the main control room (requiring use of the RSP) and therefore result in a decrease in plant safety.

The alternate shutdown capability provides assurance that one train of equipment necessary to achieve hot and subsequent cold shutdown is free of fire damage. There are no combustibles in this area. Therefore, the addition of a fixed fire suppression system required by III.G.3 will not enhance fire protection safety above that provided by the existing configuration.

d. An exemption from the requirements of Appendix R, Section III.G.3 for a fixed suppression system or Section III.G.2 for separation plus suppression is requested for the HVAC equipment room fire area. This area, room 5620, is at elevation 163 ft-6 in. of the auxiliary building diesel area and encompasses room 5620 only. This fire area is defined by 3-hour fire barrier walls, floor and ceiling and an unrated exterior wall.

This area contains both divisions of air handling units for the equipment on elevation 163 ft-6 in. and their associated control panels (AVH408, BVH408, AC486 and BC486). The only 1E equipment required for safe shutdown located on elevation 163 ft-6 in. are the switchgear room unit coolers (rooms 5606 and 5629) and the 1E panels in room 5605. The switchgear room unit coolers do not rely on AVH408 or BVH408 for cooling. Loss of the 1E panel room is backed up by use of the remote shutdown panel. See deviation 9A.6.5.1.c.

The air handling units are approximately 14 feet apart and are metal construction. The in situ combustibles are contained in two Division II cable trays. These could contain a maximum of 2257 lbs of insulation or less than 3 minutes of equivalent burn time. Both ionization and photoelectric detection is used in this area and suppression can be by water hose or portable extinguishers. The congestion is negligible, therefore, the addition of a fixed suppression system will not enhance fire fighting capabilities.

If loss of both air handling units is assumed due to a transient fire in this area, it will not have an immediate effect on safe shutdown logic or instrumentation in the IE panel room. If the IE panel logic is eventually affected by high ambient temperatures, the unaffected instrumentation and/or controls on the RSP can be utilized. The RSP provides assurance that one train of equipment necessary to achieve hot and subsequent cold shutdown is free of fire damage. There are very few combustibles in this area. Therefore, separation of the equipment or addition of a fixed fire suppression system will not enhance fire protection safety above the provided by the existing configuration.

e. An exemption from the requirements of Appendix R, Section III.G.2 for separation plus suppression and Section III.G.3 for fixed suppression is requested for the diesel area HVAC equipment room fire area at elevation 178 ft-0 in. This fire area encompasses rooms 5703 and 5704. This fire area is defined by a 3-hour fire barrier wall, floor and ceiling and unrated exterior walls. Refer to Figure 9.5-7.

The Air Handling Units AVH407 and BVH407 are enclosed in metal casing, are connected by both HVAC supply and return duct, and are physically separated by 6 ft. Loss of these VH407 units would cause a loss of air conditioning to the Control Room HVAC rooms 5602 and 5630, electrical access area 5501, control equipment mezz. 5403, control equipment room 5302, cable spread room 5202, battery and equipment rooms 5105, 5128, 5102, 5103, 5104, 5126, and corridors 5525, 5404, 5303.

The Diesel Generator HVAC panels provide control and instrumentation for the D-G air handling units at elevation 77 ft of the diesel area. There is 20 ft of separation between the divisionalized DG HVAC panels B&DC483 and A&CC483 and their associated conduit with no intervening combustibles.

The chillers (K403) supply chilled water to the air nandling units in room 5620, the Technical Support Center (TSC) air handling unit and the Remote Shutdown Panel (RSP) room air handling unit. There is 4 ft between chiller skids.

Fire area 5703/5704 is a very large room, 8300 ft<sup>2</sup>, with very low congestion. The maximum in situ cable loading could be 2580 lbs in a metal covered, non-lE, cable tray with an equivalent fire burn time of 1.0 minute. The area is monitored by both ionization and photoelectric detection. Suppression can be by water hose or portable extinguishers. All walls, floor or ceiling are either 3-hour fire barriers or adjacent to the outside. All cables are routed in conduit, except for the small section of non-lE cable tray as stated above. There are no other combustibles on this floor. Transient combustibles are administratively controlled to limit access to this area. There are no maintenance activities which involve more than small quantities of hand held grease or oil lubrication in this area. There are no oil bath lubrication systems which would require transit of oil changes at this elevation.

Consevative assumptions were used in analyzing the effects of a postulated fire on safe shutdown and/or radioactive release.

- Transient combustibles of sufficient quantity are temporarily stational there which when ignited could affect equipment on this floor.
- 2. No fire watch.
- 3. Off-site power lost or available, whichever is worse.
- 4. High outside ambient air temperature.
- Conservative, computer generated, heat transfer calculations.
- Solid state electronics fail (includes spurious actuation at their qualification limit of 104°F room temperature.

Based on this, the following summarizes the effects of loss of certain combinations of equipment (based on their proximity to each other).

If a fire disabled both air handling units' power cable, temperature would start to rise and may eventually affect the control equipment room panels. No effect on cabling or use of batteries is postulated since the cable is not temperature sensitive and the batteries Load will become *pero* after the Diesel Generators start (assuming LOP). The heat load into 5630 is very small and therefore loss of Control Room HVAC is not postulated. Control and instrumentation from the remote shutdown panel will be available to aid the main control room operators. Loss of RSP air handling unit is not postulated since its motor is cooled by itself.

If a fire took out both chillers, it may affect equipment on elevation 163 ft-6 in. due to a lack of chilled water to VH408. Depending on seasonal temperatures, this may eventually heat up the 1E panel room (5605), and eventually affect the solid state logic used for main control room instrumentation. Remote Shutdown Panel instrumentation and controls would not be affected for more than 24 hours. This is based on a calculation which assumed total loss of HVAC to the Remote Shutdown Panel room. Since, in this scenario, air flow to the RSP room would not be interrupted, then the actual time limit to reach the qualification limit of 104°F will be longer. This is more than ample time for a safe orderly shutdown. Control Room habitability will not be affected during this period.

A transient fire which affects D-G HVAC Division I panels will eventually affect operation of Division I diesel generators. The same fire is not postulated to affect the Division II panels and subsequently Division II diesel generators since the panels and associated cable are greater than 20 feet apart.

If a fire affected both air handling units and both chillers, the effect would be no different than loss of both chillers as described above.

If the fire were to affect the A&C Diesel Generator HVAC panels and both chiller units, the effect would be the same as loss of both cillers, as described above, except that loss of the RSP HVAC (on the A diesel) is also postulated.

Loss of both air handling units and the Division II D-G HVAC panels would only be a concern on high ambient temperature days. This concern would be for the long-term heat up of the Control Equipment room at elevation 102 and the possible effect on the solid state electronics therein. Major Division I equipment can be controlled from the switchgear room for use in long-term shutdown outside the main control room if this scenario were to come about.

A fire in this area would be of limited severity and duration and the dual detection system provides an early warning system. The probability is very low that an exposure fire of sufficient magnitude to damage redundant safe shutdown divisions could occur prior to response of the fire brigade. The installation of a fixed fire suppression system will not significantly enhance the safe shutdown capability.

#### 9A.6.6 Reactor Building Drywell

The drywell and wetwell together form one fire area. The boundaries of this fire area are defined by the drywell wall and the torus and connecting piping. These walls are not rated by UL as a fire barrier. The drywell boundary is sealed, however, to maintain the primary pressure boundry in case of accidents. Since the drywell is inerted, a fire in the drywell is not postulated. No exemptions in this area are requested.

## 9A.6.7 Reactor Building Elevation 132 and Above

The reactor building, all rooms at elevation 132 and above, are considered as one fire area, except the stairwells. This fire area is defined by the drywell wall on the inside, the unrated exterior wall and floor, the 3-hour technical support center wall, the 3-hour steam tunnel boundaries and the stairwell/elevator 2-hour boundaries. The fire area extends from elevation 132 to the unrated ceiling/dome above elevation 201. The architecture room numbers are 44XX through 47XX except for the Technical Support Center defined in Section 9A.6.12, and the pipe chases 4402, 4409, and 4505 which are part of the torus compartment fire area.

The equipment or cable in this fire area are not needed for safe shutdown. The unrated floor of this fire area does touch two redundant fire areas at elevation 102. It also touches the torus compartment fire area unrated pipeway and steam vent at elevation 132 and 145.

## 9A.6.7.1 Exemption Request

a. An exemption from Appendix R. Section III.G.2 has been requested for the lack of 3-hour fire barrier between this fire area and the torus compartment fire area, reactor building Division I fire area, and the reactor building Division II fire area in paragraphs 9A.6.9.1.m, 9A.6.10.1.f, 9A.6.10.1.g, and 9A.6.11.1.b.

## 9A.6.8 Reactor Building Division I

The northern half of the reactor building, elevations 54, 77, and 102, contains Division I safe shutdown equipment and cable. Refer to Figures 9.5-1, 9.5-2, 9.5-3. This fire area contains the following architecture rooms:

The elevator and stairwells are separate fire areas and are not part of this fire area. This reactor building Division I fire area is defined by fire barriers except as noted below. This fire area contains partial coverage by automatic suppression systems in fire areas 4201 and 4301 over high cable concentration areas.

- a. The equipment and personnel access doors betweem rooms 4301 and 3314 are not UL labeled.
- b. The equipment access panel between SACS room 4309 and the equipment airlock 4323 is not UL labeled.

- c. The equipment access panel between SACS room 4309 and and 4307 is not UL labeled. This wall separates redundant divisions.
- d. The door between SACS rooms 4309 and 4307 is not UL labeled.
- e. The HVAC duct penetrating the 3-hour barrier between 4309 and 4323 does not contain a fire damper.
- f. The door between 4328 and 4323 is not UL labeled.
- g. The HVAC duct penetrating the 3-hour barrier between 4326 and 4323 is not UL labeled.
- h. The barrier surrounding 4327 and 4329 contains HVAC duct supply and return which does not have UL qualified fire dampers and non-UL rated doors.
- i. The door between 4331 and the steam tunnel 4316 is not UL labeled.
- j. Corridor 4215 separates Division I and II fire areas without a fire barrier.
- k. The 3-hour rated floor slab at elevation 102 is supported by steel which has not been fireproofed.
- The door between 4218 and the torus area 4117/4102 is not UL labeled.
- m. The fire barrier between 4218 and 4201 contains an unrated door and HVAC ducts without fire dampers.
- n. The fire barrier bety en 4209 and 4207 contains two HVAC ducts without fire dampers and a non-UL rated door.
- o. The HVAC duct isolation dampers between 4215 and 4102 are not UL labeled.
- p. The door between 4118 and 4101 is not UL rated.
- q. The pressure blowout panel between 4113 and 4102 is not UL rated.
- r. The pressure blowout panel between 4111 and 4102 is not UL rated.
- s. The door between 4111 and 4110 is not UL rated.
- t. The west boundary is an exterior wall.
- u. The 3-hour floor slab at elevation 77 ft is supported by steel which is not fireproofed.
- (ceiling)
  v. The upper boundary between elevation 102 and, is not a fire rated barrier.

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#### 9A.6.8.1 Exemption Request

- a. An exemption from Appendix R, Section III.G.2 is requested for the non-UL rated pressure tight doors which bound this fire area. These doors are between rooms: 4111 and 4110, 4118 and 4101, 4209 and 4207, 4218 and 4217, 4309 and 4307, 4301 and 3314, 4328 and 4323, 4331 and 4316, 4328 and 4329, and 4328 and 4327. Refer to the exemption requested in 9A.6.3.1.a for a discussion of the type of doors used for pressure tightness on HCGS. The equivalent fire loading for fire zones adjacent to the doors are given in Table 9A-1. The equivalent fire load is less than 30 minutes in most rooms adjacent to the doors.
- An exemption from Appendix R, Section III.G.2 reb. guirements is requested for the equipment access panel between safety auxiliary cooling system rooms, 4307 and 4309. This panel is a pressure tight panel and is not qualified as a 3-hour fire barrier by UL. The panel is fabricated out of heavy gage steel. The outline of the panel is shown on Figure 9A-17. Adjacent to the panel, on both sides, are areas of greater than 20 feet of clear space without combustibles. The panel is 10" x 22", and does not extend up to the ceiling. The 6 feet between the top of the panel and the ceiling is a reinforced concrete 3-hour-rated fire barrier. This 6-foot section is a hot gas barrier and retards the effects of the fire from affecting the redundant division. Fire loading on either side of the barrier is low; 16 minutes and 8 minutes in 4309 and 4307, respectively. The pressure tight (leak tight) panel is required for overriding safety considerations of flood protection. Ionization type detectors, water hose and portable extinguishers cover both areas.

The combination of clear space, gas trap, low fire loading, detection and fire brigade action assures that one train of equipment necessary to achieve hot shutdown will be free from damage. Any additional modifications to upgrade the access panel would not enhance five protection safety above that provided by the existing configuration.

c. An exemption from Appendix R, Section III.G.2 is requested for the unrated equipment access panel and for the HVAC duct without fire damper in the 3-hour fire barrier between the SACS room, 4309, and the equipment airlock, 4323. Refer to fire drawing Figure 9.5-3. The redundant safe shutdown cable are approximately 70 feet apart through two walls and a normally empty equipment airlock. The equivalent fire loading is low, less than 17 min. in each room. The equipment airlock is used mostly during shutdown; however, a small amount of combustibles may pass through this zone during routine maintenance. Ionization detection is provided over these area. Water hose and portable extinguishers are available for suppression.

Because of the wide separation, both rated and unrated wall, low in situ fire loading, clear space and early fire detection system, there is low probability that an exposure fire can damage redundant safe shutdown equipment prior to response of the fire brigade. The existing fire protection provided for this area provides a level of safety equivalent to the technical requirements of Section III.G.2.

- d. An exemption from Appendix R, Section III.G.2 is requested for the HVAC duct without fire damper in the 3-hour fire barrier between zones 4326 and 4323, the equipment airlock. This exemption is identical with 9A.6.8.1.c. This is the same duct which penetrates from 4309 to 4323 than from 4323 to 4326. This duct is a supply duct from the reactor building ventilation system and is not required for safe shutdown. The equivalent fire loading is less than 23 minutes in 4326. Ionization detection is provided over both areas. Water hose and portable extinguishers are available for suppression.
- An exemption from Appendix R, Section III.G.2, e. is requested for the HVAC supply and return duct to the pipeways (part of the torus compartment fire area) zones 4327 and 4329, which do not contain UL rated fire dampers. The HVAC duct is made from 12 and 14 inch diameter steel pipe with two series valves serving as redundant pressure tight isolation dampers. The isolation dampers are controlled by redundant pipe break detection temperature elements in the pipeways. The pipeway duct penetrations are located below 125.5 feet elevation. The equivalent fire load is less than 22 minutes. There is ionization detection and water hoses or portable extinguishers are used for suppression. This pipe ducting, redundnat pressure tight isolation dampers and redundant actuation temperature elements required for overriding safety reasons provide a level of fire stop equivalent to the technical requirements of Appendix R.

Five zones 4317, 4320 and 4322 contain Division II Safe shutdown cable trays.

f. An exemption from Appendix R, Section III.G.2 is requested for corridor 4315 which separates redundant division cable, and fire areas, without a fire barrier wall. Fire zones 4326,4328, and 4331 contain Division I safe shutdown cable tray. A These areas are separated from each other by room 4315. Refer to fire drawing Figure 9.5-3.

Zone 4315 provides an effective fire barrier separating the different divisions and fire areas. Zone 4315 is approximately 60 feet long without any intervening combustibles. It has a low ceiling at elevation 119'-4-1/2" versus the high ceiling of the adjacent rooms, 4317 and 4331, at 129'-6". This tends to create a gas trap which precludes hot gases from a fire which might affect one division from affecting the other division as well. Channels C and D are greater than 100 feet apart. Channels A & B, which contain the majority of the safe shutdown cable, are separated by greater than 280 feet around Acircumference. The combustibles in this fire area are mostly made up of cable insulation. Fire zone 4331 contains 7773 lbs of insulation (20 minutes), fire zone 4328 contains 8,859 lbs of insulation (22 minutes), fire zone 4326 contains 3564 lbs of insulation (23 minutes) plus a small amount of assumed wood CRD crates, fire zone 4315 contains zero combustibles, fire zone 4317 contains 3189 lbs of insulation (10 minutes), fire zone 4320 contains 3630 lbs of insulation (11 minutes) and fire zone 4322 contains 6,266 lbs of insulation (17 minutes). Each fire area has ionization type detectors and water hose and portable extinguishers can be used for suppression.

Appendix R accepts a 3-hour fire barrier or automatic suppression plus detection over areas containing redundant divisions. The physical configuration of distance between divisions, clear space and heat trap (low ceiling in 4315) creates a fire barrier between redundant divisions. This, in combination with the low fire loading of in situ and transient combustibles plus fire retardant cable per IEEE-383 and detection, provides an effective alternative to Appendix R, Section III.G requirements. The equipment necessary to achieve hot and cold shutdown from the main control room will be free of fire damage. Additional modifications would not enhance fire protection safety above that provided by the existing condition.

An exemption from Appendix R, Section III G.2.a, g . . is requested for the lack of fireproofing of structural stell supporting 3 hour fire barrier slabs in the reactor building. An analysis of beam temperatures due to a fire in situ and transit combustables is performed for each zone of the reactor building. The calculations are performed by Professional Loss Control, Inc., using a methodolody, computer program and acceptance criteria reviewed on the Limerich Generating Station docket. Results of this analysis are used to identify the extent of fireproofing, cable trays covers or additional suppression systems necessary to protect the support steel from overheating.

The extent of this fire area which fall into the above category are: (Refer to Figures 9.5-1,2,&3)

- The ceiling above the torus compartment, zone 4102 and below 4315, 4326, 4328, 4330, 4331 and 4332;
- 2. The slab above 4201 and below 4301;
- 3. The slab above 4209 and below 4307;
- 4. The slab above 4108 and 4110 and below 4209 and 4210.

Of these, the area below item 2 is partially covered by an automatic water suppression system.

h. An exemption from Appendix R, Section III.G.2 is requested for the HVAC ducts without fire dampers and unrated door in the fire barrier between zone 4218 and 4201.

Elevation 77 of the reactor building, fire zone 4218, is part of the Division I fire area and contains Division I safe shutdown cable. Fire zone 4201 contains Division II safe shutdown cable. These zones are separated by a 12 inch thick reinforced concrete wall with pipe, conduit and cable tray penetrations sealed for 3-hour fire barriers. The penetrations include a hollow metal core door and two HVAC duct which do not provide a 3-hour fire barrier. There are greater than 30 feet of horizontal distance without intervening combustibles or fire hazards in zone 4201. The Division II 1E cable, located at the south h. Cont'd.

end of 4301, is covered by an automatic water suppression system because of a cable concentration. There are greater than 120 feet horizontal distance plus the wall between the redundant 1E divisions. There are 13,506 lbs (34 minutes) of combustibles in 4201, and 10,251 lbs (20 minutes) of combustibles in 4218. Both rooms contain ionization detection and, in addition to the auto suppression, water hose and portable extinguisners are available for suppression.

The wall penetrations are sealed, therefore, the wall acts like a heat trap. Since the fire loading is low, partial auto suppression is provided, and the distance between 1E cable is great, the existing wall, door and HVAC duct will provide an adequate fire stop. The wall allows time for operator action to safely shutdown and time for fire brigade action to suppress the fire. The auto suppression system protects the closest Divison II lE cable. Therefore, at least one train of equipment necessary to achieve hot shutdown from the main control room will be free of fire damage. Any additional modifications will not enhance fire protection safety above that provided by the existing condition.

i. An exemption from Appendix R, Section III.G.2 is requested for the two HVAC ducts without fire dampers which penetrate the fire barrier between zone 4209, in the Division I fire area, and 4207. The wall is 12 inches thick reinforced concrete and has 3-hour fire barrier sealant in the penetrations. Zone 4207 is a passageway which does not contain any LE cable. Refer to Figure 9.5-2.

Division I cable is located at the far North end of the RACS heat exchanger area in passage 4213. Division II cable is located in the Motor Control Center Area, 4205. Therefore, the redundant safe shutdown cable is greater than 150 feet apart through the fire barrier containing these HVAC duct and through another unrated wall. i. Cont'd.

Ionization detection is provided and water hose or portable extinguishers are available for suppression. The equivalent fire load is 16 minutes (16,850 lbs), 64 minutes (3,300 lbs) and 19 minutes (7000 lbs) for fire zones 4209/ 4211/4213, 4207 and 4205, respectively. The 38 x 26 inch duct and the 32 x 16 inch duct penetrate the wall at 87 and 91 foot elevation, respectively. The ceiling is at elevation 100', therefore, there will be a hot gas trap above the duct of greater than seven feet.

This combination of wide separation, low in situ fire loading, gas trap and sealed penetrations in one wall, a second unrated wall, and early warning fire detection throughout, provides a low probability that an exposure fire can damage redundant safe shutdown equipment prior to the response of the fire brigade.

- An exemption from Appendix R, Section III.G.2, j. is requested for the non-UL rated isolation damper in the HVAC duct penetrating the fire harrier between MCC area 4215, part of the Division I fire area, and the torus room fire area, 4102. This reactor building ventilation system return duct is steel pipe with redundant pressure tight isolation valves of the same configuration as discussed in 9A.6.8.1.e. The 26 inch pipe penetrates at elevation 86.5 feet. This provides a gas trap of greater than 12 ft. Ionization detection cover 4215 and water hose or portable extinguishers are available for suppression. The equivalent fire load is 31 minutes in 4215. This pipe ducting, redundant pressure tight isolation dampers and redundant actuation temperature elements required for overriding safety reasons, provide a level of fire stop equivalent to the technical requirements of Appendix R.
  - . An exemption from Appendix R, Section III.G.2 is requested for the pressure relieving blowout panels between the RHR room 4113, the HPCI pump room 4111, and the torus fire area 4102. Zones 4113 and 4111 are part of this Division I fire area. The barrier between these rooms is otherwise rated as a 3-hour fire barrier.

k. Cont'd.

These panels are required for overriding safety reasons to protect the RHR and HPCI rooms from overpressure due to pipe break. Outline of the 1/4 inch thick steel blowout panels are shown on Figure 9A-16. These panels are set to relieve at 1/4 psid. There are no redundant safe shutdown cables in the torus compartment which can be reached by a 20-foot diameter fire in either the RHR or HPCI rooms. Even if a fire were to affect both the HPCI and RCIC cabling or valves inside the torus compartment, shutdown method 3 or 4 using ADS and RHR could be used. The panels only open with the higher pressure in the pump room. The blowout panels will fully close (to less than 0.125 inch gap) after the pressure differential decreases to zero. The fire load in the RHR and HPCI, rooms with blowout panels in them is 28 and 20 minutes, respectively. Ionization detectors are located in these rooms. Water hose or portable extinguishers can be used in these rooms and inside the torus compartment to suppress the fire.

Based on the high ceiling of the torus compartment, 99 ft-9 inches and the separation of redundant cable, a fire in the RHR or HPCI room will not affect safe shutdown using the redundant Divison II.

1. The boundary between the reactor building Division I fire area and the elevation 132 and above fire area is an unrated reinforced concrete slab at elevation 132. Refer to Section 9A.6.7. The upper elevation fire area also touches the Division II fire area via an unrated slab at elevation 132 and touches the torus compartment fire area via an unrated wall to the pipeway at elevation 132. Therefore, an exemption is requested from Appendix R, Seciton III.G.2 for the unrated barriers between redundant fire areas. These unrated barriers will have no effect on safe shutdown because of a fire.
#### 9A.6.9 Reactor Building Division II

The southern half of the reactor building, elevations 54, 77 and 102, contain Division II safe shutdown equipment and cable. This fire area contains the following architectural rooms:

Elevation 54; 4101, 4103, 4104, 4105, 4106, 4107, 4108, 4109 and 4110.

Elevation 77; 4201, 4202, 4203, 4205, 4206, 4207 and 4203.

Elevation 102; 4303, 4304, 4305, 4307, 4315 (both Division I and II fire areas) 4317, 4318, 4320, 4322, 4323 and 4324.

The elevator and stairwells are separate fire areas and are not part of this fire area. This reactor building Division II fire area is defined by fire barriers except as noted below.

- a. The equipment access panel between SACS Room 4309 and the equipment airlock 4323 is not UL labeled.
- b. The equipment access panel between SACC rooms 4309 and 4307 is not UL labeled. This wall separates redundant divisions.
- c. The door between SACS rooms 4309 and 4307 is not UL labeled.
- d. The HVAC duct penetrating the 3 hour barrier between 4309 and 4323 does not contain a fire damper.
- e. The door between 4328 and 4323 is not UL labeled.
- f. The HVAC duct penetrating the 3-hour barrier between 4~26 and 4323 is not UL labeled.
- g. The barrier surrounding 4319 and 4321 contains HVAC duct supplies which do not have UL qualified fire dampers and contain non-UL rated doors.
- Corridor 4315 separates Division I and II fire areas without a fire barrier.
- i. The 3-hour rated floor slab at elevation 102 is supported by steel which has not been fireproofed.
- j. The door between 4205 and the torus area 4104/4102 is not UL labeled.
- k. The fire barrier between 4218 and 4201 contains an unrated door and HVAC ducts without fire dampers.
- 1. The fire barrier between 4209 and 4207 contains two HVAC ducts without fire dampers and a non-UL rated door.
- m. The HVAC duct isolation dampers between 4201 and 4102 are not UL labeled.
- n. The door between 4118 and 4101 is not UL rated.

- The pressure blowout panel between 4109 and 4102 is not UL rated. 0.
- The pressure blowout panel between 4110 and 4102 is not UL rated. p.
- The pressure tight door between 4110 and 4111 is not UL rated. q.
- The 3-hour rated floor slab at elevation 77 is not supported by r. steel which is fireproofed.

(ceiling)

- The upper boundary between this fire area and the fire area at s. elevation 132 is not a rated fire boundary.
- The West and South fire area boundary is an unrated exterior wall. t.

#### Exemption Requests 9A.6.9.1

- An exemption from Appendix R, Section I I.G.2 has a . already been requested in 9A.6.8.1.a, for several non-UL rated pressure tight doors which bound this fire area. These doors are between rooms: 4110 and 4111, 4101 and 4118, 4207 and 4209, 4307 and 4309. In addition, an exemption from Appendix R, Section III.G.2 is requested for the remaining pressure tight doors bounding this fire area. These doors are between rooms 4328 and 4323, 4319 and 4320, 4321 and 4320, 4205 and 4204/4102. The justification for these doors is as presented in Section 9A.6.8.1.a.
- An exemption from Appendix R, Section III.G.2 has b. been requested in 9.A.6.8.1.b. for the equipment access panel between SACS rooms 4307 and 4309.
- An exemption from Appendix R, Section III.G.2 has C . been requested in 9A.6.8.1.c for the unrated equipment access panel and for the HVAC duct without fire damper in the 3-hour fire barrier between SACS room, 4309, and the equipment airlock 4323.
- An exemption from Appendix R, Section III.G.2 has d. been requested in 9A.6.8.1.d for the HVAC duct without fire damper in the 3-hour fire barrier between zones 4326 and 4323, the equipment airlock.
- An exemption from Appendix R, Section III.G.2, is requested for the HVAC supply duct to the pipeways, e. zones 4319 and 4321, which do not contain UL rated fire dampers. These two supply pipes are identical with those discussed in 9A.6.8.1.e and 9A.6.8.1.j. The duct is 14 inch diameter steel pipe with two series valves serving as redundant pressure tight isolation dampers. The pipe and valve configuration, temperature control, elevations, detection and suppression are the same as discussed in 9A.6.8.1.e.

#### e. (Cont'd)

The equivalent fire load is less than 12 minutes in 4320 and 17 minutes in 4322. There is no fire load in the pipeways. This configuration provides a level of fire stop equivalent to the technical requirements of Appendix R.

- f. An exemption from Appendix R. Section II.G.2 has been req sted in 9A.6.8.1.f for the corridor 4315 which separates redundant division cable, and fire areas, without a fire barrier wall.
- 9. An exemption from Appendix R, Section III.G.2.a, has been requested in 9A.6.8.l.g. for the lack of fireproofing of structural steel supporting 3-hour fire barrier slabs in the reactor building. In addition to the areas listed in 9A.6.8.l.g. as 2, 3, and 4, the following areas in this fire area fall into this category: The ceiling above the torus compartment, Zone 4102 and below 4315, 4317, 4318, 4320, 4322, 4323, and 4324. An exemption irom Appendix R, Section III.G.2.a. is requested for the lack of fireproofing of structural steel in the areas listed above. The analysis committed to in 9A.6.8.l.g will cover this area also.
- h. An exemption from Appendix R, Section III.G.2, has been requested in 9A.6.8.1.h. for the HVAC duct without fire dampers and unrated door in the fire barrier between zones 4201 and 4218.
- i. An exemption from Appendix R, Section III.G.2 has been requested in 9A.6.8.1.i for the two ducts without fire dampers which penetrate the fire barrier between zone 4207 in the Division II fire area and 4209.
- j. An exemption from Appendix R, Section III.G.2, is requested for the non-UL rated isolation dampers for the HVAC duct penetrating the fire barrier between corridor 4201, part of the Division II fire area, and the torus room fire area 4102. This reactor building ventilation system supply duct is steel pipe with redundant pressure tight isolation valves of the same configuration discussed in 9A.6.8.1.e. The 26 inch pipe penetrates at elevation 95 feet. An automatic water

j. (Cont'd)

suppression system covers the cable concentration and this duct and dampers (pipe and valves). Ionization detection provides early detection and in addition to the auto suppression, water hose and portable extinguisher are available. This pipe ducting, redundant pressure tight isolation dampers (valves), redundant actuation temperature elements and auto suppression, provide a level of fire stop equivalent to the technical requirements of Appendix R.

k. An exemption from Appendix R, Section III.G.2, is requested for the pressure relieving blowout panels between the RHR room 4109, the RCIC pumproom 4110 and the torus fire area 4102. Zones 4109 and 4110 are part of this Division II fire area. The barrier between these rooms is otherwise rated as 3-hour fire barrier.

These panels, are required for overriding safety reasons to protect the RHR and RCIC rooms from overpressure due to pipe break. An outline of the 1/4 inch thick steel blowout panel is shown in Figures 9A-15 and 9A-16. These panels are set to relieve at 1/4 psid. There are no redundant safe shutdown cable in the torus compartment which can be reached by a 20-foot diameter fire in either the RHR or RCIC rooms. Even if a fire were to affect both the HPCI and RCIC cabling or valves inside the torus compartment, shutdown method 3 or 4 using ADS and RHR could be used. The panels only open with the higher pressure in the pump room. The blowout panels will fully close (to less than 0.125 inch gap) after the pressure differential decreases to zero. The fire load in the RHR and RCIC rooms with blowout panels in them is 9 and 22 minutes, respectively. Ionization detectors are located in these rooms. Water hose or portable extinguishers can be used in these rooms and inside the torus compartment to suppress the fire.

Based on the high ceiling of the torus compartment, 99 feet-9 inches, and the separation of redundant cable, a fire in the RHR or RCIC room will not affect safe shutdown using the redundant Division II equipment.

- The boundary between the reactor building Division II fire area and the elevation 132 and above fire area is an unrated reinforced concrete slab at elevation 132. Refer to 9A.6.7. The upper elevation fire area also touches the Division I fire area via an unrated slab at elevation 132 and it touches the torus compartment fire area via an unrated wall to the pipeway at elevation 132. Therefore, an exemption was requested in 9A.6.8.1.1. from Appendix R, Section III, G.2 for the unrated barriers between redundant fire areas. These unrated barriers will have no effect on safe shutdown because of a fire.
- m. An exemption from Appendix R, Section III.G.2, is requested for the unrated wall separating the airlock 4323 from the steam vent, part of the torus room fire area. The steam vent is completely empty and is open to the torus room below. The equipment airlock is normally empty. There are no penetrations through the 24 inch reinforced concrete wall. Therefore, this barrier is the same as a rated 3-hour fire barrier.

# 9A.6.10 Reactor Building Torus Room

The BWR Mark I containment torus is contained in a cylindrical room. This room, its vestibules and connecting pipeways and steam vent, is the torus room fire area. The architectur room numbers are 4102, 4204, 4217, 4319, 4321, 4327, 4329, 4402, 4409 and 4505. Refer to Figures 9.5-1, 2,3,4 & 5. The torus room and connecting rooms are designed as a pressure tight compartment. Blowout panels in the RHR, HPCI, and RCIC rooms relieve pressure to the torus compartment in the event of a high pressure line break in one of these rooms. The torus compartment in turn has blowout panels to relieve pressure to the outside to prevent overpressurization of the torus compartment. This fire area is defined by fire barriers except as noted below:

- a. Four (4) non-fire rated blowout panels are provided in the rated fire barrier between the torus area 4102, and the RHR, HPCI, RCIC and RHR pump rooms.
- b. The torus room access doors are non-UL rated pressure tight doors between 4204 and 4205 and between 4217 and 4218.
- c. The reactor building ventilation ducts do not contain UL rated fire dampers. Penetrations are between 4102 and 4201, and between 4201 and 4215.

- d. The doors to pipeways 4319, 4321, 4327 and 4329 are non-UL rated pressure tight doors.
- e. The HVAC penetrations to 4319, 4321, 4327 and 4329 do not contain UL rated fire dampers.
- f. The steam vent walls are not rated between the steam vent and the equipment airlock 4323.
- g. The steel supporting the 3-hour fire barrier above the torus compartment is not fireproofed.
- h. The barrier surrounding the pipeway 4402 at elevation 132, and 4505 at elevation 145, is unrated. This include pressure tight doors, HVAC ducts and pipe penetrations.
- i. The steam vent walls are not rated at elevation 132, 145 and 163 feet-6 in. This includes the steam blowout panels between the steam vent and outside atmosphere.
- j. The ceiling above the steam vent and pipeway 4505 are not rated fire barriers.

