

APPENDIX J

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
J.1 Introduction.....	J.1-1
J.2 Licensing Basis Summary.....	J.2-1
J.3 Comparison to Regulatory Guidance.....	J.3-1
J.4 Safe Shutdown Analysis	J.4-1
J.5 Updated Fire Hazards Analysis	J.5-1

APPENDIX J.1
INTRODUCTION

INTRODUCTION

The Monticello Nuclear Generating Plant (MNGP) Fire Protection Program has been established to minimize the likelihood of fires, ensure the capability to shutdown the reactor and maintain it in a safe shutdown condition, and minimize radioactive releases to the environment in the event of a fire. The Fire Protection Program implements the philosophy of defense-in-depth protection against the hazards of fire and its associated effects on equipment important to safety by:

- Preventing fires from starting
- Rapidly detecting, controlling and promptly extinguishing fires that do occur
- Providing protection for structures, systems, and components important to safety so that a fire not promptly extinguished by fire suppression activities will not prevent safe shutdown of the plant.

The Fire Protection Program is required by Operating License Condition 2.C.4, which specifically states:

"NSPM shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Safety Analysis Report for the facility and as approved in the SER dated August 29, 1979, and supplements dated February 12, 1981 and October 2, 1985, subject to the following provision:

NSPM may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire."

This Appendix describes those fire protection related organizational responsibilities, administrative and technical controls, fire suppression and detection systems, fire hazards analyses, and the post-fire safe shutdown methods, which comprise the Fire Protection Program.

This Appendix is divided into the following sections:

Section 1 - Introduction - Background and objectives.

Section 2 – Licensing Summary – Summary of past submittals and evaluations related to fire protection and post-fire safe shutdown evaluations at MNGP.

Section 3 – Comparison to Regulatory Guidance - Comparison of the MNGP Fire Protection Program against the guidance contained in Standard Review Plan 9.5-1 (1976).

Section 4 –Post-Fire Safe Shutdown Analysis – Description of the post fire safe shutdown capability and evaluation of the adequacy of the separation of the redundant systems to ensure post fire safe shutdown.

Section 5 – Updated Fire Hazards Analysis – Evaluation of the adequacy of the plant fire protection features to control and contain the fire hazards within each plant area.

01197746

APPENDIX J.2
LICENSING BASIS SUMMARY

LICENSING BASIS SUMMARY

Historical Summary of Fire Protection/Appendix R Evaluations

The previous evaluations of fire protection and safe shutdown capability are summarized below:

BTP 9.5-1 Summary

On May 11, 1976, the Nuclear Regulatory Commission (NRC) requested a comparison between MNGP's fire protection program and Branch Technical Position APCSB 9.5-1.

On December 10, 1976, MNGP responded to this request with a report including comparison of the existing fire protection program positions with the guidelines of Appendix A to BTP APCSB 9.5-2. Several items were left to be resolved subsequent to completion of the Fire Hazards Analysis Report.

1977 Fire Hazards Analysis

On March 11, 1977, the Fire Hazards Analysis (FHA) for MNGP was completed. [Reference J.4.7.1] The FHA report and subsequent supplements [Reference J.4.7.2] consisted of the following:

1. A fire hazards analysis of all identified fire zones
2. A safe shutdown analysis to evaluate the capability of MNGP to safely shutdown in the event of fire.

This report divided the plant areas into discrete fire zones using physical barriers. Where physical barriers did not exist, zone divisions were based on the size and shape of the area and equipment layout.

The results of the fire hazards evaluations were summarized for a total of 62 fire zones.

Safety Evaluation Report for Compliance with BTP 9.5-1 Appendix A Guidelines

This Safety Evaluation Report (SER) was issued in 1979 [Reference J.4.7.3], in response to the December 10, 1976 [Reference J.4.7.4] submittal described above. The December 10, 1976 submittal was supplemented by a July 5, 1977 [Reference J.4.7.2] letter, which responded to the NRC staff letter of May 11, 1976. This SER concludes that the overall fire protection program at MNGP would satisfy the provisions of BTP 9.5-1 and Appendix A thereto, provided that proposed modifications and evaluations identified in MNGP's submittals, and reflected in the SER, are implemented.

Supplement 1 to MNGP Fire Protection SER

On February 12, 1981 [Reference J.4.7.54] the NRC issued Supplement 1 to the Fire Protection Safety Evaluation Report (FPSE). The supplement included resolution of a number of open items identified in the FPSE in response to several of MNGP's clarification and commitment letters [Reference J.4.7.5]. In general, the following commitments and proposed modifications were considered acceptable by the NRC to close several open items:

1. Install additional fire detectors in different plant areas.
2. Install battery powered ionization type detectors within the enclosed cabinets and above open cabinets in the Control Room.
3. The existing fire detection configuration is acceptable.

4. Upgrade the existing smoke detection system by providing supervision and remote alarming.
5. Extend the deluge system in the lube oil and turbine oil reservoir area.
6. Install a Halon fire suppression system in the Cable Spreading Room and reroute cables out of this area.
7. Install ventilation air flow monitors in the Battery Rooms to alarm and annunciate in a continuously manned area.
8. Cover the ventilation ducts in Fire Zone 3A which lead to the adjacent zones.
9. The proposed penetration seal testing to test 1.5-hr and 3-hr rated seals is acceptable.
10. Reroute HPCI or RCIC cables out of Fire Zone 2A and modify ESW to provide RHR pump seal cooling capability.
11. Install curbs to contain turbine lube oil and diesel fuel oil spills from spreading to ESF MCC area and the redundant DG room, respectively.
12. Relocate the DG fuel oil piping in the intake structure.
13. Provide additional hose coverage.
14. Improve the access for hose handling.
15. Replace the linen hoses with synthetic lined hoses.
16. Provide an 8-in. cross tie to make the fire protection water supply system single failure proof.
17. Installation of fire protection systems in the Drywell is not required since the Drywell is inerted.
18. Test results in support of the adequacy of smoke detectors is acceptable.
19. Install 3-hr rated walls between the hydrogen seal oil unit no. 1 to load center 1 and the valve gallery to load center 2. In addition, install a 2-hr wall with 1.5-hr rated fire dampers between the redundant load centers.
20. Provide hose station coverage for the Drywell by increasing the length of the existing hoses.
21. The analysis demonstrating the capacity of the fire water supply system to provide 100 gpm at 65 psi is acceptable.

In addition, the following proposed modifications were not accepted by the NRC and were resolved later

1. The proposed pre-action sprinkler system for the diesel generators and day tank rooms does not comply with NFPA 13 and is not acceptable unless the design density of the system is increased to 0.3 gpm/sq ft over the entire diesel generator area.
2. The proposed modification to install a two-hr rated wall to isolate Fire Zone 13B is not accepted. The NRC requires installation of 3-hr rated barrier.
3. Application of flame retardant coating for the cable tray run between the ESF motor control center and the cable tray penetration area is not acceptable. Provide a fire stop in the cable

tray along with 3-hr rated fire damper in the barrier of concern.

4. Installation of one-way fire walls in the Turbine Building to separate Fire Zones 12-A from 12-B and 14-A from 14-B is not acceptable.
5. Analysis in support of the adequacy of the fire pump capacity is not acceptable. Provide an additional fire pump.
6. It was recommended that MNGP comply with the requirements of Sections III.H, I and K of Appendix R to 10 CFR 50 relative to Administrative Controls and Procedures.

June 1982 Submittal

Paragraph 50.48(b) of 10 CFR 50, which became effective on February 17, 1981, required all nuclear power plants licensed for operation prior to January 1, 1979 to meet the requirements of Sections III.G, III.J, and III.O of Appendix R to 10 CFR 50 regardless of any previous approvals by the NRC for alternative design features for those items.

In June of 1982, MNGP submitted its evaluation of MNGP against the requirements of Appendix R Section III.G and Generic Letter 81-12 [Reference J.4.7.6]. This submittal included the following:

- A description of safe shutdown functions and systems
- A description of several safe shutdown paths utilizing different combinations of systems
- A list of safe shutdown components
- A list of fire zones and fire areas
- A summary of the Appendix R analysis methodology
- An example fire protection evaluation for one zone and one area identifying components and cable affected
- A list of safe shutdown systems available on a fire zone and fire area basis and recommendations
- A list of plant modifications including fire barriers requiring upgrade

In this report, several safe shutdown paths were considered in the analysis. In addition, automatic initiation of SSD systems was credited in the evaluation, resulting in identification of numerous cables to be rerouted.

The submittal defined five new fire zones (numbers 2E, 2F, 2G, 2H, and 4E) in addition to the original 62 zones described in the 1977 Fire Hazards Analysis. As a result of this 1982 evaluation of MNGP, noncompliance items were defined and modifications proposed for fire protection enhancements. The proposed modifications consisted of both cable rerouting and barrier upgrades.

October 28, 1982 Submittal

In response to the NRC's request, MNGP provided additional information in support of the exemption requests for the following:

Unprotected steel members Suppression pool area
Intake structure

Control Room

A detailed description of the thermal hydraulic analysis performed for structural beams and columns was also included.

March 22, 1983 Letter

Subsequent to a working level meeting on March 8, 1983 with the NRC, MNGP decided to withdraw exemption requests for the following areas [Reference J.4.7.16]:

- Fire Zone 1C: Withdraw exemption request for structural steel since the exposed beam was identified not to be structural steel
- Fire Zone 7C: Protect structural steel to an equivalent one-hour rating and provide suppression
- Fire Zone 8: Provide alternative shutdown capability in lieu of protecting structural steel
- Fire Zone 9: Provide alternate shutdown capability for this area

June 7, 1983 Letter

In a letter dated June 7, 1983 [Reference J.4.7.10], MNGP provided information to the NRC to close out open items identified in the 1977 SER [Reference J.4.7.3]. The following is a summary of information provided:

- One-way three-hour barriers between Fire Zones 12A and 12B and between Fire Zones 14A and 14B were constructed to prevent a fire originating in either 12B or 14B from propagating into the adjacent 4 kV Switchgear Rooms.
- A separate 250V dc battery supply system was installed for HPCI, although safe shutdown conditions can be achieved without using HPCI or RCIC systems.
- Fire pumps are adequately separated since the diesel driven pump has sufficient capacity to suppress a fire when electric-driven pumps are disabled.
- MNGP will comply with the requirements of Sections III.H, I and K of Appendix R to 10 CFR 50 relative to the administrative controls and procedures.

December 16, 1983 Submittal

A report describing the alternate shutdown system (ASDS) was submitted to the NRC in December of 1983 [Reference J.4.7.12]. The report provided the technical information requested by the NRC in Generic Letter 81-12 and its subsequent clarification letter.

The ASDS provides isolation and control capability to operate Division II Core Spray and RHR systems along with SRVs and associated auxiliary and support systems. This safe shutdown path is one of several paths identified in the June 1982 [Reference J.4.7.6] submittal to achieve the safety goals of Appendix R.

Furthermore, the original Control Room exemption request was modified to only require exemption from fixed fire suppression.

SER for Alternate Shutdown Design – September 11, 1985

By the letter dated September 11, 1985 [Reference J.4.7.13], the NRC enclosed its Safety Evaluation Report for the alternate shutdown system design. Generic Letter 81-12 required design information to be submitted for NRC Staff approval demonstrating conformance with the technical requirements of Appendix R, Section III.G.3 and III.L, and NRC Generic Letter 81-12 and subsequent clarification.

1985 - Updated Fire Hazards Analysis

The original Fire Hazards Analysis submitted in 1977 was revised to account for additional fire zones added in the June 1982 submittal and to update the plant fire protection features consistent with the requirements of BTP 9.5-1, Appendix A. For every fire zone, information on floor surface area, location within building, fixed and transient combustible inventories, heat loading, equivalent fire severity, required fire barrier rating, barrier construction, fire protection features, fire zone features that have limiting effect on fire spread, and safe shutdown systems affected and those used for a fire in every zone were identified. It should be noted that the minimum safe shutdown set consisting of one train of RHR, one train of CS, SRVs and associated auxiliary and support systems were considered in the analysis. HPCI and RCIC systems were not credited in this safe shutdown evaluation. In addition, manual operation rather than automatic system initiation was assumed. Furthermore, the number of fire areas was increased to 23 to enhance the fire protection capability at MNGP.

Fire Protection Safety Evaluation Open Items

By letter dated October 2, 1985 [Reference J.4.7.14], the NRC reviewed MNGP responses [Reference J.4.7.9], regarding nine open items from the 1977 Fire Protection SER [Reference J.4.7.3]. The NRC concluded that the open items were resolved and that MNGP is in compliance with the guidelines contained in Appendix A to BTP 9.5-1 and the requirements of Appendix R to 10 CFR 50. The following is a description of resolutions of these open items as interpreted by the NRC:

1. Increase the design density of the pre-action sprinkler system in both diesel generator rooms to provide 0.3 gpm/sq ft over the entire diesel generator area.
2. Upgrade the barrier separating Fire Zone 13B from Fire Zones 19A and 19B to achieve compliance with Section III.G.2 of Appendix R. The NRC interpreted this to be a barrier upgrade from two- to three-hour rating.
3. Cable tray penetrations and supply ducting between Fire Zones 13C and 19C are sealed to provide a three-hour rated barrier.
4. Upgrade the fire rating of the barrier between Fire Zones 12A to 14A to achieve three-hour fire resistance.
5. The directional fire barrier between Fire Zones 12B and 14B was accepted.
6. Fuses for the 250V distribution system are not required since safe shutdown can be achieved without utilizing HPCI or RCIC systems.
7. An alternate 250V power source will be installed to provide independent power supply to HPCI. These redundant power supplies will be separated by three-hour-rated fire barriers in accordance with Section III.G.2 of Appendix R.
8. The fire pump installation consisting of the screenwash pump meets the requirements of Appendix R and Appendix A to BTP 9.5-1.
9. MNGP is committed to satisfy the requirements of Sections III.H, I, and K of Appendix R relative to administrative controls and procedures for fire protection.

January 31, 1986 Letter

MNGP's letter of January 31, 1986 [Reference J.4.7.15], provided additional clarification in response to the NRC letter of October 2, 1985 [Reference J.4.7.14], and MNGP's letter of March 22, 1983 [Reference J.4.7.16] regarding the resolution of fire protection safety evaluation open items. This submittal provided clarification for the following items:

1. Fire Barrier Boundary - Fire Zones 13B to 19A and 19B - MNGP clarified the misunderstanding of the NRC relative to the rating of these barriers. An evaluation was performed consistent with the requirements of Generic Letter 86-10 to demonstrate acceptability of the two-hour-rated barrier without the need for upgrading the barrier to a three hour rating.
2. Penetrations and Ventilation Ducting - Zones 13C to 19C - In a letter dated June 30, 1982 [Reference J.4.7.6], MNGP indicated that the cable tray penetration between these two zones had been upgraded to meet the requirements of Appendix R Section III.G.2. In a letter dated June 7, 1983 [Reference J.4.7.10], MNGP indicated that the above-mentioned barrier possesses a three-hour fire rating due to the presence of penetration seals. Subsequent analysis and the MNGP UFHA (1985) indicated that Fire Zones 19C and 13C do not contain redundant safe shutdown components. In fact, these two fire zones are a part of the same fire area (IX). Subsequently, the penetration seals in the above-mentioned barrier were removed during the 1984 outage.
3. Structural Steel - Fire Zone 7C - In MNGP's letter of March 22, 1983 [Reference J.4.7.16], it was stated that in Fire Zone 7C, the Division II Battery Room, the structural steel would be protected to an equivalent one-hour rating and that halon suppression would be provided. It was later determined that it was possible to upgrade the structural steel to an equivalent three-hour rating, giving the overall barrier a three-hour resistance. This method of compliance is consistent with Section III.G.2(a) of Appendix R to 10 CFR 50. This modification was completed under the scheduler requirements applicable to Monticello Nuclear Generating Plant Appendix R modifications.

SER for Control Room Exemption Request

By the letter dated July 1, 1986 [Reference J.4.7.18], the NRC enclosed its Safety Evaluation Report for the Control Room exemption request from installation of a fixed suppression system. Section III.G.3 and III.L of Appendix R require that a fixed suppression system be available in areas for which alternative shutdown capability is provided. [Reference J.4.7.18]

October 1986 Safe Shutdown Analysis Submittal

By letter dated October 8, 1986 [Reference J.4.7.20], MNGP submitted an updated Safe Shutdown Analysis to the NRC superseding the June 1982 submittal [Reference J.4.7.6]. The purpose of the submittal was to provide information to the NRC Staff that accurately reflected the plant configuration due to modifications made for various Appendix R related reasons since the previous submittal.

Generic Letter 89-19

The station response to Generic Letter 89-19 is included in the following correspondence:

1. NSP to NRC Letter dated May 4, 1990.- Response to Generic Letter 89-19, Safety Implications of Control Systems in LWR Nuclear Power Plants
2. NSP License Amendment Request dated October 21, 1991 – Reactor Feedwater Pump Trip Instrumentation

3. NSP to NRC Letter dated September 21, 1992 - Withdrawal of Previously Submitted License Amendment Request Concerning; Reactor Feedwater Pump Trip Instrumentation
4. NSP to NRC Letter dated November 15, 1994 – Supplemental Information Concerning Generic Letter 89-19 and USI A-47, “Safety Implications of Control Systems in LWR Nuclear Power Plants”
5. NUREG-1217, Evaluations of Safety Implications of Control System Failures in LWR Nuclear Power Plants – Technical Issues Related to USI A-47.
6. NUREG/CR-4262, Effects of Control System Failures on Transients and Accidents at a General Electric Boiling Water Reactor.
7. EDE 07-0390, BWROG Response to Generic Letter 8919, Enclosure 2, Hardware Change Recommendations, dated March 30, 1990, Revision 0.

The NRC safety evaluation of the adequacy of the station response is included in the following:

1. BWR Owners Group correspondence, “Transmittal of the NRC Safety Evaluation for the BWR Owners Group Response to Generic Letter (GL) 89-19, “Request for Action Related to Resolution of Unresolved Safety Issue A-47 ‘Safety Implications of Control Systems in LWR Nuclear Power Plants’”, dated December 30, 1994.
2. NRC to NSP Letter dated December 30, 1994 – Transmittal of the NRC Safety Evaluation for the BWR Owners Group Response to Generic Letter (GL) 89-19, “Request for action Related to Resolution of Unresolved Safety Issue A-47 ‘Safety Implication of Control Systems in LWR Nuclear Power Plants’ Pursuant to 10 CFR 50.54(f) and the Closeout of This Issue – Monticello Nuclear Generating Plant (TAC No. M74965).

The specific review of fire is included in Section 2.0, Findings and Conclusions, of the Safety Evaluation Report:

“The staff reviewed the INEL TER, the BWROG submittal, NUREG 1218 and BWR plant-specific submittals. Based on this review, the staff has concluded that it is highly unlikely that a loss-of-power event or a fire would cause an overfill event by affecting the feedwater control circuitry and defeating the overfill protection, since the feedwater control is an energize to actuate system (e.g., the isolation valve will close upon loss-of-power).”

Refer to the responses to the items above. The adequacy of the vessel overfill protection from fire has been specifically evaluated and approved.

NRC Inspection Report 50-263/86008(DRS)

This report reflects the results of the NRC audit that took place from October 20-24, 1986 [Reference J.4.7.21]. The purpose of the audit was to, determine the implementation of and compliance to the requirements of 10 CFR 50, Appendix R. No violations or deviations were identified.

SER for Information Notice 92-18

Information Notice 92-18, “Potential for Loss of Remote Shutdown Capability during a Control Room Fire,” alerted licensees that certain fire induced short circuits in control or cable spreading rooms could cause motor operated valves to misposition in conjunction with bypass of torque and limit switches. The result could be a deeply backseated or damaged valve that is unable to be repositioned. In the case of a valve credited for alternate shutdown, the scenario could play out prior to isolation of its control circuit wiring from the control or cable spreading room. Given that MNGP provided for one train of equipment to achieve alternate shutdown, that ability could be inhibited if a subject valve was credited as part of the methodology.

Prior to issuance of IN 92-18, MNGP had identified the potential for valves to spuriously operate due to its review of other plant reports. [Reference J.4.7. 22] A dialogue ensued between MNGP and the NRC [Reference J.4.7.23,24,25,26] whereby several valves were identified as vulnerable to the IN 92-18 scenario. The control circuits for the valves were subsequently modified. In an April 1993 meeting [Reference J.4.7.26], the NRC reviewed the MNGP corrective actions regarding IN 92-18. The NRC subsequently issued a SER approving the solution in July 1993 [Reference J.4.7.27].

1996 MNGP Power Uprate

By Letter dated July 26, 1996 [Reference J.4.7.32], a license amendment was filed with the NRC requesting an increase in the maximum licensed thermal power level by approximately 6.3%. The license amendment request was revised in December 1997 [Reference J.4.7.31]. The December 1997 revision included an analysis, Exhibit E, that confirmed no effect on the ability of the unit to safely shut down post-fire. The NRC issued a SER in September 1998 [Reference J.4.7.33] approving the uprate.

Removal of Fire Protection Requirements from Technical Specifications

By letter dated December 13, 2000 [Reference J.4.7.55], a license amendment was filed with the NRC requesting the removal of fire protection requirements from Technical Specifications in accordance with the guidance of Generic Letter 86-10 and Generic Letter 88-12. License amendment 119, dated April 2001, which revised Operating License Condition 2.C.4 to require the licensee implement and maintain in effect the approved fire protection program, and provide provision under which the licensee could make changes to the approved program without prior approval by the NRC.

Exemption for Torus Compartment

MNGP requested a permanent exemption from the automatic suppression system requirements of Appendix R, III.G.2.b for the Torus Compartment. By the letter dated August 6, 2004 and supplemented by letter dated September 23, 2004, the NRC approved the permanent exemption request for the Torus Compartment. [Reference J.4.7.46, 47]

Exemption for Intake Structure

MNGP requested a permanent exemption from the requirement of separation of redundant trains with no intervening combustibles or fire hazards of Appendix R, III.G.2.b for the Intake Structure. By the letter dated October 28, 2004 and supplemented by letter dated December 23, 2004, the NRC approved the permanent exemption request for the Intake Structure. [Reference J.4.7.48.49]

2013 MNGP Extended Power Uprate (EPU)

By letter dated November 5, 2008 [Reference J.4.7.67], a license amendment was filed with the NRC requesting an increase in the maximum licensed thermal power level to 2004 MWt. Enclosure 5 of the license amendment included a summary of the Appendix R safe shutdown analysis in Section 2.5.1.4 of NEDC-33322P (Reference J.4.7.73). An additional separate EPU submittal (Reference J.4.7.70) summarized supplemental analyses that were performed for emergency core cooling system (ECCS) pump net positive suction head (NPSH) requirements and the time required to cold shutdown. These analyses confirmed the ability of the unit to safely shut down following the design basis Appendix R events. The NRC issued a SER on December 9, 2013 [Reference J.4.7.68] approving the uprate with Appendix R review documented in Sections 2.5.1.4 and 2.6.5.

The EPU Appendix R analyses that were performed as a part of the EPU license amendment consists only of the reactor and containment response to the postulated 10 CFR 50 Appendix R fire event at EPU conditions. The fire protection systems and previous fire protection analyses were unaffected by EPU. The EPU Appendix R analyses results show that the peak fuel cladding temperature, reactor pressure, and containment pressures and temperatures are below the acceptance limits and demonstrate that there

01101248

is sufficient time available for the operators to perform the necessary actions to achieve and maintain cold shutdown conditions. The fuel heatup analysis was performed using the SAFER/GESTR-LOCA analysis model. The containment analysis was performed using the SHEX model. This evaluation determined the effect of EPU on fuel cladding integrity, reactor vessel integrity, pump NPSH and containment integrity as a result of the fire event. See references J.4.7.51, 52, 67, 68, 69, 70, 71, 72, and 73.

The postulated Appendix R fire event was analyzed for the following two cases:

Case 1: One Safety Relief Valve (SRV) is assumed to be stuck open for the entire event. Manual opening of the two SRVs occurs 17 minutes into the event. This case assumes one Core Spray (CS) pump and one Residual Heat Removal (RHR) pump with one RHR heat exchanger operating. Suppression Pool Cooling is initiated manually at 40 minutes into the event.

Case 2: No stuck open SRV is assumed. 2 SRVs are used to depressurize the vessel after being initiated manually 17 minutes into the event. This case assumes one Core Spray (CS) pump and one Residual Heat Removal (RHR) pump with one RHR heat exchanger operating. Suppression Pool Cooling is initiated manually at 40 minutes into the event.

The results of the Appendix R evaluation for EPU are summarized as follows (References 69 and 73):

Appendix R Fire Event Evaluation Results

<u>Parameter</u>	<u>EPU</u>	<u>App. R Criteria</u>
Cladding Heatup (PCT) (°F)	984 ²	≤ 1500
Primary System Pressure (psig) ³	1335	< 1375
Primary Containment Pressure (psig)	9.9	≤ 56
Suppression Pool Bulk Temperature (°F)	197	≤ 281 ⁴ ≤ 212 ⁵
Net Positive Suction Head ¹	Yes	Adequate for ECCS systems using suppression pool water source

01101248

Notes:

1. See References J.4.7.51, 52, 70 and J.4.7.71 for more information on NPSH evaluations.
2. The core will uncover prior to reactor depressurization at 17 minutes.
3. Bounded by peak pressure from MSIV closure with flux scram event.
4. Containment structural design limit.
5. Limited by analysis temperature of torus attached piping.

The time to cold shutdown evaluation contained within the EPU Appendix R Fire Protection analysis (Reference J.4.7.69) is superseded by the Red Wolf cold shutdown analysis (Reference J.4.7.72). This analysis demonstrates that the reactor can be brought to cold shutdown conditions within 44.7 hours of the Appendix R event. Cold shutdown can then be maintained using the existing plant systems previously designated for this purpose. In accordance with 10 CFR Part 50, Appendix R, Sections III.G.1.b and III.L, the reactor can be brought to a cold shutdown condition within 72 hours at EPU conditions using the existing alternate shutdown cooling systems designated for mitigation of the Appendix R event and then maintained in cold shutdown. The Red Wolf cold shutdown analysis assumes suppression pool cooling (SPC) is placed in service at 41 minutes and establishes start of vessel cool down at 16 minutes instead of being coincident with vessel depressurization initiation at 17 minutes. Both the 41 and 16 minute times are conservative and bound the corresponding respective 40 minute SPC and 17 minute reactor vessel cool down initiation times assumed in the Appendix R Fire Protection analysis (Reference J. 4.7.69). See Reference J.4.7.74 for further discussion.

APPENDIX J.03
COMPARISON TO REGULATORY GUIDANCE

APPENDIX J.3 - COMPLIANCE WITH FIRE PROTECTION REGULATORY DOCUMENTS

By letter dated December 10, 1976, the Monticello station submitted a comparison of the Monticello Fire Protection Program with the Standard Review Plan Section 9.5.1, dated 5-01-1976. This comparison forms an essential part of the basis for NRC approval of the Monticello Fire Protection Program. The comparison was supplemented by submittals dated July 5, 1977 and July 7, 1978. Table J.3-1 incorporates the position statements originally transmitted via the referenced letters, in order to ensure that the program requirements defined by this part of the approved fire protection program are maintained.

These position statements discuss the interpretation of standard review plan criteria and the degree of concurrence with the objectives of the criteria. In certain cases, an equivalent course of action was selected. The basis for acceptability of the equivalent method, to meet the overall objectives of the standard review plan criteria, is included in the applicable position statement.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
1	APCSB 9.5-1 IV.A.1	<u>Overall Requirements of Plant Program</u> Responsibility for the overall fire protection program should be assigned to a designated person in the upper level of management.	Directives will be prepared to designate responsibilities for the nuclear plant fire protection program.
2	APCSB 9.5-1 IV.A.1	Person responsible for overall fire protection program should retain ultimate responsibility even though formulation and assurance of program implementation is delegated.	This requirement will be satisfied in directives designating responsibilities for the nuclear plant fire protection program.
3	APCSB 9.5-1 IV.A.1	Delegation of authority by person responsible for overall fire protection program should be to staff personnel prepared by training and experience in fire protection and nuclear plant safety to provide a balanced approach in directing a nuclear plant fire protection program.	This requirement will be satisfied in directives designating responsibilities for the nuclear plant fire protection program.
4	APCSB 9.5-1 IV.A.1	The PSAR should state the qualification requirements for the fire protection engineer or consultant who will assist in the design and selection of equipment, inspect and test the completed physical aspects of the system, develop the fire protection program, and assist in the fire-fighting training for the operating plant.	This guideline is not applicable to an operating nuclear power plant.
5	APCSB 9.5-1 IV.A.1	The FSAR should discuss the training and the updating provisions such as fire drills provided for maintaining the competence of the station fire-fighting and operating crew, including personnel responsible for maintaining and inspecting the fire protection equipment.	This guideline is not applicable to an operating nuclear power plant.
6	APCSB 9.5-1 IV.A.1	The staff to whom authority for formulation and assurance of program implementation has been delegated should be responsible for: <ul style="list-style-type: none"> a. Coordination of building layout and systems design with fire requirements, including consideration of potential hazards associated with postulated design basis fires. b. Design and maintenance of fire detection, suppression, and extinguishing systems. c. Fire prevention activities. d. Plant personnel and fire brigade training and manual fire fighting activities. 	<ul style="list-style-type: none"> a) Fire detection and protection systems were designed by Bechtel Corporation and NSP Engineering in close cooperation with the NSP safety and insurance groups and NELPIA. The design required all areas containing combustible material to meet criteria contained in NFPA standards in effect at the time of construction. b) Maintenance of protection and detection equipment is under the direction of the plant maintenance staff. c) Fire prevention activities are under the direction of the plant Superintendent Operation and Maintenance. d) Fire training is under the direction of the plant Superintendent Operation and Maintenance and the plant Training Supervisor.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
7	APCSB 9.5-1 IV.A.2	The overall fire protection program should be based upon evaluation of potential fire hazards throughout the plant and the effect of postulated design basis fires relative to maintaining ability to perform safety shutdown functions and minimize radioactive releases to the environment.	<p>The fire protection program is based on the applicable standards and NELPIA recommendations in effect when the plant was designed.</p> <p>A fire hazards analysis using updated criteria will be done for the plant to evaluate the effects of the design basis fires. Revisions will be made in the fire protection program where they are found to be required.</p>
8	APCSB 9.5-1 IV.A.3	Total reliance should not be placed on a single automatic fire suppression system. Appropriate backup fire suppression capability should be provided. (In each area containing safety related systems and equipment where automatic fire suppression equipment is installed, suitable backup suppression capability should be available.)	All automatic fire suppression systems are backed up by fire hose stations.
9	APCSB 9.5-1 IV.A.4	<p>A single failure in the fire suppression system should not impair both the primary and backup fire suppression capability (in any area containing safety related systems and equipment). Postulated fires or fire protection system failures need not be considered concurrent with other plant accidents or the most severe natural phenomena. In the event of a SSE, however, the fire suppression system should be capable of delivering water to manual hose stations located within hose reach of areas containing equipment required for safe plant shutdown. The fire protection systems should, however, retain their original design capability for:</p> <ol style="list-style-type: none"> (1) natural phenomena of less severity and greater frequency (approximately once in ten years) such as tornados, hurricanes, floods, ice storms, or small intensity earthquakes which are characteristic of the site geographic region. (2) For potential man-created site related events such as oil barge collisions or aircraft crashes which have a reasonable probability of occurring at a specific plant site. 	<p>Hose stations are located throughout the reactor, turbine, and office buildings. They were installed in accordance with the requirements of the National Fire Code. Portable extinguishers have been located at various locations throughout the plant. The fire pumps have independent supplies and controls (see response to Item 107).</p> <p>As permitted in Appendix A to APCS 9.5-1, the system has not been analyzed to withstand the SSE.</p>

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
10	APCSB 9.5-1 IV.A.4	The effects of lightning strikes should be included in the overall plant fire protection program.	The effects of lightning strikes were considered in the overall plant fire protection program. Lightning protection has been installed for the reactor building, the turbine building, the off-gas stack, and the cooling towers.
11	APCSB 9.5-1 IV.A.5	Failure or inadvertent operation of the fire suppression system should not incapacitate safety related systems or components.	Refer to Items 12, 42, and 118.
12	APCSB 9.5-1 IV.A.5	<p>Fire suppression systems that are pressurized during normal plant operation should meet the guidelines contained in APCS Branch Technical Position 3-1, "Protection Against Postulated Piping Failures in Fluid Systems Outside Containment." These guidelines include:</p> <p>B.1 Protection of essential systems and components against piping failures through plant arrangement or protective enclosures if practical</p> <p>B.2 Protective structures or compartments needed to implement (B.1) should be designed to seismic Category I requirements. The protective structures should be designed to withstand the effects of a postulated piping failure in combination with loading associated with the operating basis earthquake and SSE within the respective design load limits for structures.</p> <p>Protective measures, structures, and guard pipes should not prevent the access required to conduct inspections.</p> <p>B.3 The effects of each postulated pipe failure (BTP MEB 3-1 assumptions for moderate-energy fluid system) should be shown to result in offsite consequences within the guidelines of 10CFR100 under the conditions specified in BTP APCS 3-1, Section B.3.b.</p>	<p>Section B.4.d of APCS Branch Technical Position 3-1 states that,</p> <p>Designs of plants for which operating licenses are issued before July 1, 1975 are considered acceptable with regard to effects of piping failures outside containment on the basis of the analyses made and measures taken by applicants and licensees in response to the December 72 letter from A Giambusso, and the staff review and acceptance of these analyses and measures.</p> <p>Staff review and acceptance of the analyses performed and the measures taken in response to the December, 1972 letter from A Giambusso is documented in the July 29, 1974 letter from Karl R Goller to Northern States Power Co. A summary of the analysis conducted on the fire protection piping was included in a letter from L O Mayer, NSP, to D L Ziemann, USAEC, dated August 24, 1973.</p> <p>For Licensees that have adopted an Alternative Source Term (AST), including MNGP, the offsite dose consequence guidelines of 10CFR100 are superseded by 10CFR50.67. AST methodology was adopted by MNGP in License Amendment 148 (December 7, 2006).</p>
13	APCSB 9.5-1 IV.A.6	The fire protection program (plans, personnel, and equipment) for buildings storing new reactor fuel and for adjacent fire zones which could affect the fuel storage zone should be fully operational before fuel is received on the site.	This guideline is not applicable to an operating nuclear power plant.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
14	APCSB 9.5-1 IV.A.7	The fire protection program for an entire reactor unit should be fully operational prior to initial fuel loading in that reactor unit.	This guideline is not applicable to an operating nuclear power plant.
15	APCSB 9.5-1 IV.A.8	On multiple-reactor sites where there are operating reactors and construction of remaining units is being completed, the fire protection program should provide continuing evaluation and include additional fire barriers, fire protection capability, and administrative controls necessary to protect the operating units from construction fire hazards. The operating plant superintendent should have the lead responsibility for site fire protection.	This guideline is not applicable to an operating nuclear power plant.
16	APCSB 9.5-1 IV.B.1 (a) & (b)	<p><u>General Guidelines for Plant Protection Building Design</u> Plant layouts should be arranged to:</p> <ol style="list-style-type: none"> (1) Isolate safety-related systems from unacceptable fire hazard. (2) Separate redundant safety-related systems from each other so that both are not subject to damage from a single fire hazard. <p>In order to accomplish this, safety-related systems and fire hazards should be identified throughout the plant. Therefore, a detailed fire hazard analysis should be made during initial plant design.</p>	<p>The cable spreading room (zone 8) layout is such that, lacking either automatic systems actuation of fire brigade response, redundant systems could be subject to damage from a single fire. Fire brigades are established and capable of adequate response. A fixed automatic gas system will be installed.</p> <p>The turbine building layout (zones 13B and 19A) is such that, if the lube oil deluge system were impaired, a potential exists for damage to redundant safety cabling. A barrier will be installed to preclude such damage.</p> <p>No other inadequacies in plant layout were identified by the fire hazards analysis.</p>
17	APCSB 9.5-1 IV.B.1 (c)	For multiple reactor unit sites, cable spreading rooms should not be shared between reactors. Each cable spreading room should be separated from other areas of the plant by barriers (walls and floors) having a minimum fire resistance of three hours. Cabling for redundant safety divisions should be separated by walls having three hour fire barriers.	<p>Monticello is a single reactor site. A fire hazards analysis which identified fire areas and provided analyses of fire consequences was submitted on March 11, 1977.</p> <p>The adequacy of cable separation and fire barriers associated with the cable spreading room is addressed in the fire hazards analysis of fire zone 8 and in the response to items 16 and 158.</p>

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
18	APCSB 9.5-1 IV.B.1 (d)	Interior wall and structural components, thermal insulation materials and radiation shielding materials, and sound-proofing should be non-combustible (in each area containing safety related systems and equipment). Interior finishes should be noncombustible or listed by a nationally recognized testing laboratory, such as Factory Mutual or Underwriters' Laboratory, Incorporated, for flame spread, smoke and fuel contribution of 25 or less in its use configuration (ASTM E-84 Test, "Surface Burning Characteristics of Building Materials").	All areas containing safety related systems and equipment have interior walls of concrete and structural components of steel. Thermal insulation is used on piping and equipment and is composed of noncombustible material. Radiation shielding and soundproofing in the plant is provided by the concrete walls. The control room has a suspended ceiling which is noncombustible (See Item 20).
19	APCSB 9.5-1 IV.B.1 (e)	Metal deck roof construction should be noncombustible (see Underwriters' Laboratory, Incorporated building materials directory) or listed as Class I by Factory Manual System Approval Guide.	Built-up roofing and insulation material for the plant is listed by Underwriters' Laboratories, Inc., as acceptable for Class A roof construction.
20	APCSB 9.5-1 IV.B.1 (f)	Suspended ceiling and their supports (in each area containing safety related systems and equipment) should be of noncombustible construction. Concealed spaces should be devoid of combustibles.	The control room is the only area containing safety related equipment which has a suspended ceiling. This ceiling was chosen to qualify as a one-hour fire resistive ceiling conforming to Underwriters' Laboratories Retardant Report Series 4177, for noncombustible materials, as listed under the Underwriters' Laboratories, Inc., Building Materials List. Concealed spaces in this ceiling are devoid of combustibles.
21	APCSB 9.5-1 IV.B.1 (g)	High voltage - high amperage transformers installed inside buildings containing safety related systems should be dry type or insulated and cooled with noncombustible liquid.	High voltage-high current transformers (specifically, the 4160/480 V load center transformers) located in the turbine building at Monticello are insulated and cooled with General Electric "Pyranol", a noncombustible liquid. No other high voltage-high current transformers are installed in buildings containing safety-related equipment.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
22	APCSB 9.5-1 IV.B.1 (h)	Buildings containing safety related systems should be protected from exposure or spill fires involving oil filled transformers by locating such transformers at least 50 feet distant or by assuring that such building walls within 50 feet of oil filled transformers are without openings and have a fire resistance rating of at least three hours.	<p>The diesel generator building and the recombiner building have ventilation openings within 50 feet of a transformer.</p> <p>The ventilation opening in the diesel generator building is located about 22 ft horizontally and 18 ft above the curbed area of #11 auxiliary transformer at the closest point. The curb and drain system prevents an oil spill beyond the curbed area. The transformer is protected by a water deluge system. In the extremely unlikely event that a fire were to propagate through this vent opening, the immediate exposure would be only to the ventilation equipment room above the No. 12 diesel generator room. The No. 11 diesel generator would not be exposed, thereby assuring safe shutdown capability.</p> <p>The ventilation opening in the recombiner building directly exposes an access corridor. This corridor is separated from the remainder of the building by a poured concrete shield wall having no unsealed penetrations.</p> <p>Based on the above, no additional protective measures are considered necessary.</p>
23	APCSB 9.5-1 IV.B.1 (i)	Floor drains, sized to remove expected fire fighting water flow, should be provided in those areas where fixed water fire suppression systems are installed. Drains should also be provided in other areas where hand hose lines may be used if such fire fighting water could cause unacceptable damage to other (safety related) equipment in the area.	<p>Adequately sized floor drains are provided in those areas where fixed water fire suppression systems are installed except for the lube oil drum storage area. There is no safety related equipment in the vicinity of the lube oil drum storage area. Accumulation of water in this area would not create an unacceptable consequence. All safety related equipment is installed such that it will not be affected by fire fighting water buildup.</p> <p>Adequately sized floor drains will be installed in the recirculation M-G set room.</p>
24	APCSB 9.5-1 IV.B.1 (i)	(Safety related) equipment should be either installed on pedestals, or curbs should be provided as required to contain water and direct it to floor drains. (See NFPA 92M, "Waterproofing and Draining of Floors.")	All safety related equipment is installed on pedestals, or mounted high enough above the floor to not be affected by water, or protected by curbs.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
25	APCSB 9.5-1 IV.B.1 (i)	Drains in areas containing combustible liquids should have provisions for preventing the spread of the fire throughout the drain system.	All drains are discharged to sumps below the sump water levels except the lube oil storage tank area drain. This drain discharges to the emergency dump tank. These drain provisions prevent the spread of fire.
26	APCSB 9.5-1 IV.B.1 (i)	Water drainage from areas which may contain radioactivity should be sampled and analyzed before discharge to the environment.	All drainage from areas which may contain radioactivity is directed to the liquid radwaste system where it is either reclaimed or would be sampled and analyzed before discharge to the environment.
27	APCSB 9.5-1 IV.B.1 (j)	Floors, walls, and ceilings enclosing separate fire areas should have minimum three-hour fire ratings.	See response to Item 17. In the event that the automatic sprinkler system for the recirculation MG sets fail, exposed structural steel in the ceiling may be damaged. This steel will be provided with a protective coating. No other inadequacies in floors, walls or ceilings were identified by the fire hazards analysis.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
28	APCSB 9.5-1 IV.B.1 (j)	Penetrations in fire area barriers, including conduits and piping, should be sealed or closed to provide a fire resistance rating at least equal to that of the barrier itself.	<p>See response to Item 17.</p> <p>The adequacy of fire area barrier penetrations is addressed in the fire hazards analysis.</p> <p>Unsealed duct penetrations between the battery rooms (zones 7-A, 7-B, 7-C) and three unsealed conduit penetrations in room 167B (zone 7-B) could conceivably permit propagation of a fire beyond the boundaries of the involved room. These will be sealed.</p> <p>Unsealed duct penetrations in the cable spreading room (zone 8) do not prevent involvement from external sources. These will be sealed.</p> <p>In the event of sprinkler system impairment, a fire in the lube oil storage tank room (zone 13-A) could propagate to the water treatment area (zone 19-A) by burning of vapors above unsealed penetrations. These penetrations will be sealed.</p> <p>The unsealed pipe penetration between the fuel oil day tank rooms (zone 15C & 15D) will be sealed to minimize available oxygen in the event of an oil spill fire.</p>

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
29	APCSB 9.5-1 IV.B.1 (k)	Door openings in fire area barriers should be protected with equivalent rated doors, frames, and hardware that have been tested and approved by a nationally recognized laboratory. Such doors should be normally closed and locked or provided with an alarm and annunciation in the control room.	<p>See response to Item 17.</p> <p>The adequacy of door openings in fire area barriers is addressed in the fire hazards analysis.</p> <p>Nonrated doors to the battery rooms (zones 7A, 7B, 7C) could conceivably permit propagation of a fire beyond the boundaries of the involved room. The doors will be replaced with 1½-hour rated fire doors.</p> <p>The 1½-hour rated door separating the emergency diesel generator rooms (zones 15A & 15B) could be breached in the highly unlikely event of a fire involving the total quantity of oil in both the crank case and the integral day tank. This door will be replaced with a 3-hour rated fire door.</p> <p>The nonrated door between zones 19B & 19C could be penetrated in the event of a fire. This door will be replaced with a 1½-hour rated fire door.</p> <p>Many of the fire barrier doors which are assumed to be closed in the fire hazards analysis are presently locked or alarmed, or locked and alarmed for radiation protection or security purposes. All of the secondary containment entrances are provided with double door airlocks having interlocked doors. Fire barrier doors that are assumed to be closed in the fire hazards analysis, but are not in the above categories will either be alarmed or locked, except where normal access requirements make locking or alarming impractical. In the latter case, the doors will be provided with automatic closure devices.</p>

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
30	APCSB 9.5-1 IV.B.1 (I)	Penetrations in fire area barriers for ventilation systems should be protected by a standard "fire door damper" where required. (NFPA 80, "Fire Doors and Windows.")	<p>See response to Item 17.</p> <p>The adequacy of ventilation system penetrations in fire area barriers was considered in the fire hazards analysis.</p> <p>A fire damper will be installed in the ventilation duct between the radwaste and reactor buildings (zone 2C) to upgrade this barrier.</p> <p>Fire doors dampers will be installed in the vent openings between the fuel oil day tank rooms (zones 15C & 15D) and the diesel generator room (zone 15B) to upgrade the barriers.</p>
31	APCSB 9.5-1 IV.B.2 (a)	<p>Safety-related systems should be isolated or separated from combustible materials. When this is not possible due to the nature of the safety system or the combustible material, special protection will be required to prevent a fire defeating the safety system function. Such protection may involve a combination of automatic fire suppression, and construction capable of withstanding and containing a fire that consumes all combustibles present. Examples of such combustible materials which may not be separable from the remainder of its system are:</p> <ul style="list-style-type: none"> (1) Emergency diesel generator fuel oil day tanks. (2) Turbine-generator oil and hydraulic control fluid systems. (3) Reactor coolant pump lube oil system. 	<p>In general there is very little combustible material in the vicinity of safety related systems. Control of storage of combustible material is addressed in Item 73.</p> <p>With respect to the specific examples:</p> <ul style="list-style-type: none"> (1) See response to Item 186. (2) Turbine generator lube oil piping and storage areas are protected by automatic sprinkler systems. (3) Reactor recirculation pumps are located inside primary containment which is inerted during operation (See Item 138). <p>The fire hazards analysis identified the need for the following additional special protection measures:</p> <p>The deluge system for the turbine lube oil reservoir (zone 13B) will be extended to provide protection for a larger oil spill resulting from reservoir case rupture.</p> <p>Additional barrier upgrading measures are identified in the response to items 16, 27, 28, 29 and 30.</p>
32	APCSB 9.5-1 IV.B.2 (b)	Bulk gas storage (either compressed or cryogenic), should not be permitted inside structures housing safety related equipment.	Bulk gas storage is located outside structures housing safety related equipment.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
33	APCSB 9.5-1 IV.B.2 (b)	Flammable gas storage such as hydrogen should be located outdoors or in separate detached buildings so that a fire or explosion will not adversely affect any safety related systems or equipment. (NFPA 50A, "Gaseous Hydrogen Systems")	Flammable gases are stored in the hydrogen storage building and the hot machine shop. These are both separate, but attached buildings. It is extremely unlikely that a fire or explosion would adversely affect safety related equipment.
34	APCSB 9.5-1 IV.B.2 (b)	Care should be taken to locate high pressure gas storage containers with the long axis parallel to building walls. This will minimize the possibility of wall penetration in the event of a container failure.	All gas storage containers located in buildings housing safety related equipment are oriented such that the long axis is parallel to the building walls.
35	APCSB 9.5-1 IV.B.2 (b)	Use of compressed gases (especially flammable and fuel gases) inside buildings should be controlled. (NFPA 6, "Industrial Fire Loss Prevention")	In most instances, use of compressed gases is governed by the existing work control process. The use of compressed gases will be reviewed to determine if additional administrative controls are required (See also response to Items 73 and 223).
36	APCSB 9.5-1 IV.B.2 (c)	The use of plastic materials should be minimized. Halogenated plastics especially, such as PVC and neoprene, should be used only when substitute noncombustible materials are not available.	Plastic materials are used for radiation protection purposes, however, the use of this material is minimized to the extent practical. Some electrical cables are constructed with a PVC outer jacket (See response to Item 46).

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
37	APCSB 9.5-1 IV.B.2 (d)	Flammable liquids storage should, as a minimum, comply with the requirements of NFPA 30, "Flammable and Combustible Liquids Code."	<p>Flammable liquids storage at Monticello complies with all applicable requirements of NFPA 30 with minor exceptions. The lines from each diesel engine day tank to the diesel engines do not have shutoff valves located as specified in paragraph 2342. It is felt that installation of such valves is undesirable because transfer of oil to the diesel depends on a siphoning action which could be affected by the additional valves. There are isolation valves on these lines located near the diesel generator.</p> <p>The fill line for the underground fuel oil storage tank is not properly identified. This line will be identified.</p> <p>The steel supports for the heating boiler and diesel fire pump day tanks are not protected as outlined in paragraph 2430. Modifications will be made to comply with this requirement.</p> <p>An investigation of emergency relief venting for fire exposure of above ground tanks revealed that the diesel fire pump day tank, the diesel generator day tanks, and the heating boiler day tank require modification to meet the venting criteria. These modifications will be completed.</p>
38	APCSB 9.5-1 IV.B.3 (a)	<u>Cable Construction, Cable Trays, & Penetrations</u> Only noncombustible material should be used for cable tray construction.	Cables are routed in steel trays.
39	APCSB 9.5-1 IV.B.3 (c)	Automatic water sprinkler systems should be provided for cable trays outside the cable spreading room.	<p>There are no automatic sprinkler systems provided for cable trays outside the cable spreading room.</p> <p>The fire hazards analysis does not identify a need for cable tray sprinkler systems outside the cable spreading room.</p>

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
40	APCSB 9.5-1 IV.B.3 (c)	Cables should be designed to allow wetting down with deluge water without electrical faulting.	<p>Electrical cables at the Monticello facility are insulated with waterproof synthetic materials such as butyl rubber, neoprene, or polyethylene. By design, splices are not permitted in trays, conduits, or raceways. Thus electrical faulting would not be expected to occur if the cables were wetted with deluge water.</p> <p>October 26, 2006 Response:</p> <p>Electrical cables are insulated with waterproof synthetic materials. Splices are controlled by procedures and are protected from water impingement through the use of heat shrink materials and/or other methods. Thus, electrical faulting would not be expected to occur if the cables were wetted.</p>
41	APCSB 9.5-1 IV.B.3 (c)	Manual hose stations and portable hand extinguishers should be provided as a backup means of wetting down cable trays outside the cable spreading room.	Manual hose stations and portable hand extinguishers are provided for fighting cable tray fires outside the cable spreading room.
42	APCSB 9.5-1 IV.B.3 (c)	Safety related equipment in the vicinity of such cable trays, which does not itself require water fire protection, but is subject to unacceptable damage if wetted by sprinkler (or hose or extinguisher) water discharge, should be protected from sprinkler system (or hose or extinguisher) operation or malfunction.	<p>While some exceptions have been identified, safety related equipment is generally not subject to water damage.</p> <p>Additional protection may be needed for the following equipment to comply with this item:</p> <ol style="list-style-type: none"> 1. Yarway reactor level switches 2. Scram discharge volume level switches 3. Secondary containment isolation damper actuators <p>Appropriate protection will be provided.</p>
43	APCSB 9.5-1 IV.B.3 (d)	Cable and cable tray penetration of fire barriers (vertical and horizontal) should be sealed to give protection at least equivalent to the fire barrier. The design of fire barriers for horizontal and vertical cable trays should, as a minimum, meet the requirements of ASTM E-119, "Fire Test of Building Construction and Materials," including the hose stream test.	See responses to Items 17 and 28.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
44	APCSB 9.5-1 IV.B.3 (e)	Fire breaks should be installed at every 10 feet along horizontal and vertical cable routings to prevent the propagation of fire. Flame of flame retardant coatings may be used as a fire break for grouped electrical cables to limit spread of fire in cable routings.	<p>Cable runs at Monticello were not installed with fire breaks in the cable trays.</p> <p>A fire break will be installed to prevent fire propagation along the cable tray between fire zones 12-A and 12-B. A fire break will be installed to prevent fire propagation along the cable tray between fire zones 4C and 4B.</p>
45	APCSB 9.5-1 IV.B.3 (f)	Electric cable constructions should pass the current IEEE No. 383 flame test.	<p>The electrical cables at Monticello were manufactured and installed prior to issuance of the IEEE-383 Standard. The cables do, however, meet the applicable Insulated Power Cable Engineers Association (IPCEA) standards in effect at the time of manufacture; specifically, S-19-81 for rubber insulated cable and S-61-402 for thermoplastic insulated cable. These standards include flame tests of single cables in horizontal or vertical configurations.</p> <p>Investigation indicates that the insulation used on major control cables in the plant can pass the oil soaked burlap test specified in IEEE 383. The cable probably would not qualify using the gas flame test.</p>
46	APCSB 9.5-1 IV.B.3 (g)	To the extent practical, cable construction that does not give off corrosive gases while burning should be used.	In accordance with Appendix A to Branch Technical Position APCS 9.5-1, this guideline is applicable to new cable installations.
47	APCSB 9.5-1 IV.B.3 (h)	Cable trays, raceways, conduit, trenches, or culverts should be used only for cables. Miscellaneous storage should not be permitted. Piping for flammable or combustible liquids or gases should not be installed in these areas.	<p>Cable trays, raceways, conduits, trenches or culverts are used only for cables. Diesel oil, turbine oil, and hydrogen gas piping is not installed in these areas.</p> <p>Miscellaneous storage in these areas will be prohibited by administrative directives.</p>
48	APCSB 9.5-1 IV.B.3 (i)	Areas containing significant concentrations of plastic insulated electric cables such as cable tunnels, culverts, and spreading rooms should be provided with automatic or manual smoke venting as required to facilitate manual fire fighting capability.	All plant ventilation units are capable of being manually controlled to allow smoke venting as required.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
49	APCSB 9.5-1 IV.B.3 (j)	Cables in the control room should be kept to the minimum necessary for operation of the control room. All cables entering the control room should terminate there. Cables should not be installed in floor trenches or culverts in the control room.	All cables entering the control room are for control room use and terminate there. There are no concealed floor and ceiling spaces used for cable routing except for control room lighting power cables which are run in conduits above the ceiling tile.
50	APCSB 9.5-1 IV.B.4 (a)	<u>Ventilation</u> Products of combustion which need to be removed from a specific fire area should be evaluated to determine how they will be controlled. Smoke and corrosive gases should generally be automatically discharged directly outside to a safe location. Smoke and gases containing radioactive materials should be monitored in the fire area to determine if release to the environment is within the permissible limits of the plant Technical Specifications.	Ventilation from areas with potential for release of radioactive material is monitored. The means for removal of products of combustion were evaluated in the fire hazards analysis. No inadequacies were identified.
51	APCSB 9.5-1 IV.B.4 (b)	Any ventilation system designed to exhaust smoke or corrosive gases should be evaluated to ensure that inadvertent operation or single failures will not violate the controlled areas of the plant design. This requirement includes containment functions for protection of the public and maintaining habitability for operations personnel.	The isolation systems for primary and secondary containment are designed to meet single failure criteria. The ventilation system for the control room is designed to allow recirculation to maintain habitability. No special smoke or gas exhausting systems are required or installed.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
52	APCSB 9.5-1 IV.B.4 (c)	The power supply and controls for mechanical ventilation systems should be run outside the fire area served by the system.	<p>The plant was not designed with specific fire areas. We have reviewed the locations of the ventilation system power supplies and controls. We have identified several plant areas where power supplies and controls are located within the ventilated area. This includes diesel generator area, reactor building ventilation power supply and control areas, and intake structure pump room area.</p> <p>Per the fire hazards analysis, no modifications are required. If the normal ventilation for the diesel generator and intake structure pump room areas is inoperable, ventilation directly to safe outside locations can be provided by opening doors.</p> <p>There are no radioactive materials in these areas. If the normal reactor building ventilation system is inoperable, adequate control and monitoring is provided by ventilating via the Standby Gas Treatment System.</p>
53	APCSB 9.5-1 IV.B.4 (d)	Fixed automatic sprinkler systems should be installed to protect charcoal filters.	<p>There are no fixed automatic sprinkler systems installed to protect charcoal filters.</p> <p>A charcoal fire in the SGTS system will be self limited and contained by isolating the filter train. Therefore, an automatic sprinkler system is not considered to be necessary.</p>
54	APCSB 9.5-1 IV.B.4 (e)	The fresh air supply intakes to areas containing safety related equipment or systems should be located remote from the exhaust air outlets and smoke vents of other fire areas. This is to minimize the possibility of contamination of the intake air with the products of combustion.	The fresh air intakes are located remote from the exhaust air outlets except for the switchgear area. Modifications are unnecessary as gravity venting of this area is adequate (See response to Item 60).

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
55	APCSB 9.5-1 IV.B.4 (f)	Stairwells should be designed to minimize smoke infiltration during a fire.	<p>The administrative building stairwells are designed to minimize smoke infiltration. The stairwells in the reactor and turbine buildings are of open metal construction. They need not be redesigned to minimize smoke infiltration because:</p> <ol style="list-style-type: none"> 1. Each level of these buildings communicate freely via open equipment hatches and other openings. Therefore, enclosure of the stairwells will not prevent the spread of smoke between levels. 2. The heating and ventilating systems for the reactor and turbine buildings were designed with considerations given to the communicating levels. Isolation of these levels would degrade the ventilation and smoke removal capacity of these systems. 3. All communicating floor levels are sufficiently open and unobstructed so that it may be assumed that a fire or other dangerous condition in any part will be immediately obvious to the occupants of all communicating levels and areas. Exit stairways are well separated and sufficient to provide simultaneous evacuation for all the occupants of all the communicating levels and areas.
56	APCSB 9.5-1 IV.B.4 (f)	Staircases should serve as escape routes and access routes for fire fighting.	Staircases are provided throughout the plant and serve as escape routes and access routes for fire fighting.
57	APCSB 9.5-1 IV.B.4 (f)	Fire exit routes should be clearly marked.	<p>Some fire exit routes are not clearly marked. Plant employees are familiar with exit routes. Plant visitors not familiar with the plant layout and exit routes are escorted.</p> <p>Appropriate areas of the plant will be supplied with fire exit signs.</p>
58	APCSB 9.5-1 IV.B.4 (f)	Stairwells, elevators and chutes should be enclosed in masonry towers with minimum three hour fire rating and automatic fire doors at least equal to the enclosure construction, at each opening into the building.	Stairwells, elevators, and chutes are not enclosed in masonry towers with a minimum three hour fire rating. Fire exit routes will be appropriately marked (see response to Item 57). Practice evacuation and re-entry are included in the semi-annual emergency drill.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
59	APCSB 9.5-1 IV.B.4 (f)	Elevators should not be used during fire emergencies.	<p>It is general plant practice not to use elevators in a fire emergency.</p> <p>Signs will be installed at each elevator entrance to assure that the elevator is not used during a fire emergency.</p>
60	APCSB 9.5-1 IV.B.4 (g)	Smoke and heat vents may be useful in specific areas such as cable spreading rooms and diesel fuel oil storage areas and switchgear rooms. When used, they should be installed at a minimum ratio of 1 square foot of venting area per 200 square feet of floor area (the conversion factor for power venting is 300 CFM equals 1 square foot of gravity venting area). Refer to NFPA No. 204 for additional guidance on smoke control.	<p>The cable spreading room ventilation meets the power venting criteria. The switchgear area ventilation meets the power venting and gravity venting criteria. The diesel fuel oil day tank areas do not meet this criteria. We feel that smoke and heat venting of the day tank area is not required or desirable because these areas are small and could not be entered during a fire. Venting would tend to increase the fire intensity by providing oxygen.</p> <p>Investigation of all plant areas with respect to smoke and heat venting has been completed. The torus room does not meet the criteria outlined in Standard Review Plan 9.5.1. Transient scaffolding is stored in this area. However, it is treated with a fire retardant material. The spatial arrangement of the stored scaffolding precludes the involvement of all the combustibles present. It is felt that the smoke and heat produced from a fire in this area would not prevent access for fire fighting purposes.</p>
61	APCSB 9.5-1 IV.B.4 (h)	Self-contained breathing apparatus, using full face positive pressure masks, approved by NIOSH, should be provided for fire brigade, damage control, and control room personnel. Control room personnel may be furnished breathing air by a manifold system piped from a storage reservoir if practical.	<p>We presently have six Scott Presur-Pak II units and two Scott Rescue-Pak units. The Scott Presur-Pak is approved by NIOSH.</p> <p>Additional Scott Presur-Pak units will be obtained to assure an adequate supply.</p>
62	APCSB 9.5-1 IV.B.4 (h)	Service or operating life for self-contained breathing apparatus should be a minimum of ½ hour.	The Presur-Pak II is rated at 30 minutes duration (Bureau of Mines approval #13E-08). The Scott Rescue-Pak is rated at 4 hours duration (Bureau of Mines approval #13E-25).
63	APCSB 9.5-1 IV.B.4 (h)	At least two extra air bottles should be located onsite for each self-contained breathing unit.	The number of air bottles does not meet this criteria. We will obtain additional air bottles such that there are two extra bottles for each self-contained breathing unit.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
64	APCSB 9.5-1 IV.B.4 (h)	An onsite reserve air supply should be provided and so arranged to quickly and fully replenish exhausted supply air bottles as they are returned (6-hours per breathing unit).	We have a recharge system consisting on three cascaded 300-cubic foot cylinders plus four spare cylinders. Additional spare cylinders will be obtained to meet this requirement.
65	APCSB 9.5-1 IV.B.4 (h)	If compressors are used as a source of breathing air, only units approved for breathing air should be used. Also, special care must be taken to locate the compressor in areas free of dust and contaminants.	All self-contained breathing units are supplied by reserve cylinders obtained from a commercial recharge source.
66	APCSB 9.5-1 IV.B.4 (i)	Where total flooding gas extinguishing systems are used, area intake and exhaust ventilation dampers should close upon initiation of gas flow to maintain necessary gas concentration. (See NFPA No. 12, "Carbon Dioxide Systems," and NFPA No. 12A, "Halon 1301 Systems.")	There are no total flooding gas extinguishing systems installed. Any systems which may be installed in the future will meet this requirement.
67	APCSB 9.5-1 IV.B.5 (a)	<u>Lighting and Communication</u> Fixed emergency lighting should be provided consisting of sealed beam units with individual 8-hour minimum battery power supplies.	Emergency DC lighting is provided by two systems; one system illuminates exit paths from the administration building and the other system illuminates the control room and pathways to the diesel generator and 4KV switchgear areas. The probability of a complete loss of essential AC power is extremely low. In the remote chance that AC power is lost, the emergency DC lighting systems provide adequate time for the evacuation of the administration building and restoration of AC power.
68	APCSB 9.5-1 IV.B.5 (b)	Portable emergency lighting should be provided consisting of suitable sealed beam battery powered portable hand lights.	Two portable sealed beam battery powered hand lights are maintained in the control room emergency locker, and one is maintained in shift supervisors locker. In addition, portable hand lights are maintained in the 115KV and 345KV control house at the substation.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
69	APCSB 9.5-1 IV.B.5 (c)	Fixed emergency communication should be installed using voice powered head sets at pre-selected stations.	Primary emergency communications at the Monticello facility are provided by a fixed public address system with stations located throughout the plant and a PABX telephone system with extensions throughout the plant. The public address system is powered by the uninterruptible AC system while the PABX system is powered by a separate battery. Secondary emergency communications are provided by a voice powered phone system with jacks installed throughout the plant. Handsets may be connected at any location.
70	APCSB 9.5-1 IV.B.5 (d)	Fixed repeaters installed to permit use of portable radio communication units should be protected from exposure to fire damage.	No fixed radio communication repeaters are required at the Monticello facility.
71	APCSB 9.5-1 IV.B.6 (a)	<u>Administrative Procedures, Administrative Controls And Fire Brigade</u> Administrative procedures consistent with the need for maintaining the performance of the fire protection system and personnel in nuclear power plants should be provided. Guidance is contained in the following NFPA publications: NFA 4 Organization for Fire Services NFA 4A Organization of a Fire Department NFA 6 Industrial Fire Loss Prevention NFA 7 Management of Fire Emergencies NFA 8 Management Responsibility for Effects of Fire on Operations NFA 27 Private Fire Brigades	The plant emergency plan currently specifies the makeup and directs the actions of emergency teams. Procedural modifications to incorporate the specific guidance contained in the NFPA publications are currently under review.
72	APCSB 9.5-1 IV.B.6 (b)	Effective administrative measures should be implemented to prohibit bulk storage of combustible materials inside or adjacent to safety-related buildings or systems during operation or maintenance periods.	See response to Item 73.
73	APCSB 9.5-1 IV.B.6 (c)	Normal and abnormal conditions or other anticipated operations such as modifications (e.g., breaking fire stops, impairment of fire detection and suppression systems) and refueling activities should be reviewed by appropriate levels of management and appropriate special actions and procedures such as fire watches or temporary fire barriers implemented to assure adequate fire protection and reactor safety. In particular: (1) Work involving ignition sources such as welding and flame cutting should be done	Existing work control procedures include consideration of the need for special action and procedures, such as fire watches. Almost all work involving ignition sources, such as welding and cutting, is governed by the existing work control processes. The NSP Safety Practices Manual establishes general housekeeping practices. Existing work control processes include consideration of control of combustible material.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
		<p>under closely controlled conditions. Procedures governing such work should be reviewed and approved by persons trained and experienced in fire protection. Persons performing and directly assisting in such work should be trained and equipped to prevent and combat fires. A person trained in fire protection should directly monitor the work and function as a fire watch.</p> <p>(2) Leak testing, and similar procedures such as air flow determination, should use one of the commercially available aerosol techniques. Open flames or combustion generated smoke should not be permitted.</p> <p>(3) Use of combustible material (e.g., HEPA and charcoal filters, dry ion exchange resins or other combustible supplies) in safety related areas should be controlled. Use of wood inside buildings containing safety related systems or equipment should be permitted only when suitable non-combustible substitutes are not available. If wood must be used, only fire retardant treated wood (scaffolding, lay down blocks) should be permitted. Such materials should be allowed into safety related areas only when they are to be used immediately. Their possible and probable use should be considered in the fire hazard analysis to determine the adequacy of the installed fire protection systems.</p>	<p>Maintenance personnel involved in such work have received fire protection training and all NSP personnel participate in periodic safety meetings which include training in fire prevention and fire fighting. Personnel from offsite organizations are required to attend an indoctrination which includes fire protection training.</p> <p>Equipment necessary to prevent or combat fires, such as asbestos blankets and fire extinguishers, is provided.</p> <p>A permit system which will encompass all welding and torch use in the plant is being developed to prevent unauthorized use of welding or cutting equipment and further assure that special precautions, such as fire watches, or temporary fire barriers, are implemented when necessary.</p> <p>Use of open flames will be prohibited by administrative directive. Use of combustion generated smoke (except use with an approved procedure) will be prohibited by administrative directive.</p> <p>All wood presently used in the plant will be treated with fire retardant. Only fire retardant treated wood will be used in the future. Requirements related to storage of combustible materials and restrictions on the use of combustible material in safety related areas will be included in administrative directives.</p> <p>The use of combustible materials was considered in the fire hazards analysis and the adequacy of installed fire protection systems was determined.</p>
74	APCSB 9.5-1 IV.B.6 (d)	Public fire department response should be considered in the overall fire protection program. However, the plant should be designed to be self sufficient with respect to fire fighting activities and rely on the public response only for supplemental or backup capability.	The plant is designed to be self-sufficient with respect to fire fighting activities. The Plant Emergency Plan provides for response by the local fire department if requested by the Emergency Director.
75	APCSB 9.5-1 IV.B.6 (e)	The site Emergency Plan and specific emergency procedures should follow the guidance contained in Regulatory Guide 1.101, "Emergency Planning for Nuclear Power Plants," where applicable.	The Monticello Emergency Plan and specific emergency procedures follow the guidance contained in Regulatory Guide 1.101.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
76	APCSB 9.5-1 IV.B.6 (e)(1)	A test plan should be developed which lists the individuals and their responsibilities in connection with routine tests and inspections of the fire detection and protection systems. The test plan should contain the types, frequency, and detailed procedures for testing. Procedures should also contain instructions on maintaining fire protection during those periods of fire protection system impairment or maintenance such as fire watches or temporary hose connections to water systems.	There is no test plan specifically for fire detection and protection system tests and inspections, however all of the desired elements of a fire detection and protection system test plan are provided. The schedule for all surveillance requirements identifies the type, frequency, and group responsible. Detailed procedures for testing and other record documents are kept in controlled files. Records Management Procedures, Document Control Procedures, and a Surveillance Program document specify individual responsibilities and administrative procedures for surveillance. All types of surveillances are scheduled, assigned, performed, reviewed and documented by the same method. Preparation of a separate test plan for fire detection and protection systems would be totally redundant to existing documents and procedures. Experience has shown that it is impractical to include detailed test procedures, which may require frequent and individual revision, as part of a plan document.
77	APCSB 9.5-1 IV.B.6 (e)(2)	Drills for the fire brigade should be conducted at least quarterly so that all members of the brigade have had the opportunity to train as a team, testing itself in the major areas of the plant. The drills should include the simulated use of equipment in each area and should be preplanned and post-critiqued to establish the training objective of the drills and determine how well these objectives have been met.	<p>No formal program exists that requires periodic drills for the emergency team assigned fire fighting responsibilities. On June 4, 1975 a semi-annual Emergency Procedures Test was conducted. This test simulated a fire in the recombiner building which required a response by the plant emergency teams and the Monticello Fire Department. The Semi-annual Emergency Procedures Test conducted October 27, 1976 included a simulated fire in the diesel generator day tank room. These drills involved simulated use of equipment and performance during the drills was post-critiqued.</p> <p>Semi-annual drills for the emergency team assigned fire fighting responsibilities will be conducted. Drill guides will be prepared to establish the training objectives and anticipated response, including simulated use of equipment, for the drills. Drill performance will be monitored and post critiqued. This drill frequency is consistent with that established for emergency procedures drills.</p>

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
78	APCSB 9.5-1 IV.B.6 (e)(2)	Drills should periodically (at least annually) include local fire department participation where possible.	A drill has been conducted with the local fire department (See Item 77). Plant fire drills will be formalized to include annual participation of the local fire department.
79	APCSB 9.5-1 IV.B.6 (e)(3)	Members of each shift crew should be trained in fire protection.	Members of the operating shifts conduct and document monthly safety group meetings. The Safety Group chairman acquaints new members with standard safety practices, conducts refresher training in standard safety practices for group members, and reports instances of unsafe practices or conditions. The safety practices that are discussed include fire prevention measures and fire fighting techniques. The discussions are supplemented with review of relevant published material. Additionally, members of the operating shifts receive annual training in fire prevention and fire fighting techniques. This training includes a review of the facility fire protection system and its function. The training is supplemented by films and review of relevant published material.
80	APCSB 9.5-1 IV.B.6 (e)(3)	Training of the plant fire brigade should be coordinated with the local fire department so that responsibilities and duties are delineated in advance.	See response to Item 81.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
81	APCSB 9.5-1 IV.B.6 (e)(3)	Coordination with the plant fire brigade should be part of the training course and implemented into the training of the local fire department staff.	<p>The organization and actions concerning site and offsite activities during an emergency are delineated in the emergency procedures. During fire emergencies the Monticello volunteer fire department may be requested to provide assistance, however their actions will be directed by site personnel. Local fire department personnel have been given tours of the plant and have received training in the special hazards and precautions associated with a nuclear power plant site, however it has not been on a regularly scheduled basis.</p> <p>Annual training of the local fire department will be provided to include:</p> <ol style="list-style-type: none"> 1) designation of responsibilities and authority 2) tour of the plant with emphasis on fire fighting capabilities and potential fire hazards 3) appropriate radiation protection training 4) discussion of operational precautions.
82	APCSB 9.5-1 IV.B.6 (e)(3)	Local fire departments should be educated in the operational precautions when fighting fires on nuclear power plant sites.	See response to Item 81.
83	APCSB 9.5-1 IV.B.6 (e)(3)	Local fire departments should be made aware of the need for radioactive protection of personnel and the special hazards associated with a nuclear power plant site.	See response to Item 81.
84	APCSB 9.5-1 IV.B.6 (e)(4)	<p>NFPA 27, "Private Fire Brigade," should be followed in organization, training, and fire drills. This standard also is applicable for the inspection and maintenance of fire fighting equipment. Standards referenced from this document which should be utilized are:</p> <p>NFPA 194, "Standard for Screw Threads and Gaskets for Fire Hose Couplings"</p> <p>NFPA 196, "Standards for Fire Hose"</p> <p>NFPA 197, "Training Standard on Initial Fire Attacks"</p> <p>NFPA 601, "Recommended Manual of Instructions and Duties for the Plant Watchman on Guard".</p> <p>NFPA booklets and pamphlets listed on page 27-11 of Volume 8, 1971-72 are also applicable for good training references.</p>	<p>NFPA No. 27 and references have been reviewed. The following actions will be taken to assure conformance:</p> <ol style="list-style-type: none"> 1. Fire brigade chiefs and assistant chiefs will be appointed to provide 24 hour coverage. 2. A training program will be formulated. 3. Drills will be performed on a periodic basis. 4. A survey will be conducted to determine equipment adequacy. 5. Special fire fighting equipment will be listed in the emergency procedures.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
85	APCSB 9.5-1 IV.B.6 (e)(4)	Courses in fire prevention and fire suppression which are recognized and/or sponsored by the fire protection industry should be utilized.	The Power Production Department safety coordinator has attended fire prevention and fire suppression courses sponsored by the fire protection industry. The services of this individual have been utilized in conducting training for the plant emergency teams. This training will continue on an annual basis to update emergency teams with respect to current practice.
86	APCSB 9.5-1 IV.B.7	<u>Quality Assurance Program</u> QA Program should be developed and implemented to assure that the requirements for design, procurement, installation, and testing and administrative controls for the fire protection program for safety-related areas are satisfied.	The present directives on design changes provide for the design of all modifications to applicable standards which include fire protection standards. These directives address design, procurement, installation and testing of all changes and additions to the original plant design.
87	APCSB 9.5-1 IV.B.7	The QA Program (related to fire protection) should be under the management control of the QA organization.	The QA program related to fire protection is under the management control of the NSP Operational QA organization.
88	APCSB 9.5-1 IV.B.7 (a)	The QA Program criteria that apply to the fire protection program should include design control and procurement document control. Measures should be established to assure that all design-related guidelines of BTP APCS 9.5-1 are included in design and procurement documents and that deviations therefrom are controlled.	See response to Item 86. Design Change directives will be revised to include reference to BTP APCS 9.5-1.
89	APCSB 9.5-1 IV.B.7 (b)	The QA Program criteria that apply to the fire protection program should include instructions, procedures, and drawings. Inspections, tests, administrative controls, fire drills, and training which govern the fire protection program should be prescribed by documented instructions, procedures, or drawings and should be accomplished in accordance with these documents.	Plant administrative controls and procedures address testing, maintenance, training and inspections in all safety related areas. A review of documents will be performed to insure that fire protection procedures and controls are adequate.
90	APCSB 9.5-1 IV.B.7 (c)	The QA Program criteria that apply to the fire protection program should include control of purchased material, equipment, and services. Measures should be established to assure that purchased material, equipment, and services conform to the procurement documents.	Normal procedures and directives insure that purchase order specifications are complied with when material is received.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
91	APCSB 9.5-1 IV.B.7 (d)	The QA Program criteria that apply to the fire protection program should include provision for inspection. A program for independent inspection of activities affecting fire protection should be established and executed by, or for, the organization performing the activity to verify conformance with documented installation drawings and test procedures for accomplishing the activities.	Periodically, representatives from NELPIA, NSP insurance carriers, and NSP insurance department representatives inspect the plant. These inspections insure that the protection program is adhered to.
92	APCSB 9.5-1 IV.B.7 (e)	The QA Program criteria that apply to the fire protection program should include provision for test and control. A test program should be established and implemented to assure that testing is performed and verified by inspection and audit to demonstrate conformance with design and system readiness requirements. The tests should be performed in accordance with written test procedures and test results should be properly evaluated and acted on.	Present plant written surveillance procedures ensure adequate testing of the plants fire protection provisions.
93	APCSB 9.5-1 IV.B.7 (f)	The QA Program criteria that apply to the fire protection program should include provision for identification of items which have satisfactorily passed required tests and inspections.	Plant surveillance procedures normally contain acceptance criteria and instructions on what to do if the criteria are not met.
94	APCSB 9.5-1 IV.B.7 (g)	The QA Program criteria that apply to the fire protection program should include measures to control items which do not conform to specified requirements to prevent inadvertent use or installation.	Purchasing and receiving procedures provide for identification of non-conforming material and subsequent disposal of such material.
95	APCSB 9.5-1 IV.B.7 (h)	The QA Program criteria that apply to the fire protection program should include measures to assure that conditions adverse to fire protection, such as failures, malfunctions, deficiencies, deviations, defective components, uncontrolled combustible material and non-conformances, are promptly identified, reported and corrected.	Inspections and plant surveillance testing identify conditions adverse to fire protection. Work requests are issued and acted upon to correct these deficiencies.
96	APCSB 9.5-1 IV.B.7 (i)	The QA Program criteria that apply to the fire protection program should include provision for records. Records should be prepared and maintained to furnish evidence that the criteria contained in the program are being met.	All testing procedures and inspection reports are retained for the required length of time. Corrective action reports are retained.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
97	APCSB 9.5-1 IV.B.7 (j)	The QA Program criteria that apply to the fire protection program should include provision for audits. Audits should be conducted and documented to verify compliance with the fire protection program, including design and procurement documents, instructions, procedures, drawings, and inspection and test activities	Audits are performed by NELPIA, NSP insurance underwriters, and NSP insurance department representatives. These audits cover all aspects of fire protection.
98	APCSB 9.5-1 IV.C.1 (a)	<u>Fire Detection</u> Fire detection systems should as a minimum comply with NFPA No. 72D, "Standard for Installation, Maintenance and Use of Proprietary Protective Signaling Systems."	The fire detection systems installed at Monticello comply with the requirements of NFPA standard 72D with one exception. The trouble signal from the smoke detector devices is not connected to an annunciator separate from the alarm signal; instead, the two signals share a common annunciator. This condition does not, however, detract from the effectiveness of the alarm system since any alarm would be treated as a fire alarm until the condition is verified locally. Each local smoke detector control unit has separate indications for alarm and trouble conditions which would be used for determining the cause of the control room alarm.
99	APCSB 9.5-1 IV.C.1 (b)	Fire detection systems should give audible and visual alarm and annunciation in the control room. Local audible alarms should also sound at the location of the fire.	All fire detection systems give audible and visual alarm and annunciate in the control room. Local audible alarms sound near the location of all detectors.
100	APCSB 9.5-1 IV.C.1 (c)	Fire alarms should be distinctive and unique. They should not be capable of being confused with any other plant working system.	The local audible alarms initiated by the fire protection system are bells which are easily distinguishable from the sounds of other plant systems. Alarms in the control room are unique by their grouping and location.
101	APCSB 9.5-1 IV.C.1 (d)	Fire detection and actuation systems should be connected to the plant emergency power supply.	The fire detection and deluge actuation systems at Monticello are powered from sources connected to the plant emergency AC power system or from the station batteries.
102	APCSB 9.5-1 IV.C.2 (a)	<u>Fire Protection Water Supply Systems</u> An underground yard fire main loop should be installed to furnish anticipated fire water requirements.	The installed underground yard fire main loop is capable of furnishing anticipated water requirements to all potential fire locations.
103	APCSB 9.5-1 IV.C.2 (a)	Lined steel or cast iron pipe should be used in the yard fire main loop to reduce internal tuberculation. Means for treating and flushing should be provided.	The installed yard fire main loop is cast iron. The yard fire main is periodically flushed through the installed hydrants.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
104	APCSB 9.5-1 IV.C.2 (a)	The yard fire main loop should use approved visually indicating sectional control valves, such as Post Indicator Valves, to isolate portions of the main for maintenance or repair without shutting off the entire system.	The yard system is fitted with post indicator valves for isolation of any portion of the loop, branches, or hydrants for maintenance or repair without shutting off the entire system.
105	APCSB 9.5-1 IV.C.2 (a)	The fire main system piping should be separate from service or sanitary water system piping.	There is no connection between the fire system and the sanitary water system. The only connection between the fire main and the service water system is through a jockey pump. This pump uses service water as the source for maintaining the fire system pressurized during standby operation. This pump and service water connection are automatically isolated upon startup of the fire system pumps by means of a check valve. Also, the pump and service water connection can be isolated by closure of two isolation valves installed in the connection line. This installation and capacity to isolate is acceptable according to Appendix A to Branch Technical Position 9.5-1.
106	APCSB 9.5-1 IV.C.2 (b)	A common yard fire main loop may serve multi-unit nuclear power plant sites, if cross-connected between units. Sectional control valves should permit maintaining independence of the individual loop around each unit. For such installations, common water supplies may also be utilized. The water supply should be sized for the largest single expected flow. Simultaneous fires in more than one reactor unit need not be considered. Due to separation requirements, a fire involving more than one reactor unit need not be considered except for facilities shared between units.	Monticello is a single unit nuclear power plant site and this guideline does not apply.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
107	APCSB 9.5-1 IV.C.2 (c)	If pumps are required to provide pressure and/or flow requirements (for fire protection water supply system), redundant 100% capacity pumps should be provided. Each pump should have its own independent water supply. The connection to the yard fire main loop from each fire pump should be widely separated, preferably located on opposite sides of the plant. Each pump should have its own driver with independent power supplies and control. At least one pump should be driven by non-electrical means, preferably diesel engine. Pumps and drivers should be located in rooms, separated from the remaining pumps and equipment by a minimum three-hour fire wall. Alarms indicating pump running, driver availability, or failure to start should be provided in the control room. Details of the fire pump installation should as a minimum conform to NFPA No. 20, "Standard for the Installation of Centrifugal Fire Pumps."	There are three 50% capacity pumps; a 1500 gpm electric motor driven vertical centrifugal fire pump, a 1500 gpm diesel driven vertical centrifugal fire pump, and an additional backup 1500 gpm electric motor driven vertical centrifugal pump normally assigned as a screen wash pump. The diesel driven fire pump takes its suction from a different intake bay than the electrically driven pumps. The connections to the yard fire main loop for the diesel fire pump and the electrically driven pumps are separated by approximately 50 feet. Each pump has its own driver with independent power supplies and controls. The diesel fire pump and driver are located in structures which are separated from the remaining pumps and equipment by a minimum three-hour fire wall. Both fire pumps have alarms in the control room indicated pump running and loss of power (driver availability). Details of the fire pump installation conform to NFPA No. 20 "Standard for the Installation of Centrifugal Fire Pumps."
108	APCSB 9.5-1 IV.C.2 (d)	Two separate reliable water supplies should be provided (for the fire protection water supply system).	The fire system utilizes one source of water (the Mississippi River) for its supply. There are two paths by which water can be taken from the river; the normal plant intake and the cooling tower return line to the plant.
109	APCSB 9.5-1 IV.C.2 (e)	The fire water supply (total capacity and flow rate) should be calculated on the basis of largest expected flow rate for a period of two hours, but not less than 300,000 gallons. This flow rate should be based (conservatively) on 1000 gpm for manual hose streams plus the greater of: (1) all sprinkler heads opened and flowing in the largest designed fire area; or (2) the largest open head deluge system(s) operating.	The fire water supply is the Mississippi River.
110	APCSB 9.5-1 IV.C.2 (f)	Lakes or fresh water ponds of sufficient size may qualify as sole source of water for fire protection, but require at least two intakes to the pump supply.	No lakes or ponds are utilized as the source of water for fire protection. There are two methods of supplying river water for fire protection. Refer to Item 108.