#### 9A.6.10.1 Exemption Request

- a. An exemption from Appendix R, Section III.G.2 was requested for the pressure blowout panels between the RHR, HPCI, RCIC and RHR pump rooms. Refer to Sections 9A.6.8.1.k and 9A.6.9.1.k.
- An exemption from Appendix R, Section III.G.2 was b. requested for the non- UL rated pressure tight doors which bound this fire area below elevation 132. An exemption was requested for the door between 4204 and 4205 in Sectionn 9A.6.9.1.a. An exemption was requested for the doors between 4217 and 4218, 4319 and 4320, and 4321 and 4322 in Section 9A.6.8.1.a. The remainder of the doors are pressure tight type in non-UL rated walls frooms, between 4402 and 4401, 4409 and 4408 and between 4505 and 4504. Pefer to Figures 9.5-4 and 9.5-5. The justification for these doors being treated as tire barriers is given in Section 9A.6.3.1.a. An exemption will be requested below for the non-UL rated walls in toto including the doors.

- C. An exemption from Appendix R, Section III.G.2, was requested for the reactor building ventilation ducts with non-UL rated dampers. These ducts are pressure tight pipe with dual isolation valves for dampers. The exemptions are requested in Sections 9A.6.8.1.e, 9A.6.8.1.j, 9A.6.9.1.e, and 9A.6.9.1.j. Additional HVAC duct of the same type penetrate the barrier into the pipe ways 4402 and 4505. An exemption will be requested below for the non-UL rated walls in toto, including the HVAC penetrations.
- d. An exemption from Appendix R, Section III.G.2 was requested for the non-UL rated fire barrier between the steam vent and the Division II fire area, in Section 9A.6.9.1.m.
- e. An exemption from Appendix R, Section III.G.2 was requested for the lack of fireproofing of structural steel above the torus compartment in Sesctions 9A.6.8.1.g and 9A.6.9.1.g.
- An exemption from Appendix R, Section III.G.2 £. is requested for the unrated walls and penetrations separating the torus room fire area pipe way from the elevation 132 and above fire area. The walls involved surrounded rooms 4402, at elevation 132, and 4505, at elevation 145. These walls are minimum 24 inch thick reinforced concrete. The HVAC is piping with isolation valves the same as in Section 9A.6.8.1.e. The doors are pressure tight doors, the same as in Section 9A.6.8.1.a and 9A.6.3.1.a. All penetrations are sealed to maintain the pressure boundary of the torus compartment. The walls do not directly separate safe shutdown equipment or cable since there are no safe shutdown equipment or cable at elevation 132 and 145. However, indirectly, through the unrated slab at 132, both divisions of shutdown cable could be reached. This is not a credible event however. Ionization detection is located outside the torus fire area. Fire hose is used for suppression. This combination of pressure tight barriers, low fire loading, early warning fire detection and fire brigade action assures that one train of equipment necessary to achieve hot shutdown will be free from damage.

q. An exemption from Appendix R, Section III. G.2, is requested for the unrated fire barrier between the torus room fire area steam vent and the elevation 132 and above fire area. The walls, penetrations and doors are those surrounding room 4409 on elevation 132 and corresponding wall at elevation 145 and 162. This wall is 24 inches thick, reinforced concrete, which is the equivalent to a 3-hour fire barrier wall. The penetrations are sealed to maintain the pressure boundary of the torus compartment. The door is a pressure type door as discussed in Section 9A.6.8.1.a and 9A.6.3.1.a. The walls do not directly separate safe shutdown equipment or cable since there are no safe shutdown equipment or cable in the elevation 132 and above fire area. However, indirectly, through the unrated slab at 132, both divisions of shutdown cable could be reached. This is not a credible event.

Ionization detection is located in the elevation 132 and above fire area. Fire hose is used for suppression. This combination of pressure tight barrier, low fire loading, early warning fire detection and fire brigade action assures that one train of equipment necessary to achieve hot shutdown will be free from damage.

h. An exemption from Appendix R Section III.G.2 is requested for the torus room fire area, room 4102, which contains both divisions of safe shutdown cable. The torus room 4102, is a cylindrical room with an OD of 82.5 feet and ID of 35.5 feet. It is 46 feet high and contains the suppression pool torus. The torus has a mean diameter of 56.3 feet, its centerline is at 72.3 feet, and it sits 3 feet off the floor. The room also contains pipe, valves and four channels of 1E cable trays. Refer to FSAR Figures 9.5-1 and 9.5-2.

RHR A&B, CS, HPCI, and RCIC cable are routed through this room. The redundant lE channels are widely separated, however, with a very low overall in situ congestion. At the closest point, redundant division cable trays are greater than 30 feet apart with no intervening combustibles. There are no transient or storage of combustibles in this area. There is very little usable space for storage. Access is via one of the locked doors at elevation 77 feet, a catwalk and stairs. The torus compartment is a high radiation area and thus only limited access is allowed. This reduces the availability for using this area for storage.

The cables are fire retardant per IEEE-383 and the majority are located below elevation 72 feet. The high ceiling virtually eliminates the possibility of heat flux affecting redundant cable. The cables are concentrated as follows: Channel C, 1955 lbs, @NNE; Channel A, 1190 lbs, @ENE and 1445 lbs, @WNW; Channel B, 3683 lbs, @ESE; and Channel D, 1275 lbs, @SSE. The equivalent fire load is less than 3 minutes. Appendix R, Section III.G.2 accepts an automatic suppression system with greater than 20 feet of separation without intervening combustibles plus detection for this situation. HCGS has heat actuated detectors in the horizontal trays to detect a challenge to the LE cable. Water hose stations are provided for supression in the torus compartment.

The high ceilings and physical horizontal separation limit propagation or heat damage to one channel of one division. Therefore, at least one train of equipment necessary to achieve cold shutdown will be free from damage. The level of safety provided in the torus compartment is equivalent to the technical requirements of Section III.G. Additional modifications required to meet III.G.2 will not enhance fire protection safety above that provided by the existing configuration.

# 9A.6.11 Reactor Building Main Steam Tunnel

The main steam tunnel fire area consists of the steam tunnel room 4316 up to the ventilation barrier at the boundary of the reactor bulding. The remainder of the steam tunnel and vent stacks is part of the turbine building fire area. The steam tunnel is designed for pressure tightness. The emergency vent stack contains blowout panels to the outside and provides overpressure protection of the main steam tunnel in the case of a high pressure line break. There are no combustibles in this area and because of high radiation, detectors are not qualified for this area. Therefore only the redundant pipe break detection temperature elements are used to annunciate abnormalities in this area. Refer to Figures 9.5-3 and 9.

This fire area is defined by 3-hour fire barriers except as noted below. There are no combustibles in this fire area.

- a. The steam tunnel fire barrier support steel is not fireproofed.
- b. The door at elevation 102 and at 132 are not UL rated fire doors.
- c. The ventilation barrier between the reactor building and turbine building portions of the steam tunnel is a pressure relieving panel and is not a rated fire barrier.
- d. The south wall adjacent to the outside is not a rated fire barrier.

#### 9A.6.11.1 Exemption Requests

- a. An exemption from Appendix R Section III.G.2 is requested for the lack of fireproofing on steam tunnel fire area support steel. An analysis for beam capability during a fire is being performed on the steel in this area. Refer to Section 9A.6.8.1.g for a complete discussion.
- b. An exemption from Appendix R, Section III.G.2, was requested for the pressure tight door at elevation 102. Refer to Section 9A.6.8.1.a. An exemption from Appendix R, Section III.G.2 is requested for the pressure tight door at elevation 132. Refer to the exemption requested in 9A.6.3.1.a for a complete discussion of the door type and justification.
- c. The ventilation barrier and the outside walls do not separate redundant divisions, therefore no exemption is requested.

### 9A.6.12 Technical Support Center

The technical support center fire area is defined by the following architecture room numbers:

Elevation 132; 4415, 4416, 4418, 4419, 4420 Elevation 145, 4514, 4515, 4516

The two stairwells and vestibules are a part of the fire area.

There are no safe shutdown cable or equipment in the technical support center fire area. The fire area is bounded by 3-hour fire barrier walls ceiling and floor. However, the floor slab at elevation 132 is not supported by steel which has been fireproofed. The TSC functionally is part of the auxiliary building although it is built on top of the reactor building.

# 9A.6.12.1 Exemption Request

a. The floor slab does not separate redundant safe shutdown divisions. The failure of the floor slab would only affect one safe shutdown division in the reactor building Division I fire area below. Therefore, no exemption is requested for the lack of fireproofing. However, an analysis is being performed as noted in Section 9A.6.8.1.g. The results of this analysis may be used for the basis of future actions in this area.

#### 9A.6.13 Remote Shutdown Fanel Room

The remote shutdown panel room, 3576, is a fire area. This fire area is defined by 3-hour barriers on all sides and 2-hour on the floor and ceiling. The Division I and II cable in this area does not meet Section II.G.2 separation. Shutdown can be accomplished using Division I safe shutdown equipment controlled from the main control room. The MCR separation from the RSP room meets Section III.G.2.a requirements. Therefore, no exemption is requested.

# 9A.6.14 Service Water Intake Division I

The service water intake structure Division I fire area contains the Unit I, Division I service water pumps and auxiliaries. This fire area consists of the following architecture room number:

Elevation 79 feet 8 inches; 107 Elevation 87 feet 8 inches; 112 Elevation 93 feet 0 inches; 203, 204 Elevation 107 feet 0 inches; panel area Elevation 122 feet 0 inches; 304, 305, 306

This fire area is defined by fire barriers except for barriers adjacent to the exterior, which are designed as flood and soil pressure barriers, and the barrier adjacent to the traveling screen motor fire area.

#### 9A.G.14.1 Exemption Request

a. An exemption from Appendix R, Section IIIG.2 is requested in 9A.6.16.1.a for the unrated wall between fire areas.

### 9A.6.15 Service Water Intake Division II

The service water intake structure Division II fire area contains the unit 1, Division II service water pumps and auxiliaries. This fire area consists of the following architectural room numbers

elevation 79 ft - 8 inches; 110
elevation 87 ft - 8 inches; 114
elevation 93 ft - 0 inches; 207, 208
elevation 107 ft - 0 inches; panel area
elevation 122 ft - 0 inches; 310, 311, 312

This fire area is defined by fire barries except for barries adjacent to the exterior which are designed for flood and soil pressure barries.

#### 9A.6.15.1 Exemption Request

a. An exemption from Appendix R, Section III.G.2, has been requested for the unrated wall between fire areas in 9A.6.16.1.a.

### 9A.6.16 Traveling Screen Motor Room

The traveling screen motor room fire area is made up of the intake structure traveling screen motor room. This area is defined by exterior walls and unrated wall between this fire area and adjacent Division I, II and miscellaneous fire areas. See Figures 9.5-11 and 9.5-12, elevation 114.

9A.6.16.1 Exemption Request

a. An exemption from Appendix R, Section III.G.2, is requested for the traveling screen motor area. This area elevation 114, contains all four Service Water pump intake traveling screen motors (S501) and both supply fans (V558) for the traveling screen motor areas. This area also separates the Division I fire area from the Division II fire area without a rated fire barrier. Refer to Figures 9.5-11, 9.5-12, 1.2-14 Section A-A and 1.2-40.

Failure of this equipment does not have an immediate impact on the service water pumps' ability to supply cooling water. All the cable for power, instrumentation and control are routed in conduit and there are no other combustibles in this area. The floor grating will not contain a liquid (flammable or otherwise) and the motors are 5 HP. Access is by ladder, which tends to preclude use of the area for storage. Suppression is by portable extinguishers. Both ionization and photoelectric detection is provided. Because of the greater than 25 feet between redundant traveling water screen motors, zero in situ fire loading, and early fire detection system, there is a low probability that an exposure fire can damage redundant safe shutdown equipment prior to response of the fire brigade. Even if all the traveling water screen motors failed, there is a additional low probability that, because of the intake structure location, high debris load will be present to sufficiently plug the screens and affect the ability of the both divisions of service water pumps to deliver the required cooling water flow. Therefore the existing fire protection program for this area provides a level of safety equivalent to the technical requirements of Section II.G

#### 9A.6.17 Miscellaneous Areas

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The remaining intake structure areas are unoccupied areas. Similar fire areas are formed by the unoccupied areas as was formed by the Division I and II fire area in 9A.6.13 and 9A.6.14. These areas do not contain any safe shutdown equipment or cable. The other miscellaneous buildings throughout the site each form thier own fire area, except the fire water pump house. The fire water pump house is separated into two fire areas. There are no safe shutdown equipment or cable in these areas.

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FIRE HAZARD ANALVSIS SUMMARY

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TABLE 9A-1

f Fire		safe equip in zone.	safe equip in zone.	safe equip in zone.	safe equip in zone.	safe equip in zone.	safe equip in zone.	safe equip in zone.	safe equip in zone.		safe equip in zone.	safe equip in zone.
Effects of Or Safe SI		None. No shutdown or cable	None. No shutdown or cable	None. No shutđown or cable	None. No shutdown or cable	None. No shutdown or cable	None. No shutdown or cable	None. No shutdown or cable	None. No shutdown or cable		None. No shutdown or cable	None. No shutdown or cable
ncissardans		H <sub>2</sub> O hose	H <sub>2</sub> 0 hos? Port ext	H20 hose	H <sub>2</sub> O hose Port ext	H <sub>2</sub> O hose Port est o	H20 hose	H <sub>z</sub> O hose Port ext	H20 hose		H <sub>2</sub> O hose Port ext	Han hose
Detection		None	None	None	None	None	None	None	None		None	None
Fire Load Btu/ft?		None	None	None	None	None	None	None	None		None	None
ard Duantity	1	None	None	None	None	None	None	None	None		None	None
Waterial		None	None	None	ancN	None	None	None	None		None	None
App R Compl		NN	<b>VN</b>	NA	VN.	NA	NN	NA	NA		MM	KA
Fire Zone Description and	ilding Radwaste Area	Waste surge tank room	Waste surge pump room	Floor drain sample tank rm	Pump room	Floor drain sample tank rn	Waste sample tank room	Pump room	Waste sample tank room	See 5106	Sump room	Waste collector tank room
	ary Bul	3101	3102	3103	3104	3105	3107	3108	3109	3110	3112	3113
slev	uxili	154-0	0-\$50	0-#50	0-050	0-0-0	024-0	054-0	0-#50	0-1-0	0-850	0-150

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01	e	Fire Zone Description and Safe Shutdown Equip and Cable	App R Compl	TABLE Raterial	9A-1 (cont) zard Quantity	Fire Load Bta/ft2	Detection	Suppression	Page 2 of 66   Effects of Fire On Safe Shutdown
=	-	pump room	NN.	eron	None	None	None	H <sub>2</sub> 0 hoss Port ext	None. No safe shutdown equip or cable in zone.
15		Pump room	KN	ancN	None	None	None	H <sub>z</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
16		Waste collector tank room	NA	None	None	None	None	H20 hose	None. No safe shutdown equip or cable in zone.
=		Tank went filter unit room	NA	Charcoal	162 15	3500	Heat act IN FILTER UNIT	Auto water spray H <sub>2</sub> O hos: Port ext	None. No safe   shutdown equip   or cable in zone.
18		Concentrated waste tank room	NN	None	None	None	None	R <sub>2</sub> 0 hose Port exte	None. No safe   shutdown equip or cable in zone.
611		Concentrated waste tank room	NN.	None	None	None	None	H <sub>2</sub> 0 hose Port est c	None. No safe   shutdown equip or cable in zone.
120		Pump room	VN	None	None	None	None	R <sub>z</sub> n hose Port ext	None. No safe I shutdown equip or cable in zone.
121		Pump room	YN	oucn	None	None	None	H20 hose	None. No safe   shutdown equip or cable in zone.
122		Waste neutralizer tank room	NA	None	None	None	None	RzO hos:	None. No safe shutdown equip or cable in zone.
123		Waste neutralizer tank room	NA	None	None	None	None	H <sub>z</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.
124		Pump room	KN.	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
1125		Work area	NN	ancN	Nore	None	None	H <sub>z</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
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				TABLE	A-1 (cont)				Page 3 of 66	
ir.	ano.z	Fire Zone Description and Safe Shutdown Equip and Cable	App R Compl	Material	Quantity	Fire Load Btu/ft2	Detect ion	Suppression	Rffects of Fire On Safe Shutdown	
0	3126	Work area	NA	None	None	None	None	H <sub>z</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
9	3127, 3111, 3106	Corridors	¥N.	cable insul	d1 888.6	18,000	I onizat Photo-el Nore in 3106	H <sub>z</sub> n hose Port ext	None. No safe   shutdown equip or cable in zones.	
0	3128	Pump room	VN.	ancN	None	None	None 5KT	H <sub>z</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
0-	3129	Cleanup phase separator room	NA	None	None	None	None	H <sub>2</sub> O hose port ext a	None. No safe shutdown equip or cable in zone.	
0-	3130	Cleanup phase separator room	NN	None	None	None	None	H20 hose	None. No safe shutdown equip or cable in zone.	
0-	3131	Vestibule	KN.	None	Hone	None	None	H <sub>z</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
0-8	3132	Spent resin tank room	MN	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
0-#	3133	Pump room	¥K	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
0-#	3134	Pump room	K N	None	None	None	None	H <sub>z</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
0-*	3135	Waste sludge phase separator room	KN	None	Nore	None	None	H20 hose	None. No safe shutdown equip or cable in zone.	
6-4	3136	Floor drain collector tank room	NA	None	None	None	None	H20 hoss	None. No safe shutdown equip or cable in zone.	
4-0	1515	Floor drain collector tank room	¥N.	ercN	Nore	None	None	H <sub>2</sub> 0 hoss	Nore. No safe shutdown equip or cable in zone.	

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TABLE 9A-1 (cont)

Elev ft-in.	tone	Fire Lone Description and Safe Shutdown Equip and Cable	App R Compl	Ha Material	Zard Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown
054-0	3138	Pump room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3139	Detergent drain filter room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3140	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3141	Pump room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3142	Detergent drain tank room	NA	None	None	None	None	H <sub>2</sub> O hose Port exte	None. No safe   shutdown equip or cable in zone.
054-0	3143	Sump room	NA	None	None	None	None	R <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3188, 3154	Corridors	NA	Cable insul	12,970 lb	21,500	Ionizat Photo-el	H <sub>2</sub> C hose Port ext	None. No safe   shutdown equip or cable in zones.
054-0	3145	R/W regeneration vessel room	NA	None	None	None	None	R <sub>2</sub> 0 hose Port ext e	None. No safe   shutdown equip or cable in zone.
054-0	3186	R/W regeneration vessel room	NA	None	None	None	None	H20 hose	None. No safe   shutdown equip or cable in zone.
054-0	3147	Pump room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3149	Decon solution concentrated waste tank room	NA	None	None	None	None	H20 hose	None. No safe   shutdown equip or cable in zone.
054-0	3149	Condensate return unit room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.



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## TABLE 9A-1 (cont)

			Ann P	Rat	ard	Fire Load	1		Effects of Fire
Elev	1.134	Fire Zone Description and	Compl	Material	Quantity	Btu/ft2	<b>Detection</b>	Suppression	on sale shacoown
<u>ft-in.</u> 054-0	3150	Chemical waste tank rm	NA	None	Mone	None	None	He0 hose Port este	None. No safe   shutdown equip   or cable in zone.
054-0	3151	Pump room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
054-0	3152	HEV equip room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3153	Tank went filter unit rm	NA	Charcoal	162 lb	4000	Heat act in filter unit	Auto water spray in file H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
054-0	3155	Charcoal filter tank area	NA	Charcoa!	193,200 lb	2.37 x 104	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in   zone.
054-0	3156	HAVC LOOM	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
054-0	3157	Corridor	NA	None	None	None	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.
054-0	3158	RVAC room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3159	Valve gallery	NA	ASPHALT IN PIPE	30 1b	None	None	Hat hose	None. No safe shutdown equip or cable in zone.
054-0	315	9-1 Charcoal filter tank area	NA	Charcoal ASPHALT	128,800 370 ib	1.58×100 NONE	Pone	H20 hosp Post ont	None. No safe shutdown equip or cable in zone.
054-0	0 316	0 Refrigeration area	NA	A SPHALT	None & 310 1b	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.



TABLE 9A-1 (cont)

Elev (t-in-	Fire Zone Description and Zone Safe Shutdown Equip and Cable	App R Compl	Ha Material	Quantity	Fire Load Btu/ft?	Detection	Suppression	Effects of Fire On Safe Shutdown
054-0	3160-1 Valve gallery	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ent 0	None. No safe   shutdown equip   or cable in zone
054-0	3160-2 Guard bed filter area	NA	Char coal	200 lb	2300	None	H <sub>2</sub> 0 hos? Port est 0	None. No safe shutdown equip or catle in zone.
054-0	3160-3 Cooler condenser area	NA	None	None	None	None	H <sub>2</sub> O hose Port ext.	None. No safe   shutdown equip   or cable in zone.
054-0	3160-4 HEPA filter area	NA	None	None	None	None	H20 hose Post ont ?	None. No safe   shutdown equip   or cable in zone.
075-0	3160-5 Charcoal regeneration mezzanine	NA	ASPHALT	320 1b	None	None	H <sub>2</sub> O hose Post ext	None. No safe   shutdown equip
054-0	3161 HVAC room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
054-0	3163 Hatchway area	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
054-0	3166 Tank vent panel area 3166-2 Analyses Panel Com 3166-3	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext	None. No safe   shutdown equip or cable in zone.
054-0	3167 Primary recomb room	NA	None	None	None	None	H20 hose	None. No safe   shutdown equip   or cable in zone
067-3	3167-1 Primary recomb valve maintenance area	NA	None	None	None	None	H <sub>2</sub> O hose Port exto	None. No safe   shutdown equip   or cable in zone.
054-0	3168 Primary recomb room	NA	None	None	None	None	H <sub>2</sub> O hose Port exte	None. No safe   shutdown equip   or cable in zone.
067-3	3 3168~1 Primary recomb valve maintenance area	NA	None	None	None	None	H <sub>2</sub> O hose Port ext .	None. No safe   shutdown equip   or cable in zone.

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### TABLE 9A-1 (cont)

Elev		Fire Zone Description and	App R Compl	Haz Material	ard Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown
ft-in.	tone	Safe Shutdown Equip and Cubic	NA	Cable	17,355 Lb	17,500	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip
054-0	3169, 3162	corridors		ASPHALT IN	270 16	NONE			or cable in zones.
	MM			PIPE				N. 0. 5083	None. No safe
054-0	3170	Sumps & pumps room	NA	None	None	None	None	Port ext	shutdown equip   or cable in zone.
054-0	3171	Pump room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3172	Waste evaporator condenser	NA	None	None	None	None	H <sub>2</sub> O hose Post out	None. No safe shutdown equip or cable in zone.
054-0	3173	Pump room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3174	Waste evaporator condenser	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3175	Decontam solution concentrator	NA	None	None	None	None	H <sub>2</sub> O hose Port ent	None. No safe shutdown equip or cable in zone.
054-0	3176	Decontam solution pump room	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in zone.
054-0	3177	Vestibulo	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
082-1	3178	Valve area	NA	None	None	None	None	H20 hose	None. No safe shutdown equip or cable in zone.
082-0	5 3179	Unoccupied space	NA	None	None	None	None	H20 hose Port ext	None. No safe   shutdown equip or cable in zone.
075-	0 318	0 Pipeway	NA	ASPHALT	260 lb	None	None	None Hyp hose Post ante	None. No safe shutdown equip or cable in zone.
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#### TABLE 9A-1 (cont)

lev		Fire Zone Description and	App R	Haza	rd Quantity	Fire Load Rtu/ft?	Detection	Suppression	Effects of Fire On Safe Shutdown	
t-in. 182-0	<u>sone</u> 3181	Safe Shutdown Equip and Cable Offgas holdup pipe area	NA	None	None	None	None	None Han hoore Port ente	None. No safe shutdown equip or cable in zone.	1
082-0	3182	linoccupied space	NA	None	None	None	None	None Han hose Port est	None. No safe shutdown equip or cable in zone.	
082-0	3183	Vestibule	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext Q	None. No safe shutdown equip or cable in zone.	
075-0	3184	Vestibule	NA	Cable insul	1516 lb	72,900	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	1
069-0	3185	Pipeway	NA	None	None	None	None	Nme o H <sub>2</sub> 0 hose Part ext o	None. No safe shutdown equip or cable in zone.	;
066-0	3186	Pipeway	NA	None	None	None	None	None Hat hore P Port ext	None. No safe shutdown equip or cable in zone.	!
075-0	3187	Pipeway	NA	None	None	None	None	Nove Hat hose Port ext	None. No safe shutdown equip or cable in zone.	1
075-0	3188	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose e Port ext	None. No safe shutdown equip or cable in zone.	1
075-0	3189	Pipeway	NA	None	None	None	None	Nine hose C Byo hose C Port ext?	None. No safe shutdown equip or cable in zone.	1
065-0	3190	Pipeway	NA	None	None	None	None	Not hose ? Hyp hose ? Post ext	None. No safe shutdown equip or cable in zone	1
068-	6 319	1 Recycle 6 concentrated waste pumps room	NA	None	None	None	None	H <sub>2</sub> O hose S Port ext	None. No safe shutdown equip or cable in zone	1

None

NA

068-6 3192 Waste evaporator room

None

None

None

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#### TABLE 9A-1 (cont)

			800 B	на	zard	Fire Load			Effects of	Fire	
Elev		Fire 2one Description and	Comp1	Material	Quantity	Btu/ft2	Detection	Suppression	On Safe Sh	utdown	
069-2	3193	Heating element room	NA	None	None	None	None	Ban hose Q Port ext	None. No s shutdown e or cable i	afe   quip   in zone.	1
068-6	3198	Waste evaporator room	NA	None	None	None	None	H.O hoss Q Port ext	None. No s shutdown e or cable i	afe   quip   in zone.	
069-2	3195	Reating element room	NA	None	None	None	None	H <sub>2</sub> O hose <sup>R</sup> Port ext	None. No s shutdown o or cable s	afe equip in zone.	۱,
068-6	3196	Recycle & concentrated waste pumps room	NA	None	None	None	None	H <sub>2</sub> O hose Q Port ext	None. No shutdown or cable	safe equip in zone.	١,
075-0	3197	Radwaste regenerator system control panel room	NA	None	None	None	None	Het hose Port ext	None. No shutdown or cable	safe equip in zone.	١,
082-0	3198	Vial sampler area	NA	None	None	None	None	H <sub>2</sub> O hose Port ext 2	None. No shutdown or cable	safe equip in zone.	١,
082-0	3199	Unoccupied space	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	Nore. No shutdown or cable	safe equip in zone.	١,
087-0	3201	Cable tray area	NA	Cable insul	42,11.	21,500	Ionizat Photo-el	H <sub>2</sub> O hose Port ext CO <sub>2</sub> hose	Nore. No shutdown or cable zone.	safe equip in	1
087-0	3202	Store room	NA	Cable insul	1459 lb	3000	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No shutdown or cable zone.	safe equip in	•
087-0	3203	Corritor	NA	None	None	None	None	Han hose Port ext?	None. No shutdown or cable	safe equip in zone.	1

077-0 3204 See 5207

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#### TABLE 9A-1 (cont)

		and and	App R	Haza	rd	Fire Load Btn/ft?	Detection	Suppression	On Safe Shutdown		
ft-in.	tone	Fire Zone Description and Cable Safe Shutdown Equip and Cable	Compl	Material	120 1b	20,000	Ionizat	Hao home	None. No safe shutdown equip	1	
087-0	3205	Battery room	NA	case, covers				CO2 hose	or cable in zone.	1	
087-0	3206	Emergency shower area	NA	None	None	None	None	STE A	None. No safe shutdown equip or cable in zone	.1	
087-0	3207	Battery charger room	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext CO <sub>2</sub> hose	None. No safe shutdown equip or cable in zone.	1	
087-0	3208	Cable tray area	NA	Cable insul	40,420 1b	a2,500	Ionizat Photo-el	HgO hose Port ext	None. No safe shutdown equip or cable in zone.	1	
087-0	3209	Corridor	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zor	le.	1
087-0	3210	Vestibule	NA	None	None	None	None	R <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zon	ne.	1
087-0	321	1 Cable tray area	NA	Cable insul	36,411 lb	27,500	Ionizat Photo-e	H <sub>2</sub> O hose   Port ext	None. No safe shutdown equip or cable in zone.	'	
077-	0 321	5 Electrical access area	NA	None	None	None	Tonizat Photo-e	H <sub>2</sub> O hose 1 Port ext	None. No safe shutdown equip or cable in zo	me.	
087-	0 321	6 Poyer	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zo	one.	
087-	-0 32	17 Elevator machine room	NA	Lube oil Transient lube oil	3 gal. 3 gal.	1000	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	, '	1

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#### TABLE 9A-1 (cont)

		and pader intion and	App R	Haz	ard	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown
ft-in.	sone	Fire Zone Description and Cable	Compl	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip
087-0	3218	Hatchway area							or cable in zone. I
087-0	3219	Cable tray area	NA	Cable insul	<b>46,063</b> 1b	<b>\$1,</b> 500	Jonizat Photo-el	H <sub>2</sub> O hose Port ext CO <sub>2</sub> hose	None. No safe   shutdown equip or cable in   zone.
087-0	3220	Oil intercepter room	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.
087-0	3221	Cable tray area	NA	Cable insu	1 5535 lb	24,330	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
087-0	3222	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
102-0	3301	Vestibule	NA	Cable insu	al 4543 1b	64,900	Ionizat.	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
102-0	330	2 Corridor	Yes	Cable ins	ul 7325 lb	46,600	Ionizat photo a	R <sub>2</sub> O hose Port ext	None. Redundant   Div.I cable and   with III.G.2.a   separation would   be used for safe   shutdown.
102-	0 330	3 Men's tollet	Yes	Cable ins	ul 1991 lb	38,400	Ionizat Ploto.d	R <sub>2</sub> O hose Port ext	None. Redundant Div.I cable with III.G.2.a separation would be used for safe shutdown.
102	-0 33	04 Janitor's room	Yes	Cable in Paper	sul 474 lb 500 lb	65,000 F	Ionizat pi.t.el	H <sub>2</sub> O hose Port ext	None. Redundant Div.I cable with III.G.2.a separation would be used for safe shutdown.



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#### TABLE 9A-1 (cont)

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			Ann 8	Ha	zard	Fire Load			Effects of F	ire
Elev		Fire Zone Description and Safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/ft2	Detection	Suppression	On Sale Shut	down
102-0	3305	Unrestricted machine shop	NA	None	None	None	Ionizat Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sat shutdown equ or cable in zone.	ip I
102-0	3306	Connecting corridor	NA	None	None	None	Romet OLdo al	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sai shutdown eg or cable in zone.	fe   uip
102-0	3307	Maintenance office	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sa shutdowr eq or cable in zone.	fe uip
110-8	3308	Storeroom	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sa shutdown eg or cable in zone.	fe uip
102-0	3309	Restricted machine shop	NA	Cable insul	1451 lb	2,000	Ionizat Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sa shutdown eg or cable in zone.	fe uip
102-0	3310	office	NA	None	None	None	None	Auto-wet sprinkler sys HgO hose Port ext	None. No sa shutdown e or cable in zone.	afe quip
102-0	331	1, Decontamination room 8 2 Poyer	NA	None	None	None	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No s shutdown e or cable i zones.	afe quip n
102-1	0 331	3 Lobby	NA	None	None	None	Photo al	H <sub>2</sub> O hose Port ext	None. No s shutdown e or cable i	afe quip n zone.

102-0 3314 See 5301

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	ffects of Fire n Safe Shutdown	tone. No safe   hutdown equip   or cable in zone.	shutdown equip 1 or cable in cone.	None. No safe   shutdown equip   or cable in zone.	None. No safe shurdown equip or cable in zone.	None. No safe shutdown equip or cable in zone.	None. No safe   shutdown equip   or cable in zone.	None. No safe shutdown equip or cable in zone.	Nore. No safe shutdown equip or cable in zone.	None. No safe shutdown equip			
	Europression 0	Han hose N Port ext 5	H <sub>2</sub> O hose N Port ext	None	None	None	None	None	None	None	H <sub>z</sub> O hose Port ext	H <sub>2</sub> n hose Port ext	H20 hose Port ext
	Detect ion	None	Ionizat Photo-el	None	None	None	anon	Anne	None	None	None	None	Anch
	Fire Load Btu/ft?	None	None	None	None	None	None	None	None	None	None	NORP	None
A-1 (cont)	ard Duantity	None	None	None	None	None	None	None	None	None	None	None	AUCN
TABLE 9	Raz	None	None	None	None	None	None	None	None	None	None	eucn	Anne
	App R	NA	ž	¥	¥	ž	¥¥	¥	ž	N	¥	¥	KA
	Fire Ione Deskription and	Safe Shutdown Equip and Cable Passa yeway	Tank area	Fael pool filter room	Fuel pool filter room	Fuel pool filter room	Floor drain filter room	Floor drain demineralizer room	Waste demineralizer room	Waste filter room	<ul> <li>Fuel pool filter bolding pumps room</li> </ul>	wool dwng 5	6 Pump room
		2006 3315	3316	3317	3318	3319	3320	3321	3322	3323	3324	332	0 332
	1	t-1n.	0-20	0-2-0	102-0	102-0	102-0	102-0	102-0	102-0	102-0	102-0	102-6

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#### TABLE 9A-1 (cont)

		Fire tone Destription and	App R	Haterial	Quantity	Fire Load Btu/ft?	Detection	Suppression	Effects of Fire On Safe Shutdown	
ft-in. 102-0	Eone 3328, 3329	Safe Shutdown Equip and Cable Corridor and Electrical equip- ment area	NA	Cable insul	7934 1b	26,900	Tonizat Photo-el	H <sub>2</sub> 0 hose Port ext	None. No safe   shutdown equip   or cable in zones.	
102-0	3330	Equipment decontamination room	NA	Cable insul	213 lb	1000	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.	
102-0	3331	Electrical penetration room	NA	Cable insul	4811 lb	28,000	tonizat Photo-el(	H20 hose Port ext -co, hose	None. No safe   shutdown equip   or cable in zone.	
102-0	3332, 3327	Drop area & Corridor	NA	Cable insul	6140 lb	16,600	Ionizat Photo-el	CO2 hose H20 hose Port ext	Nore. No safe   shutdown equip or cable in zones.	
102-0	3335 3380	, Corridor & Equipment access area	NA	Cable in	sul 6851 lb	17,000	Photo-el Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.	
102-0	3336	Electrical access area	NA	Cable in	sul 4675 lb	15,000	Photo-el Ionizat	H <sub>2</sub> O hose Port ext	Nonc. No safe   shutdown equip   or cable in zone.	1
102-0	3342	8 Hot water heater room	Yes	Cable in	sul 3119 1b	69000	Ionizat Pids.el	H <sub>2</sub> O hose Port ext	None. Redundant Div I equip and cable with III.G.2.a separation would be used for safe shutdown	
102-	0 334	3 Radwaste control room	NA	Cable i	nsul 14,431 lb	35,000	Ionizat	H20 hos? CPort ext	None. No safe shutdown equip or cable in zone.	1
102-	0 334	M Dry radwaste storage area	NA	Cable i	nsul 6375 lb	28,000	Photo-e	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	Nore. No safe shutdown equip or cable in zone.	

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#### TABLE 9A-1 (cont)

Elev		Pire Zone Description and	App R Compl	Haza Material	rd Quantity	Fire Load Btu/it?	Detection	Suppression	Effects of Fire On Safe Shutdown
<u>ft-in.</u> 102-0	3346	Corridor	NA	ASPHALT IN PIPE	None 16 20 16	None	Photo-el Tonizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	3347	Drum capper & seamer swipe sta. & conveyor area	NA	ASPHALT MORE DRUMS	1000 16 2.760	105,000	Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	3348	Radwaste loading area	NA	NOTE ASPHALT IN SEALED DRUMS	None 2760 15	None	None	Auto- preaction sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	3389	Drum turntable area	NA	None AspHALT N -PEN OR INS	None 16 2 160	None 259. 000	<del>Ionisat<sup>0</sup> Photo-el</del>	Auto- wef preaction sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	3350	Drum turntable area	NA	Norte ASPHALT IN OPEN ORVAS	100 10 10 2760	None 294, 40	<del>Ionizat<sup>e</sup> Photo-el</del>	Auto- wel presotion sprinkler sys HgO hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	3351	Storage area	NA	Cable irsul	2460 lb	15,000	Photo-el Jonisat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	335	6 Asphalt metering pump 8 instrumentation area	NA	Cable insul (ASPHALT)	9102 1b (300 1b)	41,000	Photo-el <del>Ionisat <sup>C</sup></del>	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
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#### TABLE 9A-1 (cont)

-		Fire Zone Description and	App R	Haza	rd	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown
<u>ft-in.</u> 102-0	<u>Eone</u> 3357	Safe Shutdown Equip and Cable Extruder evaporator room	NA	None & Asphalt IN PIPE	Bone 16	None	Ionizat <sup>2</sup> Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	3358	Extruder manifold area	NA	None ASENALT IN PIPE	None 10 16	None	Ionizat <sup>Q</sup> Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	3359	Extruder evaporator room	AN	NOR ASPHALT N PIPE	Rone 1016	None	Ioniza#2 Photo-el	Auto-wet sprinklar sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zore.
102-0	3360	Centrifuge feed tank recirc pump room	NA	None	None	None	Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	3361	Centrifuge feed tank room	NA	None	None	None	Photo-e1	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	336	Cryst bottoms pump room	NA	None	None	None	Photo-e1	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-0	336	3 Cryst instr rack area	NA	Cable insu	1 615 16	25,000	Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
102-	0 336	Cryst. condensate skid area	NA	Cable insu	1 615 lb	12,800	Photo-e	1 Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.

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#### TABLE 9A-1 (cont)

		and and	App R	Haza	rd	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown
t-in-	zone	Fire Zone Description Safe Shutdown Equip and Cable	Compl	Material	615 1b	8,500	Photo-e1	Auto-wet	None. No safe   shutdown equip
102-0	3365	Cryst recirc pump sample skid area	NA	Cable most				sys H <sub>2</sub> O hose Port ext	or cable in tone.
102-0	3366	Cryst bottoms tank room	NA	None	None	None	Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in   zone.
102-0	3367	Cryst recirc pump roba	NA	Cable insul	492 1b	11,700 Anto-wet spind	Photo-el	Auto-wet sprinkler sys Hg0 hose Port ext	None. No safe   shutdown equip   or cable in   zone.
111-0	3368	Drum mezzanine	NA	None	None	None	Non iza P Photo-et	AzO hose Port ext	None. No safe   shutdown equip   or cable in zone.
112-0	3369	Pump mezzanine	NA	None	None	None	Philand	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
124-0	3 3 8 01	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
124-	0 380	2. Oncontrolled outage trade 5 labor locker area 6	NA	None	None	None	Ionizat	H <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in zones.
128-	0 340	3 Clean issue room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
124-	0 340	Blectrical tray room	NA	Cable insul	2069 1b	58,000	Ionizat	H <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in zone.
178	-0 18	06. Uncontrolled toilet, Shower	s FA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones

3407, & Drying area 3408

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#### TABLE 9A-1 (cont)

		Fire Tone Description and	App R	Ha	zard	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown
ft-in.	zone	Safe Shutdown Equip and Cable	Comp1	Material	Quantity	Dearres	PERSERIES.		Name No mife
124-0	3410, 3411,	Showers, Dring area & Uncontrolled toilet	NA	Nort	None	None	None	H <sub>2</sub> O hose Port ext	shutdown equip or cable in zones
124-0	3412 3413, 3409	Uncontrolled maint locker area & Corridor	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.
124-0	3414	Clean issue room	Yes	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant Div I cable with III.G.2.a separation would be used for safe shutdown
129-0	3815 3838, 3816,	5 Showers, Drying area 5 Disrobe area	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in zones
124-0	34 18 34 19	, Technicians' & Supervisors' offices	NA	Paper	100 lb	800	Jonizar	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones
128-0	3420	Calibration & Repair shop	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
124-0	3421	Controlled hot chemical lab	NA	None	None	None	Tonizat	H <sub>2</sub> O hose Port ext	Nore. No safe shutdown equip or cable in zone.
124-0	3823	Counting machine room	NA	none	None	None	Ionizat	HgD hose Port ext	None. No safe Shutdown equip
124-0	34	esa Corridor	MA	None	plane	Alona	Tonizet	Port est	Somear above
124-	0 342	Chemistry storage room	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.

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### TABLE 9A-1 (cont)

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Elev	tone	Fire Zone Description and Safe Shutdown Equip and Cable	App R Compl	Haza Material	Quantity	Fire Load Btu/ft?	Detection	Suppression	Effects of Fire On Safe Shutdown
124-0	3426	Blectrical access area Unorcupied space	NA	None	None	None	Ionizat Photo-e1	H20 hose e	None. No safe   shutdown equip   or cable in zone.
124-0	3427	Clean chemical lab	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
124-0	3429	Technical nuclear shop	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
124-0	<b>3</b> 426	Controlled laundry storage room	NA	Clothing, towels, etc	5600 lb	38,000	Tonizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip   or cable in zone.
124-0	3431	Wet & dry laundry room	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
128-0	3432	Auxiliary panel room	NA	Cable insul	6367 1b	34,200	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
124-0	3433	Vestibule	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
124-0	3435	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
124-0	3436, 3439	, Controlled corridor 6 Passageway	NA	Cable insul	2244 lb	13,000	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in   zones.
124-0	3438	Controlled access area	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. Mo safe   shutdown equip   or cable in zone.

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#### TABLE 9A-1 (cont)

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				Ba	zard	Fire Load			Effects of Fire
Elev ft-in.	tone	Safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/ft2	Detection	Suppression	On Safe Shutdown
124-0	3440	Passageway	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext	None. No safe   shutdown equip   or cable in zone.
124-0	3441, 3445, 3448, 3451	Decontamination area Access control area, Controlled corridor and Monitor area	NA	Cable insul	1942 lb	7,600	Jonizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in   zones.
124-0	3442	Equipment removal area	Yes	None	None	None	Ionizat Photo-el	H <sub>2</sub> O hose Port est?	None. Redundant Div I cable with III.G.2.a separation would be used for safe shutdown.
124-0	3443, 3445	Controlled corridor & Controlled locker area	Yes	Cable insul	1392 lb	10, 300	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant   Div I cable   with III.G.2.a   separation would   be used for   safe shutdown.
128-0	3446	Controlled toilet	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
128-0	3887	Respirators, cannisters, & valve room	NA	None	None	None	Ionizat	H <sub>z</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.
124-0	3449	Auxiliary panel room	NA	None	None	None	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.



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TABLE 9A-1 (cont)

			Pa
Fire Load			Effe
Btu/ft2	Detection	Suppression	On S

		Fire Zone Description and	App R Compl			Fire Load			Effects of Fire On Safe Shutdown	
Elev				Material Quantity		Btu/ft2	Detection	Suppression		
<u>ft-in.</u> 124-0	3450	Unassigned Baddagoway	NA	None	None	None	Ionizat Photo-el	N <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.	
124-0	3452, 3457, 3861	Centrifuge, Incinerator 8 Filter Area	NA	None	None	None	Photo-el	H <sub>2</sub> O hose Port ext	None. So safe shutdown equip or cable in zones.	
	thru					Arto wet	sprinkler sy	17		
124-0	3458 3459 3460	Heater, Cooler Rooms	NA	None	None	None	Photo-el	A <sub>2</sub> 0 hos? Port ext	None. No safe shutdown equip or cable in zones.	
137-0	3501, 3502	Information area 8 Vestibule	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.	
137-0	3503	Storage room	NA	None	None	None	None ·	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.	
137-0	3504	Uncontrolled corritor	NA	None	None	None	fonizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.	
137-0	3505	Vestibule	АИ	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
137-1	0 3 <b>50</b> 350	6, Uncontrolled laundry room δ 8 Towel storage/issue area	Yes	Transient clothing	100 1b	1000	Ionizat	Auto-wet sprinkler sys HgO hose	None. Redundant   Div II cable has III.G.2.a separation and	
124	-0 34	55 DRUM STORAGE AREA		ASPHALT K, SEALLO DAS	~ 33,580	16 NONE	Reat out	Auto pre- actim sprin	for safe shutdown. I the Alone. No safe shutdown equip or rathe	
124	.0 34	456 FILLED ORUM STORAGE ARE		ASPHALT SEALED O	Fid 73390	16 NONE	Heat act	Auto pre- action sprinkl	None. No sale shutcher equips a cable in 3 me. Amendment 4 1	

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#### TABLE 9A-1 (cont.)

			ADD R	Ha	zard	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown
137-0	<u>zone</u> 3507	Fire Zone Description and Safe Shutdown Equip and Cable Janitor's room	COMP1 NA	<u>Material</u> None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
137-0	3509, 3521	Disrobe area & Clean clothing issue room	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.
137-0	3510	Emerg clothing room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
137-0	3512 3522	, Controlled corridors	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.
137-0	3513	Personnel toilet	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
137-1	0 351 351	<ol> <li>Uncontrolled locker rooms &amp;</li> <li>Corridor</li> </ol>	NA	None	None	None	Ionizat	Auto-wet sprinker sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.
137-	0 35	16, Drying area & Personnel 17 showers	АИ	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.
137	-0 35	18 Electrical tray room	NA	Cable	irsul 2125 lb	177,000	) None	Auto-wet sprinkle sys H <sub>2</sub> O hose Port ext	None. No safe r shutdown equip or cable in zone.





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TABLE 9A-1 (cont)



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Effects of Fire

ext

Port ext

Auto-wet

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None

None

None. No safe

or cable in zone.

shutdown equip

Elev		Fire Zone Description and	App R Compl	Hazard		Fire Load	n-t-stlan	Cupprocelan	on Safe Shutdown	
				Material	Quantity	Btu/ft2	Detection	suppression	OIL OULS DISSESS	
<u>ft-in.</u> 137-0	<u>zone</u> 3519	Uncontrolled locker room	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
137-0	3520	Controlled locker area	NA	None	Nore	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	Nore. No safe shutdown equip or cable in zone.	
137-0	3523	Disrobe area	АИ	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
137-0	3524	Supervisors' controlled lockers	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose	None. No safe shutdown equip or cable in zone.	

									Port ext
37-0	3525	Supervisors'	uncontrolled	NA	None	None	None	Ionizat	Auto-wet sprinkler
		lockers							sys H <sub>2</sub> O hose
									Port ext

NA

None

None. No safe Auto-wet None None None None 137-0 3526, Shower room, Drying area & NA shutdown equip sprinkler or cable in 845 in 3528 3527, Toilet room zones. H<sub>2</sub>O hose 3528 Port ext None. No safe Auto-wet None None None N'A None shutdown equip sprinkler 137-0 3529 Entry room or cable in 978 H,o hose zone.

None

137-0 3530 Toilet room

shutdown equip sprinkler or cable in zone. H20 hose Port ext

None. No safe

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### TABLE 9A-1 (cont)

		- b-totion and	ADD R	Ча	zard	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown
tt-in.	tone	Fire Zone Description and Safe Shutdown Equip and Cable	Compl	Material	100 lb	3000	Ionizat	Auto-wet	None. No safe
137-0	3531, 3532	Dosimetry lab area & Health physics office	NA	Paper	100 10			sys H <sub>2</sub> O hose Port text	or cable in zones.
137-0	3533	Access control area	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
137-0	3534	Central monitors area	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe   shutdowr equip or cable in zone.
137-0	3535	Decontamination area	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
137-0	3536 3537 3538	Disrobe area, Drying area , & Shower area	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.
137-0	353 354	9, Controlled corridors	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zores.
137-0	354	1 Clean clothing issue room	NA	None	None	None	Ionizat	HgO hose Port ext	None. No safe shutdown equip or cable in zone.
137-0	0 354	2 Controlled corridor	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose	None. No safe shutdown equip or cable in zone

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### TABLE 9A-1 (cont)

		sine tone perceription and	App R	Ha	zard	Fire Load	not act ion	Suppression	Effects of F	ire down	
Elev		Take Shutdown Equip and Cable	Compl	Material	Quantity	BEU/IE	Detection	Suppression			
137-0	3543	Controlled corridor	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port exte	None. No saf shutdown equ or cable in zone.	e ip	
137-0	3544	Controlled corridor	NA	None	None	Auto-wet sp None	rinkler syst Ionizat	H <sub>2</sub> 0 hose Port ext	None. No saf shutdown equ or cable in	e   ip   zone.	
137-0	3545	Telephone equip room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No saf shutdown equ or cable in	ip zone.	
137-0	3586	Conference room	NA	Paper	100 lb	2000	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sai shutdown egu or cable in zone.	te   nip	
137-0	3547	Auxiliary decontamination area	NA	None	None	None	Ionizat	Auto-wet sprinklar sys HgO hose Port ext	None. No sai shutdown eg or cable in zone.	te   uip	
137-0	3548, 3549, 3550	, Disrobe area, Shower room , and Drying area	NA	None	None	None	None	Auto-wet oprinkle oys H <sub>2</sub> O hose Port ext	Nore. No sa shutdown eg or cable in zones.	fe uip	
137-0	3551 3554	, Controlled corridors	NA	Cable insul	2936 lb	38,200	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sa shutdown eq or cable in zones.	fe uip	
137-0	3552	Toilet room	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sa shutdown eq or cable in zone.	fe uip	
137-(	355	3 Janitor's room	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No sa shutdown eq or cable in zone.	fe juip	

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### TABLE 9A-1 (cont)

		a bastation and	App R	На	zard	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown	
ft-in.	zone	Fire Zone Description und Sable Safe Shutdown Equip and Cable	Compl	Material None	None	None	Ionizat	Auto-wet sprinkler	None. No safe shutdown equip	1
137-0	3555	controlled laundry rm						sys H <sub>2</sub> O hose Port ext	or cable in zone.	
137-0	3556	Auxiliary controlled locker room	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	•
137-0	3557	Auxiliary uncontrolled locker room	NA	None	None	None	Ionizat	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
137-0	3558	Toilet room	NA	None	None	None	None	Auto-wet sprinkler sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
137-0	3559	, Drying area & Shower room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zon	es.
137-0	3561	l Entry	NA	None	None	None	None	Auto-wee sprinkler sys 2 H <sub>2</sub> O hose Port ext	None. No safe > shutdown equip or cable in zone.	
137-	0 356	2 Oncontrolled instrument shop	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
137-	0 350	54 Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zo	ne.
137-	-0 35	65 Standard room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zo	me.



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### TABLE 9A-1 (cont)

			ton P	TROD	Hazard	Fire Load	net ection	Suppression	Effects of Fire On Safe Shutdown
Elev	zone	Fire Zone Description and Safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/tt*	None	Auto-wet	None. No safe
137-0	3566	Storage room	NA	Paper	400 155	22,200		sprinkler sys H <sub>2</sub> O hose Port ext	or cable in zone.
137-0	3567	Reproduction room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
137-0	3568	Performance dept office	NA	Paper	300 lb	2000	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
137-0	3569	office area	NA	Paper	300 lb	2000	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
137-0	3570 3572	, Corridors	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zones.
137-0	3571	Controlled instrument shop	NA	None	None	Nore	Ionizat	H <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in zone.
137-0	357	6 Remote shutdown facility Panel C-399 with Div I & Div II safe shutdown instrumentation and controls Div I cable (Div II bottom entry)	Yes	Cable Paper	insul 1278 lb 200 lb	17,800	Ionizat	H <sub>2</sub> O hose Port ext CO <sub>2</sub> hose	None. Redun- dant Div I cable and controls in the main control rm with III.G.2.a separation would be used for shutdown.
137-	0 35	78 Disrobe area	NA	None	None	None	None	Auto-wet sprinkle sys H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.

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TABLE 9A-1 (cont)

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		star fore Destriction and	Ann R	Haza	ard	Fire Load			Effects of Fire
ft-in.	zone	Safe Shutdown Equip and Cable	Comp1	Material	Quantity	Btu/ft2	Detection	Suppression	On Safe Shutdown
137-0	3579	Vestibule	NA	None	None	None	Ponizat P	H <sub>2</sub> 3 hose Port ext	None. No safe   shutdown equip   or cable in zone.
137-0	3580	HVAC filter room	NA	None	None	None	Tonizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
137-0	3581	Vent stack	NA	None	None	None	None	H <sub>2</sub> O hose <sup>0</sup> Port ext O	None. No safe   shutdown equip   or cable in zone.
137-0	3582	Access area	NA	None	None	None	Photo-el	Auto-wet sprinkler sys H <sub>2</sub> O hose Port erte	None. No safe   shutdown equip   or cable in   zone.
137-0	3583	Entrain <sup>®</sup> t separator room	NA	None	None	None	Photo-el	R <sub>2</sub> O hose Port ext?	None. No safe   shutdown equip   or cable in zone.
137-0	3584	Vapor body room	NA	None	None	None	Photo-el	H <sub>2</sub> O hose Port ext 2	None. No safe   shutdown equip   or cable in zone.
153-3	3601, 3602	Reactor building ventilation equip rm	NA	Cable insul	11,075 15	10,700	Ionizat Photo-el	H <sub>2</sub> O hose C <del>O<sub>2</sub> hose</del> Port ext	None. No safe   shutdown equip   or cable in zones.
153-3	3603	Reactor building ventilation equip rm	NA	Cable insul	8389 1b	11, 100	Tonizat Photo-el	H <sub>2</sub> O hose CO <sub>2</sub> hose Port ext	None. No safe   shutdown equip   or cable in zone.
155-3	3604, 3607, 3608	Corridors	NA	None	None	Hone	Ionizat Photo-el Noncin 3607	Hg0 hose Port ext	None. No safe   shutdown equip   or cable in zones.
155-3	3605	HEV equip area	NA	Cable insul	468 1b	1690	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in

zone.



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TABLE 9A-1 (cont)

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_		Time tone Description and	App R	Haza	rd	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown
ft-in.	zone	Safe Shutdown Equip and Cable	Compl	Material	quantity	DEUTICE		u o hogo	None, No safe
155-3	3606	Radwaste exh system equip rm	NA	None	None	None	Photo-el	Port ext	shutdown equip   or cable in zone.
155-3	3609	H&V equip area	NA	Cable insul	850 lb	640	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	Nore. No safe   shutdown equip   or cable in zone.
153-0	3613	TSC Mechanical Room	NA	Charceal .	145016	26,900	Head det in filter	spray in filter unit hose	None. No sole shortdown cquip a calle in Jone.
Reacto	r Buil	ding					None	H-O hose	None. No safe
054-0	4 10 1	Torus water cleanup pump rm	NA	None	None	None	NOIL	Port ext	chutdown equip i or cable in some.
054-0	•102	Torus compartment Div I valves - HPCI, RHR Div I cable	No	Cable insul	9548 1b	4000	Neat Actuated	Post ext <sup>0</sup> H <sub>2</sub> 0 hose	None. See
		Div II valves - RCIC, RHR Div II cable					Tonigat	H_O hose	None. No safe
054-0	<b>4103</b>	Vestibule	NA	None	None	None	Hone	Port ext	shutdown equip   or cable in zone.
054-0	¥10ª	Core spray pump rm Div II cable	Yes	Cable insu Lube oil Transient lube oil	1 7522 1b 15 gal. 15 gal.	47,400	Ionizat	H <sub>2</sub> O hose Port ext	None.Redundant Div I cable would be used for safe shutdown.
054-0	• 105	Core spray pump rm Div II cable	Yes	Cable insu Lube oil Transient lube oil	1 2879 lb 15 gal. 15 gal.	22,200	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant   Div I cable   would be used   for safe shutdown.
054-0	8306	CRW/DRW pumps and sump rm	NA	Cable insu	1 1275 1b + 99 151	9200	None	RgO hose Port ext	None. No safe   shutdown equip or cable in zone.
054-0	•107	RHR pump rocm Div II RHR pump 1DP202 Div II jockey pump 1DP228 Div II unit clr 1HVH210 10VH210	Yes	Cable insu Lube oil Transient Lube oil	al <b>0</b> 900 lb 39 gal. 39 gal.	22,500	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant   Div I equip   and cable would   be used for   safe shutdown.
		Div II rack 10C069-RHP, ADS Div II cable				***			
4.72	-6 37	03 Vent Stack andosure	NA	plore	Nore	Nort	None	Nore	Nont Amendment 4
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### TABLE 9A-1 (cont)

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Flev		Fire zone Description and	App R	Haza	rd Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown	
ft-in. 054-0	<u>sone</u> 4112	Safe Shutdown Equip and Cable HPCI elect equip rm Div I MCC 10D251-HPCI Div I rack 10C018-RHR, ADS Div I cable	Yes	Cable insul	R646 1b	36,000	Tonizat	H <sub>2</sub> O hose Port ext	None. Redundant   Div II equip   and cable   would be used   for safe shutdown.	
053-0 077-0	#113, #214	RHR pump and HX rm Div I RHR pump 1AP202 Div I RHR HX 1AE205 Div I valves - RHR Div I unit clr 1AVH210, 1BVH210 Div I cable - RHR	¥es	Cable insul Lube oil Transient lube oil	5913 lb 39 gal. 39 gal.	37,700	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant   Div II equip   and cable   would be used   for safe shutdown.	1
054-0	*11*	RHR pump rm Div I RHR pump 1CP202 Div I jockey pump 1CP228 Div I rack 10C055 - RHR Div I unit clr 1CVH210 1GVH210 Div I valves - RHR	Yes	Cable insul Lubé oil Transient lube oil	4292 1b 39 gal. 39 gal.	19,900	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant Div II equip and cable would be used for safe shutdown.	•
054-0	•115	CRW/DRW pumps and sump rm Div I cable - HPCI	Yes	Cable insul Charlord City	1360 1b 99 165 1	11,800 9,900	None	H <sub>2</sub> O hose Port ext	None. Redundant   Div II cable   would be used   for safe shutdown.	1
054-0	4116	Core spray pump rm	Yes	Cable insul Lube oil Transient Lube oil	5890 lb 15 gal. 15 gal.	33,900	Ionizat	H <sub>2</sub> 0 hose Port ext	None. Redundant   Div II equip   and cable would be used for safe   shutCrwm.	
054-0	•117	Vestibule	NA	None	None	None	Jonijat None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.	
054-0	4118	Core spray pump rm Div I cable	Yes	Cable insul Lube oil Transient lube oil	3892 lb 15 gal. 15 gal.	26,900	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant   Div II equip   and cable would   be used for   safe shutdown.	

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### TABLE 9A-1 (cont)

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				Pazz	ard	Fire Load			Effects of Fire
Elev ft-in.	Zone	Safe Shutdown Equip and Cable	Compl	Material	Quantity	Rtu/ft2	Detection	Suppression	On Safe Shutdown
077-0	4201	Motor control center area Div II MCC 10B242 Div II cable	No	Cable insul	13,506 15	45,400	Ionizat Heatoct	HzO hose Port ext auto preadi in sprintle 915	None. Pedundant.   Div I equip and cable would   be used for   safe shutdown. See Section 9A.6.0.
077-0	<b>\$</b> 202	CRD pumps area Div II control panels: 10C066 RBR 10C026 Rx level and press Div II cable	Yes	Cable insul Lube oil Transient lube oil	12410 lb 3 gal. 3 gal.	47,700	Tonizat	H <sub>2</sub> O hose Port ext	None. Redundant Div I equip and cable would be used for safe shutdown.
077-0	4203	Corridor Div II control rack: 10C027 Rx level and press Div I and II cable	Yes	Cable insul	4371 15	31,700	Ionizat	R <sub>2</sub> O hose Port ext	None. Redundant   Div I equip   and cable would   be used for   safe shutdown.
077-0	4204	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
077-0	<b>\$</b> 205	Elect equip rm Div II cable - RHR Div I cable - HPCI	Yes	Cable insul	6978 1b	25,400	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant   Div I equip   and cable would   be used for   safe shutdown.
077-0	\$206	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
077-0	4207	Passageway	No	Cable insul	1 3258 1b	85,700	Jonicat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone. See Section 9A.6.0 for deviation   description.

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### TARLE 9A-1 (cont)

				THOUGH					
		ales area production and	ADD R	Haz	ard	Fire Lord		Cuprentian	Effects of Fire
Elev ft-in-	zone	Safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/ft?	Detection	Suppression	On our ondesen
102-0	\$301, \$310	Corridor and Elect equip area Div I MCC 10B232 for SACS, SSWS, HPCI, RHR Div I & II cable	Yes	Cabl * insul	36,258 1b	56,200	Tonizat Heat act	H20 hose Port ext Auto preaction sprinkler sys in 4301	None. Redundant Div II equip and cable would be used for safe shutdown.
102-0	<b>4</b> 303	Motor control center area Div II MCC 10B222 for SACS, SSWS, RCIC, RHR Div II cable	Yes	Cable insul	32,274 1b	70,000	Ionizat	H <sub>2</sub> 0 hose Port ext	None. Redun- dant Div I equip and cable would be used for safe shutdown.
102-0	\$30\$, \$305	Personnel airlocks	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone
102-0	<b>\$</b> 307	SACS HX and pump rm-Div II Div II SACS pumps 1BP210 1DP210 Div II SACS HX 1B1E201 1B2E201 Div II control panels 1BC201 10c201 Div II valves-SACS and SSWS Div II unit coolers 1BVH214 1DVH214 Div I & II cable - SACS	No	Cable insul Lube oil Transient lube oil	9584 lb 4 qal. 9 gal.	10,900	Tonizat	H <sub>2</sub> O hose Port ext	None. Redundant Div I equip and cable would be used for safe shutdown. See Section 9A.6.0 for description of deviations (PT door and access panel).
102-0	4309	SACS HX and pump rm-Div I Div I SACS pumps 1AP210 1CP210 Div I SACS HX 1A1E201 1A2E201 Div I control panels 1AC201 1CC201 Div I valves-SACS and SSWS Div I unit clrs 1AVH218 1BVH214	No	Cable insul Lube oil Transient lube oil	27,692 4 qal. 4 qal.	21,800	Ionizat	H <sub>2</sub> J hose Port ext	None. Redundant Div II equip and cable would be used for safe shutdown. See Section 9A.6.0 for description of deviations (PT door and access parel).

None

NA

None

102-0 4311 Vestibule

Div I & II cable - SACS

None. No safe

H<sub>2</sub>O hose Port ext

None

None

shutdown equip or cable in zone. |

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TABLE 9A-1 (con+)

		Rise Tone Description and	App R	На	zard	Fire Load			Effects of Fire
ft-in.	zone	safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/ft2	Detection	Suppression	on sale shutdown
10 2-0	4313	Personnel airlock	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
102-0	<b>\$</b> 315	Corriđor	No	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown cable or equip in zone See Section 9A.6.0. This zone separates redundant divisions.
102-0	4316	Steam tunnel	No	None	None	None	None	H <sub>2</sub> O hose Port ext (	None. Redundant   Div I equip   and cable would   be used for safe   shutdown. See section 9A.6.0 for unrated PT door.
102-0	•317	CRD master control area Div II cable - RHR, RCIC MSRVs & SACS	No	Cable insul	11,885 lb	50,800	forizat	H <sub>2</sub> O hose Port ext	None. Redundant Div I cable would be used for safe shutdown. See Section 9A.6.0 for deviation request. CRD control is fail safe.



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### TABLE 9A-1 (cont)

Elev		Fire zone Description and	App R	Raza Material	rd Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown	
ft-in. 102-0	8 3 18	Safe Shutdown Equip and Cable Neutron monitoring system area Div II cable - RHR, RCIC, MSRVs & SACS	Yes	Cable insul	4965 1b	49,700	Ionizat	H <sub>2</sub> 0 hose Port ext	None. Redundant   Div I cable would be used for safe shutdown.	1
099-9	\$319	RCIC pipe chase	No	None	None	None	tione	H <sub>z</sub> O hose Post ext:	None. Redundant Div I equip and cable would be used for safe shutdown.	
102-0	<b>\$</b> 320	CRD hydraulic control area Div II cable	No	Cable insul	3630 lb	19,800	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant Div I cable would be used for safe shutdown. CRD is fail safe. See Section 9A.6.0 for deviation request.	, <sup>1</sup>
099-9	•321	Pipe chase Div II RHR valves	No	None	None	None	Nane	H <sub>2</sub> 0 hos? Port ext?	None. Redun- dant Div I equip and cable would be used for safe shutdown.	
102-0	• 322	Personnel and equip access area Div II cable	No	Cable insu	1 6266 1b	22,500	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant Div I cable would be used safe shutdown. See Section 9A.6.0 for deviation.	
102-0	• 323	Bquip airlock	NA	New fuel wood crate	55,000 1b	163,000	Ionizat	Hg0 hos? Port ext	None. No safe shutdown equip or cable in zone.	
102-	0 432	Personnel atrlock	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	



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TABLE 9A-1 (cont)

		at a same postriction and	ADD R	На	zard	Fire Load			Effects of Fire
Elev ft-in.	zone	Safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/ft2	Detection	Suppression	On Sale Shutdown
102-0	\$326	CRD removal and repair area Div I cable	No	Cable insul Transient wood	3564 lh 500 lh	30,300	]onizat	H <sub>2</sub> O hose Port ext	None. Redundant Div II equip and cable would be used for safe shutdown. See Section 9A.6.0 for deviation description.
10 2-0	4327	HPCI pipe chase Div I HPCI valve	No	None	None	None	None	H <sub>2</sub> 0 hose <del>Port ext.</del> e	None. Redun-   dant Div II equip and cable   would be used   for safe shutdown.
102-0	<b>4</b> 328	CRD hydraulic control area Div I cable	No	Cable insul	8859 lb	29,900	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant Div II equip and cable would be used for safe shutdown. CRD is fail safe. See Section 9A.6.0 for deviation description.
102-0	\$329	North pipe chase Div I RHR valves	No	None	None	None	None	H <sub>2</sub> D hose Port exte	None. Redun- dant Div II valves would be used for safe shutdown.
102-0	•330	Drywell access area	Yes	Cable ins	ul 1986 lb	39,700	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant   Div II equip   and cable would   be used for   safe shutdown.
102-0	4331	Personnel and equip access area Div I cable	No	Cable insul	7773 lb	26,800	Ionizat	H <sub>2</sub> hose Port ext	None. See Section 9A.6.0 for deviation description.
102-0	433	2 Washdown area	NA	Cable in	sul 1190 lb	au, 100	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.



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Fler		Pire Zone Description and	App R	Haz Material	Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Pire On Safe Shutdown
ft-in. 102-0	<u>zone</u> 4333	<u>Safe Shutdown Equip and Cable</u> CRD storage area	Yes	Cable insul	3081 lb	95,700	STET	H <sub>2</sub> O hose Port ext	Nonc. Redundant   Div II equip and   cable would be   used for safe shutdown.
119-6	<b>\$</b> 33 <b>\$</b>	Elevator machine room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
132-0	4401	Electrical equip area	NA	Cable insul	8422 1b	13,300	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in   zone.
132-0	<b>44</b> 02	Pipe chase	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No   safe shutdown equip or cable in zone.
132-0		Reactor water cleanup recirc pump rm	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext	None. No safe   shutdown equip or cable in zone.
132-0		Corridor	NA	Cable insul	5631 1b	28,200	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
132-0	**05	RMCO recirc pump rm	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
132-0		i RWCU backwash transfer pump r	n NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in zone.
132-	0 440	7 RWCU backwash receiving tank rm	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
132-	0 440	8 Equip removal area	NA	Cable insul	12,134 11	18,500	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.