01374659

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
111	APCSB 9.5-1 IV.C.2 (f)	When a common water supply is permitted for fire protection and the ultimate heat sink, the following should also be satisfied: (1) The additional fire protection water requirements are designed into the total storage capacity; and (2) Failure of the fire protection system should not degrade the function of the ultimate heat sink.	The water supply for fire protection and the ultimate heat sink is the Mississippi River. The additional fire protection water supply requirements do not affect the capacity of the water supply. Failure of the fire protection system will not degrade the function of the ultimate heat sink.
112	APCSB 9.5-1 IV.C.2 (g)	Outside manual hose installation should be sufficient to reach any location with an effective hose stream. To accomplish this, hydrants should be installed approximately every 250 feet on the yard main system.	Outside manual hose stations are sufficient to reach any location with an effective hose stream. The hydrants are installed at approximately 220 feet intervals along the yard main.
113	APCSB 9.5-1 IV.C.2 (g)	The lateral to each hydrant on the yard main system should be controlled by a visually indicating or key operated (curb) valve.	The laterals from our yard main are controlled by visually indicating valves.
114	APCSB 9.5-1 IV.C.2 (g)	A hose house, equipped with hose and combination nozzle and other auxiliary equipment recommended in NFPA 24, "Outside Protection," should be provided as needed, but at least every 1000 feet.	The hose houses are built around hydrants which are spaced at 220' intervals. The equipment furnished with each hose house does not correspond to the list suggested by NFPA 24, however, the equipment provided meets NELPIA requirements.
115	APCSB 9.5-1 IV.C.2 (g)	Threads compatible with those used by local fire departments should be provided on all hydrants, hose couplings and standpipe risers.	All threads are compatible with those used by the local fire department.
116	APCSB 9.5-1 IV.C.3 (a)	<u>Water Sprinkler and Standpipe Systems</u> Each automatic sprinkler system and manual hose station should have an independent connection to the plant underground water main. Headers fed from each end are permitted inside buildings to supply multiple sprinkler and standpipe systems. When provided, such headers are considered an extension of the yard main system. Such headers should be located in separate valve rooms with three-hour fire rated walls and with interior and exterior access.	The automatic sprinkler systems and manual hose stations inside the plant do not meet these requirements. There is no practical way to modify the existing fire system supply piping to provide independent connection to the underground water main. The license amendment request dated January 31, 1977, proposed limiting conditions for operation in the event that the supply of fire suppression water to safety related structures, systems or components is interrupted.
117	APCSB 9.5-1 IV.C.3 (a)	Each sprinkler and standpipe system should be equipped with OS&Y (outside screw and yoke) gate valve, or other approved shut off valve, and water flow alarm.	All shutoff valves for our sprinkler system are OS&Y gate valves. Also, all of our sprinkler systems have a water gong with the exception of the M-G set room, which has an alarm bell operated by the trip weight in the clapper valve.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
118	APCSB 9.5-1 IV.C.3 (a)	Safety related equipment which does not itself require sprinkler water fire protection, but is subject to unacceptable damage if wetted by sprinkler water discharge, should be protected by water shields or baffles.	There is no safety related equipment which is subject to unacceptable damage if wetted by sprinkler water discharge. The equipment listed in response to Item 42 is subject only to hose or extinguisher water discharge.
119	APCSB 9.5-1 IV.C.3 (b)	All valves in the fire water systems should be electrically supervised. The electrical supervision signal should indicate in the control room and other appropriate command locations in the plant. Refer to NFPA No. 26, "Supervision at Valves."	<p>The isolation valves for each sprinkler system in the plant (except for the Recirc M-G set sprinklers and the lube oil piping sprinkler system under the turbine floor) are electrically supervised in the control room. The Recirc M-G set sprinkler system isolation valves are electrically supervised locally. The lube oil piping sprinkler system isolation valve is maintained locked open and the key is controlled by the shift supervisor. The deluge header to the main transformer, 1R startup transformer, #11 auxiliary transformer, and turbine building siding deluges contains an isolation valve that is also electrically supervised and indicates in the control room. No other valves in the fire water system are electrically supervised.</p> <p>Electrical supervision of the remaining valves in the fire water system is not practical due to the large number of valves involved. As an alternative, the present management supervision program of the valves will be upgraded with the addition of the following:</p> <ol style="list-style-type: none"> 1) Where not presently provided, tamper proof seals will be installed on fire water system valves. 2) Every valve in the fire water system will be inspected on a more frequent basis. <p>This will provide a reliable, appropriate, and practical alternative method of supervision. This is consistent with Appendix A to Branch Technical Position APCS 9.5-1.</p>
120	APCSB 9.5-1 IV.C.3 (c)	Automatic sprinkler systems should as a minimum conform to requirements of appropriate NFPA Standards such as NFPA No. 13, "Standard for the Installation of Sprinkler Systems," and NFPA 15, "Standard for Water Spray Fixed Systems."	The original design specifications required that systems comply with the requirements of NFPA No. 13 and NFPA No. 15. The sprinklers in the recirculation pump M-G set room were not involved in the original plant design, however, they also comply with these standards.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
121	APCSB 9.5-1 IV.C.3 (d)	Interior manual hose installation should be able to reach any location with at least one effective hose stream. To accomplish this, standpipes with hose connections, equipped with a maximum of 75 feet of 1-1/2 inch woven jacket-lined fire hose and suitable nozzles should be provided in all buildings, including containment, on all floors and should be spaced at not more than 100 foot intervals. Individual standpipes should be of at least 4-inch diameter for multiple hose connections and 2-1/2 inch diameter for single hose connections. These systems should follow the requirements of NFPA No. 14, "Standpipe and Hose Systems," for sizing, spacing and pipe support requirements.	<p>Our hose connections are equipped with 75' of 1-1/2" unlined linen hose. All hoses are inspected for serviceability on an annual basis. Hoses showing signs of deterioration will be replaced. All nozzles are designed for fighting electrical fires. In some cases the hose stations are spaced at slightly more than 100' intervals, however effective hose stream coverage is available at all locations as required by NFPA No. 14.</p> <p>In some cases we do not meet the requirement for 4" diameter multiple connection and 2-1/2" single connection standpipe requirements. However, the system was designed to meet National Fire Code requirements and we believe the standpipe sizing is adequate.</p> <p>Hose stations are not provided in primary containment. Refer to Items 138 and 139.</p>
122	APCSB 9.5-1 IV.C.3 (d)	Hose stations should be located outside entrances to normally unoccupied areas and inside normally occupied areas.	We meet this requirement with the exception of the control room. Refer to Item No. 142.
123	APCSB 9.5-1 IV.C.3 (d)	Standpipes serving hose stations in areas housing safety related equipment should have shut-off valves and pressure reducing devices (if applicable) outside the area.	We do not use pressure reducing devices since they are not required if the system pressure doesn't exceed 100 psi (NFPA #14). There are shut-off valves located at each of the hose stations. All supply headers have post indication valves located outside the areas being served.
124	APCSB 9.5-1 IV.C.3 (d)	Provisions should be made to supply water at least to standpipes and hose connections for manual fire fighting in areas within hose reach of equipment required for safe plant shutdown in the event of a SSE.	See response to Item 121.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
125	APCSB 9.5-1 IV.C.3 (d)	The standpipe system serving hose stations in areas within hose reach of equipment required for safe plant shutdown should be analyzed for SSE loading and be provided with supports to assure system pressure integrity. Associated piping and valves should at least satisfy ANSI B31.1, "Power Piping." The water supply for this condition may be obtained by manual operator actuation of valve(s) in a connection to the hose standpipe header from a normal seismic Category I water system such as the Essential Service Water System. In this case, the cross connection should be: (a) capable of providing flow to at least two hose stations (approximately 150 gpm per hose station). (b) designed to the same standards as the seismic Category I water system and should not degrade the performance of the seismic Category I water system.	Appendix A to Branch Technical Position APCS 9.5-1 indicates that this item is not applicable to operating plants.
126	APCSB 9.5-1 IV.C.3 (e)	The proper type of hose nozzle to be supplied in each area should be based on the fire hazard analysis. The usual combination spray straight stream may cause unacceptable mechanical damage, (for instance delicate electronic equipment in the control room) and be unsuitable. Electrically safe nozzles should be provided at locations where electrical equipment or cabling is located.	We use electrically safe nozzles throughout the plant.
127	APCSB 9.5-1 IV.C.3 (f)	Consideration should be given to the use of any of the available foams for specialized protection application (flammable liquids).	Foams are not currently used.
128	APCSB 9.5-1 IV.C.4	<u>Halon Suppression Systems</u> The use of Halon fire extinguishing agents should as a minimum comply with the requirements of NFPA No. 12A and No. 12B, "Halogenated Fire Extinguishing Agent Systems - Halon 1301 and Halon 1211."	Not applicable. No Halon systems or extinguishers are installed.
129	APCSB 9.5-1 IV.C.4	Only UL of FM approved Halon agents should be used.	Not applicable. No Halon systems or extinguishers are installed.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
130	APCSB 9.5-1 IV.C.4	Preventative maintenance and testing of Halon fire extinguishing systems, including check weighing of the Halon cylinders, should be done at least quarterly. Consideration should be given to: <ul style="list-style-type: none"> (a) minimum required Halon concentration and soak time (b) toxicity of Halon (c) toxicity and corrosive characteristics of thermal decomposition products of Halon 	Not applicable. No Halon systems or extinguishers are installed.
131	APCSB 9.5-1 IV.C.5	<u>Carbon Dioxide Suppression Systems</u> The use of carbon dioxide extinguishing systems should as a minimum comply with the requirements of NFPA No. 12, "Carbon Dioxide Extinguishing Systems." Particular consideration should be given to: <ul style="list-style-type: none"> (a) minimum required CO₂ concentration and soak time. (b) toxicity of CO₂. (c) possibility of secondary thermal shock (cooling) damage. (d) offsetting requirements for venting during CO₂ injection to prevent overpressurization versus sealing to prevent loss of agent. (e) design requirements from overpressurization. (f) possibility and probability of CO₂ systems being out of service due to personnel safety consideration (CO₂ systems are disarmed whenever people are present in an area so protected). 	Not applicable. No CO ₂ systems are installed. Systems which may be installed in the future will comply with NFPA 12.
132	APCSB 9.5-1 IV.C.6	<u>Portable Extinguishers</u> Portable extinguishers should be provided in accordance with guidelines of NFPA No. 10 and No. 10A, "Portable Fire Extinguishers, Installation" and "Portable Fire Extinguishers, Maintenance and Use." Dry chemical extinguishers should be installed with due consideration given to cleanup problems after use and possible adverse effects on equipment installed in the area.	Portable extinguishers were originally located in accordance with NFPA No. 10. We will evaluate all areas of the plant to determine that the proper type of extinguisher is still being utilized in each area.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
133	APCSB 9.5-1 IV.D.1 (a)	<u>Guidelines For Specific Plant Areas</u> <u>Primary and Secondary Containment</u> <u>Normal Operation</u> Fire protection requirements for the primary and secondary containment areas should be provided on the basis of specific identified hazards. For example: (a) lubricating oil or hydraulic fluid (b) cable tray arrangements and cable penetrations (c) charcoal filters	Existing fire protection provisions for the primary and secondary containment are discussed in Items 138 and 139. Additional fire protection requirements applicable to secondary containment are included in the response to Items 30 and 44. No additional provisions are planned for the primary containment.
134	APCSB 9.5-1 IV.D.1 (a)	Primary containment and secondary containment (if normally inaccessible) should be provided with fire protection from automatic fixed systems. Automatic sprinklers should be installed for those hazards identified as requiring fixed suppression.	Primary containment is inerted during normal operation, and therefore automatic fire suppression capability is not required.
135	APCSB 9.5-1 IV.D.1 (a)	Operation of the fire protection systems should not compromise containment integrity and/or other safety related systems. Fire protection activities in the containment areas should function in conjunction with total containment requirements such as ventilation, control of contaminated liquid, and gaseous release.	Operation of fire protection systems will not compromise containment integrity. Operation of fire protection equipment near safety related systems is discussed in Item 11. Control of ventilation and gaseous releases is not degraded by fire protection activities. All liquids entering drains in containment are controlled.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
136	APCSB 9.5-1 IV.D.1 (a)	Fire detection systems (installed in containment) should alarm and annunciate in the control room. These systems should utilize detection and location most suitable to the particular type of fire expected from the identified hazard.	<p>There are currently no fire alarms located within the primary containment.</p> <p>Fire detection systems which alarm and annunciate in the control room are installed in the following areas of the secondary containment:</p> <ul style="list-style-type: none"> • RHR & Core Spray pump rooms – Zones 1A & 1B • RCIC room – Zone 1C • HPCI room – Zone 1E • TIP drive and RCIC room entry – Zone 2A • CRD hydraulic unit areas – Zone 2B & 2C • MCC and SLC areas – Zone 3B & 3C • RBCCW pump and chiller area – Zone 3D • Equipment hatch area – Zone 4A • RBCCW heat exchanger area – Zone 4B • Refueling floor – Zone 6 <p>Products of combustion from a fire in the lower levels of the building would be expected to rise through the open equipment hatch and stairwells. Therefore, general area fire protection capability will be provided by the detection system in fire zone 6.</p>
137	APCSB 9.5-1 IV.D.1 (a)	A primary containment general area fire detection capability should be provided as backup for specific hazard detection alarms. To accomplish this, suitable smoke detectors should be installed in the air recirculation system ahead of any filters.	See Item No. 136
138	APCSB 9.5-1 IV.D.1 (a)	Automatic fire suppression capability need not be provided in the primary containment atmospheres that are inerted during normal operation. However, special fire protection requirements during refueling and maintenance operations should be satisfied.	Containment is inerted during normal operation. Special fire protection requirements during refueling and maintenance operations are considered in our work control processes (See response to Item #73).

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
139	APCSB 9.5-1 IV.D.1 (b)	<u>Refueling and Maintenance</u> Manual fire fighting capability should be permanently installed in containment. Standpipes with hose stations, and portable fire extinguishers, should be installed at strategic locations throughout containment for any required manual fire fighting operations.	Standpipes with hose stations and portable fire extinguishers are installed at strategic locations throughout secondary containment. A hose station is located near the primary containment equipment hatch, which is normally open during refueling. Portable fire extinguishers are available for use inside containment during outages. Due to the primary containment environmental conditions and inaccessibility for inspection during normal operation, it is felt that permanent installation of hose stations and portable extinguishers is imprudent.
140	APCSB 9.5-1 IV.D.1 (b)	Adequate self-contained breathing apparatus should be provided for fire fighting and damage control personnel and located near the containment entrances. These units should be independent of any breathing apparatus or air supply systems provided for general plant activities.	Adequate self-contained breathing units are located in the access control area to the reactor building. These units will not be used for general plant activities.
141	APCSB 9.5-1 IV.D.2	<u>Control Room</u> The control room must be protected against disabling fire damage and should be separated from other areas of the plant by floors, walls and roof having minimum fire resistance ratings of three hours.	The control room is located in a building separate from the turbine and reactor buildings. This affords a high degree of protection. The fire hazards analysis did not identify any inadequacies in the barriers protecting the control room.
142	APCSB 9.5-1 IV.D.2	Manual fire fighting capability should be provided in the control room to combat: (a) fire originating within a cabinet or console (b) exposure fires involving combustibles in the general room area. Hose stations and portable extinguishers should be located in the control room to eliminate the need for operators to leave the control room.	Two portable fire extinguishers (CO ₂) are located inside the control room. A hose station is located outside the control room approximately 15 feet from the door. This complies with Appendix A to Branch Technical Position APCS 9.5-1.
143	APCSB 9.5-1 IV.D.2	An additional hose piping shut-off valve and pressure reducing device should be installed outside the control room.	This item is not applicable. (See response to Item 142).

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
144	APCSB 9.5-1 IV.D.2	Nozzles which are compatible with the hazards and equipment in the control room should be provided for the manual hose station(s). The nozzles chosen should satisfy actual fire fighting needs and satisfy electrical safety and minimize physical damage to electrical equipment from hose stream impingement.	See response to Item 126.
145	APCSB 9.5-1 IV.D.2	Fire detection in the control room, cabinets, and consoles should be provided by smoke and heat detectors in each fire area. Alarm and annunciation should be provided in the control room. Fire alarms in other parts of the plant should also be alarmed and annunciated in the control room.	Ionization type detectors are installed in the control room and in closed control room cabinets or consoles containing or adjacent to safety related equipment. Audible alarms at each control room detector location are sufficient to alert the operators and identify the fire location. Alarms in other parts of the plant are discussed in Item 99.
146	APCSB 9.5-1 IV.D.2	Breathing apparatus for control room operators should be readily available.	There are two self-contained breathing units located in the control room.
147	APCSB 9.5-1 IV.D.2	Control room floors, floor-ceiling structures, and walls including penetrations and doors, should be designed to a minimum three-hour fire rating. All penetration seals should be air tight.	See response to Item 141.
148	APCSB 9.5-1 IV.D.2	The control room ventilation intake should be provided with smoke detection capability to automatically alarm locally and isolate the control room ventilation system to protect operators by preventing smoke from entering the control room. Manually operated venting of the control room should be available so that operators have the option of venting for visibility.	Modifications to meet detection, alarm and isolation requirements will be made. A manual override will be included in this modification.
149	APCSB 9.5-1 IV.D.2	Cables should not be located in concealed floor and ceiling spaces in the control room. All cables which enter the control room should terminate in the control room. That is, no cabling should be simply routed through the control room from one area to another.	See Item 49.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
150	APCSB 9.5-1 IV.D.2	Safety related equipment should be mounted on pedestals or the control room should have curbs and drains to direct water away from such equipment. Such drains should be provided with means for closing to maintain integrity of the control room in the event of other accidents requiring control room isolation.	According to Appendix A to Branch Technical Position APCS 9.5-1, this item is not applicable to operating plants. It is noted that there are no terminal boards or other safety related equipment within 6" of the control room floor. A hose would have to come through the control room door which would provide a method of drainage.
151	APCSB 9.5-1 IV.D.3	<u>Cable Spreading Room</u> The primary fire suppression in the cable spreading room should be an automatic water system such as closed head sprinklers, open head deluge, or open directional spray nozzles. Deluge and open spray systems should have provisions for manual operation at a remote station; however, there should be provision to preclude inadvertent operation. Location of sprinkler heads or spray nozzles should consider cable tray sizing and arrangements to assure adequate water coverage.	There is no automatic water system installed in the cable spreading room. A fixed system utilizing either CO ₂ or Halon will be installed (see Item No. 155). The fire hazards analysis indicates that an automatic CO ₂ or Halon system will provide adequate protection while avoiding potential water damage to relays, controls and other equipment. Therefore, we do not plan to install a water spray system.
152	APCSB 9.5-1 IV.D.3	Cables (in the cable spreading room) should be designed to allow wetting down with deluge water without electrical faulting.	See response to Item 40.
153	APCSB 9.5-1 IV.D.3	Open head deluge and open directional spray systems should be zoned so that a single failure will not deprive automatic fire suppression capability to the entire area.	See response to Item 151.
154	APCSB 9.5-1 IV.D.3	The automatic water suppression system should be backed up. Manual hoses and portable extinguishing equipment is acceptable for this provided: (a) at least two remote and separate entrances are provided to the room for access by fire brigade personnel; and (b) aisle separation provided between tray stacks should be at least three feet wide and eight feet high.	See response to Items 151 and 155.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
155	APCSB 9.5-1 IV.D.3	Alternately, gas systems (Halon or CO ₂) may be used for primary fire suppression in the cable spreading room if they are backed up by an installed water spray system and hose stations and portable extinguishers immediately outside the room. The access provisions noted in (Item 154) should also be satisfied.	There are two remote and separate entrances to the cable spreading room. The cable spreading room layout does not lend itself to an analysis of accessibility based on "aisles" and "tray stacks." However, the room layout is open and all cable tray areas are accessible for fire fighting. Two portable extinguishers are located inside the cable spreading room. Two hose stations are located immediately outside the room (one by each remote entrance). There are portable extinguishers located immediately outside the cable spreading room. All of this equipment can be effectively used in the room.
156	APCSB 9.5-1 IV.D.3	Electric cable construction in the cable spreading room should as a minimum pass the IEEE 383 flame test.	See response to Item 45.
157	APCSB 9.5-1 IV.D.3	Drains to remove fire fighting water should be provided in the cable spreading room with adequate sealing provided when gas extinguishing systems are also installed.	There are no drains in the cable spreading room. However drainage through doorways used for manual fire fighting with hoses is adequate for that purpose.
158	APCSB 9.5-1 IV.D.3	Redundant safety cable divisions should be separated by three-hour fire rated walls.	There is divisional cable separation. Concrete walls with sealed penetrations surround the cable spreading room. With the exception of the unsealed duct penetrations (addressed in the response to item 28), the fire hazards analysis did not identify any inadequacy in the cable spreading room walls.
159	APCSB 9.5-1 IV.D.3	For multiple reactor sites, cable spreading rooms should not be shared between reactors. Each cable spreading room of each unit should have divisional cable separation and be separated from the other and the rest of the plant by a minimum three-hour rated fire wall (refer to NFPA No. 251, "Fire Tests, Building Construction, and Materials" or ASTM E-119, "Fire Test of Building Construction and Materials" for fire test resistance rating).	Not applicable to a single unit site. Refer to Item 158 for discussion of divisional separation.
160	APCSB 9.5-1 IV.D.3	The ventilation system to the cable spreading room should be designed to isolate the area upon actuation of any gas extinguishing system in the area.	This requirement will be considered when the gas extinguishing system is installed. (See response to Item 151.)

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
161	APCSB 9.5-1 IV.D.3	Smoke venting of the cable spreading room may be desirable. Smoke venting systems should be controlled automatically by the fire detection and/or suppression system as appropriate. Capability for remote manual control should also be provided.	The ventilation system for the cable spreading room can be manually operated from a remote location for smoke venting. Automatic control of the ventilation system will be considered in conjunction with the gas extinguishing system installation. (see response to Item 151.)
162	APCSB 9.5-1 IV.D.4	<u>Computer Room</u> Computer rooms should be separated from other areas of the plant by barriers having minimum three-hour fire resistance rating.	The computer room is not separated from other areas of the plant by barriers having a minimum 3 hour fire resistance rating. The process computer is not safety related. The rod worth minimizer computer is not required for safe plant shutdown. Therefore no modifications are considered necessary.
163	APCSB 9.5-1 IV.D.4	Automatic fire detection should be provided in the computer room to alarm and annunciate in the control room and alarm locally.	Thermocouples are installed in all computer cabinets and alarm in the control room on high temperature. The high temperature alarms are considered adequate for early fire detection.
164	APCSB 9.5-1 IV.D.4	Manual hose stations and portable water and halon fire extinguishers should be provided in the computer room.	There are no hose stations or portable extinguishers located in the computer room. There is a hose station and portable extinguisher located immediately outside the computer room. The process computer is not safety-related. The Rod Worth Minimizer computer is not required for safe shutdown of the plant. Considering the above and the small size of the computer room, it is felt that the existing fire suppression provisions are appropriate and adequate.
165	APCSB 9.5-1 IV.D.5	<u>Switchgear Rooms</u> Switchgear rooms should be separated from the remainder of the plant by minimum three-hour rated fire barriers.	Switchgear is not located in distinct rooms. Fire protection for these areas is described in Items 167 and 170. The fire hazards analysis does not identify a need for any additional fire barriers for switchgear.
166	APCSB 9.5-1 IV.D.5	Redundant switchgear safety divisions should be separated by three-hour fire rated barriers.	The redundant switchgear safety divisions are not separated by 3 hour fire barriers. The two divisions are located on separate levels of the turbine building. A decision concerning the need and practicality of providing additional fire barriers will be made following completion of the fire hazards analysis.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
167	APCSB 9.5-1 IV.D.5	Automatic fire detectors should be installed in switchgear rooms. They should alarm and annunciate in the control room and alarm locally.	Switchgear is not contained in distinct rooms. The switchgear areas are provided with fire detectors which alarm locally and annunciate in the control room.
168	APCSB 9.5-1 IV.D.5	All cables which enter the switchgear rooms should terminate there.	There are no switchgear rooms but rather switchgear areas in the northwest corner of the turbine building on elevation 911' and 931'. The majority of cables that enter these areas are terminated in the switchgear. Cable runs through the switchgear areas are held to the minimum practical. The probability of these cables becoming an ignition source is extremely low since their energy sources are fused or monitored by protective relaying. The cables do not account for an appreciable amount of additional flammable material in the lower switchgear area. Destruction of these cables by fire will not result in loss of essential power from the upper switchgear area. It is felt that the cable routing through the switchgear areas is satisfactory.
169	APCSB 9.5-1 IV.D.5	Switchgear rooms should not be used for any other purpose.	The switchgear in the plant is not contained in distinct rooms. The switchgear areas are not used for any other purpose.
170	APCSB 9.5-1 IV.D.5	Fire hose stations and portable fire extinguishers should be readily available in switchgear rooms.	The 4160V Switchgear is not located in rooms but in two distinct areas. A fire hose station and portable extinguishers are located in each area.
171	APCSB 9.5-1 IV.D.5	Equipment in switchgear rooms should be located on pedestals or curbs and drains should be provided to direct water away from safety related equipment (refer to NFPA No. 92M, "Waterproofing and Draining of Floors").	Equipment in switchgear areas is not located on pedestals and no curbs are provided. An accumulation of 4" of water would be required to affect breaker operation. Drainage is adequate to preclude the accumulation of this amount of water.
172	APCSB 9.5-1 IV.D.5	Remote manual actuated ventilation should be provided for venting smoke from switchgear rooms when manual fire suppression effort is needed.	There is adequate gravity venting of this area for smoke removal (see response to Item 60).

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
173	APCSB 9.5-1 IV.D.6	<u>Remote Safety-Related Panels</u> The general area housing remote safety related panels should be provided with automatic fire detectors that alarm locally and alarm and annunciate in the control room.	<p>The 4kV switchgear area and the standby gas treatment system area are provided with automatic fire detectors that alarm locally and annunciate in the control room.</p> <p>The general areas housing safety related panels located within secondary containment have automatic fire detectors as described in the response to Items 136 and 137.</p> <p>In addition, automatic fire detectors that alarm locally and alarm and annunciate in the control room are installed in the following areas:</p> <ul style="list-style-type: none"> • Battery rooms – Zones 7A, 7B and 7C • ESF motor control center areas – Zones 13C and 19B • Diesel generator rooms – Zones 15A and 15B
174	APCSB 9.5-1 IV.D.6	Combustible materials in the general area of remote safety related panels should be controlled and limited to those required for operation.	See response to Item 73.
175	APCSB 9.5-1 IV.D.6	Portable extinguishers and manual hose stations should be provided in the general area of remote safety related panels.	Fire hose stations and portable fire extinguishers provide adequate coverage for all the remote safety related panels.
176	APCSB 9.5-1 IV.D.7	<u>Station Battery Rooms</u> Battery rooms should be separated from each other and from other areas of the plant by barriers having a minimum three hour fire rating inclusive of all penetrations and openings. Refer to NFPA No. 69, "Standard on Explosion Prevention Systems."	The battery room barriers do not meet the minimum 3-hour fire rating. See response to items 28 and 29.
177	APCSB 9.5-1 IV.D.7	Battery rooms should be provided with hydrogen concentration detectors which should alarm and annunciate in the control room and alarm locally. The detector alarm set point should be no greater than 2% volume hydrogen concentration.	There are no hydrogen concentration detectors located in the battery rooms. It is felt that such detectors are not necessary as the ventilation system for this area includes redundant exhaust fans supplied with essential power. (See response to Item 178.)
178	APCSB 9.5-1 IV.D.7	Ventilation systems in battery rooms should be capable of maintaining the hydrogen concentration well below the detector alarm set point.	The ventilation system for the battery room is capable of preventing hydrogen buildup.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
179	APCSB 9.5-1 IV.D.7	Standpipe and hose and portable extinguishers should be provided in the battery rooms.	Standpipes, hoses, and portable extinguishers are not located inside the battery rooms. Item 122 recommends that hose stations should be located outside entrances to normally unoccupied areas. Battery rooms are not normally occupied. A fire hose station is located in the hallway outside the three battery rooms with enough hose to reach all areas of these rooms. Portable dry chemical and CO ₂ extinguishers are located in the hallway outside these rooms. Considering the above, it is felt that the existing fire protection provisions are appropriate and adequate.
180	APCSB 9.5-1 IV.D.8	<u>Turbine Lubrication and Control Oil Storage</u> A blank fire wall having a minimum resistance rating of three hours should separate all areas containing safety related systems and equipment from the turbine oil systems.	See response to Item 17. The adequacy of separation and barriers between the turbine oil systems and safety related systems and equipment was considered in the fire hazards analysis. Modifications will be made as described in the response to items 16, 28, 29, 31 and 44.
181	APCSB 9.5-1 IV.D.9	<u>Diesel Generator Areas</u> Diesel generators should be separated from each other and from other areas of the plant by fire barriers having a minimum three-hour fire resistance rating.	The diesel generator fire barriers do not meet the minimum 3-hour fire resistance rating. The adequacy of the diesel generator fire barriers was considered in the fire hazards analysis. Modifications will be made as described in items 29 and 30.
182	APCSB 9.5-1 IV.D.9	Automatic fire suppression such as AFFF, foam, or sprinklers should be installed to combat any diesel generator and/or lubricating oil fires.	Automatic fire suppression systems will be installed in the diesel generator rooms.
183	APCSB 9.5-1 IV.D.9	Automatic fire detection should be provided in the diesel generator areas to alarm and annunciate in the control room and alarm locally.	See response to Item 173.
184	APCSB 9.5-1 IV.D.9	Drainage for fire fighting water should be provided in the diesel generator areas.	There is adequate drainage in the emergency diesel generator rooms to remove expected fire fighting water flow.
185	APCSB 9.5-1 IV.D.9	Means for local manual venting of smoke should be provided in the diesel generator areas.	Diesel generator room ventilation has local manual controls.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
186	APCSB 9.5-1 IV.D.9	<p>Day tanks should not be permitted in the diesel generator areas unless:</p> <ul style="list-style-type: none"> (a) the day tank is located in a separate enclosure with minimum fire resistance rating of three hours, including doors or penetrations. These enclosures should be capable of containing the entire contents of the day tanks. The enclosure should be ventilated to avoid accumulation of oil fumes (b) the enclosure should be protected by automatic fire suppression systems such as AFFF or sprinklers. 	<p>The diesel day tanks are located in the diesel generator area in separate enclosures. The doors to the day tank rooms have a three hour fire rating. The walls are not three hour fire rated. The enclosures are capable of containing the entire contents of the day tanks. The enclosures do not have an installed ventilation system and there is no automatic fire suppression system installed for protection. Hose stations and portable extinguishers are located near these areas.</p> <p>Modifications associated with the diesel generator day tank areas are described in the response to items 28 and 30.</p> <p>In addition, automatic fire suppression systems will be installed.</p>
187	APCSB 9.5-1 IV.D.10	<p><u>Diesel Fuel Oil Storage Areas</u> Diesel oil fuel tanks greater than 1100 gallons capacity should not be located inside buildings containing safety related equipment. They should be at least 50 feet distant from any building containing safety related equipment, or if located within 50 feet, they should be housed in a separate building with construction having minimum fire resistance rating of three hours. Buried tanks are considered to meet the three-hour requirement (refer to NFPA No. 30).</p>	<p>There are 3 diesel oil fuel tanks greater than 1100 gallon capacity. A storage tank of 60,000 gallon capacity is buried. Each diesel generator day tank has a 1500 gallon capacity and is located in separate enclosures which are within 50 feet of the diesel generators. (See response to Item 186.)</p> <p>Modifications associated with the diesel generator day tank areas are described in the response to items 28 and 30.</p>
188	APCSB 9.5-1 IV.D.10	<p>When located in a separate building, diesel fuel oil storage tanks should be protected by an automatic fire suppression system such as AFFF or sprinklers.</p>	<p>See response to Item 186.</p>
189	APCSB 9.5-1 IV.D.10	<p>Diesel fuel oil storage tanks should not be located directly above or below safety related systems or equipment regardless of the fire rating of separating floors or ceilings.</p>	<p>None of the diesel fuel oil storage tanks are located directly above or below safety-related systems or equipment.</p>
190	APCSB 9.5-1 IV.D.11	<p><u>Safety-Related Pumps</u> Pump houses and rooms housing safety related pumps should be separated from other areas of the plant by fire barriers having at least a three-hour rating.</p>	<p>See response to Item 17.</p> <p>The fire hazards analysis did not identify any inadequacies in fire barriers separating pump houses and rooms housing safety related pumps from other areas of the plant.</p>

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
191	APCSB 9.5-1 IV.D.11	Rooms housing safety related pumps should be protected by automatic sprinkler protection unless a fire hazards analysis can demonstrate that a fire will not endanger other safety related equipment required for safe plant shutdown.	The fire hazards analysis demonstrated that a fire in rooms housing safety related pumps would not endanger other safety related equipment required for safe plant shutdown. Therefore, automatic sprinkler protection is not required.
192	APCSB 9.5-1 IV.D.11	Early warning fire detection should be installed in each area housing safety related pumps with alarm and annunciation locally and in the control room.	Early warning fire detection devices will be provided as described in the response to items 136, 137 and 173.
193	APCSB 9.5-1 IV.D.11	Local hose stations and portable extinguishers should be provided in each area housing safety related pumps.	Local hose stations and portable extinguishers are provided for each area housing safety related pumps.
194	APCSB 9.5-1 IV.D.11	Equipment pedestals or curbs and drains should be provided to remove and direct water away from safety related equipment in safety related pump areas.	There is no safety-related equipment in safety-related pump areas that would be damaged or made inoperable by the accumulation of fire fighting water. All safety-related pump areas are provided with drains that will remove the expected fire fighting water flow. The safety related pumps are either on pedestals or are the vertical type which an accumulation of water would not harm.
195	APCSB 9.5-1 IV.D.11	Provisions should be made for manual control of the ventilation system in safety related pump areas to facilitate smoke removal if required for manual fire fighting operation.	The ventilation systems serving safety-related pump areas have manual controls.
196	APCSB 9.5-1 IV.D.12	<u>New Fuel Area</u> Hand portable extinguishers should be located within the new fuel area.	There are four hand portable extinguishers located on the refueling floor.
197	APCSB 9.5-1 IV.D.12	Local hose stations should be located outside but within hose reach of the new fuel area.	There are two hose stations located within 40 feet of the new fuel vault.
198	APCSB 9.5-1 IV.D.12	Automatic fire detection should alarm and annunciate in the control room and alarm locally on initiation of fire in the new fuel area.	The detection system to be installed on the reactor building refueling floor (zone 6) will satisfy these guidelines.
199	APCSB 9.5-1 IV.D.12	Combustibles should be limited to a minimum in the new fuel area.	See response to Item 73.
200	APCSB 9.5-1 IV.D.12	The new fuel storage area should be provided with a drainage system to preclude accumulation of water.	Adequate drainage is provided for the new fuel area.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
201	APCSB 9.5-1 IV.D.12	Storage configuration of new fuel should always be maintained to preclude criticality for any water density that might occur during fire water application.	Available fire fighting equipment in new fuel storage areas will not produce water in densities in range to produce criticality. Maximum reactivity occurs at water densities in the range of 0.1 to 0.2 g/cc. Fog nozzles produce densities less than 0.01 g/cc.
202	APCSB 9.5-1 IV.D.13	<u>Spent Fuel Pool Area</u> Protection for the spent fuel pool area should be provided by local hose stations and portable extinguishers.	The spent fuel pool is within reach of three different hose stations. A dry chemical extinguisher is located within 20' of the spent fuel pool. Three other extinguishers are located on the refueling floor.
203	APCSB 9.5-1 IV.D.13	Automatic fire detection should be provided in the spent fuel pool area to alarm and annunciate in the control room and alarm locally	The detection system to be installed on the reactor building refueling floor (zone 6) will satisfy these guidelines.
204	APCSB 9.5-1 IV.D.14	<u>Radwaste Building</u> The radwaste building should be separated from other areas of the plant by fire barriers having at least three-hour ratings.	The radwaste building is separated from the reactor building by walls and doors having a 3-hour fire rating. (See response to Item 30.) There is no equipment located in the radwaste building that is required for safe plant shutdown.
205	APCSB 9.5-1 IV.D.14	Automatic sprinklers should be used in all areas of the radwaste building where combustible materials are located.	There are no automatic sprinklers in the radwaste building. The fire hazards analysis does not identify any unacceptable consequences of postulated fires in areas of the radwaste building where combustible materials are located. Therefore, automatic sprinklers are not necessary.
206	APCSB 9.5-1 IV.D.14	Automatic fire detection should be provided in the radwaste building to annunciate and alarm in the control room and alarm locally.	Automatic fire detection devices do not exist in the radwaste building. The fire hazards analysis does not identify any unacceptable consequences of postulated fires in areas of the radwaste building where combustible materials are located. Therefore, automatic fire detectors are not necessary.
207	APCSB 9.5-1 IV.D.14	During a fire in the radwaste building, the ventilation system should be capable of being isolated.	The radwaste building ventilation systems are capable of being isolated. Isolation is accomplished by shutdown of the supply and exhaust fans. The fans can be shutdown from the radwaste control room or from their respective breakers in the reactor building.
208	APCSB 9.5-1 IV.D.14	Water from fire fighting in the radwaste building should drain to the liquid radwaste building sumps.	All drains in the radwaste building are part of the open radwaste system.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
209	APCSB 9.5-1 IV.D.15	<u>Decontamination Areas</u> The decontamination areas should be separated from other areas of the plant by fire barriers having at least three hour ratings.	The decontamination area is not separated from other areas of the plant by fire barriers having 3-hour ratings. It is felt that such barriers are not needed for the reasons stated in the response to Item 210.
210	APCSB 9.5-1 IV.D.15	Decontamination areas should be protected by automatic sprinklers.	The decontamination area is not protected by automatic sprinklers. It is felt that automatic sprinklers are not needed because there are very few combustibles stored in this area. There are two hose stations and two portable extinguishers located near this area. There is no safety related equipment located nearby.
211	APCSB 9.5-1 IV.D.15	The ventilation systems serving the decontamination areas should be capable of being isolated.	The decontamination area is located in an open area of the reactor building. The reactor ventilation system is capable of being isolated.
212	APCSB 9.5-1 IV.D.15	Local hose stations and hand portable extinguishers should be provided as backup to the sprinkler system in decontamination areas.	See response to Item 210.
213	APCSB 9.5-1 IV.D.16	<u>Safety Related Water Tanks</u> Storage tanks which supply water for safe shutdown should be protected from the effects of fire. Local hose stations and portable extinguishers should be provided. Portable extinguishers should be located in nearby hose houses.	There are two hose stations in the immediate vicinity of the condensate storage tanks.
214	APCSB 9.5-1 IV.D.16	Combustible materials should not be stored next to outdoor safety related water tanks. A separation of 50 feet between outdoor tanks and combustible materials should be provided.	There are no combustible materials stored within 50' of the outdoor safety related tanks (condensate storage tanks).
215	APCSB 9.5-1 IV.D.17	<u>Records Storage Areas</u> Records storage areas should be protected with automatic preaction sprinkler systems.	Our existing records storage areas are not protected with automatic sprinkler systems. A records storage area which meets the guidelines of Regulatory Guide 1.88 will be constructed.
216	APCSB 9.5-1 IV.D.17	Early warning fire detectors should be provided in records storage areas to alarm and annunciate in the control room and to alarm locally.	There are no early warning fire detectors provided in records storage areas. A records storage area which meets the guidelines of Regulatory Guide 1.88 will be constructed.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
217	APCSB 9.5-1 IV.D.17	Local hose stations and portable extinguishers should serve as backup in records storage areas. Refer to NFPA No. 232AM, "Manual for Fire Protection for Archives and Record Centers," Regulatory Guide 1.88, and ANSI N45.2.9.	Fire hose stations and portable extinguishers are provided for records storage areas.
218	APCSB 9.5-1 IV.D.17	<u>Cooling Towers</u> Cooling towers should be of non-combustible construction or so located that a fire will not adversely affect any safety related systems or equipment. Cooling towers should be of non-combustible construction when the basins are used for the ultimate heat sink or for the fire protection water supply.	The cooling towers are of combustible construction, but are located so that a fire would not adversely affect any safety related systems or equipment. The cooling tower basins are not used for the ultimate heat sink. The towers may be used as a backup water supply for the fire protection system. Fire protection is provided for the towers by automatic sprinkler systems and hose stations strategically located. Since no single fire in conjunction with a single impairment of the fire protection system would disable the fire protection water supply, the existing design is considered to be adequate.
219	APCSB 9.5-1 IV.D.18	<u>Miscellaneous Areas</u> Miscellaneous areas such as shops, warehouses, and auxiliary boiler rooms should be so located that a fire or effects of a fire, including smoke, will not adversely affect any safety related systems or equipment.	All miscellaneous areas such as shops, warehouses, and the auxiliary boiler room are either located in separate structures, attached to the turbine building or in separate structures remotely located from the reactor and turbine buildings. All of these areas are located so that a fire or effects of a fire, including smoke, will not adversely affect any safety related systems or equipment.
220	APCSB 9.5-1 IV.D.18	Fuel oil tanks for auxiliary boilers should be buried or provided with dikes to contain the entire tank contents.	A dike is provided below the heating boiler day tank that has a capacity to contain the entire contents of the tank.
221	APCSB 9.5-1 IV.E.1	<u>Special Protection Guidelines</u> <u>Welding and Cutting, Acetylene-Oxygen Fuel</u> Storage locations for Acetylene-Oxygen fuel systems should be chosen to permit fire protection by automatic sprinkler systems.	No fixed piping systems for cutting and welding operations using oxygen and acetylene are installed in the plant. There is a permanent welding station in the hot machine shop consisting of two bottles and a manifold. A hose station and portable fire extinguisher are located within the shop. There are four portable carts which are moved to work areas as necessary. Hose stations and portable extinguishers are located throughout the plant. No general storage area is maintained within the plant. Spare bottles are stored in a warehouse which is protected by automatic sprinklers.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
222	APCSB 9.5-1 IV.E.1	Local hose stations and portable equipment should be provided as backup in areas where Acetylene-Oxygen fuel systems are located.	See response to Item 221.
223	APCSB 9.5-1 IV.E.1	The requirements of NFPA 51 and 51B should be satisfied with respect to Acetylene-Oxygen fuel gas systems.	<p><u>NFPA 51</u> There are no fixed installations involving manifolds, piping systems, acetylene generators or bulk storage. The requirements associates with connections, regulators, and cylinder handling and storage are redundant to OSHA regulations with which we comply.</p> <p><u>NFPA 51B</u> Our welder apprenticeship and supplemental training satisfies many of the requirements of NFPA 51B. The remaining training requirements will be satisfied by additional seminars.</p> <p>Control of work areas for cutting and welding is discussed in Item 73. The control processes will be in conformance with the requirements of NFPA 51B.</p>
224	APCSB 9.5-1 IV.E.1	A permit system should be required to utilize Acetylene-Oxygen fuel systems.	<p>The only Acetylene-Oxygen fuel systems used in the plant are cutting/welding torches.</p> <p>A permit system for their use in the main plant structure is being established.</p>
225	APCSB 9.5-1 IV.E.2	<u>Storage Areas for Dry Ion Exchange Resins</u> The storage of dry ion exchange resins should be kept away from essential safety related systems.	Dry ion exchange resins are not stored near essential safety related systems.
226	APCSB 9.5-1 IV.E.2	Dry unused resins should be protected by automatic wet pipe sprinkler installations.	<p>Our resin storage areas are not protected by automatic sprinkler systems.</p> <p>The fire hazards analysis does not identify any unacceptable consequences of postulated fires in resin storage areas. Therefore, automatic sprinklers are not necessary.</p>
227	APCSB 9.5-1 IV.E.2	Detection by smoke and heat detectors should be provided in dry ion exchange resin storage areas. They should alarm and annunciate in the control room and alarm locally.	<p>There are no fire detectors provided in the dry ion exchange resin storage areas.</p> <p>The fire hazards analysis does not identify any unacceptable consequences of postulated fires in resin storage areas. Therefore, fire detectors are not necessary.</p>

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
228	APCSB 9.5-1 IV.E.2	Local hose stations and portable extinguishers should provide backup for dry ion exchange resin storage areas.	All areas where resins are stored have hose stations and portable fire extinguishers.
229	APCSB 9.5-1 IV.E.2	Storage areas for dry resin should have curbs and drains (Refer to NFPA No. 92M, "Waterproofing and Draining of Floors").	There are drains located in the areas of dry resin storage. The fire hazards analysis did not identify a need for curbs or additional drains.
230	APCSB 9.5-1 IV.E.3	<u>Hazardous Chemicals</u> Hazardous chemicals should be stored and protected in accordance with the recommendations of NFPA No. 49, "Hazardous Chemicals Data".	Hazardous chemical are stored and protected in accordance with the recommendations of NFPA No. 49.
231	APCSB 9.5-1 IV.E.3	Chemical storage areas should be well ventilated and protected against flooding conditions since some chemicals may react with water to produce ignition.	The chemical storage area for all opened and unopened plant laboratory chemicals is the hot lab. The hot lab is a cool, dry, well ventilated, fully-enclosed room completely surrounded by cement block. The room has an access door under lock and key. The chemicals are stored on fire resistant shelves. Each chemical group is labeled and separated from other groups. No chemicals are stored on the floor. A floor drain is provided to prevent flooding. Chemicals are opened, handled, mixed, and transferred only in the hot lab.
232	APCSB 9.5-1 IV.E.4	<u>Materials Containing Radioactivity</u> Materials which collect and contain radioactivity such as spent ion exchange resins, charcoal filters, and HEPA filters should be stored in closed metal tanks or containers which are located in areas free from ignition sources or combustibles. These materials should be protected from exposure to fires in adjacent areas as well.	Spent ion exchange resins are stored in slurry form in steel tanks. After decay, the spent ion exchange resins are partially dewatered, placed in steel containers and shipped off site. Contaminated HEPA filters are placed in steel containers and shipped off site. Used charcoal filters are either placed in steel containers and shipped off site, or the charcoal is removed from the filters and disposed of as required by the level of contamination. The spent ion exchange resin tanks and sludge processing system are located in the turbine building, reactor building, and radwaste building in areas maintained free from ignition sources or combustibles.

TABLE J.3-1
REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item #	Reference	NRC Guideline or Recommendation	Plant Status as of 7/7/78
233	APCSB 9.5-1 IV.E.4	Materials which collect and contain radioactivity should have consideration given to requirements for removal of isotopic decay heat from entrained radioactive material.	Provisions have been made for cooling the charcoal and HEPA filters that are part of the standby gas treatment system, and could accumulate considerable fission products during a design basis accident. No other materials accumulate sufficient quantities of fission products such that cooling is required.
234	RG 1.78	If chemical agents are used in fire suppression, the habitability of the control room should be evaluated using the guidelines contained in Regulatory Guide 1.78, June, 1974, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release".	The capability exists to isolate the control room ventilation from the surrounding environment thereby protecting it from hazardous releases outside the room. Carbon dioxide fire extinguishers are installed for fire protection inside the control room and use of these would generate a volume of carbon dioxide that would remain below the toxicity limit given in Table C-1 of Regulatory Guide 1.78. If additional carbon dioxide was used and released into the room, the toxicity limit could be exceeded and use of the available breathing apparatus may be required.
235	RG 1.101	The plant emergency plan should include fire protection emergency planning as outlined in Regulatory Guide 1.101, November, 1975, "Emergency Planning for Nuclear Power Plants".	See response to Item 75

APPENDIX USAR-J.04
SAFE SHUTDOWN ANALYSIS

Table of Contents

Section	Page
J.4.1 Analysis Overview	4
J.4.1.1 Post Fire Safe Shutdown	5
J.4.1.2 Alternative Shutdown	6
J.4.2 Exemptions to Appendix R.....	20
J.4.3 Definitions and Acronyms	21
J.4.3.1 Definitions.....	21
J.4.3.2 Acronyms	25
J.4.4 Appendix R Safe Shutdown System Selection	26
J.4.4.1 Safe Shutdown Functions	26
J.4.4.2 Appendix R Safe Shutdown Operation	31
J.4.5 Appendix R Equipment/Cable Identification.....	34
J.4.5.1 Identification of Safe Shutdown Equipment	35
J.4.5.2 Identification of Required Cables for Safe Shutdown Equipment Operation	35
J.4.5.3 Circuit Analysis.....	35
J.4.5.4 Plant Location (By Fire Zone) of Safe Shutdown Equipment and Cables	47
J.4.5.5 MNGP Safe Shutdown Database	47
J.4.6 Appendix R Compliance Evaluation.....	105
J.4.7 References.....	397

J.4 INTRODUCTION

The objective of this report is to describe the current status of the post-fire safe shutdown capability at Monticello Nuclear Generating Plant (MNGP) in response to the requirements of 10CFR50 Appendix R. This report presents the analysis methodology and results of an examination of MNGP against the criteria set forth in Appendix R, with the objective of:

- Providing a description of the current Appendix R compliance strategy
- Providing the technical basis for demonstrating compliance with primary focus on the minimum safe shutdown components

The scope of this report is defined by the requirements for protecting safe shutdown systems and their respective components and circuits. These requirements are specified in 10CFR50 Appendix R, Section III.G, and subsequent regulatory guidance contained in Generic Letter 81-12, the subsequent clarification letter to Generic Letter 81-12, Generic Letter 83-33, and Generic Letter 86-10. The objective of these requirements is to limit damage to safe shutdown systems resulting from an unmitigated fire to the extent that the ability to achieve and maintain safe shutdown is ensured. A summary of the MNGP Appendix R licensing basis is provided in Appendix J.2.

Each plant fire area has been evaluated to determine the potential effects of a fire on the ability to achieve safe shutdown conditions. This analysis is supported by a cable and raceway information system that is used to identify the location of safe shutdown equipment or cables and sort the information on a fire area/zone basis. The database is utilized to identify the components and cables that comprise the post-fire safe shutdown capability.

The Safe Shutdown Analysis is organized as follows:

Section J.4.1- Analysis Overview - Definitions, assumptions, system functional requirements, equipment design and functional requirements, and an overview of the Appendix R shutdown strategies

Section J.4.2 – Exemptions to Appendix R – Summary of NRC approved exemptions

Section J.4.3 – Definitions and Acronyms

Section J.4.4 – Appendix R Safe Shutdown System Selection – Detailed description of the performance goals and the systems selected to satisfy these performance goals.

Section J.4.5 – Appendix R Equipment/Cable Identification – Description of the methods used to develop the list of required Appendix R safe shutdown components and cables.

Section J.4.6 – Compliance Evaluation – Detailed results of the Appendix R separation review.

Section J.4.7 – References

J.4.1 ANALYSIS OVERVIEW

The Monticello Nuclear Generating Plant utilizes the fire area approach to demonstrate compliance with the requirements of Appendix R to 10 CFR 50. Fire areas for the plant were determined such that physical limitations to the effects of a postulated fire could be established. These fire areas are comprised of a number of fire zones based on plant geometry, equipment location, and cable runs. Fire zones were combined into fire areas based on the redundant trains of safe shutdown equipment therein and the feasibility of providing adequate fire area boundary barriers to separate them from other fire areas.

Note: Due to this fire area approach, fire area boundaries required for Appendix R compliance do not necessarily separate Safe Shutdown Divisions.

All fire area boundary barriers were reviewed against the criteria established in 10 CFR 50 Appendix R, Generic Letter 83-33 and Generic Letter 86-10 (See Appendix J.5)

Based on this fire area approach, one train of redundant safe shutdown components is maintained free of fire damage, thus ensuring the safe shutdown capability. There are a total of twenty-six, USAR J.05, Table 1 and USAR J.04, Table J.4.1-1, designated plant fire areas (See Appendix J.5). Fourteen of those fire areas utilize fire area boundary barriers to maintain separation between redundant trains of safe shutdown equipment. Four fire areas contain redundant trains of safe shutdown components; however, safe shutdown capability in these areas is ensured. Specifically an alternate shutdown capability is provided for the Control Room and the Cable Spreading Room. Compliance in the Torus area and Intake Structure Pump Room is achieved through the exemption process.

In addition, there are eight, USAR J.05, Table 1 and USAR J.04, Table J.4.1-1, fire areas where no safe shutdown components are located.

Several dummy "fire zones/areas" were created in order to locate safe shutdown raceways buried underground and in concrete. These "fire zones/areas" do not have any significance relative to fire protection, and are only considered to simplify the Appendix R Analysis.

The following is a list of these areas:

- Fire Area DW, which contains Fire Zone DW and covers the Drywell area.
- Fire Area DB, which includes duct banks and buried raceways. It consists of Fire Zones DB1 for Division I and DB2 for Division II raceways that are buried in the Turbine Building.
- Fire Area TUNNEL consisting of Fire Zone TUNNEL which includes raceways for SSD Division 2 power cables buried in the yard

Table J.4.1-1 lists the fire areas and the fire zones comprising them, together with a brief description of each fire zone. Also identified in this table are the division number and color designation of the safe shutdown components located within the area. The Updated Fire Hazards Analysis, Appendix J.5, provides additional information and details regarding the location, configuration and contents of fire areas and zones.

01502449

J.4.1.1 Post Fire Safe Shutdown

In general, for a fire in any single MNGP fire area, a combination of Core Spray (CS), Residual Heat Removal (RHR) in the Suppression Cooling (SPC) Mode, and Reactor Pressure Relief (RPR) systems (RPRS) will be used to achieve safe shutdown conditions. These systems are called primary systems. In addition, auxiliary systems to support operation of the above primary systems are required, along with sufficient process and diagnostic instruments. Based on the analysis performed for MNGP, the above systems are the minimum set that should be available to achieve safe shutdown.

Subsequent to the initiation of a fire, the closure of MSIVs and reactor shutdown will occur either automatically or manually. The safety mode of the SRVs will provide over-pressure protection while the reactor vessel is bottled up. The emergency diesel generators (EDGs) will be started automatically upon the loss of off-site power or manually from the Control Room or Alternate Shutdown System (ASDS) panel. The reactor vessel is depressurized by manual operation of the SRVs. [References J.4.7.6, 9, 11, 17, 69, 72 and USAR-J.02] One train of CS consisting of one pump and associated valves will be used to supply makeup water from the suppression pool subsequent to vessel depressurization below the CS system cut-in pressure. The CS system will be used to flood the reactor vessel up to the MSIVs. Water will flow through the open SRVs and return to the suppression pool. Utilizing the CS and RPR systems, the decay heat is transferred from the fuel rods to the suppression pool. The use of SRVs and low-pressure systems as the redundant safe shutdown paths ensures that the reactor will be in a cold shutdown condition within 72 hours. [Reference J.4.7.58]

The RHR System in the SPC mode will be used to cool the suppression pool and to transfer decay heat to the ultimate heat sink through at least one RHR heat exchanger and respective RHR service water system. As a minimum, one of four RHR pumps and its associated valves will be available for remote operation regardless of the fire location.

The auxiliary systems needed to support the above-mentioned primary systems are listed below:

- Power Distribution
 - On-Site AC Power System
 - DC Power System
- ECCS Room Coolers
- Emergency Service Water Systems
- RHR Service Water System
- RHR Auxiliary Air System
- Diesel Fuel Oil System
- Control Room HVAC System
- Ventilation Support for Electrical Rooms
- Alternate Nitrogen System, and D and G SRV Accumulators

Availability of the above auxiliary systems is essential in achieving post-fire safe shutdown conditions. A detailed description of the auxiliary as well as the primary systems is provided in Section J.4.4.

In order to monitor essential plant parameters, the availability of remote indication for the following instruments independent of any single fire area is ensured:

- Reactor vessel pressure
- Reactor water level
- Suppression pool level
- Suppression pool temperature

01101248

- Diagnostic instrumentation for the primary and auxiliary systems

Utilizing the primary and auxiliary systems, the safe shutdown functions as specified in Appendix R and Generic Letter 81-12 are performed. The minimum set of primary and auxiliary systems will be operable from the Control Room except for a fire in the Control Room or the Cable Spreading Room where remote/alternate control for those systems is provided by means of the ASDS panel.

In summary, as a minimum, the following safe shutdown systems will be available for remote operation independent of any single MNGP fire area:

- One of two CS pumps and associated valves and instruments to supply water from the suppression pool to the reactor vessel (red or green train of CS);
- One of four RHR pumps, associated valves and necessary instruments to cool the suppression pool (red or green train of RHR);
- Two SRVs to depressurize the reactor vessel (red or green train of RPRS);
- One Division of Auxiliary systems to support the primary systems (respective red or green train of auxiliary systems) consisting of:
 - Two ESW pumps
 - AC and DC Power distribution including EDG and Vent Fan
 - Control Room HVAC (dependent upon fire location)
 - One
 - RHRSW pump
 - ECCS room cooler
 - RHR auxiliary air compressor
 - DG fuel oil transfer pump
 - Vital Electrical Rooms Ventilation
- Sufficient instrumentation to monitor essential plant parameters, as necessary (red or green train of instrumentation system).

It should be noted that for certain fires, other systems in addition to the minimum safe shutdown systems might be available and operators may elect to use them. However, the Appendix R analysis presented here conservatively assumes the availability of only minimum safe shutdown systems. Table J.4.1-2 identifies, on a fire area basis, the division credited to achieve post-fire safe shutdown.

J.4.1.2 Alternative Shutdown

A fire in the Control Room or Cable Spreading Room could result in the loss of both Division I (red) and II (green) systems. To achieve compliance with the requirements of 10CFR50 Appendix R, Section III.G.3, an alternative shutdown capability is provided independent of the Control Room and Cable Spreading Room. The central location for operation of equipment to achieve shutdown is the Alternate Shutdown System (ASDS) Panel located on the third floor of the Emergency Filtration Train (EFT) Building.

The ASDS design employs a switching and relay scheme to electrically isolate the necessary shutdown equipment cables from the Control Room and Cable Spreading Room while providing for operation of the equipment at the ASDS Panel. This switching and relay design was submitted to the NRC for review. [Reference J.4.7.1] Acceptability of the design, including assumptions, is documented in Reference J.4.7.13.

The ASDS design consists of circuitry to transfer control of equipment from the Control Room and Cable Spreading Room to the ASDS control panel located in the EFT Building. This design is illustrated in Figure J.4.1.2-1, which shows that the pump and motor-operated valves of the Division II core spray system can be controlled at the control room or the ASDS control panel, depending on the position of the transfer switch (ASTS). To implement the transfer circuitry, cable routing is important because it can impact the complexity of the transfer circuit design. The

hardware used in the transfer circuitry is important because it must satisfy the ASDS design requirements. Thus, to meet the ASDS design requirements, the electrical design for the ASDS provides the following:

1. Manual Transfer capability
2. Manual operation capability
3. Equipment protection
4. Isolation from safety systems

The first three items above are to assure that the ASDS operation is independent of any potential fire damage in the Control Room or Cable Spreading Room. This is accomplished by using transfer switches, transfer relays and fuses in the circuit design. The forth item above is to ensure that the ASDS implementation will not degrade existing safety systems. This is accomplished by providing an electrical design which is compatible with the existing safety system requirements.

Three simplified sample circuit designs are selected to describe the concept of the ASDS transfer mechanism and circuit design. These three circuit designs are for:

1. Operation of Equipment from the ASDS Control Panel (Figure J.4.1.2-2)
2. Status Indication from the ASDS Control Panel (Figure J.4.1.2-3)
3. Alternate Power Supply from ASDS Operation (Figure J.4.1.2-4)

These three circuit designs are typical for the ASDS circuitry. Each of the circuit designs is explained in the following sections.

Figure J.4.1.2-2 shows a simplified conceptual design for the electrical circuitry for equipment operation from the ASDS control panel. The example shown here uses a motor start relay (R1) in a motor control center (MCC) to represent the equipment. The normal manual operation of the equipment is accomplished by closing the start switch (SW1) in the Control Room, which energizes relay R1. The normal connection between the MCC and the control panel in the Control Room passes through the ASDS relay panel. This normal connection is maintained by a pair of normally closed contacts (C1 and C2) in the ASDS relay panel. The transfer switch (TSW) and the transfer relay (R2) control this pair of contacts and another pair of normally open contacts (C3 and C4) in the ASDS circuitry. Closing the transfer switch (TSW) will energize relay R2, which will open contacts C1 and C2 and close contacts C3 and C4. This transfer will effectively isolate the MCC from the Control Room so that direct manual operation is available at the ASDS control panel (SW2) and the start relay in the ASDS relay panel (R3) will control relay R1 in the MCC. Closing SW2 will energize R2, which will close contact C5 to complete the MCC circuitry to energize relay R1.

In addition to demonstrating the transfer method, Figure J.4.1.2-2 also shows three significant design features of the ASDS:

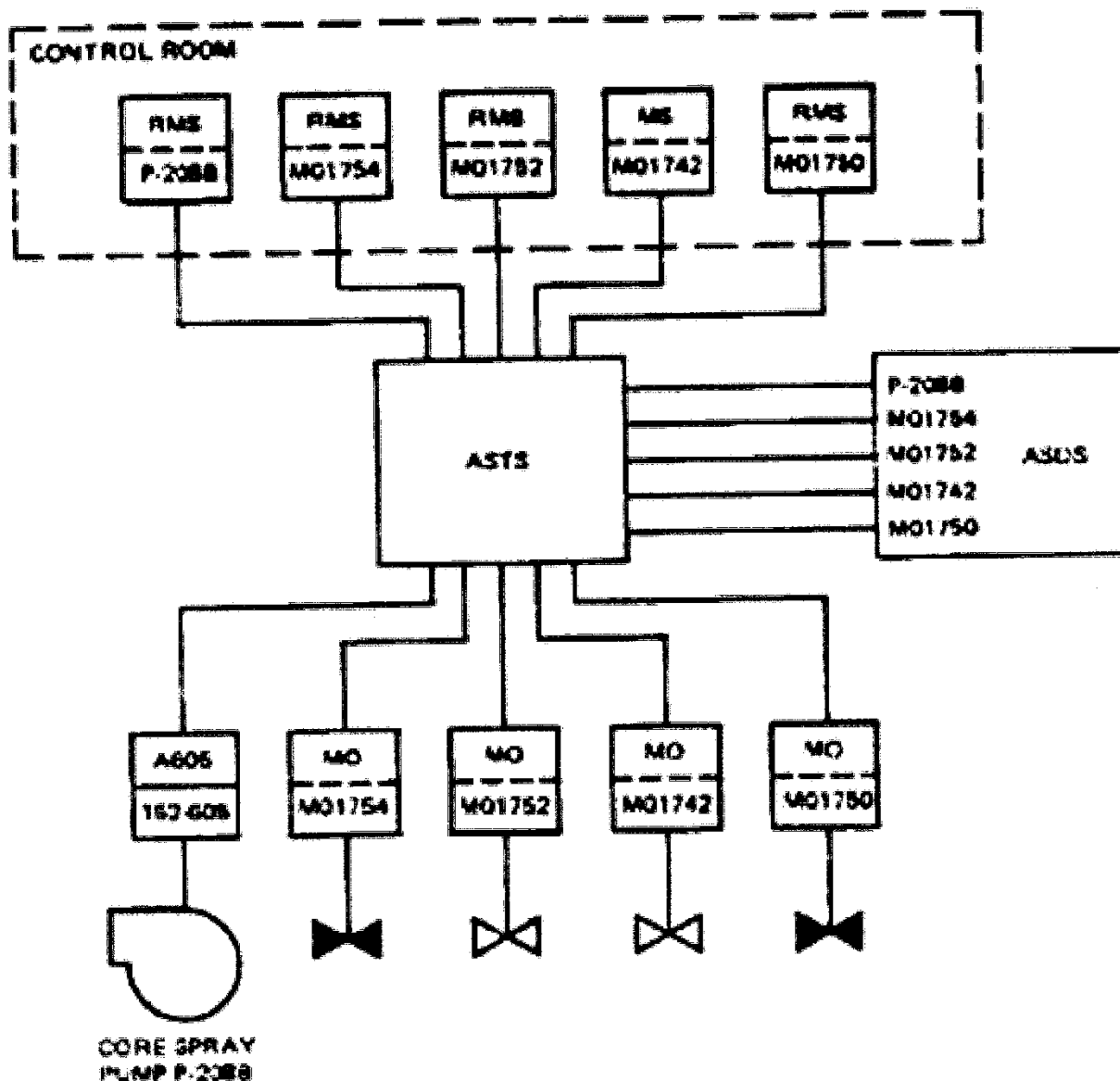
1. Equipment Protection – F1 represents a fuse which protects the equipment from a power surge resulting from a fire in the Control Room or Cable Spreading Room.
2. Isolation – Because the ASDS interfaces with existing safety systems and their associated equipment, isolation is provided to assure that the safety system are not degraded.
3. ASDS Power – In this design, the power for ASDS operation is completely separated from the normal power supply for the Division II safety grade equipment.

Figure J.4.1.2-3 shows a simplified design for the electrical circuitry which indicates equipment status at the ASDS control panel. The equipment status is indicated by a light (L1) at the control panel in the Control Room. The indicating light is controlled by a contact (C6) at the equipment. The normal connection/ between the equipment

and the control panel in the Control Room passes through the ASDS relay panel. This normal connection is maintained by a pair of normally closed contacts (C1 and C2) in the ASDS relay panel. The transfer switch and the (TSW) and the transfer relay (R1) control this pair of contacts and the other pair of normally open contacts (C3 and C4) in the ASDS circuitry. Closing the transfer switch (TSW) will energize relay R1, which will open contacts C1 and C2 and close contacts C3 and C4. This transfer will effectively isolate the equipment from the Control Room so that the fire in the Control Room or Cable Spreading Room will not interfere with the indication at the ASDS control panel. The indication at the ASDS control panel is provided by a light (L2) similar to light L1. Once the transfer is accomplished, contact C6 in the equipment controls light L2 through the indication relay R2 and contact C5 (i.e., closing contact C6 will energize relay R2, which will close contact C5 to energize light L2).

If a fuse in the power supply circuit for any ASDS equipment is blown during a fire event in the Control Room or Cable Spreading Room, the power supply and the equipment associated with it would be disabled. Thus, a circuit for alternate power source is designed to ensure that the power supply would be available for ASDS operation. A simplified schematic of the circuit is shown in Figure J.4.1.2-4. Normal power to any ASDS equipment is supplied by lead L1 and N through a normally closed contact C1 in the ASDS relay panel. Fuse F1 is in the normal protection device for the power supply. Alternate L2 from the ASDS equipment is connected to the ASDS equipment through a normally open contact C2 and fuse F2. The transfer relay R1 controls contacts C1 and C2. Closing the transfer switch (TSW) will energize relay R1, which will open contact C1 and close C2, assuring that power is available for the ASDS equipment regardless of the status of fuse F1.

Cable routing arrangement is shown in Figure J.4.1.2-5 and the Plant layout for the Division II routing is shown in Figure J.4.1.2-6. [Reference J.4.7.11]



NOTES:

- (1) ALL EQUIPMENT ARE PLANT EXISTING EQUIPMENT EXCEPT ASDS
- (2) RMS = REMOTE MANUAL SWITCH
- (3) MS = MANUAL SWITCH
- (4) ASTS = TRANSFER SWITCH

Figure J.4.1.2-1
 Transfer Control to ASDS

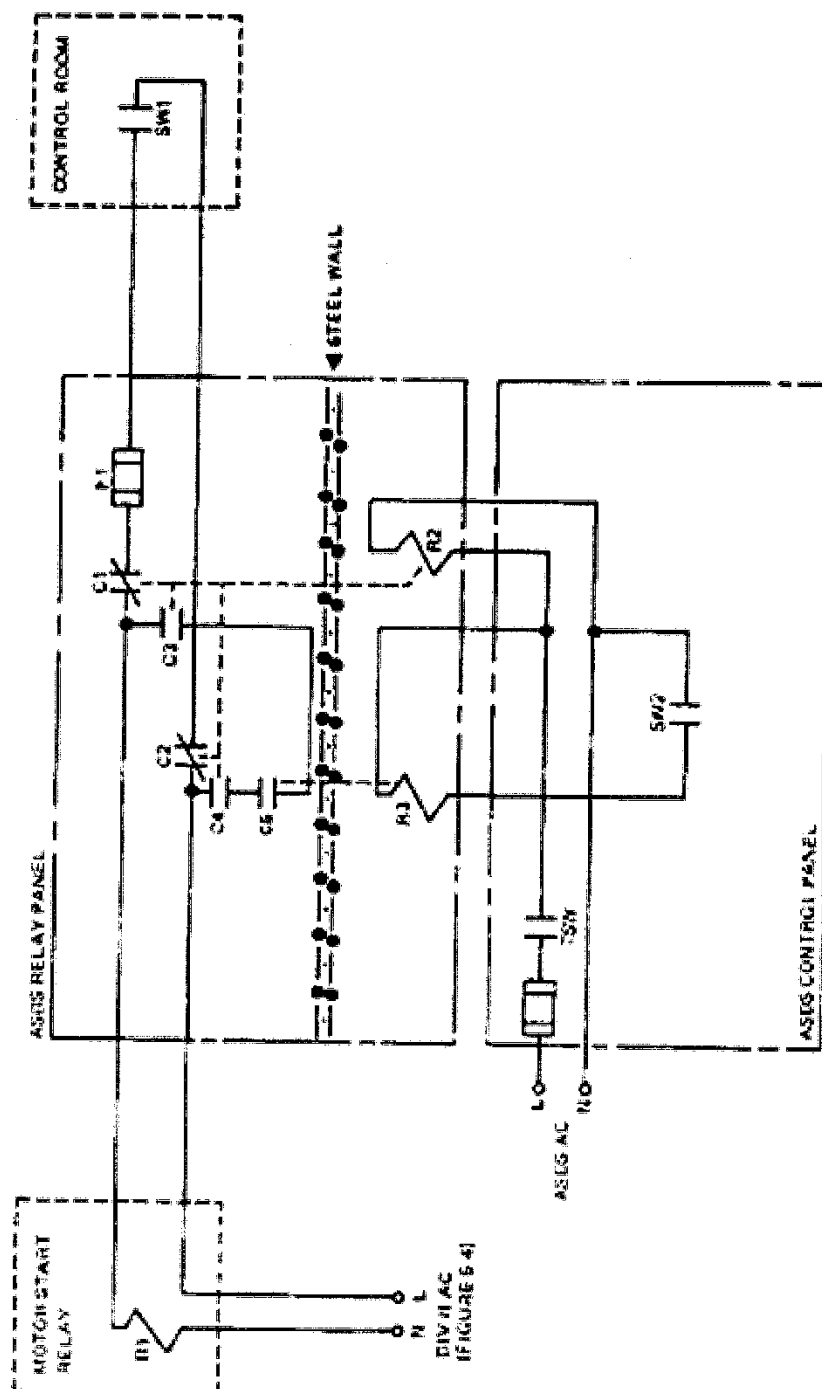


Figure J.4.1.2-2
 Operation of Equipment from ASDS

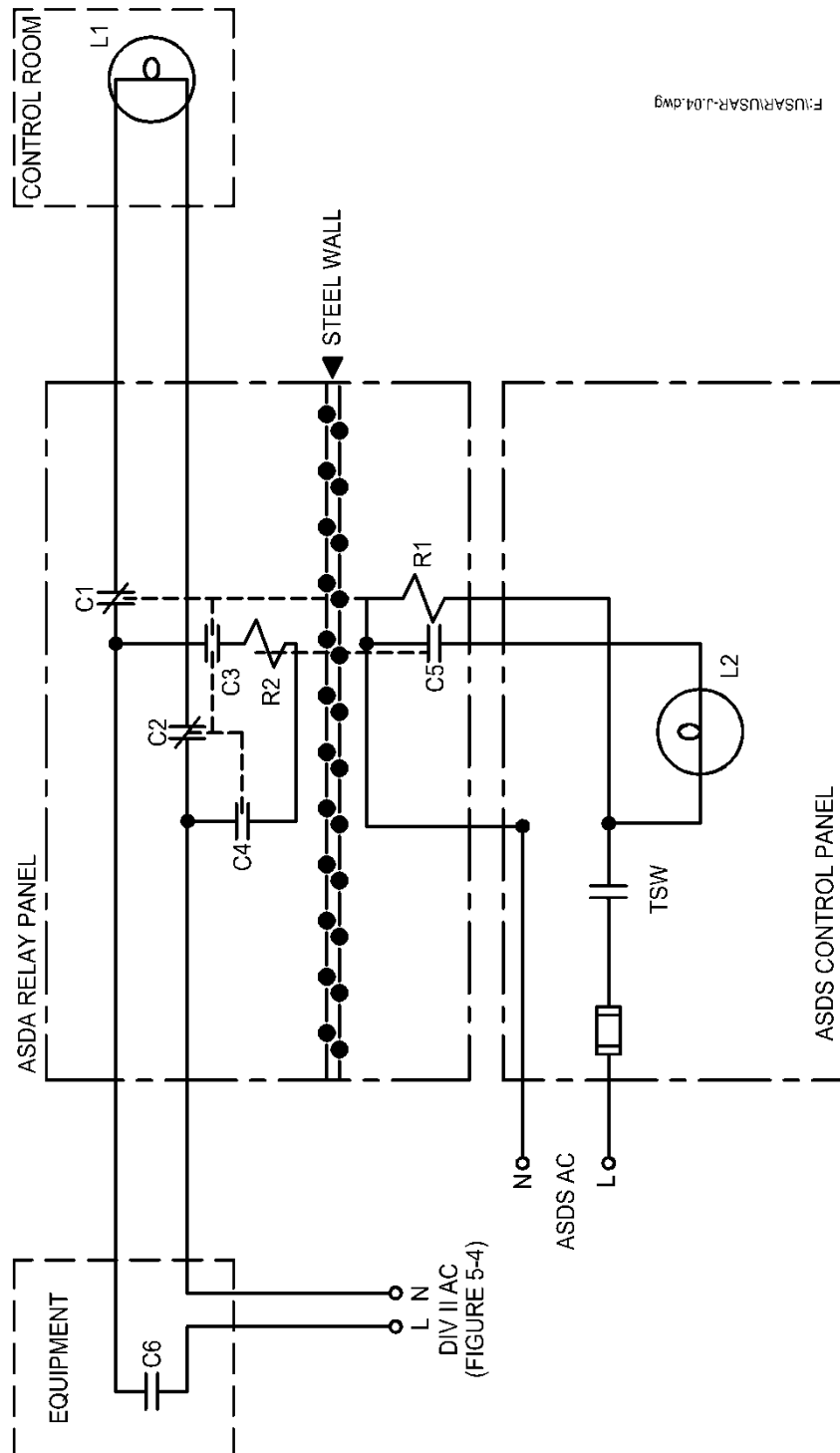


Figure J.4.1.2-3
 Status Indication of Equipment at ASDS

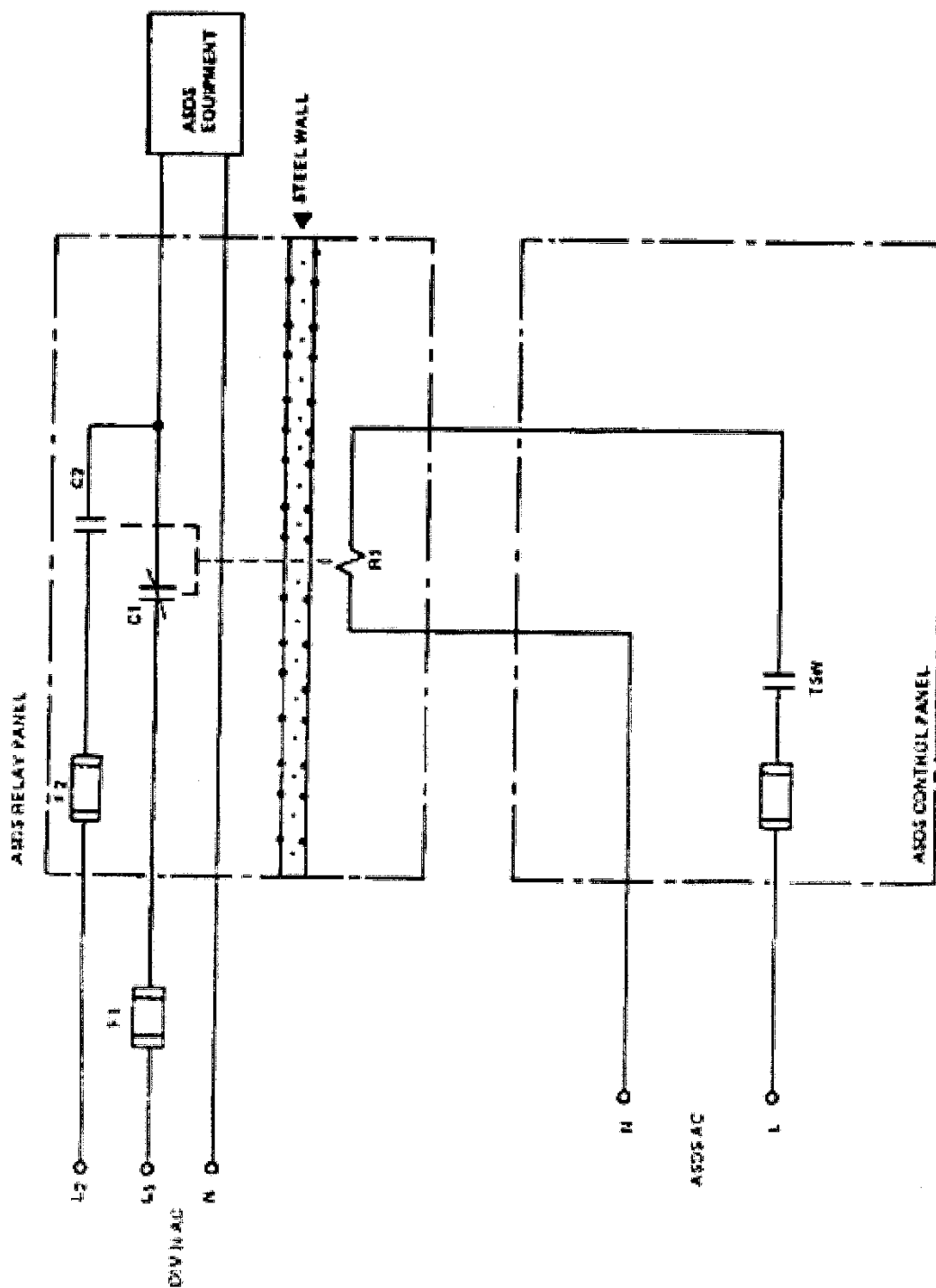


Figure J.4.1.2-4
 Alternate Power Source for ASDS

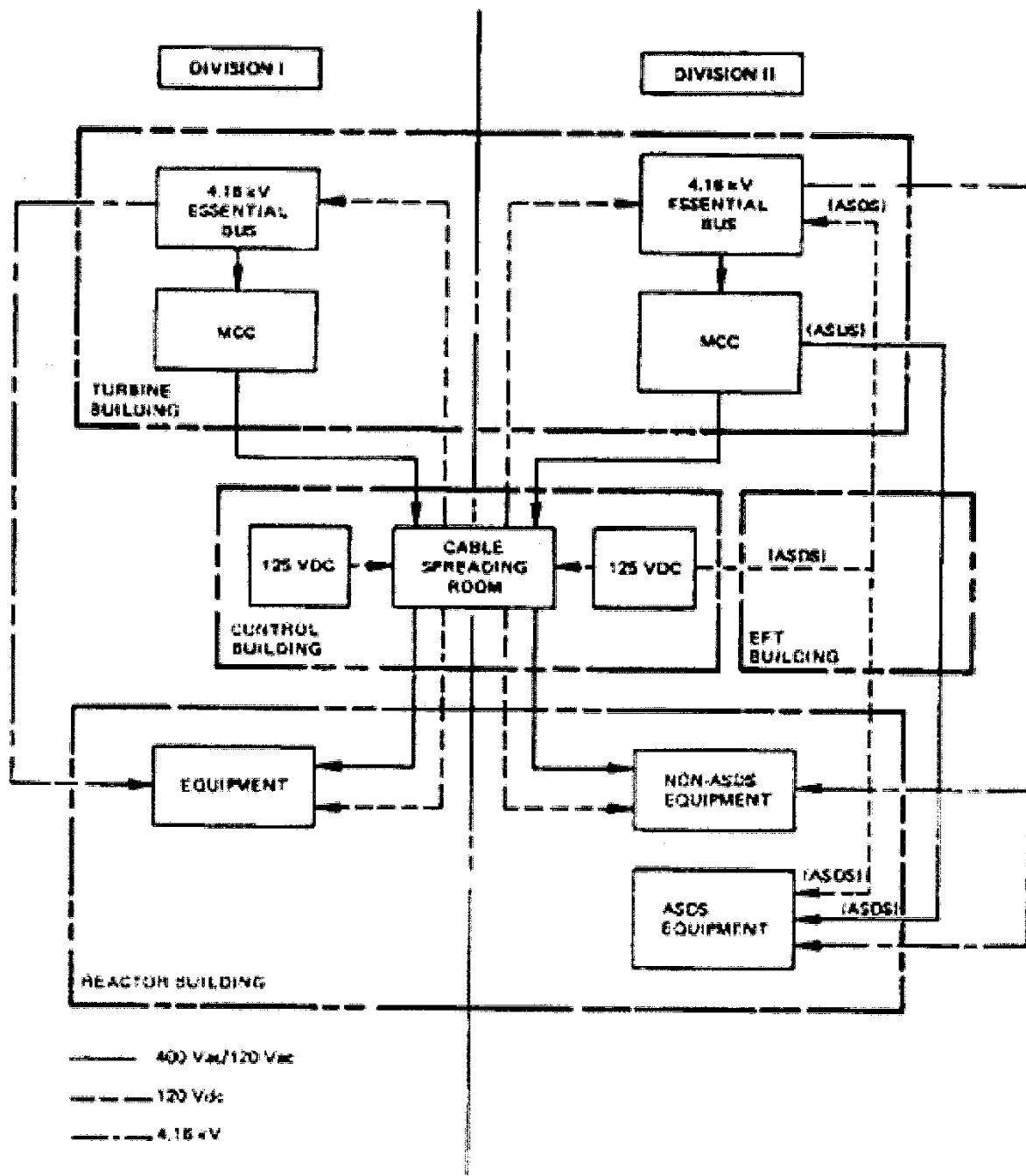


Figure J.4.1.2-5
 Cable Routing Arrangement

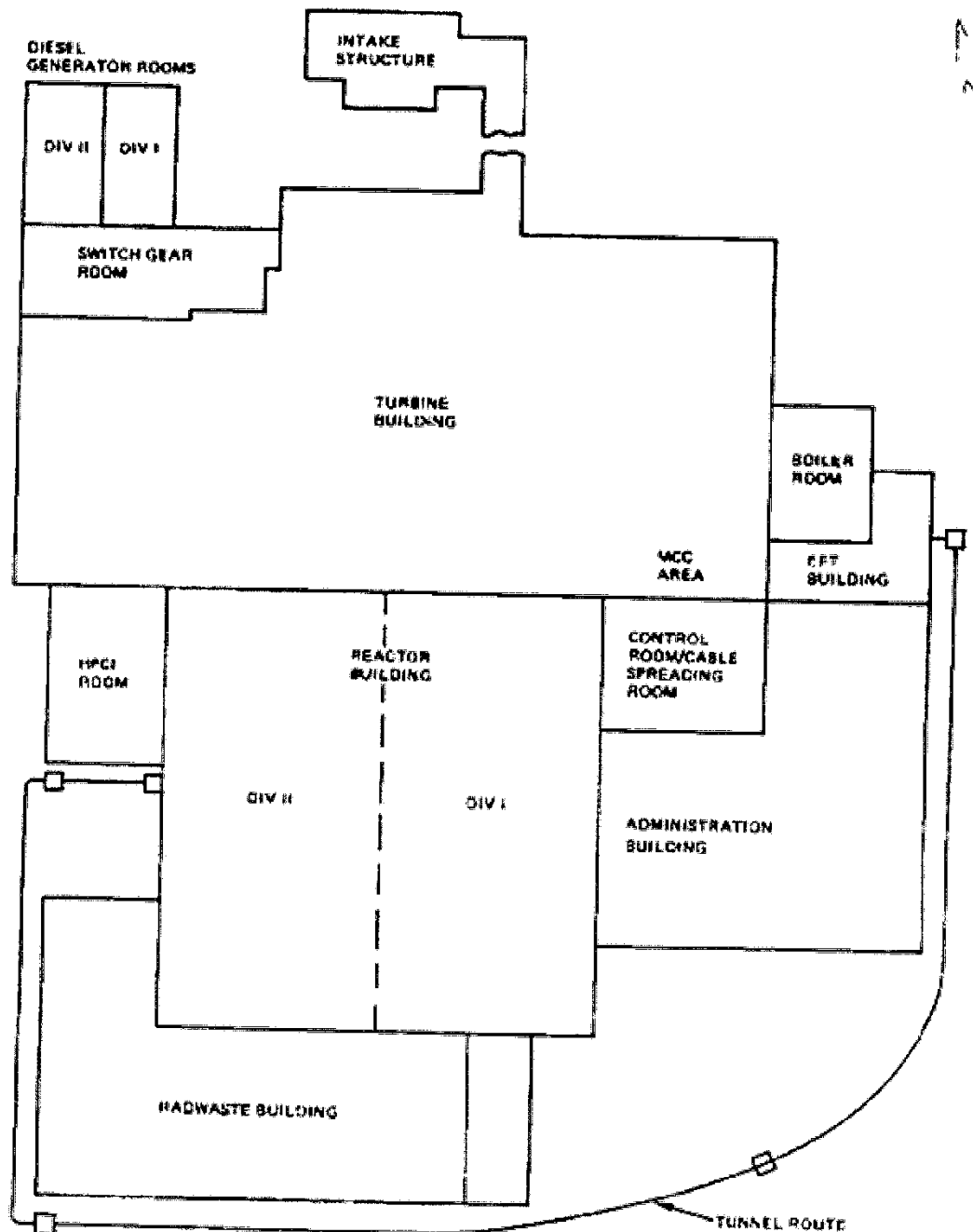


Figure J.4.1.2-6
Plant Layout for Division II Route

TABLE J.4.1-1 FIRE AREA DESIGNATIONS

Fire Area	Division	Zone(s)	Description
I	1 - RED	1-B 1-H 2-B 2-D 2-E 2-G 3-B 3-E 4-A 4-B 4-C 4-D 4-E 5-A 5-B 5-C 6 21-A 21-B 21-C 21-D	RHR and Core Spray Pump Room, Division I RCIC Room Appendix R Cable Enclosure CRD Hydraulic Control Unit Area Reactor Building Railroad Car Shelter TIP Room RHR Valve Room East MCC and Standby Liquid Control System Area Contaminated Records Storage Equipment Hatch Area Cooling Water Heat Exchanger Area Corridor Outside Main Exhaust Plenum Standby Gas Treatment System Room Reactor Plenum Room Laydown and Decontamination Area Contaminated Equipment Storage Area Skimmer Surge Tank Area Refueling Floor Radwaste Control Room Baler and Dry Waste Storage Area Radwaste Shipping Radwaste Upper Levels and High/Low Level Rad Storage Area
II	2 - GREEN	1-A 1-D 1-E 1-G 2-C 2-F 2-H 3-C 3-D	RHR and Core Spray Pump Room, Division II Reactor Bldg. EL 896 Equipment and Floor Drain Tank HPCI Room CRD Pump Room CRD Hydraulic Control Unit Area and HVAC Areas Steam Chase RHR Valve Room West MCC Area Cooling Water Pump and Chiller Area
III	2 - GREEN	1-C 2-A	RCIC Room TIP Drive Room
IV	1 – RED and 2 - GREEN	1-F	Suppression Pool Area (Exemption)
V	1 - RED	3-A	Reactor Recirculation Pumps MG Set Room
VI	1 – RED	7-A 7-B 10 11	Battery Room, D-1 and D-5 Battery Room, D-3 Administration Building, excluding Battery Rooms, Cable Spreading Room; Control Room; and HVAC Room Administration Building HVAC and Addition

TABLE J.4.1-1 FIRE AREA DESIGNATIONS

	1 – Red and 2 – Green	8	Cable Spreading Room (Alternate Shutdown)
VII	2 - GREEN	7-C	Battery Room, D-2 and D-4
VIII	1 – RED and 2 - GREEN	9	Control Room (Alternate Shutdown) (Exemption)
IX	1 – RED	12-A 13-A 13-B 13-C 16 19-C 23-B 39 40 41	Turbine Building Load Center No. 1 Lube Oil Storage Tank Room Lube Oil Reservoir and Reactor Feed Pump Area ESF Motor Control Center Turbine Building Corridor Pipe and Cable Tray Penetration Area Intake Structure Corridor Turbine Building Addition Screen House Sodium Hypochlorite House
	1 – Red and 2 – Green	23-A	Intake Structure Pump Room (Exemption)
X	2 - GREEN	12-B 12-C 12-D 12-E 14-B 14-C 22 30 42	Hydrogen Seal Oil Unit and Condensate Pump Area Turbine Basement Condenser Area Clean Radwaste Sump Area Air Ejector Room Valve Operating Gallery Turbine Building Railroad Car Shelter Recombiner Building Turbine Deck, El. 951 CO ₂ & H ₂ Building
XI	1 – Red	15-E	Diesel Fuel Oil Pump House
XII	2- GREEN	14-A 17 19-A 19-B	Turbine Building Load Center No. 2 Turbine Building Corridor Water Treatment Area ESF Motor Control Center and EFT Cable Tunnel
XIII	2 - GREEN	15-A	Diesel Generator Room No. 12
XIV	1 – RED	15B	Diesel Generator Room No. 11
XV	2 – GREEN	15-C	Day Tank Room T-45B
XVI	1 – RED	15-D	Day Tank Room T-45A
XVII	BLACK	25	Discharge Structure Pump Room
XVIII	BLACK	26 27	Offgas Stack Offgas Retention Building
XIX	BLACK	28-A 28-B	Guard House (Security Building) Security Access Facility

01478399

TABLE J.4.1-1 FIRE AREA DESIGNATIONS			
XX	BLACK	29	Security Diesel Building
XXI	1 - RED	31-A 32-A	EFT, 1st Floor, Division I EFT, 2nd Floor, Division I
XXII	2 - GREEN	31-B 32-B 33	EFT, 1st Floor, Division II EFT, 2nd Floor, Division II EFT, 3rd Floor and Exterior Duct Bank
XXIII	BLACK	24	Diesel Fire Pump Room
XXIV	BLACK	18-A 18-B 20 34 35 36 43	East 13.8kV Switchgear Room West 13.8kV Switchgear Room Auxiliary Boiler Room Non-1E Electrical Equipment Room Diesel Generator No. 13 Room Diesel Generator No. 13 Day Tank Room Air Compressor Building
XXV	BLACK	37	Transformers Main, 1R and 2R Transformers
XXVI	BLACK	38	Cooling Towers

TABLE J.4.1-2
CREDITED SAFE SHUTDOWN DIVISION ON A FIRE AREA BASIS

FIRE AREA	CREDITED SHUTDOWN DIVISION
I – Reactor Building	Division II
II – Reactor Building	Division I
III – RCIC Room and Tip Drive Room	Division I
IV – Suppression Pool Area	Division I or II, Exemption has been granted
V – Reactor Recirculation Pumps MG Sets Room	Division II
VI – Cable Spreading Room; Battery Rooms D-1, D-3 and D-5; Portions of Administration Building	Alternate Shutdown using Division II for Cable Spreading Room Division II for remaining zones
VII – D-2 / D-4 Battery Room	Division I
VIII – Control Room	Alternate Shutdown using Division II, Exemption has been granted
IX – Turbine Building and Intake Structure Pump Room	Division II for Turbine Building Division I or II for Intake Structure Pump Room, Exemption has been granted
X – Turbine Building	Division I
XI – Diesel Fuel Oil Pump House	Division II
XII – Turbine Building	Division I (See Note 1)
XIII – Diesel Generator Room	Division I

01478399

TABLE J.4.1-2 CREDITED SAFE SHUTDOWN DIVISION ON A FIRE AREA BASIS	
FIRE AREA	CREDITED SHUTDOWN DIVISION
XIV – Diesel Generator Room	Division II
XV – Day Tank Room	Division I
XVI – Day Tank Room	Division II
XVII – Discharge Structure Pump Room	Division I or II
XVIII – Offgas Stack and Retention Room	Division I or II
XIX – Guard House and Security Access Facility	Division I or II
XX – Security Diesel Building	Division I or II
XXI – EFT Building	Division II
XXII – EFT Building	Division I
XXIII – Diesel Fire Pump Room	Division I or II
XXIV – Turbine Building	Division I or II
XXV – YARD	Division I or II
XXVI – Cooling Towers	Division I or II

NOTES

1. Accumulators on D and G SRVs are credited in this area.

J.4.2 EXEMPTIONS TO APPENDIX R

Three exemptions to the requirements of Appendix R have been granted by the USNRC. The exemptions are:

- Torus Compartment (Fire Area IV, Fire Zone 1F) - Lack of an automatic suppression system within the compartment. [References J.4.7.46, 47]
- Intake Structure Pump Room (Fire Area IX, Fire Zone 23A) - Lack separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. [References J.4.7.48, 49]
- Control Room (Fire Area VIII, Fire Zone 9) - Lack of a fixed suppression system [Reference J.4.7.18]

The NRC bases for approval of these exemptions are an essential part of the Monticello Fire Protection Program licensing basis. They are summarized as follows:

Torus compartment (Fire Area IV, Fire Zone 1F)

- Minimal amount of fixed and transient combustibles present
- Smoke detector provisions
- Separation between redundant trains of CS valves, RHR cooling valves, and suppression pool level transmitters
- Ability of SPOTMOS to continue to operate with at least one RTD on one train in the operable-but-degrade mode for any fire in fire zone 1F that involved both conduit trains

Intake Structure Pump Room (Fire Area IX, Fire Zone 23A)

- Fire load in zone satisfies the criteria for a low fire load designation
- Early warning ionization detection, installed above RHRSW and SW pumps, provides an alarm to the control room
- Activation of the pre-action valve via thermal detectors results in a "system actuated" signal to the control room [for the zone-wide pre-action suppression system]
- Transient combustibles and hot work in the area are administratively controlled.
- Greater than 20 feet of separation exists between redundant safe shutdown components and cables.

Control Room (Fire Area VIII, Fire Zone 9)

- The control room is continually manned.
- Limited fire hazard.
- Existing fire protection.
- Commitment to provide an alternate shutdown capability.

J.4.3 DEFINITIONS AND ACRONYMS

J.4.3.1 Definitions

This subsection presents the definitions used in assessing the safe shutdown capability at MNGP in the event of an unmitigated fire in any plant fire area. Terms used in this analysis, and defined in this section, have their bases in industry standards, regulatory criteria and/or previous MNGP Appendix R submittals as appropriate.

Alternative Shutdown

Alternative Shutdown is defined within 10 CFR 50 Appendix R as the use of a diverse system in lieu of the preferred system because redundant components of normal shutdown systems do not meet the separation criteria of Section III.G.2 of Appendix R. Alternative Shutdown is governed by Sections III.G.3 and III.L of Appendix R and generally involves one or both of the following conditions:

- Key shutdown activities are controlled/conducted outside of the Control Room (i.e., from alternate shutdown locations), or
- Plant systems are utilized in a manner that is diverse from their intended design function.

Alternative Shutdown Capability

Alternative shutdown capability is a means to safe shutdown provided by rerouting, relocating or modifying existing systems to ensure the ability to achieve and maintain safe shutdown conditions independent of the equipment associated with certain fire areas.

Associated Circuits by Common Enclosure

Those circuits (safe shutdown and non-safe shutdown related) that share a common enclosure with safe shutdown circuits or equipment. Enclosures include panels, junction boxes, and raceways (conduit and cable trays).