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TABLE 98-1 (cont)

				INDED IN						
ev		Fire Zone Description and	App R	Haza	Ouantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown	
- <u>in</u> . 32-0	80ne 8809	Safe Shutdown Equip and Cable Steam vent	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
32-0	4410, 4411	FRVS recirc units area FRVS recirc fans 1AV213 and 1CV213 FRVS recirc filters 1AVH213 and 1CVH213	NA	Cable insul Charcoal	34,394 1b 15,000 1b	69,900 in filter}	Heat act Ionizat	Preaction water spray (in filter unit H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in )zones.	
32-0	4412	Containment instr gas compressor rm	NA	Cable insul Lube oil Transient lube oil	1108 lb 1 gal. 1 gal.	18,500	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
32-0	4413	Contain ant instr gas compressor rm	N3	Lube oil Transient lube oil	1 gal. 1 gal.	1,000	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
32-0	4415, 4416,	Technical support center	NA	Paper	500 lb	1800	Ionizat Photo el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone	et
45-0	4501	Elect equip area	NA	Cable insul	12,812 11	36,800	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
145-0	4502	RWCU filter demin holding pump rm	NA	Cable insu	1 256 1b	6400	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zon	e
145-0	4503	RMCU filter demin holding pamp rm	NA	Cable insu	1 142 1b	3,600	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zon	e
145-0	4504	Passageway	NA	Cable insu	1 9997 1b	18,300	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zon	e
145-0	4505	Pipe chase	NA	None	None	None	None	HzO hose	None. No safe shutdown equip	

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Toniget Photo el

port est

Poper 200

NA

-132-0 4418 TSC computer Koms 4414

Elev

ft-in. Sone 132-0 4409

132-0 4410, 1

132-0 4412

132-0 4413

132-0 4415,

-145-0 4501

145-0 4502

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or cable in zone. None. No sate shutdown equip a cob le in 3 1

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				TABLE 94	(-) (conc)				Effects of Fire
		Rive Tone Description and	App R	Haza	Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	On Safe Shutdown
<u>ft-in.</u> 145-0	<u>zone</u> 4506	Safe Shutdown Equip and Cable RWCU heat exchanger rm	Comp1 NA	None	None	None	None	H20 hose Port ext (	None. No safe shutdown equip or cable in
145-0	\$508	Corridor	NA	Cable insul	10,581 1b	20,300	Tonizat	H <sub>2</sub> 0 hose Port ext	zone. None. No safe   shutdown equip or cable in zone.
185-0	4509	Pipe chase	NA	None	None	None	None	H <sub>2</sub> O hose Port ext <sup>e</sup>	None. No safe shutdown equip or cable in zone.
145-0	\$510	Personnel airlock	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
145-0	4511	FRVS vent unit rm FRVS vent filter 1AVH206 FRVS vent fan 1AV206	NA	Char coal	2250 lb	69,400	Reat act in filler unit	Preaction water spray (in filter unit) H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
145-0	4512	FRVS vent unit rm FRVS vent filter 18VH206 FRVS vent fan 18V206	NA	Char coal	2250 lb	58,400	Reat act in 1.14 	Preaction water spray sys (in fil- ter unit). H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
145-0	\$ \$513	<b>Bam</b> ple station rm	NA	Cable insu	1 634 1b	10,000	Ionizet None	H <sub>2</sub> O hose Port ext	None. No mafe   shutdown equip or cable in zone.
185-	0 451 451	, Technical support center	NA	Paper	500 lb	1800	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.
145-	451 451 0 451	7 8 Main steam tunnel HVAC equipment room	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.



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				TABLE 9A-	-1 (cont)						
			App R	Haza	d	Fire Load Btu/ft <sup>2</sup>	netection	Suppression	Effects of On Safe Shu	atdown	
Elev ft-in-	zone	Safe Shutdown Equip and Cable	Comp1	Material	and th	18.000	Ionizat	H <sub>2</sub> O hose	None. No s	afe	
162-0 178-#6	4601, 4618	Corridor and Platform area	NA	Cable insul	3822 10	18,000		Port ext	shutdown e or cable i zone.	n Iurb I	
162-0	\$602 \$60\$	Post-LOCA recombiner area	NA	Cable insul	11,837 lb	23, 500	Ioniza†	H <sub>2</sub> O hose Port ext	None. No s shutdown e or cable i zones.	afe   quip   n	
162-0	4603	Containment prepurge cleanup rm	NA	Char coal	750 lb	12,500	Heat act in hiller unit	H <sub>2</sub> O hose Port ext Preaction water spray (in filter unit)	None. No s shutdown o or cable i	afe   guip in zone.	1
162-0	4605	, Equipment area and corridor	NA	Cable insul	5953 1b	9,800	Ionizat	H <sub>2</sub> O hose Port ext	None. No shutdown or cable	safe   equip   in zones.	,
162-0	4606	Standby liquid control area	NA	Cable insul	3485 1b	26,300	Ionizat	H <sub>2</sub> O hos: Port ext	None. No shutdown or cable zone.	safe   equip in	
162-0		Fuel pool water suction area	NA	None	None	None	None	H <sub>2</sub> O hose Port ont	None. No shutdown or cable	safe   equip   in zone.	1
162-1	0 460	9 Jamma scan electronic rm	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No shutdown or cable	safe   eguip   in zone.	,
162-	0 461	3 Gamma scan detector area	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No shutdown or cable zone.	safe equip in	
162-	-0 \$61	PRVS recirc unit rm E PRVS recirc filter 1EVH213 PRVS recirc fan 1EV213	NA	Cable insu Charcoal	1 3842 1b 7500 1b	55,000	Ionizat Heat ac in filter unit	Preaction water spra sys (insid filter unit) H <sub>2</sub> O hose Port ext	None. No y shutdown de or cable zone.	safe equip in	

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### TABLE 9A-1 (cont)

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						rd	Fire Load			Effects of	fFire
Elev ft-in-	tone	Fire Zone De Safe Shutdow	m Equip and Cable	App R Compl	Material	Quantity	Btu/ft2	Detection	Suppression	On Sale SI	1
162-0	4615	FRVS recirc FRVS recirc FRVS recirc	unit rm D filter 1DVR213 fan 1DV213	NA	Cable insul Charcoal	1271 lb 7500 lb	48,100	Ionizat Heat act in filte- unit	Preaction water spray sys (inside filter unit) H <sub>2</sub> O hose Port ext	None. No shutdown or cable zone.	safe   equip   in   
178-6	\$616	FRVS recirc FRVS filter FRVS recirc	unit rm F 1FVH213 recirc fan 1FV213	NA	Cable insul Charcoal	7636 1b 7500 1b	54,400	Ionizat heat act in filter unit	Preaction water spray sys (inside filter unit) R <sub>2</sub> O hose Port ext	None. No shutdown or cable zone.	safe   equip   in   
178-6	4617	PRVS recirc PRVS recirc PRVS recirc	: unit rm B : fan 18v213 : filter 18vH213	NA	Cable insul Charcoal	5683 15 7500 15	53,900	Ionizat Heat act in (iller unit	Preaction water spray sys (inside filter unit) H <sub>2</sub> O hose Port ext	None. No shutdown or cable zone.	safe   eguip   in
176-0	4619	Electrical	access area	NA	None	None	None	None	H <sub>70</sub> hose Post ext <sup>e</sup>	Nore. No shutdown or cable	safe   equip   in zone.
162-0	0 4620 8621	, RWCU filte	r/demin vessel	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No shutdown or cable	safe   equip   in zones.
172-	6 8624	Isolation	valve room	NA	None	None	None	None	Hen bosch	None. No shutdown or cable	safe   n equip   e in zone.
162-	0 462	5 Fuel pool	cooling pump rm cooling pump 1AP21	NA	None	None	None	Nonet	HgO hose Port ext	None. No shutdow or cable	o safe n equip e in zone.
162-	0 462	6 Fuel pool	cooling pump rm cooling pump 18P21	NA 1	None	None	None	I o nijel NoneR	H <sub>2</sub> O hose Port ext	Nore. No shutdow or cabl	o safe n equip e in zone.
162-	-0 462	7 Fuel pool Fuel pool	heat exch rm heat exch 1AE202	NA	None	None	None	Longat	H <sub>2</sub> O hose Port ext	None. N shutdow or cabl	o safe n equip e in zone.

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## TABLE 9A-1 (cont)

		- Antotion and	ADD R	Haza	rd	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown
Elev		Fire Zone Description and Cable	Compl	Material	Quantity	Dearte	Tanisat		None No safe
ft-in.	8628	Fuel pool heat exch rm	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	shutdown equip or cable in zone.
218-6	•701	Elevator mach rm	NA	Lube oil Transient lube oil	3 gal. 3 gal.	6000	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
228-6	<b>\$702</b>	Polar crane entry platform	NA	None	None	None	None	H <sub>2</sub> O hos? Port ext	None. No safe shutdown equip or cable in zone.
201-0	<b>4</b> 703	Reactor basin	NA	None	None	None	None	HgO hose Port ext	None. No safe   shutdown equip   or cable in zone.
201-0	\$705. \$707	RPV head washdown area & Cask washdown area	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
201-0	\$706, \$708, \$709, \$710	, Laydown areas, New fuel storage and work , areas	NA	Transient wood	2000 lb	<1000	Photo-e1	H <sub>2</sub> O hose Port ext	None. No sate shutdown equip or cable in zone.
		ailding Control & Diesel Gener	ator Are	23				. 24 Card	None No safe 1
054-0	5 10 1	Vestibule	NA	Cable insu	1 566 lb	49,300	None	H <sub>2</sub> O hose Port ext	shutdown equip or cable in zone.
054-0	5102	Elect equip rm, non-1E	NA	Cable inst	ul 35,460 lb	42,400	Photo-el Ionizat	R <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.
054-0	510	3 125 V dc equip rm, non-1E	МА	Cable ins	ul 8282 1b	47,700	Photo-e Iorizat	CO2 hose H20 hose Port ext	None. No safe   shutdown equip or cable in zone.
054-0	0 510	<ul> <li>APCI battery rm HPCI 250-V dc batt Div I conduit</li> </ul>	Yes	Batt case	152 lb	5500	Photo-e Ionizat	1 CO <sub>2</sub> hose H <sub>2</sub> O hose Port ext	None. Redundant Div II equip and cable with III.G.2.a separation would be used for safe shutdown.

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### TABLE 9A-1 (cont.)

Flor		Fire Zone Description and	App R	Haza	Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown
<u>ft-in.</u> 054-0	<u>zone</u> 5105	Safe Shutdown Equip and Cable RPS MG set rm Div I cable	Yes	Cable insul	1275 16	13,900	Photo-el Ionizat	80, hose M <sub>2</sub> O hose Port ext	None. Redundant   Div II cable and   equip with III.G.2.a   separation   would be for   safe shutdown.
054-0	5106, 3110	Controlled storage area & Corridor Div II cable	Yes	Cable insul	22,202 lb	15,200	Tonizat Photo-el	H <sub>2</sub> O hose CO <sub>2</sub> hose Port ext	None. Redundant   Div I cable   with III.G.2.a   separation would   be used for   safe shutdown.
054-0	5107	Diesel fuel oil storage Tanks and pumps 1GT403, 1HT403 1GP401, 1HP401 Div II conduit	Yes	Fuel oil number 2	53,000 gal.	. 7.1x10*	Photo-el Infra-red HAD ° Heolt oct	CO2 tot flood H2O hose Port ext Manual deluge	None. Redundant   Div I equip and cable has III.G.2.a separation and would be used for safe shutdown.
054-0	5108	Diesel fuel oil storage Tanks and pumps 1CT403, 1DT403, 1CP401, 1DP40 Div II conduit	Yes	Fuel oil number 2	53,000 gal	. 7.1x10*	Photo-el Infra-red <del>RAD</del> Heat out	CO <sub>2</sub> tot flood H <sub>2</sub> O hose Port ext Manual deluge	None. Redundant   Div I equip and cable has III.G.2.a separation   and would be used for safe. shutdown.
054-0	5109	Diesel fuel oil storage Tanks and pumps 1ET403, 1FT403, 1EP401, 1FP40 Div I conduit	Yes 1	Puel oil number 2	53,000 gal	L. 7.1x10*	Photo-el Infra-rec HAP <sup>e</sup> Heat ant	CO2 tot I flood H20 hose Port ext Manual deluge	Nore. Redundant   Div II equip and cable has III.G.2.a separation and would be used   for safe shutdown.
054-	0 5110	Diesel fuel oil storage Tanks and pump 1AT403, 1BT403, 1AP401, 1BP40 Div I conduit	Yes )1	Fuel oil number 2	53,000 qa	1. 7.1x10*	Photo-el Infra-re HAD <sup>®</sup> Hert art	CO <sub>2</sub> tot d flood H <sub>2</sub> O hose Port ext Manual deluge	None. Redundant   Div II equip and cable has III.G.2.a separation   and would be used for safe sbutdown.

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### TABLE 9A-1 (cont)

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		- Antonion and	ADD R	Haz	ard	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown
Elev		Fire Zone Description and	Compl	Material	Quantity	Btu/It*	Decection	Suppressi	
<u>ft-in-</u> 077-0	<u>zone</u> 5202	Cable spread room Div I & II cable	Yes	Cable insul	182,087 lb	158,000	Photo-el Ionizat	Preaction sprinkler <del>CO2 hose</del> H <sub>2</sub> O hose Port ext	None. Remote shutdown locations have III.G.2.a separation and will be used for safe shutdown.
077-0	5203	Elect chase Div II cable	Yes	Cable insul	2018 lb	120,000	Ionizat Photo-el (in 5531) Heat ant	eog hose H20 hose Port ext Auto pre-entime sprinkler	None. Redundant Div I cable has III.G.2.a separation and would be used for safe shutdown.
077-0	5204	Elect chase Div II cable	Yes	Cable insu	1 1535 15	91,400	Ionizat Photo-el (in 5532) Heat ant	eog hose H <sub>2</sub> O hose Port ext Acto pre action sprinkle	None. Redundant   Div I cable has III.G.2.a   separation and   would be used   for safe shutdown.
077-0	5205	Elect chase Div I cable	Yes	Cable insu	1 1535 lb	91,400	Ionizat Photo-el (in 5533) Heat aut	CO2 hose H20 hose Port ext Arts preacher sprinkle-	None. Redundant   Div II cable has   III.G.2.a   separation and   would be used   for safe shutdown.
077-0	0 5206	Div I cable	Yes	Cable insu	11 1535 1b	91,400	Ionizat Photo-el (in 5534 Matact	CO. bossa HzO hose ) Port ext Auto pre-adm sprinkles	None. Refundant Div II cable has III.G.2.a separation and would be used for safe shutdown.





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#### TABLE 9A-1 (cont)

Effects of Fire Fire Load Hazard On Safe Shutdown App R netection Suppression Fire Zone Description and Btu/ft? Quantity Material Elev Safe Shutdown Equip and Cable compl None. Redundant ft-in. Zone C3, hose Ionizat Cable insul 28, 147 1h 47,300 Div II cable 5207 Yes H<sub>2</sub>O hose Electrical access area Photo-el has III.G.2.a 077-0 Port ont Heat alt Div I cable West separation and Arto praautor sprinkler will be used for safe shutmove 48 +- 19 down. None. Redundant H<sub>2</sub>O hose Ionizat 67,600 54,100 1b Div I cable cable Yes co, hose 5207, Electrical access area Photo-el has III.G.2.a 077-0 insul Port ext Heatart ener (wing) separation and auto pre . 3204 Div II cable will be used artin (pri-klow for safe shutdown. None. Pedundant Han hose Photo-el None None Div I equip has None Yes Port ext Ionizat Diesel gen HVAC rm 077-0 5208 III.G.2.a Diesel gen coolers - Div II separation and 1HV412, 1DV412, 1HVE412, would be used 1DVE412 for safe shutdown. None. Redundant Photo-el R,0 hose None None Div I equip has None Yes Port ext Ionizat Diesel gen HVAC rm 077-0 5209 III.G.2.a Diesel gen coolers - Div II separation and 1FV412, 18V412, 1FVE412, would he used 18VE412 for safe shutdown. None. Redundant Photo-el H20 hose None None Div II equip None Yes Port ext 077-0 5210 Diesel gen HVAC rm Ionizat has III.G.2.a Diesel gen coolers - Div I separation and 1GV412, 1CV412, 13VE412, would be used 1CVE412 for safe shutdown. 1 None. Redundant Photo-el H\_O hose None Div II equip has None 1 None Yes Port ext Ionizat Diesel gen HVAC rm 077-0 5211 1 111.G.2.a Diesel gen coolers - Div I separation 1EV412, 1AV412, 1EVE412, and would be IAVEA12 used for shutdown. None. No safe R20 hose Ionizat None shutdown equip None Photo-el Port ext 077-0 5215, Access area & Corridor NOTE NA or cable in F 1. . . 5217 zones.

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TABLE 9A-1 (cont) Effects of Fire Fire Load Hazard Detection Suppression On Safe Shutdown Fire Zone Description and App R Btu/ft2 Quantity Elev compl Material Safe Shutdown Equip and Cable ft-in. Zone None. No safe H<sub>2</sub>O hose None 378,000 Cable insul 2416 1b shutdown equip NA Port ext 077-0 5216 Electrical chase or cable in zone. None. No safe H<sub>2</sub>O hose None None None NA None shutdown equip Port ext 077-0 5233 Vestibule or cable in INSERT from page 47 zone. - 07.0 5237 None. Redundant co, hose Cable insul 29,153 1b Ionizat 43,700 Div II cable Yes R<sub>2</sub>O hose 102-0 post Electrical access area Photo-el has III.G.2.a Port ext Div I cable Heat act separation and Anto pre-5339 would be used sprinkter for safe shutmove to ofter 5316, thetpage SI down. None. Redundant H,O hose Ionizat 50,500 25,661 lh Cable Div I cable 102-0 5301, Electrical access area Yes Photo-el co, hose insul has III.G.2.a Port ext eastf Div II cable (wing) separation and 3314 would be used for safe shutdown. None. Safe co, hose Cable insul 31, 368 1b Ionizat 28,700 shutdown would H,0 hose No 102-0 5302 Control equipment ra Photo-el be accomplished Div I and II cable and panels Port ext from the remote shutdown facility which has III.G.2.a separation.

102-0 5303, Corridor and Vestibule NA None None None 5316

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or cable in zones. |

See Section 9A.6.0 for deviation description. None. No safe

shutdown equip

CO, hos:

H<sub>2</sub>O hose

Port ext

None

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### TABLE 9A-1 (cont)

Flev		Fire zone Description and	AUP R	Haza Material	Quantity	Fire Load Btu/ft*	Detection	Suppression	Effects of Pire On Safe Shutdown	
<u>ft-1n.</u> 102-0	<u>zone</u> 5304	Safe Shutdown Equip and Cabl Diesel generator rm Div II diesel generator 1DG400 and auxiliaries Div II cable	Yes	Cable insul Lube oil Diesel fuel number 2 Transient (lube oil)	2524 1b 1250 gal. 550 gal. 55 gal.	197,000	Infra-red Photo-el Reat act	CO <sub>2</sub> tot flood CO <sub>2</sub> hose H <sub>2</sub> O hose Port ext	None. Redundant   Div I SDGs   which have   III.G.2.a   separation would   be used for safe   shutdown.	
102-0	5305	Diesel generator rm Div II diesel gen 1BG400 and auxiliaries Div II cable	Yes	Cable insul Lube oil Diesel fuel number 2 Transient (lube oil)	2520 lb 1250 gal. 550 gal. 55 gal.	197, 100	Infra-red Photo-el Heat act	CO <sub>2</sub> tot flood CO <sub>2</sub> hos: H <sub>2</sub> O hose Port ext	None. Redundant   Div I SDGS which have   III.G.2.a   separation would be used for safe shutdown.	
102-0	5306	Diesel generator rm Div I diese 1CG400 * d auxilia / I cable	Yes	Cable insul Lube oil Diesel fuel number 2 Transient (lube oil)	2609 lb 1250 gal. 550 gal. 55 gal	198,000	Infra-red Photo-el Heat act	CO <sub>2</sub> tot flood CO <sub>2</sub> hos: H <sub>2</sub> O hose Port ext	None. Redundant Div II SDGs which have have III.G.2.a separation would be used for safe shutdown	
102-0	5307	Diesel Generator rm Div I diesel gen 1AG400 and auxiliaries Div I cable	¥es	Cable insu Lube oil Diesel fue number 2 Transient (lube oil)	1 2609 lb 1250 gal. 1 550 gal. 55 gal	198,000	Infra-red Photo-el Heat act	CO2 tot flood CO2 hose H20 hose Port ext	None. Redundant Div II SDGs which have III.G.2.a separation would be used for safe shutdown.	
102-0	5306	, Corridors	NA	Cable insu	1 1615 1b	\$600	Photo-el Ionizat	H20 hose Port ext	None. No safe shutdown equip or cable in zone.	
102-0	5323	Blect cable chase Div II cable	¥es	Cable insu	al 2122 lb	187,000	Ionizat Photo-el (in 5531 Hest act	CO2 h083 H20 h083 ) Port ext awto pra- action sprinks	None. Redundant Div I cable has III.G.2.a separation and would be used for shutdown.	

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Page 50 of 66	Effects of Fire On Safe Shutdown	None. Redundant Div I cable has III.G.2.a separation and would be used for shutdown.	None. Redundant Div II cable has III.G.2.a separation and would be used for shutdown.	Nore. Redundant Div II cable has III.G.2.a separation and would be used for shutdown.	None. Redundant Div I cable has III.G.2.a separation and would be used for shutdown.	None. Redundant Div I cable has III.G.2.a separation and would be used for shutdown.	None. Redundant Div II cable has III.G.2.a separation and would be used for shutdown.
	Suppression	CO2 hose H20 hose Port ext Authore odie	CO2 hose H20 hose Port ext Auth pre advir Sprinkle	CO2 hose H20 hose Port ext Auto preader	CO2 hose H20 hose Port ext Auto put outin	CO. Hase H20 hose Port ext Arto pre-ext. Specific	CDe bose H20 hose Port ext A1-pre ate
	Detect ion	Ionizat Photo-el (in 5532) Hed ad	I onizat Photo-el (In 5533) (k.) act	Ionizat Photo-el (in 5534) Acat out	I onizat Photo-el (in 5531) Afeat out	Ionizat Photo-el (in 5532) Hert out	Fonizat Photo-el (in 5533)
	Fire Load Btu/ft2	147,000	147,000	147,000	52,000	52,000	52,000
TABLE 9A-1 (cont.)	Hazard Material Quantity	Cable insul 2122 lb	Cable insul 2122 1b	Cable insul 2122 1b	Cable insul 312 lb	Cable insul 312 1b	Cable insul 312 1b
	w and App R and Cable Compl	Yea	Yes	Yes	Yes	2e	Yea
	Fire Sone Destriction	Blect cable chase Div II cable	glect cable chase Div I cable	Elect cable chase Div I cable	<b>Elect</b> cable chase Div II cable	Elect cable chase Div II cable	Blect cable chase Div I cable
		5324	5325	5326	1665	5332	5333
	Alev	102-0	102-0	102-0	102-0	102-0	102-0

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TABLE 9A-1 (cont)

				TABLE 34	in teonet				actuate of Plan
Elev		Fire Zone Description and	App R Compl	Haza Material	Quantity	Fire Load Btu/ft?	Detection	Suppression	On Safe Shutdown
<u>ft-in.</u> 102-0	5334	Elect cable chase Div I cable	Yes	Cable insul	312 16	52,000	Ionizat Photo-el (in 5538) Heat act	<del>CO3 hons</del> H20 hose Port ext auto pre- auto sprinkler	None. Redundant   Div II cable has   III.G.2.a   separation and would be used for shutdown.
102-0	5335	Vestibule	NA	None	None	None	None	CO <sub>2</sub> Hose H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.
102-0	5336	Electrical raceway	NA	Cable insul	922 1b	144,000	None	CO2 Rose a H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
-> INSE 124-0	5801, 3825	Elect access area Div II cable	Yes	Cable insul	33,849 1b	55, ROO	tonizat Photo-el Hat act	CO2 hose H20 hose ret Port ext auto pre- autor sprintle-	None. Redundant Div I cable has III.G.2.a separation and would be used for safe shutdown.
124-0	5402	Vestibule	NA	None	None	None	None	CO <sub>2</sub> hose H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
117-6	5403	Control equip rm mezz Div I and II cable and panels 4	Yes	Cable insu	1 95,195 1b	106,000	Ionizat Photo-el Reat act	Auto CO2 total floor H20 hose CO2 hose Port ext Manual duluge sys	None. Shutdown   i can be accomplished from the remote   shutdown faci- lity which has III.G.2.a separation.
124-0	5904	Corridor	NA	Cable insu	1 568 1b	6100	None	CO <sub>2</sub> hose H <sub>2</sub> O hose Port ext	None. No safe   shu(lown cable   or equip   in zone.
124-	0 540	5 Elect chase Div II cable	Yes	Cable insu	1 1061 1b	68,900	Ionizat Photo-el (in 5531	CO <sub>2</sub> hose H <sub>2</sub> O hose ) Port ext	None. Redundant   Div I caable   has III.G.2.a
						FP ::-	Heat act	auto pra- action sprinkler	and would be used for safe   shutdown.

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### TABLE 9A-1 (cont)

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-		size tone pertription and	ADD R	Haza	ard	Fire Load			Effects of Fire
ft-in.	tone	Safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/ft2	Detection	Suppression	On Safe Shutdown
124-0	5406	Elect chase Div II cable	Yes	Cable insul	1061 lb	68,900	Jonizat Photo-el (in 5532) Heat aut	CO2 hose H20 hose Port ext Quito pre- action sprinkler	None. Pedundant   Div I cable has III.G.2.a   separation and would be used   for safe shutdown.
124-0	5407	Elect chase Div I cable	Yes	Cable insul	1061 lb	68,900	Ionizat Photo-el (in 5533) Heat act	CO2 hose H2O hose Port ext anto pre- action sprintle	None. Pedundant Div II cable has III.G.2.a separation and would be used for safe shutdown.
124-0	5408	Blect chase Div I cable	Yes	Cable insul	1061 1b	68,900	Ionizat Photo-el (in 5534) Newtact	CO2 hose H2O hose Port ext auto pre- autor Sprictler	None. Redundant   Div II cable has III.G.2.a   separation and would be used for shutdown.
130-0	5409	Corridor	NA	None	None	None	Ionizat Photo-el	H <sub>2</sub> O hose CO <sub>2</sub> hose Port ext	None. No safe shutdown equip   or cable in   zone.
130-0	5810, 5811	Class 1E swgr rm - Div II Div II 4.16 kV swgr 10A404 Div II 480 V unit substas 10B440, 10B480 Div II MCC 10B441, 10B481 Div II 125-V dc load ctr 10D44 Div II 125-V dc dist pal 10D4 Div II diesel control pal 10D4 Div II gen control pal 10D422 Div II diesel gen sequencer Div II cable	Yes 10 17 423	Cable insul	10,204 lb	29,100	Ionizat Photo-el	CO2 hose H20 hose Port ext	None. Redundant   Div I equip and cable with III.G.2.a separation would be used for shutdown.

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TABLE 9A-1 (cont)

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Elev		Fire Zone Description and	App R Compl	Haza Material	rd Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown	
<u>rt-in.</u> 130-0	5412, 5413	Class 1E swgr rm - Div II Div II 4.16-kV swgr 10A402 Div II 480-V unit substas 10B420, 10B460 Div II MCC 10B421, 10B461 Div II 125-V dc load ctr 10D422 Div II 125-V dc dist pal 1BD41 Div II diesel control pal 10B4 Div II gen control pal 10B422 Div II diesel gen sequencer Div II cable	Yes 7 23	Cable insul	10,294 lb	29, 100	Ionizat Photo-el	CO <sub>2</sub> hose H <sub>2</sub> O hose Port ext	None. Redundant Div I equip and cable with IIJ.G.2.a separation would be used for shutdown.	
130-0	5414,	Class 1E swgr rm Div I Div I 4.16-kV swgr 10A403 Div I unit substn 10B430 10B470 Div I MCC 10B431, 10B471 Div I 125-V dc load ctr 10D430 Div I 125-V dc dist pnl 1CD417 Div I diesel control pnl 1CD42 Div I diesel gen cntrl pnl 1CD Div I diesel gen load sequence Div I cable	Yes 3 422 r	Cable insul	10,20ª 1b	29, 100	Tonizat Photo-el	CO <sub>2</sub> hose H <sub>2</sub> O hose Port ext	None. Redundant Div II equip and cable with III.G.2.a separation would be used for shutdown.	
130-0	5816, 5817	Class 1E swgr rm - Div I Div I 4.16-kV swgr 10A401 Div I unit substn 10B410 10B450 Div I MCC 10B411, 10B451 Div I 125-V dc load ctr 10D410 Div I 125-V dc dist pnl 1AD411 Div I diesel cntrl pnl 1AD423 Div I diesel gen cntrl pnl 1AM Div I diesel gen load sequence Div I cable	Yes ) ) ) ) () ) () ) () ) () ) () ) () )	Cable insul	10,204 1b	29, 100	Ionizat Photo-el	CO <sub>2</sub> hose H <sub>2</sub> O hose Port ext	None. Redundant Div II equip and cable with III.G.2.a separation would be used for shutdown.	
130-0	54 18	Corridor	NA	None	None	None	Ionizat Photo-el	R <sub>2</sub> O hose Port ext <del>CO<sub>2</sub> hose</del>	None. No safe shutdown equip or cable in zore.	
130-0	5819	Elect chase Div II cable	Yes	Cable insu	L 1704 16	203,000	Ionizat Photo-el (in 5531 Heat out	H20 H28 Port ext ) anto pre- action Sprintler	None. Redundant Div I cable with III.G.2.a separation would be used for shutdown.	

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### TABLE 9A-1 (cont)

		and total on and	App R	Razard	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown	
<u>ft-in.</u> 130-0	<u>zone</u> 5420	Fire Zone Description and Safe Shutdown Equip and Cable Elect chase Div II cable	<u>compl</u> yes	Material Quantity Cable insul 1704 1b	203,000	Tonizat Photo-el (in 5532) Heat act	H <sub>2</sub> O hose Port ext Quito pre- action sprinkles	None. Pedundant Div I cable with III.G.2.a separation would be used for shutdown.	1
130-0	5421	Elect chase Div I cable	Yes	Cable insul 1704 lb	203,000	Ionizat Photo-el (in 5533) Heat art	HzC hose Port ext Quilo pre- action Sprinkler	None. Redundant Div II cable with III.G.2.a separation would be used for shutdown.	
130-0	5422	Elect chase Div I cable	Yes	Cable insul 1704 lb	203,060	Ionizat Photo-el (in 5534) Heat art	R <sub>2</sub> O hose Port ext auto pre- action Sprinklo	None. Redundant Div II cable with III.G.2.a separation would be used for shutdown.	
130-0	5423 East	Diesel combust air intake rm Pilter 1DP413 18P413 Div II cable	Yes	Cable insul 11,410 lb	63,800	Photo-el	HgO hose Port ext	None. Redundant Div I cable and equip has III.G.2.a separation and would be used for safe shutdown.	
130-	545	Diemel combust air intake rm Filter 1CP413 1AF413 Div I cable	Yes	Cable insul 2542 lb	12700	Photo-e1	H <sub>2</sub> O hoss Port ext	None. Redundant Div II cable and equip has III.G.2.a separation and will be used fo safe shutdown.	
124-	-0 544	Class IE INVERTER IM TRVS panel room 18C285 10C285 Div II conduit	Yes	None None	None	Ionizat	H <sub>2</sub> O hose CO <sub>2</sub> hose Port ext	None. Redundant Div I equip and cable has III.G.2.a separation and would be used for safe shutdo	
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### TABLE 9A-1 (cont)

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	- Antestion and	ADD R	Haza	ard	Fire Load	Detection	Suppression	Effects of Fire On Safe Shutdown
Elev ft-in. Zone	Fire Zone Description and Safe Shutdown Equip and Cable	Compl	Material	Quantity	6.000	Ionizat	H <sub>2</sub> O hose	None. Redundant
124-0 5448	Class 1E inverter rm 18D481 10D481	Yes	Cable insul	508 15	0,000	Photo-el	CO, hose Port ext	and cable has III.G.2.a separation.
117-6 5449	Div II cable Elect raceway	NA	Cable insul	851 1b	133,000	None	Manual Defuge <del>CO2hose</del> H <sub>2</sub> O hose Port ext	None. No safe shutdown cable in zone.
> INSERT	Elect access area	Yes	Cable insul	1 8207 1b	29, 300	Ionizat Photo-el	CO <sub>2</sub> hose H <sub>2</sub> O hose Port ext	None, Redundant   Div II cables with III.G.2.a
	Instr pwr supply 1AD461 1CD481 PA system pwr supply 10D496 RSP room HVAC 1VH316							separation would be used   for shutdown.
	DIVI	NA	None	None	None	Ionizat	HgO hose Port ext	None. No safe shutdown equip or cable in
137-0 5503	Instr viewing rm	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	zone. None. No safe   shutdown equip   or cable in   zone.
137-0 550	Mens' toilet	NA	None	None	None	None	H <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in zone.
137-0 550	5 Ritchen	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in   zone.
137-0-556	16 Pantry	NA	None	None	None	None	R <sub>2</sub> 0 hose Port ext	None. No safe shutdown equip or cable in sone.
137-0 55	07 Womens' toilet	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in



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TABLE 9A-1 (cont)

			-			Fire Load			Effects of Fire
Elev ft-in.	zone	Fire Sone Description and Safe Shutdown Equip and Cable	Comp1	Material	Quantity	Btu/ft2	Detection	Suppression	On Safe Shutdown
137-0	5508	Storage rm	NA	Paper	750 15	57, 100	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
137-0	5509	shift supv rm	NA	Paper	Irsignif	Insignif	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in   zone.
137-0	5510	Main control room 106550 main vert board 106551 unit operators console Div I and Il panels	No	Paper Transient paper	300 1b 100 1b	1200	Ionizat	<del>Co<sub>z</sub> hose <sup>o</sup></del> H <sub>2</sub> O hose Port ext	The safe shutdown   redundant controls and cabling does   not meet the   III.G.2.a   separation, therefore alternate shutdown from the remote shutdown facility and remote equipment operating locations is pro- vided. The remote shutdown facility and cabling has III.G.2.a separation from the main control room. Fixed suppres- sion not pro- vided. See Section 9A.6.0.
137-0	5511	Ready room	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip   or cable in zone.
137-0	5512	Corridor	NA	None	None	None	Ionizat	HgO hose Port ext	None. No safe shutdown equip or cable in zone.
137-0	5513	Elevator lobby	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe i shutdown equip or cable in in zone.