Associated Circuits by Common Power Supply

Circuits (safe shutdown and non-safe shutdown related) that share a common power supply with safe shutdown circuits or equipment. Power supplies include those provided for motive power, control power and instrument power.

Associated Circuits by Spurious Operation

Circuits whose fire induced failures could result in spurious operation of safe shutdown equipment and that could adversely affect safe shutdown capability.

Associated Circuits of Concern

Circuits (safe shutdown and non-safe shutdown related) associated by common power supply, common enclosure, and/or spurious operation that meet the following conditions:

- Are not separated by rated fire barriers.
- Have the potential to impair safe shutdown capability by causing the loss of a safe shutdown power supply due to lack of coordinated circuit protection or inducing a spurious operation which adversely affects safe shutdown capability.
- Share an enclosure with a safe shutdown circuit without adequate electrical protection or without protection against fire propagation from one Fire Area to another.

Circuit Schedule

A computer-generated report listing electrical cables in the plant. Information included in this report is raceway number, type, "from" and "to" destinations of cable ends, and the routing of the cables

Cold Shutdown

The reactor is in the cold shutdown condition when the shutdown margin is at least 1 percent delta k/k and reactor coolant temperature is less than 200°F

Cold Shutdown Equipment

Plant equipment used to achieve and maintain a reactor cold shutdown condition.

Fire

An exposure fire in a given fire area that involves either in-situ or transient combustibles and is external to any structures, systems or components located in or adjacent to that same area. The effects of such a fire (e.g., smoke, heat or origination) can adversely affect those structures, systems or components.

Fire Area

That portion of a building or plant that is separated from other areas by boundary fire barriers. Fire areas at MNGP may consist of one or a combination of fire zones.

Fire Area Designations

Each fire area or fire zone is designated red, green, or black based on the equipment/cables located within the area as follows:

- Red - Group of safe shutdown systems powered by Division I power supply.
- Green - Group of safe shutdown systems powered by Division II power supply.
- Black - Zones, areas, cables and systems that have no safe shutdown requirements

Fire Barrier

Those components of construction including walls, floors, and supports (beams, joists, columns), penetration seals or closures, fire doors, and fire dampers that are rated by approving laboratories in hours of resistance to fire, and are used to prevent the spread of fire

Fire Zones

Subdivisions of fire areas within the plant designated as potential fire hazard zones.

High-Low Pressure Interface Components

Valves which form a boundary of the reactor coolant system or isolate the reactor coolant system from low-pressure systems, and have the potential of causing uncontrolled depressurization and/or loss of primary coolant as a result of fire-induced spurious operation.

Hot Shutdown

The reactor is shutdown with overpressure protection and coolant inventory restored and being maintained.

Isolation Device

A device in an electrical circuit, which prevents malfunctions in one section of the circuit from causing unacceptable effects in other sections of the circuit or other circuits (e.g., open contacts, fuses, switches, instrument isolation modules). Devices credited as providing electrical isolation for an Appendix R fire are not required to meet Class 1E qualification criteria unless required by other design considerations, i.e., the device also functions as a Class 1E isolator to meet electrical separation and independence criteria.

Local Control

Operation of equipment using remote controls specifically designed for this purpose from a location other than the Main Control Room in order to achieve post-fire safe shutdown.

Operator Action

Action taken by an operator from inside the Main Control Room.

Operator Manual Action

Operation/manipulation/observation of components/equipment/process variables outside the Main Control Room locally at the equipment.

Performance Goals

A set of functional criteria that ensure the plant will achieve a hot shutdown condition and subsequently be cooled down to and maintained in a cold shutdown condition.

Post-Fire

The time following identification of a fire.

Raceway Schedule

A computer-generated report that lists raceways (i.e., trays, conduits, etc.) installed in the plant. Information included in this report is raceway number, type, "from" and "to" destinations and a list of cables routed in each raceway.

Repair

Physical modifications that are performed in response to fire in order to safely shutdown the plant. Repairs are allowed for equipment needed to achieve and maintain cold shutdown. Repairs include the following activities:

- Replacement of damaged components.
- Replacement of cabling
- Modifications (e.g., wiring changes)
- The use of a tool (e.g., screwdriver, pliers, wrench, wire cutters)
- Installation of a component (e.g., fuse, pneumatic or electrical jumper)

Safe Shutdown

Hot or cold shutdown with reactor sub-critical, with control of coolant inventory and decay heat removal.

Safe Shutdown Equipment/Circuit

Equipment (and circuits) that may be used for achieving and maintaining safe shutdown in the event of an unmitigated fire in a fire area

Safe Shutdown System

A plant system or a portion thereof that is used to achieve and maintain the post-fire safe shutdown performance goals.

Spurious Operation

The undesirable operation of plant components caused by electrical circuits energized or deenergized as a result of fire damage. Spurious operation could also be caused by maloperation of the existing logical interlocks between different components as a result of fire-induced damage.

Unrecoverable Condition

A point in the sequence of an event where no reasonable action is available to recover plant conditions consistent with defined performance goals. Temporary deviation from performance goals is acceptable provided plant conditions can be restored prior to breaching fuel cladding integrity or reactor coolant system pressure boundary integrity. Generally, these deviations are supported by NRC Safety Evaluation Reports, NRC safety evaluations, or NRC granted exemptions.

J.4.3.2 Acronyms

The acronyms used in this section are summarized below:

AC	Alternating Current
AN2	Alternate Nitrogen System
AOV	Air-Operated Valve
ASDS	Alternate Shutdown System
CRC	Control Room Control
CRD	Control Rod Drive
CRV	Control Room Ventilation
CS	Core Spray
DC	Direct Current
EDG/DG	Emergency Diesel Generators
EFT	Emergency Filtration Train
ESW	Emergency Service Water
FW	Feedwater
GE	General Electric Company
HPCI	High Pressure Coolant Injection
HVAC	Heating Ventilation and Air Conditioning
LPCI	Low Pressure Coolant Injection
MNGP	Monticello Nuclear Generating Plant
MOV	Motor-Operated Valve
MS	Main Steam
MSIVs	Main Steam Isolation Valves
NBS	Nuclear Boiler System
PCT	Primary Containment
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RPRS	Reactor Pressure Relief System
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
RWCU	Reactor Water Cleanup
SPC	Suppression Pool Cooling
SRV	Safety Relief Valve
SW	Service Water
120V	120V AC
125V	125V DC
250V	250V DC
4160V	4160V AC
480V	480V AC

J.4.4 APPENDIX R SAFE SHUTDOWN SYSTEM SELECTION

This subsection documents the review of the available safe shutdown configurations of plant equipment to achieve safe shutdown conditions and attain subsequent cold shutdown conditions for MNGP. The requirements of Appendix R to 10 CFR 50 Section III.G, along with associated generic letters, have been used as the basis for the evaluation of post-fire safe shutdown capability. Section III.G of Appendix R requires that fire protection features be provided for those systems, structures, and components important to safe shutdown. These features must be capable of limiting fire damage so that:

- (1) One train of systems necessary to achieve and maintain hot shutdown conditions from either the Control Room or the Alternate Shutdown Panel is free of fire damage, and
- (2) Systems necessary to achieve and maintain cold shutdown from either the Control Room or the Alternate Shutdown Panel can be repaired within 72 hours.

Section III.L of Appendix R, "Alternative and Dedicated Shutdown Capability," Generic Letter 81-12 (February 20, 1981), Enclosure 1 "Staff Position Safe Shutdown Capability," and Generic Letter 86-10 (April 24, 1986), Enclosure 1, "Interpretations of Appendix R," provide additional guidance on the NRC Staff's requirements for this safe shutdown capability.

J.4.4.1 Safe Shutdown Functions

The safe shutdown functions, and the systems necessary to satisfy those functions, are determined by considering the performance goals, required by 10CFR50, Appendix R, Section III.L.

Section III.L, Alternate And Dedicated Shutdown Capability

Alternative and Dedicated Shutdown Capability (Section III.L.1)

Appendix R Section III.L describes the safe shutdown requirements when an alternate or dedicated shutdown capability is provided as required in Section III.G. described above. The safe shutdown requirements for any alternate or dedicated shutdown capability are essentially the same as those requirements and performance goals established for normal safe shutdown using system trains in the event of a fire except the alternate or dedicated structures, systems, components, and all associated cables shall be outside the Fire Area in consideration. The alternate or dedicated shutdown capability shall be able to:

- a. Achieve and maintain sub-critical reactivity conditions in the reactor,
- b. Maintain reactor coolant inventory,
- c. Achieve and maintain hot shutdown conditions,
- d. Achieve cold shutdown conditions within 72 hours,
- e. Maintain cold shutdown conditions thereafter.

During the post-fire shutdown, the RCS process variables shall be maintained within those predicted for a loss of normal AC power and the fission product boundary integrity shall not be affected (i.e., there shall be no fuel-clad damage, rupture of any primary coolant boundary, or rupture of the containment boundary).

Performance Goals For Shutdown Functions (Section III.L.2)

Reactivity Control Function

The reactivity control function shall be capable of achieving and maintaining cold shutdown reactivity conditions. (Section III.L.2.a)

Reactor Coolant Makeup Function

The reactor coolant makeup function shall be capable of maintaining the reactor coolant level above the top of the core for BWRs. (Section III.L.2.b)

Reactor Heat Removal Function

The reactor heat removal function shall be capable of achieving and maintaining decay heat removal. (Section III.L.2.c)

Process Monitoring Function

The process monitoring function shall be capable of providing direct readings of the process variables necessary to perform and control the above functions. (Section III.L.2.d)

Supporting Functions

The supporting functions shall be capable of providing process cooling, lubrication, etc., necessary to permit the operation of the equipment used for safe shutdown functions. (Section III.L.2.e)

Offsite Power And Shutdown Procedures (Section III.L.3)

The shutdown capability for specific Fire Areas may be unique for each such area, or it may be one unique combination of systems for all such areas. In either case, the alternate shutdown capability shall be independent of the specific Fire Area(s) and shall accommodate post-fire conditions where offsite power is available and where offsite power is not available for 72 hours.

Procedures shall be in effect to implement this alternate or dedicated shutdown capability.

Cold Shutdown Capability And On-Site Operating Shift Personnel (Section III.L.4)

If the capability to achieve and maintain cold shutdown is not available because of fire damage, the equipment and systems comprising the means to achieve and maintain the hot standby condition shall be capable of maintaining such conditions until cold shutdown can be achieved. If such equipment and systems are not capable of being powered by both onsite and offsite electric power systems because of fire damage, an independent onsite power system shall be provided.

The number of operating shift personnel, exclusive of fire brigade members, required to operate such equipment and systems shall be on site at all times.

Cold Shutdown Repairs And Repair Procedures (Section III.L.5)

Equipment and systems comprising the means to achieve and maintain cold shutdown conditions shall not be damaged by fire; or the fire damage to such equipment and systems shall be limited so that the systems can be made operable and cold shutdown achieved within 72 hours. Materials for such repairs shall be readily available onsite and procedures shall be in effect to implement such repairs. If such equipment and systems used prior to 72 hours after the fire are not capable of being powered by both onsite and offsite electric power systems because of fire damage, an independent onsite power system shall be provided. Equipment and systems used after 72 hours may be powered by offsite power only.

Seismic, Single Failure, Or Other Design Basis Accident Criteria (Section III.L.6)

Shutdown systems installed to ensure post-fire shutdown capability need not be designed to meet seismic Category I criteria, single failure criteria, or other design basis accident criteria, except where required for other reasons, e.g., because of interface with or impact on existing safety systems, or because of adverse valve actions due to fire damage.

Separation Of Associated Circuits (Section III.L.7)

The safe shutdown equipment and systems for each Fire Area shall be known to be isolated from associated non-safety circuits in the Fire Area so that hot shorts, open circuits, or shorts to ground in the associated circuits will not prevent operation of the safe shutdown equipment. The separation and barriers between trays and conduits containing associated circuits of one safe shutdown division and trays and conduits containing associated circuits or safe shutdown cables from the redundant division, or the isolation of these associated circuits from the safe shutdown equipment, shall be such that a postulated fire involving associated circuits will not prevent safe shutdown.

An acceptable method of complying with this alternative would be to meet Regulatory Guide 1.75 position 4 related to associated circuits and IEEE Standard 84-1974 (Section 4.5) where trays from redundant safety divisions are so protected that postulated fires affect trays from only one safety division.

The safe shutdown functions and systems are identified and described below.

Reactivity Control Function

Reactivity control will be accomplished by insertion of the control rods and will result from an automatic RPS trip or from operator initiation of a manual trip. This action will deenergize the RPS to actuate a reactor scram. The effects

of fires on the RPS are not considered to preclude the initiation of an automatic or manual reactor scram and control rod insertion.

Reactor Coolant Pressure Control Function

Protection from overpressurization of the isolated reactor vessel, prior to controlled cooldown and depressurization, is provided by eight SRVs. These valves are located on the main steam lines upstream of the MSIVs and are capable of automatic actuation, requiring no external source of power other than reactor vessel steam pressure. The valves will self-actuate if reactor pressure exceeds the set point pressure of 1120 psig. The eight SRVs are part of the RPRS. Each of these primary relief valves can also be remote-manually operated. Analyses [References J.4.7.69, 72 and USAR-J.02] were performed to simulate the spurious operation of one, four and all eight SRVs and the results were found to be acceptable. [References J.4.7.68 and 69]

Reactor Coolant Make-Up Control Function (Vessel Level Control)

For the postulated fire events, reactor coolant make-up control can be achieved by isolation of the Reactor Coolant System and control of vessel coolant level using water injected into the isolated reactor vessel at low pressures via the CS System. The SRVs will be manually operated to depressurize the reactor vessel below the CS cut-in pressure.

The availability of one train of CS System and at least two SRVs has been ensured for a fire in any one of the MNGP fire areas. This achieves the specified safety goals, thus ensuring compliance with the requirements of Appendix R. CS takes suction from the suppression pool and supplies water to the reactor vessel through the spray spargers over the core. These systems will be operated from the Control Room or ASDS panel located in the EFT Bldg., depending on the fire location. The ASDS panel will be used to achieve safe shutdown for a fire in the Control Room or Cable Spreading Room, while normal CRC would be available for all other fires.

Residual Heat Removal Function

Following a postulated reactor trip for which a loss of off-site power is assumed, decay heat is removed initially by natural circulation within the RPV and operation of SRVs. The SRVs discharge steam from the RPV to the suppression pool. The emerging steam is condensed in this pool; heat is removed and transferred to the river by operation of the RHR System in the SPC mode, and by the RHRSW System.

The large heat sink provided by the suppression pool water can be effectively utilized only as long as the steam, which is being discharged into the pool from the SRVs, is condensed. The SPC mode of the RHR System is used to ensure that the maximum bulk pool temperature required for the condensation of steam is not exceeded. For the postulated fire scenario the calculated peak bulk pool temperature is low enough to ensure the operability of CS and RHR pumps. [References J.4.7.51, 52, 68, 69, 70, 71]

Calculations [References J.4.7.68, 69, 70, 72 and USAR-J.02] have demonstrated that torus water temperatures will be within acceptable operating limits as long as at least one of four RHR pumps and its associated heat exchanger is placed in service for SPC within about 40 minutes after scram.

These analyses also verify that at least one RHR heat exchanger loop, consisting of one RHR and one RHRSW pump and associated valves, is capable of achieving and maintaining safe shutdown conditions. [Reference J.4.7.69, 72, 73 and USAR-J.02]

Process Monitoring Function

The operator requires a means to ascertain the values of various plant parameters in order to perform required system transitions and essential operator actions. Various process monitoring functions must be available to adequately support achieving and maintaining reactor coolant make-up, pressure control and decay heat removal functions. For the postulated fire scenarios, the maintenance and control of safe shutdown conditions require that reactor pressure and water level, and suppression pool temperature and level instrumentation is available.

Monitoring instrumentation will also include RHR, CS and EDG diagnostic instrumentation. For other safe shutdown systems, sufficient instrumentation will be available as necessary for operation.

Support Functions

Various plant systems are required to provide support to the primary shutdown systems selected to accomplish the previously defined safety functions. The systems that provide support functions for the postulated fire scenarios are:

- Power Distribution
 - 4kV/480VAC Essential Power System
 - 125VDC Essential Power System
 - 120VAC Uninterruptible Power Supply
- ESW System
- RHRSW System
- ECCS Room Coolers
- RHR Auxiliary Air System
- CRV System
- Ventilation Support for Electrical Rooms
- AN2 System, and D and G SRV Accumulators

Power Distribution

For a postulated fire with loss of off-site power, the Standby AC Power Supply and Distribution System (the AC Emergency Power System) is the source of ac electrical power to the other safe shutdown systems. Essential components of this system are the EDGs and supporting equipment (control power, Air-Start System and diesel fuel supply), the 4kV essential switchgear, and the 480V essential load centers and motor control centers. Total loss of off-site power to the auxiliary switchgear buses does not affect safe shutdown because all ac-powered equipment required for safe shutdown is fed from the 4kV emergency switchgear. For the postulated fire scenarios, the EDGs will either start automatically subsequent to the loss of off-site power, which results in automatic transfer, or all ac on-site power restoration is performed by operator action either from the Control Room or ASDS Panel. Each day tank and base tank combination provides fuel for eight hours of operation of the associated engine at full load. Operation of a fuel oil transfer pump (to provide fuel transfer from the storage tanks to the day tanks) is sufficient to support operation of one EDG for seven days. [Reference J.4.7.35]

The EDGs are provided with starting air supply receivers that are adequately pressurized. Emergency station batteries are used for electrical control power to the air-start system. Cooling water to the EDG engines is provided from the ESW System. The Division II EDG is equipped with a high jacket water temperature interlock to auto-start its ESW pump. This signal is independent of ASDS switching, thus assuring a timely supply if cooling water to the EDG. In addition, ventilation fans are used to remove heat generated in the DG Rooms.

For safe shutdown, the 125/250 VDC Power Supply and Distribution System (the DC Emergency Power System) will supply the safe shutdown loads for control power. The systems and components supported by the DC Emergency Power System are:

- Process monitoring instrumentation;
- Control power to 4kV breakers, 480V switchgear breakers and diesel generators; and
- RPRS control.
- Control power for 'D' and 'G' SRVs

For the postulated scenarios, stored battery energy is sufficient to support safe shutdown until AC on-site power and battery charging capability are restored manually from the Control Room or ASDS panel. [References J.4.7.36, 37]

The 120V uninterruptible ac distribution system provides a reliable source of ac power that is not affected by power system interruptions or transients from motor starts and faults. Two Class 1E uninterruptible (UPS) trains each containing an inverter, static switch, manual bypass switch, transformers, fused disconnect switches and distribution panels, and associated protection and control circuits. One train, located on the second floor of the EFT Building, supplies power to Class 1E Division 1 loads on panel Y70 (and the non-1E loads located on distribution panel Y10 through fused-disconnect switch Y74). The second train located on the third floor of the EFT Building supplies power to Division 2 loads on panel Y80 (and to the non-1E loads located on distribution panel Y30 through a fused disconnect switch Y84). Under normal conditions, dc power is supplied to inverter Y71 (Div 1) from 250Vdc distribution panel D31, and to inverter Y81 (Div 2) from 250Vdc panel D100. Battery chargers or their respective batteries provide power to the dc distribution panels, should the chargers be inoperative for any reason. Therefore, an uninterruptible source of power is available to the inverters as long as the batteries are charged.

ESW System

The safety function of the ESW System is to provide a supply of cooling water to the EDGs, ECCS room coolers, coolers for the RHR and CS pump motors, and the Control Room air conditioning units. For safe shutdown, operation of two ESW pump is sufficient to support safe shutdown.

RHRSW System

The safety function of the RHRSW is to provide a supply of cooling water for the RHR system during the achievement and maintenance of safe shutdown. One RHRSW pump is adequate to accommodate the heat removal requirements of one RHR heat exchanger to achieve safe shutdown conditions. The same operational considerations that apply to RHR are applicable to this system.

ECCS Room Coolers

Each RHR/CS pump room is equipped with a room cooler to provide an ambient air heat sink to support operation of the pumps.

RHR Auxiliary Air System

The RHR Auxiliary Air System is comprised of two independent air compressors, one for each division of RHRSW. In the event a postulated fire results in the loss of normal plant instrument air, each air compressor will automatically provide control air to its respective RHR HX RHRSW control valve, CV-1728 or CV-1729.

CRV System

The CRV system supports habitability of the Control Room during the post-fire shutdown process via operation of ventilation fans and packaged air conditioning units. The system is provided with two redundant divisions, one of which is required to support shutdown.

AN2 System

For safe shutdown, the Alternate Nitrogen System supports SRV operation, other than 'D' and 'G' SRVs, to achieve safe shutdown conditions.

Ventilation Support

Ventilation equipment for the vital switchgear rooms and other spaces containing electrical equipment relied upon for post-fire safe shutdown is powered only from offsite power. Consequently, although the equipment may be available during post-fire shutdown, it is not credited as part of this analysis. In the event a postulated fire results in the loss of ventilation to a particular electrical equipment space and conditions warrant ventilation support, supplemental ventilation can be provided in accordance with plant procedures. [Reference J.4.7.53]

J.4.4.2 Appendix R Safe Shutdown System Operation

In accordance with the general criteria and assumptions discussed in the preceding subsections, safe shutdown systems are selected for MNGP that will:

- Attain the previously defined performance goals for achieving and maintaining safe shutdown conditions, and
- Be operational without off-site power.

Portions of the selected safe shutdown systems are required to achieve the requisite performance goals. Specific portions of the following MNGP systems are required to achieve safe shutdown:

- CS System
- RPR System
- RHR System (in SPC mode)
- Instrumentation
- RHRSW System
- ESW System
- Power Distribution
 - AC System
 - DC System

These systems are used to achieve hot and cold shutdown conditions.

The following subsections provide a general discussion of the safe shutdown systems.

Core Spray System

CS is designed to provide a high capacity low-pressure source of spray water to the reactor vessel to ensure adequate core cooling for a spectrum of conditions that can depressurize the reactor vessel. The core spray system consists of two completely independent subsystems, each with a motor-driven pump and associated piping and valves.

The suppression pool provides the guaranteed source of water for the CS system. Upon reactor depressurization, the core spray injection valves are opened in each subsystem and the flow enters the reactor vessel through the two independent spray spargers over the core. Each subsystem is capable of independently satisfying the required safe shutdown functions.

The CS system requires ac power for operation. Power to the CS system can be supplied from the normal off-site power system or the EDGs.

There are several automatic system initiation signals and permissives for the CS system including reactor low-low water level and low reactor pressure permissive. However, automatic initiation of the CS system is not credited in this analysis. Potential spurious operation of instruments providing permissives for automatic operation of CS valves is considered. Cables associated with the respective components are selected, as necessary. Post-fire operator action will replace such automatic initiation signals where and if necessary.

Reactor Pressure Relief System

The RPRS consists of eight SRVs and associated piping and 125V dc power supply. The SRVs are designed to be capable of manual actuation to reduce reactor vessel pressure in order to enable the low-pressure core spray system to function. The SRVs include the valves, pneumatic supplies, and associated circuitry for manual operation.

For the safe shutdown system function, the valves are manually operated to depressurize the reactor vessel by transferring steam to the suppression pool. Depressurization of the reactor vessel enables the low-pressure CS system to effectively function. Control of the Division I SRVs is provided in the Control Room while the Division II SRVs are controlled from the ASDS Panel. Simultaneous operation of at least two SRVs is required to ensure rapid depressurization with minimum acceptable vessel inventory loss. [References J.4.7.69, 72 and USAR-J.02]

The SRVs require only dc power from the plant battery system for operation. Motive power for valve operation is from the AN2 System or installed accumulators on 'D' and 'G' SRVs. There are no required automatic system actuation signals for the safe shutdown system function. Post-fire operator actions will replace such automatic initiation signals, as necessary.

Residual Heat Removal System

The RHR system consists of four pumps, two heat exchangers, and associated valves and piping. The system is divided into two identical loops physically separated for redundancy. The four RHR service water pumps transfer decay heat from the reactor vessel or suppression pool to the ultimate heat sink via the two heat exchangers. The RHR system has several modes of operation to perform different functions. For the Appendix R analysis, only the SPC mode of RHR is considered.

During normal power operation, the torus water must be maintained at or below 90°F. [Reference J.4.7.45] During a postulated fire scenario, operation of one of four RHR pumps and associated valves in the SPC mode have been demonstrated to be sufficient to maintain the pool temperature below its maximum design temperature and the net positive suction head requirement of the CS and RHR pumps. [References J.4.7.51, 52, 68, 69, 70, 71]

Operation of one of two RHR pumps, heat exchanger and one of the two RHRSW pumps within about forty minutes after vessel depressurization will ensure the achievement of safe shutdown conditions. [References J.4.7.68, 69, 70, 72 and USAR-J.02] The ASDS is designed to utilize the Division II, B RHR and RHRSW pumps.

01101248

01101248

Plant Parameters Monitoring System

The process instruments are those required for monitoring and shutdown operation. These include reactor pressure, reactor water level, suppression pool temperature, and suppression pool level. The indication for those instruments is available in the Control Room or at the ASDS panel depending on the fire location. The measurement of reactor vessel pressure is used to determine when the pressure is below the cut-in pressure of the CS System. Reactor water level is measured to determine the need for additional coolant inventory.

The temperature of the suppression pool provides indication of the capability of the pool to accept additional energy. Based on this information, the need to depressurize the reactor for CS operation, and to initiate SPC for decay heat removal can be determined. The measurement of water level in the suppression pool determines the availability of water from this source for safe shutdown operation.

J.4.5 APPENDIX R EQUIPMENT/CABLE IDENTIFICATION

This subsection discusses the identification of safe shutdown system components and their associated electrical circuits, and the methods used to analyze them to demonstrate compliance with 10 CFR 50 Appendix R, Section III.G. The methods presented include those necessary to identify or determine the following:

- Safe shutdown systems, components, and their associated electrical circuits
- Associated circuits of concern (as defined by Generic Letter 81-12)
- Appendix R analysis methodology

Initial Conditions/Assumptions for Appendix R

- a. The unit is operating at 100% power upon the occurrence of a fire.
- b. The reactor is tripped either manually or automatically, at the onset of a fire.
- c. The Control Room will remain occupied throughout a fire incident except when there is a fire within the Control Room or the Cable Spreading Room resulting in uninhabitable conditions in the Control Room.
- d. A loss of offsite power is assumed to occur concurrent with the fire, unless the effects of offsite power remaining available could be more severe than a loss of offsite power (i.e., power remaining available to the feedwater pumps). No credit is taken for offsite power as a motive power source.
- e. No additional single failures are considered other than the loss of offsite power and those directly attributable to the fire.
- f. No equipment is out of service.
- g. The fire does not affect components inside primary containment since it is inerted when the reactor is at power.
- h. Passive mechanical components, such as valves, heat exchangers, and piping systems that may be exposed to a fire remain structurally intact as a pressure barrier or structural member of a system. Mechanical components that are exposed to a fire may be operated after the fire is extinguished if a local operational capability exists (i.e., handwheel on a motor- or air-operated valve).
- i. A MOV that has its power supply disabled during normal operation will not operate spuriously during a fire.
- j. Reactor vessel inventory loss through lines 1 inch or smaller is considered to be insignificant and can be compensated for by any credited RPV water supply system. [References J.4.7.6, 9]
- k. The capability to strip unnecessary loads from the vital 4.16 KV buses to prevent EDG overload is needed only for Division II and only from the ASDS Panel. The reasoning is that a fire in the Control Room or Cable Spreading Room, which are the only cases where ASDS will be used, could result in the application of undesired loads to the Division II vital 4.16 KV bus due to fire-induced breaker operation resulting in an excessive load on the Division II EDG. A fire in any other area would not cause the credited EDG to be overloaded due to divisional separation. Therefore, fire-damage will not result in the uncontrolled application of loads to the credited vital 4.16 KV bus and its associated EDG.

J.4.5.1 Identification of Safe Shutdown Equipment

For each safe shutdown system, plant flow diagrams (hereafter referred to as P&IDs) and system descriptions were used to identify the primary flow paths and operational characteristics that must be established to accomplish the desired safe shutdown performance goals. The safe shutdown model developed for the Appendix R Section III.G evaluation incorporates both the design features of the facility and the operating procedures in use at MNGP. From this information, a list was compiled of the components that participate in the system's performance of its safe shutdown function. These components are:

- Components that establish the primary safe shutdown flowpath and/or system operation
- Support system components
- Components whose fire-induced failures may result in the loss of the ability to achieve a prescribed safe shutdown function

From the analysis of the safe shutdown flow paths, those components whose spurious operation could threaten safe shutdown operability were also identified. This identification included those branch flow paths that must be isolated and remain isolated to ensure that flow will not be substantially diverted from the primary flow path. Also, high/low pressure interfaces that could be subjected to electrical fire-induced failures were identified.

The safe shutdown equipment list developed for MNGP includes the electrical components required to provide safe shutdown capability and those electrical components considered for the analysis of potential spurious operations.

The resulting list of safe shutdown equipment is provided in Table J.4.3-1

J.4.5.2 Identification of Required Cables for Safe Shutdown Equipment Operation

The cables necessary to operate and/or maintain the status of each safe shutdown component were evaluated by a detailed review of schematics and elementary diagrams which depict how each component operates and is controlled. The block diagrams associated with each schematic depict the cables essential for the operation of the device. These cables have a unique scheme number. All cables listed under that scheme were investigated to identify the required safe shutdown cables. In addition to these cables, cables that could affect the operation of the component (e.g., tripping circuit of a pump) were selected as required safe shutdown cables. The circuit and raceway schedule was used to identify the correct cable numbers. The cable numbers were identified from block diagrams, cable and raceway schedule and wiring diagrams as necessary. [Reference J.4.7.9]

For those cases where block diagrams did not exist (i.e., instrumentation), wiring and instrument loop diagrams, in conjunction with electrical cable and raceway information were used to trace the circuit and cable numbers.

The discussions in this section address the process, methods, criteria, guidelines, and assumptions used to conduct the primary circuit analysis. The primary circuit analysis identifies cables that could adversely affect safe shutdown due to direct impact on equipment functionality or due to spurious operation. These cables are referred to as safe shutdown cables (or circuits) throughout this report.

J.4.5.3 Circuit Analysis

For each safe shutdown component, the applicable schematic (elementary) diagram and single line diagram were obtained. Other drawings (e.g., wiring diagrams, connection diagrams, vendor drawings) or design documents were also obtained (if necessary) to fully evaluate the circuits with respect to safe shutdown operation of the component.

Circuit Analysis Criteria and Assumptions

The following criteria and assumptions are used for circuit analysis:

- a. Components are assumed to initially be in their normal operating position.
- b. All relay, position switch, and control switch contacts in control circuits are assumed to be in the position that corresponds to the normal plant operating condition of that device unless specifically stated otherwise.
- c. Test switches in control circuits are assumed to be in their normal plant operating position.
- d. Only those portions of the component circuitry required for the desired Appendix R function of the component (operable or stay-in-place) are identified.
- e. Fire damage is assumed to render a cable and electrical components nonfunctional with regard to ensuring proper circuit operation.
- f. Prior to ASDS switching, the ASDS licensing basis is one hot short (inter-cable or intra-cable) causing a spurious operation or one plausible spurious operation of an unprotected cable. The NRC review of the design documented in Reference J.4.7.13 and its enclosed safety evaluation is considered as defining the licensing basis for ASDS. In Section 3.4.3, Spurious Operation, the NRC states, "The ASDS is designed to handle spurious operation within its own equipment. Manual control of the ASDS components is available at the ASDS panel to correct any possible spurious operation once the manual transfer from the control room to the ASDS panel is accomplished."
- g. Instruments exposed to a fire (e.g., RTDs, thermocouples, pressure transmitters, flow transmitters, and mechanically linked remote/local indications) are assumed to suffer damage that results in failure of the instruments. The instrument fluid boundary associated with these devices is, however, assumed to remain intact.
- h. Instrument circuits that operate at low signal levels (4-20 mA, 0-1 V, 1-5 V, etc.) and are enclosed in a grounded metal shield are not considered to be susceptible to hot shorts from other adjacent instrument circuits external to the shield. External circuits are assumed to short to ground via the shield and do not have the potential of creating a signal of proper polarity and amplitude to simulate a valid instrument signal. Instrument circuits are, however, assumed to be susceptible to short circuits (from conductors within the shield), open circuits and shorts-to-ground.
- i. Two types of cable hot short conditions are considered to be of sufficiently low likelihood that they are not assumed credible, except for analysis involving high/low pressure interface components. These hot shorts are:
 - 3-phase ac power circuit cable-to-cable proper phase sequence fault
 - 2-wire ungrounded dc circuit cable-to-cable proper polarity faults

Credible Circuit Failures

It was assumed that fire damage results in an unusable cable that cannot be considered functional with regard to ensuring proper circuit operation. The insulation and external jacket material of electrical cables are susceptible to fire damage. Damage may assume several forms including deformation, loss of structure, cracking, and ignition. The relationship between exposure of electrical cable insulation to fire conditions, the failure mode, and time to failure may vary with the configuration and cable type. To accommodate these uncertainties in a consistent and conservative manner, the circuit analysis assumes that the functional integrity of electrical cables was lost when cables are exposed to a fire, except where protected by a fire rated barrier.

Electrical circuits exposed to a fire are considered susceptible to the following credible failure modes:

- Short Circuit - An individual conductor that comes into electrical contact with another electrical conductor.
- Short to Ground - An individual conductor that comes into electrical contact with a grounded conducting device, such as a cable tray, conduit, or metal housing.
- Hot Short - An energized conductor that comes into electrical contact with another conductor, thereby energizing the affected conductor. (Not applicable to instrument circuits, see criterion g)
- Open Circuit - An individual conductor that loses electrical continuity.

Figures J.4.5-1 through J.4.5-6 depict examples of circuit failure modes that are considered in the safe shutdown circuit analysis.

Cable Selection

The guidelines, criteria, and assumptions use in the circuit analysis conform to the guidance provided in NRC Generic Letters 81-12 and 86-10, and other related documents.

1. Only manual initiation of equipment and systems was credited in the safe shutdown analysis.
2. Subcomponents such as solenoids, pilot valves, relays, switches, etc., were not explicitly identified in the SSEL. Instead, the subcomponents were tied to their primary component (i.e., components listed on the SSEL) by the circuit analysis process, which links all circuits associated with subcomponents to the primary components. The subcomponents are inherently incorporated into the analysis by capturing the field cables that run to the components. Failure of subcomponents was inherently considered in the circuit analysis.
3. Panel wires that are completely contained within a panel were not explicitly listed as safe shutdown cables. These wires are inherently included in the safe shutdown analysis in the same manner as subcomponents.
4. In performing the primary circuit analysis, it was assumed that electrical coordination exists for all power supplies. Associated circuit cables downstream of the protective devices were not identified as safe shutdown cables nor included in the circuit analysis.
5. In conducting the electrical analysis for a component, no assumptions were made about the presence or lack of motive/control power or supporting air. All functional states of the component were considered to ensure that the analysis was performed under "worst-case" Appendix R conditions.
6. Electrical isolation devices prevent malfunctions in one section of a circuit from causing unacceptable effects in other portions of the circuit or other circuits (e.g., open contacts, fuses, switches, instrument isolation modules). Devices credited as providing electrical isolation were identified in the circuit analysis for the affected component

7. Wiring directly connected to the circuit under analysis was dispositioned by the analysis as part of the subject circuit.

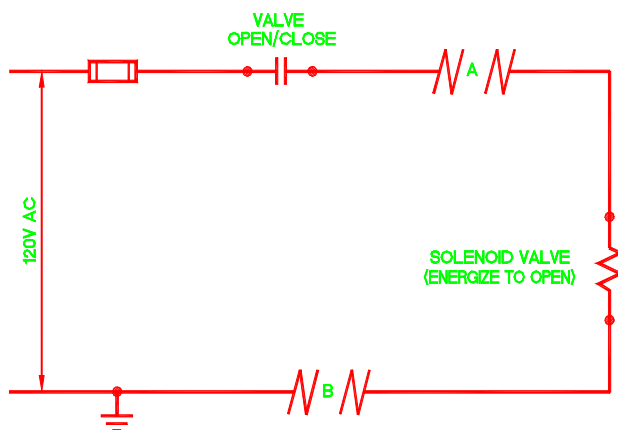
The list of safe shutdown cables, which resulted from the performance of these steps, is provided in Table J.4.5-2.

Instrument Sensing Lines

Instrument sensing lines for level, pressure, and flow transmitters that are exposed to a fire are considered to have the potential of causing erratic or unreliable indication, unless a fire hazards analysis demonstrates that this failure is not credible.

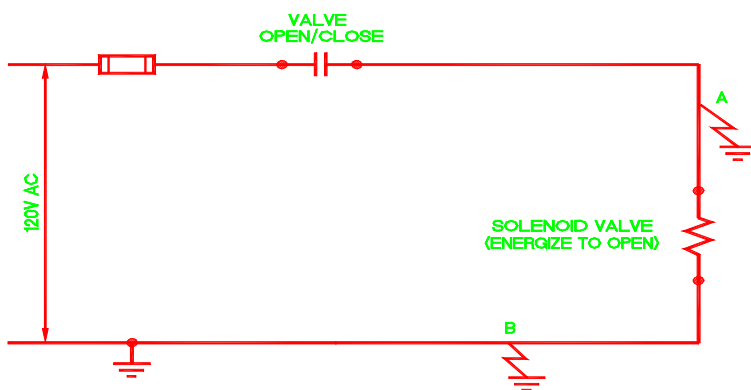
The routing of the reactor vessel level instrument sensing lines was specifically reviewed to ensure that a single fire would not cause erroneous indication in the redundant instruments. LT-2-3-112A is located on 935' East and LT-2-3-112B is located on 935' West near C121 in the Reactor Building. The level instrumentation LT-2-3-112A and LT-2-3-112B are routed such that a common fire would not cause erroneous indication simultaneously on both instruments. Appendix R doors Door-410A and Door-410B separate level instrumentation LT-2-3-112A and LT-2-3-112B. Three-hour barrier(s) separate the instrument sensing lines for LT-2-3-112A and LT-2-3-112B until they both reach the 974' Cubicle. From the 974' cubicle, the instrument sensing line for LT-2-3-112B is routed through the ceiling to the 985' elevation of the Reactor Building, and enters the southwest quadrant of containment. The instrument sensing line for LT-2-3-112A leaves the 974' cubicle, and is routed around containment at the 962' elevation to the northeast then through the floor to the 985' elevation, and enters the northeast quadrant of containment. Within the 974' Cubicle approximately 15 feet separate the sensing lines. There is no combustible loading within the cubicle, and there is minimal exposure to the sensing lines from the 962' elevation through the ladder opening that is the only access or egress from the 974' Cubicle. On the 962' elevation there is detection, which would alarm in the Control Room if a fire occurred on that floor. The equivalent fire severity is 10 minutes for fire zone 3B, which encompasses the 962' elevation of the Reactor Building. Therefore, it is unlikely that a fire would cause erroneous indication on both instrument lines.

Figure J.4.5-1
Open Circuit Example



An open circuit at either A or B would prevent circuit operation and cause the solenoid valve to de-energize/remain de-energized. The example above is on a grounded 120 VAC circuit. An open circuit has essentially the same effect on all circuits, regardless of voltage level and presence or absence of a ground (it causes a loss of circuit continuity). In some instances where a solenoid or relay is normally energized, an open circuit can cause a component to change position.

Figure J.4.5-2
Short-to-Ground Example



A short to ground at A could either blow the control power fuse (or could blow the fuse when the circuit is energized from the control switch). A ground at B has no impact since the circuit is already grounded.

Figure J.4.5-3
Hot Short Example (Cable to Cable)
Inter-Cable Hot Short

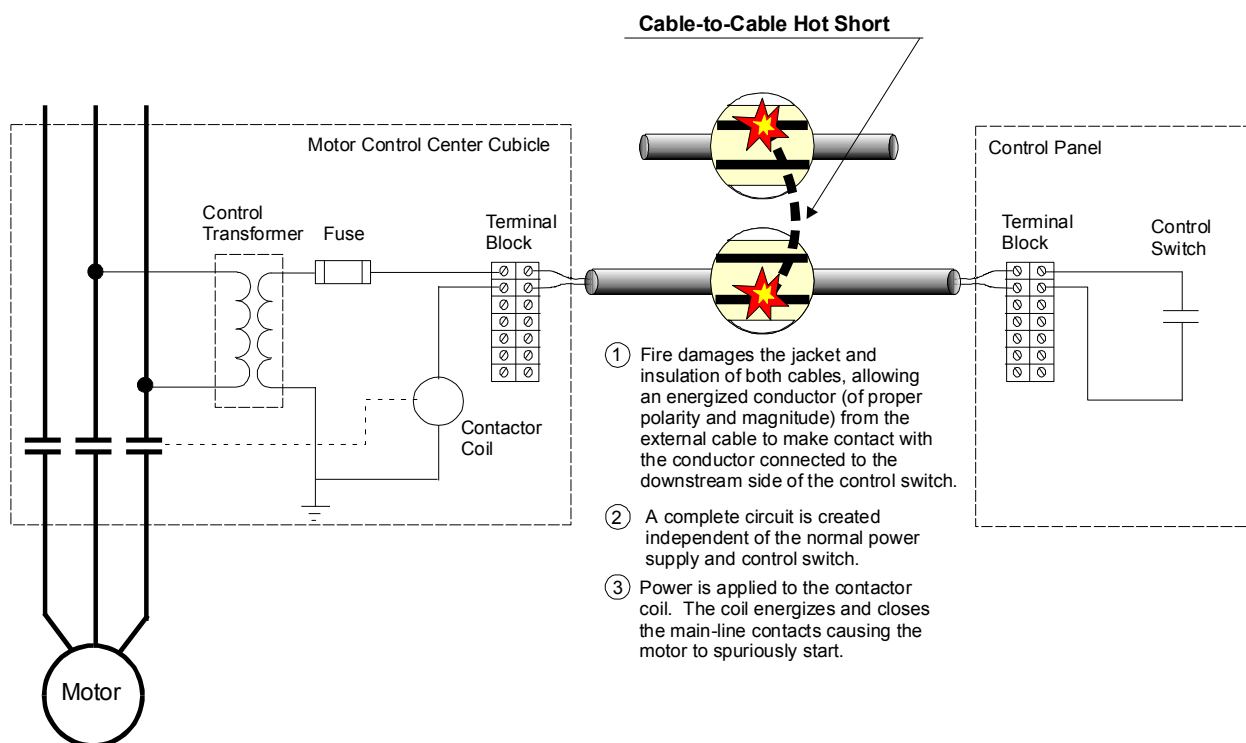


Figure J.4.5-4
Hot Short Example (Wire to Wire Short Within Same Cable)
Intra-Cable Hot Short

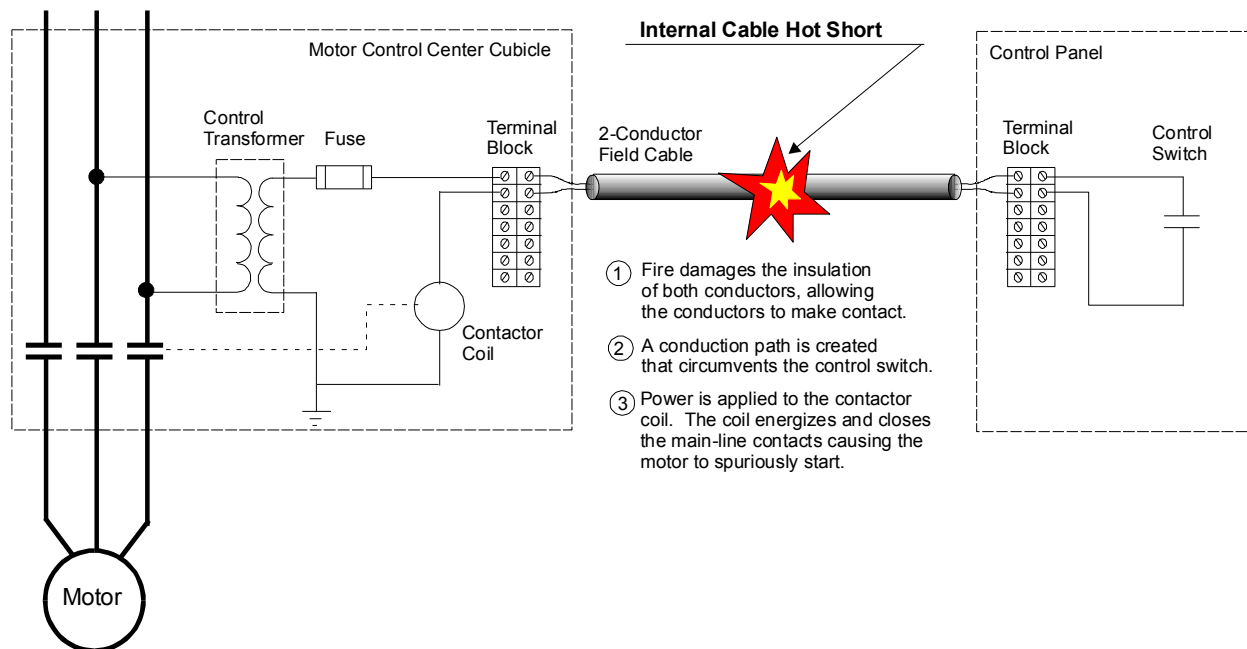
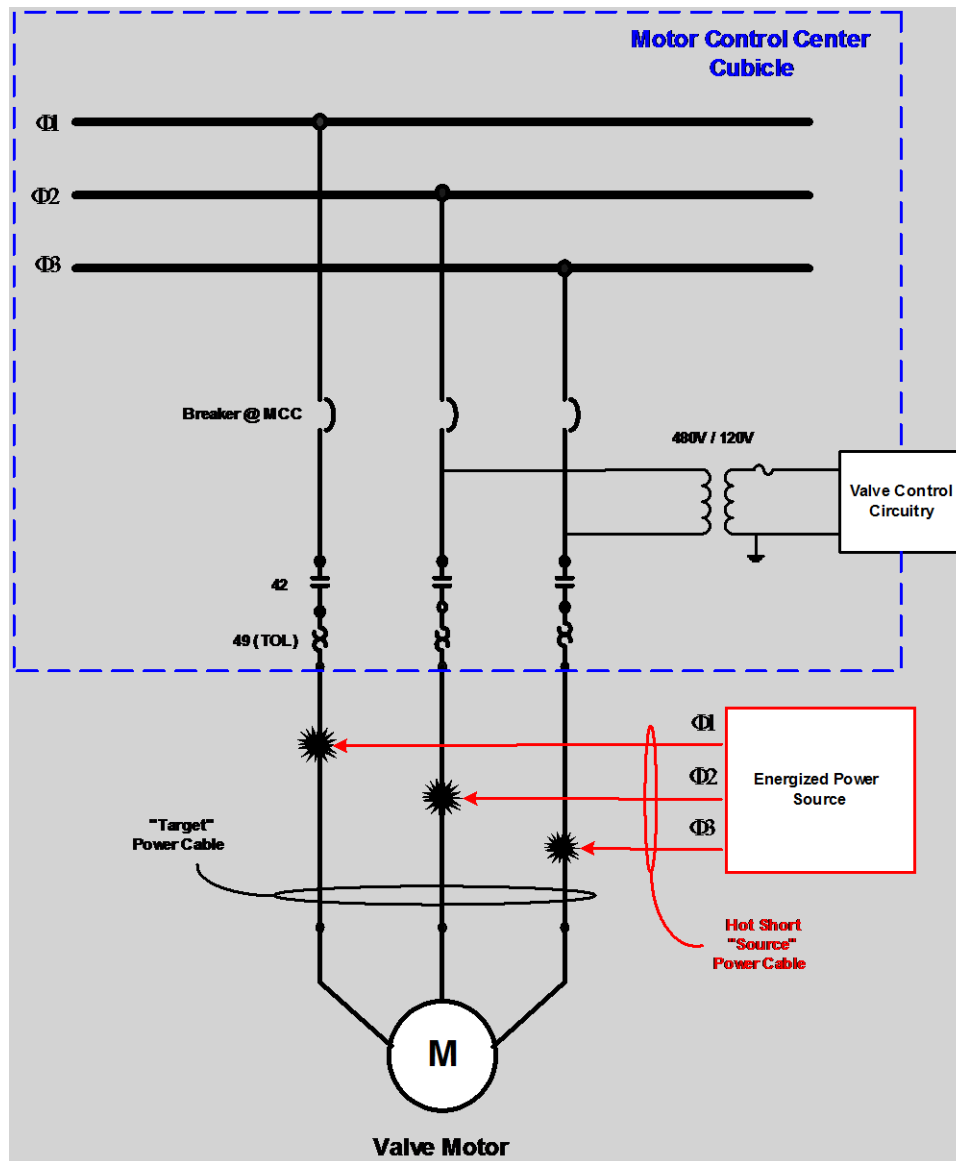
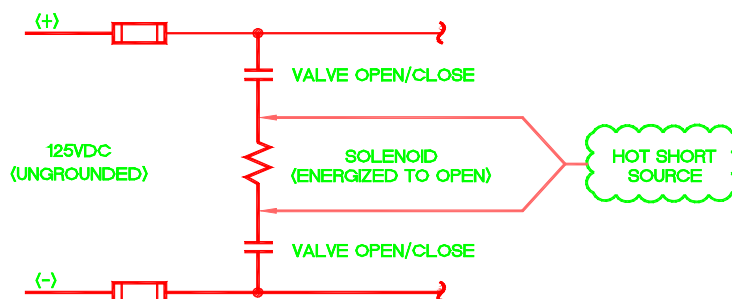


Figure J.4.5-5
 Three-Phase AC Hot Short Example (MOV)
 High-Low Pressure Interface Valves



An energized 3-phase AC cable, of the same voltage as the valve motor under consideration, shorts to the de-energized power cables of the susceptible high-low pressure interface valve motor. The short is of the proper phase and sequence, to cause the motor of the valve to energize and move the valve to the undesired position. Note that due to the location of the circuit failure, it is not required that the valve have its breaker closed at the motor control center. For non-high-low interface components, this circuit failure is not considered credible.

Figure J.4.5-6
Two-Wire Proper Polarity DC Hot Short Example
(Solenoid Valve or Solenoid Pilot Valve for AOV)
High-Low Pressure Interface Valves



An energized DC cable, of the same voltage as the valve under consideration, shorts to the de-energized cables of the susceptible high-low pressure interface valve (or pilot valve) to energize and move the high-low pressure interface valve to the undesired position. Note that due to the location of the circuit failure, it is not required that the valve (or solenoid operated pilot valve) have its DC control power breaker closed at its distribution panel.

Also note that, if the "valve open/close" contact on the negative leg of the control circuit is not provided in the circuit, a single hot short on the positive leg from the same dc source could cause the undesired valve operation.

For non-high-low interface components, this circuit failure is not considered credible unless the source and target conductors are in the same multi-conductor cable.

Associated Circuits in Accordance with Generic Letter 81-12

The separation and protection requirements of 10 CFR 50 Appendix R apply not only to safe shutdown circuits but also to associated circuits that could prevent operation or cause maloperation, of safe shutdown systems and equipment. Associated circuits of concern have been included in the safe shutdown analysis and found not to adversely impact safe shutdown. [References J.4.7.6, 9, 11, 17]

Associated Circuits by Common Power Supply

Circuits and cables associated by common power supply are those non-safe shutdown loads whose fire-induced failure may cause the loss of a power source (bus, distribution panel, or MCC) necessary to support safe shutdown. This problem could exist for safe shutdown power supplies at all voltage levels and types. The concern is resolved by ensuring adequate electrical protective device coordination between the safe shutdown power supply upstream protective device and the non-safe shutdown load protective device.

The fuse and breaker coordination study [Reference J.4.7.40] shows that potential concerns with associated circuits by common power supply do not exist at the Monticello Plant. The study included all protective devices throughout the plant's auxiliary power distribution system that serve safe shutdown equipment. This study, together with documentation on the 4.16kV switchgear and the 480V load centers, demonstrates that hot shorts or shorts to ground will not adversely affect or prevent operation of credited safe shutdown equipment.

Associated Circuits by Common Enclosure

Circuits can be associated by common enclosure in two ways. First, fire-induced damage to non-safe shutdown cables can create circuit faults in electrically unprotected cables. Such faults could be of sufficient magnitude to create secondary fires in the cables as a result of the fault currents. If such secondary fires were to occur in enclosures (raceways, panels, etc.), these fires could adversely impact safe shutdown cables or equipment contained within the common enclosure. The approach used at MNGP to resolve this issue is to ensure that any cables that share a common enclosure with safe shutdown equipment have adequate electrical protection via circuit breakers, fuses or current-limiting devices that will prevent the occurrence of electrically induced secondary fires. This eliminates the possibility that associated circuits by common enclosure and not electrically protected will affect safe shutdown.

This second type of associated circuit by common enclosure is concerned with the issue of cable jacket fire propagation. This aspect of associated circuits can also be viewed as an intervening combustible question. The concern is that fires will spread because of cable burning beyond the immediate area of concern and will ultimately affect safe shutdown cables that share raceways with the ignited cables. This concern is limited given the existence of physical fire area boundaries that eliminate the potential of fire propagation from one fire area to adjacent areas.

A third type of common enclosure issue involves current transformers. Current transformers are used throughout the electrical distribution system to monitor bus current and provide overcurrent protection. The current transformers are physically located on the electrical conductor (i.e., bus bar) and provide a signal from their secondary winding that is proportional to the current flowing through the main conductor. Current transformers are designed to transform high primary current into low secondary current. Theoretically, the secondary voltage is as high as required to maintain a constant primary-to-secondary current ratio. An opening in the secondary circuit causes excessively high voltages in the current transformer secondary circuit in an attempt to maintain this ratio. This condition can result in voltages that exceed the dielectric strength of the current transformer materials or connected components. The operating characteristics of current transformers were reviewed to determine if the CTs represent a secondary fire hazard for a shorted secondary circuit.

Associated Circuits Causing Spurious Operation

Circuits associated by spurious operation are those that can cause safe shutdown equipment or non-safe shutdown equipment to malfunction, by fire-induced failures, in a way that potentially defeats the function of safe shutdown systems or equipment. Examples include the uncontrolled opening or closing of valves due to fire-induced damage to control circuit cables.

There are two categories of components whose spurious operation could affect safe shutdown. These components can be defined as:

- (1) Components whose fire-induced spurious operation may cause a breach in the reactor coolant system boundary at high/low pressure interfaces (i.e., result in a loss of reactor coolant inventory) or cause an uncontrolled and undesirable depressurization of the reactor vessel and damage to low pressure systems
- (2) Components whose fire-induced spurious operation may have a detrimental impact on safe shutdown capability by negating the operation of a safe shutdown system.

The identification of potential spurious operations of the first category is based on a review of MNGP P&IDs for the applicable plant systems. This review consisted of the identification of high/low pressure interfaces and potential paths for reactor coolant inventory loss. The flow paths identified are those that are isolated by electro-mechanical or electro-pneumatic components.

Potential flow paths that are isolated by local hand-operated valves, check valves, or relief valves are not considered for spurious operation. To address the potential spurious operation of components along the high/low pressure boundaries, MOV-2029 and MOV-2032 of the RHR system and MOV-2401 of the RWCU are closed and power to them is locked out during reactor power operation. [References J.4.7.6, 9, 11, 13, 19]

As noted previously, it is assumed that the inadvertent opening of valves in small lines (1-in. diameter or less) can lead to a small loss of inventory. [References J.4.7.6, 9] The rate of loss is significantly less than that through one SRV and, therefore, does not affect the safe shutdown capability. The rate of makeup required to compensate for such losses is within the capability of one train of the CS system.

Spurious operations of the second category are addressed by the methodology followed in the identification of safe shutdown cables. Resolution of spurious operations of this type is based on one of the following: separation of redundant trains, provision for local control by isolating Control Room circuits, alternative shutdown capability, or control circuit modification. To address potential short circuits due to fires postulated within the control and cable spreading rooms that may bypass torque and limit switches, control circuits of the following motor operated valves have been modified [References J.4.7.24, 26, 27, 56]:

- MO-1750, Core Spray Test Valve
- MO-1752, Outboard Core Spray Injection Valve
- MO-1754, Inboard Core Spray Injection Valve
- MO-2003, RHR Heat Exchanger Bypass Valve
- MO-2007, Outboard Torus Discharge Valve
- MO-2009, Outboard Torus Discharge Cooling Injection/Test Valve

In addition, control circuits for the following components have been modified to alleviate concerns regarding category 2 spurious operations [References J.4.7.25, 41, 42, 43, 44]:

- Bus 14 to Bus 16 4kV Supply (152-408)
- 12 Emergency Diesel Generator to Bus 16 4kV Supply (152-602) Load Shed Relays

- 14 RHR Pump (P-202D)
- 12 CRD Pump (P-201B)
- 12 RHR Service Water Pump (P-109B)
- 14 RHR Service Water Pump (P-109D)
- 12 Emergency Service Water Pump (P-111B)

Tables J.4.5-3 and J.4.5-4 document the review of the plant systems for Category 1 and 2 spurious operation concerns.

J.4.5.4 Plant Location (by Fire Zone) of Safe Shutdown Equipment and Cables

Safe shutdown cables and equipment were identified by fire area and fire zone. The Updated Fire Hazards Analysis (Appendix J.5) was used as the source of fire area and fire zone identification.

The cable and raceway information system is used to support component and cable identification. The system provides the route of safe shutdown cables on a fire zone/area basis. It also identifies components via termination points of the cables. This information is then used to facilitate the safe shutdown analysis.

Several dummy fire zones were defined in order to locate raceways and cables. This list includes DW for Drywell, DB for duct bank, and TUNNEL for the duct bank buried in the yard.

J.4.5.5 MNGP Safe Shutdown Database

The resulting information from the cable and component identification methodology is reflected in Tables J.4.5-1, J.4.5-2 and J.4.6-1. This database includes routing information from the computerized MNGP cable and raceway information system.

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
120V	B-34P	1	120V Distribution Panel	XXI	32A	
120V	Y10	1	Division 1 Non-1E Instrument Panel	VI	8	
120V	Y20	1/2	1E Instrument AC Distribution Panel	VI	8	Supplies Div I and Div II Indicators in C03. Minimum flow valves for all RHR pumps fail open.
120V	Y70	1	120V AC Distribution Panel	XXI	32A	
120V	Y71	1	120V AC Inverter	XXI	32A	Subcomponent to Y-70
120V	Y72	1	480/120V UPS Transformer	XXI	32A	Subcomponent to Y-70
120V	Y73	1	120V AC UPS Bypass Switch	XXI	32A	Subcomponent to Y-70
120V	Y74	1	120V AC Disconnect Switch	XXI	32A	Subcomponent to Y-70
120V	Y75	1	120V AC Disconnect Switch	XXI	32A	Subcomponent to Y-70
120V	Y77	1	Transformer to Panel Y10	XXI	32A	Subcomponent to Y-70
120V	Y80	2	120V AC Distribution Panel	XXII	33	
120V	Y81	2	120V AC Inverter	XXII	33	Subcomponent to Y-80
120V	Y82	2	120V AC UPS Transformer	XXII	33	Subcomponent to Y-80
120V	Y83	2	120V AC UPS Bypass Switch	XXII	33	Subcomponent to Y-80
120V	Y84	2	120V AC Disconnect Switch	XXII	33	Subcomponent to Y-80
120V	Y85	2	120V AC Disconnect Switch	XXII	33	Subcomponent to Y-80
120V	Y87	2	Transformer	XXII	33	Subcomponent to Y-80
125V	D1	1	#11 125V Battery	VI	7A	
125V	D10	1	#11 Battery Charger	VI	7A	
125V	D100	2	125/250V DC Distribution Panel	XXII	31B	
125V	D11	1	125V DC Distribution Panel	VI	7A	
125V	D111	1	125V DC Distribution Panel	IX	12A	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
125V	D12	1	125V DC Fuse Panel	VI	7A	Subcomponent to D1
125V	D2	2	#12 125V Battery	VII	7C	
125V	D20	2	#12 125V DC Battery Charger	VII	7C	
125V	D21	2	125V DC Distribution Panel	VII	7C	Subcomponent to D2
125V	D211	2	125V DC Distribution Panel	XII	14A	
125V	D22	2	125V DC Fuse Panel	VII	7C	
250V	D3	1	#13 Battery	VI	7B	
250V	D31	1	125/250V DC Distribution Panel	VI	7B	
250V	D33	1	125V DC Distribution Panel	VI	7A	
250V	D52	1	#13 250V DC Battery Charger	VI	7B	
250V	D53	1	#13 250V DC Battery Charger	VI	7B	
250V	D54	NC	#13 250V DC Battery Charger	VI	7B	
250V	D6	2	#16 250V DC Battery	XXII	31B	
250V	D70	2	#16 250VDC Battery Charger	XXII	31B	
250V	D80	2	#16 250VDC Battery Charger	XXII	31B	
250V	D90	NC	#16 250VDC Battery Charger	XXII	31B	
4160V	152-308	1	Tie Breaker to Non-Vital Bus-13	IX	12A	
4160V	152-408	2	Tie Breaker to Non-Vital Bus-14	XII	14A	
4160V	152-501	1	Tie Breaker to Bus-16 via 152-601	IX	12A	
4160V	152-502	1	DG-11 Output Breaker	IX	12A	
4160V	152-509	1	Feed to LC-103	IX	12A	
4160V	152-511	1	Feed from 1AR Transformer	IX	12A	
4160V	152-601	2	Tie Breaker to Bus-15 via ACB 152-501	XII	14A	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
4160V	152-602	2	DG-12 Output Breaker	XII	14A	
4160V	152-609	2	Feed to LC-104	XII	14A	
4160V	152-610	2	Feed from 1AR Transformer	XII	14A	
4160V	BUS-15	1	4kV Switchgear	IX	12A	
4160V	BUS-16	2	4kV Switchgear	XII	14A	
480V	52-309	1	LC-103/LC-104 Crosstie	IX	12A	
480V	52-409	2	LC-104/LC-103 Crosstie	XII	14A	
480V	B-44P	2	120V Distribution Panel	XXII	31B	
480V	LC-103	1	Load Center 103 (52-301)	IX	12A	
480V	LC-104	2	Load Center 104 (52-401)	XII	14A	
480V	MCC-133A	1	Motor Control Center 133	IX	13C	
480V	MCC-134	1	Motor Control Center 134	XXI	32A	
480V	MCC-142A	2	Motor Control Center 142A	XII	19B	
480V	MCC-142B	2	Motor Control Center 142B	XII	19B	
480V	MCC-143A	2	Motor Control Center 143A	XII	19B	
480V	MCC-144	2	Motor Control Center 144	XXii	31B	
480V	P73A	1	480V Distribution Panel	V	3A	
480V	X30/XFMR	1	Bus-15 to LC-103 Transformer	IX	12A	
480V	X40/XFMR	2	Bus-16 TO LC-104 Transformer	XII	14A	
AN2	AN2-TRAIN-A	1/2	Alternate N2 Train A Supply Bottles	XII	19B	
AN2	AN2-TRAIN-B	1/2	Alternate N2 Train B Supply Bottles	XII	19B	
ASDS	C-292 Bus 16 Alarm	2	Bus-16 Undervoltage Alarm	XXII	33	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
ASDS	C-292	2	ASDS Benchboard	XXII	33	
ASDS	C-293	2	ASDS Relay Panel	XXII	33	
CRD	CV-3-32A	1/2	West Scram Discharge Volume Vent Valve	II	2C	
CRD	CV-3-32B	1/2	East Scram Discharge Volume Vent Valve	I	2B	
CRD	CV-3-32C	1/2	West Scram Discharge Volume Vent Valve	II	2C	
CRD	CV-3-32D	1/2	East Scram Discharge Volume Vent Valve	1	2B	
CRD	CV-3-33A	1/2	West Scram Discharge Volume Drain Valve	II	2C	
CRD	CV-3-33B	1/2	East Scram Discharge Volume Drain Valve	1	2B	
CRD	CV-3-33C	1/2	West Scram Discharge Volume Drain Valve	II	2C	
CRD	CV-3-33D	1/2	East Scram Discharge Volume Drain Valve	1	2B	
CRD	SV-3-31A	1/2	SDV Vent/Drain Solenoid Control Valve	II	2C	
CRD	SV-3-31B	1/2	SDV Vent/Drain Solenoid Control Valve	II	2C	
CRD	SV-3-31C	1/2	SDV Vent/Drain Solenoid Control Valve	II	2C	
CRD	SV-3-31D	1/2	SDV Vent/Drain Solenoid Control Valve	II	2C	
CRD	SV-4110	2	ASDS Rod Insertion Solenoid	II	2B	
CRV	FT-9081A	1	V-EAC-14B Outlet Flow	XXI	31A	
CRV	FT-9081B	2	V-EAC-14A Outlet Flow	XXII	31B	
CRV	FT-9171A	1	V-ERF-14A ReturnFlow	XXI	32A	
CRV	FT-9171B	2	V-ERF-14B Return Flow	XXII	32B	
CRV	FT-9191A	1	V-EF-40B Discharge Flow	XXI	32A	Shares Power with FT-9116A & FT-9117A

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
CRV	FT-9191B	2	V-EF-40A Discharge Flow	XXII	32B	Shares Pwr with FT-9116B & FT-9117B
CRV	VD-9093B	2	CRV Supply Cross Connect Damper	XXII	32B	Permissive Input to V-ERF-14B
CRV	V-EAC-14A	1	Control Room Air Conditioning Unit	XXI	32A	
CRV	V-EAC-14B	2	Control Room Air Conditioning Unit	XXII	32B	
CRV	V-EF-40A	1	Div I 250V Battery Room Exhaust Fan	XXI	32A	
CRV	V-EF-40B	2	Div II 250V Battery Room Exhaust Fan	XXII	32B	
CRV	V-ERF-14A	1	Recirculation Fan	XXI	32A	
CRV	V-ERF-14B	2	Recirculation Fan	XXII	32B	
CRV/EFT	C-263A	1	EFT-HVAC Control Panel	VIII	9	Master control circuit interfaces with individual CRV control circuits
CRV/EFT	C-264B	2	EFT-HVAC Control Panel	VIII	9	Master control circuit interfaces with individual CRV control circuits
CS	FT-14-40A	1	Core Spray Flow Transmitter	I	1B	
CS	FT-14-40B	2	Core Spray Flow Transmitter	II	1A	
CS	MO-1741	1	11 CS Pump Torus Suction Valve	I	1B	
CS	MO-1742	2	12 CS Pump Torus Suction Valve	II	1A	
CS	MO-1749	1	11 CS Pump Test Return to Torus.	IV	1F	
CS	MO-1750	2	12 CS Pump Test Return to Torus	IV	1F	
CS	MO-1751	1	11 CS Pump Injection Valve Outboard	I	3B	
CS	MO-1752	2	12 CS Pump Injection Isolation Valve Outboard	II	3D	
CS	MO-1753	1	11 CS Pump Injection Valve Inboard	I	3B	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
CS	MO-1754	2	12 CS Pump Injection Valve Inboard	II	3D	
CS	P-208A	1	Core Spray Pump	I	1B	
CS	P-208B	2	Core Spray Pump	II	1A	
DG	190-DG1	1	DG-11 Voltage Adjust	VIII	9	Subcomponent to DG-11
DG	190-DG2	1	DG-12 Voltage Adjust	VIII	9	Subcomponent to DG-12
DG	F/DG1	1	DG-11 Frequency Meter	VIII	9	Subcomponent for G-3A
DG	F/DG2	2	DG-12 Frequency Meter	VIII	9	Subcomponent to G-3B
DG	G-3A	1	11 Emergency Diesel Generator	XIV	15B	
DG	G-3B	2	12 Emergency Diesel Generator	XIII	15A	
DG	GSC11	1	DG-11 Frequency Adjust	VIII	9	Subcomponent to DG-11
DG	GSC21	2	DG-12 Frequency Adjust	VIII	9	Subcomponent to DG-12
DG	P-160A	1	11 EDG Fuel Oil Transfer Pump	XI	15E	
DG	P-160B	2	12 EDG Fuel Oil Transfer Pump	XV	15C	
DG	P-160C	1	11 EDG Fuel Oil Transfer Pump	XI	15E	
DG	P-160D	2	12 EDG Fuel Oil Transfer Pump	XV	15C	
DG	T-45A	1	11 EDG Fuel Oil Day Tank	XVI	15D	
DG	T-45B	2	12 EDG Fuel Oil Day Tank	XV	15C	
DG	V/DG1	1	DG-11 Volt Meter	VIII	9	
DG	V/DG2	2	DG-12 Volt Meter	VIII	9	
DG	V-SF-10	1	DG-11 Room Ventilation Fan	XIV	15B	
DG	V-SF-9	2	DG-12 Room Ventilation Fan	XIII	15A	
DG	W/DG1	1	DG-11 Load Meter (Watt Meter)	VIII	9	
DG	W/DG2	2	DG-12 Load Meter (Watt Meter)	VIII	9	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
EFT	FT-9116A	NC	V-EF-11 Discharge Flow	XXI	32A	Not required for control room cooling, included for information.
EFT	FT-9116B	NC	V-EF-12 Discharge Flow	XXII	32B	Not required for control room cooling, included for information.
EFT	FT-9117A	NC	V-EF-12 Discharge Flow	XXI	32A	Not required for control room cooling, included for information.
EFT	FT-9117B	NC	V-EF-11 Discharge Flow	XXII	32B	Not required for control room cooling, included for information.
EFT	VD-9111A	NC	V-ERF-11 Outlet Damper	XX1	32A	Not required for control room cooling, included for information. Associated circuits enter 32B
EFT	VD-9111B	NC	V-ERF-12 Outlet Damper	XX11	32B	Not required for control room cooling, included for information. Associated circuits enter 32B
EFT	V-ERF-11	NC	EFT Outside Air Fan	XXI	32A	Not required for control room cooling, included for information.
EFT	V-ERF-12	NC	EFT Outside Air Fan	XXII	32B	Not required for control room cooling, included for information.
ESW	P-111A	1	Emergency Service Water Pump	IX	23A	
ESW	P-111B	2	Emergency Service Water Pump	IX	23A	
ESW	P-111C	1	Emergency Service Water Pump	IX	23A	
ESW	P-111D	2	Emergency Service Water Pump	IX	23A	
HVAC	V-AC-4	2	Division 2 ECCS Room Cooler	II	1A	
HVAC	V-AC-5	1	Division 1 ECCS Room Cooler	I	1B	
MS	AO-2-80A	1/2	Inboard MSIV	DW	DW	1/2 with AO-2-86A
MS	AO-2-80B	1/2	Inboard MSIV	DW	DW	1/2 with AO-2-86B

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
MS	AO-2-80C	1/2	Inboard MSIV	DW	DW	1/2 with AO-2-86C
MS	AO-2-80D	1/2	Inboard MSIV	DW	DW	1/2 with AO-2-86D
MS	AO-2-86A	1/2	Outboard MSIV	II	2F	1/2 with AO-2-80A
MS	AO-2-86B	1/2	Outboard MSIV	II	2F	1/2 with AO-2-80B
MS	AO-2-86C	1/2	Outboard MSIV	II	2F	1/2 with AO-2-80C
MS	AO-2-86D	1/2	Outboard MSIV	II	2F	1/2 with AO-2-80D
MS	C-253A	1	SRV Low-Low Set Control Panel	VI	8	
MS	C-253B	2	SRV Low-Low Set Control Panel	XXII	33	
MS	C-253D	2	SRV Control Panel	VI	8	
MS	DPT-4060A	1	RV-2-71F Tailpipe Pressure Switch	DW	DW	
MS	DPT-4060B	2	RV-2-71F Tailpipe Pressure Switch	DW	DW	
MS	DPT-4061A	1	RV-2-71G Tailpipe Pressure Switch	DW	DW	
MS	DPT-4061B	2	RV-2-71G Tailpipe Pressure Switch	DW	DW	
MS	DPT-4061C	1	RV-2-71G Tailpipe Pressure Switch	DW	DW	
MS	DPT-4061D	2	RV-2-71G Tailpipe Pressure Switch	DW	DW	
MS	DPT-4062A	1	RV-2-71E Tailpipe Press Switch	DW	DW	
MS	DPT-4062B	2	RV-2-71E Tailpipe Press Switch	DW	DW	
MS	DPT-4062C	1	RV-2-71E Tailpipe Press Switch	DW	DW	
MS	DPT-4062D	2	RV-2-71E Tailpipe Press Switch	DW	DW	
MS	DPT-4063A	1	RV-2-71H Tailpipe Press Switch	DW	DW	
MS	DPT-4063B	2	RV-2-71H Tailpipe Press Switch	DW	DW	
MS	DPT-4063C	1	RV-2-71H Tailpipe Press Switch	DW	DW	
MS	DPT-4063D	2	RV-2-71H Tailpipe Press Switch	DW	DW	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
MS	RV-2-71D	1/2	Safety Relief Valve	DW	DW	2/4 Valves required to operate
MS	RV-2-71E	1/2	Safety Relief Valve	DW	DW	2/4 Valves required to operate
MS	RV-2-71F	1/2	Safety Relief Valve	DW	DW	2/4 Valves required to operate
MS	RV-2-71G	1/2	Safety Relief Valve	DW	DW	2/4 Valves required to operate
MS	RV-2-71H	1/2	Safety Relief Valve	DW	DW	2/4 Valves required to operate
MS	SV-2-71D	1/2	RV-2-71D Solenoid Valve	DW	DW	
MS	SV-2-71E	1	RV-2-71E Solenoid Valve	DW	DW	
MS	SV-2-71F	1	RV-2-71F Solenoid Valve	DW	DW	
MS	SV-2-71G	1	RV-2-71G Solenoid Valve	DW	DW	
MS	SV-2-71H	1	RV-2-71H Solenoid Valve	DW	DW	
MS	SV-2-71J	2	RV-2-71E Solenoid Valve	DW	DW	
MS	SV-2-71K	2	RV-2-71G Solenoid Valve	DW	DW	
MS	SV-2-71L	2	RV-2-71H Solenoid Valve	DW	DW	
MS	SV-2-71M	2	RV-2-71F Solenoid Valve	DW	DW	
PCT	C-289A	1	SPOTMOS Panel	VI	8	
PCT	C-289B	2	SPOTMOS Panel	XXII	33	
PCT	LT-7338A	1	Suppression Pool Level	IV	1F	
PCT	LT-7338B	2	Suppression Pool Level	IV	1F	
PCT	PT-7251B	2	Wide Range Drywell Pressure	I	4A	
PCT	TE-4073A	1	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4073B	2	Suppression Pool Temperature (SPOTMOS)	IV	1F	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
PCT	TE-4074A	1	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4074B	2	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4075A	1	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4075B	2	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4076A	1	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4076B	2	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4077A	1	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4077B	2	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4078A	1	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4078B	2	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4079A	1	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4079B	2	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4080A	1	Suppression Pool Temperature (SPOTMOS)	IV	1F	
PCT	TE-4080B	2	Suppression Pool Temperature (SPOTMOS)	IV	1F	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
RHR	CV-1994	1	RHR-P-202A Minimum Flow Valve	I	1B	
RHR	CV-1995	2	RHR-P-202B Minimum Flow Valve	II	1A	
RHR	CV-1996	1	RHR-P-202C Minimum Flow Valve	I	1B	
RHR	CV-1997	2	RHR-P-202D Minimum Flow Valve	II	1A	
RHR	DPT-10-91A	1	RHR HX DP Control	I	1B	part of CV-1728 controls
RHR	DPT-10-91B	2	RHR HX DP Control	II	1A	part of CV-1729 controls
RHR	E-200A	1	RHR Heat Exchanger	I	1B	
RHR	E-200B	2	RHR Heat Exchanger	II	1A	
RHR	FT-10-111A	1	RHR Division 1 Flow Downstream of Heat Exchanger	I	1B	
RHR	FT-10-111B	2	RHR Division 2 Flow Downstream of Heat Exchanger	II	2C	
RHR	K-10A	1	RHR Auxiliary Air Compressor	I	1B	
RHR	K-10B	2	RHR Auxiliary Air Compressor	II	1A	
RHR	MO-1986	1	RHR Division 1 Suppression Pool Suction Valve	I	1B	
RHR	MO-1987	2	RHR Division 2 Suppression Pool Suction Valve	II	1A	
RHR	MO-1988	1	RHR Division 1 Shutdown Cooling Suction Valve	I	1B	Upstream Vlvs MO-2029, 30 & CST-183 Closed
RHR	MO-1989	2	RHR Division 2 Shutdown Cooling Suction Valve	II	1A	Upstream Vlvs MO-2029, 30 & CST-183 Closed
RHR	MO-2002	1	RHR HX E-200A Bypass Valve	I	1B	
RHR	MO-2003	2	RHR HX E-200B Bypass Valve	II	1A	

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
RHR	MO-2006	1	RHR Division 1 Discharge to Torus Isolation	IV	1F	In series with MO-2008 and/or MO-2010
RHR	MO-2007	2	RHR Division 2 Discharge to Torus Isolation	II	2C	In series with MO-2009 and/or MO-2011
RHR	MO-2008	1	RHR Division 1 Test Return to Torus Isolation	IV	1F	In series with MO-2006 In parallel with MO-2010
RHR	MO-2009	2	RHR Division 2 Test Return to Torus Isolation	IV	1F	In series with MO-2007 In parallel with MO-2011
RHR	MO-2010	1	RHR Division 1 Torus Spray Isolation Valve	IV	1F	* - Suppression pool is cooled/no inventory lost
RHR	MO-2011	2	RHR Division 2 Torus Spray Isolation Valve	IV	1F	* - Suppression pool is cooled/no inventory lost
RHR	MO-2012	1	RHR Division 1 LPCI Injection Isolation Outboard	I	2G	Series Chk Vlv AO-10-46A prevents Hi/Lo interface
RHR	MO-2013	2	RHR Division 2 LPCI Injection Isolation Outboard	II	2H	Series Chk Vlv AO-10-46B prevents Hi/Lo interface
RHR	MO-2014	1	RHR Division 1 LPCI Injection Isolation Inboard	I	2G	Series Chk Vlv AO-10-46A prevents Hi/Lo interface
RHR	MO-2015	2	RHR Division 2 LPCI Injection Isolation Inboard	II	2H	Series Chk Vlv AO-10-46B prevents Hi/Lo interface
RHR	MO-2020	1	RHR Division 1 Drywell Spray Isolation Outboard	I	2B	In series with MO-2022 (Normally Closed)
RHR	MO-2021	2	RHR Division 2 Drywell Spray Isolation Outboard	II	3C	In series with MO-2023 (Normally Closed)
RHR	MO-2022	1	RHR Division 1 Drywell Spray Isolation Inboard	I	2B	In series with MO-2020 (Normally Closed)
RHR	MO-2023	2	RHR Division 2 Drywell Spray Isolation Outboard	II	3D	In series with MO-2021 (Normally Closed)

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
RHR	MO-2029	1/2	RHR Shutdown Cooling Isolation Valve	DW	DW	MO-2029 Breaker maintained open
RHR	MO-2030	1/2	RHR Shutdown Cooling Isolation Valve	I	2G	MO-2029 480V breaker maintained open
RHR	MO-2032	1/2	RHR Discharge to Waste Surge Tank	IV	1F	MO-2032 480V Breaker maintained open
RHR	MO-2033	1/2	RHR Cross-Tie	IV	1F	
RHR	MO-2407	1/2	RHR Discharge to Waste Surge Tank	IV	1F	MO-2032 480V Bkr maintained open
RHR	P-202A	1	RHR Pump	I	1B	
RHR	P-202B	2	RHR Pump	II	1A	
RHRSW	FT-10-97B	2	12 RHR HX RHRSW Flow	XII	19A	
RHRSW	CV-1728	1	11 RHR Heat Exchanger RHRSW Outlet	I	1B	
RHRSW	CV-1729	2	12 RHR Heat Exchanger RHRSW Outlet	II	1A	
RHRSW	DPIC-10-130A	1	RHR Heat Exchanger dP Control	I	1B	part of CV-1728 controls
RHRSW	DPIC-10-130B	2	RHR Heat Exchanger dP Control	II	1A	part of CV-1729 controls
RHRSW	P-109A	1	RHR Service Water Pump	IX	23A	Cables for SV-4937A are included with P-109A cables
RHRSW	P-109B	2	RHR Service Water Pump	IX	23A	Cables for SV-4937B are included with P-109B cables
RHRSW	P-109C	1	RHR Service Water Pump	IX	23A	Cables for SV-4937C are included with P-109C cables
RHRSW	P-109D	2	RHR Service Water Pump	IX	23A	Cables for SV-4937D are included with P-109D cables.
RHRSW	SV-4937A	1	RHRSW Pump P-109A Motor Cooling Solenoid Valve	IX	23A	Cables for SV-4937A are included with P-109A cables.
RHRSW	SV-4937B	2	RHRSW Pump P-109B Motor Cooling Solenoid Valve	IX	23A	Cables for SV-4937B are included with P-109B cables.

Table J.4.5-1
Appendix R Safe Shutdown Equipment List

<u>System</u>	<u>Equipment</u>	<u>Division</u>	<u>Description</u>	<u>Fire Area</u>	<u>Fire Zone</u>	<u>Comment</u>
RHRSW	SV-4937C	1	RHRSW Pump P-109C Motor Cooling Solenoid Valve	IX	23A	Cables for SV-4937C are included with P-109C cables.
RHRSW	SV-4937D	2	RHRSW Pump P-109D Motor Cooling Solenoid Valve	IX	23A	Cables for SV-4937D are included with P-109D cables.
RPV	LT-2-3-85A	1	Reactor Water Level	I	3B	
RPV	LT-2-3-85B	2	Reactor Water Level	II	3C	
RPV	LT-2-3-112A	1	Reactor Water Level	I	2B	
RPV	LT-2-3-112B	2	Reactor Water Level	II	2C	
RPV	LT-2-3-61	2	Reactor Water Level at ASDS	II	3C	
RPV	PT-4067D	2	Reactor Pressure at ASDS	II	2C	
RPV	PT-6-53A	1	Reactor Pressure	I	3B	
RPV	PT-6-53B	2	Reactor Pressure	II	3C	

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
152-308	152-308	480V Breaker
152-308	A308-C08/1	Control
152-308	A308-D111/1	DC control power
152-408	152-408	4160V Breaker
152-408	2A408-A	ASDS DC control power
152-408	2A408-B	ASDS DC control power
152-408	2A408-C	Control and indication
152-408	A408-C08/1	Control and indication
152-408	A408-D211/1	DC Control Power
152-501	152-501	4160V Breaker
152-501	A308-D111/1	DC control power
152-501	A408-A501/1	Control
152-501	A501-A601/1	Crosstie power feed to A601
152-501	A501-C08/2	Control and indication
152-502	152-502	4160V Breaker
152-502	A308-D111/1	DC Control Power
152-502	A502-C08/1	Indication
152-502	A502-C08/2	Control and indication
152-502	A502-C08/5	Indication
152-502	A502-C91/1	Control and indication
152-502	A502-C91/2	Control
152-502	A502-G30/2	Power from DG-11 to Bus 15
152-502	A505-C08/1	Control
152-502	A510-C08/4	Bus auto transfer
152-502	A511-C08/3	Control
152-502	C91-G30/1	Power- DG-11 to Voltage Regulator/Fault Protection
152-502	C91-G31/1	Control
152-509	152-509	4160V Breaker
152-509	A308-D111/1	DC Control Power
152-509	A509-B301/1	Control
152-509	A509-C08/1	Indication
152-509	A509-C08/2	Control and indication
152-509	A509-X30/1	Power to Transformer X30/XFMR
152-511	152-511	4160V Breaker
152-511	A308-A610/2	Control
152-511	A308-D111/1	DC control power
152-511	A510-C08/4	Bus auto transfer
152-511	A511-A610/3	Control
152-511	A511-C08/2	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
152-511	A511-C08/4	Control
152-511	A511-X04/3	Power from Transformer 1AR
152-511	A610-C08/2	Control
152-511	1A511-A	CT Secondary
152-601	152-601	4160V Breaker
152-601	2A408-B	ASDS DC control power
152-601	2A601-A	Control
152-601	2A601-B	Control
152-601	A308-A601/1	Control
152-601	A408-D211/1	DC control power
152-601	A601-C08/2	Control and indication
152-602	152-602	4160V Breaker
152-602	2A408-A	ASDS DC control power
152-602	2A408-B	ASDS DC control power
152-602	2A602-A1	Indication
152-602	2A602-A2	Indication
152-602	2A602-B	Indication
152-602	2A602-C1	Control and indication
152-602	2A602-C2	Control and indication
152-602	2A602-D	Control
152-602	2A602-E1	Control
152-602	2A602-E2	Control
152-602	2A602-F	Control
152-602	2M2931-A1	ASDS Relay Control
152-602	A408-D211/1	DC Control Power
152-602	A602-C08/1	Control
152-602	A602-C08/2	Control
152-602	A602-C92/1	Control
152-602	A602-C92/2	Control
152-602	A602-G40/2	Power from EDG to 152-602
152-602	A605-C08/1	Bus transfer control
152-602	A610-C08/4	Control
152-602	C92-G40/1	Control
152-602	C92-G41/1	Control
152-603	152-603	4160V Breaker
152-603	2A408-B	ASDS DC control power
152-603	2A603-A	Control
152-603	A408-D211/1	DC Control Power
152-606	152-606	4160V Breaker

01222887

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
152-606	2A408-B	ASDS DC control power
152-606	2A606-A	Control
152-606	A408-D211/1	DC Control Power
152-609	152-609	4160V Breaker
152-609	2A408-B	ASDS DC control power
152-609	2A609-A	Control and indication
152-609	2A609-B	Control and indication
152-609	2A609-C1	Control and indication
152-609	2A609-C2	Control and indication
152-609	A408-D211/1	DC Control Power (normal and ASDS modes)
152-609	A609-B401/1	Control
152-609	A609-X40/1	Power to Transformer X40/XFMR
152-609	2A609-D	CT Secondary
152-609	2A609-E	CT Secondary
152-610	152-610	4160V Breaker
152-610	2A408-B	ASDS DC control power
152-610	2A610-A	Control
152-610	2A610-C1	Control and indication
152-610	2A610-C2	Control and indication
152-610	2A610-D	Control and indication
152-610	2A610-E	Control
152-610	A408-D211/1	DC Control Power
152-610	A511-A610/4	Control
152-610	A601-C08/4	Control
152-610	A610-C08/3	Indication
152-610	A610-C08/5	Control
152-610	A610-X04/3	Power from 1AR to Bus 16
152-610	2A610-F	CT Secondary
152-610	2A610-G	CT Secondary
190-DG1	190-DG1	DG-11 Voltage Adjust
190-DG2	190-DG2	DG-12 Voltage Adjust
52-309	1B309-A	Control
52-309	1B309-B	Control
52-309	52-309	480V Breaker
52-309	B309-B409/1	Control
52-309	B309-C08/1	Control and indication
52-309	B3-D111/1	DC control power
52-409	2B401-A	DC control power
52-409	2B409-A	Control and indication

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
52-409	2B409-B	Control and indication
52-409	2B409-C	Control
52-409	2B409-D	Control
52-409	52-409	480V Breaker
52-409	B309-B409/2	Control
52-409	B409-C08/1	Control and indication
52-409	B4-D211/1	DC control power
AO-2-80A	AO-2-80A	Main Steam Isolation Valve
AO-2-80A	C03-C41/5	Control
AO-2-80A	C03-C41/6	Control
AO-2-80A	C03-JX105C/10	Control
AO-2-80A	C03-JX105C/8	Control
AO-2-80A	C15-C17/5	Control
AO-2-80A	C15-C17/6	Control
AO-2-80A	C15-C41/1	Control
AO-2-80A	C17-C41/3	Control
AO-2-80A	JX105C-2-80A/1	Control
AO-2-80A	JX105C-2-80A/2	Control
AO-2-80A	JX105C-2-80A/3	Control
AO-2-80B	AO-2-80B	Main Steam Isolation Valve
AO-2-80B	C03-C41/5	Control
AO-2-80B	C03-C41/6	Control
AO-2-80B	C03-JX105C/3	Control
AO-2-80B	C03-JX105C/9	Control
AO-2-80B	C15-C17/5	Control
AO-2-80B	C15-C17/6	Control
AO-2-80B	C15-C41/1	Control
AO-2-80B	C17-C41/3	Control
AO-2-80B	JX105C-2-80A/2	Control
AO-2-80B	JX105C-2-80B/1	Control
AO-2-80B	JX105C-2-80B/4	Control
AO-2-80C	AO-2-80C	Main Steam Isolation Valve
AO-2-80C	C03-C41/5	Control
AO-2-80C	C03-C41/6	Control
AO-2-80C	C03-JX105C/4	Control
AO-2-80C	C03-JX105C/5	Control
AO-2-80C	C15-C17/5	Control
AO-2-80C	C15-C17/6	Control
AO-2-80C	C15-C41/1	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
AO-2-80C	C17-C41/3	Control
AO-2-80C	JX105C-2-80A/2	Control
AO-2-80C	JX105C-2-80C/1	Control
AO-2-80C	JX105C-2-80C/3	Control
AO-2-80D	AO-2-80D	Main Steam Isolation Valve
AO-2-80D	C03-C41/5	Control
AO-2-80D	C03-C41/6	Control
AO-2-80D	C03-JX105C/7	Control
AO-2-80D	C03-JX105C/6	Control
AO-2-80D	C15-C17/5	Control
AO-2-80D	C15-C17/6	Control
AO-2-80D	C15-C41/1	Control
AO-2-80D	C17-C41/3	Control
AO-2-80D	JX105C-2-80A/2	Control
AO-2-80D	JX105C-2-80D/1	Control
AO-2-80D	JX105C-2-80D/3	Control
AO-2-86A	2Q216-A	Control
AO-2-86A	2Q216-B	Control
AO-2-86A	2Q217-A	Control
AO-2-86A	2Q217-B	Control
AO-2-86A	AO-2-86A	Main Steam Isolation Valve
AO-2-86A	C03-2-86A/1	Control
AO-2-86A	C03-2-86A/2	Control
AO-2-86A	C03-2-86A/3	Control
AO-2-86A	C03-C42/6	Control
AO-2-86A	C03-C42/7	Control
AO-2-86A	C15-C17/18	Control
AO-2-86A	C15-C17/19	Control
AO-2-86A	C15-C42/1	Control
AO-2-86A	C17-C42/1	Control
AO-2-86B	2Q216-A	Control
AO-2-86B	2Q216-B	Control
AO-2-86B	2Q217-A	Control
AO-2-86B	2Q217-B	Control
AO-2-86B	AO-2-86B	Main Steam Isolation Valve
AO-2-86B	C03-2-86B/1	Control
AO-2-86B	C03-2-86B/2	Control
AO-2-86B	C03-2-86B/3	Control
AO-2-86B	C03-C42/6	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
AO-2-86B	C03-C42/7	Control
AO-2-86B	C15-C17/18	Control
AO-2-86B	C15-C17/19	Control
AO-2-86B	C15-C42/1	Control
AO-2-86B	C17-C42/1	Control
AO-2-86C	2Q216-A	Control
AO-2-86C	2Q216-B	Control
AO-2-86C	2Q217-A	Control
AO-2-86C	2Q217-B	Control
AO-2-86C	AO-2-86C	Main Steam Isolation Valve
AO-2-86C	C03-2-86C/1	Control
AO-2-86C	C03-2-86C/2	Control
AO-2-86C	C03-2-86C/3	Control
AO-2-86C	C03-C42/6	Control
AO-2-86C	C03-C42/7	Control
AO-2-86C	C15-C17/18	Control
AO-2-86C	C15-C17/19	Control
AO-2-86C	C15-C42/1	Control
AO-2-86C	C17-C42/1	Control
AO-2-86D	2Q216-A	Control
AO-2-86D	2Q216-B	Control
AO-2-86D	2Q217-A	Control
AO-2-86D	2Q217-B	Control
AO-2-86D	AO-2-86D	Main Steam Isolation Valve
AO-2-86D	C03-2-86D/1	Control
AO-2-86D	C03-2-86D/2	Control
AO-2-86D	C03-2-86D/3	Control
AO-2-86D	C03-C42/6	Control
AO-2-86D	C03-C42/7	Control
AO-2-86D	C15-C17/18	Control
AO-2-86D	C15-C17/19	Control
AO-2-86D	C15-C42/1	Control
AO-2-86D	C17-C42/1	Control
B-34P	1B3441-A	Power Supply from MCC-134 to XB34P
B-34P	1B3441-B	Power from Transformer XB34P to Panel B-34P
B-34P	B-34P	Distribution panel
B-44P	2B4441-A	Power from MCC-144 to Transformer XP-44P
B-44P	2B4441-B	Power from Transformer XP-44P to B44P
B-44P	B-44P	120V Distribution Panel

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
BUS-15	BUS-15	4160V Bus
BUS-16	BUS-16	4160V Bus
C-253A	1D3304-A	C253A SRV DC Power
C-253A	1Q159-A	SRV Div 1 Low-Low Set RPS Interlock
C-253A	C-253A	SRV Low-Low Set Control Panel
C-253B	2D10003-A	C253B SRV DC Power
C-253B	2Q259-A	SRV Div 2 Low-Low Set RPS Interlock
C-253B	2Q259-B	SRV Div 2 Low-Low Set RPS Interlock
C-253B	2Q259-C	SRV Div 2 Low-Low Set RPS Interlock
C-253B	C-253B	SRV Low-Low Set Control Panel
C-253D	C-253D	SRV Low-Low Set Bypass Panel
C-253D	2Q265-A	SRV Division II Control
C-253D	2Q265-B	SRV Division II Control
C-253D	2Q265-C	SRV Division II Control
C-253D	NQ261-B	SRV Tailpipe dP Signal
C-263A	1V201-A	Division 1 Master Control Circuit
C-263A	1V201-D	Division 1 Master Control Circuit
C-263A	1V201-E	Division 1 Master Control Circuit
C-263A	1V201-F	Division 1 Master Control Circuit
C-263A	1V201-K	Division 1 Master Control Circuit
C-263A	1V201-L	Division 1 Master Control Circuit
C-263A	1V201-N	Division 1 Master Control Circuit
C-263A	1V201-Q	Division 1 Master Control Circuit
C-263A	1V201-R	Division 1 Master Control Circuit
C-263A	1V201-S	Division 1 Master Control Circuit
C-263A	1V201-T	Division 1 Master Control Circuit
C-263A	1V201-U	Division 1 Master Control Circuit
C-263A	1V201-V	Division 1 Master Control Circuit
C-263A	1V201-X	Division 1 Master Control Circuit
C-263A	1V201-Z	Division 1 Master Control Circuit
C-263A	1V203-N	Division 1 Master Control Circuit
C-263A	1V210-F	Division 1 Master Control Circuit
C-263A	1V216-R	Division 1 Master Control Circuit
C-263A	1V219-D	Division 1 Master Control Circuit
C-264B	2V231-A	Division 2 Master Control Circuit
C-264B	2V231-D	Division 2 Master Control Circuit
C-264B	2V231-E	Division 2 Master Control Circuit
C-264B	2V231-G	Division 2 Master Control Circuit
C-264B	2V231-H	Division 2 Master Control Circuit

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
C-264B	2V231-K	Division 2 Master Control Circuit
C-264B	2V231-L	Division 2 Master Control Circuit
C-264B	2V231-N	Division 2 Master Control Circuit
C-264B	2V231-Q	Division 2 Master Control Circuit
C-264B	2V231-R	Division 2 Master Control Circuit
C-264B	2V231-S	Division 2 Master Control Circuit
C-264B	2V231-T	Division 2 Master Control Circuit
C-264B	2V231-U	Division 2 Master Control Circuit
C-264B	2V231-V	Division 2 Master Control Circuit
C-264B	2V231-X	Division 2 Master Control Circuit
C-264B	2V231-Z	Division 2 Master Control Circuit
C-264B	2V233-M	Division 2 Master Control Circuit
C-264B	2V246-T	Division 2 Master Control Circuit
C-289A	1IT100-L	Signal cable from C-289A to C03
C-289A	1Y7002-A	Instrument Power
C-289A	1Y7002-B	Instrument Power
C-289A	1Y7004-A	Instrument Power
C-289A	1Y7004-B	Instrument Power
C-289A	C-289A	SPOTMOS Panel
C-289B	2IT200-L	Signal cable from C-289B to C03
C-289B	2Y8002-A	SPOTMOS Indication power at C-03
C-289B	2Y8002-B	SPOTMOS Indication power at C-03
C-289B	2Y8004-A	Instrument Power
C-289B	2Y8004-B	Instrument Power
C-289B	C03-C13/2	Cable is directly connected to 2Y8002-B
C-289B	C-289B	SPOTMOS Panel
C-292	2A6-B	Bus 16 Undervoltage Alarm
C-292	2D10004-A	ASDS Transfer Relay Control Panel
C-292	2M2921-A	ASDS AC Transfer Switch
C-292	2Y8014-B	ASDS control power
C-292	C-292	ASDS Panel
C-293	2A408-B	ASDS DC control power
C-293	2B401-A	ASDS control
C-293	2M2931-A1	ASDS DC Transfer Switch
C-293	2M2931-A2	ASDS DC Transfer Switch
C-293	A408-D211/1	DC Control Power
C-293	C-293	ASDS Relay Panel
CV-1728	1Y7002-A	Instrument Power
CV-1728	1Y7002-B	Instrument Power

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
CV-1728	A507-C32/1	Control
CV-1728	A508-C32/1	Control
CV-1728	C03-10-91A/1	Control
CV-1728	C03-C32/32	Control
CV-1728	C03-EP1728/1	Control
CV-1728	C32-CV1728/1	Control
CV-1728	C32-SV1728/1	Control
CV-1728	C32-Y20/1	Control
CV-1728	CV-1728	11 RHR Heat Exchanger RHRSW Outlet
CV-1728	CV1728-C32/1	Control
CV-1729	2IP27-A	Control input from DPIC-10-130B
CV-1729	2IP27-B	Control input from DPIC-10-130B
CV-1729	2IP27-C	Control input from DPIC-10-130B
CV-1729	2IP27-D	Control input from DPIC-10-130B
CV-1729	2Q426-A	Control
CV-1729	2Q426-B	Control
CV-1729	2Q426-C	Control
CV-1729	2Q426-D	Control
CV-1729	2Y8014-B	120VAC control power
CV-1729	C03-C33/1	Indication
CV-1729	C33-CV1729/1	Control
CV-1729	CV-1729	12 RHR Heat Exchanger RHRSW Outlet
CV-1994	A504-C32/1	Control
CV-1994	C03-C32/23	Control
CV-1994	C03-C32/25	Control
CV-1994	C32-CV1994/1	Control
CV-1994	C32-SV1994/1	Control
CV-1994	C32-Y20/1	Control
CV-1994	C32-Z-121A/1	Control
CV-1994	CV-1994	RHR-P-202A Minimum Flow Valve
CV-1995	2Q421-A	Control
CV-1995	2Q421-B	Control
CV-1995	2Q421-C	Control
CV-1995	2Q421-D	Control
CV-1995	2Q421-E	Control
CV-1995	2Y8014-B	ASDS control power
CV-1995	A604-C33/1	Control
CV-1995	C03-C33/18	Control
CV-1995	C03-C33/20	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
CV-1995	C33-Y20/1	Control
CV-1995	CV-1995	RHR-P-202B Minimum Flow Valve
CV-1996	C03-C32/24	Control
CV-1996	C03-C32/25	Control
CV-1996	C32-CV1996/1	Control
CV-1996	C32-SV1996/1	Control
CV-1996	C32-Y20/1	Control
CV-1996	C32-Z-121C/2	Control
CV-1996	CV-1996	RHR-P-202C Minimum Flow Valve
CV-1997	A603-C33/2	Control from Breaker A603 Aux Contact
CV-1997	C03-C33/19	Control
CV-1997	C03-C33/20	Control
CV-1997	C33-CV1997/1	Control
CV-1997	C33-SV1997/1	Control
CV-1997	C33-Y20/1	Control
CV-1997	C33-Z-121D/2	Control
CV-1997	CV-1997	RHR-P-202D Minimum Flow Valve
CV-3-32A	C05-3-29/1	position indication power supply
CV-3-32A	C05-3-32A/1	position indication
CV-3-32A	C05-Y20/1	position indication power supply
CV-3-32A	CV-3-32A	West SDV Vent Valve
CV-3-32B	C05-3-29/1	position indication power supply
CV-3-32B	C05-3-32B/1	position indication
CV-3-32B	C05-Y20/1	position indication power supply
CV-3-32B	CV-3-32B	East SDV Vent Valve
CV-3-32C	C05-3-29/1	position indication power supply
CV-3-32C	C05-3-32C/1	position indication
CV-3-32C	C05-Y20/1	position indication power supply
CV-3-32C	CV-3-32C	West SDV Vent Valve
CV-3-32D	C05-3-29/1	position indication power supply
CV-3-32D	C05-3-32D/1	position indication
CV-3-32D	C05-Y20/1	position indication power supply
CV-3-32D	CV-3-32D	East SDV Vent Valve
CV-3-33A	C05-3-29/1	position indication power supply
CV-3-33A	C05-3-33A/1	position indication
CV-3-33A	C05-Y20/1	position indication power supply
CV-3-33A	CV-3-33A	West SDV Drain Valve
CV-3-33B	C05-3-29/1	position indication power supply
CV-3-33B	C05-3-33B/1	position indication

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
CV-3-33B	C05-Y20/1	position indication power supply
CV-3-33B	CV-3-33B	East SDV Drain Valve
CV-3-33C	C05-3-29/1	position indication power supply
CV-3-33C	C05-3-33C/1	position indication
CV-3-33C	C05-Y20/1	position indication power supply
CV-3-33C	CV-3-33C	West SDV Drain Valve
CV-3-33D	C05-3-29/1	position indication power supply
CV-3-33D	C05-3-33D/1	position indication
CV-3-33D	C05-Y20/1	position indication power supply
CV-3-33D	CV-3-33D	East SDV Drain Valve
D1	D1	#11 125VDC Battery
D10	B3315-D10/1	Power
D10	D10	#11 125VDC Battery Charger
D100	2D10101-A	Ground detection (isolated by fuses)
D100	2D6-D	Power from battery charger D70
D100	2D6-E	Power from battery charger D70
D100	2D6-F	Power from battery charger D80
D100	2D6-G	Power from battery charger D80
D100	2D6-H	Power from battery charger D90
D100	2D6-J	Power from battery charger D90
D100	2D6-K	Power from battery D6A
D100	2D6-L	Power from battery D6A
D100	2D6-M	Power from battery D6B
D100	2D6-Q	Power from battery D6A
D100	2D6-R	Power from battery D6B
D100	2D6-S	Power from battery D6B
D100	2D6-U	D6A/D6B Interconnect
D100	D100	125V/250V Distribution Panel
D11	C08-D11/1	Power to C08 Benchboard
D11	D10-D11/1	Power
D11	D11	125VDC Distribution Panel
D11	D1-D12/1	Power from battery to line fuses
D11	D1-D12/2	Power from battery to line fuses
D11	D33-D12/1	Power supply from line fuses to D11 -cable # error
D11	D11-D12/1	Power to fuse panel
D111	D111	125VDC Distribution Panel
D111	D11-D111/1	Power
D12	D12	125VDC Fuse Panel
D2	D2	#12 125VDC Battery

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
D20	B4315-D20/1	Power
D20	D20	#12 Battery Charger
D21	D20-D21/1	Power
D21	D21	125VDC Distribution Panel
D21	D2-D22/1	Power from battery to line fuse
D21	D2-D22/2	Power from battery to line fuse
D21	D21-D22/1	Power to fuse panel
D211	2D2-A	Power
D211	D211	125VDC Distribution Panel
D22	D22	125VDC Fuse Panel
D3	D3	#13 Battery
D31	1D10201-A	Ground detection (isolated by fuses)
D31	1D3-D	Power from battery charger D52
D31	1D3-E	Power from battery charger D52
D31	1D3-F	Power from battery charger D53
D31	1D3-G	Power from battery charger D53
D31	1D3-H	Power from battery charger D54
D31	1D3-J	Power from battery charger D54
D31	1D3-K	Power from battery D3B
D31	1D3-L	Power from battery D3B
D31	1D3-M	Power from battery D3A
D31	1D3-Q	Power from battery D3B
D31	1D3-R	Power from battery D3A
D31	1D3-S	Power from battery D3A
D31	1D3-U	D3A/D3B interconnect
D31	D31	125V/250VDC Distribution Panel
D33	1D3-N	Power from D31
D33	1D3-P	Power from D31
D33	D33	125VDC Distribution Panel
D52	1B3433-A	Power supply from MCC-134
D52	D52	#13 250VDC Battery Charger
D53	1B3434-A	Power supply from MCC-134
D53	D53	#13 250VDC Battery Charger
D54	1B3431-A	Power supply from MCC-134
D6	D6	#16 250VDC Battery
D70	2D31201-A	Power supply from MCC-144
D70	D70	#16 Battery Charger
D80	2D31200-A	Power supply from MCC-144
D80	D80	#16 Battery Charger

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
D90	2D31202-A	Power supply from MCC-144
DPIC-10-130A	DPIC-10-130A	RHR Heat Exchanger dP Control to CV-1728
DPIC-10-130B	DPIC-10-130B	RHR Heat Exchanger dP Control to CV-1729
DPT-10-91A	1Y7002-A	Loop power supply
DPT-10-91A	1Y7002-B	Loop power supply
DPT-10-91A	C03-10-91A/1	Signal cable
DPT-10-91A	C03-EP1728/1	Signal cable to CV-1728
DPT-10-91A	DPT-10-91A	Flow indication
DPT-10-91B	2IP27-A	Signal cable from C292 to C03
DPT-10-91B	2IP27-B	Signal cable from C292 to C03
DPT-10-91B	2IP27-C	Field cable from C292 to E/P 1729
DPT-10-91B	2IP27-D	Field cable from C292 to DPT-10-91B
DPT-10-91B	2Y8002-A	Power supply to pressure indicator
DPT-10-91B	2Y8002-B	Power supply to pressure indicator
DPT-10-91B	2Y8014-B	Loop power supply
DPT-10-91B	C03-C13/2	Cable is directly connected to 2Y8002-B
DPT-10-91B	DPT-10-91B	Flow indication
DPT-4060A	1D3304-A	125VDC Control Power
DPT-4060A	1IP19-A	SRV Tailpipe dP Signal
DPT-4060A	DPT-4060A	SRV Tailpipe dP
DPT-4060A	NQ161-B	SRV solenoid energized indication
DPT-4060B	2B4441-A	B44P Power Supply
DPT-4060B	2B4441-B	B44P Power Supply
DPT-4060B	2B44P18-A	C253B AC Power Supply
DPT-4060B	2D10003-A	C253B DC Power Supply
DPT-4060B	2IP28-A	SRV Tailpipe dP Signal
DPT-4060B	DPT-4060B	SRV Tailpipe dP
DPT-4061A	1D3304-A	125VDC Control Power
DPT-4061A	1IP18-A	SRV Tailpipe dP Signal
DPT-4061A	DPT-4061A	SRV Tailpipe dP
DPT-4061A	NQ161-B	SRV solenoid energized indication
DPT-4061B	2B4441-A	B44P Power Supply
DPT-4061B	2B4441-B	B44P Power Supply
DPT-4061B	2B44P18-A	C253B AC Power Supply
DPT-4061B	2D10003-A	C253B DC Power Supply
DPT-4061B	2IP28-A	SRV Tailpipe dP Signal
DPT-4061B	DPT-4061B	SRV Tailpipe dP
DPT-4061C	1D3304-A	125VDC Control Power
DPT-4061C	1IP18-A	SRV Tailpipe dP Signal

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
DPT-4061C	DPT-4061C	SRV Tailpipe dP
DPT-4061C	NQ161-B	SRV solenoid energized indication
DPT-4061D	2B4441-A	B44P Power Supply
DPT-4061D	2B4441-B	B44P Power Supply
DPT-4061D	2B44P18-A	C253B AC Power Supply
DPT-4061D	2D10003-A	C253B DC Power Supply
DPT-4061D	2IP28-A	SRV Tailpipe dP Signal
DPT-4061D	DPT-4061D	SRV Tailpipe dP S
DPT-4062A	1D3304-A	125VDC Control Power
DPT-4062A	1IP18-A	SRV Tailpipe dP Signal
DPT-4062A	DPT-4062A	SRV Tailpipe dP
DPT-4062A	NQ161-B	SRV solenoid energized indication
DPT-4062B	2B4441-A	B44P Power Supply
DPT-4062B	2B4441-B	B44P Power Supply
DPT-4062B	2B44P18-A	C253B AC Power Supply
DPT-4062B	2D10003-A	C253B DC Power Supply
DPT-4062B	2IP28-A	SRV Tailpipe dP Signal
DPT-4062B	DPT-4062B	SRV Tailpipe dP
DPT-4062C	1D3304-A	125VDC Control Power
DPT-4062C	1IP18-A	SRV Tailpipe dP Signal
DPT-4062C	DPT-4062C	SRV Tailpipe dP
DPT-4062C	NQ161-B	SRV solenoid energized indication
DPT-4062D	2B4441-A	B44P Power Supply
DPT-4062D	2B4441-B	B44P Power Supply
DPT-4062D	2B44P18-A	C253B AC Power Supply
DPT-4062D	2D10003-A	C253B DC Power Supply
DPT-4062D	2IP28-A	SRV Tailpipe dP Signal
DPT-4062D	DPT-4062D	SRV Tailpipe dP
DPT-4063A	1D3304-A	125VDC Control Power
DPT-4063A	1IP18-A	SRV Tailpipe dP Signal
DPT-4063A	DPT-4063A	SRV Tailpipe dP
DPT-4063A	NQ161-B	SRV solenoid energized indication
DPT-4063B	2B4441-A	B44P Power Supply
DPT-4063B	2B4441-B	B44P Power Supply
DPT-4063B	2B44P18-A	C253B AC Power Supply
DPT-4063B	2D10003-A	C253B DC Power Supply
DPT-4063B	2IP28-A	SRV Tailpipe dP Signal
DPT-4063B	DPT-4063B	SRV Tailpipe dP
DPT-4063C	1D3304-A	125VDC Control Power

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
DPT-4063C	1IP18-A	SRV Tailpipe dP Signal
DPT-4063C	DPT-4063C	SRV Tailpipe dP
DPT-4063C	NQ161-B	SRV solenoid energized indication
DPT-4063D	2B4441-A	B44P Power Supply
DPT-4063D	2B4441-B	B44P Power Supply
DPT-4063D	2B44P18-A	C253B AC Power Supply
DPT-4063D	2D10003-A	C253B DC Power Supply
DPT-4063D	2IP28-A	SRV Tailpipe dP Signal
DPT-4063D	DPT-4063D	SRV Tailpipe dP
E-200A	E-200A	RHR Heat Exchanger
E-200B	E-200B	RHR Heat Exchanger
F/DG1	F/DG1	DG1 Frequency
F/DG2	F/DG2	DG2 Frequency
FT-10-97B	2IF23-A	12 RHR Hx RHRSW Flow to ASDS Panel (FI-4105)
FT-10-111A	1Y7002-A	Instrument Power
FT-10-111A	1Y7002-B	Instrument Power
FT-10-111A	C03-10-111A/1	Indication
FT-10-111A	FT-10-111A	RHR System flow
FT-10-111B	2IF23-B	Cable to transmitter
FT-10-111B	2IF23-C	Signal cable from C-292 to C-03
FT-10-111B	2Y8014-B	ASDS control power
FT-10-111B	FT-10-111B	RHR system flow
FT-14-40A	1Y7002-A	Instrument Power
FT-14-40A	1Y7002-B	Instrument Power
FT-14-40A	C03-14-40A/1	Indication
FT-14-40A	FT-14-40A	Core Spray flow instrument
FT-14-40B	2IP21-A	Signal cable
FT-14-40B	2IP21-B	Cable to transmitter
FT-14-40B	2Y8014-B	ASDS control power
FT-14-40B	FT-14-40B	Core Spray flow instrument
FT-9081A	1D11106-A	EFT Div 1 Panel DC Power Supply
FT-9081A	1IV225B-D	Signal cable
FT-9081A	FT-9081A	V-EAC-14B Outlet Flow
FT-9081B	2D6-A	EFT Div 2 Panel DC Power Supply
FT-9081B	2IV255B-D	Signal cable
FT-9081B	FT-9081B	V-EAC-14A Outlet Flow
FT-9116A	1B34P10-A	EFT Div 1 Panel Power Supply
FT-9116A	1D11106-A	EFT Div 1 Panel DC Power Supply
FT-9116A	1IV225A-D	Instrument cable

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
FT-9116A	1IV225A-E	Instrument cable
FT-9116A	1IV225A-F	Instrument cable
FT-9116A	1IV225A-G	Instrument cable
FT-9116B	2B44P14-A	EFT Div 2 Panel Power Supply
FT-9116B	2D6-A	EFT Div 2 Panel DC Power Supply
FT-9116B	2IV255A-D	Instrument cable
FT-9116B	2IV255A-E	Instrument cable
FT-9116B	2IV255A-F	Instrument cable
FT-9116B	2IV255A-G	Instrument cable
FT-9117A	1IV225A-E	Instrument cable
FT-9117A	1IV225A-F	Instrument cable
FT-9117A	1IV225A-G	Instrument cable
FT-9117A	1IV225F-D	Instrument cable
FT-9117B	2B44P14-A	EFT Div 2 Panel Power Supply
FT-9117B	2D6-A	EFT Div 2 Panel DC Power Supply
FT-9117B	2IV255A-E	Instrument cable
FT-9117B	2IV255A-F	Instrument cable
FT-9117B	2IV255A-G	Instrument cable
FT-9117B	2IV255F-D	Instrument cable
FT-9171A	1IV225C-D	Instrument cable
FT-9171A	FT-9171A	V-ERF-14A Return Flow
FT-9171B	2IV255C-D	Instrument cable
FT-9171B	2D6-A	EFT Div 2 Panel DC Power Supply
FT-9171B	FT-9171B	V-ERF-14B Return Flow
FT-9191A	1B34P10-A	EFT Div 1 Panel Power Supply
FT-9191A	1D11106-A	EFT Div 1 Panel DC Power Supply
FT-9191A	1IV225A-E	Instrument cable
FT-9191A	1IV225A-F	Instrument cable
FT-9191A	1IV225A-G	Instrument cable
FT-9191A	1IV225G-D	Instrument cable
FT-9191A	FT-9191A	V-EF-40B Discharge Flow
FT-9191B	2B44P14-A	EFT Div 2 Panel Power Supply
FT-9191B	2D6-A	EFT Div 2 Panel DC Power Supply
FT-9191B	2IV255A-E	Instrument cable
FT-9191B	2IV255A-F	Instrument cable
FT-9191B	2IV255A-G	Instrument cable
FT-9191B	FT-9191B	V-EF-40A Discharge Flow
G-3A	1IG30-A	Instrumentation cable
G-3A	1IG30-B	Instrumentation cable

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
G-3A	A308-A511/1	Control
G-3A	A308-C08/1	152-308 control
G-3A	A308-C08/4	Control
G-3A	A408-A511/1	Control - start circuit #1
G-3A	A502-C91/3	Control
G-3A	A502-C91/4	Power
G-3A	A502-C91/5	Control
G-3A	A505-C08/1	Bus auto transfer
G-3A	A510-C08/4	Bus auto transfer
G-3A	A511-A510/1#BC	Control
G-3A	A511-A610/5	Control - start circuit #1
G-3A	C08-C32/1	Control
G-3A	C08-C91/1	Control
G-3A	C08-C91/2	Control
G-3A	C08-C91/3	Control
G-3A	C08-C91/4	Control
G-3A	C08-C93/1	Annunciator
G-3A	C91-C93/1	Control
G-3A	C91-C93/2	Control
G-3A	C91-C93/3	Control
G-3A	C91-C93/4	Not required circuit
G-3A	C91-D111/1	Field flash power
G-3A	C91-D111/2	125VDC control power for start circuit
G-3A	C91-D211/1	125VDC control power for standby start circuit
G-3A	C91-G30/2	Control
G-3A	G-3A	Diesel Generator 11
G-3B	2A408-B	ASDS DC control power
G-3B	2D11112-A	ASDS Control
G-3B	2D11112-B	ASDS Control
G-3B	2D11112-C	ASDS Control
G-3B	2D21111-A	ASDS Control
G-3B	2D21111-B	ASDS Control
G-3B	2G40-A1	ASDS Control
G-3B	2G40-A2	ASDS Control
G-3B	2G40-B1	ASDS Control
G-3B	2G40-B2	ASDS Control
G-3B	2G40-C	ASDS Control
G-3B	2M2921-A	ASDS EDG status

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
G-3B	2IG40-A	Instrument cable
G-3B	2IG40-B	Instrument cable
G-3B	2KW3-A	Div. II Day Tank Level Alarm
G-3B	2KW3-B	Div. II Day Tank Level Alarm
G-3B	A408-C08/3	152-408 Control
G-3B	A602-C92/3	Control
G-3B	A602-C92/4	Power
G-3B	A602-C92/5	Control
G-3B	A610-A601/1#BC	Control
G-3B	C08-C31/22	Control
G-3B	C08-C33/1	Control
G-3B	C08-C94/1	Annunciator cable - not required
G-3B	C92-C94/1	Control
G-3B	C92-C94/2	Control
G-3B	C92-C94/3	Control
G-3B	C92-C94/4	Control
G-3B	C92-D111/1	125VDC control power for standby start circuit
G-3B	C92-D211/1	125VDC control power for start circuit
G-3B	C92-D211/2	Field flash power
G-3B	C92-G40/2	Control
G-3B	G-3B	Diesel Generator 12
GSC11	GSC11	DG-11 Frequency Adjust
GSC21	GSC21	DG-12 Frequency Adjust
K-10A	K-10A	RHR air compressor
K-10A	M3347-N3347/1	Power and control
K-10A	N3347-P73A/1	Motor Power
K-10B	2B4454-A	Motor power
K-10B	K-10B	RHR air compressor
K-10B	M4454-N4454/1	Power and control
LC-103	A509-B301/2	Power
LC-103	B301-C08/2	Control
LC-103	B3-D111/1	DC control power
LC-103	LC-103	480V Load Center
LC-104	2B401-A	DC control power
LC-104	2B401-B	Control and indication
LC-104	2B401-C	ASDS control and indication
LC-104	2B401-D1	Control and indication
LC-104	2B401-D2	Control and indication
LC-104	A609-B401/2	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
LC-104	B4-D211/1	DC control power
LC-104	LC-104	480V Load Center
LT-2-3-85A	C03-C05/1#AB	Indicator power
LT-2-3-85A	C03-LT2-3-85A/1	Signal cable
LT-2-3-85A	1Y7002-A	Instrument Power
LT-2-3-85A	1Y7002-B	Instrument Power
LT-2-3-85B	C03-C05/2#AB	Indicator power
LT-2-3-85B	C03-LT2-3-85B/1	Signal cable
LT-2-3-85B	2Y8002-A	Instrument Power
LT-2-3-85B	2Y8002-B	Instrument Power
LT-2-3-85B	C03-C13/2	Associated Ckt to Y80 Ckt 2
LT-2-3-112A	1Y7002-A	Instrument Power
LT-2-3-112A	1Y7002-B	Instrument Power
LT-2-3-112A	C03-C18/1#BC	Signal cable
LT-2-3-112A	C03-Y20/1	Indicator power
LT-2-3-112A	C18-2-3-112A/1	Signal cable
LT-2-3-112A	LT-2-3-112A	Reactor water level
LT-2-3-112B	2IL20-A	Signal cable
LT-2-3-112B	2IL20-B	Signal cable
LT-2-3-112B	2Y8014-B	ASDS control power
LT-2-3-112B	LT-2-3-112B	Reactor water level
LT-2-3-61	2IL3-A	Signal cable
LT-2-3-61	2IL3-B	Signal cable
LT-2-3-61	2Y8014-B	Loop power supply
LT-2-3-61	LT-2-3-61	Reactor level instrument
LT-7338A	1Y7002-A	Instrument Power
LT-7338A	1Y7002-B	Instrument Power
LT-7338A	C18-7338A/1	Signal cable
LT-7338A	LT-7338A	Suppression pool level instrument
LT-7338B	2IP7251B-A	Signal cable from C-292 to C03
LT-7338B	2IP7251B-B	Signal cable to C-292
LT-7338B	2Y8002-A	Power to Recorder PLR-7251B
LT-7338B	2Y8002-B	Power to Recorder PLR-7251B
LT-7338B	2Y8014-B	ASDS control power
LT-7338B	C03-C13/2	Cable is directly connected to 2Y8002-B
LT-7338B	LT-7338B	Suppression pool level instrument
MCC-133A	B304-B33/1	Power
MCC-133A	B304-B33/2	Neutral ground
MCC-133A	B3-D111/1	LC-103 DC control power

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
MCC-133A	MCC-133A	Motor control center
MCC-134	1B308-A	Power
MCC-134	1B308-B	Power
MCC-134	1B308-C	Power
MCC-134	1B308-D	Power
MCC-134	1B308-E	Power
MCC-134	1B308-F	Power
MCC-134	1B308-G	Neutral ground
MCC-134	B3-D111/1	LC-103 DC control power
MCC-134	MCC-134	Motor control center
MCC-141	2B402-A	Control
MCC-141	A602-B402/1	Control
MCC-141	B4-D211/1	LC-104 DC control power
MCC-142A	B403-B42/1	Power
MCC-142A	B403-B42/2	Neutral ground
MCC-142A	B4-D211/1	LC-104 DC control power
MCC-142A	MCC-142A	Motor control center
MCC-142B	2A408-B	ASDS DC control power
MCC-142B	2A602-E2	DC load transfer mode control power
MCC-142B	2B401-A	DC control power
MCC-142B	2B4231-A	Control
MCC-142B	A408-D211/1	DC Control Power
MCC-142B	A602-B4231/1	Control
MCC-142B	B4-D211/1	ASDS DC control power
MCC-142B	MCC-142B	Motor control center
MCC-143A	B404-B43/1	Power
MCC-143A	B404-B43/2	Neutral ground
MCC-143A	B4-D211/1	LC-104 DC control power
MCC-143A	MCC-143A	Motor control center
MCC-144	2B408-A-135	Power
MCC-144	2B408-B-135	Power
MCC-144	2B408-C-135	Power
MCC-144	2B408-D-135	Power
MCC-144	2B408-E-135	Power
MCC-144	2B408-F-135	Power
MCC-144	2B408-G-135	Neutral ground
MCC-144	B4-D211/1	LC-104 DC control power
MCC-144	MCC-144	Motor control center
MO-1741	B3326-C03/1	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
MO-1741	C03-MO1741/1	Control
MO-1741	MO-1741	Motor operated valve
MO-1742	2B4326-A	Control and indication
MO-1742	2B4326-B	Control and indication
MO-1742	2B4326-C	Control and indication
MO-1742	2B4326-D	Motor power
MO-1742	2Y8014-B	ASDS control power
MO-1742	MO-1742	Motor operated valve
MO-1749	B3327-C03/1	Control
MO-1749	B3327-MO1749/1	Motor power
MO-1749	C03-C32/3	Control
MO-1749	C03-C32/7	Control
MO-1749	C03-MO1749/1	Control
MO-1749	MO-1749	Motor operated valve
MO-1750	2B4327-A	Control and indication
MO-1750	2B4327-B	Control and indication
MO-1750	2B4327-C	Control and indication
MO-1750	2B4327-D	Motor power
MO-1750	2Y8014-B	ASDS control power
MO-1750	C03-C33/4	LOCA Signal
MO-1750	MO-1750	Motor operated valve
MO-1751	B3325-C03/1	Control and indication
MO-1751	B3325-MO1751/1	Motor power
MO-1751	C03-C32/6	Control
MO-1751	C03-MO1751/2	Control and Indication
MO-1751	C03-MO1753/2	Interlock from MO1753
MO-1751	MO-1751	Motor operated valve
MO-1752	2B4325-A1	Control
MO-1752	2B4325-A2	Indication
MO-1752	2B4325-B	Control
MO-1752	2B4325-C	Control and Indication
MO-1752	2B4325-D	Motor power
MO-1752	2Y8014-B	ASDS control power
MO-1752	C03-C33/3	LOCA signal
MO-1752	C03-MO1754/2	Interlock from MO1754
MO-1752	MO-1752	Motor operated valve
MO-1753	B3324-C03/1	Control
MO-1753	B3324-MO1753/1	Motor power
MO-1753	C03-C32/31	LOCA Signal

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
MO-1753	C03-C32/5	LOCA Signal
MO-1753	C03-MO1751/1	Interlock to MO1751
MO-1753	C03-MO1753/1	Control and Indication
MO-1753	C32-C33/26	Low Reactor Pressure Signal
MO-1753	C32-C56/3	Interlock to Div 1 reactor pressure switch
MO-1753	C32-D11/1	Control power to Div 1 low pressure relay
MO-1753	C33-C55/2	Interlock to Div 2 reactor pressure switch
MO-1753	C33-D21/1	Control power to Div 2 low pressure relay
MO-1753	MO-1753	Motor operated valve
MO-1754	2B4324-A	Control
MO-1754	2B4324-B	Control and indication
MO-1754	2B4324-C	Control and indication
MO-1754	2B4324-D	Motor power
MO-1754	2Y8014-B	ASDS control power
MO-1754	C03-C33/2	Control
MO-1754	C03-C33/27	Control
MO-1754	C03-MO1752/1	Interlock from MO1752
MO-1754	C32-C33/27	Control
MO-1754	C32-C56/3	Interlock to Div 1 reactor pressure switch
MO-1754	C32-D11/1	Control power to Div 1 low pressure relay
MO-1754	C33-C55/2	Interlock to Div 2 reactor pressure switch
MO-1754	C33-D21/1	Control power to Div 2 low pressure relay
MO-1754	MO-1754	Motor operated valve
MO-1986	B3321-C03/1	Control and indication
MO-1986	C03-MO1986/2	Control
MO-1986	C03-MO1988/2	Interlock with MO-1988
MO-1986	MO-1986	Motor operated valve
MO-1987	2B4323-A	Control
MO-1987	2B4323-B	Control
MO-1987	2B4323-C	Control
MO-1987	2B4323-D	Motor power
MO-1987	2Y8014-B	ASDS control power
MO-1987	C03-MO1989/2	Control interlock to MO-1989
MO-1987	MO-1987	Motor operated valve
MO-1988	1B3322-B	Interlock with MO-2006
MO-1988	B3322-C03/1	Control and indication
MO-1988	B3322-MO1988/1	Motor power
MO-1988	C03-MO1986/1	Control
MO-1988	C03-MO1988/1	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
MO-1988	MO-1988	Motor operated valve
MO-1989	2B4321-B	Control interlock
MO-1989	B4321-C03/1	Control and indication
MO-1989	B4321-MO1989/1	Motor power
MO-1989	C03-MO1987/1	Control interlock
MO-1989	C03-MO1989/1	Control and indication
MO-1989	MO-1989	Motor operated valve
MO-2002	B3336-C03/1	Control and indication
MO-2002	B3336-MO2002/1	Motor power
MO-2002	C03-C32/29	Control
MO-2002	C03-MO2002/1	Control and indication
MO-2002	MO-2002	Motor operated valve
MO-2003	2B4210-A1	Control
MO-2003	2B4210-A2	Control
MO-2003	2B4210-A3	Control
MO-2003	2B4210-B1	Control
MO-2003	2B4210-B2	Control
MO-2003	2B4210-C1	Control
MO-2003	2B4210-C2	Control
MO-2003	2B4210-D	Motor power
MO-2003	2B4210-E	Control
MO-2003	2Y8014-B	ASDS control power
MO-2003	C03-C33/24	Control
MO-2003	MO-2003	Motor operated valve
MO-2006	1B3341-A	Interlock with MO-1988
MO-2006	B3341-C03/1	Control and indication
MO-2006	B3341-MO2006/1	Motor power
MO-2006	C03-C32/21	Control
MO-2006	C03-MO2006/1	Control and indication
MO-2006	MO-2006	Motor operated valve
MO-2007	2B4208-A	Control
MO-2007	2B4208-B	Control
MO-2007	2B4208-C	Control
MO-2007	2B4208-D	Motor power
MO-2007	2B4208-E	MO-1989 Interlock
MO-2007	2B4208-F	MO-1989 Interlock
MO-2007	2Y8014-B	ASDS control power
MO-2007	C03-C33/10	Control
MO-2007	MO-2007	Motor operated valve

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
MO-2008	B3337-C03/1	Control and indication
MO-2008	B3337-MO2008/1	Motor power
MO-2008	C03-C32/18	Control
MO-2008	C03-MO2008/1	Control and indication
MO-2008	MO-2008	Motor operated valve
MO-2009	2B4337-A	Control
MO-2009	2B4337-B	Control
MO-2009	2B4337-C	Control
MO-2009	2B4337-D	Control
MO-2009	2B4337-E	Motor power
MO-2009	2Y8014-B	ASDS control power
MO-2009	C03-C33/15	Control
MO-2009	MO-2009	Motor operated valve
MO-2010	B3338-C03/1	Control and indication
MO-2010	B3338-MO2010/1	Motor power
MO-2010	C03-C32/19	Control
MO-2010	MO-2010	Motor operated valve
MO-2010	C03-MO2010/1	Control and indication
MO-2011	B4338-C03/1	Control and indication
MO-2011	B4338-MO2011/1	Motor power
MO-2011	C03-C33/16	Control
MO-2011	C03-MO2011/1	Control and indication
MO-2011	MO-2011	Motor operated valve
MO-2012	B3335-C03/1	Control
MO-2012	B3335-MO2012/1	Motor power
MO-2012	C03-C32/17	Control
MO-2012	C03-MO2012/1	Control and indication
MO-2012	C32-C33/4	Control
MO-2012	C32-MO2014/1	Control
MO-2012	MO-2012	Motor operated valve
MO-2013	B4335-C03/1	Control
MO-2013	B4335-MO2013/1	Motor power
MO-2013	C03-C33/14	Control
MO-2013	C03-MO2013/1	Control
MO-2013	C32-C33/9	Control
MO-2013	C33-MO2015/1	Control
MO-2013	MO-2013	Motor operated valve
MO-2014	B3334-C03/1	Control
MO-2014	B3334-MO2014/1	Motor power

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
MO-2014	C03-C32/16	Control
MO-2014	C03-MO2014/1	Control
MO-2014	C32-C33/3	Control
MO-2014	C32-MO2012/1	Control
MO-2014	MO-2014	Motor operated valve
MO-2015	B4334-C03/1	Control and indication
MO-2015	B4334-MO2015/1	Motor power
MO-2015	C03-C33/13	Control
MO-2015	C03-MO2015/1	Control and indication
MO-2015	C32-C33/2	Control
MO-2015	C33-MO2013/1	Control
MO-2015	MO-2015	Motor operated valve
MO-2020	B3339-C03/1	Control and indication
MO-2020	B3339-MO2020/1	Motor power
MO-2020	C03-C32/20	Control
MO-2020	C03-MO2020/1	Control and indication
MO-2020	MO-2020	Motor operated valve
MO-2021	B4339-C03/1	Control and indication
MO-2021	B4339-MO2021/1	Motor power
MO-2021	C03-C33/17	Motor power
MO-2021	C03-MO2021/1	Control and indication
MO-2021	MO-2021	Motor operated valve
MO-2022	B3309-C03/1	Control and indication
MO-2022	B3309-MO2022/1	Motor power
MO-2022	C03-C32/14	Control
MO-2022	C03-MO2022/1	Control and indication
MO-2022	MO-2022	Motor operated valve
MO-2023	B4209-C03/1	Control
MO-2023	B4209-MO2023/1	Motor power
MO-2023	C03-C33/11	Control
MO-2023	C03-MO2023/1	Control
MO-2023	MO-2023	Motor operated valve
MO-2029	B3333-C41/1	Control
MO-2029	B3333-JX105D/1	Motor power
MO-2029	C03-C41/1	Control and indication
MO-2029	C41-JX105D/1	Control and indication
MO-2029	C41-JX105D/3	Control and indication
MO-2029	JX105D-MO2029/1	Motor power
MO-2029	JX105D-	Control and indication

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
	MO2029/2	
MO-2029	JX105D- MO2029/4	Control
MO-2029	MO-2029	Motor operated valve
MO-2030	C03-C42/2	Control and indication
MO-2030	C42-D31307/1	Control and indication
MO-2030	D31307-MO2030/1	Motor power
MO-2030	D31307-MO2030/2	Control and indication
MO-2030	D31307-MO2030/3	Control
MO-2030	D31-D313/1	250VDC Power Supply
MO-2030	D33-D313/1	125VDC Control Power
MO-2030	MO-2030	Motor operated valve
MO-2032	B4211-C41/1	Control and indication
MO-2032	B4211-MO2032/1	Motor power
MO-2032	C03-C41/2	Control and indication
MO-2032	C41-MO2032/1	Control and indication
MO-2032	MO-2032	Motor operated valve
MO-2033	B4328-C03/1	Control
MO-2033	B4328-MO2033/1	Motor power
MO-2033	C03-MO2033/1	Control
MO-2033	MO-2033	Motor operated valve
MO-2407	C03-C42/4	Control and indication
MO-2407	C42-D31310/1	Control and indication
MO-2407	D313-K31301/1	Associated Circuit Connected to Control Power Bus
MO-2407	D31310-MO2407/1	Motor power
MO-2407	D31310-MO2407/2	Control and indication
MO-2407	MO-2407	Motor operated valve
P-109A	A308-D111/1	DC Control Power
P-109A	A508-C03/1	Control
P-109A	A508-M508/1	Motor power
P-109A	A508-J302/1	Motor Heater, Cooling Water Solenoid SV-4937A
P-109A	C03-C32/13	Control
P-109A	NA508-D	Motor Heater, Cooling Water Solenoid SV-4937A
P-109A	P-109A	RHRWS Pump
P-109B	2A408-B	ASDS DC control power
P-109B	2A608-A	Control and indication
P-109B	2A608-B	Control and indication
P-109B	2A608-C1	Control and indication
P-109B	2A608-C2	Control and indication
P-109B	2A608-D	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
P-109B	A408-D211/1	DC Control Power
P-109B	A608-M608/1	Motor power
P-109B	A608-M608/2	Motor Heater, Cooling Water SV-4937B
P-109B	C03-C33/9	Control
P-109B	P-109B	RHRSW Pump
P-109C	A308-D111/1	DC Control Power
P-109C	A507-C03/1	Control and indication
P-109C	A507-M507/1	Motor power
P-109C	A507-J302/1	Motor Heater, Cooling Water SV-4937C
P-109C	C03-C32/12	Control
P-109C	NA507-D	Motor Heater, Cooling Water SV-4937C
P-109C	P-109C	RHRSW Pump
P-109D	2A408-B	ASDS DC control power
P-109D	2A607-A	Control
P-109D	2A607-C	Control
P-109D	A408-D211/1	DC Control Power
P-109D	A607-C03/1	Control
P-109D	A607-M607/1	Motor power
P-109D	A607-M607/2	Motor Heater, Cooling Water SV-4937D
P-109D	C03-C33/8	Control
P-109D	P-109D	RHRSW Pump
P-111A	1B3435-A	Motor power
P-111A	1B3435-B	Control and indication
P-111A	1B3435-C	Control and indication
P-111A	1B3435-D	Control
P-111A	1B3435-E	Control
P-111A	1B3435-F	Control
P-111A	P-111A	Emergency Service Water Pump
P-111B	2B4319-A	Control
P-111B	2B4319-B	Control
P-111B	2B4319-C	Control
P-111B	2B4319-D	Disch. Press. Annunciator
P-111B	2B4319-F	Control
P-111B	2M2921-A	Hot Engine Signal Cable
P-111B	2Y8014-B	ASDS control power
P-111B	B4319-M4319/1	Motor power
P-111B	C03-C33/12	Control
P-111B	P-111B	Emergency Service Water Pump
P-111C	1B3472-A	Motor power

01478399

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
P-111C	1B3472-B	Control
P-111C	1B3472-F	Control
P-111C	P-111C	Emergency Service Water Pump
P-111D	2B4472-A	Motor power
P-111D	2B4472-F	Control
P-111D	2B4472-G	Control
P-111D	2B4472-H	Control
P-111D	2B4472-J	Control
P-111D	2M2921-A	Associated cable when in ASDS control
P-111D	2Y8014-B	ASDS control power
P-111D	P-111D	Emergency Service Water Pump
P-160A	1B3461/A1	Motor Power
P-160A	1B3461/A2	Motor Power
P-160A	1B3461/A3	Motor Power
P-160A	1B3461/A4	Motor Power
P-160A	1B3461/B1	Control
P-160A	1B3461/B5	Control
P-160A	1B3462/B5	Control
P-160B	2B4202-C1	Motor Power
P-160B	2B4202-C2	Motor Power
P-160B	2B4202-C	Control
P-160C	1B3462/A1	Motor Power
P-160C	1B3462/A2	Motor Power
P-160C	1B3462/A4	Motor Power
P-160C	1B3462/B1	Control
P-160C	1B3462/B5	Control
P-160C	1B3461/B5	Control
P-160D	2B4451-A1	Motor Power
P-160D	2B4451-A2	Motor Power
P-160D	2B4451-A3	Control
P-160D	2B4451-A	Control
P-202A	1Q525-C	Control from ECCS relay logic
P-202A	A308-D111/1	DC Control Power
P-202A	A504-C03/3	Control
P-202A	A504-M504/1	Motor power
P-202A	C03-C32/27	Control
P-202A	C32-D11/1	Control power to pump start logic
P-202A	C32-I3139A/1	Pump start permissive
P-202A	C32-I3139C/1	Pump start permissive

01478399

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
P-202A	C32-MO1986/1	Pump start permissive
P-202A	C32-MO1988/1	Pump start permissive
P-202A	P-202A	RHR Pump
P-202B	2A408-B	ASDS DC control power
P-202B	2A604-A	Control
P-202B	2A604-B	Control
P-202B	2A604-E1	Control
P-202B	2A604-E2	Control
P-202B	2IF23-D	Control
P-202B	2Y8014-B	ASDS control power
P-202B	A408-D211/1	DC Control Power
P-202B	A604-M604/1	Motor power
P-202B	C03-C33/21	Control
P-202B	C33-D21/1	Control
P-202B	C33-I3140A/1	Control
P-202B	C33-I3140C/1	Control
P-202B	C33-MO1987/1	Suction valve start permissive
P-202B	C33-MO1989/1	Suction valve start permissive
P-202B	P-202B	RHR Pump
P-208A	A308-D111/1	DC Control Power
P-208A	A505-C03/1	Control
P-208A	A505-M505/1	Motor power
P-208A	A505-M505/2	Motor power
P-208A	C03-C32/28	Control
P-208A	P-208A	Core Spray Pump
P-208B	2A408-B	ASDS DC control power
P-208B	2A605-A1	Control
P-208B	2A605-A2	Control
P-208B	2A605-B	Control
P-208B	2A605-C	Control
P-208B	A408-D211/1	DC Control Power
P-208B	A605-M605/1	Motor power
P-208B	C03-C33/22	Control
P-208B	P-208B	Core Spray Pump
P73A	B3347-P73A/1	Power
P73A	P73A	480V Distribution Panel
PT-4067D	2B44P18-A	C253B AC Power Supply
PT-4067D	2D10003-A	C253B DC Power Supply
PT-4067D	2IP29-A	SRV Tailpipe dP Signal

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
PT-4067D	2IP29-B	SRV Tailpipe dP Signal
PT-4067D	2Y8014-B	Power to recorder PCR-4102
PT-4067D	PT-4067D	Reactor pressure instrument
PT-6-53A	1Y7002-A	Instrument Power
PT-6-53A	1Y7002-B	Instrument Power
PT-6-53A	C03-C05/1#BB	Indication
PT-6-53A	C03-PT6-53A/1	Field cable to transmitter
PT-6-53A	PT-6-53A	Reactor pressure instrument
PT-6-53B	2Y8002-A	Instrument power
PT-6-53B	2Y8002-B	Instrument power
PT-6-53B	C03-C05/2#BB	Indication
PT-6-53B	C03-C13/2	Cable is directly connected to 2Y8002-B
PT-6-53B	C03-PT6-53B/1	Field cable to transmitter
PT-6-53B	PT-6-53B	Reactor pressure instrument
PT-7251B	2IP7251B-C	Signal Cable From Transmitter to ASDS Panel
PT-7251B	2IP7251B-D	Isolated Signal Cable From ASDS Panel to Panel C03
PT-7251B	2Y8014-B	Instrument power
removed	B33-M3122/1	
removed	B33-MO1048/1	
removed	B42-M2122/1	
removed	B42-MO1049/1	
removed	C93-PS3366/1	
removed	C94-PS3367/1	
RV-2-71D	RV-2-71D	Safety Relief Valve
RV-2-71E	RV-2-71E	Safety Relief Valve
RV-2-71F	RV-2-71F	Safety Relief Valve
RV-2-71G	RV-2-71G	Safety Relief Valve
RV-2-71H	RV-2-71H	Safety Relief Valve
SV-2-71D	C32-JX105C/1	Control
SV-2-71D	JX105C-2-71D/1	Control
SV-2-71D	C32-D11/4	Control
SV-2-71D	C32-C32/4	Control
SV-2-71D	SV-2-71D	SRV Solenoid Valve
SV-2-71E	1IP20-A	Reactor pressure signal
SV-2-71E	1Q156-A	Control
SV-2-71E	1Q156-B	Control
SV-2-71E	1Q156-C	Control
SV-2-71E	1Q156-D	Control
SV-2-71E	1Q156-E	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
SV-2-71E	2IP29-A	SRV Tailpipe dP Signal
SV-2-71E	2IP29-B	SRV Tailpipe dP Signal
SV-2-71E	SV-2-71E	SRV Solenoid Valve
SV-2-71F	1Q160-A	Control
SV-2-71F	1Q160-B	Control
SV-2-71F	1Q160-C	Control
SV-2-71F	1Q160-D	Control
SV-2-71F	1Q160-E	Control
SV-2-71F	1Q160-F	Control
SV-2-71F	SV-2-71F	SRV Solenoid Valve
SV-2-71G	1IP20-A	Reactor pressure signal
SV-2-71G	1Q157-A	Control
SV-2-71G	1Q157-B	Control
SV-2-71G	1Q157-C	Control
SV-2-71G	1Q157-D	Control
SV-2-71G	1Q157-E	Control
SV-2-71G	SV-2-71G	SRV Solenoid Valve
SV-2-71H	1IP20-A	Reactor pressure signal
SV-2-71H	1Q158-A	Control
SV-2-71H	1Q158-B	Control
SV-2-71H	1Q158-C	Control
SV-2-71H	1Q158-D	Control
SV-2-71H	1Q158-E	Control
SV-2-71H	SV-2-71H	SRV Solenoid Valve
SV-2-71J	2D10003-A	C253B DC Power Supply
SV-2-71J	2IP28-A	SRV Tailpipe dP Signal
SV-2-71J	2Q256-B	Control
SV-2-71J	2Q256-C	Control
SV-2-71J	2Q256-D	Control
SV-2-71J	NQ261-A	SRV solenoid energized indication
SV-2-71J	SV-2-71J	SRV Solenoid Valve
SV-2-71J	2Q265-A	Control
SV-2-71J	2Q265-B	Control
SV-2-71J	2Q265-C	Control
SV-2-71J	NQ261-B	SRV Tailpipe dP Signal
SV-2-71K	2D10003-A	C253B DC Power Supply
SV-2-71K	2IP28-A	SRV Tailpipe dP Signal
SV-2-71K	2Q257-A	Control
SV-2-71K	2Q257-B	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
SV-2-71K	2Q257-C	Control
SV-2-71K	NQ261-A	SRV solenoid energized indication
SV-2-71K	SV-2-71K	SRV Solenoid Valve
SV-2-71K	2Q265-A	Control
SV-2-71K	2Q265-B	Control
SV-2-71K	2Q265-C	Control
SV-2-71K	NQ261-B	SRV Tailpipe dP Signal
SV-2-71L	2D10003-A	C253B DC Power Supply
SV-2-71L	2IP28-A	SRV Tailpipe dP Signal
SV-2-71L	2Q258-A	Control
SV-2-71L	2Q258-B	Control
SV-2-71L	2Q258-C	Control
SV-2-71L	NQ261-A	SRV solenoid energized indication
SV-2-71L	SV-2-71L	SRV Solenoid Valve
SV-2-71L	2Q265-A	Control
SV-2-71L	2Q265-B	Control
SV-2-71L	2Q265-C	Control
SV-2-71L	NQ261-B	SRV Tailpipe dP Signal
SV-2-71M	2D10003-A	C253B DC Power Supply
SV-2-71M	2IP28-A	SRV Tailpipe dP Signal
SV-2-71M	2Q260-A	Control
SV-2-71M	2Q260-B	Control
SV-2-71M	2Q260-C	Control
SV-2-71M	NQ261-A	SRV solenoid energized indication
SV-2-71M	SV-2-71M	SRV Solenoid Valve
SV-2-71M	2Q265-A	Control
SV-2-71M	2Q265-B	Control
SV-2-71M	2Q265-C	Control
SV-2-71M	NQ261-B	SRV Tailpipe dP Signal
SV-3-31A	C15-C16/1	Control
SV-3-31A	C15-J1059/1	Control
SV-3-31A	J1059-3-31A/1	Control
SV-3-31A	J1059-5A-K30A/1	Control
SV-3-31A	SV-3-31A	SDV Vent/Drain Solenoid Control Valve
SV-3-31B	C16-C17/2	Control
SV-3-31B	C17-J1060/1	Control
SV-3-31B	J1060-3-31B/1	Control
SV-3-31B	J1060-5A-K30B/1	Control
SV-3-31B	SV-3-31B	SDV Vent/Drain Solenoid Control Valve

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
SV-3-31C	C15-C16/1	Control
SV-3-31C	C15-J1059/1	Control
SV-3-31C	J1059-3-31C/1	Control
SV-3-31C	J1059-5A-K30A/1	Control
SV-3-31C	SV-3-31C	SDV Vent/Drain Solenoid Control Valve
SV-3-31D	C16-C17/2	Control
SV-3-31D	C17-J1060/1	Control
SV-3-31D	J1060-3-31D/1	Control
SV-3-31D	J1060-5A-K30B/1	Control
SV-3-31D	SV-3-31D	SDV Vent/Drain Solenoid Control Valve
SV-4110	2Q270-A	indication at ASDS
SV-4110	2Q270-B	control from ASDS
SV-4937A	NA508-A	Control
SV-4937A	NA508-B	Control
SV-4937A	NA508-D	Control
SV-4937B	NA608-A	Control
SV-4937B	NA608-B	Control
SV-4937C	NA507-A	Control
SV-4937C	NA507-B	Control
SV-4937C	NA507-D	Control
SV-4937D	NA607-A	Control
SV-4937D	NA607-B	Control
TE-4073A	1IT100-A	Field cable to Torus RTD TE-4073A
TE-4073A	TE-4073A	Torus Temperature Instrument
TE-4073B	2IT200-A	Field cable to Torus RTD TE-4073B
TE-4073B	TE-4073B	Torus Temperature Instrument
TE-4074A	1IT100-B	Field cable to Torus RTD TE-4074A
TE-4074A	TE-4074A	Torus Temperature Instrument
TE-4074B	2IT200-B	Field cable to Torus RTD TE-4074B
TE-4074B	TE-4074B	Torus Temperature Instrument
TE-4075A	1IT100-C	Field cable to Torus RTD TE-4075A
TE-4075A	TE-4075A	Torus Temperature Instrument
TE-4075B	2IT200-C	Field cable to Torus RTD TE-4075B
TE-4075B	TE-4075B	Torus Temperature Instrument
TE-4076A	1IT100-D	Field cable to Torus RTD TE-4076A
TE-4076A	TE-4076A	Torus Temperature Instrument
TE-4076B	2IT200-D	Field cable to Torus RTD TE-4076B
TE-4076B	TE-4076B	Torus Temperature Instrument
TE-4077A	1IT100-E	Field cable to Torus RTD TE-4077A

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
TE-4077A	TE-4077A	Torus Temperature Instrument
TE-4077B	2IT200-E	Field cable to Torus RTD TE-4077B
TE-4077B	TE-4077B	Torus Temperature Instrument
TE-4078A	1IT100-F	Field cable to Torus RTD TE-4078A
TE-4078A	TE-4078A	Torus Temperature Instrument
TE-4078B	2IT200-F	Field cable to Torus RTD TE-4078B
TE-4078B	TE-4078B	Torus Temperature Instrument
TE-4079A	1IT100-G	Field cable to Torus RTD TE-4079A
TE-4079A	TE-4079A	Torus Temperature Instrument
TE-4079B	2IT200-G	Field cable to Torus RTD TE-4079B
TE-4079B	TE-4079B	Torus Temperature Instrument
TE-4080A	1IT100-H	Field cable to Torus RTD TE-4080A
TE-4080A	TE-4080A	Torus Temperature Instrument
TE-4080B	2IT200-H	Field cable to Torus RTD TE-4080B
TE-4080B	TE-4080B	Torus Temperature Instrument
V/DG1	V/DG1	DG1 Voltage Indication
V/DG2	V/DG2	DG2 Voltage Indication
V-AC-4	2B4305-A	Control
V-AC-4	2B4305-B	Control
V-AC-4	2B4305-C	Motor power
V-AC-4	2Y8014-B	Control power at ASDS
V-AC-4	V-AC-4	Division 2 ECCS Room Cooler
V-AC-5	B3305-C20/1	Control
V-AC-5	B3305-M3305/1	Motor power
V-AC-5	V-AC-5	Division 1 ECCS Room Cooler
VD-9093B	2V242-A	Control
VD-9093B	2V242-D	Control
VD-9093B	2V242-F	Control
VD-9093B	VD-9093B	CRV Supply Cross Connect Damper
VD-9111A	1V209-A	Control
VD-9111A	1V209-D	Control
VD-9111A	1V209-F	Control
VD-9111A	1V210-D	Control
VD-9111A	1V210-E	Control
VD-9111A	1V210-F	Control
VD-9111A	1V211-D	Control
VD-9111A	1V211-F	Control
VD-9111B	2B44P14-A	EFT Div 2 Panel Power Supply
VD-9111B	2IV237-D	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
VD-9111B	2V236-A	Control
VD-9111B	2V236-D	Control
VD-9111B	2V236-E	Control
VD-9111B	2V239-D	Control
VD-9111B	2V239-F	Control
V-EAC-14A	1B3415-A	Blower control
V-EAC-14A	1B3415-D	Blower control
V-EAC-14A	1B3415-E	Blower control
V-EAC-14A	1B3415-F	Blower control
V-EAC-14A	1B3415-G	Blower control
V-EAC-14A	1B3416-A	Compressor motor power
V-EAC-14A	1B3416-D	Compressor control
V-EAC-14A	1B3416-E	Compressor control
V-EAC-14A	1B3416-F	Compressor control
V-EAC-14A	1B3416-G	Compressor control
V-EAC-14A	1B3416-L	Compressor control
V-EAC-14A	1B3416-M	Compressor control
V-EAC-14A	1B4315-A	Blower motor power
V-EAC-14A	1B4315-D	Blower control
V-EAC-14A	1B4315-E	Blower control
V-EAC-14A	1B4315-F	Blower control
V-EAC-14A	1B4315-G	Blower control
V-EAC-14A	V-EAC-14A	Control Room Air Conditioning Unit
V-EAC-14B	2B4415-A	Blower motor power
V-EAC-14B	2B4415-D	Blower control
V-EAC-14B	2B4415-E	Blower control
V-EAC-14B	2B4415-F	Blower control
V-EAC-14B	2B4416-A	Compressor motor power
V-EAC-14B	2B4416-D	Compressor control
V-EAC-14B	2B4416-E	Compressor control
V-EAC-14B	2B4416-F	Compressor control
V-EAC-14B	2B4416-G	Compressor control
V-EAC-14B	2B4416-K	Compressor control
V-EAC-14B	2B4416-L	Compressor control
V-EAC-14B	2B4416-M	Compressor control
V-EAC-14B	V-EAC-14B	Control Room Air Conditioning Unit
V-EF-40A	1B3424-A	Motor power
V-EF-40A	1B3424-D	Control
V-EF-40A	1B3424-E	Control

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
V-EF-40A	V-EF-40A	Div I 250V Battery Room Exhaust Fan
V-EF-40B	2B4424-A	Motor power
V-EF-40B	2B4424-D	Control
V-EF-40B	2B4424-E	Control
V-EF-40B	V-EF-40B	Div II 250V Battery Room Exhaust Fan
V-ERF-11	1B3423-A	Motor power
V-ERF-11	1B3423-D	Control
V-ERF-11	1B3423-E	Control
V-ERF-12	2B4423-A	Control
V-ERF-12	2B4423-D	Control
V-ERF-12	2B4423-E	Control
V-ERF-14A	1B3414-A	Motor power
V-ERF-14A	1B3414-D	Control
V-ERF-14A	1B3414-E	Control
V-ERF-14A	V-ERF-14A	Recirculation Fan
V-ERF-14B	2B4414-A	Motor power
V-ERF-14B	2B4414-D	Control
V-ERF-14B	2B4414-E	Control
V-ERF-14B	V-ERF-14B	Recirculation Fan
V-SF-10	1B3474-A	Motor power
V-SF-10	1B3474-B	Control
V-SF-10	1B3474-C	Control
V-SF-10	1B3474-D	Control and indication
V-SF-10	1B3474-E	Control
V-SF-10	1B3474-F	Control
V-SF-10	1B3474-G	Control and indication
V-SF-10	V-SF-10	EDG 11 Ventilation
V-SF-9	B4317-C92/1	Control
V-SF-9	B4317-M4317/1	Motor power
V-SF-9	B4317-N4317/2&	Control
V-SF-9	V-SF-9	EDG-12 Ventilation
W/DG1	W/DG1	DG1 Wattmeter
W/DG2	W/DG2	DG2 Wattmeter
X30/XFMR	X30/XFMR	4160/480V Transformer
X40/XFMR	X40/XFMR	4160/480V Transformer
Y10	Y10	Division 1 Non-1E Distribution Panel
Y20	B3304-Y01/1	Power from B33 to Y01
Y20	B4318-Y22/1	Power from B43 to Y22
Y20	Y01-Y21/1	Power from Y01 to Y21

Table J.4.5-2
Appendix R Safe Shutdown Cables

<u>Component</u>	<u>Cable</u>	<u>Cable Function</u>
Y20	Y20	Division 2 Distribution Panel
Y20	Y20-Y21/1	Power from Y21 to Y20
Y20	Y21-Y22/1	Power from Y22 to Y21
Y70	1B3482-A	Power from MCC B34 to Transformer Y72
Y70	1B3482-B	Power from Transformer Y72 to Bypass Switch Y73
Y70	1B3482-C	Control for Bypass Switch Y73
Y70	1B3482-D	Power from Y75 to Panel Y70
Y70	1B3482-E	Power to/from Y73 to Inverter Y71
Y70	1B3482-G	Power from Y73 to Disconnect Switch Y74
Y70	1B3482-H	Power from Y74 to Disconnect Switch Y75
Y70	1D3112-A	Power
Y70	NB3482-J	Power from Y74 to Transformer Y77
Y70	NB3482-K	Power from Transformer Y77 to Panel Y10
Y70	Y70	120V AC Distribution Panel
Y71	Y71	120V AC Inverter
Y72	Y72	480/120V UPS Transformer
Y73	Y73	120V AC UPS Bypass Switch
Y74	Y74	120V AC Disconnect Switch
Y75	Y75	120V AC Disconnect Switch
Y77	Y77	Transformer to Panel Y-10
Y80	2B4482-A	Power to Y82 from MCC B44
Y80	2B4482-B	Power from Y82 to Y83
Y80	2B4482-C	Control, Y83
Y80	2B4482-D	Power from Y85 to Y80
Y80	2B4482-E	Power to/from Y83 to Y81
Y80	2B4482-G	Power from Y83 to Y84
Y80	2B4482-H	Power from Y83 to Y85
Y80	2D10012-A	125VDC power from D100 to Y81
Y80	NB4482-J	Power from Y84 to Y87 (YY30/87 not credited)
Y80	NB4482-K	Power from Y87 to Y30 (Y30/Y87 not credited)
Y80	Y80	120V AC Distribution Panel
Y81	Y81	120V AC Inverter
Y82	Y82	480/120V UPS Transformer
Y83	Y83	120V AC UPS Bypass Switch
Y84	Y84	120V AC Disconnect Switch
Y85	Y85	120V AC Disconnect Switch
Y87	Y87	Transformer to Panel Y10

Table J.4.5-3 Category 1 Spurious Operations (High/Low Pressure Interface or Uncontrolled Depressurization)		
System	Component(s)	Disposition
RHR	MO-2029, MO-2030	Open power breaker for AC powered MO-2029 during normal plant operation. For III.G.3 credited fire areas, the open breaker for MO-2029 precludes spurious valve opening. For III.G.2 credited fire areas, the common fire area/zone for both valve power cables is I/2B. MO-2030 is DC powered. Five single conductor cables provide the MO-2030 motor power. Spurious operation is not considered credible.
RHR	MO-2407, MO-2032	Open power breaker for MO-2032 during normal plant operation precludes spurious operation due to control circuit shorts. Consideration of 3-phase short of proper phase rotation not required as MO-2032 is not a decay heat removal valve at a high/low pressure interface.
RHR	MO-2014	Mechanical check valve in line will prevent reactor coolant inventory loss
RHR	MO-2015	Mechanical check valve in line will prevent reactor coolant inventory loss
Core Spray	MO-1753	Mechanical check valve in line will prevent reactor coolant inventory loss
Core Spray	MO-1754	Mechanical check valve in line will prevent reactor coolant inventory loss
HPCI	MO-2068	Mechanical check valve in line will prevent reactor coolant inventory loss
RCIC	MO-2017	Mechanical check valve in line will prevent reactor coolant inventory loss
HPCI	CV-2046A, CV-2046B	Reactor coolant inventory loss is limited by line size (Less than 1-inch)
RCIC	CV-2062A, CV-2062B	Reactor coolant inventory loss is limited by line size (Less than 1-inch)
CRD	CV-127, CV3-32A	Reactor coolant inventory loss is limited by line size (Less than 1-inch)
CRD	CV-127, CV3-32B	Reactor coolant inventory loss is limited by line size (Less than 1-inch)
CRD	CV-127, CV3-33	Reactor coolant inventory loss is limited by line size (Less than 1-inch)
NBS	CV-2790, CV-2791	Reactor coolant inventory loss is limited by line size (Less than 1-inch)
NBS	CV-2371, CV-2372	Reactor coolant inventory loss is limited by line size (Less than 1-inch)
NBS	CV-2369, CV-2370	Reactor coolant inventory loss is limited by line size (Less than 1-inch)

Table J.4.5-3 Category 1 Spurious Operations (High/Low Pressure Interface or Uncontrolled Depressurization)		
System	Component(s)	Disposition
MS	AO2-80A, AO2-86A; or AO2-80B, AO2-86B; or AO2-80C, AO2-86C; or AO2-80D, AO2-86D	CAP033247, PRA-CALC-04-024, Fire Induced MSIV Operation
MS	RV2-71A through RV2-71H	Refer to Section J.4.4.1
RWCU	MO-2401, CV-2403, MO-2404, or MO-2401, CV-2403, MO-2405	MO-2401 is a 3-inch bypass valve around the 1/4" restricting orifice (RO-2402) which is upstream of CV-2403. Open power breaker for MO-2401 during normal plant operation precludes spurious operation due to control circuit shorts. Consideration of 3-phase short of proper phase rotation not required as MO-2032 is not a decay heat removal valve at a high/low pressure interface. Reactor coolant inventory loss is limited by orifice size (Less than 1-inch).

Table J.4.5-4 Category 2 Spurious Operations (Potential Detrimental Impact on Safe Shutdown)		
System	Component(s)	Disposition
Core Spray	Pump P-208B MO-1742	Potential pump operation without suction source. Requires spurious operation of both components. P-208B can spuriously start due to intra-cable short. MO-1742 circuit design precludes spurious valve closure. Control switch in OPEN position (contacts maintained) also shorts close circuit.
CRD	CV3-32A, CV3-32B or CV3-32C, CV3-32D CV3-33A, CV3-33B CV3-33C, CV3-33D	Inventory loss prevented by cable routing that precludes spurious opening of redundant valves.
EDG	G-3B	The design incorporates an interlock to automatically start the ESW pump on high jacket water temperature of the No. 12 diesel generator. This interlock is independent of the ASDS transfer switch position, therefore ensuring the EDG is protected from over heating prior to activation of the ASDS.
FW	Feedwater and/or Condensate Pumps Running	Potential vessel overfill. The adequacy of the station design to preclude vessel overfill was evaluated in response to Generic Letter 89-19. [Reference J.4.7.59] NRC approval of vessel overfill protection is documented in Reference J.4.7.60.
HPCI	MO-2067, MO-2068, MO-2036 MO-2061, MO-2062 MO-2071, CV-3503	Potential flow diversion from Suppression Pool to Condensate Storage Tank Requires all noted valves to open. MO-2067, MO-2068, MO-2036 open on HPCI initiation (low RPV level). For full flow to CST MO-2068 would need to fail to open. MO-2061 & MO-2062 can open on fire damage to CST level circuit (open circuit). MO-2071 can open due to control cable short. However, CV-3503 is not expected to spuriously open as the CV-3503 cables are 2 conductor cables and the circuit is 1-9 VDC.
HPCI		Potential spurious pump start providing makeup to RPV MO-2067, MO-2068, MO-2036 can open due to rapid depressurization of RPV (low RPV level signal HPCI initiates on HPCI) or a short on any one of four control cables.

Table J.4.5-4
Category 2 Spurious Operations
(Potential Detrimental Impact on Safe Shutdown)

System	Component(s)	Disposition
	MO-2067, MO-2068, MO-2036	The adequacy of the SRV piping to withstand two-phase flow when SRVs are manually opened during a HPCI overfill condition was evaluated in calculations 11-153, 11-154, and 11-156. The analysis contained in these calculations show that the SRV discharge piping satisfy ASME Service Level D requirements to ensure structural integrity of the system is maintained and therefore meet the intent of 10 CFR 50 Appendix R. [Reference J.4.7.64, J.4.7.65 and J.4.7.66]
NBS	MO-2373, MO-2374, MO-2565	Potential inventory loss to main condenser. Requires all noted valves to spuriously open due to control circuit shorts. Consideration of three shorts exceeds design basis for number of spurious operations.
NBS	Reactor Recirculation Pump	Potential pump seal leakage. The minor inventory lost to the bottom of the Drywell and resulting Suppression Pool level reduction will not impact pump NPSH [References J.4.7.50, J.4.7.51, J.4.7.52]
NBS	Reactor Recirculation Pumps	Potential effects of one or more pumps continuing operation. If two pumps operate at full flow, less than 0.01% of heat addition to the suppression pool is realized. [Reference J.4.7.57]
RCIC	MO-2106 MO-2100, MO-2101 MO-2110, MO-3502	Potential flow diversion from Suppression Pool to Condensate Storage Tank requires all noted valves to open. MO-2106, MO-2107, MO-2078 can open due to rapid depressurization of RPV (low RPV level RCIC initiation signal) For full flow to CST, MO-2107 would need to fail to open. MO-2100 & MO-2101 can open on fire damage (open circuit) to CST level circuit. MO-2110 can open due to control cable short. MO-3052 can open due to control cable short. Both valves are interlocked to close when either MO-2100 or MO-2101 are open.
RCIC	MO-2106, MO-2107, MO-2078	Potential spurious pump start providing makeup to RPV. MO-2106, MO-2107, MO-2078 can open due to rapid

01101248

Table J.4.5-4 Category 2 Spurious Operations (Potential Detrimental Impact on Safe Shutdown)		
System	Component(s)	Disposition
		<p>depressurization of RPV (low RPV level signal initiates RCIC) or a to RCIC initiation on low RPV level or short on one of two control cables.</p> <p>The adequacy of the station design to preclude vessel overfill was evaluated in response to Generic Letter 89-19. [Reference J.4.7.59] NRC approval of vessel overfill protection is documented in Reference J.4.7.60.</p>
RHR	<p>Pump P-202B</p> <p>CV-1995</p>	<p>Potential pump operation with no discharge path.</p> <p>P-202B can spuriously start due to a short on a relay logic control cable.</p> <p>An open in control cable from the pump breaker to the CV-1995 controls will prevent CV-1995 from opening. System pressure may be higher than pump discharge pressure.</p> <p>For III.G.3 credited areas, CAP 039865.</p> <p>For III.G.2 areas, redundant pump is available.</p>
RHR	MO-2020, MO-2022 or MO-2021, MO-2023	<p>Potential diversion of RHR suppression pool cooling return to drywell spray. Potential vacuum development mitigated by Vacuum Breakers. [References J.4.7.61, 62] A modification has been performed on the control circuitry for MO-2020 and MO-2021 to prevent potential flow diversion and the consequential potential impact to pump NPSH.</p>
RHR	MO-2006, MO-2010, or MO-2007, MO-2011	<p>Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability. Potential vacuum development mitigated by Vacuum Breakers. [References J.4.7.61, 62]</p>
RHR	MO-2012, MO-2014 or MO-2013, MO-2015	<p>Potential diversion of RHR suppression pool cooling return directly to the reactor pressure vessel. Flow diversion will not result in reduction of pool cooling capability</p>
RHR	CV-1994, CV-1995, CV-1996, CV-1997	<p>Potential diversion of a portion of the suppression pool cooling flow to the suppression pool, bypassing the heat exchanger heat removal function. The fail open failure mode of these valves has been previously evaluated and will result in minimal reduction in suppression pool cooling capability. [Reference J.4.7.9]</p>
RHR	MO-2407, MO-2032	<p>Potential diversion of suppression pool cooling flow to Radwaste, and or draining of either or both of the RHR loop(s) piping at the upper elevations (due to the normally open cross-tie valve MO-2033). MO-2032 is</p>

Table J.4.5-4 Category 2 Spurious Operations (Potential Detrimental Impact on Safe Shutdown)		
System	Component(s)	Disposition
		maintained closed with power locked-out during normal power operation.
RHR	MO-2033	<p>Potential flow diversion through crosstie valve.</p> <p>MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability. Spurious closure will ensure isolation of the Division 1 and Division 2 RHR systems.</p>
RHRSW	<p>Pump P-109B</p> <p>CV-1729</p>	<p>Potential pump operation with no discharge path.</p> <p>P-109B can spuriously start if two separate cables are each subjected to a short.</p> <p>CV-1729 can be prevented from opening due to fire damage resulting in a control circuit open or ground.</p> <p>For III.G.3 credited fire areas, scenario is beyond licensing basis as more than one hot short is required. See Section J.4.5.3.</p> <p>For III.G.2 credited fire areas, the redundant pump is available.</p>

J.4.6 APPENDIX R COMPLIANCE EVALUATION

The MNGP Appendix R Safe Shutdown cable database was used to sort the safe shutdown equipment and cables by fire area and fire zone. This information is then used to evaluate the adequacy of the separation of redundant systems and cabling within the fire area, in accordance with the requirements of 10CFR50, Appendix R, Section III.G.

10CFR50 Appendix R, Section III.G requires:

Section III.G, Separation Criteria For Safe Shutdown Capability

Section III.G.1 Limits of Fire Damage

Appendix R Section III.G describes the fire protection features required for structures, systems, and components considered important to safe shutdown in the event of a fire in the plant. The fire protection features provided are to be capable of limiting fire damage so that:

- a. One train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage (Section III.G.1.a); and
- b. Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours. (Section III.G.1.b)

Section III.G.2 Separation Criteria

Section III.G.2 describes the separation requirements for cables and equipment within the same Fire Area including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot standby conditions. One of the following means of separation shall be provided to ensure one of the redundant trains is free of fire damage:

Cables and Equipment Outside of Containment

- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier; (Section III.G.2.a)
- b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustible or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the Fire Area; (Section III.G.2.b)
- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the Fire Area. (Section III.G.2.c)

Cables and Equipment inside Noninerted Containment

Inside non-inerted containments, any of the means for outside of containment may be provided or one of the following:

- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards; (Section III.G.2.d)
- b. Installation of fire detectors and an automatic fire suppression system in the Fire Area; (Section III.G.2.e)
- c. Separation of cables and equipment and associated non-safety circuits of redundant trains by a noncombustible radiant energy shield (Section III.G.2.f).

These requirements are not applicable to the Monticello Nuclear Generating Plant as the primary containment atmosphere is inerted during plant operation.

Section III.G.3 Alternate or Dedicated Shutdown

Section III.G.3 describes where alternate or dedicated shutdown capability shall be provided. Alternate shutdown capability includes rerouting, relocating, or modifying existing systems. Dedicated shutdown capability includes installing new structures and systems for the function of post-fire shutdown.

FIRE PROTECTION PROGRAM

Revision 33

Safe Shutdown Analysis

Alternate or dedicated shutdown capability, including its associated circuits, independent of cables, systems, or components in the area, room, or zone under consideration is, required where:

- a. Protection of systems whose function is required for hot shutdown does not satisfy the requirements of Section III.G.2 of Appendix R (Section III.G.3.a), or
- b. Redundant trains of systems required for hot shutdown located in the same Fire Area may be subject to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems Section III.G.3.b).

Fire detection and a fixed fire suppression system shall be installed in those areas, rooms, or zones where alternate or dedicated shutdown is required.