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TABLE 9A-1 (cont)

tlev.		Fire Zone Description and	App R Compl	Haza Material	Quantity	Fire Load Ptu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown	
137-0	5514	Janitor	NA	Paper	100 Ib	16,000	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	
137-0	5515	Computer room	NA	Paper Transient paper	300 1b 100 1b	3800	Ionizat	H <sub>2</sub> 0 hose Port ext	None. This equipment is not required for safe shutdown.	',
137-0	5520	Storage rm	NA	Paper	1300 lb	77,000	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	1
137-0	5521, 5522	Corridors	NA	None	None	None	Ionizat.	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones	!
137-0	5523	Training/conf rm	NA	Paper	200 lb	6000	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	-
137-0	5525	Corridor Div II cable	Yes	Cable insul	426 1b	4500	None	CO <sub>2</sub> O hose H <sub>2</sub> O hose Port ext	None. Redundant Div I cable with III.G.2.a separation would be used for shutdown. See 5510.	1
150-0	5531	Blect cable chase Div II cable	Yes	Cable insul	23,110 16	136,000	Ionizat Photo-el Heat aut	CO2 hose H20 hose Port ext Auto preaches Sprinkle	None. Redundant Div I cable with III.g.2.a separation would be used for shutdown.	1
150-0	5532	Elect cable chase Div II cable	Yes	Cable insu	1 23,110 lb	136,000	Ionizat Photo-el Heat aut	<del>Cog hose</del> HzO hose Port ext anto preaching sprintler	None. Redundant Div I cable with III.G.2.a separation would be used for shutdown.	1

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### TABLE 9A-1 (cont)

_		Fire Zone Description and	App R	Haza	Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown	
<u>ft-in.</u> 150-0	<u>Eone</u> 5533	Safe Shutdown Equip and Cable Elect cable chase Div I cable	Yes	Cable insul	23,110 1b	136,000	Ionizat Photo-el Hat ad	CO2 hose H20 hose Port ext auto pre action sprink ler	None Redundant Div II cable with III.G.2.a separation would be used for shutdown.	'
150-0	5534	Elect cable chase Div I cable	Yes	Cable insul	23,110 lb	136,000	Ionizat Photo-el Heat act	CO2 hose H20 hose Port ext ands preather Sprinkler	None. Pedundant Div II cable with III.G.2.a separation would be used for shutdown.	۱
150-0	5535	Reating & ventilation chase	NA	cable insul	8448	64,500 <del>None</del>	Nonê Hestaut	None <sup>c</sup> Not access sible Quito pratim	None. No safe shutdown equip or cable in zone.	1
146-0	5536	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	1
186-0	5531	Corridor	NA	Cable insu	1 595 1b	3900	Tonizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zon	e.
186-0	553	Battery charger rm Fuse trans sw box 10D412 Battery chargers 10D413 10D414 Battery monitors 10D415	Yes	Cable insu	n1 2553 1b	37,500	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. Redundant Div I equip and with III.G.2.a separation would be used for shutdown.	l cable
186-	0 558	Division II cable	Yes	Batt case	325 lb	21, 100	Ionizat	HgO hose Port ext	None. Redundant Div I equip and cable with III.G.2.a separation wou be used for shutdown.	

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## TABLE 9A-1 (cont)

		Fire Zone Description and	App R	Haza	Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown	
t-in.	<u>zone</u> 5546	Safe Shutdown Equip and Cable Corridor	NA	None	Mone	None	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.	1
155-3	5601	Vestibule	NA	None	None	None	None	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in	
155-3	5602	HVAC equip rm Control rm wtr chiller 1Ak400 Control rm chilled wtr pump 1AP400 Control rm A/C unit 1AVH403	Yes	Cable insul	7658 1b	10,800	Ionizat Photo-el Heat act in 1AVH40	water fi $H_20$ hose port ext auto-delage 0 in 1AVH400 CO <sub>2</sub> hose	None. Redundant Div II equip and cable with III.G.2.a separation would be used for shutdown.	
163-6	560 <b>4</b> , 5611	Corridors	NA	Cable insu	1 12,240 lb	32,800	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zones.	
163-6	5605	Control equip rm Division I and II Class 1E logic cabinets 1AC655 1CC655 1BC655 1DC655	No	Cable insu	1 4335 lb	2800	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. Safe shutdown would be accomplished using the remot shutdown facili and local equip ment operating areas. No fixed suppression. See Section 9A.6.0.	e ty
16 3- 6	5 5606	HVAC equip rm - Div II Switchgear rm cooler 18VH401 1DVH401	Yes	None	None	None	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. Redundant Div I equip and cable has III.G.2.a separation and would be used	
		Diesel battery rm exh fan 18V406							shutdown.	

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### TABLE 9A-1 (cont)

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lev		Fire Zone Description and	App R	Haza Material	Quantity	Fire Load Btu/ft?	Detection	Suppression	Effects of Fire On Safe Shutdown
<u>t-in.</u> 63-6	<u>zone</u> 5607	Class 1E inverter rm Div II Power supply 1DD482 125-V dc swgr 10D446 125-V dc fuse transfer switch box 1DD448	Yes	Cable insul	705 1b	13,400	Fonizat <sup>®</sup> Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
63-6	5608	Corridor	NA	None	None	None	Ionizat*	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5609	Battery rm - Div II Battery rack 1DD447	Yes	Batt case	312 lb	22,900	fonizat & Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5610	Corridor	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5612	Corridor	NA	Cable insul	142 lb	2100	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5613	Class 1E inverter rm - Div I power supply 120-V ac 1CD482 125-V dc swgr 10D436	NA	Cable insul	776 1b	15,000	Photo-el tonizate	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5614	Class 1E battery rm Battery rack 125-V dc 1CD447	NA	Batt case	312 <sup>1</sup> b	22,900	Photo al Ionizato	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip and cable in zone.
163-6	5615	Class 1E inverter rm 120-V ac power supply 1BD482	NA	Cable insul	1 352 1b	10,400	Act. el Ionizato	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5616	Class 1E inverter rm 120-V ac power supply 1AD482	NA	Cable insu	1 352 1b	9,500	Photo-el Ionizat	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.



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### TABLE 9A-1 (cont)

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Elev ft-ir.	2 one	Fire Zone Description and Safe Shutdown Equip and Cable	App R Compl	Ha Material	<u>Quantity</u>	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown
163-6	5617	Electrical access area Div II cable	Yes	None	None	None	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. Redundant Div I cable has III.G.2.a separation and would be used for safe shutdown.
163-6	5618	Corridor	NA	None	None	None	Ionizat	H <sub>2</sub> O hose Port ext	None. Redundant Div cable with III.G.2.a sepa- ration would be used for safe shutdown.
153-3	5619	TSC Electrical room	NA	Cable inst	11 850 1b	14,800	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5620	HVAC equip rm Class 1E panel rm supply 1AVH408 1BVH408 Control panel 1EC485	No	Cable insu	al 2257 lu	3400	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. Remote   shutdown facili- ties can be   used. No fixed suppression. See Section 9A.6.0
163-6	5621	Inverter rm	NA	Cable ins	ul 141 lb	3000	Ionizat <sup>®</sup> Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.
163-6	5622	Inverter rm	NA	Cable ins	ul 352 lb	4500	<del>Ionizat<sup>e</sup> Photo-el</del>	H <sub>2</sub> O hose Port ext	Nore. No safe   shutdown equip or cable in zone.
163-6	5623	Inverter rm	NA	Cable ins	ul 310 lb	6,000	Ionizat <sup>Q</sup> Photo-el	H <sub>z</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.
163-6	5624	Inverter rm, non-Class 1E	NA	Cable ins	ul 634 lb	5,400	Ionizat <sup>Q</sup> Photo-el	H <sub>2</sub> O hose Port ext	None. No safe   shutdown equip or cable in zone.



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### TABLE 9A-1 (cont)

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Elev ft-ir.	zone	Safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/ft2	Detection	Suppression	On Sale Shutdown
163-6	5625	Corridor	NA	None	None	None	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5626	Battery rm	NA	Batt case	1220 lb	40,000	fonisat <sup>e</sup> Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5627	Battery rm	NA	Batt case	1220 1b	40,000	Fonirat® Photo-el	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone
163-0	5628	Inverter rm non-Class 1E	NA	Cable insul	1058 1b	8,400	Ionizat Photo-ele	H <sub>2</sub> O hose Port ext	None. No safe shutdown equip or cable in zone.
163-6	5629	HVAC equip rm - Div I Switchgear rm coolers 1AVH401 1CVH401 Diesel battery rm exh fans	Yes	Cable irsul	1 <b>923</b> 1b	1700	Ionizat Photo-el	H <sub>2</sub> O hose Port ext	None. Redundant Div II equip and cable has III.G.2.a separation and would be used for shutdown.
		1AVH406 1CVH406							
155-3	5630	HVAC equip rm Control rm wtr chiller 18840 Control rm chil wtr pnp 18840 Control rm A/C unit 18044 Control rm emerg filter 18044	Yes 0 0 03 00	Cable insu	1 2550 lb	5800	Ionizat Photo-el Heat act in 18VH400	H <sub>2</sub> 0 hose Port ext Auto water spray inside charcoal filter unit 18VH400	None. Redundant Div I equip and cable with III.G.2.a separation would be used for shutdown.

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1.1.1		size tone poteriotion and	ADD R	Haz	ard	Fire Load			Effects of Fire
ft-in.	zone	Safe Shitdown Equip and Cable	Comp1	Material	Quantity	Btu/ft2	Detection	Suppression	On Safe Shutdown
178-0	5704 5703	Diesel area HVAC rm Div I & II DG HVAC pnls 1AC483 1CC483 1BC483 1DC483 Div I & II control area chilled wtr 1AK403 1AP414 1BK403 1BP414 Div I & II control equip rm 1AVH407	No	Cable insul	2508 lb	1300	Ionizat Photo-el	H <sub>2</sub> 0 hose Port ext	None. See Section 9A.6.0 for deviation description. Very low combusti- bles allows safe shutdown from MCR. RSF can be used if MCR affected by loss of HVAC to equip rooms.
St at io	n Serv	Nice Water Intake Structure							1
·9-8	107	Pump room Panel area Div I valves & cable	Yes	None	None	None	None	H <sub>2</sub> O hose Port ext	None. Redundant   Div II equip and   cable has III.G.2.a separation and would be used for safe shutdown.
079-8	110	Pump Forma Pandl area Div II valves & cable	Yes	None	None	None	None	H <sub>2</sub> O hose Port ext	None. Redundant Div I equip and cable has III.G.2.a separation and would be used for safe shutdown.
093-0	203	Intake struct elect equip rm Div I MCC 10B553 10B573	¥es	Cable insul	1430 lb	42,300	Photo-el	H <sub>2</sub> O hose Port ext	None. Redundant   Div II service   water equip and   cable with   III.G.2.a separation would be used for shutdown.



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# TABLE 9A-1 (cont)

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FLOT		Fire Zone Description and	App R	Haz	Quantity	Fire Load Btu/ft <sup>2</sup>	Detection	Suppression	Effects of Fire On Safe Shutdown
ft-in-	zone	Safe Shutdown Equip and Cable	combr	Material	Agguerant				None Redundant
093-0	204	Intake struct Div I pump rm	Yes	Cable	3750 1b	34,800	Photo-el	action	Div II service
		Div I service water pumps 1AP502 1CP502		Lube oil	56 gal		Heat act	H <sub>2</sub> O hose Port ext	cable with III.G.2.a
		Div I service water strainers 1AF509 1CF509		transient (lube oil)	28 gal				separation would be used for shutdown.
		Div I service water valves and instrumentation Div I panels							1
		1AC581 1CC581							1
		DIV I Cable Son		Cable	1830 1b	42,300	Photo-el	H <sub>2</sub> O hose	None. Redundant
093-0	207	Intake struct elect equip rm Div II MCC 10B563 10B583	Yes	insul	1430 10			Port ext	biv I service water equip and cable with III.G.2.a sep- aration would be used for shutdown.
093-0	208	Intake struct Div II pump rm	Yes	Cable	4450 1b	38,700	Ionizat	Auto pre- action	None. Redundant   Div I service
033 0		Div II service water pumps 18P502		Lube oil	56 gal		Heat out	sprinkler H <sub>2</sub> O hose Port ext	cable with III.G.2.a
		Div II service water strainer 18F509 10F509	5	Transient (lube oil)	28 gal				separation would be used for shutdown.
		Div II valves and instr Div II panels							
		1DC581							
		Div II cable - SSW					Philo at C		None Redundant
107-	0	Travelling screen panel room Panels 1BC516 & 1DC516 Div II cable	Yes	None	None	None	Ionizat	H <sub>2</sub> O hose	Div I equip and cable with III.G.2.a separation
									would be used for safe shutdown.

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### TABLE 9A-1 (cont)

	at a substation and	ADD R	Ha	zard	Fire Load		1.6	Effects of Fire
Elev ft-in. Zo	ne Safe Shutdown Equip and Cable	Compl	Material	Quantity	Btu/ft <sup>2</sup>	Detection	Suppression	On Safe Shutdown
107-0 Div	Travelling screen panel room I Panels 1AC516 & 1CC516	Yes	None	None	None	Ponis at Platrel	Port ext H <sub>2</sub> 0 hose	None. Rejundant Div II equip and cable with III.G.2.a separation would be used for safe shutdown.
114-0	Travelling screen motor area	No	None	None	None	Ionizat Photo-el	Port ext Had here C	None. See exemption request in Section 9A.6.0.
122-0 03 03	105, Intake structure Div I 106 ventilation equip Div I intake fans 1AV503 1CV503 Div I exhaust fans 1AV504 1CV504	Yes	None	None	None	Nonee photo.el iin 306	H <sub>2</sub> O hose Port ext	None. Redundant Div II service water equip and cable which has III.G.2.a separation would be used for shutdown.
122-0 0	311, Intake structure Div II 312 ventilation equip Div II intake fans 18V503 1DV503 Div II exhaust fans 18V504 1DV504	Yes	None	None	None	None Phits of in 312	R <sub>2</sub> O hose Port ext	None. Redundant Div I service water equip and cable with III.G.2 sep- aration would be used for shutdown.

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#### HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-10 PAGE 1 of 2

1/84 RUUM: Torus Compartment FIRE DETECTION TYPE: FIRE SUPPRESSION TYPE: ELEV. 54 to 101 BLUG, Reactor FIRE ZONE 4102 Portable extinguishers 4 lleat actuated MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: (in cable tray only) Four H<sub>2</sub>O Hose Reels DIVISION Valves tor HPCI(I), RHR, CS, RCIC(II) 1 5 11 EMERG. LIGHTS: Cable Tray and Conduit for above valves; RHR, CS, HPC1(1), ISII RCIC(11), Instrumentation and Control; and Suppression Pool Yes temperature monitoring FIRE RATING: CONSTRUCTION: KHK shutdown cooling valves HV-F015AsB (return) and 11 3 hour Walls: HV-F008 (Suction) North East South West Unruted (basemat) EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Floor: None. Cable trays are located approximately in the NE, SE, and NW 3 hour(see below) Ceiling: quadrants of this zone (reter to electrical drawings). There are large spaces without in situ combustibles between redundant divisions Dors and Hatches: Unrated (see below) in the north and south sections. Analyzing the Division II conduit in the predominantly Division I northern half, there are no spurious The ceiling is open to pipe chases on el 102. The access doors are 3-hour pressure tight without actuations which could prevent sate shutdown using Division I. UL label. The HVAC duct has 2 PT dampers without However, loss of RHR valve HV-F008 will cause loss of RHR shutdown cooling mode. The valve can be opened by hand when needed, or the tire damper. Blowout panels are discussed in EFFECTS OF FIRE. Ceiling steel is not fireproofed. alternate shutdown mode, utilizing Core Spray and Main Steam Relief valves, can be used. There are tour blowout panels on the west side of 4102. A 20-tt diameter fire caused by a fire in 4109 (RHR "B"), Reference Drawings: 4113 (RHR "A"), 4111 (HPC1) or 4110 (RCIC) or an exposure tire in the Elec. Drawings - E-1511, E-1512, E-1541, E-1542, torus area adjacent to the blowout panels, has been analyzed. The E-1571, E-1572, E-1521, E-1552, E-1581, and E-1582-1 tire will not jeopardize more than one safe shutdown division. A transient fire of approximately 22-ft diameter could possibly render Fire Drawings - Figures 9.5-1, 9.5-2, and 9.5-9 HPCI and RCIC inoperable, however. If this were to occur, Channel B & D ADS and Division I & II Core Spray are more than 120-ft away trom the HPCI and RCIC blowout panels and, in conjuction with EOUIV. FIRE COMBUSTIBLES: Division I or II NHR suppression pool cooling, can be used to achieve QUANTITY SEVERITY (MIN.) MATERIAL: cold shutdown. There are no in situ combustibles between the HPCI and the RCIC conduit. There are no normal transient combustibles in 3.0 9,548 lbs a. Cable insulation this zone. 0 Analysis of the "Division 11" southern half of 4102 shows none of the b. Lube oil Division I conduit/cable are required for safe shutdown. Division I 0 c. Other equipment and cable can be used for safe shutdown from the MCR. 0 d. Transient DEVIATION REQUEST: Automatic suppression system TOTAL 3.0 min.  $AREA = 11,860 \text{ ft}^2$ (average floor to ceiling)

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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS PEPORT TABLE 9A-11

ROOM: Vestibule		ETER CUDODEC	TON TYPE,
FIRE ZONE 4103 BLDG. Reactor ELEV. 54           MECH         SAFE SHUTDOWN EQUIPMENT AND CABLE:           DIVISION         None	EMERG. LIGHTS:	H <sub>2</sub> 0 hose l Portable e	wiR200 xtinguishers
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None	Yes CONSTRUCTION: Walls: North East South West Floor: Ceiling: Doors and Hatches:	FIRE RATING: Unrated, exc enclosure Unrated (bas Unrated Unrated Unrated, exc stairwell de	ept stairwell semat) cept for
	<u>Reterence Drawings</u> : Elec. Drawings - E-15 Fire Drawings - Fig.	31 9.5-1 and 9.5	-9
DEVIATION REQUEST: None	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other d. Transient AREA = NS	<u>QUANTITY</u> TOTAL	EQUIV. FIRE SEVERITY (MIN.) 0 0 0 0 0 0
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#### HCG AR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS A TABLE 9A-25

1/84 ROOM: Vestibule FIRE DETECTION TYPE: ELEV. 54 FIRE SUPPRESSION TYPE: FIRE ZONE 4117 BLDG. Reactor Hone H<sub>2</sub>0 hose 1CHR200 MECH SAFE SHUTDOWN EQUIPMENT AND CABLE: Jongation SHUTDOWN Portable ext. DIVISION None EMERG, LIGHTS: Yes CONSTRUCTION: FIRE RATING: See Figure 9.5-1 Walls: North East South West Floor: Unrated (basemat) EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Ceiling: Unrated None Doors and Hatches: Unrated, except for stairwell door Reference Drawings: Elec. Drawings - E-1511 Fire Drawings - Fig. 9.5-1 and 9.5-9 EQUIV. FIRE COMBUSTIBLES: MATERIAL: QUANTITY SEVERITY (MIN.) a. Cable insulation 0 b. Lube oil 0 0 c. Other 0 DEVIATION REQUEST: None d. Transient 0 TOTAL AREA = NS



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-27

FIRE ZONE	4201 BLDG. Reactor ELEV. 77	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
MECH SHUTDOWN DIVISION	SAFE SHUTDOWN EQUIPMENT AND CABLE:	Ionization Heat actuated	H <sub>2</sub> 0 hose 1H Portable ex	HR200, 1GHR200 tinguishers
и	Channel D cable for: power teeders to MCC, SSW, SACS, Reactor Wtr Cleanup, Core Spray, RHR, Control Area Chilled Water systems	EMERG. LIGHTS: Yes	auto prea system (po	ition sprinkle- itial coverage)
	Channel B cable for: SSW, SACS, RCIC, RHR, and CS systems	CONSTRUCTION:	FIRE RATING:	
		<u>Walls</u> : North East	See Fire Dra	vings
		South		
EFFECTS U	F FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated	
None. down.	Redundant Division I equipment will be used for safe shut- Automatic suppression required by III.G.2.b is not pro-	Ceiling: Doors and Hatches:	3 hour Unrated	
vided horiz betwe in be shutd 4102	1. See writeup for zone 4218. There is 30 feet of clear contal space and more than 120 feet of horizontal distance en redundant divisions, plus a 12-inch thick wall, door, etc., tween zones 4201 and 4218. There are no redundant safe lown cabling in the area below 4201 unrated floor. See zone for unrated torus compartment wall.	PT door between 4201 a North wall contains do West wall contains HV/ fire damper.	and 4202 (same oor and HVAC wh AC duct with PT	division) ich is unrated. dampers, no
The n ducts	north wall contains a hollow metal core door and two HVAC without fire dampers. The walls other penetrations are	Reference Drawings: Elec. Drawings - E-15	22, E-1532	
the d	en sate shutdown divisions plus the clear space, upgrading door and HVAC is not needed to assure at least one safe shut- division is free of tire damage.	Fire Drawings - Fig.	9.5-2 and 9.5-	9
		COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
		a. Cable insulation	13,506 lbs	34.0
		b. Lube oil		0
		c. Other		0
DEVIATION	N REQUEST: Automatic suppression system	d. Transient		n
		AREA = 1469 ft2	TUTAL	34 min.
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# HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-42

1/84

IRE ZONE	4301 and 4310 BLDG. Reactor ELEV. 102	FIRE DETECTION TYPE:	FIRE SUPPRESSION TYPE: H <sub>2</sub> 0 hose 12HR200 and
ECH HUTDOWN IVISION	SAFE SHUTDOWN EQUIPMENT AND CABLE:	Heat actuated	ILHR200 Portable Extinguishers
1	Channel C cable for: SACS C pump, Heat Exchanger Valves; RHR C Pump Motor Cooling; RHR Unit Cooler C and G valves; Core Spray Unit Cooler C and G valves and Channel C Core Spray Unit Cooler C and G valves and Channel C	EMERG, LIGHTS: Yes	Auto preaction Sprinkler in 4301
	Containment Inst Gas Iso valves; Suppression Pool level inst.; RHR pump C; Control Area Chilled Water valves to AVH214 and BVH214 SACS Unit Coolers.	CONSTRUCTION: Walls:	FIRE RATING:
1	Channel C MCC 10B232	North	3 hour
I	Channel A cable for Recific Fump It p Channel D cable for: SACS Valves to Cont Inst Gas Com-	East	3 hour
	pressor; RCIC; RHR Valves for LPCI Injection, Shutdown Cooling Return, and Head Spray; Main Steam Relief Valves	South	3 hour to 4303
	(ADS) PSV F013 A, B, C, D, and E.	West	3 hour to 4315
11	Channel B cable for recirc. pump trip.	Floor:	3 hour above 4201
EFFECTS None. Divisi for sh accumu	OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Shutdown will be accomplished using ADS (Channel B) and on II equipment. The following equipment is still available nutdown: SACS pump A, B, and D; SACS HX A, B, and D; ADS nutdown: SacS pump A, B, and D; SACS HX A, B, and D; ADS nutdown: uside containment for all 14 valves; all 14 llator volume inside containment for all 14 valves; all 14	Ceiling: Doors and Hatches: Unrated Pressure tig	Unrated, except for 3 hour rated steam tunnel floor Section ght door to airlock 4313 es: does not separate redundant
A, B, units	and D pumps; Control Area chilled water for SACS room cooling CVH214 and DVH214; RHK LPCI mode for A and B RHR system; CVH214 and DVH214; RHK LPCI mode for A and B RHR system;	divisions.	
Reactor and D. shutdo	Shutdown cooling in RHR B is hindered by assumed failure of Shutdown cooling return valve HV-F015B; however, the LCPI injection own cooling return valve HV-F015B; can be manually opened in the (valve HV-F017B) or HV-F105B can be manually opened in the	Elec. Drawings - E-15 E-15	33, E-1563 and E-1522 and 12
availa SSN.	able, with the support equipment cooled by Division II SACS, etc.	Fire Drawings - Fig.	9.5-3 and 9.5-9
There	is greater than 120-feet separating Channel C and D. Spuriou tions have been considered and none will prevent the reactor	S COMBUSTIBLES: MATERIAL:	QUANTITY SEVERITY (MIN.)
tram	Derng praced in a sure sustained	a. Cable insulation	36,258 lbs 42.1
100		b. Lube oil	
1.000		c. Other	
1		d. Transient	
DEVIAT	IUN REQUEST: None	AREA = $3226$ ft <sup>2</sup>	TOTAL 42 min.



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

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FINAL SAFETY ANALYSIS REPORT TABLE 9A-51

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ROOM: Steam Tunnel		
FIRE ZOHE 4316 BLDG. Reactor ELEV. 102 MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	FIRE DETECTION TYPE:	FIRE SUPPRESSION TYPE: H <sub>2</sub> 0 hose 1AHR201 Portable extinguishers Q
II Channel 2 (RPS) outboard Main Steam Isolation Valves. Channel B RCIC return to Feedwater Valve HV-F013	EMERG. LIGHTS: Yes	
	CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour # unvated (ventilation barrier)
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I equipment will be used for safe shutdown. Pressure tight doors of required to protect reactor building from pressurization due to high energy line rupture in the steam tunnel. The unrated steel blowout panel is justified based on the requirement for steam overpressure relief, and also does not separate redundant safe shutdown divisions. Redundant temperature elements are inshelled to detect pipe break and will one clarm on high temperature.	Floor: <u>Ceiling</u> : <u>Doors and Hatches</u> : <u>Oocs on Elevation 14</u> Blowout panel betwee building is not UL 1 <u>Reference Drawings</u> : Elec. Drawings - E-152 Fire Drawings - Fig. 1	3 hour 3 hour Unrated 3 or and turbine ated 23 9.5-3 and 9.5-9
DEVIATION REQUEST: Pressure tight door	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other d. Transient	QUANTITY QUANTITY EQUIV. FIRE SEVERITY (MIN.) 0 0 0 0 0 0
DEVIATION REQUEST: Pressure tight door	AREA = NS	TOTAL 0



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-54

1/84

FIRE ZONE 4319 BLDG. Reactor ELEV. 99'-9"	FIRE DETECTION TYPE:	FIRE SUPPRE	SSION TYPE:
ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	None	H <sub>2</sub> 0 hose 1	MHR200
II RCIC valve HV-F008 and leak detection instrumentation	EMERG. LIGHTS: Yes		
	CONSTRUCTION: Walls: North East South West	FIRE RATING 3 hour*	•
<pre>#FFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I equipment will be used for safe shutdown. Floor is open to Torus area, 4102, below. Pressure tight door does not separate redundant divisions. There are no safe shutdown cabling or equipment located in rooms adjacent to 4319 unrated walls or ceiling.</pre>	Floor: Ceiling: Doors and Hatches: *HVAC contains double g dampers without fire of Reference Drawings: Elec. Drawings - E-156: Fire Drawings - Fig. 9.	Open (gra Unrated Unrated p tight doo pressure tigh damper 3 .5-3 and 9.5-	ting) ressure t isolation 9
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY	EQUIV. FIRE SEVERITY (MIN.) 0 0 0
DEVIATION REQUEST: Automatic Suppression System	d. Transient AREA = NS	TOTAL	0 0

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HC. CSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REFORT TABLE 94-56

ROOM: P1	pe Chase			1/84
FIRE ZONE	4321 BLDG. Reactor ELEV. 99'-9" SAFE SHUTDOWN EQUIPMENT AND CABLE:	FIRE DETECTION TYPE:	FIRE SUPPRES H <sub>2</sub> O hose 1N Bortable Ex	SION TYPE: HR200 tinguishers &
п	Valves: RHR, BC-HV-F015B, BC-HV-F017D, BC-HV-F017B; Core Spray BE-HV-F005B and RACS, ED-HV-2553, ED-HV-2555. Channel B and D conduit for above valves.	EMERG. LIGHTS: Yes		
		CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour*	
EFFECTS O None. F Floor is down equ	F FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Redundant Division I equipment will be used for safe shutdown. Topen to torus area 4102. There are no redundant safe shut- nipment in rooms adjacent to 4321 unrated walls or ceiling.	Floor: Ceiling: Doors and Hatches:	Open (grat Unrated Unrated	ing)
		Door is pressure tight *HVAC duct contains do dampers without fire <u>Reference Drawings</u> : Elec. Drawings - E-156 Fire Drawings - Figure	uble pressure damper 3 s 9.5-3 and 9.	tight isolation
		COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
		a. Cable insulation		0
		c. Other		0
DEVIATION	REQUEST: Automatic Suppression System	d. Transient		0
1.15		AREA = NS	TOTAL	0

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HL FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS \_\_\_\_\_\_RT TABLE 9A-61

ROOM: IIP	CI Pipe Chase				1/84
FIRE ZONE MECH SHUTDOWN DIVISION	4327 BLDG. Reactor SAFE SHUTDOWN EQUIPMENT AND CABLE: Division I Valves: HPCI, FD-HV-F003, Division I Conduit for: HPCI valve at leak detection, and SACS.	ELEV. 102	FIRE DETECTION TYPE: None EMERG. LIGHTS: Yes	FIRE SUPPRESS H <sub>2</sub> O hose 1PH Portable Ext	SION TYPE: AR200, lANR201 Linguishers C
			CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour*	
EFFECTS ( None. 1 down. 1 cable of	OF FIRE ON SAFE SHUTDOWN AND/OK RADIOAC Redundant Division II equipment will be Floor is open to torus area 4102. No re r equipment in rooms adjacent to unrate	TIVE RELEASE: used for safe shut- edundant safe shutdown d walls or ceiling.	Floor: Ceiling: Doors and Hatches: Door is pressure tight "HVAC duct contains do dampers in lieu of fi Reference Drawings: Elec. Drawings - E-154 Fire Drawings - Figure	Open (grat Unrated Unrated uble pressure re damper	ing) tight isolation 5-9
DEVIATIO	N4 KEQUEST: Automatic Suppression Syste	m	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other d. Transient AREA = NS	QUANTITY TOTAL	EQUIV. FIRE SEVERITY (MIN.) 0 0 0 0 0 0

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HCL PSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS NL. JRT TABLE 9A-63

ROOM: P1	pe Chase	I		
FIRE ZONE	4329 BLDG. Reactor ELEV. 102	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
ECH SHUTDOWN DIVISION	SAFE SHUTDOWN EQUIPMENT AND CABLE:	None	H <sub>2</sub> O hose 1A Portable Ex	IR201 Linguishers
ı	Channel A Valves: RHR, HV-F016A, HV-F017A, HV-F021A; Core Spray, HV-F005A, HV-F004A; Primary Containment Instrumentation Gas, HV-5172 A; HPCI, HV-F006. Channel C Valves: RHR, HV-F017C, Primary Containment Instrumentation Gas, HV-5126A Channel A & C conduit/cable for above valves	EMERG. LIGHTS: Yes CONSTRUCTION: Walls:	FIRE RATING: 3 hour*	
11	Channel D Valves: RHR, HV-F008 and HV-F015A	North East South West		
EFFECTS O	F FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Open (grat	ing)
None. B down. T isolatio than ade is requi is not l shutdown using co be set t	tedundant Division II equipment will be used for safe shut- the redundant RHR and Primary Containment Instrument gas in valves are located in 4321 pipe chase, which has more equate horizontal separation plus walls. RHR valve HV-F008 red for shutdown cooling; however, since BC-HV-F009 cabling located in this zone, manual operation of F008 would allow a cooling to be established. In addition, alternate shutdown are spray injection and MSRV return to suppression pool can up in Division II from the MCR. See also zone 4102.	Ceiling: Doors and Hatches: Pressure tight door, Floor is open to torus "HVAC contains double p dampers in lieu of fir Reference Drawings: Elec. Drawings - E-154 Fire Drawings - Figures	Unrated Unrated area 4102, pressure tight re dampers. 3 5 9.5-3 and 9.	isolation 5-9
		COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY	EQUIV. FIRE SEVERITY (MIN.) 0 0 0
DEVIATIO	N REQUEST: Automatic Suppression System	d. Transient		0
		AREA = NS	TOTAL	0
FHAT 57	1-8	And the second s		treadment (

FIRE HAZARD ANALYSIS	TABULATION	TABLE 9A-70	1/84
00M: Pipe Chase THE 204E 4402 BLDG, Reactor ELEV. 132	FIRE DETECTION TYPE:	FIRE SUPPRESS	SION TYPE:
ECH SHUTDOWN BOUIPMENT AND CAM P.	None	II20 hose Portable	IYHR200 Extinguioher C
II Conduit for RHR valves HV-F016B and HV-F021B (Containment spray).	EMENG. LIGHTS: Yes		
	CONSTRUCTION:	FIRE RATING:	
	Walls:	Unrated	
	North		
	East		
	South		
	West		
PRECIPCION SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated (p	artial grating)
when the Division II cable in this zone is not required for	Ceiling:	Unrated (9	rating)
Note: the shutdown. Spurious operation of the containment spray valves safe shutdown. Spurious operation of prevent safe shutdown. Redundar	ant Doors and Hatches:		
Division I equipment would be used for safe shutdown.	Doors - Unrated Hatches - None		
	Reference Drawings:		
	Elec. Drawings - E-15	54-1 and 1564-1	
	Fire Drawings - Figur	es 9.5-4 and 9.	6-5.
	COMBUSTIBLES: MATERIAL:	QUARTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation		0
	b. Lube oil		0
	c. Other		0
Severantical peopleST: None	d. Transient		0
	AREA = NS	TOTAL	0

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TABULATION	
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FINAL SAFETY ANALYSIS REPORT TABLE 9A-75 .

ROOM: RWCU BACKWash Receiving Tank Room		
FIRE ZONE 4407 BLDG. Reactor ELEV. 132	FIRE DETECTION TYPE:	FIRE SUPPRESSICA TYPE:
MECH SHUTDOWN SAFE SHUTDOWN FQUIPMENT AND CABLE:	None	H20 hose 10HR200 Bereable Extinguisher C
DIVISION		
	EMERG. LIGHTS:	
	Yes	
	CONSTRUCTION:	FIRE RATING:
	Walls:	Unrated
	florth	
	East	
	South	
	West	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR NADIOACTIVE RELEASE:	Floor:	Unrated
None. There is no safe shutdown equipment or cable in this zone.	Ceiling:	Unrated
	Doors and Hatches:	
	None	
	Reference Drawings:	
	Elec. Drawings - E-155	14-1 and 1564-1
	Fire Drawinys - Figure	is 9.5-4 and 9.5-9
	COMBUSTIBLES: MATERIAL:	EQUIV. FIRE CUANTITY SEVERITY (MIN.)
	a. Cable insulation	0
	b. Lube oil	0
	c. Other	0
DEVIATION REQUEST: None	d. Transient	0
	AREA = NS	TOTAL 0

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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-78

ROOM: FR	VS Recirculation Unit Area			1/84
FIRE ZONE MECH SHUTDOWN DIVISION I	2 4410 6 4411 BLDG. Reactor ELEV. 132 6 145 SAFE SHUTDOWN EQUIPMENT AND CABLE: Channel A & C conduit and cable tray for SACS (LT-2508A & C, water for FRVS, water for fuel pool cooling, water for containment instrument gas compressors) and for RHR (PT-N094 A, C, E, & G)	FIRE DETECTION TYPE: Ionization Heat actuated (in filter unit) EMERG. LIGHTS: Yes CONSTRUCTION:	FIRE SUPPRES Preactio (in char II <sub>2</sub> O hose IRHR200 Portable FIRE RATING:	SION TYPE: n water spray coal filter only) s lQHR200 and Extinguisher
		Walls: North East South West	All walls except for rated wall the TSC (2	are unrated, the 3-hour adjacent to cone 4415)
EFFECTS C None. 7 shutdowr would no through more tha	OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: The Division I cable in this zone is not required for safe a. Spurious operation of equipment due to a fire in this zone of affect safe shutdown. Propagation of a fire in this zone the unrated walls, floor, or ceiling would not jeopardize an one safe shutdown division.	Floor: Ceiling: Doors and Hatches: None	Unrated Unrated	
		Reference Drawings: Elec. Drawings - E-151 1544-1, 1545-1, 1554-1 Fire Drawings - Figure	4-1, 1515-1, 1 , 1555-1, 1574 s 9.5-4 and 9.	1524-1, 1525-1, 1-1, and 1575-1 15-9
		COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
		a. Cable insulation	34,394 lbs	22.9
		b. Lube oil		0
		c. Other (charcoal)	15,000 lbs	29.5
DEVIATIO	N REQUEST: None	d. Transient		0
		AREA = 5,638 ft2	TOTAL	52 min.