Table J.4.6-1 contains the results of the compliance evaluation. Note that in certain cases, where the separation requirements of 10CFR50 could not be met within the fire area, an exemption from these requirements was requested. These exemptions are described in Section J.4.2.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1B	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-A indication at ASDS	The ASDS rod insertion function is not required for a fire in this fire area.
	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-B control from ASDS	The ASDS rod insertion function is not required for a fire in this fire area.
1B	FT-14-40A Core Spray Flow Transmitter	CS	1	C03-14-40A/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	FT-14-40A Core Spray Flow Transmitter	CS	1	FT-14-40A Core Spray flow instrument	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-1741 11 CS Pump Torus Suction Valve	CS	1	C03-MO1741/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-1741 11 CS Pump Torus Suction Valve	CS	1	MO-1741 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-MO1749/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	P-208A Core Spray Pump	CS	1	A505-M505/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	P-208A Core Spray Pump	CS	1	A505-M505/2 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	P-208A Core Spray Pump	CS	1	P-208A Core Spray Pump	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	B3305-M3305/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	V-AC-5 Division 1 ECCS Room Cooler	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-4060A RV-2-71F Tailpipe Pressure Switch	MS	1	1IP19-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1B	DPT-4061A RV-2-71G Tailpipe Pressure Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-4061C RV-2-71G Tailpipe Pressure Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-4062A RV-2-71E Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-4062C RV-2-71E Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-4063A RV-2-71H Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-4063C RV-2-71H Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	TE-4077A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-E Field cable to Torus RTD TE-4077A	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	TE-4078A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-F Field cable to Torus RTD TE-4078A	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	TE-4079A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-G Field cable to Torus RTD TE-4079A	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1B	TE-4080A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-H Field cable to Torus RTD TE-4080A	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-CV1994/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-SV1994/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-Z-121A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	CV-1994 RHR-P-202A Minimum Flow Valve	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-CV1996/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-SV1996/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-Z-121C/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	CV-1996 RHR-P-202C Minimum Flow Valve	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-10-91A RHR HX DP Control	RHR	1	C03-10-91A/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-10-91A RHR HX DP Control	RHR	1	C03-EP1728/1 Signal cable to CV-1728	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPT-10-91A RHR HX DP Control	RHR	1	DPT-10-91A Flow indication	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	E-200A RHR Heat Exchanger	RHR	1	E-200A RHR Heat Exchanger	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1B	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	C03-10-111A/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	FT-10-111A RHR System flow	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	K-10A RHR Auxiliary Air Compressor	RHR	1	K-10A RHR air compressor	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	K-10A RHR Auxiliary Air Compressor	RHR	1	M3347-N3347/1 Power and control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	K-10A RHR Auxiliary Air Compressor	RHR	1	N3347-P73A/1 Motor Power	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	C03-MO1986/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	C03-MO1988/2 Interlock with MO-1988	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	MO-1986 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	1B3322-B Interlock with MO-2006	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	B3322-MO1988/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	C03-MO1986/1 Control	The breaker for MO-2029 is maintained open during normal plant operation
1B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	C03-MO1988/1 Control	The breaker for MO-2029 is maintained open during normal plant operation
1B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	MO-1988 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-MO2002/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	C03-MO2002/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	MO-2002 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	1B3341-A Interlock with MO-1988	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	P-202A RHR Pump	RHR	1	A504-M504/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	P-202A RHR Pump	RHR	1	C32-I3139A/1 Pump start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	P-202A RHR Pump	RHR	1	C32-I3139C/1 Pump start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	P-202A RHR Pump	RHR	1	C32-MO1986/1 Pump start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	P-202A RHR Pump	RHR	1	C32-MO1988/1 Pump start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1B	P-202A RHR Pump	RHR	1	P-202A RHR Pump	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	C03-10-91A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	C03-EP1728/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	C32-CV1728/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	C32-SV1728/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	CV1728-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
1B	DPIC-10-130A RHR Heat Exchanger dP Control	RHRSW	1	DPIC-10-130A RHR Heat Exchanger dP Control to CV-1728	The redundant equipment/cables are routed outside the fire area and will remain available.
1H	P-208A Core Spray Pump	CS	1	A505-M505-1 Motor Power	The redundant equipment/cables are routed outside the fire area and will remain available.
1H	P-202A RHR Pump	RHR	1	A504-M504-1 Motor Power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	P73A 480V Distribution Panel	480V	1	B3347-P73A/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-3-32B East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32B/1 position indication	Cables for this component are routed alone in conduit to prevent spurious operation.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	CV-3-32B East Scram Discharge Volume Vent Valve	CRD	1/2	CV-3-32B East SDV Vent Valve	Cables for this component are routed alone in conduit to prevent spurious operation.
2B	CV-3-32D East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32D/1 position indication	Cables for this component are routed alone in conduit to prevent spurious operation.
2B	CV-3-32D East Scram Discharge Volume Vent Valve	CRD	1/2	CV-3-32D East SDV Vent Valve	Cables for this component are routed alone in conduit to prevent spurious operation.
2B	CV-3-33B East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-33B/1 position indication	Cables for this component are routed alone in conduit to prevent spurious operation.
2B	CV-3-33B East Scram Discharge Volume Drain Valve	CRD	1/2	CV-3-33B East SDV Drain Valve	Cables for this component are routed alone in conduit to prevent spurious operation.
2B	CV-3-33D East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-33D/1 position indication	Cables for this component are routed alone in conduit to prevent spurious operation.
2B	CV-3-33D East Scram Discharge Volume Drain Valve	CRD	1/2	CV-3-33D East SDV Drain Valve	Cables for this component are routed alone in conduit to prevent spurious operation.
2B	SV-3-31A SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2B	SV-3-31B SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C17-J1060/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2B	SV-3-31C SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2B	SV-3-31D SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C17-J1060/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2B	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-A indication at ASDS	The ASDS Rod Insertion Function is not required for a fire in this area.
2B	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-B control from ASDS	The ASDS Rod Insertion Function is not required for a fire in this area.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	FT-14-40A Core Spray Flow Transmitter	CS	1	C03-14-40A/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1741 11 CS Pump Torus Suction Valve	CS	1	C03-MO1741/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-MO1749/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-C32/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-C32/7 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-MO1749/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-MO1751/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-C32/6 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-MO1751/2 Control and Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-MO1753/2 Interlock from MO1753	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-MO1753/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-C32/5 LOCA Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-MO1751/1 Interlock to MO1751	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-MO1753/1 Control and Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C32-C56/3 Interlock to Div 1 reactor pressure switch	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C32-D11/1 Control power to Div 1 low pressure relay	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C32-C56/3 Interlock to Div 1 reactor pressure switch	Low pressure permissive provided by the Div 2 low pressure relay remains available.
2B	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C32-D11/1 Control power to Div 1 low pressure relay	Low pressure permissive provided by the Div 2 low pressure relay remains available.
2B	P-208A Core Spray Pump	CS	1	A505-M505/2 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	P-111A Emergency Service Water Pump	ESW	1	1B3435-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	B3305-M3305/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	AO-2-80A Inboard MSIV	MS	1/2	C03-JX105C/10 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	AO-2-80A Inboard MSIV	MS	1/2	C03-JX105C/8 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	AO-2-80B Inboard MSIV	MS	1/2	C03-JX105C/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	AO-2-80B Inboard MSIV	MS	1/2	C03-JX105C/9 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	AO-2-80C Inboard MSIV	MS	1/2	C03-JX105C/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	AO-2-80C Inboard MSIV	MS	1/2	C03-JX105C/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	AO-2-80D Inboard MSIV	MS	1/2	C03-JX105C/7 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	AO-2-80D Inboard MSIV	MS	1/2	C03-JX105C/6 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-4060A RV-2-71F Tailpipe Pressure Switch	MS	1	1IP19-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-4061A RV-2-71G Tailpipe Pressure Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-4061C RV-2-71G Tailpipe Pressure Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-4062A RV-2-71E Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-4062C RV-2-71E Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-4063A RV-2-71H Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-4063C RV-2-71H Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71D RV-2-71D Solenoid Valve	MS	1	C32-JX105C/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1Q156-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1Q156-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71F RV-2-71F Solenoid Valve	MS	1	1Q160-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71F RV-2-71F Solenoid Valve	MS	1	1Q160-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1Q157-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1Q157-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1Q158-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1Q158-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	LT-7338A Suppression Pool Level	PCT	1	C18-7338A/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	TE-4073A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-A Field cable to Torus RTD TE-4073A	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	TE-4074A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-B Field cable to Torus RTD TE-4074A	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	TE-4075A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-C Field cable to Torus RTD TE-4075A	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	TE-4076A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-D Field cable to Torus RTD TE-4076A	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	TE-4077A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-E Field cable to Torus RTD TE-4077A	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	TE-4078A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-F Field cable to Torus RTD TE-4078A	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	TE-4079A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-G Field cable to Torus RTD TE-4079A	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	TE-4080A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-H Field cable to Torus RTD TE-4080A	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C03-C32/23 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C03-C32/25 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-CV1994/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-SV1994/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-Z-121A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C03-C32/24 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C03-C32/25 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-CV1996/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-SV1996/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-Z-121C/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-10-91A RHR HX DP Control	RHR	1	C03-10-91A/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	DPT-10-91A RHR HX DP Control	RHR	1	C03-EP1728/1 Signal cable to CV-1728	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	C03-10-111A/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	K-10A RHR Auxiliary Air Compressor	RHR	1	N3347-P73A/1 Motor Power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	C03-MO1986/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	C03-MO1988/2 Interlock with MO-1988	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	1B3322-B Interlock with MO-2006	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	B3322-MO1988/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	C03-MO1986/1 Control	The breaker for MO-2029 is maintained open during normal plant operation
2B	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	C03-MO1988/1 Control	The breaker for MO-2029 is maintained open during normal plant operation
2B	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-MO2002/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	C03-MO2002/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	1B3341-A Interlock with MO-1988	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-MO2006/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	C03-C32/21 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	C03-MO2006/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-MO2008/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	C03-C32/18 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	C03-MO2008/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-MO2010/1 Motor power	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability
2B	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	C03-C32/19 Control	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability
2B	MO-2010 RHR Division 2 Torus Spray Isolation	RHR	1	C03-MO2010/1 Control and indication	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability
2B	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-MO2012/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C03-C32/17 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C03-MO2012/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C32-MO2014/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-MO2014/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	C03-C32/16 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	C32-MO2012/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	C03-C32/20 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	C03-MO2020/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	MO-2020 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	B3309-MO2022/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	C03-C32/14 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	C03-MO2022/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	MO-2022 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	B3333-JX105D/1 Motor power	The breaker for MO-2029 is maintained open during normal plant operation
2B	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C41-JX105D/1 Control and indication	The breaker for MO-2029 is maintained open during normal plant operation
2B	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C41-JX105D/3 Control and indication	The breaker for MO-2029 is maintained open during normal plant operation
2B	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/1 Motor power	The breaker for MO-2029 is maintained open during normal plant operation
2B	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/2 Control and indication	The breaker for MO-2029 is maintained open during normal plant operation
2B	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/3 Control	The breaker for MO-2029 is maintained open during normal plant operation
2B	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	B4211-MO2032/1 Motor power	Power to MO-2032 is maintained off during normal power operation.
2B	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	C41-MO2032/1 Control and indication	Power to MO-2032 is maintained off during normal power operation.
2B	P-202A RHR Pump	RHR	1	C32-D11/1 Control power to pump start logic	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	P-202A RHR Pump	RHR	1	C32-I3139A/1 Pump start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	P-202A RHR Pump	RHR	1	C32-I3139C/1 Pump start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	P-202A RHR Pump	RHR	1	C32-MO1986/1 Pump start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	P-202A RHR Pump	RHR	1	C32-MO1988/1 Pump start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C03-10-91A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C03-EP1728/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C32-CV1728/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C32-SV1728/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	CV-1728 11 RHR Heat Exchanger	RHRSW	1	CV1728-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	P-109A RHR Service Water Pump	RHRSW	1	C03-C32/13 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	P-109C RHR Service Water Pump	RHRSW	1	C03-C32/12 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	LT-2-3-112A Reactor Water Level	RPV	1	C18-2-3-112A/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	LT-2-3-112A Reactor Water Level	RPV	1	LT-2-3-112A Reactor water level	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2B	LT-2-3-85A Reactor Water Level	RPV	1	C03-LT2-3-85A/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
2B	PT-6-53A Reactor Pressure	RPV	1	C03-PT6-53A/1 Field cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-MO2012/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C03-MO2012/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C32-MO2014/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	MO-2012 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-MO2014/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	C32-MO2012/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	MO-2014 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2G	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2G	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	MO-2030 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	P73A 480V Distribution Panel	480V	1	B3347-P73A/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	SV-3-31A SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
3B	SV-3-31C SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
3B	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-MO1751/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-MO1751/2 Control and Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-MO1753/2 Interlock from MO1753	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	MO-1751 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-MO1753/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-MO1751/1 Interlock to MO1751	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-MO1753/1 Control and Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C32-C56/3 Interlock to Div 1 reactor pressure switch	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area I Division 1 - Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
3B	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	MO-1753 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C32-C56/3 Interlock to Div 1 reactor pressure switch	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	C03-MO2020/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	LT-2-3-85A Reactor Water Level	RPV	1	C03-LT2-3-85A/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	PT-6-53A Reactor Pressure	RPV	1	C03-PT6-53A/1 Field cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.
3B	PT-6-53A Reactor Pressure	RPV	1	PT-6-53A Reactor pressure instrument	The redundant equipment/cables are routed outside the fire area and will remain available.
4A	LT-2-3-85A Reactor Water Level	RPV	1	C03-LT2-3-85A/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
4A	PT-6-53A Reactor Pressure	RPV	1	C03-PT6-53A/1 Field cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available
4A	PT-7251B Wide Range Drywell Pressure	PCT	2	2IP7251B-C Instrument cable	This component is not required for safe shutdown. This component is wired through the ASDS panel.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1A	FT-14-40B Core Spray Flow Transmitter	CS	2	2IP21-B Cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available
1A	FT-14-40B Core Spray Flow Transmitter	CS	2	FT-14-40B Core Spray flow instrument	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-1742 12 CS Pump Torus Suction Valve	CS	2	MO-1742 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available
1A	P-208B Core Spray Pump	CS	2	A605-M605/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
1A	P-208B Core Spray Pump	CS	2	P-208B Core Spray Pump	The redundant equipment/cables are routed outside the fire area and will remain available
1A	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-C Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
1A	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	V-AC-4 Division 2 ECCS Room Cooler	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-D Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	CV-1995 RHR-P-202B Minimum Flow Valve	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-CV1997/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-SV1997/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-Z-121D/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	CV-1997 RHR-P-202D Minimum Flow Valve	The redundant equipment/cables are routed outside the fire area and will remain available
1A	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-C Field cable from C292 to E/P 1729	The redundant equipment/cables are routed outside the fire area and will remain available
1A	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-D Field cable from C292 to	The redundant equipment/cables are routed outside the fire area and will remain available
1A	DPT-10-91B RHR HX DP Control	RHR	2	DPT-10-91B Flow indication	The redundant equipment/cables are routed outside the fire area and will remain available
1A	E-200B RHR Heat Exchanger	RHR	2	E-200B RHR Heat Exchanger	The redundant equipment/cables are routed outside the fire area and will remain available
1A	K-10B RHR Auxiliary Air Compressor	RHR	2	K-10B RHR air compressor	The redundant equipment/cables are routed outside the fire area and will remain available
1A	K-10B RHR Auxiliary Air Compressor	RHR	2	M4454-N4454/1 Power and control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1A	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	C03-MO1989/2 Control interlock to MO-1989	The redundant equipment/cables are routed outside the fire area and will remain available.
1A	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	MO-1987 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	2B4321-B Control interlock	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	B4321-MO1989/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1987/1 Control interlock	Power to MO-2029 is maintained off during normal power operation.
1A	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1989/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
1A	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	MO-1989 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-C1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-C2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1A	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	MO-2003 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available
1A	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-E MO-1989 Interlock	The redundant equipment/cables are routed outside the fire area and will remain available
1A	P-202B RHR Pump	RHR	2	A604-M604/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
1A	P-202B RHR Pump	RHR	2	C33-I3140A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	P-202B RHR Pump	RHR	2	C33-I3140C/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	P-202B RHR Pump	RHR	2	C33-MO1987/1 Suction valve start permissive	The redundant equipment/cables are routed outside the fire area and will remain available
1A	P-202B RHR Pump	RHR	2	C33-MO1989/1 Suction valve start permissive	The redundant equipment/cables are routed outside the fire area and will remain available
1A	P-202B RHR Pump	RHR	2	P-202B RHR Pump	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1729 12 RHR Heat Exchanger	RHR SW	2	2IP27-C Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
1A	CV-1729 12 RHR Heat Exchanger	RHR SW	2	2IP27-D Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
1A	CV-1729 12 RHR Heat Exchanger	RHR SW	2	2Q426-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
1A	CV-1729 12 RHR Heat Exchanger	RHR SW	2	C33-CV1729/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1A	CV-1729 12 RHR Heat Exchanger	RHRSW	2 Outlet	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	The redundant equipment/cables are routed outside the fire area and will remain available
1A	DPIC-10-130B RHR Heat Exchanger dP Control	RHRSW	2	DPIC-10-130B RHR Heat Exchanger dP Control to CV-1729	The redundant equipment/cables are routed outside the fire area and will remain available.
1D	P-208B Core Spray Pump	CS	2	A605-M605/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
1D	P-202B RHR Pump	RHR	2	A604-M604/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-3-32A West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-32A West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32A/1 position indication	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-32A West Scram Discharge Volume Vent Valve	CRD	1/2	CV-3-32A West SDV Vent Valve	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-32B East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	CV-3-32C West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-32C West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32C/1 position indication	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-32C West Scram Discharge Volume Vent Valve	CRD	1/2	CV-3-32C West SDV Vent Valve	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-32D East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	CV-3-33A West Scram Discharge Volume Drain	CRD	1/2	C05-3-29/1 position indication power supply	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-33A West Scram Discharge Volume Drain	CRD	1/2	C05-3-33A/1 position indication	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-33A West Scram Discharge Volume Drain	CRD	1/2	CV-3-33A West SDV Drain Valve	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-33B East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	CV-3-33C West Scram Discharge Volume Drain	CRD	1/2	C05-3-29/1 position indication power supply	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-33C West Scram Discharge Volume Drain	CRD	1/2	C05-3-33C/1 position indication	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-33C West Scram Discharge Volume Drain	CRD	1/2	CV-3-33C West SDV Drain Valve	Cables for this component are routed alone in conduit to prevent spurious operation.
2C	CV-3-33D East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31A SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31A SDV Vent/Drain Solenoid Control Valve	CRD	1/2	J1059-3-31A/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31A SDV Vent/Drain Solenoid Control Valve	CRD	1/2	J1059-5A-K30A/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31A SDV Vent/Drain Solenoid Control Valve	CRD	1/2	SV-3-31A SDV Vent/Drain Solenoid Control Valve	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	SV-3-31B SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C17-J1060/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31B SDV Vent/Drain Solenoid Control Valve	CRD	1/2	J1060-3-31B/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31B SDV Vent/Drain Solenoid Control Valve	CRD	1/2	J1060-5A-K30B/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31B SDV Vent/Drain Solenoid Control Valve	CRD	1/2	SV-3-31B SDV Vent/Drain Solenoid Control Valve	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31C SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31C SDV Vent/Drain Solenoid Control Valve	CRD	1/2	J1059-3-31C/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31C SDV Vent/Drain Solenoid Control Valve	CRD	1/2	J1059-5A-K30A/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31C SDV Vent/Drain Solenoid Control Valve	CRD	1/2	SV-3-31C SDV Vent/Drain Solenoid Control Valve	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31D SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C17-J1060/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31D SDV Vent/Drain Solenoid Control Valve	CRD	1/2	J1060-3-31D/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31D SDV Vent/Drain Solenoid Control Valve	CRD	1/2	J1060-5A-K30B/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2C	SV-3-31D SDV Vent/Drain Solenoid Control Valve	CRD	1/2	SV-3-31D SDV Vent/Drain Solenoid Control Valve	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-A indication at ASDS	The ASDS rod insertion function is not required for a fire in this area.
2C	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-B control from ASDS	The ASDS rod insertion function is not required for a fire in this area.
2C	FT-14-40B Core Spray Flow Transmitter	CS	2	2IP21-B Cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-C Control and Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	C03-MO1754/2 Interlock from MO1754	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C33-C55/2 Interlock to Div 2 reactor pressure switch	Low pressure permissive provided by the Div 2 low pressure relay remains available.
2C	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C03-MO1752/1 Interlock from MO-1752	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C33-C55/2 Interlock to Div 2 reactor pressure switch	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-C Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	C-253B SRV Low-Low Set Control Panel	MS	2	2Q259-A SRV Div 2 Low-Low Set RPS Interlock	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	C-253B SRV Low-Low Set Control Panel	MS	2	2Q259-B SRV Div 2 Low-Low Set RPS Interlock	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	C-253B SRV Low-Low Set Control Panel	MS	2	2Q259-C SRV Div 2 Low-Low Set RPS Interlock	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-4061B RV-2-71G Tailpipe Pressure Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-4061D RV-2-71G Tailpipe Pressure Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-4062B RV-2-71E Tailpipe Press Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-4062D RV-2-71E Tailpipe Press Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2IP29-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q256-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q257-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q258-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q260-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	LT-7338B Suppression Pool Level	PCT	2	2IP7251B-B Signal cable to C-292	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-CV1997/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-SV1997/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-Z-121D/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-C Field cable from C292 to E/P 1729	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-D Field cable from C292 to	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	FT-10-111B RHR Division 2 Flow Downstream of Heat Exchanger	RHR	2	2IF23-B Cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	FT-10-111B RHR Division 2 Flow Downstream of Heat Exchanger	RHR	2	FT-10-111B RHR system flow	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	K-10B RHR Auxiliary Air Compressor	RHR	2	2B4454-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	C03-MO1989/2 Control interlock to MO-1989	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	2B4321-B Control interlock	Power to MO-2029 is maintained off during normal power operation.
2C	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	B4321-MO1989/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
2C	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1987/1 Control interlock	Power to MO-2029 is maintained off during normal power operation.
2C	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1989/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
2C	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-C1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-C2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-E MO-1989 Interlock	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-F MO-1989 Interlock	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	MO-2007 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-E Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	B4338-MO2011/1 Motor power	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability.
2C	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	C03-MO2011/1 Control and indication	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability.
2C	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-MO2013/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C03-MO2013/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C33-MO2015/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	B4334-MO2015/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C03-MO2015/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C33-MO2013/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-MO2021/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2021/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4209-MO2023/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2023/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
2C	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/2 Control and indication	Power to MO-2029 is maintained off during normal power operation.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/3 Control	Power to MO-2029 is maintained off during normal power operation.
2C	MO-2033 RHR Cross-Tie	RHR	1/2	B4328-MO2033/1 Motor power	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
2C	MO-2033 RHR Cross-Tie	RHR	1/2	C03-MO2033/1 Control	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
2C	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D31310-MO2407/1 Motor power	Power to MO-2032 is maintained off during normal power operation.
2C	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D31310-MO2407/2 Control and indication	Power to MO-2032 is maintained off during normal power operation.
2C	P-202B RHR Pump	RHR	2	C33-I3140A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	P-202B RHR Pump	RHR	2	C33-I3140C/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	P-202B RHR Pump	RHR	2	C33-MO1987/1 Suction valve start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	P-202B RHR Pump	RHR	2	C33-MO1989/1 Suction valve start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2IP27-C Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2IP27-D Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2Q426-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	C33-CV1729/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2C	LT-2-3-112B Reactor Water Level	RPV	2	2IL20-B Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	LT-2-3-112B Reactor Water Level	RPV	2	LT-2-3-112B Reactor water level	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2IL3-B Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	LT-2-3-85B Reactor Water Level	RPV	2	C03-LT2-3-85B/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	PT-4067D Reactor Pressure at ASDS	RPV	2	2IP29-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	PT-4067D Reactor Pressure at ASDS	RPV	2	PT-4067D Reactor pressure instrument	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	PT-6-53B Reactor Pressure	RPV	2	C03-PT6-53B/1 Field cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.
2C	PT-7251B Wide Range Drywell Pressure	PCT	2	2IP7251B-C Instrument cable	This component is not required for safe shutdown. This component is wired through the ASDS panel.
2F	AO-2-86A Outboard MSIV	MS	1/2	AO-2-86A Main Steam Isolation Valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86B Outboard MSIV	MS	1/2	AO-2-86B Main Steam Isolation Valve	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2F	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86C Outboard MSIV	MS	1/2	AO-2-86C Main Steam Isolation Valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86D Outboard MSIV	MS	1/2	AO-2-86D Main Steam Isolation Valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2F	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2H	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-MO2013/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2H	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C03-MO2013/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2H	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C33-MO2015/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2H	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	MO-2013 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
2H	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	B4334-MO2015/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2H	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C03-MO2015/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2H	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C33-MO2013/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2H	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	MO-2015 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available.
3C	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C33-C55/2 Interlock to Div 2 reactor pressure switch	Low pressure permissive provided by the Div 1 low pressure relay remains available.
3C	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C33-C55/2 Interlock to Div 2 reactor pressure switch	The redundant equipment/cables are routed outside the fire area and will remain available
3C	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-MO2013/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
3C	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-MO2021/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
3C	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2021/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
3C	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	MO-2021 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available
3C	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/1 Motor power	The power for MO-2029 is maintained off during normal power operation.
3C	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/2 Control and indication	The power for MO-2029 is maintained off during normal power operation.
3C	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/3 Control	The power for MO-2029 is maintained off during normal power operation.
3C	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2IL3-B Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
3C	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	LT-2-3-61 Reactor level instrument	The redundant equipment/cables are routed outside the fire area and will remain available.
3C	LT-2-3-85B Reactor Water Level	RPV	2	C03-LT2-3-85B/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
3C	PT-6-53A Reactor Pressure	RPV	1	C03-PT6-53A/1 Field cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.
3C	PT-6-53B Reactor Pressure	RPV	2	C03-PT6-53B/1 Field cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available
3C	PT-6-53B Reactor Pressure	RPV	2	PT-6-53B Reactor pressure instrument	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
3D	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-C Control and Indication	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	C03-MO1754/2 Interlock from MO1754	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	MO-1752 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C03-MO1752/1 Interlock from MO-1752	The redundant equipment/cables are routed outside the fire area and will remain available.
3D	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	MO-1754 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-MO2013/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-MO2021/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2021/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area II Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
3D	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4209-MO2023/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2023/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	MO-2023 Motor operated valve	The redundant equipment/cables are routed outside the fire area and will remain available
3D	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/1 Motor power	The power for MO-2029 is maintained off during normal power operation.
3D	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/2 Control and indication	The power for MO-2029 is maintained off during normal power operation.
3D	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/3 Control	The power for MO-2029 is maintained off during normal power operation.
3D	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D31310-MO2407/1 Motor power	Power to MO-2032 is maintained off during normal power operation.
3D	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D31310-MO2407/2 Control and indication	Power to MO-2032 is maintained off during normal power operation.
3D	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2IL3-B Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
3D	LT-2-3-85B Reactor Water Level	RPV	2	C03-LT2-3-85B/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
3D	PT-6-53B Reactor Pressure	RPV	2	C03-PT6-53B/1 Field cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area III Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2A	CV-3-32A West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-32A West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32A/1 position indication	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-32B East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-32C West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-32C West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32C/1 position indication	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-32D East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-32D East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32D/1 position indication	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-33A West Scram Discharge Volume Drain	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-33A West Scram Discharge Volume Drain	CRD	1/2	C05-3-33A/1 position indication	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-33B East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-33B East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-33B/1 position indication	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-33C West Scram Discharge Volume Drain	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-33C West Scram Discharge Volume Drain	CRD	1/2	C05-3-33C/1 position indication	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area III Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2A	CV-3-33D East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-29/1 position indication power supply	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	CV-3-33D East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-33D/1 position indication	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
2A	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-A indication at ASDS	The ASDS rod insertion function is not required for a fire in this area.
2A	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-B control from ASDS	The ASDS rod insertion function is not required for a fire in this area.
2A	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	C03-MO1754/2 Interlock from MO1754	he redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C33-C55/2 Interlock to Div 2 reactor pressure switch	Low pressure permissive provided by the Div 2 low pressure relay remains available.
2A	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C03-MO1752/1 Interlock from MO-1752	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C33-C55/2 Interlock to Div 2 reactor pressure switch	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area III Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2A	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/1 Control	he redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/2 Control	he redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/3 Control	he redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/1 Control	he redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/2 Control	he redundant equipment/cables are routed outside the fire area and will remain available.
2A	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/3 Control	he redundant equipment/cables are routed outside the fire area and will remain available.
2A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-CV1997/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-SV1997/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-Z-121D/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	C03-MO1989/2 Control interlock to MO-1989	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	B4321-MO1989/1 Motor power	Power for MO-2029 is maintained off during normal power operation.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area III Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2A	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1987/1 Control interlock	Power for MO-2029 is maintained off during normal power operation.
2A	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1989/1 Control and indication	Power for MO-2029 is maintained off during normal power operation.
2A	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-F MO-1989 Interlock	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	B4338-MO2011/1 Motor power	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability.
2A	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	C03-MO2011/1 Control and indication	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability.
2A	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-MO2013/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C03-MO2013/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C33-MO2015/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	B4334-MO2015/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C03-MO2015/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area III Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2A	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C33-MO2013/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-MO2021/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2021/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4209-MO2023/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2023/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C42-D31307/1 Control and indication	Power for MO-2029 is maintained off during normal power operation.
2A	MO-2033 RHR Cross-Tie	RHR	1/2	B4328-MO2033/1 Motor power	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
2A	MO-2033 RHR Cross-Tie	RHR	1/2	C03-MO2033/1 Control	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
2A	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	C42-D31310/1 Control and indication	Power to MO-2032 is maintained off during normal power operation.
2A	P-202B RHR Pump	RHR	2	C33-I3140A/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	P-202B RHR Pump	RHR	2	C33-I3140C/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	P-202B RHR Pump	RHR	2	C33-MO1987/1 Suction valve start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area III Division 2 - Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
2A	P-202B RHR Pump	RHR	2	C33-MO1989/1 Suction valve start permissive	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	CV-1729 12 RHR Heat Exchanger	RHRSW	2	C33-CV1729/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	LT-2-3-85B Reactor Water Level	RPV	2	C03-LT2-3-85B/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
2A	PT-6-53B Reactor Pressure	RPV	2	C03-PT6-53B/1 Field cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IV Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1F	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-MO1749/1 Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-MO1749/1 Control	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-1749 11 CS Pump Test Return to Torus.	CS	1	MO-1749 Motor operated valve	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-C Control and indication	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-D Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-1750 12 CS Pump Test Return to Torus	CS	2	MO-1750 Motor operated valve	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	DPT-4060A RV-2-71F Tailpipe Pressure Switch	MS	1	1IP19-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
1F	DPT-4061A RV-2-71G Tailpipe Pressure Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	DPT-4061C RV-2-71G Tailpipe Pressure Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	DPT-4062A RV-2-71E Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	DPT-4062C RV-2-71E Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	DPT-4063A RV-2-71H Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	DPT-4063C RV-2-71H Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IV Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1F	LT-7338A Suppression Pool Level	PCT	1	C18-7338A/1 Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
1F	LT-7338A Suppression Pool Level	PCT	1	LT-7338A Suppression pool level instrument	The redundant equipment/cables are routed outside the fire area and will remain available.
1F	LT-7338B Suppression Pool Level	PCT	2	2IP7251B-B Signal cable to C-292	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	LT-7338B Suppression Pool Level	PCT	2	LT-7338B Suppression pool level instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4073A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-A Field cable to Torus RTD TE-4073A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4073A Suppression Pool Temperature (SPOTMOS)	PCT	1	TE-4073A Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4073B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-A Field cable to Torus RTD TE-4073B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4073B Suppression Pool Temperature (SPOTMOS)	PCT	2	TE-4073B Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4074A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-B Field cable to Torus RTD TE-4074A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4074A Suppression Pool Temperature (SPOTMOS)	PCT	1	TE-4074A Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4074B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-B Field cable to Torus RTD TE-4074B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IV Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1F	TE-4074B Suppression Pool Temperature (SPOTMOS)	PCT	2	TE-4074B Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4075A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-C Field cable to Torus RTD TE-4075A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4075A Suppression Pool Temperature (SPOTMOS)	PCT	1	TE-4075A Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4075B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-C Field cable to Torus RTD TE-4075B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4075B Suppression Pool Temperature (SPOTMOS)	PCT	2	TE-4075B Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4076A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-D Field cable to Torus RTD TE-4076A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4076A Suppression Pool Temperature (SPOTMOS)	PCT	1	TE-4076A Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4076B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-D Field cable to Torus RTD TE-4076B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4076B Suppression Pool Temperature (SPOTMOS)	PCT	2	TE-4076B Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4077A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-E Field cable to Torus RTD TE-4077A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IV Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1F	TE-4077A Suppression Pool Temperature (SPOTMOS)	PCT	1	TE-4077A Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4077B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-E Field cable to Torus RTD TE-4077B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4077B Suppression Pool Temperature (SPOTMOS)	PCT	2	TE-4077B Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4078A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-F Field cable to Torus RTD TE-4078A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4078A Suppression Pool Temperature (SPOTMOS)	PCT	1	TE-4078A Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4078B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-F Field cable to Torus RTD TE-4078B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4078B Suppression Pool Temperature (SPOTMOS)	PCT	2	TE-4078B Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4079A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-G Field cable to Torus RTD TE-4079A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4079A Suppression Pool Temperature (SPOTMOS)	PCT	1	TE-4079A Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4079B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-G Field cable to Torus RTD TE-4079B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IV Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1F	TE-4079B Suppression Pool Temperature (SPOTMOS)	PCT	2	TE-4079B Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4080A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-H Field cable to Torus RTD TE-4080A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4080A Suppression Pool Temperature (SPOTMOS)	PCT	1	TE-4080A Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4080B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-H Field cable to Torus RTD TE-4080B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	TE-4080B Suppression Pool Temperature (SPOTMOS)	PCT	2	TE-4080B Torus Temperature Instrument	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	1B3322-B Interlock with MO-2006	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area (MO-2006 is included in the exemption)
1F	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	1B3341-A Interlock with MO-1988	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-MO2006/1 Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	C03-MO2006/1 Control and indication	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	MO-2006 Motor operated valve	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-MO2008/1 Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IV Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1F	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	C03-MO2008/1 Control and indication	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	MO-2008 Motor operated valve	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-C Control	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-D Control	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	MO-2009 Motor operated valve	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
1F	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-MO2010/1 Motor power	Flow Diversion will not result in reduction of pool inventory or cooling capacity.
1F	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	MO-2010 Motor operated valve	Flow Diversion will not result in reduction of pool inventory or cooling capacity.
1F	MO-2010 RHR Division 2 Torus Spray Isolation	RHR	1	C03-MO2010/1 Control and indication	Flow Diversion will not result in reduction of pool inventory or cooling capacity.
1F	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	B4338-MO2011/1 Motor power	Flow Diversion will not result in reduction of pool inventory or cooling capacity.
1F	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	C03-MO2011/1 Control and indication	Flow Diversion will not result in reduction of pool inventory or cooling capacity.
1F	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	MO-2011 Motor operated valve	Flow Diversion will not result in reduction of pool inventory or cooling capacity.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IV Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
1F	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	B4211-MO2032/1 Motor power	Power to MO-2032 is maintained off during normal power operation.
1F	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	C41-MO2032/1 Control and indication	Power to MO-2032 is maintained off during normal power operation.
1F	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	MO-2032 Motor operated valve	Power to MO-2032 is maintained off during normal power operation.
1F	MO-2033 RHR Cross-Tie	RHR	1/2	B4328-MO2033/1 Motor power	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
1F	MO-2033 RHR Cross-Tie	RHR	1/2	C03-MO2033/1 Control	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
1F	MO-2033 RHR Cross-Tie	RHR	1/2	MO-2033 Motor operated valve	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability. .
1F	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D31310-MO2407/1 Motor power	Power to MO-2032 is maintained off during normal power operation.
1F	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D31310-MO2407/2 Control and indication	Power to MO-2032 is maintained off during normal power operation.
1F	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	MO-2407 Motor operated valve	Power to MO-2032 is maintained off during normal power operation.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area V Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
3A	P73A 480V Distribution Panel	480V	1	B3347-P73A/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
3A	P73A 480V Distribution Panel	480V	1	P73A 480V Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
3A	SV-3-31A SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
3A	SV-3-31C SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	The cabling for the scram discharge vent/drain valves is routed to preclude spurious valve opening due to a cable fault.
3A	K-10A RHR Auxiliary Air Compressor	RHR	1	N3347-P73A/1 Motor Power	The redundant equipment/cables are routed outside the fire area and will remain available.
3A	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-MO2013/1 Motor power	Potential diversion of RHR suppression pool cooling return directly to the reactor pressure vessel. Flow diversion will not result in reduction of pool cooling capability
3A	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C42-D31307/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
3A	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
3A	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/2 Control and indication	Power to MO-2029 is maintained off during normal power operation.
3A	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	D31307-MO2030/3 Control	Power to MO-2029 is maintained off during normal power operation.
3A	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	C42-D31310/1 Control and indication	Power to MO-2032 is maintained off during normal power operation.
3A	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D313-K31301/1 Control	Associated cable connected to control bus

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area V Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
3A	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D31310-MO2407/1 Motor power	Power to MO-2032 is maintained off during normal power operation.
3A	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	D31310-MO2407/2 Control and indication	Power to MO-2032 is maintained off during normal power operation.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
11	D10 #11 Battery Charger	125V	1	B3315-D10/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
11	D11 125V DC Distribution Panel	125V	1	C08-D11/1 Power to C08 Benchboard	The redundant equipment/cables are routed outside the fire area and will remain available.
11	D111 125V DC Distribution Panel	125V	1	D11-D111/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
11	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C32-D11/1 Control power to Div 1 low pressure relay	Low pressure permissive provided by the Div 2 low pressure relay remains available.
11	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C32-D11/1 Control power to Div 1 low pressure relay	Low pressure permissive provided by the Div 2 low pressure relay remains available.
11	P-202A RHR Pump	RHR	1	C32-D11/1 Control power to pump start logic	The redundant equipment/cables are routed outside the fire area and will remain available.
7A	Y70 120V AC Distribution Panel	120V	1	1D3112-A Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	Y70 120V AC Distribution Panel	120V	1	NB3482-K Power from Transformer Y77 to Panel Y10	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D1 #11 125V Battery	125V	1	D1 #11 125VDC Battery	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D10 #11 Battery Charger	125V	1	B3315-D10/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D10 #11 Battery Charger	125V	1	D10 #11 125VDC Battery Charger	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D11 125V DC Distribution Panel	125V	1	C08-D11/1 Power to C08 Benchboard	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
7A	D11 125V DC Distribution Panel	125V	1	D10-D11/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D11 125V DC Distribution Panel	125V	1	D11 125VDC Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D11 125V DC Distribution Panel	125V	1	D1-D12/1 Power from battery to line fuses	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D11 125V DC Distribution Panel	125V	1	D1-D12/2 Power from battery to line fuses	The redundant equipment/cables are routed within this fire area only in Zone 8, for which alternate shutdown capability is provided in accordance with Section III.G.3.
7A	D11 125V DC Distribution Panel	125V	1	D11-D12/1 Power from distribution to fuse panel	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D111 125V DC Distribution Panel	125V	1	D11-D111/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D12 125V DC Fuse Panel	125V	1	D12 125VDC Fuse Panel	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D33 125V DC Distribution Panel	250V	1	1D3-N Power from D31	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D33 125V DC Distribution Panel	250V	1	1D3-P Power from D31	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D33 125V DC Distribution Panel	250V	1	D33 125VDC Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D52 #13 250V DC Battery Charger	250V	1	1B3433-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D53 #13 250V DC Battery Charger	250V	1	1B3434-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available
7A	D54 #13 250V DC Battery Charger	250V	NC	1B3431-A Power supply from MCC-134	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
7A	FT-14-40A Core Spray Flow Transmitter	CS	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C32-D11/1 Control power to Div 1 low pressure relay	The redundant equipment/cables are routed outside the fire area and will remain available
7A	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C32-D11/1 Control power to Div 1 low pressure relay	Low pressure permissive provided by the Div 2 low pressure relay remains available.
7A	C-253A SRV Low-Low Set Control Panel	MS	1	1D3304-A C253A SRV DC Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	C-289A SPOTMOS Panel	PCT	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	C-289A SPOTMOS Panel	PCT	1	1Y7004-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	LT-7338A Suppression Pool Level	PCT	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed within this fire area only in Zone 8, for which alternate shutdown capability is provided in accordance with Section III.G.3.
7A	DPT-10-91A RHR HX DP Control	RHR	1	1Y7002-A Loop power supply	The redundant equipment/cables are routed within this fire area only in Zone 8, for which alternate shutdown capability is provided in accordance with Section III.G.3.
7A	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	P-202A RHR Pump	RHR	1	C32-D11/1 Control power to pump start logic	The redundant equipment/cables are routed outside the fire area and will remain available
7A	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
7A	LT-2-3-112A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	LT-2-3-85A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	PT-6-53A Reactor Pressure	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available
7A	SV-2-71D RV-2-71D Solenoid Valve	MS	1	C32-D11/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
7B	Y70 120V AC Distribution Panel	120V	1	1D3112-A Power	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D3 #13 Battery	250V	1	D3 #13 Battery	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D10201-A Ground detection (isolated by fuses)	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-D Power from battery charger D52	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-E Power from battery charger D52	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-F Power from battery charger D53	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-G Power from battery charger D53	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-H Power from battery charger D54	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-J Power from battery charger D54	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-K Power from battery D3B	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-L Power from battery D3B	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-M Power from battery D3A	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-Q Power from battery D3B	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-R Power from battery D3A	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-S Power from battery D3A	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	1D3-U D3A/D3B interconnect	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D31 125/250V DC Distribution Panel	250V	1	D31 125V/250VDC Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D33 125V DC Distribution Panel	250V	1	1D3-N Power from D31	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D33 125V DC Distribution Panel	250V	1	1D3-P Power from D31	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D52 #13 250V DC Battery Charger	250V	1	1B3433-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available The redundant equipment/cables are routed outside the fire area and will remain available
7B	D52 #13 250V DC Battery Charger	250V	1	D52 #13 250VDC Battery Charger	The redundant equipment/cables are routed outside the fire area and will remain available
7B	D53 #13 250V DC Battery Charger	250V	1	1B3434-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
7B	D53 #13 250V DC Battery Charger	250V	1	D53 #13 250VDC Battery Charger	The redundant equipment/cables are routed outside the fire area and will remain available
10	V-EAC-14A Control Room Air Conditioning Unit Blower	CRV	1	1B3415-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
10	V-EAC-14A Control Room Air Conditioning Unit Compressor	CRV	1	1B3416-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
10	V-EAC-14A Control Room Air Conditioning Unit Compressor	CRV	1	1B3416-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
10	V-EF-40A Div I 250V Battery Room Exhaust Fan	CRV	1	1B3424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
10	V-ERF-14A Recirculation Fan	CRV	1	1B3414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
10	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-E Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
10	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-K Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
10	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-X Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
10	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-Z Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
10	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V203-N Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
10	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V210-F Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
10	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V216-R Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
10	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V219-D Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
10	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V210-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
10	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V211-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
10	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-E	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	D54 #13 250V DC Battery Charger	250V	NC	1B3431-A Power supply from MCC-134	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
8	Y10 Division 1 Non-1E Instrument Panel	120V	1	Y10 Division 1 Non-1E Distribution Panel	Alternative shutdown capability is independent of this fire zone.
8	Y20 1E Instrument AC Distribution Panel	120V	1/2	Y01-Y21/1 Power from Y01 to Y21	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
8	Y20 1E Instrument AC Distribution Panel	120V	1/2	Y20 Division 2 1E Distribution Panel	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
8	Y20 1E Instrument AC Distribution Panel	120V	1/2	Y20-Y21/1 Power from Y21 to Y20	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
8	Y20 1E Instrument AC Distribution Panel	120V	1/2	Y21-Y22/1 Power from Y22 to Y21	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
8	Y70 120V AC Distribution Panel	120V	1	NB3482-K Power from Transformer Y77 to Panel Y10	Alternative shutdown capability is independent of this fire zone.
8	Y80 120V AC Distribution Panel	120V	2	NB4482-K Power from Y87 to Y30 (Y30/Y87 not credited)	Alternative shutdown capability is independent of this fire zone.
8	D10 #11 Battery Charger	125V	1	B3315-D10/1 Power	Alternative shutdown capability is independent of this fire zone.
8	D11 125V DC Distribution Panel	125V	1	C08-D11/1 Power to C08 Benchboard	Alternative shutdown capability is independent of this fire zone.
8	D111 125V DC Distribution Panel	125V	1	D11-D111/1 Power	Alternative shutdown capability is independent of this fire zone.
8	152-308 Tie Breaker to Non-Vital Bus-13	4160V	1	A308-C08/1 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	A408-C08/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A501-C08/2 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	152-502 DG-11 Output Breaker	4160V	1	A502-C08/1 Indication	Alternative shutdown capability is independent of this fire zone.
8	152-502 DG-11 Output Breaker	4160V	1	A502-C08/2 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	152-502 DG-11 Output Breaker	4160V	1	A502-C08/5 Indication	Alternative shutdown capability is independent of this fire zone.
8	152-502 DG-11 Output Breaker	4160V	1	A505-C08/1 Control	Alternative shutdown capability is independent of this fire zone.
8	152-502 DG-11 Output Breaker	4160V	1	A510-C08/4 Bus auto transfer	Alternative shutdown capability is independent of this fire zone.
8	152-502 DG-11 Output Breaker	4160V	1	A511-C08/3 Control	Alternative shutdown capability is independent of this fire zone.
8	152-509 Feed to LC-103	4160V	1	A509-C08/1 Indication	Alternative shutdown capability is independent of this fire zone.
8	152-509 Feed to LC-103	4160V	1	A509-C08/2 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	152-511 Feed from 1AR Transformer	4160V	1	A510-C08/4 Bus auto transfer	Alternative shutdown capability is independent of this fire zone.
8	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/2 Control	Alternative shutdown capability is independent of this fire zone.
8	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/4 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	152-511 Feed from 1AR Transformer	4160V	1	A610-C08/2 Control	Alternative shutdown capability is independent of this fire zone.
8	152-511 Feed from 2AR Transformer	4160V	1	1A511-A Control	Alternative shutdown capability is independent of this fire zone.
8	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A601-A Control	Alternative shutdown capability is independent of this fire zone.
8	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	A601-C08/2 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	152-602 DG-12 Output Breaker	4160V	2	A602-C08/1 Control	Alternative shutdown capability is independent of this fire zone.
8	152-602 DG-12 Output Breaker	4160V	2	A602-C08/2 Control	Alternative shutdown capability is independent of this fire zone.
8	152-602 DG-12 Output Breaker	4160V	2	A605-C08/1 Bus transfer control	Alternative shutdown capability is independent of this fire zone.
8	152-602 DG-12 Output Breaker	4160V	2	A610-C08/4 Control	Alternative shutdown capability is independent of this fire zone.
8	152-610 Feed from 1AR Transformer	4160V	2	A601-C08/4 Control	Alternative shutdown capability is independent of this fire zone.
8	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/3 Indication	Alternative shutdown capability is independent of this fire zone.
8	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/5 Control	Alternative shutdown capability is independent of this fire zone.
8	52-309 LC-103/LC-104 Crosstie	480V	1	B309-C08/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	52-409 LC-104/LC-103 Crosstie	480V	2	B409-C08/1 Control and indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	LC-103 Load Center 103 (52-301)	480V	1	B301-C08/2 Control	Alternative shutdown capability is independent of this fire zone.
8	P73A 480V Distribution Panel	480V	1	B3347-P73A/1 Power	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32A West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32A West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32A/1 position indication	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32A West Scram Discharge Volume Vent Valve	CRD	1/2	C05-Y20/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32B East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32B East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32B/1 position indication	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32B East Scram Discharge Volume Vent Valve	CRD	1/2	C05-Y20/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32C West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32C West Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32C/1 position indication	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32C West Scram Discharge Volume Vent Valve	CRD	1/2	C05-Y20/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32D East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-29/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-32D East Scram Discharge Volume Vent Valve	CRD	1/2	C05-3-32D/1 position indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	CV-3-32D East Scram Discharge Volume Vent Valve	CRD	1/2	C05-Y20/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33A West Scram Discharge Volume Drain	CRD	1/2	C05-3-29/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33A West Scram Discharge Volume Drain	CRD	1/2	C05-3-33A/1 position indication	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33A West Scram Discharge Volume Drain	CRD	1/2	C05-Y20/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33B East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-29/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33B East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-33B/1 position indication	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33B East Scram Discharge Volume Drain Valve	CRD	1/2	C05-Y20/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33C West Scram Discharge Volume Drain	CRD	1/2	C05-3-29/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33C West Scram Discharge Volume Drain	CRD	1/2	C05-3-33C/1 position indication	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33C West Scram Discharge Volume Drain	CRD	1/2	C05-Y20/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33D East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-29/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33D East Scram Discharge Volume Drain Valve	CRD	1/2	C05-3-33D/1 position indication	Alternative shutdown capability is independent of this fire zone.
8	CV-3-33D East Scram Discharge Volume Drain Valve	CRD	1/2	C05-Y20/1 position indication power supply	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	SV-3-31A SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	Alternative shutdown capability is independent of this fire zone.
8	SV-3-31B SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C16-C17/2 Control	Alternative shutdown capability is independent of this fire zone.
8	SV-3-31B SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C17-J1060/1 Control	Alternative shutdown capability is independent of this fire zone.
8	SV-3-31C SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C15-J1059/1 Control	Alternative shutdown capability is independent of this fire zone.
8	SV-3-31D SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C16-C17/2 Control	Alternative shutdown capability is independent of this fire zone.
8	SV-3-31D SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C17-J1060/1 Control	Alternative shutdown capability is independent of this fire zone.
8	FT-14-40A Core Spray Flow Transmitter	CS	1	1Y7002-A Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	FT-14-40A Core Spray Flow Transmitter	CS	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	FT-14-40A Core Spray Flow Transmitter	CS	1	C03-14-40A/1 Indication	Alternative shutdown capability is independent of this fire zone.
8	MO-1741 11 CS Pump Torus Suction Valve	CS	1	B3326-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1741 11 CS Pump Torus Suction Valve	CS	1	C03-MO1741/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-MO1749/1 Motor power	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-C32/3 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-C32/7 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-MO1749/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1750 12 CS Pump Test Return to Torus	CS	2	C03-C33/4 LOCA Signal	Alternative shutdown capability is independent of this fire zone.
8	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-MO1751/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-C32/6 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-MO1751/2 Control and Indication	Alternative shutdown capability is independent of this fire zone.
8	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-MO1753/2 Interlock from MO1753	Alternative shutdown capability is independent of this fire zone.
8	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	C03-C33/3 LOCA signal	Alternative shutdown capability is independent of this fire zone.
8	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	C03-MO1754/2 Interlock from MO1754	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-MO1753/1 Motor power	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-C32/31 LOCA Signal	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-C32/5 LOCA Signal	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-MO1751/1 Interlock to MO1751	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-MO1753/1 Control and Indication	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C32-C33/26 Low Reactor Pressure Signal	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C32-C56/3 Interlock to Div 1 reactor pressure switch	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C32-D11/1 Control power to Div 1 low pressure relay	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C33-C55/2 Interlock to Div 2 reactor pressure switch	Alternative shutdown capability is independent of this fire zone.
8	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C33-D21/1 Control power to Div 2 low pressure relay	Alternative shutdown capability is independent of this fire zone.
8	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C03-MO1752/1 Interlock from MO-1752	Alternative shutdown capability is independent of this fire zone.
8	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C32-C56/3 Interlock to Div 1 reactor pressure switch	Alternative shutdown capability is independent of this fire zone.
8	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C32-D11/1 Control power to Div 1 low pressure relay	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C33-C55/2 Interlock to Div 2 reactor pressure switch	Alternative shutdown capability is independent of this fire zone.
8	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C33-D21/1 Control power to Div 2 low pressure relay	Alternative shutdown capability is independent of this fire zone.
8	P-208A Core Spray Pump	CS	1	A505-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
8	P-208A Core Spray Pump	CS	1	A505-M505/2 Motor power	Alternative shutdown capability is independent of this fire zone.
8	P-208A Core Spray Pump	CS	1	C03-C32/28 Control	Alternative shutdown capability is independent of this fire zone.
8	P-208B Core Spray Pump	CS	2	C03-C33/22 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/1 152-308 control	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/4 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	A505-C08/1 Bus auto transfer	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	A510-C08/4 Bus auto transfer	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	C08-C32/1 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/1 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/2 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/3 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/4 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3A 11 Emergency Diesel Generator	DG	1	C08-C93/1 Annunciator	Alternative shutdown capability is independent of this fire zone.
8	G-3B 12 Emergency Diesel Generator	DG	2	A408-C08/3 152-408 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3B 12 Emergency Diesel Generator	DG	2	C08-C31/22 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3B 12 Emergency Diesel Generator	DG	2	C08-C33/1 Control	Alternative shutdown capability is independent of this fire zone.
8	G-3B 12 Emergency Diesel Generator	DG	2	C08-C94/1 Annunciator cable - not required	Alternative shutdown capability is independent of this fire zone.
8	P-111A Emergency Service Water Pump	ESW	1	1B3435-B Control and indication	Alternative shutdown capability is independent of this fire zone.
8	P-111A Emergency Service Water Pump	ESW	1	1B3435-C Control and indication	Alternative shutdown capability is independent of this fire zone.
8	P-111A Emergency Service Water Pump	ESW	1	1B3435-E Control	Alternative shutdown capability is independent of this fire zone.
8	P-111A Emergency Service Water Pump	ESW	1	1B3435-F Control	Alternative shutdown capability is independent of this fire zone.
8	P-111B Emergency Service Water Pump	ESW	2	C03-C33/12 Control	Alternative shutdown capability is independent of this fire zone.
8	P-111C Emergency Service Water Pump	ESW	1	1B3472-B Control	Alternative shutdown capability is independent of this fire zone.
8	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	B3305-C20/1 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	B3305-M3305/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	AO-2-80A Inboard MSIV	MS	1/2	C03-C41/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80A Inboard MSIV	MS	1/2	C03-C41/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80A Inboard MSIV	MS	1/2	C03-JX105C/10 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80A Inboard MSIV	MS	1/2	C03-JX105C/8 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80A Inboard MSIV	MS	1/2	C15-C17/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80A Inboard MSIV	MS	1/2	C15-C17/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80A Inboard MSIV	MS	1/2	C15-C41/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80A Inboard MSIV	MS	1/2	C17-C41/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80B Inboard MSIV	MS	1/2	C03-C41/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80B Inboard MSIV	MS	1/2	C03-C41/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80B Inboard MSIV	MS	1/2	C03-JX105C/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80B Inboard MSIV	MS	1/2	C03-JX105C/9 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	AO-2-80B Inboard MSIV	MS	1/2	C15-C17/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80B Inboard MSIV	MS	1/2	C15-C17/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80B Inboard MSIV	MS	1/2	C15-C41/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80B Inboard MSIV	MS	1/2	C17-C41/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80C Inboard MSIV	MS	1/2	C03-C41/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80C Inboard MSIV	MS	1/2	C03-C41/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80C Inboard MSIV	MS	1/2	C03-JX105C/4 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80C Inboard MSIV	MS	1/2	C03-JX105C/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80C Inboard MSIV	MS	1/2	C15-C17/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80C Inboard MSIV	MS	1/2	C15-C17/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80C Inboard MSIV	MS	1/2	C15-C41/1 Control	Alternative shutdown capability is independent of this fire zone.
8	AO-2-80C Inboard MSIV	MS	1/2	C17-C41/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80D Inboard MSIV	MS	1/2	C03-C41/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	AO-2-80D Inboard MSIV	MS	1/2	C03-C41/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80D Inboard MSIV	MS	1/2	C03-JX105C/7 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80D Inboard MSIV	MS	1/2	C03-JX105C/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80D Inboard MSIV	MS	1/2	C15-C17/5 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80D Inboard MSIV	MS	1/2	C15-C17/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80D Inboard MSIV	MS	1/2	C15-C41/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-80D Inboard MSIV	MS	1/2	C17-C41/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	2Q216-A Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	2Q217-B Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/2 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	C03-C42/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	AO-2-86A Outboard MSIV	MS	1/2	C03-C42/7 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	C15-C17/18 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	C15-C17/19 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	C15-C42/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86A Outboard MSIV	MS	1/2	C17-C42/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	2Q216-A Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	2Q217-B Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/2 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	C03-C42/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	C03-C42/7 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	C15-C17/18 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	AO-2-86B Outboard MSIV	MS	1/2	C15-C17/19 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	C15-C42/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86B Outboard MSIV	MS	1/2	C17-C42/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	2Q216-A Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	2Q217-B Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/2 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	C03-C42/6 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	C03-C42/7 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	C15-C17/18 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	C15-C17/19 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86C Outboard MSIV	MS	1/2	C15-C42/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	AO-2-86C Outboard MSIV	MS	1/2	C17-C42/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	2Q216-A Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	2Q217-B Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/2 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/3 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C03-C42/6 Control	Alternative shutdown capability is independent of this fire zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C03-C42/7 Control	Alternative shutdown capability is independent of this fire zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C15-C17/18 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C15-C17/19 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C15-C42/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	AO-2-86D Outboard MSIV	MS	1/2	C17-C42/1 Control	CAP033247 evaluates the adequacy of the MSIV cable separation within this zone.
8	C-253A SRV Low-Low Set Control Panel	MS	1	1D3304-A C253A SRV DC Power	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	C-253A SRV Low-Low Set Control Panel	MS	1	1Q159-A SRV Div 1 Low-Low Set RPS Interlock	Alternative shutdown capability is independent of this fire zone.
8	C-253A SRV Low-Low Set Control Panel	MS	1	C-253A SRV Low-Low Set Control Panel	Alternative shutdown capability is independent of this fire zone.
8	C-253D SRV Control Panel	MS	2	C-253D SRV Low-Low Set Bypass Panel	Alternative shutdown capability is independent of this fire zone.
8	DPT-4060A RV-2-71F Tailpipe Pressure Switch	MS	1	1IP19-A SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone.
8	DPT-4060A RV-2-71F Tailpipe Pressure Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
8	DPT-4061A RV-2-71G Tailpipe Pressure Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone.
8	DPT-4061A RV-2-71G Tailpipe Pressure Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
8	DPT-4061C RV-2-71G Tailpipe Pressure Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone.
8	DPT-4061C RV-2-71G Tailpipe Pressure Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
8	DPT-4062A RV-2-71E Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone.
8	DPT-4062A RV-2-71E Tailpipe Press Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
8	DPT-4062C RV-2-71E Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone.
8	DPT-4062C RV-2-71E Tailpipe Press Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
8	DPT-4063A RV-2-71H Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	DPT-4063A RV-2-71H Tailpipe Press Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
8	DPT-4063C RV-2-71H Tailpipe Press Switch	MS	1	1IP18-A SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone.
8	DPT-4063C RV-2-71H Tailpipe Press Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71D RV-2-71D Solenoid Valve	MS	1	C32-JX105C/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
8	SV-2-71D RV-2-71D Solenoid Valve	MS	1	C32-D11/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
8	SV-2-71D RV-2-71D Solenoid Valve	MS	1	C03-C32/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
8	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1Q156-A Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1Q156-B Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1Q156-E Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71F RV-2-71F Solenoid Valve	MS	1	1Q160-A Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71F RV-2-71F Solenoid Valve	MS	1	1Q160-B Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71F RV-2-71F Solenoid Valve	MS	1	1Q160-E Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71F RV-2-71F Solenoid Valve	MS	1	1Q160-F Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1Q157-A Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1Q157-B Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1Q157-E Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1IP20-A Reactor pressure signal	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1Q158-A Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1Q158-B Control	Alternative shutdown capability is independent of this fire zone.
8	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1Q158-E Control	Alternative shutdown capability is independent of this fire zone.
8	C-289A SPOTMOS Panel	PCT	1	1IT100-L Signal cable from C-289A to C03	Alternative shutdown capability is independent of this fire zone.
8	C-289A SPOTMOS Panel	PCT	1	1Y7002-A Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	C-289A SPOTMOS Panel	PCT	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	C-289A SPOTMOS Panel	PCT	1	1Y7004-A Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	C-289A SPOTMOS Panel	PCT	1	1Y7004-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	C-289A SPOTMOS Panel	PCT	1	C-289A SPOTMOS Panel	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	C-289B SPOTMOS Panel	PCT	2	2Y8002-A SPOTMOS Indication power at C-03	Alternative shutdown capability is independent of this fire zone.
8	C-289B SPOTMOS Panel	PCT	2	2Y8002-B SPOTMOS Indication power at C-03	Alternative shutdown capability is independent of this fire zone.
8	C-289B SPOTMOS Panel	PCT	2	2Y8004-A Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	LT-7338A Suppression Pool Level	PCT	1	1Y7002-A Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	LT-7338A Suppression Pool Level	PCT	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	LT-7338A Suppression Pool Level	PCT	1	C18-7338A/1 Signal cable	Alternative shutdown capability is independent of this fire zone.
8	LT-7338B Suppression Pool Level	PCT	2	2Y8002-A Power to Recorder PLR-7251B	Alternative shutdown capability is independent of this fire zone.
8	LT-7338B Suppression Pool Level	PCT	2	2Y8002-B Power to Recorder PLR-7251B	Alternative shutdown capability is independent of this fire zone.
8	TE-4073A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-A Field cable to Torus RTD TE-4073A	Alternative shutdown capability is independent of this fire zone.
8	TE-4074A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-B Field cable to Torus RTD TE-4074A	Alternative shutdown capability is independent of this fire zone.
8	TE-4075A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-C Field cable to Torus RTD TE-4075A	Alternative shutdown capability is independent of this fire zone.
8	TE-4076A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-D Field cable to Torus RTD TE-4076A	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	TE-4077A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-E Field cable to Torus RTD TE-4077A	Alternative shutdown capability is independent of this fire zone.
8	TE-4078A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-F Field cable to Torus RTD TE-4078A	Alternative shutdown capability is independent of this fire zone.
8	TE-4079A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-G Field cable to Torus RTD TE-4079A	Alternative shutdown capability is independent of this fire zone.
8	TE-4080A Suppression Pool Temperature (SPOTMOS)	PCT	1	1IT100-H Field cable to Torus RTD TE-4080A	Alternative shutdown capability is independent of this fire zone.
8	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	A504-C32/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C03-C32/23 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C03-C32/25 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-CV1994/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-SV1994/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-Y20/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C32-Z-121A/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-A Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	A604-C33/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	C03-C33/18 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	C03-C33/20 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	C33-Y20/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C03-C32/24 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C03-C32/25 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-CV1996/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-SV1996/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-Y20/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C32-Z-121C/2 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	A603-C33/2 Control from Breaker A603 Aux Contact	Alternative shutdown capability is independent of this fire zone.
8	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C03-C33/19 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C03-C33/20 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-CV1997/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-SV1997/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-Y20/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C33-Z-121D/2 Control	Alternative shutdown capability is independent of this fire zone.
8	DPT-10-91A RHR HX DP Control	RHR	1	1Y7002-A Loop power supply	Alternative shutdown capability is independent of this fire zone.
8	DPT-10-91A RHR HX DP Control	RHR	1	1Y7002-B Loop power supply	Alternative shutdown capability is independent of this fire zone.
8	DPT-10-91A RHR HX DP Control	RHR	1	C03-10-91A/1 Signal cable	Alternative shutdown capability is independent of this fire zone.
8	DPT-10-91A RHR HX DP Control	RHR	1	C03-EP1728/1 Signal cable to CV-1728	Alternative shutdown capability is independent of this fire zone.
8	DPT-10-91B RHR HX DP Control	RHR	2	2Y8002-A Power supply to pressure indicator	Alternative shutdown capability is independent of this fire zone.
8	DPT-10-91B RHR HX DP Control	RHR	2	2Y8002-B Power supply to pressure indicator	Alternative shutdown capability is independent of this fire zone.
8	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	1Y7002-A Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	C03-10-111A/1 Indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	B3321-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	C03-MO1986/2 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	C03-MO1988/2 Interlock with MO-1988	Alternative shutdown capability is independent of this fire zone.
8	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	C03-MO1989/2 Control interlock to MO-1989	Alternative shutdown capability is independent of this fire zone.
8	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	B3322-MO1988/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	C03-MO1986/1 Control	Power to MO-2029 is maintained off during normal power operation.
8	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	C03-MO1988/1 Control	Power to MO-2029 is maintained off during normal power operation.
8	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	B4321-C03/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
8	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	B4321-MO1989/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
8	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1987/1 Control interlock	Power to MO-2029 is maintained off during normal power operation.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1989/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
8	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-MO2002/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	C03-C32/29 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	C03-MO2002/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	C03-C33/24 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-MO2006/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	C03-C32/21 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	C03-MO2006/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-F MO-1989 Interlock	Alternative shutdown capability is independent of this fire zone.
8	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-MO2008/1 Motor power	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	C03-C32/18 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	C03-MO2008/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	C03-C33/15 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-MO2010/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	C03-C32/19 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2010 RHR Division 2 Torus Spray Isolation	RHR	1	C03-MO2010/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	B4338-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	B4338-MO2011/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	C03-C33/16 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	C03-MO2011/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-C03/1 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-MO2012/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C03-C32/17 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C03-MO2012/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C32-C33/4 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C32-MO2014/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-MO2013/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C03-C33/14 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C03-MO2013/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C32-C33/9 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C33-MO2015/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-MO2014/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	C03-C32/16 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	C32-C33/3 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	C32-MO2012/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	B4334-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	B4334-MO2015/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C03-C33/13 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C03-MO2015/1 Control and indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C32-C33/2 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C33-MO2013/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	B3339-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	C03-C32/20 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	C03-MO2020/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-MO2021/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-C33/17 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2021/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	B3309-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	B3309-MO2022/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	C03-C32/14 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	C03-MO2022/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4209-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4209-MO2023/1 Motor power	Alternative shutdown capability is independent of this fire zone.
8	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-C33/11 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2023/1 Control	Alternative shutdown capability is independent of this fire zone.
8	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	B3333-C41/1 Control	Power to MO-2029 is maintained off during normal power operation.
8	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	B3333-JX105D/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
8	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C03-C41/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
8	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C41-JX105D/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C41-JX105D/3 Control and indication	Power to MO-2029 is maintained off during normal power operation.
8	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C03-C42/2 Control and indication	Power to MO-2029 is maintained off during normal power operation.
8	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C42-D31307/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
8	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	B4211-C41/1 Control and indication	Power to MO-2032 is maintained off during normal power operation.
8	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	B4211-MO2032/1 Motor power	Power to MO-2032 is maintained off during normal power operation.
8	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	C03-C41/2 Control and indication	Power to MO-2032 is maintained off during normal power operation.
8	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	C41-MO2032/1 Control and indication	Power to MO-2032 is maintained off during normal power operation.
8	MO-2033 RHR Cross-Tie	RHR	1/2	B4328-C03/1 Control	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
8	MO-2033 RHR Cross-Tie	RHR	1/2	B4328-MO2033/1 Motor power	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
8	MO-2033 RHR Cross-Tie	RHR	1/2	C03-MO2033/1 Control	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
8	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	C03-C42/4 Control and indication	Power to MO-2032 is maintained off during normal power operation.
8	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	C42-D31310/1 Control and indication	Power to MO-2407 is maintained off during normal power operation.
8	P-202A RHR Pump	RHR	1	1Q525-C Control from ECCS relay logic	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	P-202A RHR Pump	RHR	1	A504-C03/3 Control	Alternative shutdown capability is independent of this fire zone.
8	P-202A RHR Pump	RHR	1	C03-C32/27 Control	Alternative shutdown capability is independent of this fire zone.
8	P-202A RHR Pump	RHR	1	C32-D11/1 Control power to pump start logic	Alternative shutdown capability is independent of this fire zone.
8	P-202A RHR Pump	RHR	1	C32-I3139A/1 Pump start permissive	Alternative shutdown capability is independent of this fire zone.
8	P-202A RHR Pump	RHR	1	C32-I3139C/1 Pump start permissive	Alternative shutdown capability is independent of this fire zone.
8	P-202A RHR Pump	RHR	1	C32-MO1986/1 Pump start permissive	Alternative shutdown capability is independent of this fire zone.
8	P-202A RHR Pump	RHR	1	C32-MO1988/1 Pump start permissive	Alternative shutdown capability is independent of this fire zone.
8	P-202B RHR Pump	RHR	2	C03-C33/21 Control	Alternative shutdown capability is independent of this fire zone.
8	P-202B RHR Pump	RHR	2	C33-D21/1 Control	Alternative shutdown capability is independent of this fire zone.
8	P-202B RHR Pump	RHR	2	C33-I3140A/1 Control	Alternative shutdown capability is independent of this fire zone.
8	P-202B RHR Pump	RHR	2	C33-I3140C/1 Control	Alternative shutdown capability is independent of this fire zone.
8	P-202B RHR Pump	RHR	2	C33-MO1987/1 Suction valve start permissive	Alternative shutdown capability is independent of this fire zone.
8	P-202B RHR Pump	RHR	2	C33-MO1989/1 Suction valve start permissive	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	1Y7002-A Instrument Power	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	A507-C32/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	A508-C32/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C03-10-91A/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C03-C32/32 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C03-EP1728/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C32-CV1728/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C32-SV1728/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	C32-Y20/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1728 11 RHR Heat Exchanger	RHRSW	1	CV1728-C32/1 Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1729 12 RHR Heat Exchanger	RHRSW	2	2Q426-B Control	Alternative shutdown capability is independent of this fire zone.
8	CV-1729 12 RHR Heat Exchanger	RHRSW	2	C03-C33/1 Indication	Alternative shutdown capability is independent of this fire zone.
8	CV-1729 12 RHR Heat Exchanger	RHRSW	2	C33-CV1729/1 Control	Alternative shutdown capability is independent of this fire zone.
8	P-109A RHR Service Water Pump	RHRSW	1	A508-C03/1 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	P-109A RHR Service Water Pump	RHRSW	1	C03-C32/13 Control	Alternative shutdown capability is independent of this fire zone.
8	P-109B RHR Service Water Pump	RHRSW	2	2A608-D Control	Alternative shutdown capability is independent of this fire zone.
8	P-109B RHR Service Water Pump	RHRSW	2	C03-C33/9 Control	Alternative shutdown capability is independent of this fire zone.
8	P-109C RHR Service Water Pump	RHRSW	1	A507-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
8	P-109C RHR Service Water Pump	RHRSW	1	C03-C32/12 Control	Alternative shutdown capability is independent of this fire zone.
8	P-109D RHR Service Water Pump	RHRSW	2	A607-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
8	P-109D RHR Service Water Pump	RHRSW	2	C03-C33/8 Control	Alternative shutdown capability is independent of this fire zone.
8	LT-2-3-112A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	LT-2-3-112A Reactor Water Level	RPV	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	LT-2-3-112A Reactor Water Level	RPV	1	C03-C18/1#BC Signal cable	Alternative shutdown capability is independent of this fire zone.
8	LT-2-3-112A Reactor Water Level	RPV	1	C03-Y20/1 Indicator power	Alternative shutdown capability is independent of this fire zone.
8	LT-2-3-112A Reactor Water Level	RPV	1	C18-2-3-112A/1 Signal cable	Alternative shutdown capability is independent of this fire zone.
8	LT-2-3-85A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	Not required for Alternate Shutdown
8	LT-2-3-85A Reactor Water Level	RPV	1	1Y7002-B Instrument Power	Not required for Alternate Shutdown

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	LT-2-3-85A Reactor Water Level	RPV	1	C03-C05/1#AB Signal cable	Not required for Alternate Shutdown
8	LT-2-3-85A Reactor Water Level	RPV	1	C03-LT2-3-85A/1 Signal cable	Not required for Alternate Shutdown
8	LT-2-3-85B Reactor Water Level	RPV	2	2Y8002-A Instrument Power	Not required for Alternate Shutdown
8	LT-2-3-85B Reactor Water Level	RPV	2	2Y8002-B Instrument Power	Not required for Alternate Shutdown
8	LT-2-3-85B Reactor Water Level	RPV	2	C03-C05/2#AB Signal cable	Not required for Alternate Shutdown
8	LT-2-3-85B Reactor Water Level	RPV	2	C03-C13/2 Associated cable	Associated circuit directly connected to Y80 circuit 2. Not required for Alternate Shutdown.
8	LT-2-3-85B Reactor Water Level	RPV	2	C03-LT2-3-85B/1 Signal cable	Not required for Alternate Shutdown
8	PT-6-53A Reactor Pressure	RPV	1	1Y7002-A Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	PT-6-53A Reactor Pressure	RPV	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
8	PT-6-53A Reactor Pressure	RPV	1	C03-C05/1#BB Indication	Alternative shutdown capability is independent of this fire zone.
8	PT-6-53A Reactor Pressure	RPV	1	C03-PT6-53A/1 Field cable to transmitter	Alternative shutdown capability is independent of this fire zone.
8	PT-6-53B Reactor Pressure	RPV	2	2Y8002-A Instrument power	Alternative shutdown capability is independent of this fire zone.
8	PT-6-53B Reactor Pressure	RPV	2	2Y8002-B Instrument power	Alternative shutdown capability is independent of this fire zone.
8	PT-6-53B Reactor Pressure	RPV	2	C03-C05/2#BB Indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	PT-6-53B Reactor Pressure	RPV	2	C03-PT6-53B/1 Field cable to transmitter	Alternative shutdown capability is independent of this fire zone.
8	PT-7251B Wide Range Drywell Pressure	PCT	2	2Y8014-A 120V AC Power	This component is not required for safe shutdown. This component is wired through the ASDS panel.
8	V-EAC-14A Control Room Air Conditioning Unit Blower	CRV	1	1B3415-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
8	V-EAC-14A Control Room Air Conditioning Unit Compressor	CRV	1	1B3416-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
8	V-EAC-14A Control Room Air Conditioning Unit Compressor	CRV	1	1B3416-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
8	V-EF-40A Div I 250V Battery Room Exhaust Fan	CRV	1	1B3424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
8	V-ERF-14A Recirculation Fan	CRV	1	1B3414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
8	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-E Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
8	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-K Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
8	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-X Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
8	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-Z Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
8	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V203-N Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available..
8	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V210-F Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
8	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V216-R Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VI Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
8	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V219-D Div 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
8	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V210-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
8	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V211-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
8	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-E	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
7C	D2 #12 125V Battery	125V	2	D2 #12 125VDC Battery	The redundant equipment/cables are routed outside the fire area and will remain available
7C	D20 #12 125V DC Battery Charger	125V	2	B4315-D20/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
7C	D20 #12 125V DC Battery Charger	125V	2	D20 #12 Battery Charger	The redundant equipment/cables are routed outside the fire area and will remain available
7C	D21 125V DC Distribution Panel	125V	2	D20-D21/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
7C	D21 125V DC Distribution Panel	125V	2	D21 125VDC Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available
7C	D21 125V DC Distribution Panel	125V	2	D2-D22/1 Power from battery to line fuse	The redundant equipment/cables are routed outside the fire area and will remain available
7C	D21 125V DC Distribution Panel	125V	2	D2-D22/2 Power from battery to line fuse	The redundant equipment/cables are routed outside the fire area and will remain available
7C	D21 125V DC Distribution Panel	125V	2	D21-D22/1 Power from distribution to fuse panel	The redundant equipment/cables are routed outside the fire area and will remain available
7C	D211 125V DC Distribution Panel	125V	2	2D2-A Power	Alternative shutdown capability is independent of this fire zone.
7C	D22 125V DC Fuse Panel	125V	2	D22 125VDC Fuse Panel	The redundant equipment/cables are routed outside the fire area and will remain available
7C	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C33-D21/1 Control power to Div 2 low pressure relay	Low pressure permissive provided by the Div 1 low pressure relay remains available.
7C	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C33-D21/1 Control power to Div 2 low pressure relay	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
7C	AO-2-86A Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
7C	AO-2-86B Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
7C	AO-2-86C Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
7C	AO-2-86D Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
7C	P-202B RHR Pump	RHR	2	C33-D21/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	152-502 DG-11 Output Breaker	4160V	1	A510-C08/4 Bus auto transfer	Alternative shutdown capability is independent of this fire zone.
9	152-511 Feed from 1AR Transformer	4160V	1	A510-C08/4 Bus auto transfer	Alternative shutdown capability is independent of this fire zone.
9	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/4 Control	Alternative shutdown capability is independent of this fire zone.
9	152-511 Feed from 2AR Transformer	4160V	1	1A511-A Control	Alternative shutdown capability is independent of this fire zone.
9	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A601-A Control	Alternative shutdown capability is independent of this fire zone.
9	152-602 DG-12 Output Breaker	4160V	2	2A602-A1 Indication	Alternative shutdown capability is independent of this fire zone.
9	152-602 DG-12 Output Breaker	4160V	2	2A602-A2 Indication	Alternative shutdown capability is independent of this fire zone.
9	152-602 DG-12 Output Breaker	4160V	2	2A602-F Control	Alternative shutdown capability is independent of this fire zone.
9	152-609 Feed to LC-104	4160V	2	2A609-A Control and indication	Alternative shutdown capability is independent of this fire zone.
9	152-609 Feed to LC-104	4160V	2	2A609-E Control	Alternative shutdown capability is independent of this fire zone.
9	152-610 Feed from 1AR Transformer	4160V	2	2A610-D Control and indication	Alternative shutdown capability is independent of this fire zone.
9	152-610 Feed from 1AR Transformer	4160V	2	A601-C08/4 Control	Alternative shutdown capability is independent of this fire zone.
9	152-610 Feed from 1AR Transformer	4160V	2	2A610-G Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-A Control and indication	Alternative shutdown capability is independent of this fire zone.
9	LC-104 Load Center 104 (52-401)	480V	2	2B401-B Control and indication	Alternative shutdown capability is independent of this fire zone.
9	SV-3-31B SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C16-C17/2 Control	Alternative shutdown capability is independent of this fire zone.
9	SV-3-31D SDV Vent/Drain Solenoid Control Valve	CRD	1/2	C16-C17/2 Control	Alternative shutdown capability is independent of this fire zone.
9	VD-9093B CRV Supply Cross Connect Damper	CRV	2	2V242-D Control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-F Blower control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-E Compressor control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-F Compressor control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-L Compressor control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-M Compressor control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B4315-F Blower control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-F Blower control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-E Compressor control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-F Compressor control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-L Compressor control	Alternative shutdown capability is independent of this fire zone.
9	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-M Compressor control	Alternative shutdown capability is independent of this fire zone.
9	V-EF-40A Div I 250V Battery Room Exhaust Fan	CRV	1	1B3424-E Control	Alternative shutdown capability is independent of this fire zone.
9	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	2B4424-E Control	Alternative shutdown capability is independent of this fire zone.
9	V-ERF-14A Recirculation Fan	CRV	1	1B3414-E Control	Alternative shutdown capability is independent of this fire zone.
9	V-ERF-14B Recirculation Fan	CRV	2	2B4414-E Control	Alternative shutdown capability is independent of this fire zone.
9	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-E Division 1 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-K Division 1 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-X Division 1 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-Z Division 1 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V203-N Division 1 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V210-F Division 1 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V216-R Division 1 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V219-D Division 1 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-E Division 2 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-K Division 2 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-X Division 2 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-Z Division 2 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V233-M Division 2 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V246-T Division 2 Master Control Circuit	Alternative shutdown capability is independent of this fire zone.
9	FT-14-40A Core Spray Flow Transmitter	CS	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
9	FT-14-40A Core Spray Flow Transmitter	CS	1	C03-14-40A/1 Indication	Alternative shutdown capability is independent of this fire zone.
9	FT-14-40B Core Spray Flow Transmitter	CS	2	2IP21-A Signal cable	Alternative shutdown capability is independent of this fire zone.
9	MO-1741 11 CS Pump Torus Suction Valve	CS	1	B3326-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1741 11 CS Pump Torus Suction Valve	CS	1	C03-MO1741/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-A Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-C03/1 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-C32/3 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-C32/7 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1749 11 CS Pump Test Return to Torus.	CS	1	C03-MO1749/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-A Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-1750 12 CS Pump Test Return to Torus	CS	2	C03-C33/4 LOCA Signal	Alternative shutdown capability is independent of this fire zone.
9	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-C32/6 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-MO1751/2 Control and Indication	Alternative shutdown capability is independent of this fire zone.
9	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	C03-MO1753/2 Interlock from MO1753	Alternative shutdown capability is independent of this fire zone.
9	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-A1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-A2 Indication	Alternative shutdown capability is independent of this fire zone.
9	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	C03-C33/3 LOCA signal	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	MO-1752 12 CS Pump Injection Valve Outboard	CS	2	C03-MO1754/2 Interlock from MO1754	Alternative shutdown capability is independent of this fire zone.
9	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-C32/31 LOCA Signal	Alternative shutdown capability is independent of this fire zone.
9	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-C32/5 LOCA Signal	Alternative shutdown capability is independent of this fire zone.
9	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-MO1751/1 Interlock to MO1751	Alternative shutdown capability is independent of this fire zone.
9	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	C03-MO1753/1 Control and Indication	Alternative shutdown capability is independent of this fire zone.
9	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-A Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	C03-MO1752/1 Interlock from MO-1752	Alternative shutdown capability is independent of this fire zone.
9	P-208A Core Spray Pump	CS	1	A505-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
9	P-208A Core Spray Pump	CS	1	C03-C32/28 Control	Alternative shutdown capability is independent of this fire zone.
9	P-208B Core Spray Pump	CS	2	2A605-B Control	Alternative shutdown capability is independent of this fire zone.
9	P-208B Core Spray Pump	CS	2	C03-C33/22 Control	Alternative shutdown capability is independent of this fire zone.
9	190-DG1 DG-11 Voltage Adjust	DG	1	190-DG1 DG-11 Voltage Adjust	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	190-DG2 DG-12 Voltage Adjust	DG	1	190-DG2 DG-12 Voltage Adjust	Alternative shutdown capability is independent of this fire zone.
9	F/DG1 DG-11 Frequency Meter	DG	1	F/DG1 DG1 Frequency	Alternative shutdown capability is independent of this fire zone.
9	F/DG2 DG-12 Frequency Meter	DG	2	F/DG2 DG2 Frequency	Alternative shutdown capability is independent of this fire zone.
9	G-3A 11 Emergency Diesel Generator	DG	1	A510-C08/4 Bus auto transfer	Alternative shutdown capability is independent of this fire zone.
9	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-B ASDS Control	Alternative shutdown capability is independent of this fire zone.
9	G-3B 12 Emergency Diesel Generator	DG	2	2D21111-B ASDS Control	Alternative shutdown capability is independent of this fire zone.
9	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B1 ASDS Control	Alternative shutdown capability is independent of this fire zone.
9	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B2 ASDS Control	Alternative shutdown capability is independent of this fire zone.
9	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-A Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
9	GSC11 DG-11 Frequency Adjust	DG	1	GSC11 DG-11 Frequency Adjust	Alternative shutdown capability is independent of this fire zone.
9	GSC21 DG-12 Frequency Adjust	DG	2	GSC21 DG-12 Frequency Adjust	Alternative shutdown capability is independent of this fire zone.
9	V/DG1 DG-11 Volt Meter	DG	1	V/DG1 DG1 Voltage Indication	Alternative shutdown capability is independent of this fire zone.
9	V/DG2 DG-12 Volt Meter	DG	2	V/DG2 DG2 Voltage Indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	W/DG1 DG-11 Load Meter (Watt Meter)	DG	1	W/DG1 DG1 Wattmeter	Alternative shutdown capability is independent of this fire zone.
9	W/DG2 DG-12 Load Meter (Watt Meter)	DG	2	W/DG2 DG2 Wattmeter	Alternative shutdown capability is independent of this fire zone.
9	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V210-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
9	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V211-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
9	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V236-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
9	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V239-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
9	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-E Control	Alternative shutdown capability is independent of this fire zone.
9	P-111A Emergency Service Water Pump	ESW	1	1B3435-B Control and indication	Alternative shutdown capability is independent of this fire zone.
9	P-111A Emergency Service Water Pump	ESW	1	1B3435-C Control and indication	Alternative shutdown capability is independent of this fire zone.
9	P-111A Emergency Service Water Pump	ESW	1	1B3435-E Control	Alternative shutdown capability is independent of this fire zone.
9	P-111A Emergency Service Water Pump	ESW	1	1B3435-F Control	Alternative shutdown capability is independent of this fire zone.
9	P-111B Emergency Service Water Pump	ESW	2	2B4319-A Control	Alternative shutdown capability is independent of this fire zone.
9	P-111B Emergency Service Water Pump	ESW	2	2B4319-F Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	P-111B Emergency Service Water Pump	ESW	2	C03-C33/12 Control	Alternative shutdown capability is independent of this fire zone.
9	P-111C Emergency Service Water Pump	ESW	1	1B3472-B Control	Alternative shutdown capability is independent of this fire zone.
9	P-111D Emergency Service Water Pump	ESW	2	2B4472-G Control	Alternative shutdown capability is independent of this fire zone.
9	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-A Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80A Inboard MSIV	MS	1/2	C03-C41/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80A Inboard MSIV	MS	1/2	C03-C41/6 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80A Inboard MSIV	MS	1/2	C03-JX105C/10 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80A Inboard MSIV	MS	1/2	C03-JX105C/8 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80A Inboard MSIV	MS	1/2	C15-C17/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80B Inboard MSIV	MS	1/2	C03-C41/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80B Inboard MSIV	MS	1/2	C03-C41/6 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80B Inboard MSIV	MS	1/2	C03-JX105C/3 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80B Inboard MSIV	MS	1/2	C03-JX105C/9 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	AO-2-80B Inboard MSIV	MS	1/2	C15-C17/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80C Inboard MSIV	MS	1/2	C03-C41/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80C Inboard MSIV	MS	1/2	C03-C41/6 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80C Inboard MSIV	MS	1/2	C03-JX105C/4 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80C Inboard MSIV	MS	1/2	C03-JX105C/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80C Inboard MSIV	MS	1/2	C15-C17/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80D Inboard MSIV	MS	1/2	C03-C41/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80D Inboard MSIV	MS	1/2	C03-C41/6 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80D Inboard MSIV	MS	1/2	C03-JX105C/7 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80D Inboard MSIV	MS	1/2	C03-JX105C/6 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-80D Inboard MSIV	MS	1/2	C15-C17/5 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	2Q217-A Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/1 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/2 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	C03-2-86A/3 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	C03-C42/6 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	C03-C42/7 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	C15-C17/18 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	C15-C17/19 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	C15-C42/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86A Outboard MSIV	MS	1/2	C17-C42/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	2Q217-A Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/2 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	C03-2-86B/3 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	C03-C42/6 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	AO-2-86B Outboard MSIV	MS	1/2	C03-C42/7 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	C15-C17/18 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	C15-C17/19 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	C15-C42/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86B Outboard MSIV	MS	1/2	C17-C42/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	2Q217-A Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/2 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	C03-2-86C/3 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	C03-C42/6 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	C03-C42/7 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	C15-C17/18 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	C15-C17/19 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86C Outboard MSIV	MS	1/2	C15-C42/1 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	AO-2-86C Outboard MSIV	MS	1/2	C17-C42/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	2Q217-A Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/2 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C03-2-86D/3 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C03-C42/6 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C03-C42/7 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C15-C17/18 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C15-C17/19 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C15-C42/1 Control	Alternative shutdown capability is independent of this fire zone.
9	AO-2-86D Outboard MSIV	MS	1/2	C17-C42/1 Control	Alternative shutdown capability is independent of this fire zone.
9	C-253A SRV Low-Low Set Control Panel	MS	1	1Q159-A SRV Div 1 Low-Low Set RPS Interlock	Alternative shutdown capability is independent of this fire zone.
9	DPT-4060A RV-2-71F Tailpipe Pressure Switch	MS	1	NQ161-B SRV solenoid energenized indication	Alternative shutdown capability is independent of this fire zone.
9	DPT-4061A RV-2-71G Tailpipe Pressure Switch	MS	1	NQ161-B SRV solenoid energenized indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	DPT-4061C RV-2-71G Tailpipe Pressure Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
9	DPT-4062A RV-2-71E Tailpipe Press Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
9	DPT-4062C RV-2-71E Tailpipe Press Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
9	DPT-4063A RV-2-71H Tailpipe Press Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
9	DPT-4063C RV-2-71H Tailpipe Press Switch	MS	1	NQ161-B SRV solenoid energized indication	Alternative shutdown capability is independent of this fire zone.
9	SV-2-71D RV-2-71D Solenoid Valve	MS	1	C32-JX105C/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
9	SV-2-71D RV-2-71D Solenoid Valve	MS	1	C03-C32/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
9	SV-2-71E RV-2-71E Solenoid Valve	MS	1	1Q156-A Control	Alternative shutdown capability is independent of this fire zone.
9	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71J RV-2-71E Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
9	SV-2-71F RV-2-71F Solenoid Valve	MS	1	1Q160-A Control	Alternative shutdown capability is independent of this fire zone.
9	SV-2-71F RV-2-71F Solenoid Valve	MS	1	1Q160-F Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71K RV-2-71G Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
9	SV-2-71G RV-2-71G Solenoid Valve	MS	1	1Q157-A Control	Alternative shutdown capability is independent of this fire zone.
9	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71L RV-2-71H Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
9	SV-2-71H RV-2-71H Solenoid Valve	MS	1	1Q158-A Control	Alternative shutdown capability is independent of this fire zone.
9	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
9	SV-2-71M RV-2-71F Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	C-289A SPOTMOS Panel	PCT	1	1IT100-L Signal cable from C-289A to C03	Alternative shutdown capability is independent of this fire zone.
9	C-289A SPOTMOS Panel	PCT	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
9	C-289B SPOTMOS Panel	PCT	2	2IT200-L Signal cable from C-289B to C03	Alternative shutdown capability is independent of this fire zone.
9	C-289B SPOTMOS Panel	PCT	2	2Y8002-B SPOTMOS Indication power at C-03	Alternative shutdown capability is independent of this fire zone.
9	C-289B SPOTMOS Panel	PCT	2	C03-C13/2 Cable is directly connected to 2Y8002-B	Alternative shutdown capability is independent of this fire zone.
9	LT-7338A Suppression Pool Level	PCT	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
9	LT-7338B Suppression Pool Level	PCT	2	2IP7251B-A Signal cable from C-292 to C03	Alternative shutdown capability is independent of this fire zone.
9	LT-7338B Suppression Pool Level	PCT	2	2Y8002-B Power to Recorder PLR-7251B	Alternative shutdown capability is independent of this fire zone.
9	LT-7338B Suppression Pool Level	PCT	2	C03-C13/2 Cable is directly connected to 2Y8002-B	Alternative shutdown capability is independent of this fire zone.
9	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C03-C32/23 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	C03-C32/25 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	C03-C33/18 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	C03-C33/20 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C03-C32/24 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1996 RHR-P-202C Minimum Flow Valve	RHR	1	C03-C32/25 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C03-C33/19 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	C03-C33/20 Control	Alternative shutdown capability is independent of this fire zone.
9	DPT-10-91A RHR HX DP Control	RHR	1	1Y7002-B Loop power supply	Alternative shutdown capability is independent of this fire zone.
9	DPT-10-91A RHR HX DP Control	RHR	1	C03-10-91A/1 Signal cable	Alternative shutdown capability is independent of this fire zone.
9	DPT-10-91A RHR HX DP Control	RHR	1	C03-EP1728/1 Signal cable to CV-1728	Alternative shutdown capability is independent of this fire zone.
9	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-A Signal cable from C292 to C03	Alternative shutdown capability is independent of this fire zone.
9	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-B Signal cable from C292 to C03	Alternative shutdown capability is independent of this fire zone.
9	DPT-10-91B RHR HX DP Control	RHR	2	2Y8002-B Power supply to pressure indicator	Alternative shutdown capability is independent of this fire zone.
9	DPT-10-91B RHR HX DP Control	RHR	2	C03-C13/2 Cable is directly connected to 2Y8002-B	Alternative shutdown capability is independent of this fire zone.
9	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
9	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	C03-10-111A/1 Indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	FT-10-111B RHR Division 2 Flow Downstream of Heat Exchanger	RHR	2	2IF23-C Signal cable from C-292 to C-03	Alternative shutdown capability is independent of this fire zone.
9	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	B3321-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	C03-MO1986/2 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	C03-MO1988/2 Interlock with MO-1988	Alternative shutdown capability is independent of this fire zone.
9	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-A Control	Alternative shutdown capability is independent of this fire zone.
9	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	C03-MO1989/2 Control interlock to MO-1989	Alternative shutdown capability is independent of this fire zone.
9	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	B3322-MO1988/1 Motor power	Alternative shutdown capability is independent of this fire zone.
9	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	C03-MO1986/1 Control	Power to MO-2029 is maintained off during normal power operation.
9	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	C03-MO1988/1 Control	Power to MO-2029 is maintained off during normal power operation.
9	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	B4321-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1987/1 Control interlock	Alternative shutdown capability is independent of this fire zone.
9	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1989/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	C03-C32/29 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	C03-MO2002/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A2 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A3 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	C03-C33/24 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	C03-C32/21 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	C03-MO2006/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-A Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-F MO-1989 Interlock	Alternative shutdown capability is independent of this fire zone.
9	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	C03-C32/18 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	C03-MO2008/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-A Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	C03-C33/15 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	C03-C32/19 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	2	C03-MO2010/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	B4338-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	1	C03-C33/16 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	C03-MO2011/1 Control and indication	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C03-C32/17 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	C03-MO2012/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C03-C33/14 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	C03-MO2013/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	C03-C32/16 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C03-C33/13 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	C03-MO2015/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	B3339-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.

MONTICELLO UPDATED SAFETY ANALYSIS REPORT
FIRE PROTECTION PROGRAM
Safe Shutdown Analysis

USAR-J.04
Revision 33

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	C03-C32/20 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	C03-MO2020/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-C33/17 Motor power	Alternative shutdown capability is independent of this fire zone.
9	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2021/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	B3309-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	C03-C32/14 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	C03-MO2022/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4209-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-C33/11 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	C03-MO2023/1 Control	Alternative shutdown capability is independent of this fire zone.
9	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C03-C41/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
9	MO-2030 RHR Shutdown Cooling Isolation Valve	RHR	1/2	C03-C42/2 Control and indication	Power to MO-2029 is maintained off during normal power operation.
9	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	C03-C41/2 Control and indication	Power to MO-2032 is maintained off during normal power operation.
9	MO-2033 RHR Cross-Tie	RHR	1/2	B4328-C03/1 Control	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
9	MO-2033 RHR Cross-Tie	RHR	1/2	C03-MO2033/1 Control	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
9	MO-2407 RHR Discharge to Waste Surge Tank	RHR	1/2	C03-C42/4 Control and indication	Power to MO-2032 is maintained off during normal power operation.
9	P-202A RHR Pump	RHR	1	1Q525-C Control from ECCS relay logic	Alternative shutdown capability is independent of this fire zone.
9	P-202A RHR Pump	RHR	1	C03-C32/27 Control	Alternative shutdown capability is independent of this fire zone.
9	P-202B RHR Pump	RHR	2	2A604-A Control	Alternative shutdown capability is independent of this fire zone.
9	P-202B RHR Pump	RHR	2	2IF23-D Control	Alternative shutdown capability is independent of this fire zone.
9	P-202B RHR Pump	RHR	2	C03-C33/21 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	CV-1728 11 RHR Heat Exchanger	RHR SW	1	C03-10-91A/1 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1728 11 RHR Heat Exchanger	RHR SW	1	C03-C32/32 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1728 11 RHR Heat Exchanger	RHR SW	1	C03-EP1728/1 Control	Alternative shutdown capability is independent of this fire zone.
9	CV-1729 12 RHR Heat Exchanger	RHR SW	2	2IP27-A Control input from DPIC-10-130B	Alternative shutdown capability is independent of this fire zone.
9	CV-1729 12 RHR Heat Exchanger	RHR SW	2	2IP27-B Control input from DPIC-10-130B	Alternative shutdown capability is independent of this fire zone.
9	CV-1729 12 RHR Heat Exchanger	RHR SW	2	C03-C33/1 Indication	Alternative shutdown capability is independent of this fire zone.
9	P-109A RHR Service Water Pump	RHR SW	1	A508-C03/1 Control	Alternative shutdown capability is independent of this fire zone.
9	P-109A RHR Service Water Pump	RHR SW	1	C03-C32/13 Control	Alternative shutdown capability is independent of this fire zone.
9	P-109B RHR Service Water Pump	RHR SW	2	2A608-B Control and indication	Alternative shutdown capability is independent of this fire zone.
9	P-109B RHR Service Water Pump	RHR SW	2	C03-C33/9 Control	Alternative shutdown capability is independent of this fire zone.
9	P-109C RHR Service Water Pump	RHR SW	1	A507-C03/1 Control and indication	Alternative shutdown capability is independent of this fire zone.
9	P-109C RHR Service Water Pump	RHR SW	1	C03-C32/12 Control	Alternative shutdown capability is independent of this fire zone.
9	P-109D RHR Service Water Pump	RHR SW	2	2A607-C Control	Alternative shutdown capability is independent of this fire zone.
9	P-109D RHR Service Water Pump	RHR SW	2	A607-C03/1 Control	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	P-109D RHR Service Water Pump	RHRSW	2	C03-C33/8 Control	Alternative shutdown capability is independent of this fire zone.
9	LT-2-3-112A Reactor Water Level	RPV	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
9	LT-2-3-112B Reactor Water Level	RPV	2	2IL20-A Signal cable	Alternative shutdown capability is independent of this fire zone.
9	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2IL3-A Signal cable	Alternative shutdown capability is independent of this fire zone.
9	LT-2-3-85A Reactor Water Level	RPV	1	1Y7002-B Instrument Power	Not required for Alternate Shutdown
9	LT-2-3-85A Reactor Water Level	RPV	1	C03-C05/1#AB Signal cable	Not required for Alternate Shutdown
9	LT-2-3-85A Reactor Water Level	RPV	1	C03-LT2-3-85A/1 Signal cable	Not required for Alternate Shutdown
9	LT-2-3-85B Reactor Water Level	RPV	2	2Y8002-B Instrument Power	Not required for Alternate Shutdown
9	LT-2-3-85B Reactor Water Level	RPV	2	C03-C05/2#AB Signal cable	Not required for Alternate Shutdown
9	LT-2-3-85B Reactor Water Level	RPV	2	C03-C13/2 Associated cable	Associated circuit directly connected to Y80 circuit 2. Not required for Alternate Shutdown.
9	LT-2-3-85B Reactor Water Level	RPV	2	C03-LT2-3-85B/1 Signal cable	Not required for Alternate Shutdown
9	PT-6-53A Reactor Pressure	RPV	1	1Y7002-B Instrument Power	Alternative shutdown capability is independent of this fire zone.
9	PT-6-53A Reactor Pressure	RPV	1	C03-C05/1#BB Indication	Alternative shutdown capability is independent of this fire zone.
9	PT-6-53A Reactor Pressure	RPV	1	C03-PT6-53A/1 Field cable to transmitter	Alternative shutdown capability is independent of this fire zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area VIII Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
9	PT-6-53B Reactor Pressure	RPV	2	2Y8002-B Instrument power	Alternative shutdown capability is independent of this fire zone.
9	PT-6-53B Reactor Pressure	RPV	2	C03-C05/2#BB Indication	Alternative shutdown capability is independent of this fire zone.
9	PT-6-53B Reactor Pressure	RPV	2	C03-C13/2 Cable is directly connected to 2Y8002-B	Alternative shutdown capability is independent of this fire zone.
9	PT-6-53B Reactor Pressure	RPV	2	C03-PT6-53B/1 Field cable to transmitter	Alternative shutdown capability is independent of this fire zone.
9	PT-7251B Wide Range Drywell Pressure	PCT	2	2IP7251B-D Instrument cable	This component is not required for safe shutdown. This component is wired through the ASDS panel.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	Y20 Instrument AC Distribution Panel	120V	1/2	Y01-Y21/1 Power from Y01 to Y21	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
12A	Y20 Instrument AC Distribution Panel	120V	1/2	Y21-Y22/1 Power from Y22 to Y21	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
12A	D111 125V DC Distribution Panel	125V	1	D111 125VDC Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	D111 125V DC Distribution Panel	125V	1	D11-D111/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-308 Tie Breaker to Non-Vital Bus-13	4160V	1	152-308 480V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-308 Tie Breaker to Non-Vital Bus-13	4160V	1	A308-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-308 Tie Breaker to Non-Vital Bus-13	4160V	1	A308-D111/1 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	152-501 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A308-D111/1 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A408-A501/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A501-A601/1 Crosstie power feed to A601	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A501-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	152-502 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	152-502 DG-11 Output Breaker	4160V	1	A308-D111/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A502-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A502-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A502-C08/5 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A502-C91/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A502-C91/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A502-G30/2 Power from DG-11 to Bus 15	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A505-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-502 DG-11 Output Breaker	4160V	1	A511-C08/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-509 Feed to LC-103	4160V	1	152-509 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-509 Feed to LC-103	4160V	1	A308-D111/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-509 Feed to LC-103	4160V	1	A509-B301/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	152-509 Feed to LC-103	4160V	1	A509-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-509 Feed to LC-103	4160V	1	A509-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-509 Feed to LC-103	4160V	1	A509-X30/1 Power to Transformer X30/XFMR	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	152-511 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	A308-A610/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	A308-D111/1 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	A511-A610/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	A511-X04/3 Power from Transformer 1AR	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 1AR Transformer	4160V	1	A610-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	152-511 Feed from 2AR Transformer	4160V	1	1A511-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	A308-A601/1 Control	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
12A	152-610 Feed from 1AR Transformer	4160V	2	A511-A610/4 Control	Damage to this cable could result in the loss of power from 1AR to Bus 16. Equipment and cables for the emergency power from the 12 Diesel Generator are routed outside the fire area.
12A	152-610 Feed from 1AR Transformer	4160V	2	A610-X04/3 Power from 1AR to Bus 16	Damage to this cable could result in the loss of power from 1AR to Bus 16. Equipment and cables for the emergency power from the 12 Diesel Generator are routed outside the fire area.
12A	BUS-15 4kV Switchgear	4160V	1	BUS-15 4160V Bus	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	52-309 LC-103/LC-104 Crosstie	480V	1	1B309-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	52-309 LC-103/LC-104 Crosstie	480V	1	1B309-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	52-309 LC-103/LC-104 Crosstie	480V	1	52-309 480V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	52-309 LC-103/LC-104 Crosstie	480V	1	B309-B409/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	52-309 LC-103/LC-104 Crosstie	480V	1	B309-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	52-309 LC-103/LC-104 Crosstie	480V	1	B3-D111/1 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	52-409 LC-104/LC-103 Crosstie	480V	2	B309-B409/2 Control	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
12A	LC-103 Load Center 103 (52-301)	480V	1	A509-B301/2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	LC-103 Load Center 103 (52-301)	480V	1	B301-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	LC-103 Load Center 103 (52-301)	480V	1	B3-D111/1 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	LC-103 Load Center 103 (52-301)	480V	1	LC-103 480V Load Center	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	MCC-133A Motor Control Center 133	480V	1	B304-B33/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	MCC-133A Motor Control Center 133	480V	1	B304-B33/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	MCC-133A Motor Control Center 133	480V	1	B3-D111/1 LC-103 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	MCC-134 Motor Control Center 134	480V	1	B3-D111/1 LC-103 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	X30/XFMR Bus-15 to LC-103 Transformer	480V	1	X30/XFMR 4160/480V Transformer	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	FT-9081A V-EAC-14B Outlet Flow	CRV	1	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-D Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-S Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-T Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-U Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-V Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-208A Core Spray Pump	CS	1	A308-D111/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-208A Core Spray Pump	CS	1	A505-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-208A Core Spray Pump	CS	1	A505-M505/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-208A Core Spray Pump	CS	1	A505-M505/2 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-208B Core Spray Pump	CS	2	A605-M605/1 Motor power	This cable is routed in embedded conduit and will remain free of fire damage
12A	G-3A 11 Emergency Diesel Generator	DG	1	A308-A511/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/1 152-308 control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	A502-C91/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	A502-C91/4 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	A502-C91/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	G-3A 11 Emergency Diesel Generator	DG	1	A505-C08/1 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	A511-A510/1#BC Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	C08-C93/1 Annunciator	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	C91-D111/1 Field flash power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	C91-D111/2 125VDC control power for start circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3A 11 Emergency Diesel Generator	DG	1	C91-D211/1 125VDC control power for standby start circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	G-3B 12 Emergency Diesel Generator	DG	2	C92-D111/1 125VDC control power for standby start circuit	Damage to this circuit will not affect operation of the normal diesel start circuit. This cable is normally isolated.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	P-160A, P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/B5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A3 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A4 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-G Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1D11106-A EFT Div 1 Panel DC Power Supply	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown
12A	P-111A Emergency Service Water Pump	ESW	1	1B3435-D Control	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
12A	P-111B Emergency Service Water Pump	ESW	2	B4319-M4319/1 Motor power	This cable is routed in embedded conduit and will remain free of fire damage
12A	P-111D Emergency Service Water Pump	ESW	2	2B4472-A Motor power	This cable is routed in embedded conduit and will remain free of fire damage

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	A504-C32/1 Control	Failure of this cable will cause the valve to fail open, which does not adversely impact safe shutdown.
12A	P-202A RHR Pump	RHR	1	A308-D111/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-202A RHR Pump	RHR	1	A504-C03/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-202A RHR Pump	RHR	1	A504-M504/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-202B RHR Pump	RHR	2	A604-M604/1 Motor power	This cable is routed in embedded conduit and will remain free of fire damage
12A	CV-1728 11 RHR Heat Exchanger	RHRSW	1	A507-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	CV-1728 11 RHR Heat Exchanger	RHRSW	1	A508-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-109A RHR Service Water Pump	RHRSW	1	A308-D111/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-109A RHR Service Water Pump	RHRSW	1	A508-C03/1 Control	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
12A	P-109A RHR Service Water Pump	RHRSW	1	A508-M508/1 Motor power	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
12A	P-109A RHR Service Water Pump	RHRSW	1	A508-J302/1 Motor Heater, Cooling Water SV-4937A	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
12A	P-109B RHR Service Water Pump	RHRSW	2	A608-M608/1 Motor power	This cable is routed in embedded conduit and will remain free of fire damage.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12A	P-109B RHR Service Water Pump	RHR SW	2	A608-M608/2 Motor Heater, Cooling Water SV-4937B	This cable is routed in embedded conduit and will remain free of fire damage.
12A	P-109C RHR Service Water Pump	RHR SW	1	A308-D111/1 DC Control Power	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
12A	P-109C RHR Service Water Pump	RHR SW	1	A507-C03/1 Control and indication	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
12A	P-109C RHR Service Water Pump	RHR SW	1	A507-M507/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
12A	P-109C RHR Service Water Pump	RHR SW	1	A507-J302/1 Motor Heater, Cooling Water SV-4937C	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
12A	P-109D RHR Service Water Pump	RHR SW	2	A607-M607/1 Motor power	This cable is routed in embedded conduit and will remain free of fire damage
12A	P-109D RHR Service Water Pump	RHR SW	2	A607-M607/2 Motor Heater, Cooling Water SV-4937D	This cable is routed in embedded conduit and will remain free of fire damage
13B	D111 125V DC Distribution Panel	125V	1	D11-D111/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-308 Tie Breaker to Non-Vital Bus-13	4160V	1	A308-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A501-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-502 DG-11 Output Breaker	4160V	1	A502-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-502 DG-11 Output Breaker	4160V	1	A502-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13B	152-502 DG-11 Output Breaker	4160V	1	A502-C08/5 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-502 DG-11 Output Breaker	4160V	1	A505-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-502 DG-11 Output Breaker	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-502 DG-11 Output Breaker	4160V	1	A511-C08/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-509 Feed to LC-103	4160V	1	A509-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-509 Feed to LC-103	4160V	1	A509-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-511 Feed from 1AR Transformer	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-511 Feed from 1AR Transformer	4160V	1	A610-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	152-511 Feed from 2AR Transformer	4160V	1	1A511-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	52-309 LC-103/LC-104 Crosstie	480V	1	B309-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	LC-103 Load Center 103 (52-301)	480V	1	B301-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13B	MCC-133A Motor Control Center 133	480V	1	B304-B33/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	MCC-133A Motor Control Center 133	480V	1	B304-B33/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	MCC-134 Motor Control Center 134	480V	1	1B308-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	MCC-134 Motor Control Center 134	480V	1	1B308-B Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	MCC-134 Motor Control Center 134	480V	1	1B308-C Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	MCC-134 Motor Control Center 134	480V	1	1B308-D Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	MCC-134 Motor Control Center 134	480V	1	1B308-E Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	MCC-134 Motor Control Center 134	480V	1	1B308-F Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	MCC-134 Motor Control Center 134	480V	1	1B308-G Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-208A Core Spray Pump	CS	1	A505-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-208A Core Spray Pump	CS	1	A505-M505/2 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/1 152-308 control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13B	G-3A 11 Emergency Diesel Generator	DG	1	A505-C08/1 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	G-3A 11 Emergency Diesel Generator	DG	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C93/1 Annunciator	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-160A, P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/B5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13B	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-G Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-111A Emergency Service Water Pump	ESW	1	1B3435-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-111A Emergency Service Water Pump	ESW	1	1B3435-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-111C Emergency Service Water Pump	ESW	1	1B3472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	A504-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-202A RHR Pump	RHR	1	A504-C03/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	A507-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	A508-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	FT-10-97B Flow Transmitter	RHRSW	2	2IF23-A Signal Cable	This component is not required for safe shutdown from the Control Room. This component is available to support shutdown from the ASDS panel.
13B	P-109A RHR Service Water Pump	RHRSW	1	A508-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13B	P-109C RHR Service Water Pump	RHRSW	1	A507-C03/1 Control and indication	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	Y20 Instrument AC Distribution Panel	120V	1/2	B3304-Y01/1 Power from B33 to Y01	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
13C	Y20 Instrument AC Distribution Panel	120V	1/2	B4318-Y22/1 Power from B43 to Y22	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
13C	Y20 Instrument AC Distribution Panel	120V	1/2	Y01-Y21/1 Power from Y01 to Y21	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
13C	Y20 Instrument AC Distribution Panel	120V	1/2	Y21-Y22/1 Power from Y22 to Y21	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
13C	Y70 120V AC Distribution Panel	120V	1	1D3112-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	Y70 120V AC Distribution Panel	120V	1	NB3482-K Power from Transformer Y77 to Panel Y10	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	D10 #11 Battery Charger	125V	1	B3315-D10/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	D111 125V DC Distribution Panel	125V	1	D11-D111/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	D52 #13 250V DC Battery Charger	250V	1	1B3433-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	D53 #13 250V DC Battery Charger	250V	1	1B3434-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	D54 #13 250V DC Battery Charger	250V	NC	1B3431-A Power supply from MCC-134	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
13C	152-308 Tie Breaker to Non-Vital Bus-13	4160V	1	A308-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A501-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-502 DG-11 Output Breaker	4160V	1	A502-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-502 DG-11 Output Breaker	4160V	1	A502-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-502 DG-11 Output Breaker	4160V	1	A502-C08/5 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-502 DG-11 Output Breaker	4160V	1	A505-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-502 DG-11 Output Breaker	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-502 DG-11 Output Breaker	4160V	1	A511-C08/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-509 Feed to LC-103	4160V	1	A509-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-509 Feed to LC-103	4160V	1	A509-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-511 Feed from 1AR Transformer	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	152-511 Feed from 1AR Transformer	4160V	1	A610-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	152-511 Feed from 2AR Transformer	4160V	1	1A511-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	52-309 LC-103/LC-104 Crosstie	480V	1	B309-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	LC-103 Load Center 103 (52-301)	480V	1	B301-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-133A Motor Control Center 133	480V	1	B304-B33/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-133A Motor Control Center 133	480V	1	B304-B33/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-133A Motor Control Center 133	480V	1	MCC-133A Motor control center	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-134 Motor Control Center 134	480V	1	1B308-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-134 Motor Control Center 134	480V	1	1B308-B Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-134 Motor Control Center 134	480V	1	1B308-C Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-134 Motor Control Center 134	480V	1	1B308-D Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-134 Motor Control Center 134	480V	1	1B308-E Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-134 Motor Control Center 134	480V	1	1B308-F Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MCC-134 Motor Control Center 134	480V	1	1B308-G Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	P73A 480V Distribution Panel	480V	1	B3347-P73A/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	FT-9081A V-EAC-14B Outlet Flow	CRV	1	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	FT-9191A V-EF-40B Discharge Flow	CRV	1	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-E Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-F Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B4315-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-EF-40A Div I 250V Battery Room Exhaust Fan	CRV	1	1B3424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-ERF-14A Recirculation Fan	CRV	1	1B3414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-D Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-E Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-K Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-X Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-Z Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V203-N Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V210-F Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V216-R Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V219-D Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	FT-14-40A Core Spray Flow Transmitter	CS	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1741 11 CS Pump Torus Suction Valve	CS	1	B3326-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-MO1749/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-MO1751/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-MO1753/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	P-208A Core Spray Pump	CS	1	A505-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-208A Core Spray Pump	CS	1	A505-M505/2 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/1 152-308 control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	A505-C08/1 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C93/1 Annunciator	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	9-160A, P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/B5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-D Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-G Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V210-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
13C	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V211-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
13C	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-111A Emergency Service Water Pump	ESW	1	1B3435-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-111A Emergency Service Water Pump	ESW	1	1B3435-C Control and indication	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
13C	P-111A Emergency Service Water Pump	ESW	1	1B3435-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-111A Emergency Service Water Pump	ESW	1	1B3435-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-111C Emergency Service Water Pump	ESW	1	1B3472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-111C Emergency Service Water Pump	ESW	1	1B3472-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	B3305-C20/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	B3305-M3305/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-289A SPOTMOS Panel	PCT	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	C-289A SPOTMOS Panel	PCT	1	1Y7004-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	LT-7338A Suppression Pool Level	PCT	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	A504-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	DPT-10-91A RHR HX DP Control	RHR	1	1Y7002-A Loop power supply	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	B3321-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	B3322-MO1988/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
13C	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-MO2002/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-MO2006/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-MO2008/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-MO2010/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-MO2012/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-MO2014/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	B3339-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	B3309-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	B3309-MO2022/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
13C	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	B3333-C41/1 Control	Power to MO-2029 is maintained off during normal power operation.
13C	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	B3333-JX105D/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
13C	P-202A RHR Pump	RHR	1	A504-C03/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	A507-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	A508-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-109A RHR Service Water Pump	RHRSW	1	A508-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	P-109C RHR Service Water Pump	RHRSW	1	A507-C03/1 Control and indication	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
13C	LT-2-3-112A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	LT-2-3-85A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
13C	PT-6-53A Reactor Pressure	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
16	D111 125V DC Distribution Panel	125V	1	D11-D111/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-308 Tie Breaker to Non-Vital Bus-13	4160V	1	A308-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
16	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A408-A501/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A501-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-502 DG-11 Output Breaker	4160V	1	A502-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-502 DG-11 Output Breaker	4160V	1	A502-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-502 DG-11 Output Breaker	4160V	1	A502-C08/5 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-502 DG-11 Output Breaker	4160V	1	A505-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-502 DG-11 Output Breaker	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-502 DG-11 Output Breaker	4160V	1	A511-C08/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-509 Feed to LC-103	4160V	1	A509-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-509 Feed to LC-103	4160V	1	A509-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-511 Feed from 1AR Transformer	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
16	152-511 Feed from 1AR Transformer	4160V	1	A610-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
16	152-511 Feed from 2AR Transformer	4160V	1	1A511-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
16	52-309 LC-103/LC-104 Crosstie	480V	1	B309-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
16	LC-103 Load Center 103 (52-301)	480V	1	B301-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
16	MCC-133A Motor Control Center 133	480V	1	B304-B33/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	MCC-133A Motor Control Center 133	480V	1	B304-B33/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available
16	MCC-134 Motor Control Center 134	480V	1	1B308-A Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	MCC-134 Motor Control Center 134	480V	1	1B308-B Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	MCC-134 Motor Control Center 134	480V	1	1B308-C Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	MCC-134 Motor Control Center 134	480V	1	1B308-D Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	MCC-134 Motor Control Center 134	480V	1	1B308-E Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	MCC-134 Motor Control Center 134	480V	1	1B308-F Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	MCC-134 Motor Control Center 134	480V	1	1B308-G Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
16	FT-9081A V-EAC-14B Outlet Flow	CRV	1	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
16	FT-9191A V-EF-40B Discharge Flow	CRV	1	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
16	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-D Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-208A Core Spray Pump	CS	1	A505-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-208A Core Spray Pump	CS	1	A505-M505/2 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
16	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/1 152-308 control	The redundant equipment/cables are routed outside the fire area and will remain available
16	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	G-3A 11 Emergency Diesel Generator	DG	1	A505-C08/1 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available
16	G-3A 11 Emergency Diesel Generator	DG	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available
16	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
16	G-3A 11 Emergency Diesel Generator	DG	1	C08-C93/1 Annunciator	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-160A, P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/B5 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A3 Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A4 Power	The redundant equipment/cables are routed outside the fire area and will remain available
16	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
16	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-F Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-G Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
16	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available

01478399

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
16	P-111A Emergency Service Water Pump	ESW	1	1B3435-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-111A Emergency Service Water Pump	ESW	1	1B3435-D Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-111B Emergency Service Water Pump	ESW	2	2B4319-D Disch. Press. Annunciator	Not required for safe shutdown but associated circuit in ASDS panel
16	P-111C Emergency Service Water Pump	ESW	1	1B3472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
16	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	A504-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-202A RHR Pump	RHR	1	A504-C03/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	A507-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
16	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	A508-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-109A RHR Service Water Pump	RHRSW	1	A508-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
16	P-109C RHR Service Water Pump	RHRSW	1	A507-C03/1 Control and indication	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption
19C	Y20 Instrument AC Distribution Panel	120V	1/2	Y01-Y21/1 Power from Y01 to Y21	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
19C	Y20 Instrument AC Distribution Panel	120V	1/2	Y21-Y22/1 Power from Y22 to Y21	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19C	D10 #11 Battery Charger	125V	1	B3315-D10/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	D111 125V DC Distribution Panel	125V	1	D11-D111/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	152-308 Tie Breaker to Non-Vital Bus-13	4160V	1	A308-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A501-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-502 DG-11 Output Breaker	4160V	1	A502-C08/1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-502 DG-11 Output Breaker	4160V	1	A502-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-502 DG-11 Output Breaker	4160V	1	A502-C08/5 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-502 DG-11 Output Breaker	4160V	1	A505-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-502 DG-11 Output Breaker	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-502 DG-11 Output Breaker	4160V	1	A511-C08/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-509 Feed to LC-103	4160V	1	A509-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-511 Feed from 1AR Transformer	4160V	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19C	152-511 Feed from 1AR Transformer	4160V	1	A511-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-511 Feed from 1AR Transformer	4160V	1	A610-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	152-511 Feed from 2AR Transformer	4160V	1	1A511-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	52-309 LC-103/LC-104 Crosstie	480V	1	B309-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19C	LC-103 Load Center 103 (52-301)	480V	1	B301-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	P73A 480V Distribution Panel	480V	1	B3347-P73A/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-E Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-F Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B4315-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	V-EF-40A Div I 250V Battery Room Exhaust Fan	CRV	1	1B3424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	V-ERF-14A Recirculation Fan	CRV	1	1B3414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-E Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-K Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-X Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-Z Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V203-N Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V210-F Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V216-R Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19C	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V219-D Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-1741 11 CS Pump Torus Suction Valve	CS	1	B3326-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-1749 11 CS Pump Test Return to Torus.	CS	1	B3327-MO1749/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-1751 11 CS Pump Injection Valve Outboard	CS	1	B3325-MO1751/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19C	MO-1753 11 CS Pump Injection Valve Inboard	CS	1	B3324-MO1753/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	P-208A Core Spray Pump	CS	1	A505-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	P-208A Core Spray Pump	CS	1	A505-M505/2 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/1 152-308 control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	A308-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	A505-C08/1 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	A510-C08/4 Bus auto transfer	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	G-3A 11 Emergency Diesel Generator	DG	1	C08-C93/1 Annunciator	The redundant equipment/cables are routed outside the fire area and will remain available
19C	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V210-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19C	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V211-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
19C	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	P-111A Emergency Service Water Pump	ESW	1	1B3435-C Control and indication	The redundant equipment/cables are routed within this fire area only in Zone 23A, where separation is provided in accordance with the approved exemption.
19C	P-111A Emergency Service Water Pump	ESW	1	1B3435-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	P-111C Emergency Service Water Pump	ESW	1	1B3472-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	B3305-C20/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	V-AC-5 Division 1 ECCS Room Cooler	HVAC	1	B3305-M3305/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	CV-1994 RHR-P-202A Minimum Flow Valve	RHR	1	A504-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-1986 RHR Division 1 Suppression Pool Suction Valve	RHR	1	B3321-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-1988 RHR Division 1 Shutdown Cooling Suction Valve	RHR	1	B3322-MO1988/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
19C	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2002 RHR HX E-200A Bypass Valve	RHR	1	B3336-MO2002/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19C	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2006 RHR Division 1 Discharge to Torus	RHR	1	B3341-MO2006/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2008 RHR Division 1 Test Return to Torus Isolation	RHR	1	B3337-MO2008/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	MO-2010 RHR Division 1 Torus Spray Isolation	RHR	1	B3338-MO2010/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2012 RHR Division 1 LPCI Injection Isolation Outboard	RHR	1	B3335-MO2012/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2014 RHR Division 1 LPCI Injection Isolation Inboard	RHR	1	B3334-MO2014/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2020 RHR Division 1 Drywell Spray Isolation Outboard	RHR	1	B3339-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19C	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	B3309-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2022 RHR Division 1 Drywell Spray Isolation Inboard	RHR	1	B3309-MO2022/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19C	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	B3333-C41/1 Control	Power to MO-2029 is maintained off during normal power operation.
19C	MO-2029 RHR Shutdown Cooling Isolation Valve	RHR	1/2	B3333-JX105D/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
19C	P-202A RHR Pump	RHR	1	A504-C03/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	A507-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19C	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	A508-C32/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19C	P-109A RHR Service Water Pump	RHRSW	1	A508-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
23A	P-111A Emergency Service Water Pump	ESW	1	1B3435-A Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-111A Emergency Service Water Pump	ESW	1	P-111A Emergency Service Water Pump	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-111B Emergency Service Water Pump	ESW	2	2B4319-D Disch. Press. Annunciator	Not required for safe shutdown but associated circuit in ASDS Panel
23A	P-111B Emergency Service Water Pump	ESW	2	B4319-M4319/1 Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
23A	P-111B Emergency Service Water Pump	ESW	2	P-111B Emergency Service Water Pump	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-111C Emergency Service Water Pump	ESW	1	1B3472-A Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-111C Emergency Service Water Pump	ESW	1	P-111C Emergency Service Water Pump	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-111D Emergency Service Water Pump	ESW	2	2B4472-A Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-111D Emergency Service Water Pump	ESW	2	P-111D Emergency Service Water Pump	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109A RHR Service Water Pump	RHR SW	1	A508-M508/1 Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109A RHR Service Water Pump	RHR SW	1	A508-J302/1 Motor Heater, Cooling Water SV-4937A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109A RHR Service Water Pump	RHR SW	1	NA508-A Motor Heater, Cooling Water SV-4937A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109A RHR Service Water Pump	RHR SW	1	NA508-B Motor Heater, Cooling Water SV-4937A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109A RHR Service Water Pump	RHR SW	1	NA508-D Motor Heater, Cooling Water SV-4937A	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109A RHR Service Water Pump	RHR SW	1	P-109A RHR SW Pump	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109B RHR Service Water Pump	RHR SW	2	A608-M608/1 Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109B RHR Service Water Pump	RHR SW	2	A608-M608/2 Motor Heater, Cooling Water SV-4937B	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
23A	P-109B RHR Service Water Pump	RHRSW	2	P-109B RHRSW Pump	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109C RHR Service Water Pump	RHRSW	1	A507-M507/1 Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109C RHR Service Water Pump	RHRSW	1	A507-J302/1 Motor Heater, Cooling Water SV-4937C	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109C RHR Service Water Pump	RHRSW	1	NA507-A Motor Heater, Cooling Water SV-4937C	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109C RHR Service Water Pump	RHRSW	1	NA507-B Motor Heater, Cooling Water SV-4937C	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109C RHR Service Water Pump	RHRSW	1	NA507-D Motor Heater, Cooling Water SV-4937C	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109C RHR Service Water Pump	RHRSW	1	P-109C RHRSW Pump	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109D RHR Service Water Pump	RHRSW	2	A607-M607/1 Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109D RHR Service Water Pump	RHRSW	2	A607-M607/2 Motor Heater, Cooling Water SV-4937D	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	P-109D RHR Service Water Pump	RHRSW	2	P-109D RHRSW Pump	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	SV-4937B RHRSW Pump P-109B Motor Cooling Solenoid Valve	RHRSW	2	NA608-A Control	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	SV-4937B RHRSW Pump P-109B Motor Cooling Solenoid Valve	RHRSW	2	NA608-B Control	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area IX Division 1 & 2 – Red and Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
23A	SV-4937D RHRSW Pump P-109D Motor Cooling Solenoid Valve	RHRSW	2	NA607-A Control	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23A	SV-4937D RHRSW Pump P-109D Motor Cooling Solenoid Valve	RHRSW	2	NA607-B Control	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23B	P-111A Emergency Service Water Pump	ESW	1	1B3435-A Motor power	Adequate separation of redundant trains is provided in accordance with the approved exemption for this area
23B	P-111B Emergency Service Water Pump	ESW	2	2B4319-D Disch. Press. Annunciator	Not required for safe shutdown but associated circuit in ASDS panel

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
12C	TE-4073B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-A Field cable to Torus RTD TE-4073B	The redundant equipment/cables are routed outside the fire area and will remain available.
12C	TE-4074B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-B Field cable to Torus RTD TE-4074B	The redundant equipment/cables are routed outside the fire area and will remain available.
12C	TE-4075B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-C Field cable to Torus RTD TE-4075B	The redundant equipment/cables are routed outside the fire area and will remain available.
12C	TE-4076B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-D Field cable to Torus RTD TE-4076B	The redundant equipment/cables are routed outside the fire area and will remain available.
12C	TE-4077B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-E Field cable to Torus RTD TE-4077B	The redundant equipment/cables are routed outside the fire area and will remain available.
12C	TE-4078B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-F Field cable to Torus RTD TE-4078B	The redundant equipment/cables are routed outside the fire area and will remain available.
12C	TE-4079B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-G Field cable to Torus RTD TE-4079B	The redundant equipment/cables are routed outside the fire area and will remain available.
12C	TE-4080B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-H Field cable to Torus RTD TE-4080B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	Y80 120V AC Distribution Panel	120V	2	NB4482-K Power from Y87 to Y30 (Y30/Y87 not credited)	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	2A408-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A601-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-602 DG-12 Output Breaker	4160V	2	2A602-A1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-602 DG-12 Output Breaker	4160V	2	2A602-A2 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-602 DG-12 Output Breaker	4160V	2	2A602-B Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-602 DG-12 Output Breaker	4160V	2	2A602-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-602 DG-12 Output Breaker	4160V	2	2A602-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-602 DG-12 Output Breaker	4160V	2	2A602-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-602 DG-12 Output Breaker	4160V	2	2A602-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-602 DG-12 Output Breaker	4160V	2	2M2931-A1 ASDS Relay Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-609 Feed to LC-104	4160V	2	2A609-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-609 Feed to LC-104	4160V	2	2A609-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-609 Feed to LC-104	4160V	2	2A609-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-609 Feed to LC-104	4160V	2	2A609-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	152-610 Feed from 1AR Transformer	4160V	2	2A610-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-610 Feed from 1AR Transformer	4160V	2	2A610-D Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-610 Feed from 1AR Transformer	4160V	2	2A610-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	152-610 Feed from 1AR Transformer	4160V	2	2A610-G Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	LC-104 Load Center 104 (52-401)	480V	2	2B401-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	LC-104 Load Center 104 (52-401)	480V	2	2B401-C ASDS control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	Bus 16 ASDS Panel Alarm	ASDS	2	2A6-B Indication	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
30	C-292 ASDS Benchboard	ASDS	2	2M2921-A ASDS AC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
30	C-293 ASDS Relay Panel	ASDS	2	2M2931-A1 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
30	C-293 ASDS Relay Panel	ASDS	2	2M2931-A2 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
30	VD-9093B CRV Supply Cross Connect Damper	CRV	2	2V242-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-F Blower Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-E Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-F Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	2B4424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	V-ERF-14B Recirculation Fan	CRV	2	2B4414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-E Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
30	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-K Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
30	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-X Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
30	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-Z Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
30	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V233-M Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
30	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V246-T Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
30	FT-14-40B Core Spray Flow Transmitter	CS	2	2IP21-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-A1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-A2 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-208B Core Spray Pump	CS	2	2A605-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	P-208B Core Spray Pump	CS	2	2A605-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	G-3B 12 Emergency Diesel Generator	DG	2	2D21111-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B1 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B2 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	G-3B 12 Emergency Diesel Generator	DG	2	2G40-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-A Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
30	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-B Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
30	G-3B 12 Emergency Diesel Generator	DG	2	2M2921-A ASDS EDG status	The redundant equipment/cables are routed outside the fire area and will remain available
30	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V236-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
30	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V239-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
30	P-111B Emergency Service Water Pump	ESW	2	2B4319-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	P-111B Emergency Service Water Pump	ESW	2	2B4319-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-111B Emergency Service Water Pump	ESW	2	2B4319-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-111B Emergency Service Water Pump	ESW	2	2B4319-D Disch. Press. Annunciator	Not required for safe shutdown but associated circuit in ASDS Panel
30	P-111B Emergency Service Water Pump	ESW	2	2M2921-A Hot Engine Signal Cable	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-111D Emergency Service Water Pump	ESW	2	2B4472-G Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-111D Emergency Service Water Pump	ESW	2	2M2921-A Associated cable when in ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-C Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86A Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86A Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86A Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86A Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	AO-2-86B Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86B Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86B Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86B Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86C Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86C Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86C Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86C Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86D Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86D Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86D Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	AO-2-86D Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71J RV-2-71E Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
30	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71K RV-2-71G Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
30	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71L RV-2-71H Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
30	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
30	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	SV-2-71M RV-2-71F Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
30	C-289B SPOTMOS Panel	PCT	2	2IT200-L Signal cable from C-289B to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
30	C-289B SPOTMOS Panel	PCT	2	2Y8002-A SPOTMOS Indication power at C-03	The redundant equipment/cables are routed outside the fire area and will remain available.
30	C-289B SPOTMOS Panel	PCT	2	2Y8004-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	LT-7338B Suppression Pool Level	PCT	2	2IP7251B-A Signal cable from C-292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
30	LT-7338B Suppression Pool Level	PCT	2	2Y8002-A Power to Recorder PLR-7251B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	TE-4073B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-A Field cable to Torus RTD TE-4073B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	TE-4074B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-B Field cable to Torus RTD TE-4074B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	TE-4075B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-C Field cable to Torus RTD TE-4075B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	TE-4076B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-D Field cable to Torus RTD TE-4076B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	TE-4077B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-E Field cable to Torus RTD TE-4077B	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	TE-4078B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-F Field cable to Torus RTD TE-4078B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	TE-4079B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-G Field cable to Torus RTD TE-4079B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	TE-4080B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-H Field cable to Torus RTD TE-4080B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-A Signal cable from C292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
30	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-B Signal cable from C292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
30	DPT-10-91B RHR HX DP Control	RHR	2	2Y8002-A Power supply to pressure indicator	The redundant equipment/cables are routed outside the fire area and will remain available.
30	FT-10-111B RHR Division 2 Flow Downstream of Heat Exchanger	RHR	2	2IF23-C Signal cable from C-292 to C-03	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-B2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-E Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-202B RHR Pump	RHR	2	2A604-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-202B RHR Pump	RHR	2	2A604-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-202B RHR Pump	RHR	2	2IF23-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2IP27-A Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2IP27-B Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
30	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2Q426-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2Q426-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
30	FT-10-97B Flow Transmitter	RHRSW	2	2IF23-A Signal Cable	This component is not required for safe shutdown from the Control Room. This component is available to support shutdown from the ASDS panel.
30	P-109B RHR Service Water Pump	RHRSW	2	2A608-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-109B RHR Service Water Pump	RHRSW	2	2A608-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
30	P-109D RHR Service Water Pump	RHRSW	2	2A607-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area X Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
30	LT-2-3-112B Reactor Water Level	RPV	2	2IL20-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
30	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2IL3-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
30	LT-2-3-85B Reactor Water Level	RPV	2	2Y8002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	PT-6-53B Reactor Pressure	RPV	2	2Y8002-A Instrument power	The redundant equipment/cables are routed outside the fire area and will remain available.
30	PT-7251B Wide Range Drywell Pressure	PCT	2	2Y8014-A 120V AC Power	This component is not required for safe shutdown. This component is wired through the ASDS panel.
30	PT-7251B Wide Range Drywell Pressure	PCT	2	2IP7251B-D Instrument Cable	This component is not required for safe shutdown. This component is wired through the ASDS panel.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15E	P-160A, P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/B5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15E	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A3 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15E	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A4 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15E	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	P-160A 11 EDG Fuel Oil Transfer Pump	The redundant equipment/cables are routed outside the fire area and will remain available.
15E	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A4 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15E	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	P-160C 11 EDG Fuel Oil Transfer Pump	The redundant equipment/cables are routed outside the fire area and will remain available.

01478399

01478399

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	D211 125V DC Distribution Panel	125V	2	2D2-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	D211 125V DC Distribution Panel	125V	2	D211 125VDC Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	152-408 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	2A408-A ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	2A408-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	A408-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	A408-D211/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A408-A501/1 Control	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
14A	152-501 Tie Breaker to Bus-16 via 152-601	4160V	1	A501-A601/1 Crosstie power feed to A601	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
14A	152-511 Feed from 1AR Transformer	4160V	1	A308-A610/2 Control	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
14A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	152-601 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A408-B ASDS DC control power	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A601-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A601-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	A308-A601/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	A408-D211/1 DC control power	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
14A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	A601-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	152-602 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2A408-A ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2A602-B Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2A602-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2A602-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2A602-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2A602-E1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	152-602 DG-12 Output Breaker	4160V	2	2A602-E2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2A602-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	2M2931-A1 ASDS Relay Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	A408-D211/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	A602-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	A602-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	A602-C92/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	A602-C92/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	A602-G40/2 Power from EDG to 152-602	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	A605-C08/1 Bus transfer control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-602 DG-12 Output Breaker	4160V	2	A610-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	152-609 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	152-609 Feed to LC-104	4160V	2	2A609-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	2A609-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	2A609-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	2A609-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	A408-D211/1 DC Control Power (normal and ASDS modes)	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	A609-B401/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	A609-X40/1 Power to Transformer X40/XFMR	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-609 Feed to LC-104	4160V	2	2A609-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	152-610 4160V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	2A610-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	2A610-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	2A610-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	152-610 Feed from 1AR Transformer	4160V	2	2A610-D Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	2A610-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	A408-D211/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	A601-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/3 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	A610-X04/3 Power from 1AR to Bus 16	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	152-610 Feed from 1AR Transformer	4160V	2	2A610-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	BUS-16 4kV Switchgear	4160V	2	BUS-16 4160V Bus	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	52-409 LC-104/LC-103 Crosstie	480V	2	2B401-A DC control power	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
14A	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-A Control and indication	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers
14A	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-B Control and indication	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
14A	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	52-409 LC-104/LC-103 Crosstie	480V	2	52-409 480V Breaker	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	52-409 LC-104/LC-103 Crosstie	480V	2	B409-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	52-409 LC-104/LC-103 Crosstie	480V	2	B4-D211/1 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	LC-104 Load Center 104 (52-401)	480V	2	2B401-A DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	LC-104 Load Center 104 (52-401)	480V	2	2B401-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	LC-104 Load Center 104 (52-401)	480V	2	2B401-C ASDS control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	LC-104 Load Center 104 (52-401)	480V	2	2B401-D1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	LC-104 Load Center 104 (52-401)	480V	2	2B401-D2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	LC-104 Load Center 104 (52-401)	480V	2	A609-B401/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	LC-104 Load Center 104 (52-401)	480V	2	B4-D211/1 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	LC-104 Load Center 104 (52-401)	480V	2	LC-104 480V Load Center	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142A Motor Control Center 142A	480V	2	B403-B42/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	MCC-142A Motor Control Center 142A	480V	2	B403-B42/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142A Motor Control Center 142A	480V	2	B4-D211/1 LC-104 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142B Motor Control Center 142B	480V	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142B Motor Control Center 142B	480V	2	2A602-E2 DC load transfer mode control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142B Motor Control Center 142B	480V	2	2B401-A DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142B Motor Control Center 142B	480V	2	2B4231-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142B Motor Control Center 142B	480V	2	A408-D211/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142B Motor Control Center 142B	480V	2	A602-B4231/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-142B Motor Control Center 142B	480V	2	B4-D211/1 ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-143A Motor Control Center 143A	480V	2	B404-B43/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-143A Motor Control Center 143A	480V	2	B404-B43/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-143A Motor Control Center 143A	480V	2	B4-D211/1 LC-104 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-144 Motor Control Center 144	480V	2	2B408-A-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	MCC-144 Motor Control Center 144	480V	2	2B408-B-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-144 Motor Control Center 144	480V	2	2B408-C-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-144 Motor Control Center 144	480V	2	2B408-D-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-144 Motor Control Center 144	480V	2	2B408-E-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-144 Motor Control Center 144	480V	2	2B408-F-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-144 Motor Control Center 144	480V	2	2B408-G-135 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	MCC-144 Motor Control Center 144	480V	2	B4-D211/1 LC-104 DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	X40/XFMR Bus-16 TO LC-104 Transformer	480V	2	X40/XFMR 4160/480V Transformer	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	Bus 16 ASDS Panel Alarm	ASDS	2	2A6-B Indication	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
14A	C-292 ASDS Benchboard	ASDS	2	2M2921-A ASDS AC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
14A	C-293 ASDS Relay Panel	ASDS	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	C-293 ASDS Relay Panel	ASDS	2	2B401-A ASDS control	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
14A	C-293 ASDS Relay Panel	ASDS	2	2M2931-A1 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	C-293 ASDS Relay Panel	ASDS	2	2M2931-A2 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
14A	C-293 ASDS Relay Panel	ASDS	2	A408-D211/1 DC Control Power	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
14A	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-D Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-S Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-T Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-U Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-V Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-208B Core Spray Pump	CS	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-208B Core Spray Pump	CS	2	2A605-A1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-208B Core Spray Pump	CS	2	2A605-A2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-208B Core Spray Pump	CS	2	2A605-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-208B Core Spray Pump	CS	2	2A605-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-208B Core Spray Pump	CS	2	A408-D211/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	P-208B Core Spray Pump	CS	2	A605-M605/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3A 11 Emergency Diesel Generator	DG	1	C91-D211/1 125VDC control power for standby start circuit	Damage to this circuit will not affect operation of the normal diesel start circuit. This cable is normally isolated.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-A ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2D21111-A ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2D21111-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	A610-A601/1#BC Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2G40-A1 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2G40-A2 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B1 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B2 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	G-3B 12 Emergency Diesel Generator	DG	2	2G40-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-B Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
14A	G-3B 12 Emergency Diesel Generator	DG	2	2M2921-A ASDS EDG status	The redundant equipment/cables are routed outside the fire area and will remain available
14A	G-3B 12 Emergency Diesel Generator	DG	2	A408-C08/3 152-408 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	A602-C92/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	A602-C92/4 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	A602-C92/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	C08-C94/1 Annunciator cable - not required	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	C92-D111/1 125VDC control power for standby start circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	C92-D211/1 125VDC control power for start circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	G-3B 12 Emergency Diesel Generator	DG	2	C92-D211/2 Field flash power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-C92/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-M4317/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-N4317/2& Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-111B Emergency Service Water Pump	ESW	2	2B4319-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-111B Emergency Service Water Pump	ESW	2	2M2921-A Hot Engine Signal Cable	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-111B Emergency Service Water Pump	ESW	2	B4319-M4319/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-111D Emergency Service Water Pump	ESW	2	2B4472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-111D Emergency Service Water Pump	ESW	2	2M2921-A Associated cable when in ASDS control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	A604-C33/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	A603-C33/2 Control from Breaker A603 Aux Contact	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-202B RHR Pump	RHR	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-202B RHR Pump	RHR	2	2A604-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-202B RHR Pump	RHR	2	2A604-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-202B RHR Pump	RHR	2	2A604-E1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-202B RHR Pump	RHR	2	2A604-E2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-202B RHR Pump	RHR	2	A408-D211/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-202B RHR Pump	RHR	2	A604-M604/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2Q426-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2Q426-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109B RHR Service Water Pump	RHRSW	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109B RHR Service Water Pump	RHRSW	2	2A608-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109B RHR Service Water Pump	RHRSW	2	2A608-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
14A	P-109B RHR Service Water Pump	RHRSW	2	2A608-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109B RHR Service Water Pump	RHRSW	2	2A608-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109B RHR Service Water Pump	RHRSW	2	2A608-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109B RHR Service Water Pump	RHRSW	2	A408-D211/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109B RHR Service Water Pump	RHRSW	2	A608-M608/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109B RHR Service Water Pump	RHRSW	2	A608-M608/2 Motor Heater, Cooling Water SV-4937B	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109D RHR Service Water Pump	RHRSW	2	2A408-B ASDS DC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109D RHR Service Water Pump	RHRSW	2	2A607-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109D RHR Service Water Pump	RHRSW	2	2A607-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109D RHR Service Water Pump	RHRSW	2	A408-D211/1 DC Control Power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109D RHR Service Water Pump	RHRSW	2	A607-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109D RHR Service Water Pump	RHRSW	2	A607-M607/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
14A	P-109D RHR Service Water Pump	RHRSW	2	A607-M607/2 Motor Heater, Cooling Water SV-4937D	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
17	D211 125V DC Distribution Panel	125V	2	2D2-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	2A408-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	A408-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A601-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	A601-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	2A602-B Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	2A602-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	2A602-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	2A602-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	2A602-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	2M2931-A1 ASDS Relay Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	A602-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	A602-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
17	152-602 DG-12 Output Breaker	4160V	2	A605-C08/1 Bus transfer control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-602 DG-12 Output Breaker	4160V	2	A610-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-609 Feed to LC-104	4160V	2	2A609-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-609 Feed to LC-104	4160V	2	2A609-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-609 Feed to LC-104	4160V	2	2A609-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-610 Feed from 1AR Transformer	4160V	2	2A610-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-610 Feed from 1AR Transformer	4160V	2	2A610-D Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-610 Feed from 1AR Transformer	4160V	2	A601-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/3 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	152-610 Feed from 1AR Transformer	4160V	2	2A610-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	52-409 LC-104/LC-103 Crosstie	480V	2	B409-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
17	LC-104 Load Center 104 (52-401)	480V	2	2B401-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	LC-104 Load Center 104 (52-401)	480V	2	2B401-C ASDS control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	MCC-142A Motor Control Center 142A	480V	2	B403-B42/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-142A Motor Control Center 142A	480V	2	B403-B42/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-142B Motor Control Center 142B	480V	2	A602-B4231/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-143A Motor Control Center 143A	480V	2	B404-B43/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-143A Motor Control Center 143A	480V	2	B404-B43/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
17	MCC-144 Motor Control Center 144	480V	2	2B408-A-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-144 Motor Control Center 144	480V	2	2B408-B-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-144 Motor Control Center 144	480V	2	2B408-C-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-144 Motor Control Center 144	480V	2	2B408-D-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-144 Motor Control Center 144	480V	2	2B408-E-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
17	MCC-144 Motor Control Center 144	480V	2	2B408-F-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
17	MCC-144 Motor Control Center 144	480V	2	2B408-G-135 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
17	Bus 16 ASDS Panel Alarm	ASDS	2	2A6-B Indication	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
17	C-292 ASDS Benchboard	ASDS	2	2M2921-A ASDS AC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
17	C-293 ASDS Relay Panel	ASDS	2	2M2931-A1 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
17	C-293 ASDS Relay Panel	ASDS	2	2M2931-A2 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
17	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-D Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-208B Core Spray Pump	CS	2	2A605-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-208B Core Spray Pump	CS	2	2A605-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	G-3B 12 Emergency Diesel Generator	DG	2	2D21111-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B1 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B2 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
17	G-3B 12 Emergency Diesel Generator	DG	2	2G40-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-B Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
17	G-3B 12 Emergency Diesel Generator	DG	2	2M2921-A ASDS EDG status	The redundant equipment/cables are routed outside the fire area and will remain available
17	G-3B 12 Emergency Diesel Generator	DG	2	A408-C08/3 152-408 Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	G-3B 12 Emergency Diesel Generator	DG	2	C08-C94/1 Annunciator cable - not required	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
17	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
17	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-C92/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-M4317/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
17	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-N4317/2& Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-111B Emergency Service Water Pump	ESW	2	2B4319-C Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
17	P-111B Emergency Service Water Pump	ESW	2	2B4319-D Disch. Press. Annunciator	Not required for safe shutdown but associated circuit in ASDS Panel
17	P-111B Emergency Service Water Pump	ESW	2	2M2921-A Hot Engine Signal Cable	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-111B Emergency Service Water Pump	ESW	2	B4319-M4319/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-111D Emergency Service Water Pump	ESW	2	2B4472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-111D Emergency Service Water Pump	ESW	2	2M2921-A Associated cable when in ASDS control	The redundant equipment/cables are routed outside the fire area and will remain available.
17	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	A604-C33/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	A603-C33/2 Control from Breaker A603 Aux Contact	The redundant equipment/cables are routed outside the fire area and will remain available.
17	P-202B RHR Pump	RHR	2	2A604-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-202B RHR Pump	RHR	2	2A604-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	CV-1729 12 RHR Heat Exchanger RHRSW Outlet	RHRSW	2	2Q426-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-109B RHR Service Water Pump	RHRSW	2	2A608-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
17	P-109B RHR Service Water Pump	RHRSW	2	2A608-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
17	P-109B RHR Service Water Pump	RHRSW	2	2A608-D Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-109D RHR Service Water Pump	RHRSW	2	2A607-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
17	P-109D RHR Service Water Pump	RHRSW	2	A607-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	D211 125V DC Distribution Panel	125V	2	2D2-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	2A408-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	A408-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A601-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	A601-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	2A602-B Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	2A602-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	2A602-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19A	152-602 DG-12 Output Breaker	4160V	2	2A602-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	2A602-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	2M2931-A1 ASDS Relay Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	A602-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	A602-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	A605-C08/1 Bus transfer control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-602 DG-12 Output Breaker	4160V	2	A610-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-609 Feed to LC-104	4160V	2	2A609-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-609 Feed to LC-104	4160V	2	2A609-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-609 Feed to LC-104	4160V	2	2A609-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-610 Feed from 1AR Transformer	4160V	2	2A610-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-610 Feed from 1AR Transformer	4160V	2	2A610-D Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-610 Feed from 1AR Transformer	4160V	2	A601-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19A	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/3 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	152-610 Feed from 1AR Transformer	4160V	2	2A610-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	52-409 LC-104/LC-103 Crosstie	480V	2	B409-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	LC-104 Load Center 104 (52-401)	480V	2	2B401-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	LC-104 Load Center 104 (52-401)	480V	2	2B401-C ASDS control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	MCC-142A Motor Control Center 142A	480V	2	B403-B42/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-142A Motor Control Center 142A	480V	2	B403-B42/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-142B Motor Control Center 142B	480V	2	A602-B4231/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-143A Motor Control Center 143A	480V	2	B404-B43/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-143A Motor Control Center 143A	480V	2	B404-B43/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	MCC-144 Motor Control Center 144	480V	2	2B408-A-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19A	MCC-144 Motor Control Center 144	480V	2	2B408-B-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-144 Motor Control Center 144	480V	2	2B408-C-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-144 Motor Control Center 144	480V	2	2B408-D-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-144 Motor Control Center 144	480V	2	2B408-E-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-144 Motor Control Center 144	480V	2	2B408-F-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	MCC-144 Motor Control Center 144	480V	2	2B408-G-135 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	Bus 16 ASDS Panel Alarm	ASDS	2	2A6-B Indication	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
19A	C-292 ASDS Benchboard	ASDS	2	2M2921-A ASDS AC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
19A	C-293 ASDS Relay Panel	ASDS	2	2M2931-A1 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
19A	C-293 ASDS Relay Panel	ASDS	2	2M2931-A2 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
19A	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-D Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-208B Core Spray Pump	CS	2	2A605-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-208B Core Spray Pump	CS	2	2A605-C Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19A	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	G-3B 12 Emergency Diesel Generator	DG	2	2D21111-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B1 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B2 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	G-3B 12 Emergency Diesel Generator	DG	2	2G40-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-B Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
19A	G-3B 12 Emergency Diesel Generator	DG	2	2M2921-A ASDS EDG status	The redundant equipment/cables are routed outside the fire area and will remain available
19A	G-3B 12 Emergency Diesel Generator	DG	2	A408-C08/3 152-408 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	G-3B 12 Emergency Diesel Generator	DG	2	C08-C94/1 Annunciator cable - not required	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A Power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19A	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-C92/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-M4317/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-N4317/2& Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-111B Emergency Service Water Pump	ESW	2	2B4319-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-111B Emergency Service Water Pump	ESW	2	2B4319-D Disch. Press. Annunciator	Not required for safe shutdown but associated circuit in ASDS Panel
19A	P-111B Emergency Service Water Pump	ESW	2	2M2921-A Hot Engine Signal Cable	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-111B Emergency Service Water Pump	ESW	2	B4319-M4319/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-111D Emergency Service Water Pump	ESW	2	2B4472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-111D Emergency Service Water Pump	ESW	2	2M2921-A Associated cable when in ASDS control	The redundant equipment/cables are routed outside the fire area and will remain available.
19A	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	A604-C33/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	A603-C33/2 Control from Breaker A603 Aux Contact	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19A	P-202B RHR Pump	RHR	2	2A604-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	P-202B RHR Pump	RHR	2	2A604-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19A	CV-1729 12 RHR Heat Exchanger	RHRSW RHRSW Outlet	2	2Q426-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	FT-10-97B Flow Transmitter	RHRSW	2	2IF23-A Signal Cable	This component is not required for safe shutdown from the Control Room. This component is available to support shutdown from the ASDS panel.
19B	P-109B RHR Service Water Pump	RHRSW	2	2A608-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	P-109B RHR Service Water Pump	RHRSW	2	2A608-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	P-109B RHR Service Water Pump	RHRSW	2	2A608-D Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-109D RHR Service Water Pump	RHRSW	2	2A607-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-109D RHR Service Water Pump	RHRSW	2	A607-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	Y20 Instrument AC Distribution Panel	120V	1/2	B4318-Y22/1 Power from B43 to Y22	Loss of this component will cause the RHR minimum flow valves to fail open, as required for pump protection.
19B	Y80 120V AC Distribution Panel	120V	2	NB4482-K Power from Y87 to Y30 (Y30/Y87 not credited)	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	D20 #12 125V DC Battery Charger	125V	2	B4315-D20/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	D211 125V DC Distribution Panel	125V	2	2D2-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	2A408-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	A408-C08/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	2A601-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-601 Tie Breaker to Bus-15 via ACB 152-501	4160V	2	A601-C08/2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	2A602-A1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	2A602-A2 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	2A602-B Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	2A602-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	2A602-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	2A602-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	2A602-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	2M2931-A1 ASDS Relay Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	152-602 DG-12 Output Breaker	4160V	2	A602-C08/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	A602-C08/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	A605-C08/1 Bus transfer control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-602 DG-12 Output Breaker	4160V	2	A610-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-609 Feed to LC-104	4160V	2	2A609-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-609 Feed to LC-104	4160V	2	2A609-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-609 Feed to LC-104	4160V	2	2A609-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-609 Feed to LC-104	4160V	2	2A609-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-610 Feed from 1AR Transformer	4160V	2	2A610-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-610 Feed from 1AR Transformer	4160V	2	2A610-D Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-610 Feed from 1AR Transformer	4160V	2	A601-C08/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/3 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-610 Feed from 1AR Transformer	4160V	2	A610-C08/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	152-610 Feed from 1AR Transformer	4160V	2	2A610-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	152-610 Feed from 1AR Transformer	4160V	2	2A610-G Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	52-409 LC-104/LC-103 Crosstie	480V	2	2B409-A Control and indication	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
19B	52-409 LC-104/LC-103 Crosstie	480V	2	B409-C08/1 Control and indication	Reference 63 tracks evaluation of the potential for spurious closure of the bus inter-tie breakers.
19B	LC-104 Load Center 104 (52-401)	480V	2	2B401-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	LC-104 Load Center 104 (52-401)	480V	2	2B401-C ASDS control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	MCC-142A Motor Control Center 142A	480V	2	B403-B42/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-142A Motor Control Center 142A	480V	2	B403-B42/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-142A Motor Control Center 142A	480V	2	MCC-142A Motor control center	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-142B Motor Control Center 142B	480V	2	A602-B4231/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-142B Motor Control Center 142B	480V	2	MCC-142B Motor control center	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-143A Motor Control Center 143A	480V	2	B404-B43/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-143A Motor Control Center 143A	480V	2	B404-B43/2 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	MCC-143A Motor Control Center 143A	480V	2	MCC-143A Motor control center	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-144 Motor Control Center 144	480V	2	2B408-A-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-144 Motor Control Center 144	480V	2	2B408-B-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-144 Motor Control Center 144	480V	2	2B408-C-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-144 Motor Control Center 144	480V	2	2B408-D-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-144 Motor Control Center 144	480V	2	2B408-E-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-144 Motor Control Center 144	480V	2	2B408-F-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MCC-144 Motor Control Center 144	480V	2	2B408-G-135 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	Bus 16 ASDS Panel Alarm	ASDS	2	2A6-B Indication	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
19B	C-292 ASDS Benchboard	ASDS	2	2M2921-A ASDS AC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
19B	C-293 ASDS Relay Panel	ASDS	2	2M2931-A1 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
19B	C-293 ASDS Relay Panel	ASDS	2	2M2931-A2 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
19B	VD-9093B CRV Supply Cross Connect Damper	CRV	2	2V242-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-E Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-F Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	2B4424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	V-ERF-14B Recirculation Fan	CRV	2	2B4414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-D Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-E Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-K Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-X Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-Z Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V233-M Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V246-T Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available
19B	FT-14-40B Core Spray Flow Transmitter	CS	2	2IP21-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-A1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-A2 Indication	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-208B Core Spray Pump	CS	2	2A605-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-208B Core Spray Pump	CS	2	2A605-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	G-3B 12 Emergency Diesel Generator	DG	2	2D21111-B ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B1 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	G-3B 12 Emergency Diesel Generator	DG	2	2G40-B2 ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	G-3B 12 Emergency Diesel Generator	DG	2	2G40-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-A Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
19B	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-B Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
19B	G-3B 12 Emergency Diesel Generator	DG	2	2M2921-A ASDS EDG status	The redundant equipment/cables are routed outside the fire area and will remain available
19B	G-3B 12 Emergency Diesel Generator	DG	2	A408-C08/3 152-408 Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	G-3B 12 Emergency Diesel Generator	DG	2	C08-C94/1 Annunciator cable - not required	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-C92/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-M4317/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-N4317/2& Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V236-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
19B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V239-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
19B	P-111B Emergency Service Water Pump	ESW	2	2B4319-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-111B Emergency Service Water Pump	ESW	2	2B4319-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-111B Emergency Service Water Pump	ESW	2	2B4319-C Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	P-111B Emergency Service Water Pump	ESW	2	2B4319-D Disch. Press. Annunciator	Not required for safe shutdown but associated circuit in ASDS Panel
19B	P-111B Emergency Service Water Pump	ESW	2	2M2921-A Hot Engine Signal Cable	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-111B Emergency Service Water Pump	ESW	2	B4319-M4319/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-111D Emergency Service Water Pump	ESW	2	2B4472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-111D Emergency Service Water Pump	ESW	2	2B4472-G Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-111D Emergency Service Water Pump	ESW	2	2M2921-A Associated cable when in ASDS control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-C Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86A Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86A Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86A Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86A Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	AO-2-86B Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86B Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86B Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86B Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86C Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86C Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86C Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86C Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86D Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86D Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86D Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	AO-2-86D Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71J RV-2-71E Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
19B	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71K RV-2-71G Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
19B	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71L RV-2-71H Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
19B	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
19B	SV-2-71M RV-2-71F Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	C-289B SPOTMOS Panel	PCT	2	2IT200-L Signal cable from C-289B to C03	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-289B SPOTMOS Panel	PCT	2	2Y8002-A SPOTMOS Indication power at C-03	The redundant equipment/cables are routed outside the fire area and will remain available
19B	C-289B SPOTMOS Panel	PCT	2	2Y8004-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	LT-7338B Suppression Pool Level	PCT	2	2IP7251B-A Signal cable from C-292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available
19B	LT-7338B Suppression Pool Level	PCT	2	2Y8002-A Power to Recorder PLR-7251B	The redundant equipment/cables are routed outside the fire area and will remain available
19B	TE-4073B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-A Field cable to Torus RTD TE-4073B	The redundant equipment/cables are routed outside the fire area and will remain available
19B	TE-4074B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-B Field cable to Torus RTD TE-4074B	The redundant equipment/cables are routed outside the fire area and will remain available
19B	TE-4075B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-C Field cable to Torus RTD TE-4075B	The redundant equipment/cables are routed outside the fire area and will remain available
19B	TE-4076B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-D Field cable to Torus RTD TE-4076B	The redundant equipment/cables are routed outside the fire area and will remain available
19B	TE-4077B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-E Field cable to Torus RTD TE-4077B	The redundant equipment/cables are routed outside the fire area and will remain available
19B	TE-4078B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-F Field cable to Torus RTD TE-4078B	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	TE-4079B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-G Field cable to Torus RTD TE-4079B	The redundant equipment/cables are routed outside the fire area and will remain available
19B	TE-4080B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-H Field cable to Torus RTD TE-4080B	The redundant equipment/cables are routed outside the fire area and will remain available
19B	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	A604-C33/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	CV-1997 RHR-P-202D Minimum Flow Valve	RHR	2	A603-C33/2 Control from Breaker A603 Aux Contact	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-A Signal cable from C292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-B Signal cable from C292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	DPT-10-91B RHR HX DP Control	RHR	2	2Y8002-A Power supply to pressure indicator	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	FT-10-111B RHR Division 2 Flow Downstream of Heat Exchanger	RHR	2	2IF23-C Signal cable from C-292 to C-03	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-A Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	C03-MO1989/2 Control interlock to MO-1989	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	B4321-C03/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
19B	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	B4321-MO1989/1 Motor power	Power to MO-2029 is maintained off during normal power operation.
19B	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1987/1 Control interlock	Power to MO-2029 is maintained off during normal power operation.
19B	MO-1989 RHR Division 2 Shutdown Cooling Suction Valve	RHR	2	C03-MO1989/1 Control and indication	Power to MO-2029 is maintained off during normal power operation.
19B	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A3 Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-B2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-E Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	B4338-C03/1 Control and indication	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability.
19B	MO-2011 RHR Division 2 Torus Spray Isolation	RHR	2	B4338-MO2011/1 Motor power	Potential diversion of RHR suppression pool cooling return to torus spray. Flow diversion will not result in reduction of pool inventory or cooling capability.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2013 RHR Division 2 LPCI Injection Isolation Outboard	RHR	2	B4335-MO2013/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	B4334-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2015 RHR Division 2 LPCI Injection Isolation Inboard	RHR	2	B4334-MO2015/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-C03/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2021 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4339-MO2021/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4209-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2023 RHR Division 2 Drywell Spray Isolation Outboard	RHR	2	B4209-MO2023/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	B4211-C41/1 Control and indication	Power to MO-2032 is maintained off during normal power operation.
19B	MO-2032 RHR Discharge to Waste Surge Tank	RHR	1/2	B4211-MO2032/1 Motor power	Power to MO-2032 is maintained off during normal power operation.
19B	MO-2033	RHR	1/2	B4328-C03/1	MO-2033 is normally open. Flow diversion will not result in

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
	RHR Cross-Tie			Control	reduction of pool inventory or cooling capability.
19B	MO-2033 RHR Cross-Tie	RHR	1/2	B4328-MO2033/1 Motor power	MO-2033 is normally open. Flow diversion will not result in reduction of pool inventory or cooling capability.
19B	P-202B RHR Pump	RHR	2	2A604-A Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-202B RHR Pump	RHR	2	2A604-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-202B RHR Pump	RHR	2	2IF23-D Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	CV-1729 12 RHR Heat Exchanger	RHRSW	2	2IP27-A Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	CV-1729 12 RHR Heat Exchanger	RHRSW	2	2IP27-B Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	CV-1729 12 RHR Heat Exchanger	RHRSW	2	2Q426-B Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	CV-1729 12 RHR Heat Exchanger	RHRSW	2	2Q426-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	FT-10-97B Flow Transmitter	RHRSW	2	2IF23-A Signal Cable	This component is not required for safe shutdown from the Control Room. This component is available to support shutdown from the ASDS panel.
19B	P-109B RHR Service Water Pump	RHRSW	2	2A608-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	P-109B RHR Service Water Pump	RHRSW	2	2A608-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	P-109B RHR Service Water Pump	RHRSW	2	2A608-D Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
19B	P-109D RHR Service Water Pump	RHRSW	2	2A607-C Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	P-109D RHR Service Water Pump	RHRSW	2	A607-C03/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
19B	LT-2-3-112B Reactor Water Level	RPV	2	2IL20-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available
19B	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2IL3-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	LT-2-3-85B Reactor Water Level	RPV	2	2Y8002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
19B	PT-6-53B Reactor Pressure	RPV	2	2Y8002-A Instrument power	The redundant equipment/cables are routed outside the fire area and will remain available
19B	PT-7251B Wide Range Drywell Pressure	PCT	2	2Y8014-A 120V AC Power	This component is not required for safe shutdown. This component is wired through the ASDS panel.
19B	PT-7251B Wide Range Drywell Pressure	PCT	2	2IP7251B-D Instrument Cable	This component is not required for safe shutdown. This component is wired through the ASDS panel.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XIII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15A	G-3B 12 Emergency Diesel Generator	DG	2	2M2921-A ASDS EDG status	The redundant equipment/cables are routed outside the fire area and will remain available
15A	G-3B 12 Emergency Diesel Generator	DG	2	A602-C92/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	G-3B 12 Emergency Diesel Generator	DG	2	A602-C92/4 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	G-3B 12 Emergency Diesel Generator	DG	2	A602-C92/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	G-3B 12 Emergency Diesel Generator	DG	2	C92-C94/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15A	G-3B 12 Emergency Diesel Generator	DG	2	C92-C94/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15A	G-3B 12 Emergency Diesel Generator	DG	2	C92-C94/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15A	G-3B 12 Emergency Diesel Generator	DG	2	C92-C94/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15A	G-3B 12 Emergency Diesel Generator	DG	2	C92-D111/1 125VDC control power for standby start circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	G-3B 12 Emergency Diesel Generator	DG	2	C92-D211/1 125VDC control power for start circuit	The redundant equipment/cables are routed outside the fire area and will remain available
15A	G-3B 12 Emergency Diesel Generator	DG	2	C92-D211/2 Field flash power	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	G-3B 12 Emergency Diesel Generator	DG	2	C92-G40/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XIII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15A	G-3B 12 Emergency Diesel Generator	DG	2	G-3B Diesel Generator 12	The redundant equipment/cables are routed outside the fire area and will remain available
15A	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-C92/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-M4317/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	V-SF-9 DG-12 Room Ventilation Fan	DG	2	B4317-N4317/2& Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	P-111B Emergency Service Water Pump	ESW	2	2B4319-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	P-111B Emergency Service Water Pump	ESW	2	2M2921-A Hot Engine Signal Cable	The redundant equipment/cables are routed outside the fire area and will remain available.

01478399

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XIII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15A	P-111D Emergency Service Water Pump	ESW	2	2M2921-A Associated cable when in ASDS control	The redundant equipment/cables are routed outside the fire area and will remain available.
15A	P-109A RHR Service Water Pump	RHRSW	1	A508-J302/1 Motor Heater, Cooling Water SV-4937A	This cable is routed in embedded conduit and will remain free of fire damage
15A	P-109C RHR Service Water Pump	RHRSW	1	A507-J302/1 Motor Heater, Cooling Water SV-4937C	This cable is routed in embedded conduit and will remain free of fire damage

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XIV Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15B	152-502 DG-11 Output Breaker	4160V	1	A502-C91/1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	152-502 DG-11 Output Breaker	4160V	1	A502-C91/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	152-502 DG-11 Output Breaker	4160V	1	A502-G30/2 Power from DG-11 to Bus 15	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	152-502 DG-11 Output Breaker	4160V	1	C91-G30/1 Power- DG-11 to Voltage Regulator/Fault Protection	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	152-502 DG-11 Output Breaker	4160V	1	C91-G31/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	G-3A 11 Emergency Diesel Generator	DG	1	1IG30-A Instrumentation cable	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	1IG30-B Instrumentation cable	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	A502-C91/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	A502-C91/4 Power	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	A502-C91/5 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XIV Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C91/4 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C08-C93/1 Annunciator	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C91-C93/1 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C91-C93/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C91-C93/3 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C91-C93/4 Not required circuit	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C91-D111/1 Field flash power	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C91-D111/2 125VDC control power for start circuit	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C91-D211/1 125VDC control power for standby start circuit	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	C91-G30/2 Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3A 11 Emergency Diesel Generator	DG	1	G-3A Diesel Generator 11	The redundant equipment/cables are routed outside the fire area and will remain available
15B	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-B Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XIV Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15B	P-160A, P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/B5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	P-160A, P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/B5 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A3 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A4 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15B	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
15B	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-E Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-G Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available
15B	V-SF-10 DG-11 Room Ventilation Fan	DG	1	V-SF-10 EDG 11 Ventilation	The redundant equipment/cables are routed outside the fire area and will remain available
15B	P-111A Emergency Service Water Pump	ESW	1	1B3435-D Control	The redundant equipment/cables are routed outside the fire area and will remain available
15B	P-109A RHR Service Water Pump	RHR SW	1	A508-M508/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available
15B	P-109C RHR Service Water Pump	RHR SW	1	A507-M507/1 Motor power	The redundant equipment/cables are routed outside the fire area and will remain available

01478399

01478399

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XV Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15C	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-B Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
15C	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	2B4202-C2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15C	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A2 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
15C	P-160B 12 EDG Fuel Oil Transfer Pump	DG	2	P-160B 12 EDG Fuel Oil Transfer Pump	The redundant equipment/cables are routed outside the fire area and will remain available.
15C	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	P-160D 12 EDG Fuel Oil Transfer Pump	The redundant equipment/cables are routed outside the fire area and will remain available.
15C	T-45B 12 EDG Fuel Oil Day Tank	DG	2	12 EDG Day Tank	The redundant tank is outside the fire area and will remain available.

01478399

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XVI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
15D	T-45A 11 EDG Fuel Oil Day Tank	DG	1	11 EDG Day Tank	The redundant tank is outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31A	Y70 120V AC Distribution Panel	120V	1	1D3112-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	Y70 120V AC Distribution Panel	120V	1	NB3482-K Power from Transformer Y77 to Panel Y10	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	D52 #13 250V DC Battery Charger	250V	1	1B3433-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	D53 #13 250V DC Battery Charger	250V	1	1B3434-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	D54 #13 250V DC Battery Charger	250V	NC	1B3431-A Power supply from MCC-134	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31A	MCC-134 Motor Control Center 134	480V	1	1B308-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	MCC-134 Motor Control Center 134	480V	1	1B308-B Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	MCC-134 Motor Control Center 134	480V	1	1B308-C Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	MCC-134 Motor Control Center 134	480V	1	1B308-D Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	MCC-134 Motor Control Center 134	480V	1	1B308-E Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	MCC-134 Motor Control Center 134	480V	1	1B308-F Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	MCC-134 Motor Control Center 134	480V	1	1B308-G Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31A	FT-9081A V-EAC-14B Outlet Flow	CRV	1	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9081A V-EAC-14B Outlet Flow	CRV	1	1IV225B-D Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9081A V-EAC-14B Outlet Flow	CRV	1	FT-9081A V-EAC-14B Outlet Flow	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9171A V-ERF-14A Return Flow	CRV	1	1IV225C-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1B34P10-A EFT Div 1 Panel Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1IV225A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1IV225G-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-D Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-G Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-E Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-F Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31A	V-EAC-14A Control Room	CRV Air Conditioning Unit	1	1B4315-D Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-EAC-14A Control Room	CRV Air Conditioning Unit	1	1B4315-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-EF-40A Div I 250V Battery Room	CRV Exhaust Fan	1	1B3424-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31A	V-EF-40A Div I 250V Battery Room	CRV Exhaust Fan	1	1B3424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-ERF-14A Recirculation Fan	CRV	1	1B3414-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-ERF-14A Recirculation Fan	CRV	1	1B3414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-A Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-D Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-E Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-F Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-K Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-L Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-N Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-Q Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-R Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-X Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-Z Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V203-N Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V210-F Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V216-R Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V219-D Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-14-40A Core Spray Flow Transmitter	CS	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-D Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1D11106-A EFT Div 1 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1IV225A-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1IV225A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9117A V-EF-12 Discharge Flow	EFT	NC	1IV225A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-9117A V-EF-12 Discharge Flow	EFT	NC	1IV225F-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V209-A Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31A	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V210-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31A	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V210-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31A	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V211-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31A	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V211-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31A	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-111A Emergency Service Water Pump	ESW	1	1B3435-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-111A Emergency Service Water Pump	ESW	1	1B3435-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-111C Emergency Service Water Pump	ESW	1	1B3472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-111C Emergency Service Water Pump	ESW	1	1B3472-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	P-111C Emergency Service Water Pump	ESW	1	1B3472-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-289A SPOTMOS Panel	PCT	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	C-289A SPOTMOS Panel	PCT	1	1Y7004-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	LT-7338A Suppression Pool Level	PCT	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	DPT-10-91A RHR HX DP Control	RHR	1	1Y7002-A Loop power supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31A	CV-1728 11 RHR Heat Exchanger	RHRSW	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	LT-2-3-112A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	LT-2-3-85A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31A	PT-6-53A Reactor Pressure	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32A	B-34P 120V Distribution Panel	120V	1	1B3441-A Power Supply from MCC-134 to XB34P	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	B-34P 120V Distribution Panel	120V	1	1B3441-B Power from Transformer XB34P to Panel B-34P	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	B-34P 120V Distribution Panel	120V	1	B-34P Distribution panel	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	1B3482-A Power from MCC B34 to Transformer Y72	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	1B3482-B Power from Transformer Y72 to Bypass Switch Y73	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	1B3482-C Control for Bypass Switch Y73	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	1B3482-D Power from Y75 to Panel Y70	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	1B3482-E Power to/from Y73 to Inverter Y71	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	1B3482-G Power from Y73 to Disconnect Switch Y74	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	1B3482-H Power from Y74 to Disconnect Switch Y75	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	1D3112-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32A	Y70 120V AC Distribution Panel	120V	1	NB3482-J Power from Y74 to Transformer Y77	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	NB3482-K Power from Transformer Y77 to Panel Y10	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y70 120V AC Distribution Panel	120V	1	Y70 120V AC Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y71 120V AC Inverter	120V	1	Y71 120V AC Inverter	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y72 480/120V UPS Transformer	120V	1	Y72 480/120V UPS Transformer	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y73 120V AC UPS Bypass Switch	120V	1	Y73 120V AC UPS Bypass Switch	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y74 120V AC Disconnect Switch	120V	1	Y74 120V AC Disconnect Switch	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y75 120V AC Disconnect Switch	120V	1	Y75 120V AC Disconnect Switch	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	Y77 Transformer to Panel Y10	120V	1	Y77 Transformer to Panel Y-10	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	D52 #13 250V DC Battery Charger	250V	1	1B3433-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	D53 #13 250V DC Battery Charger	250V	1	1B3434-A Power supply from MCC-134	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	D54 #13 250V DC Battery Charger	250V	NC	1B3431-A Power supply from MCC-134	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32A	MCC-134 Motor Control Center 134	480V	1	1B308-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32A	MCC-134 Motor Control Center 134	480V	1	1B308-B Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	MCC-134 Motor Control Center 134	480V	1	1B308-C Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	MCC-134 Motor Control Center 134	480V	1	1B308-D Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	MCC-134 Motor Control Center 134	480V	1	1B308-E Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	MCC-134 Motor Control Center 134	480V	1	1B308-F Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	MCC-134 Motor Control Center 134	480V	1	1B308-G Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	MCC-134 Motor Control Center 134	480V	1	MCC-134 Motor control center	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9081A V-EAC-14B Outlet Flow	CRV	1	1IV225B-D Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9171A V-ERF-14A Return Flow	CRV	1	1IV225C-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9171A V-ERF-14A Return Flow	CRV	1	FT-9171A V-ERF-14A Return Flow	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1B34P10-A EFT Div 1 Panel Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1IV225A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1IV225A-F Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1IV225A-G Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9191A V-EF-40B Discharge Flow	CRV	1	1IV225G-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9191A V-EF-40B Discharge Flow	CRV	1	FT-9191A V-EF-40B Discharge Flow	The redundant equipment/cables are routed outside the fire area and will remain available
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-A Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-D Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-E Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3415-G Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-A Compressor motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-D Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-E Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-F Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B3416-G Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room Air Conditioning Unit	CRV	1	1B4315-A Blower motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32A	V-EAC-14A Control Room	CRV Air Conditioning Unit	1	1B4315-D Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room	CRV Air Conditioning Unit	1	1B4315-E Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EAC-14A Control Room	CRV Air Conditioning Unit	1	V-EAC-14A Control Room Air Conditioning Unit	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EF-40A Div I 250V Battery Room	CRV Exhaust Fan	1	1B3424-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EF-40A Div I 250V Battery Room	CRV Exhaust Fan	1	1B3424-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-EF-40A Div I 250V Battery Room	CRV Exhaust Fan	1	V-EF-40A Div I 250V Battery Room Exhaust Fan	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-ERF-14A Recirculation Fan	CRV	1	1B3414-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-ERF-14A Recirculation Fan	CRV	1	1B3414-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-ERF-14A Recirculation Fan	CRV	1	V-ERF-14A Recirculation Fan	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-A Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-F Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-L Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-N Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-Q Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	C-263A EFT-HVAC Control Panel	CRV/EFT	1	1V201-R Division 1 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-14-40A Core Spray Flow Transmitter	CS	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	P-160A 11 EDG Fuel Oil Transfer Pump	DG	1	1B3461/A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	P-160C 11 EDG Fuel Oil Transfer Pump	DG	1	1B3462/A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	V-SF-10 DG-11 Room Ventilation Fan	DG	1	1B3474-D Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1IV225A-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1IV225A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.

01478399

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32A	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1IV225A-F Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9116A V-EF-11 Discharge Flow	EFT	NC	1IV225A-G Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9117A V-EF-12 Discharge Flow	EFT	NC	1IV225A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9117A V-EF-12 Discharge Flow	EFT	NC	1IV225A-F Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9117A V-EF-12 Discharge Flow	EFT	NC	1IV225A-G Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-9117A V-EF-12 Discharge Flow	EFT	NC	1IV225F-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V209-A Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32A	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V210-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32A	VD-9111A V-ERF-11 Outlet Damper	EFT	NC	1V211-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32A	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-A Motor power	he cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32A	V-ERF-11 EFT Outside Air Fan	EFT	NC	1B3423-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	P-111A Emergency Service Water Pump	ESW	1	1B3435-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	P-111A Emergency Service Water Pump	ESW	1	1B3435-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXI Division 1 – Red

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32A	P-111C Emergency Service Water Pump	ESW	1	1B3472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	P-111C Emergency Service Water Pump	ESW	1	1B3472-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	C-289A SPOTMOS Panel	PCT	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	C-289A SPOTMOS Panel	PCT	1	1Y7004-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	LT-7338A Suppression Pool Level	PCT	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	DPT-10-91A RHR HX DP Control	RHR	1	1Y7002-A Loop power supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	FT-10-111A RHR Division 1 Flow Downstream of Heat Exchanger	RHR	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	CV-1728 11 RHR Heat Exchanger RHRSW Outlet	RHRSW	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	LT-2-3-112A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	LT-2-3-85A Reactor Water Level	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32A	PT-6-53A Reactor Pressure	RPV	1	1Y7002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	Y80 120V AC Distribution Panel	120V	2	2B4482-A Power to Y82 from MCC B44	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	Y80 120V AC Distribution Panel	120V	2	2D10012-A 125VDC power from D100 to Y81	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D10101-A Ground detection (isolated by fuses)	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-D Power from battery charger D70	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-E Power from battery charger D70	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-F Power from battery charger D80	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-G Power from battery charger D80	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-H Power from battery charger D90	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-J Power from battery charger D90	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-K Power from battery D6A	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-L Power from battery D6A	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-M Power from battery D6B	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-Q Power from battery D6A	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-R Power from battery D6B	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-S Power from battery D6B	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	2D6-U D6A/D6B Interconnect	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D100 125/250V DC Distribution Panel	125V	2	D100 125V/250V Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D20 #12 125V DC Battery Charger	125V	2	B4315-D20/1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D211 125V DC Distribution Panel	125V	2	2D2-A Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D6 #16 250V DC Battery	250V	2	D6 #16 250VDC Battery	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D70 #16 250VDC Battery Charger	250V	2	2D31201-A Power supply from MCC-144	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D70 #16 250VDC Battery Charger	250V	2	D70 #16 Battery Charger	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D80 #16 250VDC Battery Charger	250V	2	2D31200-A Power supply from MCC-144	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	D80 #16 250VDC Battery Charger	250V	2	D80 #16 Battery Charger	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	B-44P 120V Distribution Panel	480V	2	2B4441-A Power from MCC-144 to Transformer XP-44P	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	B-44P 120V Distribution Panel	480V	2	2B4441-B Power from Transformer XP-44P to B44P	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	B-44P 120V Distribution Panel	480V	2	B-44P 120V Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	MCC-144 Motor Control Center 144	480V	2	2B408-A-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	MCC-144 Motor Control Center 144	480V	2	2B408-B-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	MCC-144 Motor Control Center 144	480V	2	2B408-C-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	MCC-144 Motor Control Center 144	480V	2	2B408-D-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	MCC-144 Motor Control Center 144	480V	2	2B408-E-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	MCC-144 Motor Control Center 144	480V	2	2B408-F-135 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	MCC-144 Motor Control Center 144	480V	2	2B408-G-135 Neutral ground	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	MCC-144 Motor Control Center 144	480V	2	MCC-144 Motor control center	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-292 ASDS Benchboard	ASDS	2	2D10004-A ASDS Transfer Relay Control Panel	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
31B	FT-9081B V-EAC-14A Outlet Flow	CRV	2	2D6-A EFT Div 2 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	FT-9081B V-EAC-14A Outlet Flow	CRV	2	2IV255B-D Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9081B V-EAC-14A Outlet Flow	CRV	2	FT-9081B V-EAC-14A Outlet Flow	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9171B V-ERF-14B Return Flow	CRV	2	2D6-A EFT Div 2 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9171B V-ERF-14B Return Flow	CRV	2	2IV255C-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9191B V-EF-40A Discharge Flow	CRV	2	2B44P14-A EFT Div 2 Panel Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9191B V-EF-40A Discharge Flow	CRV	2	2D6-A EFT Div 2 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9191B V-EF-40A Discharge Flow	CRV	2	2IV255A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	VD-9093B CRV Supply Cross Connect Damper	CRV	2	2V242-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	VD-9093B CRV Supply Cross Connect Damper	CRV	2	2V242-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	VD-9093B CRV Supply Cross Connect Damper	CRV	2	2V242-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-A Blower motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-D Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-E Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-A Compressor motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-D Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-E Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-F Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-G Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-K Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	2B4424-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	2B4424-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	2B4424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-ERF-14B Recirculation Fan	CRV	2	2B4414-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-ERF-14B Recirculation Fan	CRV	2	2B4414-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	V-ERF-14B Recirculation Fan	CRV	2	2B4414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-A Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-D Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-E Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-G Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-H Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-K Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-L Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-N Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-Q Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-R Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-X Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-Z Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V233-M Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V246-T Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	P-160D 12 EDG Fuel Oil Transfer Pump	DG	2	2B4451-A1 Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9116B V-EF-12 Discharge Flow	EFT	NC	2B44P14-A EFT Div 2 Panel Power Supply	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	FT-9116B V-EF-12 Discharge Flow	EFT	NC	2D6-A EFT Div 2 Panel DC Power Supply	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	FT-9116B V-EF-12 Discharge Flow	EFT	NC	2IV255A-D Instrument cable	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	FT-9116B V-EF-12 Discharge Flow	EFT	NC	2IV255A-E Instrument cable	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	FT-9117B V-EF-11 Discharge Flow	EFT	NC	2B44P14-A EFT Div 2 Panel Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9117B V-EF-11 Discharge Flow	EFT	NC	2D6-A EFT Div 2 Panel DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9117B V-EF-11 Discharge Flow	EFT	NC	2IV255A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	FT-9117B V-EF-11 Discharge Flow	EFT	NC	2IV255F-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2B44P14-A EFT Div 2 Panel Power Supply	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2IV237-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.