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-81

TIRE ZONE 4415, 4416, & 4417 BLDG. Reactor ELEV. 132	FIRE DETECTION TYPE:	FIRE SUPPRESS	ION TYPE:
ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: IVISION	Photo-el	Portable	Extinguisher
None	EMERG. LIGHTS:		
	NO CONCEPTION :	FIRE RATING:	
	Walls:	3 hour	
	North		
	East		
	South		
	West		
AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE.	Ceiling:	3 hour	
None. There is no sale shaces of t	Doors and Hatches:		
	Doors - 3 hour Hatches - None		
	Reference Drawings: Elec. Drawings - E-1514-1		
	Fire Drawings - Figure	es 9.5-4 and 9.	5-9
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.
	a. Cable insulation		0
	b. Lube oil		0
	c. Other (paper)	500 lbs	1.4
	d. Transient		0
DEVIATION REQUEST: None	AREA = 2,218 ft2	TOTAL	1.4 min.
			Amendment



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-87

1/84

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ROOM: RWCU Heat Exchanger Room	1		
FIRE ZONE 4506 BLDG. Reactor ELEV. 145 MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: None None	FIRE DETECTION TYPE: None EMERG. LIGHTS: No	FIRE SUPPRESS H <sub>2</sub> O hose <del>Portable</del>	ION TYPE: 1THR200 extinguishers
	CONSTRUCTION: Walls: North East South West	FIRE RATING: Unrated	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. There is no safe shutdown equipment or cable in this zone.	Floor: <u>Ceiling</u> : <u>Doors and Hatches</u> : <u>Doors - Unrated</u> Hatches - None <u>Reference Drawings</u> : Elec. Drawings - E-155 1595-1 Fire Drawings - Figure	Unrated Unrated 55-1, 1565-1, 1 es 9.5-5 and 9.	585-1, and 5-9
DEVI.TION REQUEST: None	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other d. Transient AREA = NS	QUANTITY	EQUIV. FIRE SEVERITY (MIN.) 0 0 0 0 0



HCGS FOR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-89

1/84

OOM: Pipe Chase	FIRE DETECTION TYPE:   FIRE SUP	PR.SSION TYPE:
IRE ZONE 4509 BLDG. Reactor ELL. 145	None H20 Port.	hose 1SHR200 al <u>e extinguisher</u>
	CONSTRUCTION: FIRE RAT Walls: Unrate North East South West	ING: d
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. There is no safe shutdown equipment or cable in this zone.	Floor: Unrate Ceiling: Unrate Doors and Hatches: None	ed ed
	Reference Drawings: Elec. Drawings - E-1555-1 and 1 Fire Drawings - Figures 9.5-5 a	585-1 nð 9.5-9
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	EQUIV. FIRE SEVERITY (MIN.) 0 0 0
DEVIATION REQUEST: None	AREA = NS 1	0 TOTAL 0 Amendment

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HCG. + SAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REFORE TABLE 9A-91

ROOM: FRVS Vent Unit Room		I	
FIRE ZONE 4511 BLDG. Reactor ELEV. 145 MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION None None	FIRE DETECTION TYPE: Heat actuated (in filter unit) EMERC. LIGHTS: Yes	FIRE SUPPRESS Preaction (in charc H <sub>2</sub> O hose Portable	SION TYPE: n water spray coal filter only) lBHR2Ol extinguisher
	CONSTRUCTION: Walls: North East South West	FIRE RATING: Unrated	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. There is no safe shutdown equipment or cable in this zone.	<u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> : <u>Doors - Unrated</u> Hatches - None <u>Reference Drawings</u> : Elec. Drawings - E-152 Fire Drawings - Figure	Unrated, exc steam tunnel Unrated 25-1	ept for main roof portion.
	COMBUSTIBLES:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation		0
	b. Lube oil c. Other (charcoal)	2,250 lbs	52
			0
DEVIATION REQUEST: None	d. Transient		





HCGS Funk FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY "NALYSIS REF. TABLE 9A-92

OOM: FRVS Vent Unit Room FIRE ZONE 4512 BLDG. Reactor ELEV. 1	IS FIRE DETECTION TYPE: FIRE SUPPRESSION TYPE:			
ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	Heat actuated (in charcoal filter only) (in filter unit) Portable extinguisher			
None	EMERC. LIGHTS:			
	CONSTRUCTION: FIRE RATING:			
	Walls: Unrated			
	North			
	East			
	South			
	West			
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor: Unrated			
None. There is no safe shutdown equipment or cable in this zone	Ceiling: Unrated			
	Doors and Hatches:			
	Doors - Unrated Hatches - None			
	Reference Drawings:			
	Elec. Drawings - E-1525-1 and 1555-1			
	Fire Drawings - Figures 9.5-5 and 9.5-9			
	COMBUSTIBLES: MATERIAL: COMBUSTIBLES: EQUIV. FIRE SEVERITY (MIN.)			
	a. Cable insulation 0			
	b. Lube oil 0			
	c. Other (charcoal) 2,250 lbs 43.8			
	d. Transient 0			
DEVIATION REQUEST: None	AREA = 570 ft2 TOTAL 44 min.			
	tmandmant			



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-93

FIRE ZONE 4513 BLDG. Reactor ELEV. 145	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION None	Jonization	H <sub>2</sub> O hose Portable	1THR200 extinguisher
	EMERG. LIGHTS: Yes		
	CONSTRUCTION: Walls: North East South	FIRE RATING: Unrated	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. There is no safe shutdown equipment or cable in this zone. Propagation of a fire in this zone to the adjacent fire zones wou not jeopardize more than one safe shutdown division.	None	Unrated None	
	Reference Drawings: Elec. Drawings - E-152 Fire Drawings - Figur	25-1 and 1535-1 es 9.5-5 and 9	9.5-9
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 634 lbs	EQUIV. FIRE SEVERITY (MIN.) 7.5 0 0
DEVIATION REQUEST: None	d. Transient AREA = 318 ft <sup>2</sup>	TOTAL	0 8 min.







HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-95

			PL PV 145	FINE DETECTION TYPE:	FIRE SUPPRESS	SION TYPE:
FIRE ZONE	4518 SAFE SHUT	BLDG. Reactor		Jonization	H <sub>2</sub> O hose Portable	1BHR201 extinguisher
	None			EMERG. LIGHTS: Yes		
				CONSTRUCTION:	FIRE RATING:	
				Walls:		
				North	Unrated	
				East	3 hour	
				South	Unrated	
				West	Unrated	
EFFECTS O	F FIRE ON	SAFE SHUTDOWN AND/OR RADIOA	CTIVE RELEASE:	Floor:	3 hour	
None. T	here is n	o safe shutdown equipment or	cable in this zone.	Ceiling:	Unrated	
				Doors and Hatches:		
				Doors - Unrated  Hatches - None 		
				Reference Drawings:		
				Elec. Drawings - 8-15.	25-1	
				Fire Drawings - Figure	es 9.5-5 and 9.	5-9
				COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
				a. Cable insulation		0
1				b. Lube oil		0
				c. Other		0
DEVIATION	REQUEST	: None		d. Transient		0
				AREA = NS	TOTAL	ō



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-98a

TRE ZOHE 4603 BLDG. Reactor ELEV. 162	FIRE DETECTION TYPE:	FIRE SUPPRE	SSION TYPE:
IECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION II Channel B conduit for SACS (water for fuel pool cooling) and for RHR (PT-NU94 B and F)	Heat Actuated (in filter unit) EMERG. LIGHTS: No	Preact (in ch only) H <sub>2</sub> 0 ho Portab	ion water spray arcoal filter se lVHR200 le extinguisher
나는 것은 것은 것은 것은 것은 것은 것은 것을 것을 수 있는 것을 수 있다.	CONSTRUCTION:	FIRE RATING	
성장 김 사람은 것 같은 것 같은 것 같은 것 같은 것 같은 것 같이 많이	Walls:	Unrated	
	North		
	East		
장애님 집에 전망하는 것 같아요. 김 권리는 것 같은 것 같아요. 것 같아요.	South		
	West		
FFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated	
None. The Division II cable in this zone is not required	Ceiling:	Unrated	
None. The Division II cable in this zone is not required for safe shutdown. Spurious operation of equipment due to an exposure fire in this zone would not affect safe shutdown.	Doors and Hatches: None		
	Reference Drawings:		
	Elec. Drawings - E-155	6-1 and 1566-	1
	Fire Drawings - Fig. 9	0.5-6 and 9.5-	9
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation		0
	b. Lube oil		0
	c. Other (charcoal)	750 lb.	9.4
DEVIATION REQUEST: None	d. Transient		0
	$AREA = 885 ft^2$	TOTAL	9 min.





HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

TABLE 9A-98d

TRE ZONE	4607 BLDG. Reactor ELEV. 162 to 173'-6"	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
HECH SHUTDOWN DIVISION	SAFE SHUTDOWN EQUIPMENT AND CABLE:	None	-Portable	axtinguishers?
1 11	Channel A conduit for RHR (PT-N094 A and E) Channel B conduit for SACS (water for fuel pool cooling) and for RHR (PT-N094 B and F)	EMERG. LIGHTS:		
		CONSTRUCTION: Walls: North East South West	FIRE RATING: Unrated	
None. for search	OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: The Division I and II cable in this zone is not required afe shutdown. Spurious operation of the equipment due to e in this zone would not affect safe shutdown.	Floor: Ceiling: Doors and Hatches:	Unrated Unrated	
		None <u>Reference Drawings</u> : Elec. Drawings - E-19 Fire Drawings - Fig. 9	556-1 and 1586 9.5~6 and 9.5-9	-1
		None <u>Reference Drawings</u> : Elec. Drawings - E-19 Fire Drawings - Fig. 9 <u>COMBUSTIBLES</u> : <u>MATERIAL</u> : a. Cable insulation b. Lube oil c. Other	556-1 and 1586 9.5-6 and 9.5-9 QUANTITY	-1 EQUIV. FIRE SEVERITY (MIN.) 0 0 0



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### HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-100

ROOM: Gamma Scan Detector Area	
FIRE ZONE     4613     BLDG.     Reactor     ELEV.     160       MECH SHUTDOWN DIVISION     SAFE SHUTDOWN EQUIPMENT AND CABLE:     1     1     Conduit to fuel pool makeup valve HV-4647       II     Conduit to fuel pool makeup valve HV-4648	FIRE DETECTION TYPE: FIRE SUPPRESSION TYPE: H <sub>2</sub> 0 hose 1VHR200 Portable extinguishers 0 EMERG. LIGHTS: No
	CONSTRUCTION: FIRE RATING: Walls: Unrated North East South West
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. There is no safe shutdown equipment or cable in this zone. Spurious operation of the fuel pool makeup valves due to a fire in this zone would not affect safe shutdown.	Floor:       Unrated         Ceiling:       Unrated         Doors and Hatches:       None         Reference Drawings:       Elec. Drawings - E-1546-1         Fire Drawings - Fig. 9.5-6 and 9.5-9
	COMBUSTIBLES: MATERIAL:QUANTITYEQUIV. FIRE SEVERITY (MIN.)a. Cable insulation0b. Lube oil0c. Other0
DEVIATION REQUEST: None	d. Transient 0 AREA = N.S. TOTAL 0 min.



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-101

IRE ZONE 4614 BLDG. Reactor ELEV. 162	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:		
ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: IVISION	Inization Heat actuated (in filter unit)	Preactio (charcoa H <sub>2</sub> 0 hose	n water spray 1 filter only) 1UHR200		
I Channel A conduit for SACS (water for FRVS) Channel C conduit for RHR (PT-H094 C and G)	ENERG. LIGHTS: Yes	Portable	extinguisher		
그는 그는 것은 것은 것은 것은 것은 것이라. 그 가지 않는 것을 가지 않는	CONSTRUCTION:	FIRE RATING:			
	Walis:	Unrated			
	North				
	East				
	South				
	West				
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated			
	Ceiling:	Unrated			
None. The Division I cable in this zone is not required for safe shutdown. Spurious operation of equipment due to an	Doors and Hatches:				
exposure fire in this zone would not affect safe shutdown. Propagation of a fire in this zone through the unrated walls, or ceiling would not jeopardize more than one safe shutdown division.	None				
	Reference Drawings:				
	Elec. Drawings - E-1516-1, 1526-1, 1546-1 and E-1556-1				
	Fire Drawings - Fig. 9	9.5-6 and 9.5-	9		
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)		
	a. Cable insulation	3,842 lb.	6.1		
	b, Lube oil		0		
	c. Other (charcoal)	7,500 lb.	35.2		
DEVIATION REDUEST. Hope	J. Transient		0		
DEALWITON NEWOPPT: NONE					



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FIRE ZONE 4615

MECH

SHUTDOWN

DIVISION

11

ROOM: FRVS Recirc. Unit Area

SACS (LT-2508D)

BLDG.

SAFE SHUTDOWN EQUIPMENT AND CABLE:

Reactor



1/84

HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-102

FIRE SUPPRESSION TYPE: ELEV. 162 FIRE DETECTION TYPE: Ionization Preaction water spray (in charcoal filter only) Heat Actuated (in filter unit) H<sub>2</sub>0 hose 1UHR200 Channel D conduit for RHR (PT-1094 D and H) and for EMERG. LIGHTS: Portable extinguisher Yes FIRE RATING: CONSTRUCTION: Walls: Unrated North East

South West Floor: Unrated Ceiling: Unrated Doors and Hatches:

None

Reference Drawings:

Elec. Drawings - E-1526-1 and 1536-1

Fire Drawings - Fig. 9.5-6 and 9.5-9

MAT	BUSTIBLES:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
a.	Cable insulation	1,271 lb.	2.0
ь.	Lube oil		0
c,	Other (charcoal)	7,500 lb.	34.1
d.	Transient		0
AR	$A = 2438 \text{ ft}^2$	TOTAL	36 min.

EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:

None. The Division II cable in this zone is not required for safe shutdown. Spurious operation of equipment due to an exposure fire in this zone would not affect safe shutdown. Propagation of a fire in this zone through the unrated walls, floor, or ceiling would not jeopardize more than one safe shutdown division.

DEVIATION REQUEST: None



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-103

FIRE ZONE 461t BLDG. Reactor ELEV. 178'- 6"	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
ECH HUTDOWR SAFE SHUTDOWN EQUIPMENT AND CABLE: IVISION II Channel B conduit for SACS (water for FRVS)	Ionization Heat actuated (in filter unit) EMERG. LIGHTS: No	Preactio (in char H <sub>2</sub> 0 hose Portable	n water spray coal filter only) lAHR202 extinguisher
	CONSTRUCTION: Walls: North East South West	FIRE RATING: Unrated	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. The Division II cable in this zone is not required for safe shutdown. Spurious operation of equipment due to an exposure fire in this zone would not affect safe shutdown. Propagation of a fire in this zone through the unrated walls, floor, or ceiling would not jeopardize more than one safe shutdown division.	Floor: <u>Ceiling</u> : <u>Doors and Hatches</u> : None <u>Reference Drawings</u> : Elec. Drawings - E-15 E-15 Fire Drawings - Fig. 5	Unrated Unrated 516-1, 1526-1, 556-1 9.5-6 and 9.5-4	1546-1 and
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other (charcoal)	<u>QUANTITY</u> 7,636 lb. 7,500 lb.	EQUIV. FIRE SEVERITY (MIU.) 10.5 0 30.4
DEVIATION REQUEST: None	d. Transient AREA = $2740 \text{ ft}^2$	TOTAL	0 41 min.



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# FINAL SAFETY ANALYSIS REPORT

HCGS FSAR FIRE HAZARD ANALYSIS TABULATION TABLE 9A-104

1/84 ROOM: FRVS Recirc, Unit Room ELEV. 178' - 6 "FIRE DETECTION TYPE: FIRE SUPPRESSION TYPE: Reactor FIRE ZONE BLDG. 4617 Ionization Preaction water sprav MECH (in charcoal filter only) SAFE SHUTDOWN EQUIPMENT AND CABLE: SHUTDOWN Heat actuated DIVISION (in filter unit) H<sub>2</sub>0 hose 1AHR202 II Channel B conduit for SACS (water for FRVS) EMERG. LIGHTS: Portable extinguisher Ho CONSTRUCTION: FIRE RATING: Walls: Unrated North East South West EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Floor: Unrated Ceiling: Unrated None. The Division II cable in this zone is not required for Doors and Hatches: sate shutdown. Spurious operation of equipment due to an exposure fire in this zone would not affect safe shutdown. Propagation of a fire in this zone through the unrated walls, floor, or ceiling would not jeopardize more than one safe shutdown division. None Reference Drawings: Elec. Drawings - E-1526-1 and 1536-1 Fire Drawings - Fig. 9.5-6 and 9.5-9 COMBUSTIBLES: EQUIV. FIRE SEVERITY (MIN.) MATERIAL: QUANTITY Cable insulation 5,683 lb. 8.2 a. 0 Lube oil b. Other (charcoal) 7,500 lb. 32.2 c. DEVIATION REQUEST: None 0 d. Transient 40 min.  $AREA = 2588 \text{ ft}^2$ TOTAL



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

RE ZONE 4619 BLDG. Reactor ELEV. 176	FIRE DETECTION TYPE:	FIRE SUPPRESSION TYPE:			
CH IUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: IVISION	None	Portable	extinguisher C		
None	EMERG. LIGHTS:				
	None				
	CONSTRUCTION:	FIRE RATING:			
	Walls:	Unrated			
	North				
	East				
	South				
	West				
A REPORT OF CARE CHUTTOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated			
FFECTS OF FIRE ON SAFE SHOTDOWN AND/OR INDICATOR INDICATOR	Ceiling:	Unrated			
manual and shutdown equipment or cable in this	Doors and Hatches:				
zone.	Doors - none				
This zone is not readily accessible.	Hatches - unrated				
	Reference Drawings: Elec. Drawings - E-1566-1				
	Fire Drawings - Fig. 9	.5-6 and 9.5-9			
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)		
	a. Cable insulation		0		
	b. Lube oil		0		
	c. Other		0		
ANT ATAL MANDER, Dana	d. Transient		0		
DEVIATION REQUEST: NONe					

Amendment 4 1/84 EQUIV. FIRE SEVERITY (MIN.) FINAL SAFETY ANALYSIS REPORT TABLE 9A-107 Poccapte extinguisher 2. FIRE SUPPRESSION TYPE: 0 0 0 0 0 FIRE RATING: TOTAL. Unrated Unrated QUANTITY 3-hr. Fire Drawings - Fig. 9.5-3 Cable insulation Doors - unrated FIRE DETECTION TYPE: Hatches - none Reference Drawings: Doors and Hatches: Elec. Drawings EMERG. LIGHTS: Transient COMBUSTIBLES: MATERIAL: CONSTRUCTION: Lube oil Hone Other AREA = 11SNO PIRE HAZARD ANALYSIS TABULATION Ceiling: Walls: Floor: South North East West a. b. : ٩. ELEV. 172'- 6" There is no safe shutdown equipment or cable in this EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: SAFE SHUTDOWN EQUIPMENT AND CABLE: Reactor BLDG. KOOM: I colation Valve Room DEVIATION REDUEST: None 4624 None None. FHA'T/4-44 FIRE ZONE MECH SHUTDOWN DIVISION



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-108

ROOM: Fuel Pool Cooling Pump Room	T		1/84
FIRE ZONE     4625     BLDG.     Reactor     ELEV.     162 +•       MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE:     11     11     Conduit for fuel pool cooling valve HV-4689A       I     Conduit for fuel pool cooling valves HV-4689A	FIRE DETECTION TYPE: Tonization Home EMERG. LIGHTS: Yes	FIRE SUPPRES H <sub>2</sub> 0 hose Portable	SION TYPE: 1VHR200 extinguisher
I Fuel pool cooling pump 1AP211	CONSTRUCTION: Walls: North East South West	FIRE RATING	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. The Division I and II cable and equipment in this zone is not required for sate shutdown. Spurious operation of valves HV-4689A and B and HV-4648 or pump lAP211, due to a fire in this zone would not affect safe shutdown.	Floor: Ceiling: Doors and Hatches: None	Unrated Unrated	
	<u>Reference Drawings</u> : Elec. Drawings - E-154 Fire Drawings - Fig. 9	6 and 1576-1 .5-6 and 9.5-9	
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY	EQUIV. FIRE SEVERITY (MIN.) 0 0 0
DEVIATION REQUEST: None	d. Transient AREA = NS	TOTAL	0
FHAT/4-45	1		Imand



And Street Collecter



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-109

FIRE ZONE 4626 BLD	G. Reactor ELEV. 162 to 173'-6"	FIRE DETECTION TYPE:	H20 hose 1VHR200		
ECH HUTDOWN SAFE SHUTDOWN EQ IVISION	UIPMENT AND CABLE:	Hone	Portable	extinguisher	
11 Channel B cond	uit for SACS (water for fuel pool cooling)	EMERG. LIGHTS: Yes			
	Ing pamp in the	CONSTRUCTION: Walls: North East South	FIRE RATING: Unrated		
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. The Division II cable and equipment in this zone is not required for safe shutdown.	<u>Floor:</u> <u>Ceiling:</u> <u>Doors and Hatches</u> :	Unrated Unrated			
	None <u>Reference Drawings</u> : Elec. Drawings - E-19 E-19 Fire Drawings - Fig. 9	546-1, 1556-1, 586-1 9.5-6 and 9.5-9	1576-i and		
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY	EQUIV. FIRE SEVERITY (MIN. 0 0 0		
DEVIATION REQUEST: None		d. Transient AREA = NS	TOTAL	0	



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY AMALYSIS REPORT TABLE 9A-110

IRE ZONE 4627 BLDG. Reactor ELEV. 162 to 173'-6"	FIRE DETECTION TYPE:	FIRE SUPPRESS	ION TYPE:
ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: IVISION	Hone	Portable	extinguisher
None	EMERG. LIGHTS: Yes		
	CONSTRUCTION: Walls: North East South	FIRE RATING: Unrated	
EFFECTS OF FIRE OH SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. There is no safe shutdown equipment or cable in this zone.	West <u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> :	Unrated Unrated	
	None <u>Reference Drawings</u> : Elec. Drawings - E-15 Fire Drawings - Fig. 9	76-1 9.5-6 and 9.5-5	
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation		0
	b. Lube oil		0
	c. Other		0
DEVIATION REQUEST: None	d. Transient	TOTAL	
	AREA - NO		Amendment



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-111

ROOM: Fuel Pool Heat Excha	anger Room			1	1/84		
PIRE ZONE 4628 BLI MECH SHUTDOWN SAFE SHUTDOWN EQ DIVISION	XI. Reactor	ELEV. 162 to 173'-6"	FIRE DETECTION TYPE: Jonization	FIRE SUPPRES H <sub>2</sub> 0 hose Portable	SION TYPE: 1VHR200 e extinguisher		
II Channel D cond	II Channel D conduit for SACS (water for fuel pool cooling	er for fuel pool cooling)	EMERG, LIGHTS: Yes				
			CONSTRUCTION:	FIRE RATING			
			Walls:	Unrated			
			North				
			East				
			South				
			West				
FFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated					
			Ceiling:	Unrated			
None. The Division for safe shutdown.	Il cable in this :	zone is not required	Doors and Hatches:				
			None				
			Reference Drawings:				
			Elec. Drawings - E-1576 and 1586-1				
		Fire Drawings - Fig. 9	0.5-6 and 9.5-9	,			
		COMBUSTIBLES:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)			
			a. Cable insulation		0		
		b. Lube oil		0			
		c. Other		0			
DEVIATION REOFLAT: Bone			d. Transient		0		
		AREA = N.S.	TOTAL	0			

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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FIRE ZONE 5105 BLDG. Auxiliary/Control ELEV. 54	FIRE DETECTION TYPE:	FIRE SUPPRESS	ION TYPE:
ECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	Photoelectric Ionization	H <sub>2</sub> O hose I Portable I	HOTOZ EHR400 Ext.
I Division I Cabling	EMERG. LIGHTS:		
	CONSTRUCTION:	FIRE RATING:	
	Walls: North	All walls rated exce rated stai	are 3-hour pt for 2-hour rwell enclosure.
	East		
	South		
REFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated (b	asemat)
None. Redundant Division II cabling, which has III.G.2.a separation, will be used for shutdown.	Ceiling: Doors and Hatches:	3 hour 3 hour	
	Reference Drawings:		
	Elec. Drawings - E-166	51-1	
	Fire Drawings - Figure Figure	e 9.5-1 e 9.5-9	
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation	1,275 lbs	10.4
	b. Lube oil		0
	c. Other		0
DEVIATION REQUEST: None	d. Transient		0
	AREA = 460 ft2	TOTAL	10 min.
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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION FINAL SAFETY ANALYSIS REPORT TABLE 9A-129

ROOM: Cable Spreading Room	STAR DETECTION TYPE. FIRE SUPPRESSION TYPE:
PIRE ZONE 5202 BLDG. Auxiliary/Control ELEV. 77 to 101 to MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION I & II Power, instrumentation and control cable for both safe shutdown divisions.	PIRE DETECTION TIPE:       The borradore of the fill of the fi
	CONSTRUCTION: FIRE RATING: Walls: 3 hour North Fast South West
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. The cable spreading room contains power, instrumentation, and control cabling for both safe shutdown divisions. Alternate shut- down is accomplished from the remote shutdown panel and local equipment operating areas if both divisions of cable in this zone are damaged, in accordance with III.G.3 of Appendix R. Transfer switches located at the remote shutdown panel (fire zone 3576) allow one train of safe shutdown equipment to be isolated from the control building. Spurious actuations have been analyzed and will not prevent safe shutdown using the RSF.	Floor:       3 hour         Ceiling:       3 hour         Doors and Hatches:       3 hour rated door         North wall:       3 hour rated door (two)         West wall:       3 hour rated doors (four) to elect shafts and (one) to corridor         Reference Drawings:       Elec. Drawings - E-1652 E-1662         Fire Drawings - Figure 9.5-2 Figure 9.5-9
	COMBUSTIBLES:     QUANTITY     EQUIV. FIRE       MATERIAL:     QUANTITY     SEVERIPY (MIN.)       a. Cable insulation     182,087 lbs     237       b. Lube oil     0       c. Other     0
DEVIATION REQUEST: None	d. Transient 0 AREA = 5760 ft <sup>2</sup> TOTAL 237 min.



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

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CITRE 2016 5203       BLDG. Auxiliary/Control       ELEV. 77       FIRE DETECTION TYPE: Mate a characteric inization Division II Cable Trays       FIRE SUPPRESSION TYPE: Control to Solid Detectors located in 2000 Solid	ROOM: Electrical Tray Area	1/84
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:       Floor:       3 hour         Walls:       3 hour         West       Floor:       3 hour         Will be used for shutdown. The sprinkler system is       Ceiling:       None (open to 5323)         Dors and Hatches:       3 hour         Reference Drawings:       Elec. Drawings - E-1662         Fire Drawings - Figure 9.5-2       Figure 9.5-2         Fire Drawings - Figure 9.5-9       COMBUSTIBLES:         MORESTIBLES:       Ourstibution         ACADE insulation       2,018 lbs         DEVIATION REQUEST: None       0         AREA = 84 ft <sup>2</sup> TOTAL	FIRE ZONE 5203     BLDG. Auxiliary/Control     ELEV. 77       MECH SHUTDOWN DIVISION     SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION     Division II Cable Trays	FIRE DETECTION TYPE: Heat actuated Photoelectric Ionization (Detectors located in Zone 5531) EMERG. LIGHTS: No
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:       Floor:       3 hour         None. Redundant Division I cable has III.G.2.a separation and will be used for shutdown. The sprickler system is installed to reduce the hayand due to the vertical cable tay concentrations.       Ceiling:       None (open to 5323)         Doors and Hatches:       3 hour         Reference Drawings:       Elec. Drawings - E-1662         Fire Drawings - Figure 9.5-2       Figure 9.5-2         Pigure 9.5-9       COMBUSTIBLES:         MATERIAL:       QUANTITY         Severity (MIN.)       a. Cable insulation         Deviation       0         c. Other       0         d. Transient       0         AREA = 84 ft <sup>2</sup> TOTAL		CONSTRUCTION: FIRE RATING: Walls: 3 hour North East South West
Reference Drawings:         Elec. Drawings - E-1662         Fire Drawings - Figure 9.5-2         Figure 9.5-9         COMBUSTIBLES:       EQUIV. FIRE         MATERIAL:       QUANTITY         a. Cable insulation       2,018 lbs       90.1         b. Lube oil       0         c. Other       0         d. Transient       0         AREA = 84 ft <sup>2</sup> TOTAL       90 min.	EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I cable has III.G.2.a separation a will be used for shutdown. The sprinkles system is installed to reduce the hazand due to the vertical cuble tray concentrations.	nd <u>Floor</u> : 3 hour <u>Ceiling</u> : None (open to 5323) <u>Doors and Hatches</u> : 3 hour
COMBUSTIBLES:       QUANTITY       EQUIV. FIRE         MATERIAL:       QUANTITY       SEVERITY (MIN.)         a. Cable insulation       2,018 lbs       90.1         b. Lube oil       0       0         c. Other       0       0         d. Transient       0       0         AREA = 84 ft <sup>2</sup> TOTAL       90 min.		<u>Reference Drawings</u> : Elec. Drawings - E-1662 Fire Drawings - Figure 9.5-2 Figure 9.5-9
DEVIATION REQUEST: None AREA = 84 ft <sup>2</sup> TOTAL 90 min.		COMBUSTIBLES:     QUANTITY     EQUIV. FIRE       MATERIAL:     QUANTITY     SEVERITY (MIN.)       a. Cable insulation     2,018 lbs     90.1       b. Lube oil     0       c. Other     0
	DEVIATION REQUEST: None	d. Transient $0$ AREA = 84 ft <sup>2</sup> TOTAL 90 min.



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# HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 9A-131

ROOM: Electrical Tray Area	1		
FIRE ZONE 5204     BLDG. Auxiliary/Control     ELEV. 77       MECH SHUTDOWN DIVISION     SAFE SHUTDOWN EQUIPMENT AND CABLE:     Division II Cable Trays	FIRE DETECTION TYPE: Heat actuated Photoelectric Ionization (Detectors located in Zone 5532) EMERG. LIGHTS: No	FIRE SUPPRESS H20 hose Portable Auto press	SION TYPE: 110400 1LHR400 Extinguisher action sprinkler
	CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I cable has III.G.2.a separation and will be used for shutdown. The Sprinkler system is installed to reduce the hazard due to the vertical cable tray concentration	Floor: Ceiling: Doors and Hatches: Reference Drawings: Elec. Drawings - E-166 Fire Drawings - Figure Figure	3 hour None (open 3 hour 2 9.5-2 9.5-9	to 5324)
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 1,535 lbs	EQUIV. FIRE SEVERITY (MIN.) 68.5 0 0
DEVIATION REQUEST: None	d. Transient AREA = $84 \text{ ft}^2$	TOTAL	0 69 min.
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FINAL SAFETY ANALYSIS REPORT TABLE 9A-132

IOOM: Electrical Tray Area			
IRE ZONE 5205     BLDG. Auxiliary/Control     ELEV. 77       IECH     SAFE SHUTDOWN EQUIPMENT NID CABLE:       DIVISION     Division I Cable Trays and Conduit	FIRE DETECTION TYPE: Head actual: Photoelectric Ionization (Detectors located in Zone 5533) EMERG. LIGHTS: No	FIRE SUPPRES	SION TYPE: 1H0404 C 1LHR404 Extinguisher action sprinkler
	CONSTRUCTION: <u>Walls</u> : North East South West	FIRE RATING: 3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division II cable has III.G.2.a separation and will be used for shutdown. The sprinkler system is installed to reduce the hozard due to the vertical cable tray concentrations.	<u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> : <u>Reference Drawings</u> : Elec. Drawings - E-166	3 hour None (oper 3 hour	<b>**</b> 5325)
	Fire Drawings - Figure Figure COMBUSTIBLES:	9.5-2 9.5-9	EQUIV. FIRE
	MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 1,535 lbs	<u>SEVERITY (MIN.)</u> 69 0 0
DEVIATION REQUEST: None	d. Transient AREA = 84 ft <sup>2</sup>	TOTAL	0 69 min.



FINAL SAFETY ANALYSIS REPORT TABLE 9A-133

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ROOM: Electrical Tray Area			
FIRE ZONE 5206     BLDG. Auxiliary/Control     ELEV. 77       MECH SHUTDOWN DIVISION     SAFE SHUTDOWN EQUIPMENT AND CABLE:       I     Division I Cable Trays	FIRE DETECTION TYPE: Head actuated Photoelectric Ionization (Detectors located in Zone 5534) EMERG. LIGHTS: No	FIRE SUPPRES GO2 hose H20 hose Portable Auto pres	SION TYPE: 140404 2 1407400 Extinguisher tion sprinkler
	CONSTRUCTION: Walls: North East South	FIRE RATING: 3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division II cable has III.G.2.a separation and will be used for shutdown. The sprinkles system is installed to reduce the hazard due to the vertical	Floor: Ceiling: Doors and Hatches:	3 hour None (approximate 3 hour	* 5326)
cable tray concentrations.	Reference Drawings: Elec. Drawings - E-166 Fire Drawings - Figur Figur	2-1 e 9.5-2 e 9.5-9	
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation	1,535 lbs	69
	b. Lube oil		0
	c. Other		0
DEVIATION REQUEST: None	d. Transient AREA = $84 \text{ ft}^2$	TOTAL	0 69 min.