01478399

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V236-A Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V236-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V236-E Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V239-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V239-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
31B	P-111D Emergency Service Water Pump	ESW	2	2B4472-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	P-111D Emergency Service Water Pump	ESW	2	2B4472-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	P-111D Emergency Service Water Pump	ESW	2	2B4472-G Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	P-111D Emergency Service Water Pump	ESW	2	2B4472-H Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	P-111D Emergency Service Water Pump	ESW	2	2B4472-J Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	AO-2-86A Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	AO-2-86B Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	AO-2-86C Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	AO-2-86D Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	C-253B SRV Low-Low Set Control Panel	MS	2	2D10003-A C253B SRV DC Power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2B4441-A B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2B4441-B B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4061B RV-2-71G Tailpipe Pressure Switch	MS	2	2B4441-A B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4061B RV-2-71G Tailpipe Pressure Switch	MS	2	2B4441-B B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4061B RV-2-71G Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4061D RV-2-71G Tailpipe Pressure Switch	MS	2	2B4441-A B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4061D RV-2-71G Tailpipe Pressure Switch	MS	2	2B4441-B B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4061D RV-2-71G Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4062B RV-2-71E Tailpipe Press Switch	MS	2	2B4441-A B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	DPT-4062B RV-2-71E Tailpipe Press Switch	MS	2	2B4441-B B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4062B RV-2-71E Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4062D RV-2-71E Tailpipe Press Switch	MS	2	2B4441-A B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4062D RV-2-71E Tailpipe Press Switch	MS	2	2B4441-B B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4062D RV-2-71E Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2B4441-A B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2B4441-B B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2B4441-A B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2B4441-B B44P Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
31B	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	K-10B RHR Auxiliary Air Compressor	RHR	2	2B4454-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	PT-4067D Reactor Pressure at ASDS	RPV	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	PT-4067D Reactor Pressure at ASDS	RPV	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
31B	PT-7251B Wide Range Drywell Pressure	PCT	2	2Y8014-A 120V AC Power	This component is not required for safe shutdown. This component is wired through the ASDS panel.
31B	PT-7251B Wide Range Drywell Pressure	PCT	2	2Y8014-B 120V AC Power	This component is not required for safe shutdown. This component is wired through the ASDS panel.
31B	PT-7251B Wide Range Drywell Pressure	PCT	2	2IP7251B-D Instrument Cable	This component is not required for safe shutdown. This component is wired through the ASDS panel.
32B	Y80 120V AC Distribution Panel	120V	2	2B4482-A Power to Y82 from MCC B44	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	Y80 120V AC Distribution Panel	120V	2	2D10012-A 125VDC power from D100 to Y81	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32B	C-292 ASDS Benchboard	ASDS	2	2D10004-A ASDS Transfer Relay Control Panel	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
32B	FT-9081B V-EAC-14A Outlet Flow	CRV	2	2IV255B-D Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9171B V-ERF-14B Return Flow	CRV	2	2IV255C-D Instrumentation	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9171B V-ERF-14B Return Flow	CRV	2	FT-9171B V-ERF-14B Return Flow	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9191B V-EF-40A Discharge Flow	CRV	2	2IV255A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9191B V-EF-40A Discharge Flow	CRV	2	2IV255A-F Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9191B V-EF-40A Discharge Flow	CRV	2	2IV255A-G Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9191B V-EF-40A Discharge Flow	CRV	2	FT-9191B V-EF-40A Discharge Flow	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	VD-9093B CRV Supply Cross Connect Damper	CRV	2	2V242-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	VD-9093B CRV Supply Cross Connect Damper	CRV	2	2V242-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-A Blower motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-E Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4415-F Blower control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-A Compressor motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-D Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-E Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-F Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-G Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	2B4416-K Compressor control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EAC-14B Control Room Air Conditioning Unit	CRV	2	V-EAC-14B Control Room Air Conditioning Unit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	2B4424-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	2B4424-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-EF-40B Div II 250V Battery Room Exhaust Fan	CRV	2	V-EF-40B Div II 250V Battery Room Exhaust	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-ERF-14B Recirculation Fan	CRV	2	2B4414-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-ERF-14B Recirculation Fan	CRV	2	2B4414-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	V-ERF-14B Recirculation Fan	CRV	2	V-ERF-14B Recirculation Fan	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-E Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-G Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-H Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-K Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-X Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V231-Z Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V233-M Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	C-264B EFT-HVAC Control Panel	CRV/EFT	2	2V246-T Division 2 Master Control Circuit	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9116B V-EF-12 Discharge Flow	EFT	NC	2IV255A-D Instrument cable	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32B	FT-9116B V-EF-12 Discharge Flow	EFT	NC	2IV255A-E Instrument cable	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32B	FT-9116B V-EF-12 Discharge Flow	EFT	NC	2IV255A-F Instrument cable	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32B	FT-9116B V-EF-12 Discharge Flow	EFT	NC	2IV255A-G Instrument cable	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown.
32B	FT-9117B V-EF-11 Discharge Flow	EFT	NC	2IV255A-E Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32B	FT-9117B V-EF-11 Discharge Flow	EFT	NC	2IV255A-F Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9117B V-EF-11 Discharge Flow	EFT	NC	2IV255A-G Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	FT-9117B V-EF-11 Discharge Flow	EFT	NC	2IV255F-D Instrument cable	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2IV237-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown
32B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V236-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown
32B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V236-E Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown
32B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V239-D Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown
32B	VD-9111B V-ERF-12 Outlet Damper	EFT	NC	2V239-F Control	The cables for this component are routed for information only. This component is not credited for post-fire safe shutdown
32B	P-111D Emergency Service Water Pump	ESW	2	2B4472-G Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	P-111D Emergency Service Water Pump	ESW	2	2B4472-H Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	P-111D Emergency Service Water Pump	ESW	2	2B4472-J Control	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	C-253B SRV Low-Low Set Control Panel	MS	2	2D10003-A C253B SRV DC Power	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32B	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4061B RV-2-71G Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4061D RV-2-71G Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4062B RV-2-71E Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4062D RV-2-71E Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
32B	K-10B RHR Auxiliary Air Compressor	RHR	2	2B4454-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	PT-4067D Reactor Pressure at ASDS	RPV	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
32B	PT-4067D Reactor Pressure at ASDS	RPV	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	2B4482-A Power to Y82 from MCC B44	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	2B4482-B Power from Y82 to Y83	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	2B4482-C Control, Y83	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	2B4482-D Power from Y85 to Y80	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	2B4482-E Power to/from Y83 to Y81	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	2B4482-G Power from Y83 to Y84	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	2B4482-H Power from Y83 to Y85	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	2D10012-A 125VDC power from D100 to Y81	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	NB4482-J Power from Y84 to Y87 (YY30/87 not credited)	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y80 120V AC Distribution Panel	120V	2	NB4482-K Power from Y87 to Y30 (Y30/Y87 not credited)	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	Y80 120V AC Distribution Panel	120V	2	Y80 120V AC Distribution Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y81 120V AC Inverter	120V	2	Y81 120V AC Inverter	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y82 120V AC UPS Transformer	120V	2	Y82 480/120V UPS Transformer	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y83 120V AC UPS Bypass Switch	120V	2	Y83 120V AC UPS Bypass Switch	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y84 120V AC Disconnect Switch	120V	2	Y84 120V AC Disconnect Switch	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y85 120V AC Disconnect Switch	120V	2	Y85 120V AC Disconnect Switch	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Y87 Transformer	120V	2	Y87 Transformer to Panel Y10	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-408 Tie Breaker to Non-Vital Bus-14	4160V	2	2A408-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-602 DG-12 Output Breaker	4160V	2	2A602-A1 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-602 DG-12 Output Breaker	4160V	2	2A602-A2 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-602 DG-12 Output Breaker	4160V	2	2A602-B Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-602 DG-12 Output Breaker	4160V	2	2A602-C1 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-602 DG-12 Output Breaker	4160V	2	2A602-C2 Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	152-602 DG-12 Output Breaker	4160V	2	2A602-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-602 DG-12 Output Breaker	4160V	2	2M2931-A1 ASDS Relay Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-609 Feed to LC-104	4160V	2	2A609-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-609 Feed to LC-104	4160V	2	2A609-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-609 Feed to LC-104	4160V	2	2A609-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-610 Feed from 1AR Transformer	4160V	2	2A610-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-610 Feed from 1AR Transformer	4160V	2	2A610-F Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	152-610 Feed from 1AR Transformer	4160V	2	2A610-G Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LC-104 Load Center 104 (52-401)	480V	2	2B401-C ASDS control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	Bus 16 ASDS Panel Alarm	ASDS	2	2A6-B Indication	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
33	C-292 ASDS Benchboard	ASDS	2	2D10004-A ASDS Transfer Relay Control Panel	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
33	C-292 ASDS Benchboard	ASDS	2	2M2921-A ASDS AC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
33	C-292 ASDS Benchboard	ASDS	2	2Y8014-B ASDS control power	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	C-292 ASDS Benchboard	ASDS	2	C-292 ASDS Panel	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
33	C-293 ASDS Relay Panel	ASDS	2	2M2931-A1 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
33	C-293 ASDS Relay Panel	ASDS	2	2M2931-A2 ASDS DC Transfer Switch	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
33	C-293 ASDS Relay Panel	ASDS	2	C-293 ASDS Relay Panel	This cable is required only for alternative shutdown, which is not credited in the event of a fire in this zone.
33	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-A indication at ASDS	The ASDS rod insertion function is not required for a fire in this area.
33	SV-4110 ASDS Rod Insertion Solenoid	CRD	2	2Q270-B control from ASDS	The ASDS rod insertion function is not required for a fire in this area.
33	FT-14-40B Core Spray Flow Transmitter	CS	2	2IP21-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
33	FT-14-40B Core Spray Flow Transmitter	CS	2	2IP21-B Cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.
33	FT-14-40B Core Spray Flow Transmitter	CS	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2B4326-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	MO-1742 12 CS Pump Torus Suction Valve	CS	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1750 12 CS Pump Test Return to Torus	CS	2	2B4327-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1750 12 CS Pump Test Return to Torus	CS	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-A1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-A2 Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-C Control and Indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1752 12 CS Pump Injection Isolation Valve Outboard	CS	2	2B4325-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	MO-1752 12 CS Pump Injection Valve Outboard	CS	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-B Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-C Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2B4324-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1754 12 CS Pump Injection Valve Inboard	CS	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-208B Core Spray Pump	CS	2	2A605-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	G-3B 12 Emergency Diesel Generator	DG	2	2D11112-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	G-3B 12 Emergency Diesel Generator	DG	2	2G40-C ASDS Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-A Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
33	G-3B 12 Emergency Diesel Generator	DG	2	2KW3-B Div. II Day Tank Level Switch	This component is not required for safe shutdown. This component is wired through the ASDS panel.
33	G-3B 12 Emergency Diesel Generator	DG	2	2M2921-A ASDS EDG status	The redundant equipment/cables are routed outside the fire area and will remain available

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	P-111B Emergency Service Water Pump	ESW	2	2B4319-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-111B Emergency Service Water Pump	ESW	2	2B4319-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-111B Emergency Service Water Pump	ESW	2	2B4319-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-111B Emergency Service Water Pump	ESW	2	2B4319-D Disch. Press. Annunciator	Not required for safe shutdown but associated circuit in ASDS Panel
33	P-111B Emergency Service Water Pump	ESW	2	2M2921-A Hot Engine Signal Cable	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-111B Emergency Service Water Pump	ESW	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-111D Emergency Service Water Pump	ESW	2	2B4472-H Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-111D Emergency Service Water Pump	ESW	2	2B4472-J Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-111D Emergency Service Water Pump	ESW	2	2M2921-A Associated cable when in ASDS control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-111D Emergency Service Water Pump	ESW	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2B4305-C Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	V-AC-4 Division 2 ECCS Room Cooler	HVAC	2	2Y8014-B Control power at ASDS	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86A Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86A Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86A Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86A Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86B Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86B Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86B Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86B Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86C Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86C Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86C Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86C Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	AO-2-86D Outboard MSIV	MS	1/2	2Q216-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86D Outboard MSIV	MS	1/2	2Q216-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86D Outboard MSIV	MS	1/2	2Q217-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	AO-2-86D Outboard MSIV	MS	1/2	2Q217-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	C-253B SRV Low-Low Set Control Panel	MS	2	2D10003-A C253B SRV DC Power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	C-253B SRV Low-Low Set Control Panel	MS	2	2Q259-A SRV Div 2 Low-Low Set RPS Interlock	The redundant equipment/cables are routed outside the fire area and will remain available.
33	C-253B SRV Low-Low Set Control Panel	MS	2	C-253B SRV Low-Low Set Control Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4060B RV-2-71F Tailpipe Pressure Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4061B RV-2-71G Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4061B RV-2-71G Tailpipe Pressure Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4061D RV-2-71G Tailpipe Pressure Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	DPT-4061D RV-2-71G Tailpipe Pressure Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4062B RV-2-71E Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4062B RV-2-71E Tailpipe Press Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4062D RV-2-71E Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4062D RV-2-71E Tailpipe Press Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4063B RV-2-71H Tailpipe Press Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-4063D RV-2-71H Tailpipe Press Switch	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2IP29-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2IP29-B SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q256-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q256-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	NQ261-A SRV solenoid energized indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71J RV-2-71E Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q257-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q257-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	NQ261-A SRV solenoid energized indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71K RV-2-71G Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q258-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q258-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	NQ261-A SRV solenoid energized indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	SV-2-71L RV-2-71H Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2IP28-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q260-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q260-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	NQ261-A SRV solenoid energized indication	The redundant equipment/cables are routed outside the fire area and will remain available.
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-A Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-B Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	2Q265-C Control	Alternative shutdown capability is independent of this fire zone. Cable will be isolated when control is transferred to ASDS.
33	SV-2-71M RV-2-71F Solenoid Valve	MS	2	NQ261-B SRV Tailpipe dP Signal	Alternative shutdown capability is independent of this fire zone. ASDS SRV Tailpipe Indication circuit is independent of this cable & power
33	C-289B SPOTMOS Panel	PCT	2	2IT200-L Signal cable from C-289B to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
33	C-289B SPOTMOS Panel	PCT	2	2Y8002-A SPOTMOS Indication power at C-03	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	C-289B SPOTMOS Panel	PCT	2	2Y8004-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	C-289B SPOTMOS Panel	PCT	2	2Y8004-B Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	C-289B SPOTMOS Panel	PCT	2	C-289B SPOTMOS Panel	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-7338B Suppression Pool Level	PCT	2	2IP7251B-A Signal cable from C-292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-7338B Suppression Pool Level	PCT	2	2IP7251B-B Signal cable to C-292	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-7338B Suppression Pool Level	PCT	2	2Y8002-A Power to Recorder PLR-7251B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-7338B Suppression Pool Level	PCT	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	TE-4073B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-A Field cable to Torus RTD TE-4073B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	TE-4074B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-B Field cable to Torus RTD TE-4074B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	TE-4075B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-C Field cable to Torus RTD TE-4075B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	TE-4076B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-D Field cable to Torus RTD TE-4076B	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	TE-4077B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-E Field cable to Torus RTD TE-4077B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	TE-4078B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-F Field cable to Torus RTD TE-4078B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	TE-4079B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-G Field cable to Torus RTD TE-4079B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	TE-4080B Suppression Pool Temperature (SPOTMOS)	PCT	2	2IT200-H Field cable to Torus RTD TE-4080B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-D Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Q421-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1995 RHR-P-202B Minimum Flow Valve	RHR	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-A Signal cable from C292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-B Signal cable from C292 to C03	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-C Field cable from C292 to E/P 1729	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-10-91B RHR HX DP Control	RHR	2	2IP27-D Field cable from C292 to	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-10-91B RHR HX DP Control	RHR	2	2Y8002-A Power supply to pressure indicator	The redundant equipment/cables are routed outside the fire area and will remain available.
33	DPT-10-91B RHR HX DP Control	RHR	2	2Y8014-B Loop power supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	FT-10-111B RHR Division 2 Flow Downstream of Heat Exchanger	RHR	2	2IF23-B Cable to transmitter	The redundant equipment/cables are routed outside the fire area and will remain available.
33	FT-10-111B RHR Division 2 Flow Downstream of Heat Exchanger	RHR	2	2IF23-C Signal cable from C-292 to C-03	The redundant equipment/cables are routed outside the fire area and will remain available.
33	FT-10-111B RHR Division 2 Flow Downstream of Heat Exchanger	RHR	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	K-10B RHR Auxiliary Air Compressor	RHR	2	2B4454-A Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2B4323-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-1987 RHR Division 2 Suppression Pool Suction Valve	RHR	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-A3 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-B1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-B2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-C1 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-C2 Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2B4210-E Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2003 RHR HX E-200B Bypass Valve	RHR	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2B4208-D Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2007 RHR Division 2 Discharge to Torus	RHR	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2B4337-E Motor power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	MO-2009 RHR Division 2 Test Return to Torus Isolation	RHR	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	P-202B RHR Pump	RHR	2	2A604-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	P-202B RHR Pump	RHR	2	2IF23-D Control	The redundant equipment/cables are routed outside the fire area and will remain available
33	P-202B RHR Pump	RHR	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1729 12 RHR Heat Exchanger	RHRSW	2 RHRSW Outlet	2IP27-A Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1729 12 RHR Heat Exchanger	RHRSW	2 RHRSW Outlet	2IP27-B Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1729 12 RHR Heat Exchanger	RHRSW	2 RHRSW Outlet	2IP27-C Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1729 12 RHR Heat Exchanger	RHRSW	2 RHRSW Outlet	2IP27-D Control input from DPIC-10-130B	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1729 12 RHR Heat Exchanger	RHRSW	2 RHRSW Outlet	2Q426-A Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1729 12 RHR Heat Exchanger	RHRSW	2 RHRSW Outlet	2Q426-B Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1729 12 RHR Heat Exchanger	RHRSW	2 RHRSW Outlet	2Q426-C Control	The redundant equipment/cables are routed outside the fire area and will remain available.
33	CV-1729 12 RHR Heat Exchanger	RHRSW	2 RHRSW Outlet	2Y8014-B 120VAC control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	FT-10-97B Flow Transmitter	RHRSW	2	2IF23-A Signal Cable	This component is not required for safe shutdown from the Control Room. This component is available to support shutdown from the ASDS panel.
33	P-109B RHR Service Water Pump	RHRSW	2	2A608-A Control and indication	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	LT-2-3-112B Reactor Water Level	RPV	2	2IL20-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-2-3-112B Reactor Water Level	RPV	2	2IL20-B Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-2-3-112B Reactor Water Level	RPV	2	2Y8014-B ASDS control power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2IL3-A Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2IL3-B Signal cable	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-2-3-61 Reactor Water Level at ASDS	RPV	2	2Y8014-B Loop power supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	LT-2-3-85B Reactor Water Level	RPV	2	2Y8002-A Instrument Power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	PT-4067D Reactor Pressure at ASDS	RPV	2	2B44P18-A C253B AC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	PT-4067D Reactor Pressure at ASDS	RPV	2	2D10003-A C253B DC Power Supply	The redundant equipment/cables are routed outside the fire area and will remain available.
33	PT-4067D Reactor Pressure at ASDS	RPV	2	2IP29-A SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	PT-4067D Reactor Pressure at ASDS	RPV	2	2IP29-B SRV Tailpipe dP Signal	The redundant equipment/cables are routed outside the fire area and will remain available.
33	PT-4067D Reactor Pressure at ASDS	RPV	2	2Y8014-B Power to recorder PCR-4102	The redundant equipment/cables are routed outside the fire area and will remain available.

Table J.4.6-1
Monticello Appendix R Compliance Evaluation
Fire Area XXII Division 2 – Green

Zone	Equipment	System	Division	Cable/Cable Function	Compliance Strategy
33	PT-6-53B Reactor Pressure	RPV	2	2Y8002-A Instrument power	The redundant equipment/cables are routed outside the fire area and will remain available.
33	PT-7251B Wide Range Drywell Pressure	PCT	2	2IP7251B-D Instrument Cable	This component is not required for safe shutdown. This component is wired through the ASDS panel.

J.4.7 REFERENCES

- J.4.7.1 Fire Hazards Analysis, Monticello Nuclear Generating Plant, March 11, 1977.
- J.4.7.2 Letter from L.O. Mayer (MNGP) to V. Stello (NRC), Subject: "Completion of Fire Protection Review," dated July 5, 1977.
- J.4.7.3 Fire Protection Safety Evaluation Report by the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission in the Matter of Northern States Power Company, Monticello Nuclear Generating Plant, Docket No. 50-263.
- J.4.7.4 Letter from L.O. Mayer (MNGP) to V. Stello (NRC), Subject: "Comparison of Existing Fire Protection Provisions to the Guidelines Contained in Standard Review Plan 9.5.1," dated December 10, 1976.
- J.4.7.5 Letter from D.M. Musolf (MNGP) to Director of NRR, "Classification of Previous Disposition of Fire Protection SER Open Items," dated June 7, 1983.
- J.4.7.6 "Fire Protection and Safe Shutdown System Analysis Report, Monticello Nuclear Generating Plant, Northern States Power Company, General Electric Company," NEDO-22087, June 30, 1982.
- J.4.7.7 Not used
- J.4.7.8 Letter from D. Musolf (MNGP) to NRC, Subject: "Clarification of Information Provided in Support of Request for Relief from Requirements of 10 CFR Part 50, Appendix R Section III.G," dated October 28, 1982.
- J.4.7.9 "Fire Protection and Safe Shutdown Systems Analysis Engineering Report, Monticello Nuclear Generating Plant, Northern States Power Company", GE NEDC-30049, April 1983.
- J.4.7.10 Letter from D.M. Musolf (MNGP) to Director of NRR, Subject: "Clarification of Previous Disposition of Fire Protection SER Open Items," dated June 7, 1983.
- J.4.7.11 "Alternate Shutdown Systems for Monticello Nuclear Generating Plant, Northern States Power Company", GE NEDC-30291, December 1983.
- J.4.7.12 Letter from D.M. Musolf (MNGP) to Director of NRR, Subject: "Alternate Shutdown System Design", dated December 16, 1983.
- J.4.7.13 Letter from D. Vassallo (NRC) to D.M. Musolf (MNGP), Subject: "Alternate Shutdown System Design," dated September 11, 1985.
- J.4.7.14 Letter from B. Vassallo (NRC) to D.M. Musolf (MNGP), Subject: "Fire Protection Safety Evaluation Open Items," dated October 2, 1985.
- J.4.7.15 Letter from D. Musolf (MNGP) to NRC, Subject: "Clarification of Resolution of Fire Protection Safety Evaluation open Items," dated January 31, 1986.
- J.4.7.16 Letter from D. Musolf (MNGP) to NRC, Subject: "Disposition of Unresolved Appendix R Exemption Requests," dated March 22, 1983.
- J.4.7.17 "Engineering Evaluations in Support of the design of an Alternate Shutdown System for Monticello Nuclear Generating Plant", GE NEDC-30870, August 1985.

MONTICELLO UPDATED SAFETY ANALYSIS REPORT
FIRE PROTECTION PROGRAM
Safe Shutdown Analysis

USAR-J.04
Revision 33

- J.4.7.18 Letter from R. Auluck (NRC) to D.M. Musolf, Subject: "Exemption from Requirements of Appendix R to 10 CFR Part 50, Section III.G" dated July 1, 1986.
- J.4.7.19 NRC Inspection Report 50-263/86008(DRS), December 1986.
- J.4.7.20 Letter from D. Musolf (MNGP) to NRC, Subject: "Fire Protection Safe Shutdown Analysis and Compliance with Section III.G of 10 CFR 50, Appendix R," dated October 8, 1986.
- J.4.7.21 Letter from J. Harrison (NRC) to C. Larson, Subject: "NRC Appendix R Site Inspection."
- J.4.7.22 Letter from W. Long (NRC) to T. Parker, Subject: "Monticello – Hot Short Vulnerability," dated February 5, 1992.
- J.4.7.23 Letter from T. Parker (MNGP) to NRC, Subject: "Response to Request for Information Concerning Hot Short Vulnerabilities," dated March 30, 1992.
- J.4.7.24 Letter from T. Parker (MNGP) to NRC, Subject: "Supplemental Information Concerning Hot Short Vulnerabilities," dated July 31, 1992.
- J.4.7.25 Letter from T. Parker (MNGP) to NRC, Subject: "Supplemental Information Concerning Hot Short Vulnerabilities," dated October 21, 1992.
- J.4.7.26 Letter from R. Samworth (NRC) to R. Anderson, Subject: "Meeting Summary of April 21, 1993," dated June 3, 1993.
- J.4.7.27 Letter from R. Samworth (NRC) to R. Anderson, Subject: "Monticello – Hot Short Vulnerabilities (TAC M82532)," dated July 2, 1993.
- J.4.7.28 Deleted.
- J.4.7.29 Deleted.
- J.4.7.30 Deleted.
- J.4.7.31 Revision to License Amendment Request Dated July 26, 1996 Supporting the Monticello Nuclear Generating Plant Power Rerate Program," December 1997.
- J.4.7.32 NEDC-32546P, Rev. 1, "Power Rerate Safety Analysis Report for Monticello Nuclear Generating Plant with GE Affidavit.
- J.4.7.33 Letter from T. Kim (NRC) to R. Anderson, Subject: "Monticello Nuclear Generating Plant – Issuance of Amendment Re: Power Uprate Program (TAC No. M96238)," Dated September 16, 1998.
- J.4.7.34 NRC Regulatory Issue Summary 2004-03, Revision 1, "Risk Informed Approach for Post Fire Safe-Shutdown Circuit Inspections," dated December 29, 2004.
- J.4.7.35 Calculation 90-023 Addendum 1, "Minimum Allowable Fuel Oil Storage Tank Level."
- J.4.7.36 Monticello Calculation Number 02-179, Revision 2, "MNGP 125 Volt Div I Battery Calculation."
- J.4.7.37 Monticello Calculation Number 04-048, Revision 1, MNGP 250VDC Division I Battery Calculation."
- J.4.7.38 Deleted
- J.4.7.39 Deleted.

- J.4.7.40 Technical Manual NX-17152-1, "Breaker / Fuse Coordination Analysis."
- J.4.7.41 Operations Manual Section B.5.17, "Alternate Shutdown System."
- J.4.7.42 Condition Report 20011046, "ASDS Design Deficiency Results in Vulnerability to Single Hot Shorts During Postulated Control Room or Cable Spreading Room Fire."
- J.4.7.43 LER 2001-006, "Alternate Shutdown System Design Deficiencies Result in Vulnerability to Single Hot Shorts During Postulated Control Room or Cable Spreading Room Fire."
- J.4.7.44 Modification 01Q055, "Breaker 152-602 Control Logic Change."
- J.4.7.45 Technical Specification 3.7.A.1.a, "Suppression Pool Volume and Temperature."
- J.4.7.46 Letter from L. Padovan (NRC) to T. Palmisano, Subject: "Monticello Nuclear Generating Plant – Exemption From the Requirements of 10 CFR Part 50, Appendix R, Section II.G.2.B. (TAC No. MC0751)," Dated August 6, 2004.
- J.4.7.47 Letter from L. Padovan (NRC) to T. Palmisano, Subject: "Monticello Nuclear Generating Plant – Corrected Pages for Exemption From the Requirements of 10 CFR Part 50, Appendix R, Section III.G.2.B (TAC No. MC0751)," Dated September 23, 2004.
- J.4.7.48 Letter from L. Padovan (NRC) to T. Palmisano, Subject: "Monticello Nuclear Generating Plant – Exemption From the Requirements of 10 CFR Part 50, Appendix R, Section III.G.2.B. Applying to Fire Area IX/Fire Zone 23A – Intake Structure Pump Room (TAC No. MC1803)," Dated October 28, 2004.
- J.4.7.49 Letter from L. Padovan (NRC) to T. Palmisano, Subject: "Monticello Nuclear Generating Plant – Corrected Pages for Exemption From the Requirements of Title 10 of the Code of Federal Regulations, Part 50, Appendix R, Section III.G.2.B Applying to Fire Area IX/Fire Zone 23A – Intake Structure Pump Room (TAC No. MC1803)," Dated December 23, 2004.
- J.4.7.50 Calculation CA-99-157, "Determination of Coolant Loss and Torus Drawdown resulting from Recirc LOCA."
- J.4.7.51 Monticello Calculation Number 08-169, Revision 0A, "Determination of Wetwell Atmospheric Pressure Required for Adequate NPSH of ECCS Pumps Under SBA, SBO, ATWS and Appendix R Conditions."
- J.4.7.52 Monticello Calculation Number 12-040, Revision 0A, "Containment Accident Pressure Assessment of ECCS pump NPSHa requirements for Extended Power Uprate (EPU)."
- J.4.7.53 Abnormal Procedures C.4-B.08.07.A, "Ventilation System Failure."
- J.4.7.54 Letter from T.A. Ippolito (NRC) to L.O. Mayer (MNGP), Subject: "Fire Protection Safety Evaluation Report: Supplement 1," dated February 12, 1981. "
- J.4.7.55 License Amendment Request Fire Protection Technical Specification Changes, Conformance to NRC GL 86-10," December 13, 2000.
- J.4.7.56 NRC Information Notice 92-18, "Potential for Loss of Remote Shutdown Capability during a Control Room Fire."
- J.4.7.57 Corrective Action CA020530, "Determine if Clarification Should Be Made in the SSDA for Recirc Pump Operation."

- J.4.7.58 GE_NE-T43-00002-00-03-R01, "BWROG Position on the Use of Safety Relief Valves and Low Pressure Systems as Redundant Safe Shutdown Paths," August 1999.
- J.4.7.59 Generic Letter 89-19, "Request for Action Related to Resolution of Unresolved Safety Issue A-47 'Safety Implications of Control Systems in LWR Nuclear Power Plants'."
- J.4.7.60 BWR Owners Group correspondence, "Transmittal of the NRC Safety Evaluation for the BWR Owners Group Response to Generic Letter (GL) 89-19, "Request for Action Related to Resolution of Unresolved Safety Issue A-47 'Safety Implications of Control Systems in LWR Nuclear Power Plants'", dated December 30, 1994.
- J.4.7.61 Calculation 00-025, "Determination of Containment Pressure Conditions Resulting from Inadvertent Initiation of Containment Spray."
- J.4.7.62 Calculation 00-025 Addendum 1, "Determination of Containment Pressure Conditions Resulting from Inadvertent Initiation of Containment Spray."
- J.4.7.63 AR 00786723 Review cables for the 4KV and 480V vital bus intertie breakers
- J.4.7.64 Calculation 11-153, "Development of MS System Transient to Relief Valve Water Actuation."
- J.4.7.65 Calculation 11-154, "SRV Piping Analysis for Postulated Hot Short Condition."
- J.4.7.66 Calculation 11-156, "Modeling Input to PowerFlow."
- J.4.7.67 NSPM Letter L-MT-08-052 (T J O'Connor) to NRC, "License Amendment Request: Extended Power Uprate (TAC MD9990)," dated November 5, 2008.
- J.4.7.68 NRC (T A Beltz) letter to NSPM (K D Fili), "Monticello Nuclear Generating Plant - Issuance of Amendment No. 176 to Renewed Facility Operating License Regarding Extended Power Uprate (TAC NO. MD9990)," dated December 9, 2013.
- J.4.7.69 GE Hitachi EPU Project Task Report GE-NE-0000-0074-5421-TR-R0, Revision 0, "Task T0611: Appendix R Fire Protection," December 2007 (Monticello calculation number 11-174).
- J.4.7.70 NSPM Letter L-MT-12-107 (M A Schimmel) to NRC, "Monticello Extended Power Uprate and Maximum Extended Load Line Limit Analysis Plus License Amendment Requests: Supplement to Address SECY 11-0014 Use of Containment Accident Pressure, Sections 6.6.4 and 6.6.7 (TAC Nos. MD9990 and ME3145)," dated November 30, 2012.
- J.4.7.71 NSPM Letter L-MT-13-033 (M A Schimmel) to NRC, "Monticello Extended Power Uprate: SECY 11-0014 Use of Containment Accident Pressure - Responses to Requests for Additional Information (TAC MD9990)," dated March 21, 2013.
- J.4.7.72 Monticello Calculation Number 12-049, Revision 0, "Monticello Appendix R MSO Thermal-Hydraulic Analysis - Time to Cold Shutdown."
- J.4.7.73 GE Hitachi Report NEDC-33322P, Revision 3, "Safety Analysis Report for Monticello Constant Pressure Uprate," October 2008.
- J.4.7.74 Engineering Change 13638, Design Description, Revision 5, "EPU-Extended Power Uprate Implementation."

01101248

01101248

01101248

USAR-J.05

UPDATED FIRE HAZARDS ANALYSIS

TABLE OF CONTENTS

Section	Page
1.0 INTRODUCTION	3
1.1 <i>Objective</i>	3
1.2 <i>Scope</i>	3
1.3. <i>Background</i>	3
1.4 <i>Regulatory Requirements</i>	3
2.0 DEFINITIONS	4
3.0 ASSUMPTIONS	6
4.0 PERFORMANCE GOALS	10
5.0 ANALYSIS	11
5.1 <i>Plant Fire Protection Features</i>	11
5.2 <i>Fire Areas</i>	17
5.3 <i>Methodology for Preparing the Fire Hazards Analysis Matrices</i>	17
5.4 <i>Fire Severity Analysis</i>	20
5.5 <i>Updated Fire Hazards Analysis Summary Table</i>	20
6.0 CONCLUSION	21
7.0 REFERENCES	22
Attachment A	35
Attachment B	245
Attachment C	250
Attachment D	254
Attachment E	262

1.0 INTRODUCTION

1.1 Objective

The object of this report is to provide an Updated Fire Hazards Analysis (FHA) for the Monticello Nuclear Generating Plant. The report also addresses the issues presented in Branch Technical Position (BTP) APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," its Appendix A, "Guidelines for Fire Protection For Nuclear Power Plants Docketed Prior to July 1, 1976," and in 10 CFR 50 Appendix R, Section II.B, "Fire Hazards Analysis."

1.2 Scope

This report encompasses all designated plant fire areas.

1.3. Background

On March 22, 1975, a fire at the Browns Ferry Nuclear Plant involved the cable penetration seals separating the Unit 1 Reactor Building from the Unit 1 Cable Spreading Room. The need to review the adequacy of General Design Criterion 3 of 10 CFR 50.48 was identified by the NRC's Special Review Group's report, "Recommendations Related to Browns Ferry Fire," (NUREG-0050) issued in February 1976. This report contained recommendations applicable to all nuclear power plants relative to improvements in the areas of fire prevention and protection.

The NRC subsequently issued new guidelines for fire protection programs in nuclear power plants. On August 23, 1976, Appendix A to BTP APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," was issued by the NRC.

In response to the NRC's request, Northern States Power submitted a Fire Hazards Analysis for the Monticello Nuclear Generating Plant on March 11, 1977.

Since that time, a number of changes have been made at Monticello in response to the NRC's Fire Protection Safety Evaluation Report issued in August 1979 and to comply with 10 CFR 50 Appendix R and 10 CFR 50.48. Additional modifications and improvements have been made in response to subsequent evaluations of the fire protection program at the plant.

This Updated Fire Hazards Analysis reflects the changes that have occurred at the plant since the original Fire Hazards Analysis and provides additional information.

1.4 Regulatory Requirements

The Code of Federal Regulations Part 50, "Domestic Licensing of Production and Utilization Facilities," addresses the topic of fire protection in Section 48. The regulation states that each plant shall satisfy General Design Criterion 3 of Appendix A to Part 50. In addition, Appendix R addresses certain generic issues. BTP APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," outlines the requirements for a Fire Hazard Analysis. This document states: "The overall Fire Protection Program should be based upon evaluation of potential fire hazards throughout the plant and the effect of postulated design basis fires relative to maintaining ability to perform safety shutdown functions and minimize radioactive releases to the environment." This Updated Fire Hazards Analysis provides the evaluation of potential fire hazards.

2.0 DEFINITIONS

Because of the esoteric nature of some terms and the possibility of misinterpretation, the following definitions are being presented for this report:

Approved - Tested and accepted for a specific purpose or application by a nationally recognized testing laboratory.

Combustible Load - That amount of combustible material within a fire zone expressed in British thermal units (Btu) representing potential heat release.

Combustible Material - A material that does not meet the definition of noncombustible material.

Combustion - An exothermic self-sustaining reaction involving a condensed phase fuel, a gas phase fuel, or both.

Derated Fire Load - Combustible materials completely or largely enclosed in metal containers that are not expected to burn completely during a fire. These materials are analyzed using the methodology outlined in the 19th edition of the NFPA Handbook, Section 12, Chapter 5.

Equivalent Fire Severity - The equivalent degree hour exposure of a design basis fire to a fire barrier, regardless of the actual burn time, represented by the area under the Standard Time-Temperature curve and expressed in minutes or hours. Thus, a less severe fire burning for 60 minutes may have an equivalent fire severity of 45 minutes.

Exposure Fire - A fire in a given fire area that involves either in-situ or transient combustibles and is external to any structures, systems or components located or adjacent to that same area. The effects of such fires (e.g. smoke, heat, or ignition) can adversely affect those structures, systems, or components important to safety. Thus, a fire involving one train of safe shutdown equipment may constitute an exposure fire for the redundant train located in the same area, and a fire involving combustibles other than either redundant train may constitute an exposure fire to both redundant trains located in the same area.

Fire Area - That portion of a building or plant that is separated from other areas by boundary fire barriers.

Fire Barrier - Those components of construction including walls, floors, and supports (beams, joist, columns), penetration seals or closures, fire doors, and fire dampers that are rated by approving laboratories in hours of resistance to fire, and are used to prevent the spread of fire.

Fire Detector - A device designed to automatically detect the presence of fire and initiate an alarm system and other appropriate action (see NFPA 72, National Fire Alarm Code). Some typical fire detectors are classified as follows:

Flame Detector - A device that detects the infrared, ultraviolet, or visible radiation produced by a fire.

Heat Detector - A device that detects a predetermined (fixed) temperature or rate of temperature rise.

Line-Type Detector - A device in which detection is continuous along a path, e.g. fixed temperature, heat sensitive cable, and rate of rise pneumatic tubing detectors.

Smoke Detector - A device that detects the visible or invisible products of combustion.

Fire Loading - A measure of the amount of potential heat release from combustible materials per unit area expressed in Btu/sq. ft. The fire loading for a fire zone equals the total combustible load for the zone divided by its floor area. Fire Loading is defined additionally as follows:

Negligible Fire Load – A fire severity less than five minutes for a 3 hr fire barrier or the equivalent ratio for a lesser barrier.

Low Fire Load – A fire severity greater than 5 minutes and less than 60 minutes for a 3 hr fire barrier or the equivalent ratio for a lesser barrier.

Moderate Fire Load – A fire severity greater than 60 minutes and less than 120 minutes for a 3 hr fire barrier or the equivalent ratio for a lesser barrier.

High Fire Load – A fire severity greater than 120 minutes for a 3 hr fire barrier or the equivalent ratio for a lesser barrier.

Fire Protection Program -The Fire Protection Program includes the fire protection and post-fire safe shutdown systems necessary to satisfy NRC guidelines and requirements; administrative and technical controls; the fire brigade and fire protection related technical staff; and other related plant features which have been described by the licensee in the FSAR, fire hazards analysis, responses to staff requests for additional information, comparisons of plant design to applicable NRC fire protection guidelines and requirements, and descriptions of methodology for assuring safe plant shutdown following a fire.

Fire Resistance Rating -The length of time that materials or assemblies have withstood a fire exposure as established in accordance with the test procedures of "Standard Methods of Fire Tests of Building Construction and Materials" (NFPA 251).

Fire Stop - A feature of construction that prevents fire propagation along the length of cables, or prevents spreading of fire to nearby combustibles within a given fire area or fire zone.

Fire Suppression - The control and extinguishing of fires (fire fighting). Manual fire suppression is the use of hoses, portable extinguishers, or manually actuated fixed systems by plant personnel. Automatic fire suppression is the use of automatically actuated fixed systems such as water, Halon, or carbon dioxide.

Fire Zone - A subdivision of a fire area in which fire suppression systems, spatial separation, and/or construction barriers combine to combat particular types of fires and help prevent their spread.

Fixed (In situ) Combustible - Combustible material that is in the plant at all times, including oils and combustible fluids in tanks or non-movable containers, charcoal filters, cable insulation, and other material that is not moved or likely to be moved from place to place.

Heat of Combustion - The amount of potential heat release in Btu per unit (i.e., pounds or gallons) of a combustible material were it subject to complete oxidation (burning).

Noncombustible Material - A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat.

Penetration - A designed opening in a fire barrier wall, floor, or ceiling through which may pass cables, conduits, pipes, ducts, cable trays, equipment, and the like.

Penetration Seal - An approved system designed to prevent the spread of fire through penetrations. The penetration seals are rated in hours of fire resistance.

Safety-Related Systems and Components - The systems and components required to shut down the reactor, or mitigate the consequences of postulated accidents, or maintain the reactor in a safe shutdown condition.

Sprinkler System - A network of piping connected to a reliable water supply that will distribute water throughout the protected area, through sprinklers, in sufficient quantity to either extinguish the fire entirely or prevent its spread. The system, usually activated by heat, includes a controlling valve and a device for actuating an alarm

when the system is in operation. The following categories of sprinkler systems are defined in NFPA 13, "Standard for the Installation of Sprinkler Systems":

- (1) Wet-Pipe System
- (2) Dry-Pipe System
- (3) Pre-action System
- (4) Deluge System

Transient Combustibles - Combustible material that is transient in nature, i.e., may be moved from place to place in the plant. Such material is normally associated with maintenance, modifications, and operations. The quantity of transient combustibles greater than the equivalent of 2 gallons of general purpose solvent is regulated by administrative controls.

Water Spray System - A network of piping similar to a sprinkler system except that it utilizes open-head spray nozzles. NFPA 15, "Water Spray Fixed Systems," provides guidance on these systems.

3.0 ASSUMPTIONS

In preparing this report, certain assumptions have been made to simplify the process or clarify the methodology employed.

3.1 Administrative Controls and Transient Combustibles

Assumption

Administrative controls are considered to be the basis for limiting transient combustibles. Administrative controls limit the amount of transient combustibles to the equivalent of two gallons of combustible liquid (solvent).

Basis

Plant activities such as operations, maintenance, and modifications are done in compliance with administrative controls.

3.2 Complete Combustion of the Combustible Inventory

Assumption

It is assumed that there will be sufficient oxygen and ventilation in each plant area, except the drywell which is inerted during power operation, to allow complete combustion of the exposed combustible materials within that zone.

Basis

Conservatism

3.3 Derated Fire Loads

Assumption

The 19th Edition of the NFPA Handbook (Reference 2) outlines criteria for determining derated fire loads. In several areas of the plant, there are combustible materials in steel drums or steel containers.

Basis

Because this type of confinement prevents complete combustion of those materials, the fire loading was derated using that methodology.

3.4 Drywell

Assumption

The drywell is identified on the FHA drawings; however, no fire area/zone designation will be assigned and no effort will be made to analyze fire effects or inventory combustibles.

Basis

The drywell is inerted during power operation; therefore, fire in this area is precluded.

3.5 Duct Penetrations

Assumption

Duct penetrations in fire barrier walls with a required rating of up to one hour are not considered to require fire dampers.

Basis

The NFPA Handbook (Reference 2) 19th Edition Section 12, Chapter 15, states: "In the gauges commonly used, some sheet metal ducts may protect an opening in a building construction assembly for up to one hour if properly hung and adequately fire stopped. Therefore, ducts passing through fire barriers having a rating up to one hour of fire resistance can be assumed to present no extraordinary hazard." In addition, NFPA 90A, "Air Conditioning and Ventilating Systems," does not require fire dampers for duct penetrations in fire-resistant partitions having one-hour ratings.

3.6 EFT Building Cable Tunnel and Exterior Duct Bank

Assumption

The EFT Building Cable Tunnel has been incorporated into Fire Zone 19B, Turbine Building ESF Motor Control Center. The exterior duct bank has been incorporated into Fire Zone 33, EFT Building third floor. Fire loading and floor area figures established for this zone do not consider the exterior duct bank.

Basis

The EFT Building Cable Tunnel opens to Fire Zone 19B. The exterior duct bank is buried underground and runs up the outside of the EFT Building until it opens into Fire Zone 33.

3.7 Exterior Walls

Assumption

Exterior walls do not require a fire rating unless exposed to potential exterior fire hazards.

Basis

Most exterior walls are not exposed to exterior fire hazards. In the case of an external fire exposure, additional protection is provided.

3.8 Fire Wall Ratings

Assumption

Fire walls are rated to a maximum of three hours, despite the fact that some walls would be capable of a much higher rating.

Basis

Section III.G of Appendix R to 10 CFR 50 does not require more than a three-hour separation of redundant trains.

3.9 Penetration Seals

Assumption

Qualified penetration seals have been provided in fire barriers and are assumed to have the rating outlined in the Quadrex Report (Reference 12).

Basis

The penetration seals were installed using the specifications set forth in the Quadrex Report and have been qualified.

3.10 Reinforced Concrete Walls

Assumption

Reinforced concrete slabs that are six or more inches thick are assumed to have a three-hour fire rating.

Basis

NFPA Handbook 19th Edition, Figure 12.4.20. (Reference 2)

3.11 Structural Steel

Assumption

Structural steel located in fire zones with an equivalent fire severity of less than five minutes will not fail.

Basis

The maximum expected fire severity at five minutes under the Standard Time-Temperature Curve equates to an exposure of 1000°F. Structural steel would not be expected to fail until a uniform temperature of 1100°F is reached.

3.12 Total Heat of Combustion for the Design Basis Fire

Assumption

This assumption conservatively anticipates complete combustion of the material and the liberation of the maximum amount of heat available from the fuel in a fire zone. This assumption does not consider ventilation control, spatial separation, fuel configuration, insulation due to charring and its resultant effect of causing incomplete combustion, nor does it consider other physical characteristics that would deter or effectively prevent complete combustion of the entire fuel inventory. In most cases ordinary combustibles do not burn perfectly; thus, they do not liberate their entire heat potential.

Basis

Conservatism

3.13 "Worst Case" Fires

Assumption

"Worst case" fires are not postulated to be simultaneous with non-fire-related failures in safety systems, with plant accidents, or with the most severe natural phenomena.

Basis

BTP CMEB 9.5-1

4.0 PERFORMANCE GOALS

The Updated Fire Hazards Analysis goals are as follows:

- (a) Consider potential in situ and transient fire hazards.
- (b) Determine the consequences of a fire in any location in the plant on the ability to safely shut down the reactor or on the ability to minimize and control the release of radioactivity to the environment.
- (c) Document existing measures for fire protection, detection, suppression, and containment; and document alternative shutdown capability as required for each fire area containing structures, systems, and components important to safety that are in conformance with NRC guidelines and regulations.

In addition, the Updated Fire Hazards Analysis verifies, through referenced documents, that the NRC Fire Protection Program guidelines have been met.

5.0 ANALYSIS

5.1 Plant Fire Protection Features

5.1.1 Purpose

The purpose of this subsection is to provide an overview of the plant fire protection features. The Updated Fire Hazards Analysis considers consequences of both the design basis fire and the fire that can reasonably be expected considering plant fire protection features. The following subsection outlines the Fire Protection Program and the physical features that combine to mitigate the effects of a fire at Monticello. Plant documents that provide the basis for the following subsections consist of the Updated Safety Analysis Report, the Operations Manual, 4 AWI-08.01.00, and Administrative Work Instructions.

5.1.2 Fire Protection Program Objectives

The objectives of the Fire Protection Program as discussed in the Updated Safety Analysis Report, which states the following:

The Fire Protection System is designed to provide a defense-in-depth principle by achieving an adequate balance in...

- (a) reducing the likelihood of occurrence of fire;
- (b) promptly detecting and extinguishing fires if they occur;
- (c) maintaining the capability to safely shut down the plant if fires occur; and
- (d) preventing the release of a significant amount of radioactive materials if fires occur.

5.1.3 Fire Protection Program Organization

4 AWI-08.01.00, Section 4.4.1, describes the general requirements for the Fire Protection Program as follows:

General Requirements

- (a) NSPM shall be responsible for the establishment and implementation of the fire protection program, NSPM may delegate to other organizations the work of establishing and implementing the fire protection program, or any part thereof, but shall retain responsibility for the program.
- (b) The authority and duties of persons and organizations involved in the fire protection program shall be clearly established and delineated in writing.
- (c) To assure adherence to the fire protection program, management measures shall be established which provide that individual or group assigned the responsibility for checking, auditing, inspecting, or otherwise verifying that an activity has been correctly performed is qualified and independent of the individual or group directly responsible for performing the specific activity.

5.1.4 Administrative Controls

Administrative controls have been established to maintain the performance of the fire protection system and personnel at Monticello. Administrative Work Instruction 4 AWI-08.01.01, (FIRE PREVENTION PRACTICES), outlines the responsibilities, requirements and recommendations.

5.1.5 Quality Assurance Program

The Quality Assurance Program requirements are outlined in the 4 AWI-08.01.00, Section 4.10.

5.1.6 Plant Layout

The Fire Hazards Analysis Matrix describes the fire zones. Included in the description are aspects of construction, fire barriers, safe shutdown equipment, equivalent fire severities based on fuel loading, fire detection, fire suppression, and the consequences of fires in each zone.

5.1.7 Fire Protection Systems

The Operations Manual, Section B.08.05, (FIRE PROTECTION), provides a detailed description of the fire protection systems at the plant. The following is a brief outline of these fire protection systems;

(a) Fire Detection System

Ionization type smoke detection have been installed in the following fire zones:

1A, 1B, 1C, 1E, 1F, 2A, 2B, 2C, 2G, 2H, 3B, 3C, 3D, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 6, 7A, 7B, 7C, 8, 9, 10, 12A, 13C, 14A, 16, 17, 18A, 18B, 19A, 19B, 19C, 21C, 23A, 28A, 28B, 29, 31A, 31B, 32A, 32B, 33, 34, 43.

Heat detectors are provided in the Auxiliary Boiler Building (Fire Zone 20), the Cable Spreading Room (Fire Zone 8), the Diesel Generator Rooms and Day Tank Rooms (Fire Zones 15A, 15B, 15C, 15D, 35 and 36), the Intake Structure (Fire Zone 23A), the Radwaste Shipping Area (Fire Zone 21C), the Transformer Yard (Fire Zone 37), the Turbine Generator/Exciter bearings (Fire Zone 30), the Security Diesel Building (Fire Zone 29) and CAB/Scaffold Storage Area (Fire Zone 43).

Flame detectors are provided in the Emergency Diesel Generator and Day Tank Rooms (Fire Zones 15A, 15B, 15C, 15D, 35 and 36),

The alarms are arranged to sound locally and at the Control Room for all Fire Zones except for Fire Zones 28A and B and 29, which sound at the Security Center. The detectors will also sound an alarm if there is a fault in the detector system.

The Control Room has battery-operated smoke detectors in enclosed cabinets and at the ceiling not visible from the general area of the Control Room. These detectors sound locally.

The 1R, 2R, and Main Transformers have Linear Heat Detectors (LHD). The system sounds locally and alarms to the control room.

In addition to the alarms above, there are HAD (Heat Actuated Device) alarms and/or water flow alarms associated with water suppression system. The following systems alarm to the Control Room:

- Main Transformer –LHD
- 2R Transformer – LHD
- 1R Transformer – LHD
- Turbine Building Siding – HAD and Deluge Water Flow
- Lube Oil Tank Room (Fire Zone 13A) – Sprinkler Water Flow
- Hydrogen Seal Oil (Fire Zone 12B) – Sprinkler Water Flow
- Condenser Bay (Fire Zone 12C) – Sprinkler Water Flow
- Recirculation MG Set (Fire Zone 3A) – HAD and Deluge Water Flow
- Lube Oil Reservoir (Fire Zone 13B) – HAD and Deluge Water Flow
- Diesel Generator Building (Fire Zone 15A) – Pre-action Water Flow
- Diesel Generator Building (Fire Zone 15B) – Pre-action Water Flow
- Diesel Generator Day Tank Room (Fire Zone 15C) – Pre-action Water Flow

Diesel Generator Day Tank Room (Fire Zone 15D) – Pre-action Water Flow
Intake Structure (Fire Zone 23A) – Pre-action Water Flow
Diesel Generator No. 13 Enclosure (Fire Zone 35) – HAD
Turbine Generator (Fire Zone 30) – Pre-action Water Flow

(b) Fire Protection Water Supply and Distribution System

(1) Fire Protection Water Supply

The water supply for the water suppression portion of the fire protection system consists of a 1500 gpm at 90psi diesel-driven vertical centrifugal pump, two 1500 gpm at 90 psi electric motor-driven vertical centrifugal pumps and a 50 gpm electric motor-driven horizontal centrifugal jockey pump, plus associated piping, valves, strainers, instrumentation and controls. Each of the three 1500 gpm pumps has duplex basket strainers located in its discharge. One of the electric motor-driven pumps supplies the fire system and is known as the fire pump. In addition to being the third fire pump, the second electric motor driven pump supplies the needs of the screen wash system and is known as the screen wash/fire pump.

Fire protection system header pressure is maintained greater than the electric fire pump automatic start set point by the fire system jockey pump, screen wash/fire pump or an equivalent means. Upon fire main pressure lowering to 70 psi, pressure switches start the electric and diesel fire pumps. Indication that these pumps are running is given in the Control Room. The diesel also starts automatically upon loss of plant AC power as a result of the header pressure decreasing to 70 psi. The screen wash/fire pump starts as a third system pump at 70 psi after a 10-second delay. Indication of the screen wash/fire pump supplying a fire header is given in the Control Room. When the screen wash/fire pump transfers to the fire system, it “locks in” to the system. This pump can be released from the fire pump service (once its use as a fire pump is no longer required) by pushing the reset button.

The diesel fire pump controller does not contain a sequential starting timer as required by NFPA 20, 1969; however, the inherent mechanical delay associated with starting of the diesel fire pump has been evaluated as equivalent.

The electric fire pumps and the jockey pump are located in the Intake Structure. The diesel fire pump is located in a separate room on top of the Intake Structure. The fire pumps take suction from the service water bay.

(2) Fire Protection Water Supply Distribution System

The fire pump discharges are 10-in. in diameter and tie into the fire line loop which begins in the Intake Structure. An 8-in. test line branches off the fire line loop in the Intake Structure and discharges to the service water pump suction bay. This line has a restricting orifice to allow 150% of rated flow for testing the pumps.

The fire line loop leaves the Intake Structure on both the east and west sides. It extends to the south and circles the Turbine, Reactor, and Administration Buildings. Northeast of the Turbine Building and southeast of the Administration Building, lines extend to the cooling towers. The firemain and extensions have post indicator valves for isolation of any portion of the loop or extension.

The 10-in. loop feeds the plant hydrants in addition to the fixed water suppression systems and standpipe hose stations.

The Turbine Building fire line branches off the fire line loop on the east side of the Intake Structure. It passes through the Intake Structure access tunnel and into the Turbine Building. It supplies hose stations located throughout the Turbine Building and the Turbine Building Addition. It also supplies sprinklers in the areas of the Hydrogen Seal Oil Unit, Turbine Lube Oil Storage tanks and reservoirs, the lube oil pumps and conditioner, Condenser Room, Turbine/Exciter bearings, and Diesel Generator No. 13 and any associated day tank rooms.

The 10-in. line to the transformer deluges, Turbine Building siding deluge, and the Emergency Diesel Generator Building branches off of the fire loop line on the west side of the Intake Structure.

The Reactor Building and Turbine Building fire suppression systems are provided with an 8-in. interconnecting line in addition to the normal supplied described earlier. This line is provided with three isolation valves. This line provides a redundant building supplied in case of a supply header break.

A 6-in. line branches off the fire loop at the southwest corner of the Radwaste Building to feed sprinklers and hose stations in the Radwaste Shipping Building.

A 6-in. line branches off the fire loop to the east of the EFT Building to feed hose stations in the EFT Building.

(c) Fixed Water-Based Fire Suppression Systems

The deluges and sprinkler systems operate automatically, with the exception of the three transformer deluges, which must be activated manually either from the Control Room or the local break-glass station.

(1) Turbine Building Siding Deluge System

The Turbine Building siding in the area of the transformers is protected by an automatic deluge water spray system actuated by HADs. The system demand is 850 gpm at 100 psi.

(2) Transformer Deluge Systems

The Main, 2R and 1R transformers are protected by manually activated fixed deluge water spray systems. The HADs and LHDs are arranged to transmit an alarm to the Control Room. The systems can be operated locally or at the Control Room. The system water demands are as follows:

Main Transformer – 1377 gpm at 75 psi

2R Transformer – 896.3 gpm at 99.9 psi

1R Transformer – 1,036.4 gpm at 96.3 psi

(3) Lube Oil Storage Tank Room Sprinkler System

The Lube Oil Storage Tank Room in Fire Zone 13A is protected by an automatic wet pipe sprinkler system.

(4) Hydrogen Seal Oil Unit Sprinkler System

The Hydrogen Seal Oil Unit in Fire Zone 12B is protected by an automatic wet-pipe sprinkler system.

(5) Lube Oil Piping Sprinkler System Under Turbine Floor

The area below the Turbine in Fire Zone 12C is protected against a lube oil spill fire by an automatic wet-pipe sprinkler system. The system is designed to deliver a density of 0.30 gpm/sq ft over the most remote 3,000 sq ft and 0.20 gpm/sq ft over the most remote 10,000 sq ft. The system demand is 2,321 gpm at 83 psi.

(6) Recirculation MG Set Deluge Sprinkler System

The recirculation MG set hydraulic drive units in Fire Zone 3A are protected by automatic deluge water spray systems.

(7) Lube Oil Reservoir Deluge Sprinkler System

The lube reservoir in Fire Zone 13B is protected by an automatic deluge sprinkler system capable of providing a density of 0.35 gpm/sq ft over the entire curbed area, or 2,706 sq ft. The system demand is 1735.5 gpm at 87.8 psi.

(8) Diesel Generator Building Sprinkler System

The diesel generators in Fire Zones 15A and 15B, and the day tanks in Fire Zones 15C and 15D, are protected by an automatic pre-action sprinkler system designed to deliver a density of 0.30 gpm over any room. The 12 EDG trench (15A) running beneath the 11 EDG room (15B) does not have suppression and contains no combustibles.

(9) Intake Structure Sprinkler System

The Intake Structure in Fire Zone 23A is protected by an automatic pre-action sprinkler system. The system is designed to deliver a density of 0.30 gpm/sq ft over the most remote 3,000 sq ft. The system demand at the pump is 1,287.4 gpm at 85.7 psi.

(10) Radwaste Shipping Sprinkler System

The Radwaste Shipping Building in Fire Zone 21C, except the Radwaste Drum Storage Room, is protected by an automatic pre-action sprinkler system designed to deliver a density of 0.30 gpm/sq ft over the entire area. The system demand is 1,843.7 gpm at 59.6 psi and includes 500 gpm for hoses.

(11) Diesel Generator No. 13 Room Enclosure Sprinkler System

The Diesel Generator No. 13 Room Enclosure, in Fire Zone 35 and its associated Day Tank Room in Fire Zone 36 are protected by an automatic dry-pipe pre-action sprinkler system with fusible link sprinkler heads.

(12) Turbine Generator Sprinkler System

Two pre-action sprinkler systems are provided to protect the Turbine Generator (Fire Zone 30). One pre-action sprinkler system protects bearings one through eight and under skirting oil pipes. The second pre-action sprinkler system protects bearings nine and ten in the exciter housing. Due to high voltage equipment in the exciter housing, this system will not charge the sprinkler piping with water until the generator output breaker is open.

01466886

(d) Hose Standpipe Systems

Hose stations are located as required to provide required coverage throughout the Administration Building, Reactor Building, and Turbine Building. Hose houses are also located around the plant site to provide coverage to the Reactor Building, Turbine Building, cooling towers, substation, and various other out-buildings located on plant property. The locations of these hose stations and hose houses are shown on P&ID M-134, M-810, and M-812.

(e) Halon Systems

(1) Cable Spreading Room

A total flooding Halon 1301 fire extinguishing system has been installed to provide coverage to the Cable Spreading Room. The system consists of a main bank of four Halon 1301 cylinders and a reserve bank of four cylinders. The cylinders are located in the Auxiliary Boiler Room. Activation of the system will release the selected bank of cylinders. One bank of cylinders is capable of providing an ~6.3% concentration of Halon 1301 in the Cable Spreading Room. This level of Halon 1301 is normally considered safe; however, a fire may cause toxic fumes to be present.

(2) Computer Room

A total flooding Halon 1301 fire extinguishing system has been installed to flood the Computer Room, including subfloor and false ceiling areas, with a 5% halon concentration. The system consists of two spherical containers mounted in the false ceiling area of the main part of the Computer Room with discharge nozzles extending into the subfloor, computer room and false ceiling area. There is no reserve halon capacity.

(3) Records Storage Vault

A total flooding Halon 1301 fire extinguishing system has been installed to provide coverage to the Records Storage Vault. The system consists of a single halon cylinder located outside the vault. A single discharge nozzle is located in the ceiling of the vault.

(f) Portable Equipment

Portable fire extinguishers are provided in the Reactor Building, Turbine Building, and Administration Building. The types provided are Halon 1211, dry chemical, carbon dioxide, and stored pressure water extinguishers. Locations of these fire extinguishers are located in Procedure No. 1123. Compliance with the requirements of NFPA 10 are documented in CA-04-204.

(g) Inadvertent Activation/Rupture of Suppression Systems

Reference Response to Information Notice 83-14 "Actuation of Fire Suppression System Causing Inoperability of Safety-Related Equipment", MO 0948-0869.

5.2 Fire Areas

The general description of the fire areas was established by General Electric Company (GE) in its report NEDC-30049, "Fire Protection and Safe Shutdown Systems Analysis Engineering Report" (Reference 19). Fire areas for the plant were determined such that a physical limitation to the effects of the evaluation fire could be established. The fire areas are comprised of a number of fire zones based on the plant geometry, equipment location, and cable runs. Fire zones were combined into fire areas based on the redundant train of safe shutdown equipment therein, and the feasibility of providing adequate fire barriers to separate them from other fire areas. The fire zones are identified by color such that red zones contain Division 1, green zones contain Division 2, and black zones contain no safe shutdown equipment or components or contain both divisions of safe shutdown equipment with exemption(s).

Table 1 lists the fire areas and the zones comprising them, together with a brief description of each fire zone.

5.3 Methodology for Preparing the Fire Hazards Analysis Matrices

The methodology used in the Updated Fire Hazards Analysis is based upon generally accepted fire protection engineering principles, including those outlined in the NFPA Fire Protection Handbook. In addition, the analysis follows provisions of the BTP 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants."

The analysis was done on a fire zone basis. Attachment A of this report contains an individual Fire Hazards Analysis Matrix for each fire zone. In order to complete the analysis, the following information and analysis is presented in the matrix for each fire zone:

I. Fire Area

On the first sheet of each Fire Hazards Analysis Matrix form, the fire area, fire zone designation, and floor area of the zone are indicated.

II. Location

The location of the fire zone is indicated, showing building and elevation.

III. Description

The fire zone is briefly described in this space.

IV. Combustibles

The total of Btu's in each fire zone is determined by using a combustible loading software program (CLSP) adding fixed (in situ) combustibles, including the cable insulation Btu values, to the allowable transient value.

V. Fire Loading

Actual fire loading values are maintained in the CLSP.

VI. Equivalent Fire Severity

The equivalent fire severity is determined using the CLSP:

The values for fire load in Btu/sq ft are divided by a factor of 1333.3 expressed as Btu/sq ft per minute of equivalent fire severity. This relationship comes from the NFPA Handbook, 19th Edition (Table 12.5.1), that essentially expresses an equivalent one-hour fire severity as a heat potential or fire load of 80,000 Btu/sq ft. Thus, a one-minute equivalent fire severity is 1,333 Btu/sq ft. Because this procedure deals with equivalent fire severity, no consideration need be given to the anticipated actual fire duration. The Equivalent Fire Severity provides a measure for determining the impact that a postulated fire would pose to a fire barrier for durations up to three hours.

VII. Minimum Fire Barrier Rating

The 1977 Fire Hazards Analysis identified fire zones based upon 10 CFR 50 Appendix A criteria. Since that time, additional fire zones have been identified to allow a thorough analysis of the plant safety-related areas. In 1983, GE prepared the "Fire Protection and Safe Shutdown Systems Analysis Engineering Report." This report identified fire areas based upon fire protection and systems analyses. As a result, fire zones were combined to form fire areas. Fire area barriers were identified as those barriers that separated fire areas containing redundant safe shutdown equipment.

A barrier will be considered acceptable based on the guidelines provided by 10 CFR 50.48, "Fire Protection," 10 CFR 50 Appendix R, and Generic Letters 83-33 and 86-10 from the NRC. All barriers that achieve a three-hour rating are acceptable. Those barriers that are existing must be capable of a rating greater than the greatest equivalent fire severity to which they are exposed, not to exceed three hours.

All new walls are required to have a three-hour rating.

In addition, if a barrier cannot achieve an acceptable fire resistance rating, then an evaluation must be performed to justify the adequacy of the barrier. The barriers which require these evaluations have been identified in the Fire Hazards Analysis Matrix Sheets for individual fire zones. These evaluations were performed by a fire protection engineer and are referenced in the applicable Analysis Matrix.

The minimum fire barrier rating is the lowest barrier rating for each Fire Zone. If the minimum fire barrier rating is less than 180 minutes, the equivalent fire severity should be lower than the minimum fire barrier rating. If the equivalent fire severity is greater than any minimum fire barrier rating of less than 180 minutes, an 86-10 evaluation is referenced or analysis is performed in the applicable analysis matrix.

Fire Zones that do not separate redundant safe shutdown trains and have unrated barriers were assigned a barrier rating of 30 minutes to minimize the fire loading in these areas.

VIII. Construction

(a) Fire Area Barriers: This section provides information on all required fire area barriers. The orientation is identified as north, south, east, west, ceiling, or floor. The adjacent fire zone and area are indicated. Wall numbers from the Bechtel masonry wall survey are indicated as appropriate. No numbers apply to ceilings or floors. The barrier construction is shown, along with its thickness. Fire ratings are shown for each barrier based upon the following:

- The construction and thickness of each fire area barrier was analyzed using NFPA criteria or the U.L. rating of the design.
- Fire barrier penetrations are listed in various design documents, including design drawings and specifications (i.e. Quadrex Report [Reference 12]).

- Fire dampers in fire walls were also identified and inspected as part of this procedure. It was necessary to use NSP plant drawings as part of the procedure to verify damper location. The fire damper ratings are considered in determining the barrier rating.
- Fire doors were inspected per a procedure developed for that purpose. The fire door ratings are considered in determining the fire barrier rating.
- Structural steel was inspected if it formed part of, or supported, a required fire barrier. The method of protecting the steel is considered in determining the fire barrier rating.

(b) Fire Doors in Required Barriers: This section is used to identify all fire doors required in fire area boundaries per Appendix R. Information includes orientation, adjacent fire zone and area, door number, elevation, and fire rating. Attachment B of this report provides this information.

(c) Fire Dampers in Required Barriers: This section lists the fire dampers required in fire area boundaries per Appendix R by orientation, adjacent fire zones and areas, type of opening, and fire rating. Attachment C of this report lists these dampers.

(d) Exterior Walls: This section provides information on exterior walls. The primary purpose of this section is to identify exterior exposure and any protection features. For Fire Zones with no exterior wall or the exterior wall has no exterior exposure, this section is identified as N/A.

(e) Comments: This section is used for comments relative to construction features of the fire zone.

IX. Fire Protection

(a) Detection: This section provides a brief description of the fire detection in the zone.

(b) Automatic Suppression: This section provides a brief description of the fixed automatic fire suppression features in the zone.

(c) Manual Suppression: This section indicates manual fire suppression features in the zone.

(d) Ventilation: This section provides a brief description of smoke and heat ventilation capabilities in the zone.

(e) Comments: When applicable this section is used for comments relative to fire protection features of the fire zone.

X. Fire Zone Features That Have a Limiting Effect on Fire Spread

The sole purpose of this section is to describe the features of the fire zone that would effectively prevent fire spread to adjoining fire zones. While it is assumed that components of one train may be lost, in most cases the design basis fire would be confined to the zone of origin.

XI. Minimum Safe Shutdown Systems Affected

This section points to the Safe Shutdown Analysis (USAR-J.04) for specific safe shutdown systems impacted by a fire in that fire zone as well as the compliance strategy for that zone.

XII. Consequences of Design Basis Fire

The consequences of a design basis fire in each zone are postulated in this section.

XIII. Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression

This section is used to describe, in text format, the anticipated fire growth and development considering the fire detection and suppression features that have been provided. The purpose of this section is to present a more realistic anticipated fire scenario than that of the design basis fire. The design basis fire, however, remains the basis for Appendix R separation criteria. This section is for information only.

XIV. Conclusion

This section discusses, on a zone-by-zone basis, the ability of the plant to achieve a safe shutdown condition.

5.4 Fire Severity Analysis

Except as noted below, the fire severity is maintained below the rating of the fire zone barrier through established limits within the CLSP.

Fire severities exceed the ratings of the barriers in the following Fire Zones: 13A, 13B, 15C, 15D, 17, 21B, 27, 28A, 28B, 29, 35, 36, and 37. Analysis of the adequacy of fire barrier minimum ratings relative to fire loading is provided for the above Fire Zones in the respective Fire Zone Matrix.

5.5 Updated Fire Hazards Analysis Summary Table

Table 2 provides a brief summary of the Updated Fire Hazards Analysis Matrix sheets. It is provided as a quick reference for fire zone data. Information regarding combustible loading of each fire zone is contained in the CLSP.

6.0 CONCLUSION

The Updated Fire Hazards Analysis has been prepared to demonstrate that the performance goals listed in Section 4 have been met.

The Updated Fire Hazards Analysis considers the effect of a design basis fire in any area of the plant. The consequences of such a fire are specified in Attachment A for each fire zone.

Monticello Nuclear Generating Plant uses the concept of defense-in-depth in implementing and maintaining the fire protection program. The objectives of this program are:

- (a) To prevent fires from starting;
- (b) To detect rapidly, control and extinguish promptly those fires that do occur;
- (c) To provide protection for structures, systems and components important to safety so that a fire that is not promptly extinguished by fire suppression activities will not prevent the safe shutdown of the plant.

It is the conclusion of the Updated Fire Hazards Analysis that these objectives have been met and that the plant can achieve safe shutdown despite any design basis fire at the plant.

7.0 REFERENCES

1. Northern States Power Co., Final Safety Analysis Report. Monticello Nuclear Generating Station Unit 1.
2. Cote, Arthur C., NFPA Fire Protection Handbook. 19th Edition, National Fire Protection Association, Quincy, MA, 2003.
3. Deleted.
4. Monticello Updated Safety Analysis Report, Appendix J.4, Safe Shutdown Analysis.
5. Deleted.
6. Bechtel Power Corp., Fire Hazards Analysis. Monticello Nuclear Generating Plant. Unit 1, March 11, 1977.
7. NFPA 80 "Standard for Fire Doors and Windows."
8. Letter and Attachments sent to Mr. L.L. Nolan of NSP from Mr. K.B. Hogg, Project Engineer for Bechtel, dated July 18, 1984.
9. NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems."
10. UL Fire Resistance Directory.
11. FM Approval Guide.
12. "Specifications for Installation of Electrical and Mechanical Penetration Seals," QUAD 5-80-009 by Quadrex.
13. "Report on the Reevaluation of Concrete Masonry Walls," Job. NO.1 0040-056 by Bechtel dated November 1980.
14. 10CFR50.48, "Fire Protection," and Appendix A to that part.
15. Appendix R to 10CFR50.48, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979."
16. Branch Technical Position CMEB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants."
17. "New Fire Zone Designations," B4NTS436.
18. Northern States Power Company General Plant Drawings including Equipment Drawings M-1 through M-18.
19. Fire Protection and Safe Shutdown Systems Analysis Engineering Report," General Electric Company, NEDC-30049, 1983.
20. Monticello Design Change Numbers 86Z040, Part C and 89Z006.
21. Monticello Fire Hazards Analysis Drawings, NX-16991 series.

Table 1
Fire Area Description

Fire Area I – Division 1 - Red

<u>Fire Zone</u>	<u>Fire Zone Description</u>
1B	RHR and Core Spray Pump Room, Division I
1H	RCIC Room Appendix R Cable Enclosure
2B	CRD Hydraulic Control Unit Area
2D	Reactor Building Railroad Car Shelter
2E	TIP Room
2G	RHR Valve Room East
3B	MCC and Standby Liquid Control System Area
3E	Reactor Building 962' Elevation North
4A	Equipment Hatch Area
4B	Cooling Water Heat Exchanger Area
4C	Corridor Outside Main Exhaust Plenum
4D	Standby Gas Treatment System Room
4E	Reactor Plenum Room
5A	Laydown and Decontamination Area
5B	Contaminated Equipment Storage Area
5C	Skimmer Surge Tank Area
6	Refueling Floor
21A	Radwaste Control Room
21B	Baler and Dry Waste Storage Area
21C	Radwaste Shipping Area
21D	Radwaste Miscellaneous Areas

Fire Area II – Division 2 - Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
1A	RHR and Core Spray Pump Room, Division II
1D	Equipment and Floor Drain Tank Room
1E	HPCI Room
1G	Control Rod Drive Pump Room
2C	CRD Hydraulic Control Unit Area and HVAC Areas
2F	Steam Chase
2H	RHR Valve Room West
3C	MCC Area
3D	Cooling Water Pump and Chiller Area

Table 1
Fire Area Description

Fire Area III – Division 2 - Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
1C	RCIC Room
2A	TIP Drive Room

Fire Area IV – Division 1 & 2 – Red & Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
1F	Suppression Pool Area

Fire Area V – Division 1 – Red

<u>Fire Zone</u>	<u>Fire Zone Description</u>
3A	Reactor Recirculation Pumps MG Set Room

Fire Area VI – Division 1 & 2 – Red & Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
7A	Battery Room, D-1 and D-5
7B	Battery Room D-3
8	Cable Spreading Room
10	Administration Building
11	Administration Building HVAC Room

Fire Area VII – Division 2 - Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
7C	Battery Room, D-2 and D-4

Fire Area VIII – Division 1 & 2 – Red & Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
9	Control Room

Table 1
Fire Area Description

Fire Area IX – Division 1 & 2 – Red & Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
12A	Turbine Building Load Center No. 1 - Lower 4KV Area
13A	Lube Oil Storage Tank Room
13B	Lube Oil Reservoir and Reactor Feed Pump Area
13C	ESF Motor Control Center
16	Turbine Building Corridor
19C	Pipe and Cable Tray Penetration Area
23A	Intake Structure Pump Room
23B	Intake Structure Corridor
39	Turbine Building Addition (TBA)
40	Screen House
41	Sodium Hypochloride House

Fire Area X – Division 2 - Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
12B	Hydrogen Seal Oil Unit; and Condensate Pump Area
12C	Turbine Basement Condenser Area
12D	Clean Radwaste Sump Area
12E	Air Ejector Room
14B	Valve Operating Gallery
14C	Turbine Building Railroad Car Shelter
22	Recombiner Building
30	Turbine Operating Floor
42	CO ₂ and H ₂ Building

Fire Area XI – Division 1 - Red

<u>Fire Zone</u>	<u>Fire Zone Description</u>
15E	Diesel Fuel Oil Pump House

Fire Area XII – Division 2 – Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
14A	Turbine Building Load Center No. 2 - Upper 4kV Area
17	Turbine Building Cable Way
19A	Water Treatment Area
19B	ESF Motor Control Center and EFT Cable Tunnel

01463416 / 01491869

Table 1
Fire Area Description

Fire Area XIII – Division 2 – Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
15A	Diesel Generator Room No. 12 (Includes the 12 EDG trench running under the 11 EDG room)

Fire Area XIV – Division 1 – Red

<u>Fire Zone</u>	<u>Fire Zone Description</u>
15B	Diesel Generator Room No. 11

Fire Area XV – Division 2 – Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
15C	Day Tank Room T-45B

Fire Area XVI – Division 1 – Red

<u>Fire Zone</u>	<u>Fire Zone Description</u>
15D	Day Tank Room T-45A

Fire Area XVII – Black

<u>Fire Zone</u>	<u>Fire Zone Description</u>
25	Discharge Structure Pump Room

Fire Area XVIII – Black

<u>Fire Zone</u>	<u>Fire Zone Description</u>
26	Offgas Stack
27	Offgas Retention Building

Fire Area XIX – Black

<u>Fire Zone</u>	<u>Fire Zone Description</u>
28A	Guard House
28B	Security Access Facility

Fire Area XX – Black

<u>Fire Zone</u>	<u>Fire Zone Description</u>
29	Security Diesel Building

01466886

Table 1
Fire Area Description

Fire Area XXI – Division 1 - Red

<u>Fire Zone</u>	<u>Fire Zone Description</u>
31A	EFT, First Floor, Division I
32A	EFT, Second Floor, Division I

Fire Area XXII – Division 2 - Green

<u>Fire Zone</u>	<u>Fire Zone Description</u>
31B	EFT, First Floor, Division II
32B	EFT, Second Floor, Division II
33	EFT Third Floor and Exterior Duct Bank

Fire Area XXIII – Black

<u>Fire Zone</u>	<u>Fire Zone Description</u>
24	Diesel Fire Pump Room

Fire Area XXIV – Black

<u>Fire Zone</u>	<u>Fire Zone Description</u>
18A	13.8 kV Switchgear Room, Bus 11
18B	13.8 kV Switchgear Room, Bus 12
34	Non-1E Electrical Equipment Room
35	Diesel Generator No. 13 Room
36	Diesel Generator No. 13 Day Tank Room
20	Auxiliary Boiler Room
43	Compressed Air Building (CAB)

Fire Area XXV – Black

<u>Fire Zone</u>	<u>Fire Zone Description</u>
37	Main, 1R and 2R Transformers

Fire Area XXVI – Black

<u>Fire Zone</u>	<u>Fire Zone Description</u>
38	Cooling Towers

Table 2
Fire Zone Summary

FIRE AREA	FIRE ZONE	AREA SQFT	FIRE DETECTION	AUTOMATIC SUPPRESSION	MANUAL SUPPRESSION		SAFE SHUTDOWN SYSTEMS AFFECTED
					Portable Extinguisher	Hose Station	
II	1A	567	SMOKE	NONE	YES	NO	YES
I	1B	567	SMOKE	NONE	YES	NO	YES
III	1C	541	SMOKE	NONE	YES	NO	NO
II	1D	606	NONE	NONE	NO	NO	YES
II	1E	1,400	SMOKE	NONE	YES	YES	NO
IV	1F	11,705	SMOKE	NONE	NO	YES	YES
II	1G	427	NONE	NONE	YES	NO	NO
I	1H	10	NONE	NONE	NO	NO	YES
III	2A	924	SMOKE	NONE	YES	NO	YES
I	2B	4,172	SMOKE	NONE	YES	YES	YES
II	2C	5,792	SMOKE	NONE	YES	YES	YES
I	2D	1,326	NONE	NONE	NO	NO	NO
I	2E	606	NONE	NONE	NO	NO	NO
II	2F	805	NONE	NONE	NO	NO	YES
I	2G	274	SMOKE	NONE	NO	NO	YES
II	2H	298	SMOKE	NONE	YES	NO	YES
V	3A	2,850	HADs OVER MG SET HYDRAULIC COUPLINGS	AUTOMATIC WATER SPRAY SYSTEMS PROTECT THE MG SET HYDRAULIC COUPLINGS	YES	YES	YES
I	3B	4,708	SMOKE	NONE	YES	YES	YES
II	3C	862	SMOKE	NONE	YES	YES	YES
II	3D	3,228	SMOKE	NONE	YES	YES	YES

01463416

Table 2
Fire Zone Summary

FIRE AREA	FIRE ZONE	AREA SQFT	FIRE DETECTION	AUTOMATIC SUPPRESSION	MANUAL SUPPRESSION		SAFE SHUTDOWN SYSTEMS AFFECTED
					Portable Extinguisher	Hose Station	
I	3E	276	NONE	NONE	NO	NO	NO
I	4A	2,885	SMOKE	NONE	YES	YES	YES
I	4B	3,056	SMOKE	NONE	YES	YES	NO
I	4C	1,132	SMOKE	NONE	NO	NO	NO
I	4D	792	SMOKE	NONE	YES	NO	NO
I	4E	1,969	NONE	NONE	YES	YES	NO
I	5A	6,679	SMOKE	NONE	YES	YES	NO
I	5B	2,250	SMOKE	NONE	YES	YES	NO
I	5C	564	SMOKE	NONE	NO	NO	NO
I	6	14,162	SMOKE (PARTIAL)	NONE	YES	YES	NO
VI	7A	193	SMOKE	NONE	NO	NO	YES
VI	7B	324	SMOKE	NONE	NO	NO	YES
VII	7C	153	SMOKE	NONE	NO	NO	YES
VI	8	2,286	SMOKE AND THERMAL	AUTOMATIC TOTAL FLOOD HALON 1301 SYSTEM	YES	NO	YES
VIII	9	2,256	SMOKE	NONE	YES	NO	YES
VI	10	40,115	SMOKE (PARTIAL)	HALON SYSTEMS IN RECORDS STORAGE VAULT AND COMPUTER ROOM	YES	YES	YES
VI	11	2,560	NONE	NONE	YES	NO	YES
IX	12A	2,212	SMOKE	NONE	YES	YES	YES

Table 2
Fire Zone Summary

FIRE AREA	FIRE ZONE	AREA SQFT	FIRE DETECTION	AUTOMATIC SUPPRESSION	MANUAL SUPPRESSION		SAFE SHUTDOWN SYSTEMS AFFECTED
					Portable Extinguisher	Hose Station	
X	12B	1,658	SPRINKLER WATER FLOW ALARM FOR HYDROGEN SEAL OIL UNIT AREA	WET PIPE SPRINKLER SYSTEM PROTECTS HYDROGEN SEAL OIL UNIT	YES	YES	NO
X	12C	13,060	SPRINKLER WATER FLOW ALARM	AUTOMATIC WET PIPE SPRINKLER SYSTEM	YES	YES	YES
X	12D	1,591	NONE	NONE	YES	NO	NO
X	12E	1,206	NONE	NONE	NO	NO	NO
IX	13A	318	SPRINKLER WATER FLOW ALARM	AUTOMATIC WET PIPE SPRINKLER SYSTEM	NO	NO	NO
IX	13B	2,453	HADSs TRIP DELUGE SPRINKLER SYSTEM AND ALARM IN CONTROL ROOM	AUTOMATIC DELUGE SPRINKLER SYSTEM PROTECTS LUBE OIL RESERVE AND WET PIPE SPRINKLER SYSTEMS PROVIDE WATER CURTAIN IN EQUIPMENT HATCH	YES	YES	YES
IX	13C	908	SMOKE	OPEN HEAD SPRINKLER	YES	YES	YES
XII	14A	2,553	SMOKE	NONE	YES	YES	YES
X	14B	3,077	NONE	NONE	YES	NO	NO
X	14C	1,717	NONE	NONE	YES	YES	NO
XIII	15A	1,098	HEAT AND FLAME	AUTOMATIC PRE-ACTION SPRINKLER SYSTEM	YES	NO	YES

Table 2
Fire Zone Summary

FIRE AREA	FIRE ZONE	AREA SQFT	FIRE DETECTION	AUTOMATIC SUPPRESSION	MANUAL SUPPRESSION		SAFE SHUTDOWN SYSTEMS AFFECTED
					Portable Extinguisher	Hose Station	
XIV	15B	1,263	HEAT AND FLAME	AUTOMATIC PRE-ACTION SPRINKLER SYSTEM	YES	YES	YES
XV	15C	133	HEAT AND FLAME	AUTOMATIC PRE-ACTION SPRINKLER SYSTEM	NO	NO	YES
XVI	15D	133	HEAT AND FLAME	AUTOMATIC PRE-ACTION SPRINKLER SYSTEM	NO	NO	YES
XI	15E	120	NONE	NONE	YES	NO	YES
IX	16	2,372	SMOKE	NONE	YES	YES	YES
XII	17	1,071	SMOKE	NONE	NO	NO	YES
XXIV	18A	1196	SMOKE	NONE	YES	YES	NO
XXIV	18B	662	SMOKE	NONE	YES	NO	NO
XII	19A	2,188	SMOKE	NONE	YES	YES	YES
XII	19B	942	SMOKE	NONE	YES	YES	YES
IX	19C	204	SMOKE	NONE	NO	NO	YES
XXIV	20	1,419	HEAT	NONE	YES	YES	NO
I	21A	606	NONE	NONE	YES	NO	NO
I	21B	1,290	NONE	NONE	NO	YES	NO
I	21C	5,431	SMOKE AND HEAT	PRE-ACTION SPRINKLER SYSTEM (PARTIAL)	YES	YES	NO
I	21D	12,645	NONE	NONE	YES	YES	NO
X	22	3,400	NONE	NONE	YES	NO	NO

01463416 / 01491869

Table 2
Fire Zone Summary

FIRE AREA	FIRE ZONE	AREA SQFT	FIRE DETECTION	AUTOMATIC SUPPRESSION	MANUAL SUPPRESSION		SAFE SHUTDOWN SYSTEMS AFFECTED
					Portable Extinguisher	Hose Station	
IX	23A	4,023	SMOKE AND HEAT	AUTOMATIC PRE-ACTION SPRINKLER SYSTEM	YES	YES	YES
IX	23B	1,034	NONE	NONE	NO	NO	YES
XXIII	24	214	NONE	NONE	YES	NO	NO
XVII	25	2,500	NONE	NONE	YES	NO	NO
XVIII	26	707	NONE	NONE	YES	NO	NO
XVIII	27	480	NONE	NONE	YES	NO	NO
XIX	28A	2730	SMOKE AND HEAT	AUTOMATIC WET PIPE SPRINKLER SYSTEM (PARTIAL) AND AUTOMATIC HALON 1301 (PARTIAL)	YES	YES	NO
XIX	28B	5005	SMOKE	NONE	YES	NO	NO
XX	29	575	SMOKE AND HEAT	AUTOMATIC PRE-ACTION SPRINKLER SYSTEM (PARTIAL)	YES	NO	NO

Table 2
Fire Zone Summary

FIRE AREA	FIRE ZONE	AREA SQFT	FIRE DETECTION	AUTOMATIC SUPPRESSION	MANUAL SUPPRESSION		SAFE SHUTDOWN SYSTEMS AFFECTED
					Portable Extinguisher	Hose Station	
X	30	26198	HEAT	AUTOMATIC DELUGE WATER SPRAY SYSTEM PROTECTS WEST WALL EXTERIOR AND PREACTION SPRINKLER SYSTEM PROTECTS TURBINE BEARINGS AND UNDER SKIRTING OIL PIPING	YES	YES	YES
XXI	31A	371	SMOKE	NONE	YES	YES	YES
XXII	31B	1152	SMOKE	NONE	YES	YES	YES
XXI	32A	835	SMOKE	NONE	YES	YES	YES
XXII	32B	704	SMOKE	NONE	YES	YES	YES
XXII	33	1139	SMOKE	NONE	YES	YES	YES
XXIV	34	2220	SMOKE	NONE	YES	NO	NO
XXIV	35	348	HEAT AND FLAME	AUTOMATIC PREACTION SPRINKLER SYSTEM	YES	NO	NO
XXIV	36	96	HEAT AND FLAME	AUTOMATIC PREACTION SPRINKLER SYSTEM	NO	NO	NO
XXV	37	6318	HEAT	AUTOMATIC AND MANUAL OPEN HEAD WATER SPRAY SYSTEM	NO	NO	NO
XXVI	38	N/A	N/A	N/A	N/A	N/A	N/A
IX	39	6324	NONE	NONE	YES	YES	NO

Table 2
Fire Zone Summary

FIRE AREA	FIRE ZONE	AREA SQFT	FIRE DETECTION	AUTOMATIC SUPPRESSION	MANUAL SUPPRESSION		SAFE SHUTDOWN SYSTEMS AFFECTED
					Portable Extinguisher	Hose Station	
IX	40	1398	NONE	NONE	NO	NO	NO
IX	41	569	NONE	NONE	YES	NO	NO
X	42	362	NONE	NONE	YES	NO	NO
XXIV	43	1800	HEAT AND SMOKE	NONE	YES	NO	NO

Attachment A
FIRE HAZARDS ANALYSIS MATRICES

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 1A

I	Fire Area: II	Fire Zone: 1A	Floor Area: 567 sq ft																		
II	Location: Southwest Corner Reactor Building		Elevation: 896'-3"																		
III	Description: RHR and Core Spray Pump Room, Division II																				
IV	Combustibles: (See CLSP)																				
V	Fire Loading: (See CLSP)																				
VI	Equivalent Fire Severity: (See CLSP)																				
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																				
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>East</td><td>1F/IV</td><td>110</td><td>Reinforced concrete 36" thick and concrete block 24" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr> </thead> <tbody> <tr> <td>East/Wall 110</td><td>1F/IV</td><td>Vent duct dampered</td><td>(3) V-DF-208</td></tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>			ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	East	1F/IV	110	Reinforced concrete 36" thick and concrete block 24" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	East/Wall 110	1F/IV	Vent duct dampered	(3) V-DF-208
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																	
East	1F/IV	110	Reinforced concrete 36" thick and concrete block 24" thick - equivalent 3 hrs	3 hrs																	
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																		
East/Wall 110	1F/IV	Vent duct dampered	(3) V-DF-208																		
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> Portable extinguishers: Located within Fire Zone. Hose stations: None. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p>																				

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 1A

	<p>E. Comments:</p> <p>1. CA-02-157 addresses fire detector location NFPA code deviations.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 1B

I	Fire Area: I	Fire Zone: 1B			Floor Area: 567 sq ft.																		
II	Location: Southeast Corner Reactor Building			Elevation: 896'-3"																			
III	Description: RHR and Core Spray Pump Room, Division I																						
IV	Combustibles: (See CLSP)																						
V	Fire Loading: (See CLSP)																						
VI	Equivalent Fire Severity: (See CLSP)																						
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																						
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>West</td> <td>1F/IV</td> <td>112</td> <td>Reinforced concrete 36" thick with section of concrete block 24" thick - equivalent 3 hrs.</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>TYPE OF OPENING</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West/Wall 112</td> <td>1F/IV</td> <td>Vent duct dampered</td> <td>(3) V-DF-209</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	West	1F/IV	112	Reinforced concrete 36" thick with section of concrete block 24" thick - equivalent 3 hrs.	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	TYPE OF OPENING	FIRE RATING Damper No.	West/Wall 112	1F/IV	Vent duct dampered	(3) V-DF-209
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																			
West	1F/IV	112	Reinforced concrete 36" thick with section of concrete block 24" thick - equivalent 3 hrs.	3 hrs																			
ORIENTATION	ADJ. ZONE/ AREA(S)	TYPE OF OPENING	FIRE RATING Damper No.																				
West/Wall 112	1F/IV	Vent duct dampered	(3) V-DF-209																				
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by the use of portable smoke ejectors.</p> <p>E. Comments:</p>																						

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 1B

	1. CA-02-158 addresses fire detector location NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area III
Fire Zone 1C

I	Fire Area: III	Fire Zone: 1C		Floor Area: 541 sq ft																																																									
II	Location: Northeast Corner Reactor Building			Elevation: 896'-3"																																																									
III	Description: RCIC Room																																																												
IV	Combustibles: (See CLSP)																																																												
V	Fire Loading: (See CLSP)																																																												
VI	Equivalent Fire Severity: (See CLSP)																																																												
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																																												
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>12C/X</td> <td>101</td> <td>Reinforced concrete 36" thick-equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>10/VI</td> <td>104</td> <td>Reinforced concrete 48" thick-equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>1F/IV</td> <td>108</td> <td>Reinforced concrete 36" thick-equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>2B/I</td> <td></td> <td>Reinforced concrete 24" thick on part steel – equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>North</td> <td>1H/I</td> <td></td> <td>Concrete Block 8" thick-equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>West/Wall 108</td> <td>1F/IV</td> <td>41</td> <td>896'</td> <td>3</td> </tr> <tr> <td>North</td> <td>1H/I</td> <td>21</td> <td>896'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West/Wall 108</td> <td>1F/IV</td> <td>Vent duct dampered</td> <td>(3) V-DF-210</td> </tr> <tr> <td>West Wall 108</td> <td>1F/IV</td> <td>Grill Opening dampered</td> <td>(3) V-DF-211</td> </tr> </tbody> </table>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	12C/X	101	Reinforced concrete 36" thick-equivalent 3 hrs	3 hrs	East	10/VI	104	Reinforced concrete 48" thick-equivalent 3 hrs	3 hrs	West	1F/IV	108	Reinforced concrete 36" thick-equivalent 3 hrs	3 hrs	Ceiling	2B/I		Reinforced concrete 24" thick on part steel – equivalent 3 hrs	3 hrs	North	1H/I		Concrete Block 8" thick-equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	West/Wall 108	1F/IV	41	896'	3	North	1H/I	21	896'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	West/Wall 108	1F/IV	Vent duct dampered	(3) V-DF-210	West Wall 108	1F/IV	Grill Opening dampered	(3) V-DF-211
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																									
North	12C/X	101	Reinforced concrete 36" thick-equivalent 3 hrs	3 hrs																																																									
East	10/VI	104	Reinforced concrete 48" thick-equivalent 3 hrs	3 hrs																																																									
West	1F/IV	108	Reinforced concrete 36" thick-equivalent 3 hrs	3 hrs																																																									
Ceiling	2B/I		Reinforced concrete 24" thick on part steel – equivalent 3 hrs	3 hrs																																																									
North	1H/I		Concrete Block 8" thick-equivalent 3 hrs	3 hrs																																																									
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																									
West/Wall 108	1F/IV	41	896'	3																																																									
North	1H/I	21	896'	3																																																									
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																																										
West/Wall 108	1F/IV	Vent duct dampered	(3) V-DF-210																																																										
West Wall 108	1F/IV	Grill Opening dampered	(3) V-DF-211																																																										

FIRE HAZARDS ANALYSIS MATRIX
Fire Area III
Fire Zone 1C

	<p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. Ceiling/(2B/I) – steel is not for support, barrier assigned three-hour rating.
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling backed up by the use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-156 addresses fire detector location NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cables: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 1D

I	Fire Area: II	Fire Zone: 1D		Floor Area: 606 sq ft																																										
II	Location: Northwest Corner Reactor Building			Elevation: 896'-3"																																										
III	Description: Equipment and Floor Drain Tank Room																																													
IV	Combustibles: (See CLSP)																																													
V	Fire Loading: (See CLSP)																																													
VI	Equivalent Fire Severity: (See CLSP)																																													
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																													
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>12C/X</td> <td>101</td> <td>Reinforced concrete 42" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>North</td> <td>12D/X</td> <td>101</td> <td>Reinforced concrete 42" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>1F/IV</td> <td>106</td> <td>Reinforced concrete 36" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>East/Wall 106</td> <td>1F/IV</td> <td>42</td> <td>896'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>East/Wall 106</td> <td>1F/IV</td> <td>Vent duct dampered</td> <td>(3) V-DF-203</td> </tr> <tr> <td>East/Wall 106</td> <td>1F/IV</td> <td>Vent duct dampered</td> <td>(3) V-DF-202</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	12C/X	101	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs	North	12D/X	101	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs	East	1F/IV	106	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	East/Wall 106	1F/IV	42	896'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	East/Wall 106	1F/IV	Vent duct dampered	(3) V-DF-203	East/Wall 106	1F/IV	Vent duct dampered	(3) V-DF-202
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																										
North	12C/X	101	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs																																										
North	12D/X	101	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs																																										
East	1F/IV	106	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs																																										
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																										
East/Wall 106	1F/IV	42	896'	3																																										
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																											
East/Wall 106	1F/IV	Vent duct dampered	(3) V-DF-203																																											
East/Wall 106	1F/IV	Vent duct dampered	(3) V-DF-202																																											

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 1D

IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416
01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 1E

I	Fire Area: II	Fire Zone: 1E		Floor Area: 1,400 sq ft																												
II	Location: Reactor Building			Elevation: 896'-3"																												
III	Description: HPCI Room																															
IV	Combustibles: (See CLSP)																															
V	Fire Loading: (See CLSP)																															
VI	Equivalent Fire Severity: (See CLSP)																															
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 min																															
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>12D/X</td> <td>101</td> <td>Reinforced concrete 42" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>South</td> <td>33/XXII</td> <td></td> <td>Reinforced concrete 36" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>1F/IV</td> <td>102</td> <td>Reinforced concrete 42" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>East/Wall 102</td> <td>1F/IV</td> <td>Vent duct dampered</td> <td>(3) V-DF-243</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	12D/X	101	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs	South	33/XXII		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs	East	1F/IV	102	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	East/Wall 102	1F/IV	Vent duct dampered	(3) V-DF-243
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																												
North	12D/X	101	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs																												
South	33/XXII		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs																												
East	1F/IV	102	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs																												
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																													
East/Wall 102	1F/IV	Vent duct dampered	(3) V-DF-243																													

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 1E

IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-159 addresses fire detector location NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IV
Fire Zone 1F

I	Fire Area: IV	Fire Zone: 1F			Floor Area: 11,705 sq ft
II	Location: Reactor Building				Elevation: 896’-3”
III	Description: Suppression Pool Area				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes				
	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	12C/X	101	Reinforced concrete ≥ 36” thick-equivalent 3 hrs	3 hrs
	North	2G/I	225	Concrete block ≥ 12” thick-equivalent 3 hrs(Pipe Chase)	3 hrs
	South	2B/I	219	Concrete block ≥ 30” thick-equivalent 3 hrs(Pipe Chase)	3 hrs
	East	10/VI	104	Reinforced concrete 48” thick - equivalent 3 hrs	3 hrs
	East	1C/III	108	Reinforced concrete 36” thick - equivalent 3 hrs	3 hrs
	East	1B/I	112	Reinforced concrete 36” thick and concrete blocksection 24” thick - equivalent 3 hrs	3 hrs
	East	2B/I	226	Concrete block 30” thick - equivalent 3 hrs (Pipe Chase)	3 hrs
	West	1D/II	106	Reinforced concrete 36” thick - equivalent 3 hrs	3 hrs
	West	2G/I	242	Concrete block 12” thick - equivalent 3 hrs	3 hrs
	West	1A/II	110	Reinforced concrete 36” thick and concrete block Section 24” thick - equivalent 3 hrs	3 hrs
	West	1G/II	106	Reinforced concrete 36” thick – equivalent 3 hrs	3 hrs