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FINAL SAFETY ANALYSIS . PORT TABLE 9A-135

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ROOM: Ele	ctrical Access Areas			
FIRE ZONE MECH SHUTDOWN DIVISION	SAFE SHUTDOWN EQUIPMENT AND CABLE:	FIRE DETECTION TYPE: Photoelectric Ionization Heat actuated	FIRE SUPPRES	SION TYPE: 140405 6 140404 1408300 6 1JHR400 Extinguisher 20thon Sprinkler
11	instrumentation for RCIC, SSW, SACS, and SPGR room cooling	EMERG. LIGHTS: Yes		
	한 성격 전화 관계 것 같은 것 같은 것 같은 것 같은 것 같이 많이 많이 많이 많이 많이 없다.	CONSTRUCTION:	FIRE RATING:	
	병 그것은 경험에서는 것은 것은 것이 없었다. 것은 것은 것을 가지?	Walls:	See Fire D	rawings
	이는 것 같은 것 같은 것 같은 것은 것을 가지 않는 것을 것 같이 없다.	North	3 hour	
	같은 것	East	3 hour	
	병원님은 것은 것은 것은 것은 것을 다 같은 것을 하는 것을 수 있다.	South	3 6 2 hr 8	stairwell
		West	Unrated 6	2 hr @ stairwell
EFFECTS (	DE FIRE ON SAFE SHUTDOWN AND/OR PADIOACTIVE RELEASE:	Floor:	2 hour	
Hone	A three hour fire barrier has been added at Column Q to	Ceiling:	2 hour	
None. A three hour fire barrier has been added at column Q to separate Division II (East of Q) from Division I (West of Q). There- fore, a fire in 5207 East and/or 3204 will not prevent shutdown from the MCk using Division I which has III.G.2.a separation. There is no safe shutdown equipment or cable in rooms adjacent to 5207/3204 unrated walls. An output for complete Sector is		Doors and Hatches:	See Fire I	rawings
inch	ll. I to reduce the hazard due to cable	Reference Drawings:		
conces	strations.	Elec. Drawings - E-1652, E-1662, E-1732, E-1734, and E-1736		
		Fire Drawings - Figure Figure	9.5-2 9.5-9	
		COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
		a. Cable insulation	54,100 lbs	50.7
		b. Lube oil		0
-		de jobher		0
	NI DEGUE C.P. None	d. Transient		0
DEVIATIO	A REQUEST: NOTE	AREA = 4000 ft2	TOTAL	51 min.



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HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY ANALYSIS REPORT TABLE 94 1426-

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	And Andres Area			1/84
FIRE ZONE	5237 5207 West BLDG. Auxiliary/Control & Diesel ELEV. 77	FIRE DETECTION TYPE:	FIRE SUPPRESS	ION TYPE:
MECH SHUTDOWN DIVISION	SAFE SHUTDOWN EQUIPMENT AND CABLE:	Photoelectric Ionization Heat actuated	CO2 hose 1 H2O hose 1 Portable 5 Auto pre	H0404 6 1H0403 LIR400 6 1GHR400 Exclinguisher 2 action sprinkler
I	Class 1E cable trays containing power, control and/or instrumentation for inboard isolation valve and contain- ment instrument gas valves, D/G breaker indication at RSP, SWGR room cooling indication, control area HVAC, suppres- SWGR room cooling indication, development of the state of the s	EMERG. LIGHTS: Yes		
	and SDG.	CONSTRUCTION:	FIRE RATING:	
		Walls:	See Fire Draw	vings
	이 같은 것은 것은 것은 것은 것은 것 같아요. 것은 것 같아?	North		
		East		
		South		
		West	) hour	
EFFECTS	OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour	
lione. separat remains shutdow has III	None. A three hour fire barrier has been added at Column Q to separate Division I from Division II. Since only one division remains in this fire zone, a fire in 5207 West will not prevent safe shutdown using the MCR and redundant Division II equipment, which has III.G.2.a separation. The arts in the custom in installed	Doors and Hatches:	3 hour, exce stairwell	pt for door
to rea	duce the hayand due to cable concentrations.	Reference Drawings:		
		Elec. Drawings - E-16	62, E-1672, and	E-1682
		Fire Drawings - Figur Figur	e 9.5-2 e 9.5-9	
		COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
		a. Cable insulation	28,147 lbs	35.5
		b. Lube oil		0
		Far Other		0
DEVIATI	64 REQUEST: Hone	d. Transient		0
		AREA = 2977 ft2	TOTAL	35 min.



FINAL SAFETY ANALYSIS REPORT TABLE 9A-144

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FIRE ZONE	5301 Sant BLDG. Auxiliary/Control & Diesel ELEV. 102*	FIRE DETECTION TYPE:	FIRE SUPPRESS	ION TYPE:
IVISION	SAFE SHUTDOWN EQUIPMENT AND CABLE: Division II, Channel B cable tray, includes RCIC, RSP control and inst. recirc. pump B trip.	Photoelectric Ionization EMERG, LIGHTS:	N20 hose 17 CO2 hose 11 Portable er	40408 10408
		Yes		
		CONSTRUCTION:	FIRE RATING:	
		Walls: S	ee Fire Drawing	gs
		North		
		East		
		South	F	
		West		
FFECTS O	F FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor: S	ee Fire Drawin	gs
		Ceiling: S	ee Fire Drawin	gs
Divis Divis Shutd by a	A 3 hr fire barrier added at column Q separates ion II from I., Redundant safe shutdown equipment in ion I has III.G.2.a separation and will be used for lown from the MCR. Areas 3314 and 4313 are separated series of pressure tight doors with an airlock series of pressure tight doors with an airlock	Doors and Hatches: s * Two electrical bus without fire stop	ee Fire Drawin Sunts penetist	gs the 3 hr wall
ncn-l r_diu	E cable tray and some Division I conduit within 10-foot is of the PT equip access and the PT doors (see Fig. 9.5-3).	Reference Drawings:		
These	pool level indication and reactor recirc pump trip signals. or spurious actuation of these signals on fire in 3314 is	Elec. Drawings - E-166	3	
accep Tu	relativel bus durts penetrate this 3 hour fire	Fire Drawings - Figur Figur	e 9.5-3 e 9.5-9	
ba sy	when is installed in 5339 which prevents	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.
a	five in 5301 from affecting the redundent	a. Cable insulation	25,661 lbs	37.9
1 de	minin in 5339 through these bus ducts.	b. Lube oil		0
- an	Suppression system is installed in 4313 adjacent to these	cl other		U
PT	doors.	d. Transient		0
DEVIATIO	and the bas due is the contract barrier.	$AREA = 2539 \text{ ft}^2$	TOTAL	

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FINAL SAFETY ANALYSIS REPORT TABLE 9A-152

TRE ZONE 5308 & 5315 BLDG. Auxiliary/Diesel ELEV. 102	FIRE DETECTION TYPE:	FIRE SUPPRESSION TYPE:		
ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	Photoelectric Ionization	H <sub>2</sub> 0 hose	1H0406 (Zone 5308 only F 1BHR401, 1QHR400, 1SHR401	
None	EMERG. LIGHTS:	Portable	Extinguisher	
그는 영상에 가장 감독 감독 가지 않는 것이야. 정말 방법 정말 것이 같다.	CONSTRUCTION:	FIRE RATING		
	Walls:	See Fire Dr	awings	
	North			
	East			
	South			
	Floor:	See Fire Dr	awings	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Ceilina:	See Fire Dr	alings	
None	Doors and Hatches: See Fire Drawings			
	Reference Drawings:			
	Elec. Drawings - E-16 E-16	73-1		
	Fire Drawings - Fig.	9.5-3 and 9.5	-10	
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)	
	a. Cable insulation	1,615 lbs	3.4	
	b. Lube oil		0	
	c. Other		0	
DEVIATION REQUEST: None	d. Transient		0	
	AREA = 1770 ft <sup>2</sup>	TOTAL	3 min.	



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

1/84 ROOM: Electrical Cable Chases FIRE DETECTION TYPE: FIRE SUPPRESSION TYPE: ELEV. 102 FIRE ZOHE 5323 & 5324 BLDG. Auxiliary/Diesel Heat actuated CO2 hose 110407 Ionization MECH H<sub>2</sub>O hose 1DHR401 Photoelectric SAFE SHUTDOWN EQUIPMENT AND CABLE: SHUTDOWN Portable Extinguisher (Detectors located DIVISION in Zones 5531 & Auto preaction sprinkler 5532) Division II Tray and Conduit II EMERG. LIGHTS: No FIRE RATING: CONSTRUCTION: 3 hour Walls: North East South West Unrated (grating) EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Floor: None. Redundant Division I cable which has III.G.2.a separation Unrated (grating) Ceiling: will be used for shutdown. 3 hour Doors and Hatches: Note: Detection, suppression, construction and combustibles are See note under effects of fire the auto sprinkler system is installed to reduce the hogoed due toy cable concentrations. Vertical Reference Drawings: Elec. Drawings - E-1663-1 Fire Drawings - Figure 9.5-3 EQUIV. FIRE COMBUSTIBLES: SEVERITY (MIN.) QUANTITY MATERIAL: 111 Cable insulation 2,122 lbs a. 0 Lube oil b. 0 c. Other 0 Transient d. DEVIATION REQUEST: None 111 min. TOTAL AREA =  $72 \text{ ft}^2$ 

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FINAL SAFETY ANALYSIS REPORT TABLE 9A-154

ROOM: Electrical Cable Chases			1/ 04
FIRE ZONE 5325 6 5326 BLDG. Auxiliary/Diesel ELEV. 102 HECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION I Division I Tray and Conduit	FIRE DETECTION TYPE: Heat actualed Ionization Photoelectric (Detectors located in Zones 5533 & 5534) EMERG. LIGHTS: No	FIRE SUPPRESSION TYPE: CO <sub>2</sub> hose 1H0407 H <sub>2</sub> O hose 1DHR401 Portable Extinguisher Auto preaction sprinkler	
	CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Kedundant Division II cable which has III.G.2.a separation will be used for shutdown. Note: Detection, suppression, construction and combustibles are per room. The auto sprinkle system is installed to reduce the hazard due to y cable concentrations. vertical	<u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> : See note under effects <u>Reference Drawings</u> : Elec. Drawings - E-166 Fire Drawings - Figur	Unrated (g Unrated (g 3 hour of fire 3-1 e 9.5-3	grating) grating)
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 2,122 lbs	EQUIV. FIRE SEVERITY (MIN.) 111 0 0
DEVIATION REQUEST: None	d. Transient AREA = $72 \text{ ft}^2$	TOTAL	0 111 min.

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FINAL SAFETY ANALYSIS REPORT TABLE 9A-155

OOM: Electrical Cable Chases		FIRE SUPPRESS	ION TYPE:	
IRE 20NE 5331 & 5332 BLDG. Auxiliary/Diesel ELEV. 102 ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: IVISION II Division II Tray and Conduit	Heat advated Ionization Photoelectric (Detectors located in Zones 5531 & 5532) EMERG. LIGHTS: No	CO2 hose 1H0406 H20 hose 1BHR401 & 1QHR4 Portable Extinguisher Auto preaction sprinkles		
	CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour		
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I cable has III.G.2.a separation and would be used for shutdown. Note: Detection, suppression, construction, and combustibles are per room. The auto sprinkler system is installed to reduce the hazard due to V cable concentrations - Vertical	Floor: Ceiling: Doors and Hatches: Reference Drawings: Elec. Drawings - E-16 Fire Drawings - Figur	Unrated (g Unrated (g 3 hour 83-1 e 9.5-3	rating) rating)	
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 312 lbs	EQUIV. FIRE SEVERITY (MIN.) 39	
DEVIATION REQUEST: None	d. Transient AREA = 30 ft <sup>2</sup>	TOTAL		





HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

ROOM: Electrical Cable Chases		1/84
FIRE ZOWE 5333 & 5334     BLDG. Auxiliary/Diesel     ELEV. 102       MECH SHUTDOWN DIVISION     SAFE SHUTDOWN EQUIPMENT AND CABLE:     Division       I     Division I Tray and Conduit	FIRE DETECTION TYPE: Heat actuated Ionization Photoelectric (Detectors located in Zones 5533 6 5534) EMERG, LIGHTS: No	FIRE SUPPRESSION TYPE: CO <sub>2</sub> hose 1H0406 H <sub>2</sub> O hose 1BUR401 & 1QHR400 Portable Extinguisher Auto preation sprickles
	CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division II cable has III.G.2.a separation and would be used for shutdown.	Floor: Ceiling: Doors and Hatches:	Unrated (grating) Unrated (grating) 3 hour
Note: Detection, suppression, construction and combustibles are per room. The auto sprinkles system is installed to reduce the hayout due to vertical cable concentrations.	<u>Reference Drawings</u> : Elec. Drawings - E-168 Fire Drawings - Figure	3-1 9.5-3
DEVIATION REQUEST: None	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 312 lbs EQUIV. FIRE SEVERITY (MIN.) 39
	$AREA = 30 \text{ ft}^2$	TOTAL 39 min.





FINAL SAFETY ANALYSIS REPORT TABLE 94 158 4

DOM: Electrical Raceway		1000				
TRE ZONE 5336 BLDG. Auxiliary/Control ELEV. 102	FIRE DETECTION TYPE:	FIRE SUPPRESSION TYPE: CO2 hose 1H0407 and C LH0408 S H20 hose 1AHR401				
ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE:	None					
ione	EMERG. LIGHTS:	- Portable e	xtinguisher			
	tio	1.22				
	CONSTRUCTION:	FIRE RATING				
	Walls:	3 hour				
	North					
	East					
	South					
	west					
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated	(grating)			
	Ceiling:	(grating)				
None	Doors and Hatches: 3 hour Reference Drawings: Elec. Drawings - E-1653-1					
	Fire Drawings - Fig. 9.5-3					
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)			
	a. Cable insulation	922 1bs	108			
	b. Lube oil		0			
	fn Other		0			
PERIOR REDUCT NORE	d. Transient		0			
THE VIAILUI REPUBBI. HOIS						



FINAL SAFETY ANALYSIS REPORT TABLE 9A - 143-(1586)

IRE ZONE	5339 BLDG. Auxiliary/Control & Diesel ELEV. 102'	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:	
ECH HUTDOWN S IVISION	AFE SHUTDOWN EQUIPMENT AND CABLE:	Photoelectric Ionization	$H_20$ hose 1DHR401 & 1BHR40 CO <sub>2</sub> hose 1m0406 & 1H0407 Portable ext		
1 . 11	Diesel Generator Intake Silencers	EMERG. LIGHTS:	Auto preas	tion sprinkles	
I Channel A & C cable which includes the diesel A & C control power supply cable.		Yes CONSTRUCTION:	FIRE RATING:		
		Walls: North	3 hour ∛		
		East	3 hour		
	South	3 hour 2 hour (c	outside)		
FFECTS OF	FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour		
None. equipme used fo to a fi silence materia	Loss of Division I equipment is acceptable. Division II ent and cable, etc., has III.G.2.a separation and will be or shutdown. Loss of Diesel Generator in Division II due ire and/or fire fighting activity damaging the DG intake ers or connecting piping is not postulated. The piping al and configuration is such that a failure is not credible.	Ceiling: Doors and Hatches: # the two electrical bu without 3 hr fire	t hour 3 hour (1) is ducts pener barrier	except stairwell door) frate this wall	
the due to	cable concentrations. The sprinkler system one than the for the electrical bus ducts which	Elec. Drawings - E-166 Fire Drawings - Figur	53, E-1673 and	E-1683	
Penet	ate they will	COMBUSTIBLES:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)	
		a. Cable insulation	29,153 lbs	32.7	
		b. Lube oil		0	
		S. Other		0	
DEVIATION	REQUEST: Hoperator Bus dunts without barrier	d. Transient		0	
			and an and a set of the set of th		



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

1596-1

an and a second Area			
IRE ZONE 5401 & 3425 BLDG. Auxiliary/Control & Radwaste ELEV. 124 ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE:	FIRE DETECTION TYPE: Ionization Photoelectric Heat autuated	FIRE SUPPRESS CO <sub>2</sub> hose 18 U <sub>2</sub> O hose 18 Portable Ex Auto preco	ION TYPE: 0410 in 5401 HR400 in 5401 tinguisher ting sprinklen
II Division II Cable	EMERG, LIGHTS: Yes		
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	COUSTRUCTION: Walls: North East South West Floor:	FIRE RATING: 3 hour 1 and 2 hour 3 hour Open to 5423 3 hour 3 hour	east
Hone. Redundant Division I cable has III.G. 2. a separation and would be used for safe shutdown. The auto sprinkler system is installed to reduce the hazard due to inaccessible cable concentrations.	Ceiling: Doors and Hatches: Reference Drawings: Elec. Drawings - E-16 Fire Drawings - Figur	3 hour 3 hour 54, E-1664, E-1 e 9.5-4 & 9.5-1	767 <b>6 E-1769</b> 0
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil fr .Other	QUANTITY 33,849 15	EQUIV. FIRE SEVERITY (MIN. 41.9 0 0
DEVIATION REQUEST: None	d. Transient AREA = $3032 \text{ ft}^2$	TOTAL	42 min.





HCGS . SAR FIRE HAZARD ANALYSIS TABULATION

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OOM: Control Equipment Room Mezzanine	T	1		
IRE 20HE 5403       BLDG. Auxiliary/Control       ELEV. 117'-6"         ECH       SAFE SHUTDOWN EQUIPMENT AND CABLE:       Safe Shutdown EQUIPMENT AND CABLE:         IVISION       Division I & II cable trays conduit f and panels required for safe shutdown from the main control room.	FIRE DETECTION TYPE: Ionization Photoelectric Heat Actuated EMERG. LIGHTS: Yes	FIRE SUPPRESS CO2 auto CO2 hose H20 hose Portable Manual	SION TYPE: total flooding <del>DHO402 &amp; 1H0410 (</del> IRHR400 & 1HHR401 Extinguishers (Eluge	
	CONSTRUCTION:	FIRE RATING:		
영양의 동안은 것은 영양을 다 들려야 한다. 한 방송은 것은 것을 했다.	Walls:			
	North	3 hour		
	East	3 hour		
	South	3 hour		
	West	l hour (co	rridor)	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour		
None. Shutdown can be accomplished using Remote Shutdown Facilities	Ceiling:	3 hour		
Room 5404, corridor, was analyzed along with 5403. The combination of 5403 and 5404 has three hour fire barriers on all sides.	Doors and Hatches:	3 and 1 ho	ur	
a manual water deluge system provides backing to				
the auto CO2 system.	Reference Drawings:			
	Elec. Drawings - E-16	54 and E-1664		
	Fire Drawings - Figure	9.5-4 and 9.5	-9	
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)	
	a. Cable insulation	95,195 lbs	79.3	
	b. Lube oil		0	
	c. Other		0	
DEVIATION REQUEST: None	d. Transient		0	

K42/2-42





FINAL SAFETY ANALYSIS REPORT TABLE 9A-162

ROOM: Electrical Cable Chases		1			
FIRE ZONE 5405 & 5406 BLDG. Auxiliary/Diesel Area ELEV. 124 MECH ShuTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	FIRE DETECTION TYPE: Heat attrated Ionization Photoelectric (in 5531/5532)	FIRE SUPPRESSION TYPE: CO <sub>2</sub> hose OHO402 H <sub>2</sub> O hose 1HIIR401 Portable Extinguisher Auto preaction sprink			
II Cable Tray and Conduit (CH. B and D)	EMERG. LIGHTS:				
	No				
영양 경험 방송은 동안은 그 것은 것이라 가슴을 망망했다. 말을	CONSTRUCTION:	FIRE RATING:			
	Walls:	3 hour			
	North				
	East				
	South				
	West v				
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Open to 53	23/5324		
None. Redundant Division I cable, which has III.G.2a separation,	Ceiling:	Open to 5531/5532			
would be used for shutdown.	Doors and Hatches: 3 hour				
Note: Detection, suppression, construction and combustibles are per room.					
The a to complete on the is installed to reduce the	Reference Drawings:				
have due to vertical cable concentrations	Elec. Drawings - E-1664-1				
ngara and	Fire Drawings - Figur	e 9.5-4 and 9.5	-9		
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)		
	a. Cable insulation	1,061 lbs	51.7		
	b. Lube oil				
	c. Other				
DEVIATION REQUEST: None	d. Transient				
	AREA = $77 \text{ ft}^2$	TOTAL	52 min.		
K42/2-44			Amendment		



1/04

FIRE 20NE 5407 & 5408 BLDG. Auxiliary Diesel Area ELEV. 124	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:	
MECH SHUTDOWH SAFE SHUTDOWH EQUIPMENT AND CABLE: DIVISION	Ionization Photoelectric (in 5533/5534)	CO2 hose OHO402 H2O hose 1HHR401 Portable Extinguish Auto preastion sprin		
	EMERG. LIGHTS:			
	CONSTRUCTION:	FIRE RATING		
	Walls: North East South	3 hour		
	West	ļ		
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Open to 5	325/5326	
None. Redundant usy sion II cable, which has III.G.2a separation, would be used for shutdown.	Ceiling: Dools and Hatches:	Open to 5533/5534 3 hour		
Note: Detection, suppression, construction and combustibles are per room. The arts corrictles system is installed to	<u>Reference Drawings:</u> Elec. Drawings - E-166	64-1		
reduce the hazard due to vertical cable	Fire Drawings - Figure	9.5-4 and 9.	5-9	
concentration	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)	
	a. Cable insulation b. Lube oil	1,061 lbs	51.7	
DEVIATION REQUEST: None	d. Transient			
	$AREA = 77 \text{ ft}^2$	TOTAL	52 min.	

Amendment 4



FINAL SAFETY ANALYSIS REPORT TABLE 9A-169

1/84

OOM: Corridor		FIDE SUPPRESS	ION TYPE:		
TRE ZONE 5418 BLDG. Auxiliary Diesel Area ELEV. 130 ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION None	Photoelectric Ionization	GHR401 xtinguisher M0403_C			
	Yes				
	CONSTRUCTION: Walls: North East South West	FIRE RATING: See fire d	awings		
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIGACTIVE RELEASE: None	Floor: Unrated <u>Ceiling</u> : Unrated <u>Doors and Hatches</u> : See fire drawings				
	<u>Reference Drawings</u> : Elec. Drawings - E-16 Fire Drawings - Figur	85-1 es 9.5-4 and 9.	5-10		
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)		
	a. Cable insulation		0		
	b. Lube oil		0		
	c. Other		0		
DEVIATION REQUEST: None	d. Transient AREA =	TOTAL	0		

Amendment 4



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

ROOM: Electrical chases		1	
PIRE ZONE 5419 & 5420       BLDG. Auxiliary Diesel Area       ELEV. 130         MECH SHUTDOWN DIVISION       SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION       Cable Tray and Conduit (CH. B and D)	FIRE DETECTION TYPE: /kat actuated Ionization Photoelectric (in 5531/5532) EMERG. LIGHTS: No	SION TYPE: 1GHR401 Extinguisher ation sprinkler	
	CONSTRUCTION: Walls: North East South West	FIRE RATING:	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I cable which has III.G.2.a separation will be used for shutdown. Note: Detection, suppression, and combustibles are per zone. The auto suppression system is installed to reduce the hagand due to vertical cable concentration.	Floor:       Open to 5331/5332         Ceiling:       Open to 5531/5532         Doors and Hatches:       3 hour         Reference Drawings:       Elec. Drawings - E-1685-1         Fire Drawings - Figure 9.5-4		
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 1,704 lbs	EQUIV. FIRE SEVERITY (MIN.) 152 0 0
DEVIATION REQUEST: None	d. Transient AREA = $42 \text{ ft}^2$	TOTAL	0 152 min.



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

1/84

ROOM: Electrical Chases		1	
FIRE ZCNE 5421 & 5422 BLDG. Auxiliary Diesel Area ELEV. 130 MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION I Cable Tray and Condwit (CH. A and C)	FIRE DETECTION TYPE: Heat a day let Ionization Photoelectric (in 5533/5534) EMERG, LIGHTS: No	PIRE SUPPRES	SION TYPE: IGHR401 Extinguisher action sprinkler
	CONSTRUCTION: Walls: North East South West	FIRE RATING:	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division II cable which has III.G.2.a separation will be used for shutdown. Note: Detection, suppression, and combustibles are per zone. The auto suppression system is installed to reduce the bayand due to vertical cable concentration	<u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> : <u>Reference Drawings</u> : Élec. Drawings - E-160 Fire Drawings - Figure	Open to 53 Open to 55 3 hour 85-1 e 9.5-4	33/5334 33/5534
DEVIATION REQUEST: None	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other d. Transient AREA = 42 ft <sup>2</sup>	QUANTITY 1,704 lbs TOTAL	EQUIV. FIRE SEVERITY (MIN.) 152 C 0 0 152 min.

Amendment 4

FINAL SAFETY ANALYSIS REPORT TABLE 9A-174

FHAT 2/2-10





HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FINAL SAFETY AMALYSIS REPORT TABLE 947176 a

ROOM: Electrical Chase			1/84			
FIRE ZONE 5449 BLDG. Auxiliary Control Area ELEV MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	. 117'-6" FIRE DETECTION TYPE: None	FIRE SUPPRES W22 hose 1 H20 hose 1 Portable 1 Manual 1	SSION TYPE: LHO410 RHR400 Extinguishers Deluge System			
None	EMERG. LIGHTS:	-	<i>y</i>			
	CONSTRUCTION:	FIRE RATING	1			
	Walls:	3 hour				
	North	open at	ceeling			
	East	3 hour				
	South	3 hour				
	West	openat o	eiling			
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEAS	E: Floor:	open 3 hor	ur			
None	Ceiling:	3 hour				
	Doors and Hatches:	3 hour				
	<u>Reference Drawinge</u> : Elec. Drawings - E-	1654-1				
	Fire Drawings - Fiqu	Fire Drawings - Figure 9.5-4				
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)			
	a. Cable insulation	851 lbs	99.7			
	b. Lube oil					
	. Other					
DEVIATION REQUEST: None	d. Transient					
	AREA = 32 ft2	TOTAL	100 min.			
FHAT 2/2-11			Amendment			

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ROOM: Kiteshar			1/84
FIRE ZONE 5505 BLDG. Auxiliary/Control EL	EV. 137	FIRE DETECTION TYPE:	FIRE SUPPRESSION TYPE:
MECH SHUTDOWN SAVE SHUTDOWN EQUIPMENT AND CABLE: DIVISION		None	H2O hose MHC301 Portable Extinguisher
None		ENENG, LIGHTS:	
		110	
		CONSTRUCTION:	FIRE RATING:
		walls:	See Figure 9.5-5
		North	
		East	
		South	
		West	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELE	ASE:	Floor:	3 hour
None		Ceiling:	3 hour
		Doors and Hatches:	3 hour
		Reference Drawinys:	
		Ficc. Drawings - E-165	5-1
		Fire Drawings - Figure	9.5-5 and 9.5-10
		COMBUSTIBLES: MATERIAL:	EQUIV. FIRE QUANTITY SEVERITY (MIN.)
		a. Cable insulation	0
		b. Lube oil	0
		c. Other	0
DEVIATION REQUEST: None		d. Transient	0
		AREA = NS	TOTAL 0
FHAT 2/2-16			Amendment 4

# FINAL SAFETY ANALYSIS REPORT

# TABLE 9A-182

# TABLE NOT USED





HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

ROOM: Ma	ain Control Room			1/84	
FIRE ZONE MECH SHUTDOWN DIVISION I & II	E 5510 BLDG. Auxiliary Control ELEV. 137 SAFE SHUTDOWN EQUIPMENT AND CABLE: Main Control Panels 10C651 Main Console 10C650 Vertical Board	FIRE DETECTION TYPE: Ionization in room Ionization in cabinets 10C650 and 10C651 EMERG. LIGHTS: Yes	FIRE SUPPRES II20 hose 1 OC2 hose, Portable e	PRESSION TYPE: se lTHR400 <del>se, lHO411, lHO412</del> ble extinguishers	
1 6 11	Division I & II Cable Control and instrumentation for all safe shutdown equipment.	CONSTRUCTION: Walls: North East South West	FIRE RATING: See Fire Dra	wings	
EFFECTS ( None. ' shutdown are no j equipment separat provided (fire zon isolated prevent RSP has cold shu minimiz No fixed constan equipment	OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: The main control room contains control panels with both safe n divisions of instrumentation and controls. There power cables in the room. The safe shutdown redundant nt and cabling does not meet the Appendix R Section II.G 2 ion requirements and therefore alternate shutdown is d. Transfer switches located at the remote shutdown panel one 3576) allow one train of safe shutdown equipment to be d from the control building. A fire in the zone would not safe shutdown since shutdown division II equipment at the III.G.2.a separation and would be used for both hot and utdown. A fire in the zone would have no affect on ing and controlling radioactive release to the environment. d suppression system is provided since the control room is tly manned, detectors are provided, manual suppression nt is located in the corridors and the fire loading in e is very low. This zone was analyzed along with 5525	<u>Floor</u> : <u>Ceiling</u> : <u>Doors and Matches</u> : <u>Reference Drawings</u> : Elec. Drawings - E-166 Fire Drawings - Figur	3 hour 3 hour See Fire Dra 5 and E-1655 es 9.5-5 and 9	wings .5-9	
corrido	ε.	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other (paper)	QUANTITY 300 lbs	EQUIV. FIRE SEVERITY (MIN.) 0 0 .7	
DEVIATIO	DN REQUEST: Fixed suppression system	d. Transient (paper) AREA = 2750 ft <sup>2</sup>	100 lbs TOTAL	.2 1 min.	
FHAT 6/	/2-2			Amendment	





FINAL SAFETY ANALYSIS REPORT TABLE 9A-196

FIRE ZONE 5531 BLDG. AUXILIARY/DIESEL ELEV. 150	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
II Cable tray and conduit (Ch.D)	Ionization Photoelectric Heat actuated EMERG. LIGHTS: Yes	GO2 hose 1990 H20 hose 1990 Portable Ext Acto prea	18400 to sprinkler
	CONSTRUCTION: Walls: North East South	FIRE RATING	•
EFFECTS OF FIRE CN SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I cable, which has III.G.2.a separation, would be used for shutdown.	Floor: Ceiling: Doors and Hatches: Floor is open to ver each end. Reference Drawings: Elec. Drawings - E-10 Fire Drawings - Fig	3 hour 3 hour 3 hour rtical electics	(except ends) al shaft at 1686-1 5-10
	COMBUSTIBLES: MATERIAL: a. Cable insulation	QUANTITY 23,110 lbs	EQUIV. FIRE SEVERITY (MIN.) 102
	b. Lube oil		0
	c Other		0



FINAL SAFETY ANALYSIS REPORT TABLE 9A-197

ROOM: Electrical Cable Chase			
FIRE ZONE     5532     BLDG. Auxiliary/Diesel     ELEV. 150       MECH SHUTDOWN DIVISION     SAFE SHUTDOWN EQUIPMENT AND CABLE:     III     Cable tray and conduit (Ch. B)	FIRE DETECTION TYPE: Ionization Photoelectric Heat atuated EMERG. LIGHTS: Yes CONSTRUCTION:	FIRE SUPPRES CO <sub>2</sub> Hose 1H H <sub>2</sub> O Hose 1T Portable Ex <i>Quito pred</i> FIRE RATING:	SION TYPE: 0412 HR400 it. it.
	Walls: North East South West	3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour (e	except ends)
None. Redundant Division I cable, which has III.G.2.a separation, would be used for shutdown.	Ceiling: Doors and Hatches: Floor is open to ver shaft at each end. <u>Reference Drawings</u> : Elec. Drawings - E-166 Fire Drawings - Fig.	3 hour 3 hour tical electric 5-1, 1676-1, 1 9.5-5 and 9.5-	al 1686-1 -10
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation	23,110 lbs	10-
	b. Lube oil		0
	c. Other		0
DEVIATION REQUEST: None	d. Transient		0
	$AREA = 847 \text{ ft}^2$	TOTAL	102 min.
FHAT/3-7			Amendment





1/04

HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

ROOM: Electrical Cable Chase		· · · · · · · · · · · · · · · · · · ·	1/04
FIRE ZONE 5533 BLDG. Auxiliary/Diesel ELEV. 150 MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION I Cable tray and conduit (Ch. C)	FIRE DETECTION TYPE: Ionization Photoelectric Heat actuated EMERG. LIGHTS: Yes	FIRE SUPPRES CO <sub>2</sub> Hose 1HO H <sub>2</sub> O hose 1TH Portable Ext Quito phen	SION TYPE: 412 R400 stim sprinkler
	CONSTRUCTION: Walls: North East South	FIRE RATING: 3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division II cable, which has III.G.2.a separation, would be used for shutdown.	West <u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> : Floor is open to ver shaft at each end. <u>Reference Drawings</u> : Elec. Drawings - E-16 Fire Drawings - Fig.	3 hour (4 3 hour 3 hour tical electric 665-1, 1676-1, 9.5-5 and 9.1	except ends) cal 1686-1 5-10
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	<u>QUANTITY</u> 23,110 ibs	EQUIV. FIRE SEVERITY (MIN.) 102 0 0
DEVIATION REQUEST: None	d. Transient AREA = $847 \text{ ft}^2$	TOTAL	0 102 min.



ROOM: Electrical Cable Chase		1	1/84
FIRE ZONE 5534 BLDG. Auxiliary/Diesel ELEV. 150 MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: I Cable tray and conduit (Ch. A)	FIRE DETECTION TYPE: Ionization Photoelectric Hat atualid EMERG. LIGHTS: Yes	FIRE SUPPRES CO2 hose 100 H20 hose 1TH Portable ext Auto preast	SION TYPE: 412 18400 inguisher ton sprikler
	CONSTRUCTION: Walls: North East South	FIRE RATING: 3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division II cable, which has III.G.2.a separation, would be used for safe shutdown.	Floor: Ceiling: Doors and Hatches: Floor is open to ver at each end Reference Drawings: Elec. Drawings - E-160 Fire Drawings - Fig.	3 hour (4 3 hour 3 hour rtical electric 55-1, 1676-1, 1 9.5-5 and 9.5-	except ends) cal shaft 1686-1 -10
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 23,110 lbs	EQUIV. PIRE SEVERITY (MIN.) 102 0 0
DEVIATION REQUEST: None	d. Transient AREA = $847 \text{ ft } 2$	TOTAL	0 102 min

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# FIRE HAZARD ANALYSIS TABULATION

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A COCC 3002 34	LIKE DEFECTION TIPE!	FIRE SUPPRES	SION TYPE:	
ICH SAFE SHUTDOWN EQUIPMENT AND CABLE:	Hone Hone I had actualed	Auto preast	that accessiblet	
Kone	EMERG. LIGHTS:			
	0H			
	CONSTRUCTION:	FIRE RATING:		
	Walls:	3 hour		
	Horth			
	East			
	South			
	West			
PECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour (	except ends)	
	Ceiling:	3 hour (	except ends)	
Bone	Doors and Hatches:			
auto suppression system included to reduce	No doors to 5535. vertical HVAC chase	Each end is of e.	pen to	
istor and a manual i	Referen a Drawings:			
5	Elec. Drawings - E-166	65-1, 1676-1,	1686-1	
	Fire Drawings - Fig.	9.5-5 and 9.5	-10	
	COMBUSTIBLES: NATERIAL:	QUANTITY	BQUIV. FIRE SEVERITY (MIN.)	
	a. Cable insulation	84148165	+ 48.4	
	b. Lube oil		•	
	c. Other		0	
DEVIATION REQUEST: None	d. Transient		0	
	AREA = 847 ft2	TOTAL	848	



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

ROOM: Cla	ss lE Inve	rter Room		<u></u>		1	1	1/64
FIRE ZONE MECH SHUTDOMN DIVISION II	5607 SAFE SHUT	BLDG. DOWN EQUIP	Auxiliary/Diesel MENT AND CABLE: Battery charger Chann pafer switch box 125	ELEV.	163'-6"	FIRE DETECTION TYPE: Forization Photoelectric EMERG, LIGHTS:	FIRE SUPPRES H <sub>2</sub> 0 hose p Portable	SSION TYPE: PHR401 ext.
	1DJ 482 10 D4 46	1E 120V 1E 125V	AC Power Supply DC SWGR			Yes		
						CONSTRUCTION:	FIRE RATING	:
						Walls:	3 hour	
						North		
						East		
						South		
						West		
EFFECTS C	OF FIRE ON	SAFE SHUTD	OWN AND/OR RADIOACTIV	E RELEASE		Floor:	3 hour	
					daum	Ceiling:	3 hour	
None.	. Equipmen	t in this	zone not required to	t sate shut	uown.	Doors and Hatches:	3 hour	
						Reference Drawings:		
						Elec. Drawings - E-168	87-1	
						Fire Drawings - Fig.	9.5-6 and 9.5	-10
						COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.
						a. Cable insulation	705 lbs	10.1
						b. Lube oil		0
						c. Other		0
DEVIATIO	N REQUEST:	None				d. Transient		0
1.45.20						AREA = $263$ ft <sup>2</sup>	TOTAL	10 min.

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FINAL SAFETY ANALYSIS REPORT TABLE 9A-218

FIRE ZONE 5608 BLDG. Auxiliary/Diesel ELEV. 163'-6	FIRE DETECTION TYPE:	FIRE SUPPRE	SSION TYPE:
MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	None Ionization	H <sub>2</sub> 0 hose Portable	IDHR <b>401</b> ext.
None	EMERG. LIGHTS: Yes		
	CONSTRUCTION:	FIRE RATING	1
	Walls:		
	North	2 hour	
	East	3 hour	
	South	3 hour	
	West	2 hour	
FFECTS OF FIRE ON SAFE SHUTDOWN AND/OR REDIOACTIVE RELEASE:	Floor:	3 hour	
	Ceiling:	3 hour	
wone	Doors and Hatches:	2 hour	
	<u>Reference Drawings</u> : Elec. Drawings - E-168	17-1	
	Fire Drawings - Fig.	9.5-6	
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation		0
	b. Lube oil		0
	c. Other		0
DEVIATION REQUEST: None	d. Transient		0
	AREA = NS	TOTAL	0



FINAL SAFETY ANALYSIS REPORT TABLE 9A-219

FIRE ZONE 5609 BLDG. Auxiliary/Diesel ELEV. 163'-6"	FIRE DETECTION TYPE: FIRE SUPPRESSION TYPE:	SSION TYPE:
HECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: II IDD447 IE Channel D Battery 125V EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Equipment in this zone not required for safe shutdown.	Ionization         H2O hose           Photoelectric         Portable	H <sub>2</sub> O hose 1PHR401 Portable Extinguisher
	EMERG, LIGHTS: Yes	
	CONSTRUCTION: FIRE RATING: Walls: <u>3 hour</u> North East South West Floor: Ceiling:	
	Doors and Hatches: v Reference Drawings: Elec. Drawings - E-1607-1	
	COMBUSTIBLES: MATERIAL: QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	<ul><li>a. Cable insulation</li><li>b. Lube oil</li><li>c. Other (battery case) 312 lb</li></ul>	0 0 17.2
DEVIATION REQUEST: None	d. Transient ARFA = 181 ft <sup>2</sup> TOTAL	0 17 min.


FINAL SAFETY ANALYSIS REPORT TABLE 9A-222

ROOM: Class 1E Inverter Room		,	1/84
FIRE ZONE 5613     BLDG. Auxiliary/Diesel     ELEV. 163'-6"       MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION     I     102482, 1E, Channel C, Inverter, 120 VAC       I     102436 125 VDC SWGR	FIRE DETECTION TYPE:	FIRE SUPPRE H <sub>2</sub> O hose Portable	SSION TYPE: 1PHR401 Extinguisher
I ICD444 125VDC Battery Charger I ICD448 Fuse Transfer Switch	CONSTRUCTION: Walls: North East South West	FIRE RATING 3 hour	;
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Equipment in this zone not required for safe shutdown.	<u>Yloor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> :	3 hour 3 hour 3 hour	
	<u>Reference Drawings</u> : Elec. Drawings - E-16 Fire Drawings - Figur	87-1 e 9.5-6 and 9.	5-10
	COMBUSTIBLES: MATERIAL: a. Cable insulation	QUANTITY 776 lbs 0	EQUIV. FIRE SEVERITY (MIN.) 11.2 0
DEVIATION REQUEST: None	d. Transient	0	0





HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

1/84

ROOM: Battery Room	-T	
PIRE ZONE 5614     BLNG. Auxiliary/Diesel     ELEV. 163'-6"       MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION     SAFE SHUTDOWN EQUIPMENT AND CABLE: 1 CD447, Battery Rack, 125 VDC, 1E Channel C	FIRE DETECTION TYPE: FIN Ionization Photo-electric I EMERG. LIGHTS: Yes	RE SUPPRESSION TYPE: 120 hose 1PHR401 Portable Extinguisher
	CONSTRUCTION: FIN Walls: S North East South West	RE RATING: 3 hour
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Equipment in this zone not required for safe shutdown.	Floor: Ceiling: Doors and Hatches:	3 hour 3 hour 3 hour
	<u>Reference Drawings</u> : Elec. Drawings - E-1607-1 Fire Drawings - Figures 9.	5-6 and 9.5-10
	COMBUSTIBLES: MATERIAL: QUA a. Cable insulation insig b. Lube oil c. Other (battery case)	EQUIV. FIRE SEVERITY (MIN.) Inificant 0 0 312 lbs 17.2
DEVIATION REQUES None	d. Transient AREA = 181 ft <sup>2</sup>	0 TOTAL 17 min



FINAL SAFETY ANALYSIS REPORT TABLE 9A-224

FIRE ZONE 5615 BLDG. Auxiliary/Diesel ELEV. 163'-6"	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION II 18D482, Class 12, Channel B inverter 120 VAC	EMERG. LIGHTS: Yes	H <sub>2</sub> O hose 1 Portable E	PHR401 xtinguisher
	CONSTRUCTION: Walls: North East South West	FIKE RATING: 3 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour	
None. Equipment in this zone not required for safe shutdown.	Ceiling: Doors and Hatches:	3 hour 3 hour	
	<u>Reference Drawings:</u> Elec. Drawings - E-168 Fire Drawings - Figure	7-1 s 9.5-6 and 9.	5-10
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	<ul><li>a. Cable insulation</li><li>b. Lube oil</li><li>c. Other</li></ul>	352 lbs	7.8
DEVIATION REQUEST: None	d. Transient		
	the second se		the second se



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FIRE ZONE	5616	BLDG. Auxiliary/Diesel ELEV. 10	S'-6" FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
HUTDOWN	SAFE SHUT	DOWN EQUIPMENT AND CABLE:	Ionization Photoslastri	H <sub>2</sub> O hose 1 Portable E	PHR401 xtinguisher
I	1AD482, 1	E Channel A, Inverter 120 VAC	EMERG. LIGHTS: Yes	-	
			CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour	
None.	OF FIRE ON Equipment i	SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: n this zone not required for safe shutdown	Floor: Ceiling: Doors and Hatches:	3 hour 3 hour 3 hour	
			<u>Reference Drawings</u> : Elec. Drawings - E-1 Fire Drawings - Figu	687-1 res 9.5-6 and 9.	.5-10
			COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
			a. Cable insulation b. Lube oil c. Other	352 lbs	7.1
DEVIATIO	REQUEST:	None	d. Transient	COMPA I	





ROOM: TSC Electric Room		1	1/84
PIRE ZONE 5619         BLDG. Auxiliary/Control         ELEV. 155'-3"           MECH SHUTDOWN DIVISION         SAFE SHUTDOWN EQUIPMENT AND CABLE: None         None	FIRE DETECTION TYPE:	FIRE SUPPRES H <sub>2</sub> O hose Portable H	SSION TYPE: 1DHR201 Extinguisher
	EMERG. LIGHTS: Yes		
	CONSTRUCTION: Walls: North East South	FIRE RATING	'
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None	Floor: Ceiling: Doors and Hatches:	3 hour Unrated Unrated	
	<u>Reterence Drawings</u> : Elec, Drawings - E-165 Fire Drawings - Figure	6-1 9.5-6	
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY 850 lbs	EQUIV. FIRE SEVERITY (MIN.) 11.1 0 0
DEVIATION REQUEST: None	d. Transient AREA = 287 ft <sup>2</sup>	TOTAL	0 11 min.



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FIRE ZONE 5621 BLDG. AUXILIARY/Diesel ELEV. 163'-6"	FIRE DETECTION TYPE:	FIRE SUPPRE	SSION TYPE:	
FECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION None	Ionization & Photoelectric	H <sub>2</sub> O hose 1 Portable E	KHR401 xtinguisher	
	EMERG. LIGHTS:			
	Yes	1. 19 64 10 6		
이렇다. 물건에 가지 않는 것이 잘 많은 것 같아. 가지 않는 것 같아?	CONSTRUCTION:	FIRE RATING	11	
	Walls:	3 hour		
	North			
	East			
	South			
	West			
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour		
None	Ceiling:	3 hour		
	Doors and Hatches: 3 hour			
	Reference Drawings: Elec. Drawings - E-167	17-2		
	Fire Drawings - Figures 9.5-6 and 9.5-10			
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)	
	a. Cable insulation	141 lbs	2.2	
	b. Lube oil		0	
	c. Other		0	
DEVIATION REQUEST: None	d. Transient		0	
	AREA = 238 $ft^2$	TOTAL	2 min.	

FIRE ZONE 5422	BLDG. Auxiliary/Diesel	ELEV. 163'-6"	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
MECH SHUTDOMIA DIVISION None None	N EQUIPMENT AND CABLE:		Photoelectric	H2O hose im Portable Ex	9k400 tinguisher
			EMERG. LIGHTS:		
			Yes		
			CONSTRUCTION:	FIRE RATING:	
			Walls:		
			North	Unrated	
			East	3 hour	
			South	3 hour	
			West	3 hour	
EFFECTS OF FIRE ON SAF	E SHUTDOWN AND/OR RADIOACTIV	E RELEASE:	Floor:	3 hour	
Hone			Ceiling:	3 hour	
			Doors and Hatches:	3 hour	
			Reference Drawings:		
			Elec. Drawings - E-168	87-2	
			Fire Drawings - Figure	es 9.5-6 and 9.	.5-10
			COMBUSTIBLES: MATERL.L:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
			a. Cable insulation	352 1bs	3.4
			b. Lube oil		0
			c. Other		0
DEVIATION REQUEST: No	one		d. Transient		0
			AREA = $394$ ft <sup>2</sup>	TOTAL	3 min.



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

ROUM: Inverter Room		1	1/84
FIRE ZONE 5623 BLDG, Auxiliary/Diesel ELEV. 163'-6" MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: None None	FIRE DETECTION TYPE: Jonization <sup>2</sup> Photoelectric EMERG. LIGHTS: Yes	FIRE SUPPRES H <sub>2</sub> O hose 14 Portable Ex	SSION TYPE: MR400 ktinguishers
	CONSTRUCTION: Walls: North East South	FIRE RATING: 3 hour	•
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None	<u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> :	3 hour 3 hour 3 hour	
	<u>Reference Drawings:</u> Elec. Drawings - E-168 Fire Drawings - Figure	7 15 9.5 J and 9.	.5-10
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation	310 lbs	4.5
	b. Lube oil		0
	c. Other		0
DEVIATION REQUEST: None	d. Transient		0
	$AREA = 260 \text{ ft}^2$	TOTAL	5 min.







HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FIRE ZONE 5624 BLDG. Auxiliary/Diesel ELEV. 163'-6"	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:
NECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION None	Ionization Photoelectric	H <sub>2</sub> O hose 1W Portable Ex	HR400 tinguishers
	EMERG. LIGHTS: Yes		
	CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour 3 hour 3 hour 1 hour	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None	<u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> :	3 hour 3 hour 1 6 3 hour	
	<u>Reference Drawings</u> : Eist. Drawings - E-16 Fire Drawings - Figure	77 and E-1687 es 9.5-6 and 9.	5-10
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil	QUANTITY 634 lbs	EQUIV. FIRE SEVERITY (MIN.) 4.1 0
DEVIATION REQUEST: None	c. Other d. Transient AREA = 582 ft <sup>2</sup>	TOTAL	0 0 4 min.







FINAL SAFETY ANALYSIS REPORT TABLE 9A-234

FIRE 2018 5626 BLDG. Auxiliary/Diesel ELEV. 163'-6"	FIRE DETECTION TYPE: FIRE SUPPRES	SION TYPE:
MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION None	Photoelectric Portable Ex	HR400 tinguishers
	EMERG. LIGHTS: Yes	
	CONSTRUCTION: FIRE RATING:	
	Walls: 1 hour	
	North	
	East	
	South	
	_ [West	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RAL CTIVE RELEASE:	Floor: 3 hour	
None	Ceiling: 3 hour	
	Doors and Hatches: J hour	
	Reference Drawings:	
	Elec. Drawings - E-1687	
	Fire Drawings - Figures 9.5-6 and 9.	5-10
	COMBUSTIBLES: MATERIAL: QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation	0
	b. Lube oil	0
	c. Other (battery case) 1220 lbs	30.0
DEVIATION REQUEST: None	d. Transient	0
	AREA = 406 ft <sup>2</sup> TOTAL	30 min.





HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

FIRE ZONE 5627 BLDG. Auxiliary/Diesel ELEV. 163'-6"	FIRE DETECTION TYPE:	FIRE SUPPRES	SION TYPE:	
MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION None	Photoelectric	H <sub>2</sub> O hose 1W Portable Ex	HR400 tinguishers	
	EMERG. LIGHTS: Yes			
그 것 집 집 집 것 같은 것 같은 것 같은 것에서 그 것 같은 것 같은 것 같이 있다.	CONSTRUCTION:	FIRE RATING:		
이 같은 것이 같은 것은 것이 같은 것을 것이 없는 것을 것 같아요. 이 것을 것 같아요. 이 것	Walls:	1 hour		
	North			
이 가지 않는 것 같은 것 같	East			
전화의 등 김 강화의 것을 가지 못한 동안을 가 없는 것을 못했다.	South			
	West			
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour		
None	Ceiling:	3 hour		
	Doors and Hatches:	1 hour		
	Reference Drawings: Elec. Drawings - E-1687 Fire Drawings - Figures 9.5-6 and 9.5-10			
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)	
	a. Cable insulation		0	
	b. Lube oil		0	
	c. Other (battery cas	se) 1220 lbs	30.0	
DEVIATION REQU. ST: None	d. Transient		0	
	AREA = 406 ft2	TOTAL	30 min.	



HCGS FSAR FIRE HAZARD ANALYSIS TABULATION

OOM: Inverter Room			1/84
IRE ZONE 5628 BLDG. Auxiliary/Diesel ELEV. 163'-6" ECH HUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: None None	FIRE DETECTION TYPE: Ionization Photoelectric EMERG. LIGHTS: Yes	FIRE SUPPRES H <sub>2</sub> O hose lW Portable Ex	SION TYPE: HR400 tinguishers
	CONSTRUCTION: Walis:	FIRE RATING:	
	North	1 hour	
	East	1 hour	
	South	3 hour	
	West	3 hour	
FFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	3 hour	
None	Ceiling:	3 hour	
	Doors and Hatches:	l hour	
	<u>Reference Drawings</u> : Elec. Drawings - E-163	7	
	Fire Drawings - Figure	s 9.5-6 and 9.	.5-10
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation	1,058 lbs	6.3
	b. Lube oil		0
	c. Other		0
DEVIATION REQUEST: None	d. Transient		0
	$APEA = 626 ft^2$	TOTAL	6 min.

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FINAL SAFETY ANALYSIS REPORT TABLE 9A-239 SHEET 1 OF 2 1/84

ROUM: Diesel Area HVAC Equipment Room		SHEET I OF	2 1/84
FIRE ZONE 5704 \$\$703       BLDG. Auxiliary/Diesel       ELEV. 178       F         MECH       SAFE SHUTDOWN EQUIPMENT AND CABLE:       DIVISION       I       IA & CC483 D-G Area HVAC Panel       IA & CC483 D-G Area H	TRE DETECTION TYPE: Ionization Photoelectric EMERG. LIGHTS: Yes	FIRE SUPPRES H <sub>2</sub> U hose if Portable Ex	SION TYPE: RER401 and 1QHR40 ttinguishers
II       IB & DC 483 D-G Area HVAC Panel       C         III       IB & DC 483 D-G Area HVAC Panel       M         IBK403 Control Area Water Chiller       M         IBVH407 Control Equipment Room Supply Unit       M         IBP414 Class IE panel Room Chilled Water Pump       N         IBV410 Control Area Battery Room Exhaust Fan       H         IBV410 Control Area Battery Room Exhaust Fan       H	CONSTRUCTION: Walls: North East South	FIRE RATING: 3 hour 3 hour Unrated (d	outside)
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None The Air Handling Units AVH407 and BVH407 are enclosed in metal casings, are connected by an HVAC duct, and are physically separated by 6 ft. Loss of these VH407 units would cause a loss of air conditioning to the Control Room HVAC rooms 5602 and 5630, Electrical Access Areas 5501, control equipment mezz. 5403, Control Equipment room 5302, cable spread room 5202, Battery and Equipment rooms 5105, 5128, 5102, 5103, 5104, 5126, and Corridors 5525, 5404, 5303. There is more than 20 ft separation between the DG HVAC panels B&DC483 and A&CC483 and their associated conduit with no intervening combustibles. Therefore, a transient fire in this area would not jeopordize both divisions of DG-HVAC. One division of DG is therefore assured for shutdown and the other division DGs may operate for sometime without HVAC, since jacket water cooling is still available.	Floor: Ceiling: Doors and Hatches: Doors: 3 hour, North Opening in floor for H down to el. 54, the RP Reference Drawings: Elec. Drawings - E-168 Fire Drawings - Figure	3 hour Unrated (d wall VAC duct (East S MG sets room 0-1 and E-1690 s 9.5-7 and 9	outside) twall) extends 5105 )-1 .5-10
in 5620, the TSC Air handling unit, and the RSP air handling unit. There is 4 ft between chiller skids. There are no combustibles on this floor, since all cable is routed in conduit with the exception of a short length of non-lE cable tray which has a metal cover on it. Administrative controls will be used to prevent transient combustibles in this area.	COMBUSTIBLES: MATERIAL: a. Cable insulation (in metal covered b. Lube oil c. Other	QUANTITY 2,508 lbs tray)	EQUIV. FIRE SEVERITY (MIN.) 1.0 0
DEVIATION REQUEST: III.G.2 separation requirements	d. Transient AREA = 9,300 $tt^2$	TUTAL	0 1 min.

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PIRE ZONE 107 BLDG. Intake Structure ELEV. 79'-8" MECH SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: DIVISION	- None	FIRE SUPPRES H2O hose Portable	SSION TYPE: lAHR500 extinguishers
I Division I Station Service Water Valves, with Power and control cables for station service valves.	EMERG. LIGHTS: Yes		
1AP507 & ICP507 spray water booster pumps.	CONSTRUCTION: Walls:	FIRE RATING	
	North	3 hour	
	South	Unrated	
	West	Unrated	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE:	Floor:	Unrated (floor slab)	
None. Redundant Division II equipment has III.G.2. separation and will be used for safe shutdown.	Ceiling: Doors and Hatches:	Unrated Unrated	
	<u>Reference Drawings</u> : Elec. Drawings - E-150	04, Sheet 4	
	Fire Drawings - Figure	es 9.5-11 and	9.5-12
	COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
	a. Cable insulation		0
	b. Lube oil		0
	c. Other		0
DEVIATION REQUEST: None	d. Transient		0
	AREA - 552 ft2	TOTAL	0 min.



ROOM: Banol Ares			1/84
FIRE ZONE     110     BLDG. Intake Structure     ELEV. 79'-8"       MECH SHUTDOWN DIVISION     SAFE SHUTDOWN EQUIPMENT AND CABLE:     Division       II     Division II Station Service Valves.       Power and control cables.     +	FIRE DETECTION TYPE: None EMERG. LIGHTS: Yes	FIRE SUPPRE H <sub>2</sub> O hos Portabl	SSION TYPE: e 1BHR500 e extinguishers
IBP507 & IDP507 spray water booster pumps.	CONSTRUCTION: Walls: North East South West	FIRE PATING 3 hour Unrated Unrated Unrated	3 2
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I equipment has III.G.2 separation and will be used for safe shutdown.	Floor: Ceiling: Doors and Hatches:	Ground fl Unrated Unrated	oor slab
	<u>Reference Drawings</u> : Elec. Drawings - E-150 Fire Drawings - Figure	14-0, Sheet 4 s 9.5-11 and	9.5-12
	COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY	EQUIV. FIRE SEVERITY (MIN.) 0 0 0
DEVIATION REQUEST: None	d. Transient AREA = 552 ft <sup>2</sup>	TOTAL	0 0 min.



FINAL SAFETY ANALYSIS REPORT TABLE 9A-243

ROOM: Pump Room			1/84
FIRE ZONE     204     BLDG. Intake Structure     ELEV. 93       MECH SHUTDOWN DIVISION     SAFE SHUTDOWN EQUIFMENT AND CABLE:       I     Division I Service Water Pumps 1AP502, 1CP502.       Strainers 1AF509, 1CF509       Panels 1AC581 and 1CC581	F RE DETECTION TYPE: Ionization photoelectric Heat actuated EMERG. LIGHTS: Yes	FIRE SUPPRES H <sub>2</sub> O hose Portable Auto pres	SION TYPE: 1BHR500 extinguishers action sprinkler
Control and power cables for service water pumps, strainers, and valves; intake structure HVAC.	CONSTRUCTION: Walls: North East South West	FIRE RATING: 3 hour Unrated 3 hour Unrated	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division II equipment has III.G.2.a separation and will be used for safe shutdown.	Floor: Ceiling: Doors and Hatches: Reference Drawings:	v	
	Elec. Drawings - E-1504 Fire Drawings - Figures COMBUSTIBLES: MATERIAL:	OUANTITY	equiv. fire Severity (MIN.)
	<ul><li>a. Cable insulation</li><li>b. Lube oil</li><li>c. Other</li></ul>	3,750 lbs 56 gal	15.7 6.9
DEVIATION REQUEST: None	d. Transient (lube oil AREA = 897 ft <sup>2</sup>	) 28 gal TOTAL	3.5 26 min.
- FILAT 6/1-12			Amendment 4





FINAL SAFETY ANALYSIS REPORT TABLE 9A-244

1/84 ROOM: MCC Room FIRE ZONE 207 BLDG. Intake Structure ELEV. 93 FIRE DETECTION TYPE: FIRE SUPPRESSION TYPE: MECH Photoelectric H<sub>2</sub>O hose 1AHR500 SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: Portable extinguishers DIVISION II Division II Motor Control Centers 10B563 and 10B583. EMERG. LIGHTS: Non Yes Power and control cables for station service water valves, travelling screens, intake structure supply fans, service CONSTRUCTION: water strainers. FIRE RATING: Walls: North 3 hour East Unrated South Unrated West Unrated EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Floor: Unrated None. Redundant Division I equipment has III.G.2.a separation and Ceiling: will be used for safe shutdown. Doors and Hatches: Unrated Reference Drawings: Elec. Drawings - E-1504-0, Sheet 7 Fire Drawings - Figures 9.5-11 and 9.5-12 COMBUSTIBLES: EQUIV. FIRE MATERIAL: QUANTITY SEVERITY (MIN.) a. Cable insulation 1,430 lbs 31.7 b. Lube oil Other c. DEVIATION REQUEST: None d. Transient AREA =  $169 \text{ ft}^2$ TOTAL 32 zin.





FINAL SAFETY ANALYSIS REPORT TABLE 9A-245

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ROOM: Pump Room			1/ 54	
ROOM:       Pump Room         FIRE ZONE       208       BLDG. Intake Structure       ELEV. 93         MECH SHUTDOWN DIVISION       SAFE SHUTDOWN EQUIPMENT AND CABLE:       93         II       Division II Service Water Pumps 1BP502, 1BP502.         Strainers 1BF509, iDF509       Panels 1BC581 and 1DC581         Control and power cables for service water pumps, strainers, and valves; intake structure INVAC.	FIRE DETECTION TYPE: Ionization Photo electric that actuated EMERG. LIGHTS: Yes CONSTRUCTION: Walls: North East Construction	FIFE SUPPRES H2O hose Portable Auto prea FIRE RATING: 3 hour Unrated	SION TYPE: 1BHR500 extinguishers ction sprinkler	
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division I equipment has III.G.2.a separation and will be used for safe shutdown.	West     Unrated <u>Ploor</u> :     Unrated <u>Ceiling</u> :     Unrated <u>Doors and Hatches</u> :     Unrated <u>Reference Drawings</u> :			
	Elec. Drawings - E-1504 Fire Drawings - Figures COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil	<pre>I, Sheet 7 B 9.5-11 and 9 QUANTITY 4,450 lbs 56 gal</pre>	EQUIV. FIRE SEVERITY (MIN.) 18.6 6.9	
DEVIATION REQUEST: None	c. Other d. Transient (lube oil AREA = 897 ft <sup>2</sup>	l) 28 gal TOTAL	0 3.5 29 min.	



FINAL SAFETY ANALYSIS REPORT TABLE 9A-246

1/84 ROOM: Traveling Screen Panel Room ELEV. 107 FIRE DETECTION TYPE: FIRE SUPPRESSION TYPE: FIRE ZONE BLDG. Intake Structure MECH Portable extinguishers Ionization-SHUTDOWN SAFE SHUTDOWN EQUIPMENT AND CABLE: Photoelectri H\_0 hose 1BHR500 DIVISION EMERG. LIGHTS: Division II Panels 18C516 and 10C516. II Control Cables for Station Service Water Pumps 18F502 and Yes 1DP502 CONSTRUCTION: FIRE RATING: Control cables for service water valves and backwash Unrated strainers. Walls: North East South West EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Floor: None. Redundant Division I equipment has III.G.2 separation and Ceiling: will be used for safe shutdown. Doors and Hatches: Reference Drawings: Elec. Drawings - E-1504-0, Sheet 1 Fire Drawings - Figures 9.5-11 and 9.5-12 EQUIV. FIRE COMBUSTIBLES: MATERIAL: QUANTITY SEVERITY (MIN. ) a. Cable insulation 0 b. Lube oil 0 0 Other c. DEVIATION REQUEST: None 0 d. Transient AREA =  $308 \text{ ft}^2$ TOTAL 0 min.



FINAL SAFETY ANALYSIS REPORT TABLE 9A-247

ROOM: Tr	aveling Screen Panel Room			1/84
FIRE ZONE MECH SHUTDOWN DIVISION	BLDG. Intake Structure ELEV. 107 SAFE SHUTDOWN EQUIPMENT AND CABLE: Division I Panels 1AC516 and 1CC516. Control Cables for Station Service Water Pumps 1AP502 and 1CP502 Control cables for service water valves and backwash	FIRE DETECTION TYPE: Jonisation photeclectric EMERG. LIGHTS: None CONSTRUCTION:	FIRE SUPPRES Portable H <sub>2</sub> 0 hose FIRE RATING	SION TYPE: extinguishers lAHR500
	STRAINERS.	Walls: North East South West	Unrated	
None. R will be	edundant Division II equipment has III.G.2 separation and used for safe shutdown.	Ceiling: Doors and Hatches:	Ļ	
		<u>Reference Drawings</u> : Elec. Drawings - E-150 Fire Drawings - Figure	14-0, Sheet 1 25 9.5-11 and 1	9.5-12
		COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil	QUANTITY	EQUIV. FIRE SEVERITY (MIN.) 0 0
DEVIATIO	N REQUEST: None	c. Other d. Transient AREA = 308 ft <sup>2</sup>	TOTAL	0 0 0 min.

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FINAL SAFETY ANALYSIS REPORT TABLE 9A-248

	A BURG Labola Charachurg BURY L			
FIRE ZONE RECH SHUTDOWN DIVISION 1 & II	SAFE SHUTDOWN EQUIPMENT AND CABLE: Motors Travelling Screens/1AS501, 1BS501, 1CS501 and 1DS501. Travelling Screen Motor Room Fan.	Ionization Photoelectric EMERG. LIGHTS: Yes	Portable H2 <sup>0</sup> hoses	extinguishers
EFFECTS C All the casings. The prot is remot	Power and control cables for travelling screens and travelling screen motor room fans. OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. cables are routed in conduits and motors are enclosed in . This area will not be used for storing any combustibles. bability of losing all the travelling screens simultaneousl te. Loss of all four screens simultaneously is not an	CONSTRUCTION: Walls: North East South West Floor: Ceiling: Doors and Hatches:	FIRE RATING	2
Access t	to this area is by ladder only.	<u>Reference Drawings</u> : Elec. Drawings - E-15 Fire Drawings - Figur	04-0, Sheet 1 es 9.5-11 and	9.5-12
		COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY	EQUIV. FIRE SEVERITY (MIN.) 0 0 0
DEVIATIO	N REQUEST: III.G.2 separation requirements	d. Transient AREA = 1,855 ft <sup>2</sup>	TOTAL	0 0 min.

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FINAL SAFETY ANALYSIS REPORT TABLE 9A-250

ROOM: Pa	in Room		T	1/04
FIRE ZONE MECH SHUTDOWN DIVISION I	306 BLDG. Intake Structure ELEV. 122 SAFE SHUTDOWN EQUIPMENT AND CABLE: Division I Intake Structure Supply Fans 1AV503 and 1CV503. Power and control cables for supply fans and dampers.	FIRE DETECTION TYPE: None Photoelectric EMERG. LIGHTS: None	FIRE SUPPRES H <sub>2</sub> O hose Portable	SSION TYPE: 1AHR500 extinguishers
		CONSTRUCTION: Walls: North East South West	FIRE RATING 3 hour Unrated 3 hour Unrated	F
EFFECTS OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: None. Redundant Division II equipment has III.G.2.a separation and will be used for safe shutdown.		Floor: Ceiling: Doors and Hatches:	Ţ	
		<u>Reference Drawings</u> : Elec. Drawings - E-150 Fire Drawings - Figure	04-0, Sheet 6 es 9.5-11 and	9.5-12
		COMBUSTIBLES: MATERIAL: a. Cable insulation b. Lube oil c. Other	QUANTITY	EQUIV. FIRE SEVERITY (MIN.) 0 0 0
DEVIATIO	N REQUEST: None	d. Transient AREA = 192 ft <sup>2</sup>	TOTAL	0 0 min.
FHAT 67	-7			





FINAL SAFETY ANALYSIS REPORT TABLE 9A-252

ROOM: Fa	n Room			1/84
FIRE ZONE MECH SHUTDOWN DIVISION II	BLDG. Int:ke Structure ELEV. 122 SAFE SHUTDOWN EQUIPMENT AND CABLE: Division II Intake Structure Supply Fans 18V503 and 1DV503. Power and control cables for supply fans and dampers.	FIRE DETECTION TYPE: Hone Photoelectur EMERG. LIGHTS:	FIRE SUPPRES H2O hose Portable	SION TYPE: 1BHR500 extinguisher
EFFECTS O None. F will be	OF FIRE ON SAFE SHUTDOWN AND/OR RADIOACTIVE RELEASE: Redundant Division I equipment has III.G.2.a separation and used for safe shutdown.	None CONSTRUCTION: Walls: North East South West <u>Floor</u> : <u>Ceiling</u> : <u>Doors and Hatches</u> :	FIRE RATING: 3 hour <u>Unrated</u> v	
		<u>Reference Drawings</u> : Elec. Drawings - E-150 Fire Drawings - Figure	04, Sheet 6 es 9.5-11 and 9	9.5-12
		COMBUSTIBLES: MATERIAL:	QUANTITY	EQUIV. FIRE SEVERITY (MIN.)
		a. Cable insulation		0
		b. Lube oil		0
		c. Other		0
DEVIATIO	N REQUEST: None	d. Transient		0
		AREA = 192 ft2	TOTAL	0 min.

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