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IV
Fire Zone 1F

ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
West	1E/II	102	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs
West	33/XXII		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
Ceiling	2A/III		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
Ceiling	2B/I		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
Ceiling	2C/II		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
Ceiling	2E/I		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
Ceiling	2F/II		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
Ceiling	2G/I		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
Ceiling	2H/II		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
Ceiling	21D/I		Sealed Pipe Chase – equivalent 3 hrs	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
East/Wall 108	1C/III	41	896'	3
West/Wall 106	1D/II	42	896'	3
West/Wall 106	1G/II	412	923'	3

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IV
Fire Zone 1F

	C. Fire Dampers in Required Barriers			
	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
	East/Wall 108	1C/III	Vent duct dampered	(3) V-DF-210 (3) V-DF-211
	East/Wall 112	1B/I	Vent duct dampered	(3) V-DF-209
	West/Wall 106	1D/II	Vent duct dampered	(3) V-DF-203
	West/Wall 110	1A/II	Vent duct dampered	(3) V-DF-208
	West/Wall 102	1E/II	Vent duct dampered	(3) V-DF-243
	West/Wall 106	1D/II	Vent duct dampered	(3) V-DF-202
	Ceiling	2A/III	Vent duct dampered	(3) V-DF-212
	Ceiling	2C/II	Vent duct dampered	(3) V-DF-242
	D. Exterior Walls: N/A			
	E. Comments:			
	<ol style="list-style-type: none"> 1. Ceiling/(2B/I) – Reactor Building Hatch No. 9 is an unrated assembly in a three-hour barrier. The basis for acceptability of this assembly is found in CA-02-104. 2. Ceiling/(21D/I) – The small gaps in Penetration FZ-0531 are addressed in CA-02-100. 			
IX	Fire Protection:			
	A. Detection: Smoke detectors located within Fire Zone.			
	B. Automatic Suppression: None.			
	C. Manual Suppression:			
	<ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located within Fire Zone. 			
	D. Ventilation: Smoke and heat removal can be accomplished using normal air handling along with venting action of open doors. Portable smoke ejectors can be used if necessary.			
	E. Comments:			
	<ol style="list-style-type: none"> 1. CA-02-117 addresses fire detector location NFPA code deviations 			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IV
Fire Zone 1F

X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>In accordance with the Exemption request, Safe Shutdown systems consist of instrumentation and motor operated valves. Each train is separated by at least 75 feet with minimal intervening combustibles. Thus, only one division is considered lost.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment. Thus, the fire protection features are adequate for the fire hazards in this Fire Zone.</p>
XIV	<p>Conclusion:</p> <p>An exemption has been requested and approved for the lack of automatic suppression in the area. Thus only Division 1 <u>or</u> Division 2 is considered affected leaving the other division available for safe shutdown capability.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 1G

I	Fire Area: II	Fire Zone: 1G	Floor Area: 427 sq ft																															
II	Location: Northwest Corner Reactor Building		Elevation: 923'-0"																															
III	Description: Control Rod Drive Pump Room																																	
IV	Combustibles: (See CLSP)																																	
V	Fire Loading: (See CLSP)																																	
VI	Equivalent Fire Severity: (See CLSP)																																	
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																	
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>North</td><td>12D/X</td><td>101</td><td>Reinforced concrete 42" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> <tr> <td>North</td><td>12C/X</td><td>101</td><td>Reinforced concrete 36" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> <tr> <td>East</td><td>1F/IV</td><td>106</td><td>Reinforced concrete 36" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/AREA</th><th>DOOR NO.</th><th>EL.</th><th>FIRE RATING (HRS)</th></tr> </thead> <tbody> <tr> <td>East/Wall 106</td><td>1F/IV</td><td>412</td><td>923'</td><td>3</td></tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	12D/X	101	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs	North	12C/X	101	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs	East	1F/IV	106	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	East/Wall 106	1F/IV	412	923'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																														
North	12D/X	101	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs																														
North	12C/X	101	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs																														
East	1F/IV	106	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs																														
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																														
East/Wall 106	1F/IV	412	923'	3																														
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. 																																	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 1G

	<p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore a fire in this Fire Zone does not present an exposure to Safe Shutdown Equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 1H

I	Fire Area: I	Fire Zone: 1H		Floor Area: 10 sq ft																																				
II	Location: Northeast Corner Reactor Building			Elevation: 896'-3"																																				
III	Description: RCIC Room Appendix R Cable Enclosure																																							
IV	Combustibles: (See CLSP)																																							
V	Fire Loading: (See CLSP)																																							
VI	Equivalent Fire Severity: (See CLSP)																																							
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																							
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>East</td> <td>1C/III</td> <td></td> <td>Concrete block 8" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>1C/III</td> <td></td> <td>Concrete block 8" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>North</td> <td>12C/X</td> <td></td> <td>Reinforced concrete 36" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>South</td> <td>1C/III</td> <td></td> <td>Concrete block 8 " thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>South wall</td> <td>1C/III</td> <td>21</td> <td>896'-3"</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: This Fire Area barrier was constructed per Modification 04Q215.</p>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	East	1C/III		Concrete block 8" thick - equivalent 3 hrs	3 hrs	West	1C/III		Concrete block 8" thick - equivalent 3 hrs	3 hrs	North	12C/X		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs	South	1C/III		Concrete block 8 " thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	South wall	1C/III	21	896'-3"	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																				
East	1C/III		Concrete block 8" thick - equivalent 3 hrs	3 hrs																																				
West	1C/III		Concrete block 8" thick - equivalent 3 hrs	3 hrs																																				
North	12C/X		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs																																				
South	1C/III		Concrete block 8 " thick - equivalent 3 hrs	3 hrs																																				
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																				
South wall	1C/III	21	896'-3"	3																																				
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>F. Automatic Suppression: None.</p>																																							

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 1H

	<p>G. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in Fire Zone 1C. 2. Hose stations: Located in Fire Zone 1F. <p>H. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>I. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore a fire in this Fire Zone does not present an exposure to Safe Shutdown Equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area III
Fire Zone 2A

I	Fire Area: III	Fire Zone: 2A			Floor Area: 924 sq ft
II	Location: Northeast Corner Reactor Building				Elevation: 935'-0"
III	Description: TIP Drive Room				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 90 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	12C/X	201	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	North	30/X	245	Concrete block 6" thick - equivalent 2 hrs	2 hrs
	North	30/X	201	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	South	2E/I	239	Concrete block 12" thick - equivalent 3 hrs	1-1/2 hrs
	South	2E/I	207	Reinforced concrete 30" thick- equivalent 3 hrs	3 hrs
	South	2E/I	236	Reinforced concrete 30" thick - equivalent 3 hrs	3 hrs
	South	2B/I	209	Concrete block 12" thick - equivalent 3 hrs	1-1/2 hrs
	East	8/VI	234	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	East	9/VIII	234	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	East	10/VI	234	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs

FIRE HAZARDS ANALYSIS MATRIX
Fire Area III
Fire Zone 2A

ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
West	2F/II	220	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs
West	2E/I	224	Concrete block 12" thick - equivalent 3 hrs	1-1/2 hrs
Ceiling	3A/V		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
Floor	1F/IV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
North/Wall 245	30/X	65	951'	3
South/Wall 209	2B/I	61	935'	1-1/2
South/Wall 209	2B/I	64	951'	1-1/2
West/Wall 224	2E/I	60	935'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
South/Wall 209	2B/I	Vent grill dampered	(1-1/2) V-DF-220
South/Wall 207	2E/I	Two vent ducts dampered	(3) V-DF-213 (3) V-DF-219
Floor	1F/IV	Vent duct dampered	(3) V-DF-212

D. Exterior Walls: N/A

E. Comments:

1. South/Wall 239 – West/Wall 224 – due to the 4" thick concrete roof slab enclosing the access way to Fire Zone 2E, barriers limited to 1-1/2 hour rating.
2. South/Wall 209 – Fire Doors and Fire Dampers rated at 1-1/2 hours; therefore barrier 1-1/2 hour rated.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area III
Fire Zone 2A

IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-173 addresses fire detector location NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment. Thus, the fire protection features are adequate for the fire hazards in this Fire Zone.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I Systems.</p>

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX

Fire Area I
Fire Zone 2B

I	Fire Area: I	Fire Zone: 2B			Floor Area: 4,172 sq ft
II	Location: Reactor Building				Elevation: 935'-0"
III	Description: CRD Hydraulic Control Unit Area				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 90 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	2A/III	209	Hollow concrete block 12" thick - equivalent 3 hrs	1-1/2 hrs
	North	1F/IV	219	Concrete block ≥ 30" thick - equivalent 3 hrs (pipe chase)	3 hrs
	East	8/VI	234	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	East	9/VIII	234	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	East	10/VI	234	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	West	2C/II	250	Gypsum board on metal stud - equivalent 3 hrs	3 hrs
	West	1F/IV	226	Concrete block 30" thick - equivalent 3 hours (Pipe Chase)	3 hrs
	Ceiling	3A/V		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
Floor	1C/III		Reinforced concrete 24" thick on part steel - equivalent 3 hrs	3 hrs	
Floor	1F/IV		Reinforced concrete 18" thick on part steel - equivalent 3 hrs	3 hrs	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2B

	<p>B. Fire Doors in Required Barriers:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 30%;">ORIENTATION</th><th style="width: 15%;">ADJ. ZONE/AREA</th><th style="width: 15%;">DOOR NO.</th><th style="width: 10%;">EL.</th><th style="width: 30%;">FIRE RATING (HRS)</th></tr> </thead> <tbody> <tr> <td>North/Wall 209</td><td>2A/III</td><td>61</td><td>935'</td><td>1-1/2</td></tr> <tr> <td>North/Wall 209</td><td>2A/III</td><td>64</td><td>951'</td><td>1-1/2</td></tr> <tr> <td>East/Wall 234</td><td>10/VI</td><td>62</td><td>935'</td><td>3</td></tr> <tr> <td>West/Wall 250</td><td>2C/II</td><td>410</td><td>935'</td><td>3</td></tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 15%;">ORIENTATION</th><th style="width: 10%;">ADJ. ZONE/ AREA(S)</th><th style="width: 50%;">Type of Opening</th><th style="width: 25%;">FIRE RATING Damper No.</th></tr> </thead> <tbody> <tr> <td>North/Wall 209</td><td>2A/III</td><td>Vent grill dampered</td><td>(1-1/2) V-DF-220</td></tr> <tr> <td>West/Wall 250</td><td>2C/II</td><td>Vent duct dampered</td><td>(3) V-DF-221</td></tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. North/Wall 209 fire doors and fire damper rated at 1-1/2 hours; therefore barrier 1-1/2 hour rated. 2. Floor (1C/III) – steel in barrier not for support, floor barrier assigned 3-hour rating. 3. Floor (1F/IV) – Reactor Building Hatch No. 9 is an unrated assembly in a 3-hour rated barrier. The basis for this acceptability of this assembly is found in CA-02-104. 	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	North/Wall 209	2A/III	61	935'	1-1/2	North/Wall 209	2A/III	64	951'	1-1/2	East/Wall 234	10/VI	62	935'	3	West/Wall 250	2C/II	410	935'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North/Wall 209	2A/III	Vent grill dampered	(1-1/2) V-DF-220	West/Wall 250	2C/II	Vent duct dampered	(3) V-DF-221
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																		
North/Wall 209	2A/III	61	935'	1-1/2																																		
North/Wall 209	2A/III	64	951'	1-1/2																																		
East/Wall 234	10/VI	62	935'	3																																		
West/Wall 250	2C/II	410	935'	3																																		
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																			
North/Wall 209	2A/III	Vent grill dampered	(1-1/2) V-DF-220																																			
West/Wall 250	2C/II	Vent duct dampered	(3) V-DF-221																																			
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat venting will occur through the open equipment hatch and open stairs. In addition, portable smoke ejectors can be used as necessary.</p> <p>E. Comments: None.</p>																																					

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2B

X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division II Systems.</p>

01463416 01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 2C

I	Fire Area: II	Fire Zone: 2C			Floor Area: 5,792 sq ft
II	Location: Reactor Building			Elevation: 935'-0"	
III	Description: CRD Hydraulic Control Unit Area and HVAC Area				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	12C/X	201	Reinforced concrete 34" thick - equivalent 3 hrs	3 hrs
	North	12D/X	201	Reinforced concrete 34" thick - equivalent 3 hrs	3 hrs
	North	30/X	201	Reinforced concrete 34" thick and concrete block 8" thick in access airlock - equivalent 3 hrs	3 hrs
	South	21A/I	233	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	South	21D/I	233	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	South	21C/I	233	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	East	2B/I	250	Gypsum board on metal stud - equivalent 3 hrs	3 hrs
	West	21C/I	200	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	West	42/X		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	West	33/XXII		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	Ceiling	21D/I		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 2C

ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
Ceiling	21D/I		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
Ceiling	3A/V		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
Ceiling	3E/I		Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs
Floor	1F/IV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
North/Wall 201	30/X	67	951'	3
South/Wall 233	21A/I	47	935'	3
East/Wall 250	2B/I	410	935'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
East/Wall 250	2B/I	Vent duct dampered	(3) V-DF-221
Floor	1F/IV	Vent duct dampered	(3) V-DF-242

D. Exterior Walls: N/A

E. Comments:

1. The west wall is 18" thick concrete and easily capable of withstanding any potential exposure from a fire involving Fire Zone 42.

IX Fire Protection:

A. Detection: Smoke detectors located within Fire Zone.

B. Automatic Suppression: None.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 2C

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems and open stairwell. Portable smoke ejectors can be used if necessary.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I Systems.</p>

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2D

I	Fire Area: I	Fire Zone: 2D	Floor Area: 1,326 sq ft
II	Location: Southeast Corner Reactor Building		Elevation: 935'-0"
III	Description: Reactor Building Railroad Car Shelter		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. D. Ventilation: Smoke and heat venting can be easily accomplished by opening the large doors in the south wall. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Fire Barriers are designed to prevent fire spread to other Fire Areas.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2D

XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: This Fire Zone has a moderate fire loading; however, a fire in this Fire Zone does not present an exposure to safe shutdown equipment in other fire areas.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2E

I	Fire Area: I	Fire Zone: 2E		Floor Area: 606 sq ft																																																			
II	Location: Northeast Corner Reactor Building			Elevation: 935'-0"																																																			
III	Description: TIP Room																																																						
IV	Combustibles: (See CLSP)																																																						
V	Fire Loading: (See CLSP)																																																						
VI	Equivalent Fire Severity: (See CLSP)																																																						
VII	Minimum Fire Barrier Rating for this Fire Zone: 90 minutes																																																						
VIII	<p>Construction:</p> <p>A. Fire Area Barriers</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>2A/III</td> <td>207</td> <td>Reinforced concrete 30" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>North</td> <td>2A/III</td> <td>239</td> <td>Concrete block 12" thick - equivalent 3 hours</td> <td>1-1/2 hrs</td> </tr> <tr> <td>North</td> <td>2A/III</td> <td>236</td> <td>Reinforced concrete 30" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>2A/III</td> <td>224</td> <td>Concrete block 12" thick - equivalent 3 hours</td> <td>1-1/2 hrs</td> </tr> <tr> <td>West</td> <td>2F/II</td> <td>220</td> <td>Reinforced concrete 48" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>3A/V</td> <td></td> <td>Reinforced concrete 24" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Floor</td> <td>1F/IV</td> <td></td> <td>Reinforced concrete 24" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>East/Wall 224</td> <td>2A/III</td> <td>60</td> <td>935'</td> <td>3</td> </tr> </tbody> </table>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	2A/III	207	Reinforced concrete 30" thick - equivalent 3 hrs	3 hrs	North	2A/III	239	Concrete block 12" thick - equivalent 3 hours	1-1/2 hrs	North	2A/III	236	Reinforced concrete 30" thick - equivalent 3 hrs	3 hrs	East	2A/III	224	Concrete block 12" thick - equivalent 3 hours	1-1/2 hrs	West	2F/II	220	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs	Ceiling	3A/V		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs	Floor	1F/IV		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	East/Wall 224	2A/III	60	935'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																			
North	2A/III	207	Reinforced concrete 30" thick - equivalent 3 hrs	3 hrs																																																			
North	2A/III	239	Concrete block 12" thick - equivalent 3 hours	1-1/2 hrs																																																			
North	2A/III	236	Reinforced concrete 30" thick - equivalent 3 hrs	3 hrs																																																			
East	2A/III	224	Concrete block 12" thick - equivalent 3 hours	1-1/2 hrs																																																			
West	2F/II	220	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs																																																			
Ceiling	3A/V		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs																																																			
Floor	1F/IV		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs																																																			
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																			
East/Wall 224	2A/III	60	935'	3																																																			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2E

	<p>C. Fire Dampers in Required Barriers:</p> <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr><tr><td>North/Wall 207</td><td>2A/III</td><td>Two vent ducts dampered</td><td>(3) V-DF-219 (3) V-DF-213</td></tr><tr><td>West/Wall 220</td><td>2F/II</td><td>Vent duct dampered</td><td>(3) V-DF-214</td></tr></table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <p>1. North/Wall 239 – East/Wall 224 – due to the 4” thick concrete roof slab enclosing the accessway to Fire Zone 2E, barriers limited to 1-1/2 hour rating.</p>	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North/Wall 207	2A/III	Two vent ducts dampered	(3) V-DF-219 (3) V-DF-213	West/Wall 220	2F/II	Vent duct dampered	(3) V-DF-214
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.										
North/Wall 207	2A/III	Two vent ducts dampered	(3) V-DF-219 (3) V-DF-213										
West/Wall 220	2F/II	Vent duct dampered	(3) V-DF-214										
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <p>1. Portable extinguishers: Located in adjacent Fire Zone.</p> <p>2. Hose stations: None.</p> <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by the use of portable smoke ejectors.</p> <p>E. Comments: None.</p>												
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>												
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>												
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>												

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2E

XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: This Fire Zone has a low fire loadng; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 2F

I	Fire Area: II	Fire Zone: 2F		Floor Area: 805 sq ft																																											
II	Location: Reactor Building			Elevation: 935'-0"																																											
III	Description: Steam Chase																																														
IV	Combustibles: (See CLSP)																																														
V	Fire Loading: (See CLSP)																																														
VI	Equivalent Fire Severity: (See CLSP)																																														
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																																														
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>12C/X</td> <td>201</td> <td>Reinforced concrete 36" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>North</td> <td>30/X</td> <td>201</td> <td>Light-weight metal explosion relief panel- no equivalent rating.</td> <td>None</td> </tr> <tr> <td>East</td> <td>2E/I</td> <td>220</td> <td>Reinforced concrete 48" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>2A/III</td> <td>220</td> <td>Reinforced concrete 48" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>3A/V</td> <td></td> <td>Reinforced concrete 24" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Floor</td> <td>1F/IV</td> <td></td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>East/Wall 220</td> <td>2E/I</td> <td>Vent duct dampered</td> <td>(3) V-DF-214</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	12C/X	201	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs	North	30/X	201	Light-weight metal explosion relief panel- no equivalent rating.	None	East	2E/I	220	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs	East	2A/III	220	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs	Ceiling	3A/V		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs	Floor	1F/IV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	East/Wall 220	2E/I	Vent duct dampered	(3) V-DF-214
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																											
North	12C/X	201	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs																																											
North	30/X	201	Light-weight metal explosion relief panel- no equivalent rating.	None																																											
East	2E/I	220	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs																																											
East	2A/III	220	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs																																											
Ceiling	3A/V		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs																																											
Floor	1F/IV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																											
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																												
East/Wall 220	2E/I	Vent duct dampered	(3) V-DF-214																																												

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 2F

	<p>E. Comments:</p> <ol style="list-style-type: none"> 1. North (30/X) – barrier consists of light-weight explosion relief panels. Due to the minimal fire loading and lack of required safe shutdown equipment, the barrier is considered adequate. The basis for fire barrier acceptability is found in CA-02-110.
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by the use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to negligible fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a negligible fire loading; therefore, a fire in this Fire Zone is considered inconsequential.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416 01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2G

I	Fire Area: I	Fire Zone: 2G	Floor Area: 274 sq ft																																		
II	Location: Reactor Building		Elevation: 935'-0"																																		
III	Description: RHR Valve Room East																																				
IV	Combustibles: (See CLSP)																																				
V	Fire Loading: (See CLSP)																																				
VI	Equivalent Fire Severity: (See CLSP)																																				
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																				
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>South</td> <td>1F/IV</td> <td>225</td> <td>Concrete block 12" thick - equivalent 3 hours</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>1F/IV</td> <td>242</td> <td>Concrete block 12" thick - equivalent 3 hours</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>2H/II</td> <td>250</td> <td>Part reinforced concrete, part gypsum board on metal stud - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Floor</td> <td>1F/IV</td> <td></td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West/Wall 250</td> <td>2H/II</td> <td>Vent duct dampered</td> <td>(3) V-DF-218</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	1F/IV	225	Concrete block 12" thick - equivalent 3 hours	3 hrs	East	1F/IV	242	Concrete block 12" thick - equivalent 3 hours	3 hrs	West	2H/II	250	Part reinforced concrete, part gypsum board on metal stud - equivalent 3 hrs	3 hrs	Floor	1F/IV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	West/Wall 250	2H/II	Vent duct dampered	(3) V-DF-218
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																	
South	1F/IV	225	Concrete block 12" thick - equivalent 3 hours	3 hrs																																	
East	1F/IV	242	Concrete block 12" thick - equivalent 3 hours	3 hrs																																	
West	2H/II	250	Part reinforced concrete, part gypsum board on metal stud - equivalent 3 hrs	3 hrs																																	
Floor	1F/IV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																	
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																		
West/Wall 250	2H/II	Vent duct dampered	(3) V-DF-218																																		
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p>																																				

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 2G

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by the use of portable smoke ejectors.</p> <p>E. Comments: None</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to negligible fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 2H

I	Fire Area: II	Fire Zone: 2H		Floor Area: 298 sq ft																												
II	Location: Reactor Building			Elevation: 935'-0"																												
III	Description: RHR Valve Room West																															
IV	Combustibles: (See CLSP)																															
V	Fire Loading: (See CLSP)																															
VI	Equivalent Fire Severity: (See CLSP)																															
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																															
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>East</td> <td>2G/I</td> <td>250</td> <td>Reinforced concrete and gypsum board on metal studs - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>21D/I</td> <td></td> <td>Reinforced concrete 48" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Floor</td> <td>1F/IV</td> <td></td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>East/Wall 250</td> <td>2G/I</td> <td>Vent duct dampered</td> <td>(3) V-DF-218</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	East	2G/I	250	Reinforced concrete and gypsum board on metal studs - equivalent 3 hrs	3 hrs	Ceiling	21D/I		Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs	Floor	1F/IV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	East/Wall 250	2G/I	Vent duct dampered	(3) V-DF-218
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																												
East	2G/I	250	Reinforced concrete and gypsum board on metal studs - equivalent 3 hrs	3 hrs																												
Ceiling	21D/I		Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs																												
Floor	1F/IV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																												
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																													
East/Wall 250	2G/I	Vent duct dampered	(3) V-DF-218																													
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p>																															

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 2H

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by the use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to negligible fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area V
Fire Zone 3A

I	Fire Area: V	Fire Zone: 3A			Floor Area: 2,850 sq ft
II	Location: Reactor Building				Elevation: 962'-6" and 985'-6"
III	Description: Reactor Recirculation Pumps MG Set Room				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	30/X	301	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	North (985'-6")	30/X	501	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
	South	3B/I	338	Reinforced concrete and concrete block ≥ 12" thick-equivalent 3 hrs	3 hrs
	South	3B/I	309	Reinforced concrete and concrete block ≥ 12" thick-equivalent 3 hrs	3 hrs
	South	3E/I	309	Reinforced concrete and concrete block ≥ 12" thick-equivalent 3 hrs	3 hrs
	South (985'-6")	4C/I	511	Reinforced concrete 12" thick -equivalent 3 hrs	3 hrs
	East	11/VI	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	East	9/VIII	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	West	3D/II	314	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
West (985'-6")	4E/I	530	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area V
Fire Zone 3A

ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
Ceiling	4E/I		Reinforced concrete 18" thick on protected structural steel - equivalent 3 hrs	3 hrs
Floor	2A/III		Reinforced concrete 24" thick-equivalent 3 hrs	3 hrs
Floor	2B/I		Reinforced concrete 24" thick-equivalent 3 hrs	3 hrs
Floor	2C/II		Reinforced concrete 24" thick-equivalent 3 hrs	3 hrs
Floor	2E/I		Reinforced concrete 24" thick-equivalent 3 hrs	3 hrs
Floor	2F/II		Reinforced concrete 24" thick-equivalent 3 hrs	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
South/Wall 309	3B/I	73	962'	3
East/Wall 328	11/VI	211	965'	3

C. Fire Dampers in Required Barriers

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
South/Wall 309	3E/I	Vent duct dampered	(3) V-DF-233
West/Wall 314	3D/II	Vent duct coated	(3) N/A
Ceiling	4E/I	Vent duct coated	(3) N/A

D. Exterior Walls: N/A

E. Comments: None.

IX

Fire Protection:

A. Detection: HADs over MG set hydraulic couplings.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area V
Fire Zone 3A

	<p>B. Automatic Suppression: Automatic water spray systems protect the MG Set Hydraulic Couplings.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-04-116 is the Recirc MG Set Water Spray System Hydraulic Calculation. 2. CA-03-161 addresses detection and suppression system NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Rated Fire Barriers are designed to prevent fire spread to other plant Fire Areas. The automatic water spray system is designed to control a fire during its incipient stages.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic water spray system is expected to control a fire in this Fire Zone. In addition, the waterflow and HADs alarm to the Control Room will result in prompt fire brigade response.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus Safe Shutdown can be accomplished using Division 2 Systems.</p>

01463416
01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 3B

I	Fire Area: I	Fire Zone: 3B		Floor Area: 4,708 sq ft																																																										
II	Location: Reactor Building			Elevation: 962'-6"																																																										
III	Description: MCC and Standby Liquid Control System Area																																																													
IV	Combustibles: (See CLSP)																																																													
V	Fire Loading: (See CLSP)																																																													
VI	Equivalent Fire Severity: (See CLSP)																																																													
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																																													
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>3A/V</td> <td>309</td> <td>Reinforced concrete and concrete block $\geq 12"$ thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>North</td> <td>3A/V</td> <td>338</td> <td>Concrete block $\geq 12"$ thick - equivalent 3 hours</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>10/VI</td> <td>328</td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>11/VI</td> <td>328</td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>9/VIII</td> <td>328</td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>3C/II</td> <td>350</td> <td>Gypsum board on metal studs - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>North/Wall 309</td> <td>3A/V</td> <td>73</td> <td>962'</td> <td>3</td> </tr> <tr> <td>West/Wall 350</td> <td>3C/II</td> <td>411</td> <td>962'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West/Wall 350</td> <td>3C/II</td> <td>Vent duct dampered</td> <td>(3) V-DF-226</td> </tr> </tbody> </table>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	3A/V	309	Reinforced concrete and concrete block $\geq 12"$ thick - equivalent 3 hrs	3 hrs	North	3A/V	338	Concrete block $\geq 12"$ thick - equivalent 3 hours	3 hrs	East	10/VI	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	East	11/VI	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	East	9/VIII	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	West	3C/II	350	Gypsum board on metal studs - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	North/Wall 309	3A/V	73	962'	3	West/Wall 350	3C/II	411	962'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	West/Wall 350	3C/II	Vent duct dampered	(3) V-DF-226
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																										
North	3A/V	309	Reinforced concrete and concrete block $\geq 12"$ thick - equivalent 3 hrs	3 hrs																																																										
North	3A/V	338	Concrete block $\geq 12"$ thick - equivalent 3 hours	3 hrs																																																										
East	10/VI	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																																										
East	11/VI	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																																										
East	9/VIII	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																																										
West	3C/II	350	Gypsum board on metal studs - equivalent 3 hrs	3 hrs																																																										
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																										
North/Wall 309	3A/V	73	962'	3																																																										
West/Wall 350	3C/II	411	962'	3																																																										
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																																											
West/Wall 350	3C/II	Vent duct dampered	(3) V-DF-226																																																											

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 3B

	<p>D. Exterior Walls: N/A</p> <p>E. Comments: None</p>
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat venting will occur through the open equipment hatch. Portable smoke ejectors can be used as needed.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-172 addresses fire detector location NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division II Systems.</p>

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 3C

I	Fire Area: II	Fire Zone: 3C		Floor Area: 862 sq ft																																														
II	Location: Reactor Building			Elevation: 962'-6"																																														
III	Description: MCC Area																																																	
IV	Combustibles: (See CLSP)																																																	
V	Fire Loading: (See CLSP)																																																	
VI	Equivalent Fire Severity: (See CLSP)																																																	
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																																																	
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>South</td> <td>21D/1</td> <td>327</td> <td>Reinforced concrete 36" thick - equivalent 3 hrs</td> <td>1 hr</td> </tr> <tr> <td>East</td> <td>3B/1</td> <td>350</td> <td>Gypsum board on meal stud - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>21D/I</td> <td>306</td> <td>Reinforced concrete 48" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>4A/I</td> <td></td> <td>Concrete on unprotected steel</td> <td>None</td> </tr> <tr> <td>Ceiling</td> <td>4B/I</td> <td></td> <td>Concrete on unprotected steel</td> <td>None</td> </tr> <tr> <td>Ceiling</td> <td>21D/I</td> <td></td> <td>Concrete on unprotected steel</td> <td>None</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>East/Wall 350</td> <td>3B/I</td> <td>411</td> <td>962'</td> <td>3</td> </tr> </tbody> </table>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	21D/1	327	Reinforced concrete 36" thick - equivalent 3 hrs	1 hr	East	3B/1	350	Gypsum board on meal stud - equivalent 3 hrs	3 hrs	West	21D/I	306	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs	Ceiling	4A/I		Concrete on unprotected steel	None	Ceiling	4B/I		Concrete on unprotected steel	None	Ceiling	21D/I		Concrete on unprotected steel	None	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	East/Wall 350	3B/I	411	962'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																														
South	21D/1	327	Reinforced concrete 36" thick - equivalent 3 hrs	1 hr																																														
East	3B/1	350	Gypsum board on meal stud - equivalent 3 hrs	3 hrs																																														
West	21D/I	306	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs																																														
Ceiling	4A/I		Concrete on unprotected steel	None																																														
Ceiling	4B/I		Concrete on unprotected steel	None																																														
Ceiling	21D/I		Concrete on unprotected steel	None																																														
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																														
East/Wall 350	3B/I	411	962'	3																																														

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 3C

	<p>C. Fire Dampers in Required Barriers:</p> <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr><tr><td>South/Wall 327</td><td>21D/I</td><td>Two vent ducts undampened</td><td>1</td></tr><tr><td>East/Wall 350</td><td>3B/I</td><td>Vent duct dampened</td><td>(3) V-DF-226</td></tr><tr><td>Ceiling</td><td>4A/I</td><td>Vent duct undampened</td><td>None</td></tr></table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <div><div>1. Ceiling supported by unprotected structural steel, several unprotected ducts, no rating assigned. The basis for the non-rated fire barrier acceptability is found in CA-02-109</div><div>2. South/Wall 327 – Two vent duct penetrations, although undampened, attain a 1-hour fire rating as per NFPA 90A; therefore, barrier rating assigned at 1 hour.</div></div>	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	South/Wall 327	21D/I	Two vent ducts undampened	1	East/Wall 350	3B/I	Vent duct dampened	(3) V-DF-226	Ceiling	4A/I	Vent duct undampened	None
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.														
South/Wall 327	21D/I	Two vent ducts undampened	1														
East/Wall 350	3B/I	Vent duct dampened	(3) V-DF-226														
Ceiling	4A/I	Vent duct undampened	None														
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <div><div>1. Portable extinguishers: Located within Fire Zone.</div><div>2. Hose stations: Located within Fire Zone.</div></div> <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling along with venting action of open stairwell. Portable smoke ejectors can be used if necessary.</p> <p>E. Comments: None.</p>																
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>																
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>																

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 3C

XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: A fire in this Fire Area will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 3D

I	Fire Area: II	Fire Zone: 3D			Floor Area: 3,228 sq ft
II	Location: Reactor Building				Elevation: 962'-6"
III	Description: Cooling Water Pump and Chiller Area				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	30/X	301	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	South	21D/I	325	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs
	East	3A/V	314	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
	East	3E/I	332	Reinforced concrete 45" thick - equivalent 3 hrs	3 hrs
	Ceiling	4A/I		Concrete on unprotected steel	None
	Ceiling	4B/I		Concrete on unprotected steel	None
	Ceiling	4C/I		Concrete on unprotected steel	None
	Ceiling	4D/I		Concrete on unprotected steel	None
	Ceiling	4E/I		Concrete on unprotected steel	None
	B. Fire Doors in Required Barriers: None				

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 3D

	<p>C. Fire Dampers in Required Barriers:</p> <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr><tr><td>East/Wall 314</td><td>3A/V</td><td>Vent duct coated</td><td>(3) N/A</td></tr><tr><td>East/Wall 332</td><td>3E/I</td><td>Vent duct dampered</td><td>(3) V-DF-235</td></tr><tr><td>Ceiling</td><td>4B/I</td><td>Vent duct undampered</td><td>None</td></tr><tr><td>Ceiling</td><td>4D/I</td><td>Vent duct undampered</td><td>None</td></tr></table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <div><div>1. East/Wall 314 – vent duct has 3 hour coating on the Fire Zone 3A side.</div><div>2. Ceiling – open stairs and open vent ducts in barrier, unprotected structural steel, no rating assigned. The basis for the non-rated fire barrier acceptability is found in CA-02-109</div></div>	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	East/Wall 314	3A/V	Vent duct coated	(3) N/A	East/Wall 332	3E/I	Vent duct dampered	(3) V-DF-235	Ceiling	4B/I	Vent duct undampered	None	Ceiling	4D/I	Vent duct undampered	None
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																		
East/Wall 314	3A/V	Vent duct coated	(3) N/A																		
East/Wall 332	3E/I	Vent duct dampered	(3) V-DF-235																		
Ceiling	4B/I	Vent duct undampered	None																		
Ceiling	4D/I	Vent duct undampered	None																		
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <div><div>1. Portable extinguishers: Located within Fire Zone.</div><div>2. Hose stations: Located within Fire Zone.</div></div> <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling along with venting action of open stairwell. Portable smoke ejectors can be used if necessary.</p> <p>E. Comments:</p> <div><div>1. CA-04-160 addresses the applicability of fire detection NFPA code deviations.</div></div>																				
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>																				

FIRE HAZARDS ANALYSIS MATRIX
Fire Area II
Fire Zone 3D

XI	Safe Shutdown Systems Affected: See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.
XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 3E

I	Fire Area: I	Fire Zone: 3E	Floor Area: 276 sq ft																																
II	Location: Reactor Building		Elevation: 962'-6"																																
III	Description: Reactor Building 962' Elevation North																																		
IV	Combustibles: (See CLSP)																																		
V	Fire Loading: (See CLSP)																																		
VI	Equivalent Fire Severity: (See CLSP)																																		
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																		
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>North</td><td>3A/V</td><td>309</td><td>Reinforced concrete and concrete block $\geq 12"$ thick - equivalent 3 hrs</td><td>3 hrs</td></tr> <tr> <td>West</td><td>3D/II</td><td>332</td><td>Reinforced concrete 45" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> <tr> <td>Floor</td><td>2C/II</td><td></td><td>Reinforced concrete 48" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr> </thead> <tbody> <tr> <td>North/Wall 309</td><td>3A/V</td><td>Vent duct dampered</td><td>(3) V-DF-233</td></tr> <tr> <td>West/Wall 332</td><td>3D/II</td><td>Vent duct dampered</td><td>(3) V-DF-235</td></tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>			ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	3A/V	309	Reinforced concrete and concrete block $\geq 12"$ thick - equivalent 3 hrs	3 hrs	West	3D/II	332	Reinforced concrete 45" thick - equivalent 3 hrs	3 hrs	Floor	2C/II		Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North/Wall 309	3A/V	Vent duct dampered	(3) V-DF-233	West/Wall 332	3D/II	Vent duct dampered	(3) V-DF-235
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																															
North	3A/V	309	Reinforced concrete and concrete block $\geq 12"$ thick - equivalent 3 hrs	3 hrs																															
West	3D/II	332	Reinforced concrete 45" thick - equivalent 3 hrs	3 hrs																															
Floor	2C/II		Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs																															
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																
North/Wall 309	3A/V	Vent duct dampered	(3) V-DF-233																																
West/Wall 332	3D/II	Vent duct dampered	(3) V-DF-235																																
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p>																																		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 3E

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by the use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to negligible fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a negligible fire loading; therefore, a fire in this Fire Zone is considered inconsequential.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4A

I	Fire Area: I	Fire Zone: 4A		Floor Area: 2,885 sq ft																							
II	Location: Reactor Building			Elevation: 985'-6"																							
III	Description: Equipment Hatch Area																										
IV	Combustibles: (See CLSP)																										
V	Fire Loading: (See CLSP)																										
VI	Equivalent Fire Severity: (See CLSP)																										
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																										
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>Floor</td> <td>3C/II</td> <td></td> <td>Concrete on unprotected steel</td> <td>None</td> </tr> <tr> <td>Floor</td> <td>3D/II</td> <td></td> <td>Concrete on unprotected steel</td> <td>None</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>Floor</td> <td>3C/II</td> <td>Vent duct undampered</td> <td>None</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <p>1. Floor/(3C/II and 3D/II) – Supported by unprotected structural steel, open vent duct and pipe penetrations, no rating can be assigned. The basis for the non-rated fire barrier acceptability is found in CA-02-109.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	Floor	3C/II		Concrete on unprotected steel	None	Floor	3D/II		Concrete on unprotected steel	None	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	Floor	3C/II	Vent duct undampered	None
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																							
Floor	3C/II		Concrete on unprotected steel	None																							
Floor	3D/II		Concrete on unprotected steel	None																							
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																								
Floor	3C/II	Vent duct undampered	None																								
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p>																										

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4A

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat venting will occur through open equipment hatch. If necessary portable smoke ejectors can be used.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-171 addresses fire detector location NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4B

I	Fire Area: I	Fire Zone: 4B	Floor Area: 3,056 sq ft																							
II	Location: Reactor Building		Elevation: 985'-6"																							
III	Description: Cooling Water Heat Exchanger Area																									
IV	Combustibles: (See CLSP)																									
V	Fire Loading: (See CLSP)																									
VI	Equivalent Fire Severity: (See CLSP)																									
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																									
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>Floor</td><td>3C/II</td><td></td><td>Concrete on unprotected steel</td><td>None</td></tr> <tr> <td>Floor</td><td>3D/II</td><td></td><td>Concrete on unprotected steel</td><td>None</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr> </thead> <tbody> <tr> <td>Floor</td><td>3D/II</td><td>Vent duct without damper</td><td>None</td></tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <p>1. Floor/(3C/II and 3D/II) – Supported by unprotected structural steel, open stairwell, open vent duct and pipe penetrations to Fire Zones 3C and 3D; no rating can be assigned. The basis for the non-rated fire barrier acceptability is found in CA-02-109.</p>			ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	Floor	3C/II		Concrete on unprotected steel	None	Floor	3D/II		Concrete on unprotected steel	None	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	Floor	3D/II	Vent duct without damper	None
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																						
Floor	3C/II		Concrete on unprotected steel	None																						
Floor	3D/II		Concrete on unprotected steel	None																						
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																							
Floor	3D/II	Vent duct without damper	None																							
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p>																									

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4B

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat venting will occur through open equipment hatch and open stairwell. If necessary portable smoke ejectors can be used.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-171 addresses fire detector location NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4C

I	Fire Area: I	Fire Zone: 4C	Floor Area: 1,132 sq ft															
II	Location: Reactor Building		Elevation: 985'-6"															
III	Description: Corridor Outside Main Exhaust Plenum																	
IV	Combustibles: (See CLSP)																	
V	Fire Loading: (See CLSP)																	
VI	Equivalent Fire Severity: (See CLSP)																	
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																	
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>North</td><td>3A/V</td><td>511</td><td>Reinforced concrete $\geq 12"$ thick-equivalent 3 hrs.</td><td>3 hrs</td></tr> <tr> <td>Floor</td><td>3D/II</td><td></td><td>Concrete on unprotected steel</td><td>None</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. Floor/(3D/II) – Supported by unprotected structural steel, no rating can be assigned. The basis for the non-rated barrier acceptability is found in CA-02-109. 			ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	3A/V	511	Reinforced concrete $\geq 12"$ thick-equivalent 3 hrs.	3 hrs	Floor	3D/II		Concrete on unprotected steel	None
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING														
North	3A/V	511	Reinforced concrete $\geq 12"$ thick-equivalent 3 hrs.	3 hrs														
Floor	3D/II		Concrete on unprotected steel	None														
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat venting will occur through open stairwells. If necessary portable smoke ejectors can be used.</p> <p>E. Comments: None.</p>																	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4C

X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4D

I	Fire Area: I	Fire Zone: 4D	Floor Area: 792 sq ft																							
II	Location: Reactor Building		Elevation: 985'-6"																							
III	Description: Standby Gas Treatment System Room																									
IV	Combustibles: (See CLSP)																									
V	Fire Loading: (See CLSP)																									
VI	Equivalent Fire Severity: (See CLSP)																									
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																									
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>North</td><td>30/X</td><td>501</td><td>Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs. Unprotected openings in wall.</td><td>None</td></tr> <tr> <td>Floor</td><td>3D/II</td><td></td><td>Concrete on unprotected steel</td><td>None</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr> </thead> <tbody> <tr> <td>Floor</td><td>3D/II</td><td>Vent duct undampered</td><td>None</td></tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. North/Wall 501 – Barrier not rated due to 3 openings. The basis for the acceptability of this configuration is found in CA-02-108 2. Floor/(3D/II) – Supported by unprotected structural steel, undampered vent ducts to Fire Zone 3D, no rating can be assigned. The basis for the non-rated barrier acceptability is found in CA-02-109. 			ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	30/X	501	Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs. Unprotected openings in wall.	None	Floor	3D/II		Concrete on unprotected steel	None	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	Floor	3D/II	Vent duct undampered	None
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																						
North	30/X	501	Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs. Unprotected openings in wall.	None																						
Floor	3D/II		Concrete on unprotected steel	None																						
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																							
Floor	3D/II	Vent duct undampered	None																							
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p>																									

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4D

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>This Fire Zone has a moderate fire loading, however, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4E

I	Fire Area: I	Fire Zone: 4E		Floor Area: 1,969 sq ft																																										
II	Location: Reactor Building			Elevation: 985'-6"																																										
III	Description: Reactor Plenum Room																																													
IV	Combustibles: (See CLSP)																																													
V	Fire Loading: (See CLSP)																																													
VI	Equivalent Fire Severity: (See CLSP)																																													
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																																													
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>30/X</td> <td>501</td> <td>Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs.</td> <td>3 hrs</td> </tr> <tr> <td>North</td> <td>12C/X</td> <td>301</td> <td>Reinforced concrete vent chase</td> <td>None</td> </tr> <tr> <td>East</td> <td>3A/V</td> <td>530</td> <td>Reinforced concrete 12" thick - equivalent 3 hrs.</td> <td>3 hrs</td> </tr> <tr> <td>Floor</td> <td>3A/V</td> <td></td> <td>Reinforced concrete 18" thick - equivalent 3 hrs.</td> <td>3 hrs</td> </tr> <tr> <td>Floor</td> <td>3D/II</td> <td></td> <td>Concrete on unprotected steel</td> <td>None</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>North/Wall 301</td> <td>12C/X</td> <td>Vent duct undampered</td> <td>None</td> </tr> <tr> <td>Floor</td> <td>3D/II</td> <td>Vent duct coated</td> <td>3</td> </tr> </tbody> </table> <p>D. Exterior Walls: North to Fire Zone 12C/X is via a concrete duct chase. The chase is not equipped with a fire damper and thus no rating applies. The basis for fire barrier acceptability is found in CA-02-112.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	30/X	501	Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs.	3 hrs	North	12C/X	301	Reinforced concrete vent chase	None	East	3A/V	530	Reinforced concrete 12" thick - equivalent 3 hrs.	3 hrs	Floor	3A/V		Reinforced concrete 18" thick - equivalent 3 hrs.	3 hrs	Floor	3D/II		Concrete on unprotected steel	None	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North/Wall 301	12C/X	Vent duct undampered	None	Floor	3D/II	Vent duct coated	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																										
North	30/X	501	Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs.	3 hrs																																										
North	12C/X	301	Reinforced concrete vent chase	None																																										
East	3A/V	530	Reinforced concrete 12" thick - equivalent 3 hrs.	3 hrs																																										
Floor	3A/V		Reinforced concrete 18" thick - equivalent 3 hrs.	3 hrs																																										
Floor	3D/II		Concrete on unprotected steel	None																																										
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																											
North/Wall 301	12C/X	Vent duct undampered	None																																											
Floor	3D/II	Vent duct coated	3																																											

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 4E

	<p>E. Comments:</p> <ol style="list-style-type: none"> 1. Floor/(3D/II) – Supported by unprotected structural steel, undampened vent ducts to Fire Zone 3D, no rating can be assigned. The bases for this configuration's acceptability is found in CA-02-109. 2. Floor/(3A/V) – Vent duct has three-hour coating on the Fire Zone 3A side.
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other Fire Areas.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 5A

I	Fire Area: I	Fire Zone: 5A	Floor Area: 6,679 sq ft
II	Location: South Reactor Building		Elevation: 1001'-2"
III	Description: Laydown and Decontamination Area		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: B. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Smoke detectors located within Fire Zone. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: <ol style="list-style-type: none"> 1. CA-02-155 addresses fire detector location NFPA code deviations. 		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Fire Barriers are designed to prevent fire spread to other Fire Areas.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 5A

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 5B

I	Fire Area: I	Fire Zone: 5B	Floor Area: 2,250 sq ft
II	Location: North Reactor Building		Elevation: 1001'-2"
III	Description: Contaminated Equipment Storage Area		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Smoke detectors located within Fire Zone. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: <ol style="list-style-type: none"> 1. CA-02-155 addresses fire detector location NFPA code deviations. 		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 5B

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 5C

I	Fire Area: I	Fire Zone: 5C	Floor Area: 564 sq ft
II	Location: Reactor Building		Elevation: 985'-6" and 1001'-2"
III	Description: Skimmer Surge Tank Area		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Smoke detectors located within Fire Zone. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: <ol style="list-style-type: none"> 1. CA-02-118 addresses fire detector location NFPA code deviations. 		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 5C

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 6

I	Fire Area: I	Fire Zone: 6	Floor Area: 14,162 sq ft
II	Location: Reactor Building		Elevation: 1027'-8"
III	Description: Refueling Floor		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Smoke detectors located where needed in Fire Zone. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: <ol style="list-style-type: none"> 1. CA-02-116 addresses fire detection location NFPA code deviations. 		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Fire Barriers are designed to prevent fire spread to other Fire Areas.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 6

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 7A

I	Fire Area: VI	Fire Zone: 7A			Floor Area: 193 sq ft															
II	Location: Administration Building			Elevation: 928'-0"																
III	Description: Battery Room, D-1 and D-5																			
IV	Combustibles: (See CLSP)																			
V	Fire Loading: (See CLSP)																			
VI	Equivalent Fire Severity: (See CLSP)																			
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																			
VIII	<div>Construction:</div> <div>A. Fire Area Barriers:</div> <table><thead><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr></thead><tbody><tr><td>North</td><td>19B/XII</td><td>C101</td><td>Reinforced concrete 12" thick - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>North</td><td>13C/IX</td><td>C101</td><td>Reinforced concrete 12" thick - equivalent 3 hrs</td><td>3 hrs</td></tr></tbody></table> <div>B. Fire Doors in Required Barriers: None.</div> <div>C. Fire Dampers in Required Barriers: None.</div> <div>D. Exterior Walls: N/A</div> <div>E. Comments: None.</div>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	19B/XII	C101	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs	North	13C/IX	C101	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																
North	19B/XII	C101	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs																
North	13C/IX	C101	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs																
IX	<div>Fire Protection:</div> <div>A. Detection: Smoke detectors located within Fire Zone.</div> <div>B. Automatic Suppression: None.</div> <div>C. Manual Suppression:<div><div>1. Portable extinguishers: Located in adjacent Fire Zone.</div><div>2. Hose stations: Located in adjacent Fire Zone.</div></div></div> <div>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems or opening access door. Portable smoke ejectors can be utilized if necessary.</div> <div>E. Comments: None.</div>																			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 7A

X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.
XI	Safe Shutdown Systems Affected: See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.
XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment. Thus, the fire protection features are adequate for the fire hazards in this Fire Zone.
XIV	Conclusion: A fire in this Fire Area will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division II Systems.

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 7B

I	Fire Area: VI	Fire Zone: 7B	Floor Area: 324 sq ft																		
II	Location: Administration Building		Elevation: 928'-0"																		
III	Description: Battery Room D-3																				
IV	Combustibles: (See CLSP)																				
V	Fire Loading: (See CLSP)																				
VI	Equivalent Fire Severity: (See CLSP)																				
VII	Minimum Fire Barrier Rating for this Fire Zone: 60 minutes																				
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>South</td><td>7C/VII</td><td>C107</td><td>Hollow concrete block 6" thick – type of block not known – assumed 1 hour</td><td>1 hr</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr> </thead> <tbody> <tr> <td>South/Wall C107</td><td>7C/VII</td><td>Two vent duct dampered</td><td>(3) V-DF-402 (3) V-DF-403</td></tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> South/Wall C107 – due to the unknown classification of the concrete block, which can range from one to two hours, the one-hour classification is conservatively assumed. The basis for fire barrier acceptability is found in CA-02-114. 			ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	7C/VII	C107	Hollow concrete block 6" thick – type of block not known – assumed 1 hour	1 hr	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	South/Wall C107	7C/VII	Two vent duct dampered	(3) V-DF-402 (3) V-DF-403
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																	
South	7C/VII	C107	Hollow concrete block 6" thick – type of block not known – assumed 1 hour	1 hr																	
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																		
South/Wall C107	7C/VII	Two vent duct dampered	(3) V-DF-402 (3) V-DF-403																		
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> Portable extinguishers: Located in adjacent Fire Zone. Hose stations: Located in adjacent Fire Zone. 																				

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 7B

	<p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems or opening access door. Portable smoke ejectors can be utilized if necessary.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VII
Fire Zone 7C

I	Fire Area: VII	Fire Zone: 7C		Floor Area: 153 sq ft																																																					
II	Location: Administration Building			Elevation: 928'-0"																																																					
III	Description: Battery Room, D-2 and D-4																																																								
IV	Combustibles: (See CLSP)																																																								
V	Fire Loading: (See CLSP)																																																								
VI	Equivalent Fire Severity: (See CLSP)																																																								
VII	Minimum Fire Barrier Rating for this Fire Zone: 60 minutes																																																								
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>7B/VI</td> <td>C107</td> <td>Hollow concrete block 6" thick – assumed equivalent 1 hr</td> <td>1 hr</td> </tr> <tr> <td>South</td> <td>10/VI</td> <td>C109</td> <td>Hollow concrete block 6" thick – assumed equivalent 1 hr</td> <td>1 hr</td> </tr> <tr> <td>East</td> <td>10/VI</td> <td>C114</td> <td>Reinforced concrete 18" thick and course of concrete block - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>10/VI</td> <td>C110</td> <td>Hollow concrete block 6" thick – assumed equivalent 1 hr</td> <td>1 hr</td> </tr> <tr> <td>Ceiling</td> <td>8/VII</td> <td></td> <td>Reinforced concrete 5" thick on structural steel - equivalent 3 hrs</td> <td>2 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>West/Wall C110</td> <td>10/VI</td> <td>103</td> <td>928'</td> <td>1-1/2</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>North/Wall C107</td> <td>7B/VI</td> <td>Two vent ducts dampered</td> <td>(3) V-DF-402 (3) V-DF-403</td> </tr> <tr> <td>South/Wall C109</td> <td>10/VI</td> <td>Two vent ducts dampered</td> <td>(3) V-DF-410 (3) V-DF-411</td> </tr> </tbody> </table>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	7B/VI	C107	Hollow concrete block 6" thick – assumed equivalent 1 hr	1 hr	South	10/VI	C109	Hollow concrete block 6" thick – assumed equivalent 1 hr	1 hr	East	10/VI	C114	Reinforced concrete 18" thick and course of concrete block - equivalent 3 hrs	3 hrs	West	10/VI	C110	Hollow concrete block 6" thick – assumed equivalent 1 hr	1 hr	Ceiling	8/VII		Reinforced concrete 5" thick on structural steel - equivalent 3 hrs	2 hrs	ORIENTATION	ADJ. ZONE/ AREA	DOOR NO.	EL.	FIRE RATING (HRS)	West/Wall C110	10/VI	103	928'	1-1/2	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North/Wall C107	7B/VI	Two vent ducts dampered	(3) V-DF-402 (3) V-DF-403	South/Wall C109	10/VI	Two vent ducts dampered	(3) V-DF-410 (3) V-DF-411
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																					
North	7B/VI	C107	Hollow concrete block 6" thick – assumed equivalent 1 hr	1 hr																																																					
South	10/VI	C109	Hollow concrete block 6" thick – assumed equivalent 1 hr	1 hr																																																					
East	10/VI	C114	Reinforced concrete 18" thick and course of concrete block - equivalent 3 hrs	3 hrs																																																					
West	10/VI	C110	Hollow concrete block 6" thick – assumed equivalent 1 hr	1 hr																																																					
Ceiling	8/VII		Reinforced concrete 5" thick on structural steel - equivalent 3 hrs	2 hrs																																																					
ORIENTATION	ADJ. ZONE/ AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																					
West/Wall C110	10/VI	103	928'	1-1/2																																																					
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																																						
North/Wall C107	7B/VI	Two vent ducts dampered	(3) V-DF-402 (3) V-DF-403																																																						
South/Wall C109	10/VI	Two vent ducts dampered	(3) V-DF-410 (3) V-DF-411																																																						

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VII
Fire Zone 7C

	<p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. North/Wall C107, West/Wall C110 and South/Wall C109 – based on available plant data was conservatively assumed to be one-hour rated. This one-hour rating includes a safety factor of 43% and is considered adequate to prevent fire spread. The basis for acceptability of the one-hour barrier is found in CA-02-114. 2. Ceiling (8/VI) – steel beams protected and are three-hour rated. The basis for the acceptability of the two-hour fire barrier is found in CA-02-114.
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment. Thus, the fire protection features are adequate for the fire hazards in this Fire Zone.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I Systems.</p>

01463416 01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 8

I	Fire Area: VI	Fire Zone: 8		Floor Area: 2,286 sq ft																																																		
II	Location: Administration Building			Elevation: 939'-0"																																																		
III	Description: Cable Spreading Room																																																					
IV	Combustibles: (See CLSP)																																																					
V	Fire Loading: (See CLSP)																																																					
VI	Equivalent Fire Severity: (See CLSP)																																																					
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes																																																					
VIII	Construction: A. Fire Area Barriers: <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr><tr><td>North</td><td>19B/XII</td><td>C201</td><td>Reinforced concrete ≥ 12" thick - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>North</td><td>12C/IX</td><td>C201</td><td>Reinforced concrete 48" thick - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>North</td><td>19C/IX</td><td>C201</td><td>Reinforced concrete 48" thick - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>West</td><td>2A/III</td><td>C200</td><td>Reinforced concrete 18" thick - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>West</td><td>2B/I</td><td>C200</td><td>Reinforced concrete 18" thick - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>Ceiling</td><td>9/VIII</td><td></td><td>Concrete 12" thick on structural steel beam on protected steel columns - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>Floor</td><td>7C/VII</td><td></td><td>Concrete 5" thick on protected structural steel beam- equivalent 3 hrs</td><td>2 hrs</td></tr></table> B. Fire Doors in Required Barriers: <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/AREA</th><th>DOOR NO.</th><th>EL.</th><th>FIRE RATING (HRS)</th></tr><tr><td>North/C201</td><td>19B/XII</td><td>125</td><td>939'</td><td>3</td></tr></table> C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: 1. Ceiling/(9/VIII) Bechtel Analysis concluded boundary adequate for three-hours, steel beams not essential to support the ceiling, steel columns are protected with three hour rated fire proofing. 2. Floor/(7C/VII) – steel beams protected and are three-hour rated. The basis for acceptability of the two hour barrier rating is found in CA-02-114.				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	19B/XII	C201	Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs	North	12C/IX	C201	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs	North	19C/IX	C201	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs	West	2A/III	C200	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	West	2B/I	C200	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	Ceiling	9/VIII		Concrete 12" thick on structural steel beam on protected steel columns - equivalent 3 hrs	3 hrs	Floor	7C/VII		Concrete 5" thick on protected structural steel beam- equivalent 3 hrs	2 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	North/C201	19B/XII	125	939'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																		
North	19B/XII	C201	Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs																																																		
North	12C/IX	C201	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs																																																		
North	19C/IX	C201	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs																																																		
West	2A/III	C200	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																																		
West	2B/I	C200	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																																		
Ceiling	9/VIII		Concrete 12" thick on structural steel beam on protected steel columns - equivalent 3 hrs	3 hrs																																																		
Floor	7C/VII		Concrete 5" thick on protected structural steel beam- equivalent 3 hrs	2 hrs																																																		
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																		
North/C201	19B/XII	125	939'	3																																																		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 8

IX	<p>Fire Protection:</p> <p>A. Detection: Smoke and thermal detectors located within Fire Zone.</p> <p>B. Automatic Suppression: Automatic total flooding Halon 1301 fire suppression system.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-174 addresses detection and suppression systems NFPA code deviations. 2. CA-03-201 estimates Halon suppression system heat detector response times.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Normal control of the credited Safe Shutdown Systems is assumed lost. Necessary Safe Shutdown Systems are isolated from the fire and controlled from the Alternate Shutdown Panel after transfer. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke and thermal detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment. The automatic total flooding Halon 1301 system is expected to control a fire in this Fire Zone.</p>
XIV	<p>Conclusion:</p> <p>Safe shutdown can be accomplished utilizing the Alternate Shutdown System. Refer to the Safe Shutdown Analysis for compliance strategies.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VIII
Fire Zone 9

I	Fire Area: VIII	Fire Zone: 9			Floor Area: 2,256 sq ft
II	Location: Administration Building			Elevation: 951'-0"	
III	Description: Control Room				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	30/X	C303	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	South	10/VI	C311	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
	East	10/VI	C306	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
	West	3A/V	C300	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	West	2A/III	C300	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	West	2B/I	C300	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	West	3B/I	C300	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	Ceiling	10/VI		Concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	Ceiling	11/VI		Concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	Floor	8/VI		Concrete ≥ 12" thick on steel beams - on steel column - equivalent 3 hrs	3 hrs

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VIII
Fire Zone 9

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
North/Wall C303	30/X	141	951'	3
South/Wall C311	10/VI	142	951'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
East/Wall C306	10/VI	Vent duct dampered	(3) VDF-600
North/Wall C303	19B/XII	Eight vent ducts dampered	(3) V-DF-121A (3) V-DF-121B (3) V-DF-124A (3) V-DF-124B (3) V-DF-125A (3) V-DF-125B (3) V-DF-126A (3) V-DF-126B

D. Exterior Walls: N/A

E. Comments:

1. Bechtel Analysis concluded boundary adequate for three hours – steel beams not essential for support – steel columns are protected and three-hour rated. Acceptance criteria for Control Room is three hours.

IX Fire Protection:

A. Detection: Smoke detectors located within Fire Zone.

B. Automatic Suppression: None.

C. Manual Suppression:

1. Portable extinguishers: Located within Fire Zone.
2. Hose stations: Located in adjacent Fire Zone.

D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.

E. Comments: None.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VIII
Fire Zone 9

X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Normal control of the credited Safe Shutdown Systems is assumed lost. Necessary Safe Shutdown Systems are isolated from the fire and controlled from the Alternate Shutdown Panel after transfer. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>A continuously manned area and automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>Safe shutdown can be accomplished using the Alternate Shutdown System. Refer to the Safe Shutdown Analysis for compliance strategies.</p>

01463416 / 01491869

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 10

I	Fire Area: VI	Fire Zone: 10			Floor Area: 42,791 sq ft
II	Location: Administration Building			Elevation: 928'-0", 939'-0", 951'-0" and 965'-0"	
III	Description: Administration Building (excluding Battery, Cable Spreading, Control and HVAC Rooms)				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 60 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	12C/X	C101	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
	North	13C/IX	C101	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
	North	19C/IX	C101	Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs
	North	19B/XII	C101	Reinforced concrete 12" thick - equivalent 3 h)	3 hrs
	North	9/VIII	C311	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
	North	31B/XXII		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	North	32B/XXII		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	North	33/XXII		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
	North	7C/VII	C109	Hollow concrete block 6" thick – assumed 1 hr	1 hr

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 10

ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
East	7C/VII	C110	Hollow concrete block 6" thick – assumed equivalent 1 hr	1 hr
West	1C/III	104	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs
West	1F/IV	104	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs
West	2A/III	234	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
West	2B/I	234	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
West	3B/I	328	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
West	7C/VII	C114	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
West	9/VIII	C306	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs
Floor	9/VIII		Concrete \geq 12" thick - equivalent 3 hrs	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
North/Wall C201	19B/XII	105	931'	3
North/Wall C311	9/VIII	142	951'	3 (eq)
North	31B/XXII	340	932'	3 (eq)
North	31B/XXII	341	932'	3 (eq)
North	32B/XXII	342	943'	3 (eq)
North	33/XXII	343	959'	3 (eq)
East/Wall C110	7C/VII	103	928'	1-1/2
West/Wall 234	2B/I	62	935'	3

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 10

	C. Fire Dampers in Required Barriers:			
	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
	Weast/Wall C306	9/VIII	Vent duct dampered	(3) VDF-600
	North/Wall C101	19C/IX	Two vent ducts undampered	1
	North/Wall C109	7C/VII	Two vent ducts dampered	(3) V-DF-410 (3) V-DF-411
	D. Exterior Walls: N/A			
	E. Comments:			
	<ol style="list-style-type: none"> 1. North Wall C101 – the barrier is rated at one-hour when adjacent to Fire Zone 19C because of the vent ducts which, even though are undampered, are still adequate for a one-hour rating. The basis for the fire barrier acceptability is found in CA-02-114. 2. North/Wall C109 – East/Wall C110 – due to the unknown classification of the concrete blocks used in these barriers, a one-hour rating is conservatively assumed. Concrete blocks of 6" thickness can range from one-hour to two-hours. The basis for the fire barrier acceptability is found in CA-02-114. 			
IX	Fire Protection: A. Detection: Smoke detectors near elevator on basement, second and third floors. Smoke detectors in Chemistry Lab, Utility Storage, Records Storage Vault, Telephone Equipment Room, and Computer Room. B. Automatic Suppression: Halon systems in Records Storage Vaults and Computer Room. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: None.			
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Fire Barriers are designed to prevent fire spread to other Fire Areas.			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 10

XI	Safe Shutdown Systems Affected: See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.
XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment. The automatic halon system is expected to control a fire in the Records Storage Vault and Computer Room.
XIV	Conclusion: A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416 01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 11

I	Fire Area: VI	Fire Zone: 11		Floor Area: 2,560 sq ft																																				
II	Location: Administration Building			Elevation: 965'-0"																																				
III	Description: Administration Building HVAC Room																																							
IV	Combustibles: (See CLSP)																																							
V	Fire Loading: (See CLSP)																																							
VI	Equivalent Fire Severity: (See CLSP)																																							
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																							
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>30/X</td> <td></td> <td>Reinforced concrete 24" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>3A/V</td> <td>C400</td> <td>Reinforced concrete 12" thick and course of concrete block - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>3B/I</td> <td>C400</td> <td>Reinforced concrete 12" thick and course of concrete block - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Floor</td> <td>9/VIII</td> <td></td> <td>Concrete \geq 12" thick-equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>West/Wall C400</td> <td>3A/V</td> <td>211</td> <td>965'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	30/X		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs	West	3A/V	C400	Reinforced concrete 12" thick and course of concrete block - equivalent 3 hrs	3 hrs	West	3B/I	C400	Reinforced concrete 12" thick and course of concrete block - equivalent 3 hrs	3 hrs	Floor	9/VIII		Concrete \geq 12" thick-equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	West/Wall C400	3A/V	211	965'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																				
North	30/X		Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs																																				
West	3A/V	C400	Reinforced concrete 12" thick and course of concrete block - equivalent 3 hrs	3 hrs																																				
West	3B/I	C400	Reinforced concrete 12" thick and course of concrete block - equivalent 3 hrs	3 hrs																																				
Floor	9/VIII		Concrete \geq 12" thick-equivalent 3 hrs	3 hrs																																				
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																				
West/Wall C400	3A/V	211	965'	3																																				
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p>																																							

FIRE HAZARDS ANALYSIS MATRIX
Fire Area VI
Fire Zone 11

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division II Systems.</p>

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 12A

I	Fire Area: IX	Fire Zone: 12A			Floor Area: 2,212 sq ft
II	Location: Northwest Corner Turbine Building			Elevation: 911'-0"	
III	Description: Turbine Building Load Center No. 1 (Lower 4kV Area)				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 60 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	South	12C/X	T111	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	South	12B/X		Pyrocrete on steel; one way fire wall	1 hr
	South	12E/X		Reinforced concrete ≥ 36" thick - equivalent 3 hrs	1 hr
	South	14A/XII		Gypsum board on metal stud - equivalent 3 hrs	3 hrs
	East	12C/X	T112	Reinforced concrete ≥ 36" thick - equivalent 3 hrs	3 hrs
	East	12C/X	T120	Reinforced concrete ≥ 36" thick - equivalent 3 hrs	3 hrs
	West	12E/X		Reinforced concrete ≥ 36" thick - equivalent 3 hrs	3 hrs
	Ceiling	14A/XII		Concrete 12" thick on fire protected structural steel beam and gypsum board on metal studs – equivalent 3 hrs	3 hr
North	15B/XIV	D111	Reinfoced Concrete 24" thick equivalent 3 hrs	3 hrs	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 12A

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
South	12B/X	76	911'	3
South	12B/X	203	911'	3
South	12B/X	68	911'	3
West	12E/X	15	911'	2 hr
South	14A/XII	413	931'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
South	12E/X	Vent duct undampered	1
South	14A/XII	Vent duct dampered	(3) V-DF-550
Ceiling	14A/XII	Vent duct dampered	(3) V-DF-512
Ceiling	14A/XII	Vent duct dampered	(3) V-DF-516
Ceiling	14A/XII	Vent duct dampered	(3) V-DF-501

D. Exterior Walls: N/A

E. Comments:

1. South/(12B/X) – this fire barrier is not designed to prevent fire spread out of this area but is designed to prevent fire spread from 12B to 12A, rating not applicable for Fire Zone 12A. The basis for the acceptability of the two-hour fire barrier is found in CA-02-106.
2. South/(12E/X) – vent duct penetration although undampered considered adequate for one-hour fire rating; therefore, barrier is also one-hour. The basis for fire barrier acceptability is found in CA-02-101.
3. West/(12E/X) – The possibility of fire spread into the Air Ejector Room is remote due to the configuration and other factors, especially the lack of combustibles in 12E. The basis for fire barrier acceptability is found in CA-02-101.
4. Ceiling/(14A/XII) – structural steel is protected and rated three-hours. Bus duct penetrations sealed and rated three hours. Turbine Building Hatch No 8 provides three-hour rating when in place.

IX Fire Protection:

A. Detection: Smoke detectors located within Fire Zone.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 12A

	<p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire barriers are designed to prevent fire spread to other Fire Areas except in the case of the South/(12B/X) wall. The South wall is designed to prevent fire spread into Fire Zone 12A. It is not designed to prevent fire spread from Fire Zone 12A to Fire Zone 12B. Fire Zone 12B contains no Safe Shutdown equipment.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Area will likely not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division II Systems.</p>

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12B

I	Fire Area: X	Fire Zone: 12B		Floor Area: 1,658 sq ft																														
II	Location: Turbine Building			Elevation: 911'-0"																														
III	Description: Hydrogen Seal Oil; Unit and Condensate Pump Area																																	
IV	Combustibles: (See CLSP)																																	
V	Fire Loading: (See CLSP)																																	
VI	Equivalent Fire Severity: (See CLSP)																																	
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																	
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>12A/X</td> <td></td> <td>Pyrocrete on steel - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>12A/IX</td> <td>76</td> <td>911'</td> <td>3</td> </tr> <tr> <td>North</td> <td>12A/IX</td> <td>203</td> <td>911'</td> <td>3</td> </tr> <tr> <td>North</td> <td>12A/IX</td> <td>68</td> <td>911'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <p>1. North/(12A/IX) – this wall is a one-way fire wall designed to prevent fire propagation from Fire Zone 12B to 12A; the barrier for the Fire Zone 12B side is assigned a three-hour rating.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	12A/X		Pyrocrete on steel - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	North	12A/IX	76	911'	3	North	12A/IX	203	911'	3	North	12A/IX	68	911'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																														
North	12A/X		Pyrocrete on steel - equivalent 3 hrs	3 hrs																														
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																														
North	12A/IX	76	911'	3																														
North	12A/IX	203	911'	3																														
North	12A/IX	68	911'	3																														
IX	<p>Fire Protection:</p> <p>A. Detection: Sprinkler water flow alarm for Hydrogen Seal Oil Unit Area.</p> <p>B. Automatic Suppression: Wet pipe sprinkler system protects Hydrogen Seal Oil Unit Area.</p>																																	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12B

	<p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems or venting via open stairwell. Portable smoke ejectors can be utilized. The Turbine Building ventilation system has been designed to meet NFPA Standards for smoke venting.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-03-151 addresses suppression system NFPA Code Deviations. 2. CA-04-115 is H2 seal oil unit sprinkler system hydraulic calculation.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic sprinkler system is expected to control a Hyrdrogen Seal Oil fire in this Fire Zone. In addition, the waterflow alarm to the Control Room will result in prompt fire brigade response and extiguishment of a fire.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12C

I	Fire Area: X	Fire Zone: 12C			Floor Area: 13,060 sq ft
II	Location: Turbine Building			Elevation: 911'-0"	
III	Description: Turbine Basement Condenser Area				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	16/IX	T107	Reinforced concrete and concrete block ≥ 42"thick - equivalent 3 hrs	3 hrs
	North	16/IX	T305	Reinforced concrete and concrete block ≥ 42"thick - equivalent 3 hrs	3 hrs
	North	16/IX	T129	Reinforced concrete ≥ 42" thick - equivalent 3 hrs	3 hrs
	North	17/XII	T305	Reinforced concrete 42" thick - equivalent 3 hrs	1 hr
	North	12A/IX	T111	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	South	4E/I		Reinforced concrete 18" thick - equivalent 3 hrs	None
	South	1D/II		Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs
	South	1F/IV		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	South	1C/III		Reinforced concrete ≥ 36" thick - equivalent 3 hrs	3 hrs
	South	1G/II	T315	Reinforced concrete ≥ 36" thick - equivalent 3 hrs	3 hrs
South	2A/III		Reinforced concrete ≥ 36" thick - equivalent 3 hrs	3 hrs	
East	19C/IX	T318	Reinforced concrete ≥ 42" thick - equivalent 3 hrs	3 hrs	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12C

ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
South	2F/III		Reinforced concrete 36" thick – equivalent 3 hrs	3 hrs
South	2C/II		Reinforced concrete 34" thick – equivalent 3 hrs	3 hrs
South	10/V	T127	Reinforced concrete 36" thick – equivalent 3 hrs	3 hrs
East	19A/XII	T318	Reinforced concrete ≥ 42" thick – equivalent 3 hrs	3 hrs
East	19B/XII	T318	Reinforced concrete ≥ 42" thick – equivalent 3 hrs	3 hrs
East	13B/IX	T128	Reinforced concrete ≥ 42" thick – equivalent 3 hrs	3 hrs
East	13C/IX	T128	Reinforced concrete ≥ 42" thick – equivalent 3 hrs	3 hrs
West	14A/XII	T312	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs
West	12A/IX	T112	Reinforced concrete ≥ 36" thick - equivalent 3 hrs	3 hrs
West	12A/IX	T120	Reinforced concrete ≥ 36" thick - equivalent 3 hrs	3 hrs
Ceiling	16/IX		Reinforced concrete over access to condenser bay - equivalent 3 hrs	3 hrs
Ceiling	14A/XII		Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
West/Wall	16/IX	18A	911'	3
North/Wall	16/IX	25	911'	3

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12C

	C. Fire Dampers in Required Barriers:			
	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
	North/Wall T305	17/XII	Vent duct undampered	1
	South	4E/I	Vent duct chase undampered	None
	East/Wall T128	19C/IX	Two vent ducts dampered	(3) V-DF-245 (3) V-DF-246
	East/Wall T128	13C/IX	Vent duct dampered	(3) V-DF-520
	D. Exterior Walls: N/A			
	E. Comments:			
	<ol style="list-style-type: none"> 1. North/(17/XII) – Interface exists due to the vent duct that passes from Fire Zones 12C through Fire Zone 16 to Fire Zone 17. The duct is encased in a concrete type material in Fire Zone 16, so there is no need for a fire damper. The interface to Fire Zone 17 from Fire Zone 12C is considered equivalent to one-hour based on NFPA 90A and the vent duct penetration does not require a fire damper. 2. South/(4E/I) – a potential path exists from 12C to 4E via an Undampered vent duct chase that is encased in concrete as it passes through Fire Zones 2C and 3D in the Reactor Building. The basis for fire barrier acceptability is found in CA-02-112. 			
IX	Fire Protection:			
	A. Detection: Sprinkler water flow alarm.			
	B. Automatic Suppression: Automatic wet pipe sprinkler system.			
	C. Manual Suppression:			
	<ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. 			
	D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems or venting up through to the turbine operating deck. The Turbine Building ventilation system has been designed to meet NFPA standards for smoke venting. Portable smoke ejectors are available if needed.			
	E. Comments:			
	<ol style="list-style-type: none"> 1. CA-03-113 addresses suppression system NFPA code deviations. 2. CA-03-114 contains the Turbine Building Condenser Area hydraulic calculation. 			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12C

X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm to the Control Room will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12D

I	Fire Area: X	Fire Zone: 12D	Floor Area: 1,591 sq ft																									
II	Location: Southwest Corner Turbine Building		Elevation: 908'-0"																									
III	Description: Clean Radwaste Sump Area																											
IV	Combustibles: (See CLSP)																											
V	Fire Loading: (See CLSP)																											
VI	Equivalent Fire Severity: (See CLSP)																											
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																											
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>South</td><td>1G/II</td><td>T127</td><td>Reinforced concrete 42" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> <tr> <td>South</td><td>1D/II</td><td>T127</td><td>Reinforced concrete 42" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> <tr> <td>South</td><td>1E/II</td><td>T127</td><td>Reinforced concrete 42" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> <tr> <td>South</td><td>2C/II</td><td>T127</td><td>Reinforced concrete 34" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>			ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	1G/II	T127	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs	South	1D/II	T127	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs	South	1E/II	T127	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs	South	2C/II	T127	Reinforced concrete 34" thick - equivalent 3 hrs	3 hrs
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																								
South	1G/II	T127	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs																								
South	1D/II	T127	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs																								
South	1E/II	T127	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs																								
South	2C/II	T127	Reinforced concrete 34" thick - equivalent 3 hrs	3 hrs																								
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. 																											

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12D

	<p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. The Turbine Building ventilating system has been designed to meet NFPA standards for smoke venting.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to negligible fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a negligible fire loading; therefore, a fire in this Fire Zone is considered inconsequential.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12E

I	Fire Area: X	Fire Zone: 12E		Floor Area: 1,206 sq ft																																							
II	Location: Turbine Building			Elevation: 911'-0"																																							
III	Description: Air Ejector Room																																										
IV	Combustibles: (See CLSP)																																										
V	Fire Loading: (See CLSP)																																										
VI	Equivalent Fire Severity: (See CLSP)																																										
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																																										
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>12A/IX</td> <td>T115</td> <td>Reinforced concrete 36" thick - equivalent 3 hrs</td> <td>1 hr</td> </tr> <tr> <td>East</td> <td>12A/IX</td> <td></td> <td>Reinforced concrete \geq 36" thick - equivalent 3 hrs</td> <td>3 Hrs</td> </tr> <tr> <td>Ceiling</td> <td>14A/XII</td> <td></td> <td>Reinforced concrete \geq 12" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>East</td> <td>12A/IX</td> <td>15</td> <td>911'</td> <td>2 Hrs</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>North/Wall T115</td> <td>12A/IX</td> <td>Vent duct undampered</td> <td>1</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> North/Wall T115 (12A/IX) – there is a vent duct penetrating the wall but per NFPA 90A an equivalent rating of one-hour can be applied; thus barrier is rated one-hour. The basis for fire barrier acceptability is found in CA-02-101. 					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	12A/IX	T115	Reinforced concrete 36" thick - equivalent 3 hrs	1 hr	East	12A/IX		Reinforced concrete \geq 36" thick - equivalent 3 hrs	3 Hrs	Ceiling	14A/XII		Reinforced concrete \geq 12" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	East	12A/IX	15	911'	2 Hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North/Wall T115	12A/IX	Vent duct undampered	1
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																							
North	12A/IX	T115	Reinforced concrete 36" thick - equivalent 3 hrs	1 hr																																							
East	12A/IX		Reinforced concrete \geq 36" thick - equivalent 3 hrs	3 Hrs																																							
Ceiling	14A/XII		Reinforced concrete \geq 12" thick - equivalent 3 hrs	3 hrs																																							
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																							
East	12A/IX	15	911'	2 Hrs																																							
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																								
North/Wall T115	12A/IX	Vent duct undampered	1																																								

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 12E

IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 13A

I	Fire Area: IX	Fire Zone: 13A			Floor Area: 318 sq ft																		
II	Location: Northeast Corner Turbine Building				Elevation: 911'-0"																		
III	Description: Lube Oil Storage Tank Room																						
IV	Combustibles: (See CLSP)																						
V	Fire Loading: (See CLSP)																						
VI	Equivalent Fire Severity: (See CLSP)																						
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																						
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>Ceiling</td><td>19A/XII</td><td></td><td>Concrete 12" thick on protected steel - equivalent 3 hrs</td><td>3 hrs</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr> </thead> <tbody> <tr> <td>Ceiling</td><td>19A/XII</td><td>Vent duct dampered</td><td>(3) V-DF-244</td></tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> Ceiling (19A/XII) – structural steel beams protected and are three-hour rated. 					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	Ceiling	19A/XII		Concrete 12" thick on protected steel - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	Ceiling	19A/XII	Vent duct dampered	(3) V-DF-244
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																			
Ceiling	19A/XII		Concrete 12" thick on protected steel - equivalent 3 hrs	3 hrs																			
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																				
Ceiling	19A/XII	Vent duct dampered	(3) V-DF-244																				
IX	<p>Fire Protection:</p> <p>A. Detection: Sprinkler water flow alarm.</p> <p>B. Automatic Suppression: Automatic wet pipe sprinkler system.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> Portable extinguishers: Located in adjacent Fire Zone. Hose stations: Located in adjacent Fire Zone. 																						

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 13A

	<p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems. Portable smoke ejectors can be utilized if necessary.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-134 is the sprinkler system hydraulic calculation for the clean/dirty lube oil storage room. 2. CA-03-121 addresses suppression systems NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Rated Fire Barriers are designed to prevent fire spread to other plant Fire Areas. Although the Fire Barrier ratings are less than the expected fire severity, the three hour rating meets Appendix R requirements.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>There are no Safe Shutdown systems in this Fire Area.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm to the Control Room will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 13B

I	Fire Area: IX	Fire Zone: 13B		Floor Area: 2,453 sq ft																																																								
II	Location: Turbine Building			Elevation: 911'-0"																																																								
III	Description: Lube Oil Reservoir and Reactor Feed Pump Area																																																											
IV	Combustibles: (See CLSP)																																																											
V	Fire Loading: (See CLSP)																																																											
VI	Equivalent Fire Severity: (See CLSP)																																																											
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																																																											
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>19A/XII</td> <td></td> <td>Hollow concrete block 8" thick - equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>North</td> <td>17/XII</td> <td></td> <td>Hollow concrete block 8" thick - equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>South</td> <td>19A/XII</td> <td></td> <td>Gypsum board on metal stud - equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>East</td> <td>19A/XII</td> <td></td> <td>Gypsum board on metal stud - equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>West</td> <td>12C/X</td> <td>T128</td> <td>Reinforced concrete \geq 42" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>19A/XII</td> <td></td> <td>Concrete 12" thick on protected steel beams and columns - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>30/X</td> <td></td> <td>N/A - open</td> <td>None</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>East</td> <td>19A/XII</td> <td>39</td> <td>931'</td> <td>1-1/2</td> </tr> <tr> <td>East</td> <td>19A/XII</td> <td>40</td> <td>931'</td> <td>1-1/2</td> </tr> </tbody> </table>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	19A/XII		Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs	North	17/XII		Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs	South	19A/XII		Gypsum board on metal stud - equivalent 2 hrs	2 hrs	East	19A/XII		Gypsum board on metal stud - equivalent 2 hrs	2 hrs	West	12C/X	T128	Reinforced concrete \geq 42" thick - equivalent 3 hrs	3 hrs	Ceiling	19A/XII		Concrete 12" thick on protected steel beams and columns - equivalent 3 hrs	3 hrs	Ceiling	30/X		N/A - open	None	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	East	19A/XII	39	931'	1-1/2	East	19A/XII	40	931'	1-1/2
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																								
North	19A/XII		Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs																																																								
North	17/XII		Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs																																																								
South	19A/XII		Gypsum board on metal stud - equivalent 2 hrs	2 hrs																																																								
East	19A/XII		Gypsum board on metal stud - equivalent 2 hrs	2 hrs																																																								
West	12C/X	T128	Reinforced concrete \geq 42" thick - equivalent 3 hrs	3 hrs																																																								
Ceiling	19A/XII		Concrete 12" thick on protected steel beams and columns - equivalent 3 hrs	3 hrs																																																								
Ceiling	30/X		N/A - open	None																																																								
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																								
East	19A/XII	39	931'	1-1/2																																																								
East	19A/XII	40	931'	1-1/2																																																								

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 13B

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
Ceiling	19A/XII	Vent duct dampered	(3) V-DF-522
East	19A/XII	Four grill openings dampered	(1-1/2) V-DF-527 (1-1/2) V-DF-528 (1-1/2) V-DF-529 (1-1/2) V-DF-530

D. Exterior Walls: N/A

E. Comments:

1. North/(19A/XII) – the barrier rating is two-hours based upon available plant data. Fire Zone 13B is sprinklered and the hatch area has a water curtain.
2. North/(17/XII) – the fire load in this Fire Zone necessitates a three-hour barrier. The basis for fire barrier acceptability is found in CA-02-103.
3. South/(19A/XII) – this two-hour barrier is designed in conjunction with a water sprinkler curtain to provide an acceptable degree of protection between Fire Zones 13B and 19A.
4. East/(19A/XII) – 1-1/2 hour fire doors acceptable in two-hour rated based on NFPA 80; 1-1/2 hour fire damper acceptable in this barrier based on NFPA 90A.
5. Ceiling/(30/X) – Fire Zone 13B freely communicates with Fire Zone 30, turbine operating floor. CA-02-103 addresses the acceptability of this configuration.

IX Fire Protection:

- A. Detection: HADs trip deluge sprinkler system and alarm in Control Room.
- B. Automatic Suppression: Automatic deluge sprinkler system protects lube oil reservoir and surrounding area. Wet pipe sprinkler systems provide water curtain in equipment hatch.
- C. Manual Suppression:
1. Portable extinguishers: Located within Fire Zone.
 2. Hose stations: Located within Fire Zone.
- D. Ventilation: Smoke and heat removal can be accomplished via open hatchway to turbine operating floor. If necessary portable smoke ejectors can be utilized. The Turbine Building ventilation system has been designed to meet NFPA standards for smoke venting.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 13B

	<p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-187 addresses detection and suppression systems NFPA code deviations. 2. CA-03-188 addresses equipment hatch wet pipe sprinkler system NFPA code deviations. 3. CA-14-017 is the hydraulic calculation for sprinkler curtain above the RFP area.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other plant Fire Areas. Although the fire barriers do not provide complete compartmentation, they are supplemented with an automatic deluge sprinkler system designed to control a fire and designed to prevent the spread of fire from Fire Zone 13B to Fire Zone 30. The spread of fire from Fire Zone 13B to Fire Zone 16 would be unlikely due to the tortuous path.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic deluge sprinkler system and water curtain in equipment hatch are expected to control a fire in this Fire Zone. In addition, the waterflow alarm to the Control Room will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416
01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 13C

I	Fire Area: IX	Fire Zone: 13C	Floor Area: 908 sq ft																																																											
II	Location: Southeast Corner Turbine Building		Elevation: 911'-0"																																																											
III	Description: ESF Motor Control Center																																																													
IV	Combustibles: (See CLSP)																																																													
V	Fire Loading: (See CLSP)																																																													
VI	Equivalent Fire Severity: (See CLSP)																																																													
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																																													
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>19B/XII</td> <td>Stair encl</td> <td>Gypsum board on metal stud - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>South</td> <td>7A/VI</td> <td>C101</td> <td>Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>South</td> <td>10/VI</td> <td>C101</td> <td>Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>19B/XII</td> <td></td> <td>Gypsum board on metal stud - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>12C/X</td> <td>T128</td> <td>Reinforced concrete $\geq 42"$ thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>19B/XII</td> <td></td> <td>Gypsum board on metal stud - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>19B/XII</td> <td></td> <td>Concrete $\geq 12"$ thick on protected steel and columns-equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>19B/XII</td> <td>414</td> <td>931'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West/Wall T128</td> <td>12C/X</td> <td>Vent duct dampered</td> <td>(3) V-DF-520</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	19B/XII	Stair encl	Gypsum board on metal stud - equivalent 3 hrs	3 hrs	South	7A/VI	C101	Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs	South	10/VI	C101	Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs	East	19B/XII		Gypsum board on metal stud - equivalent 3 hrs	3 hrs	West	12C/X	T128	Reinforced concrete $\geq 42"$ thick - equivalent 3 hrs	3 hrs	West	19B/XII		Gypsum board on metal stud - equivalent 3 hrs	3 hrs	Ceiling	19B/XII		Concrete $\geq 12"$ thick on protected steel and columns-equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	North	19B/XII	414	931'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	West/Wall T128	12C/X	Vent duct dampered	(3) V-DF-520
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																										
North	19B/XII	Stair encl	Gypsum board on metal stud - equivalent 3 hrs	3 hrs																																																										
South	7A/VI	C101	Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs																																																										
South	10/VI	C101	Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs																																																										
East	19B/XII		Gypsum board on metal stud - equivalent 3 hrs	3 hrs																																																										
West	12C/X	T128	Reinforced concrete $\geq 42"$ thick - equivalent 3 hrs	3 hrs																																																										
West	19B/XII		Gypsum board on metal stud - equivalent 3 hrs	3 hrs																																																										
Ceiling	19B/XII		Concrete $\geq 12"$ thick on protected steel and columns-equivalent 3 hrs	3 hrs																																																										
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																										
North	19B/XII	414	931'	3																																																										
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																																											
West/Wall T128	12C/X	Vent duct dampered	(3) V-DF-520																																																											

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 13C

IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: Open head sprinkler.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished via open hatchway into turbine operating floor. If necessary portable smoke ejectors can be used. The Turbine Building ventilation system has been designed to meet NFPA standards for smoke venting. The system vents the air to the Reactor Building where it is monitored for radiation.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 14A

I	Fire Area: XII	Fire Zone: 14A			Floor Area: 2,553 sq ft
II	Location: Northwest Corner Turbine Building			Elevation: 931'-0"	
III	Description: Turbine Building Load Center No. 2 (Upper 4 kV Area)				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	15A/XII	T303	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	North	15B/XIV	T303	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs
	North	16/IX		Part reinforced concrete ≥ 6" thick and part gypsum board on metal stud - equivalent 3 hrs	2 hrs
	North	12A/IX		Gypsum board on metal stud - equivalent 3 hrs	3 hrs
	South	14B/X		Pyrocrete on steel - one way fire wall	None
	South	14C/X		Concrete 18" thick - equivalent 3 hrs	3 hrs
	East	16/IX		Concrete ≥ 8" thick and gypsum board on metal stud - equivalent 3 hrs	3 hrs
	East	12C/X	T312	Reinforced concrete 42" thick - equivalent 3 hrs	3 hrs
	East	14B/X		Pyrocrete on steel - one way fire wall	None
	West	37/XXV		Reinforced concrete 18" thick - equivalent 3 hrs	None
	Ceiling	30/X		Concrete on structural steel	None

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 14A

ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
Floor	12A/X		Concrete 12" thick on protected steel beam and gypsum board on meal stud - equivalent 3 hrs	3 hrs
Floor	12E/X		Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs
Floor	12C/X		Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs
Floor	16/IX		Concrete slab assembly – equivalent 3 hrs	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
North	16/IX	31	931'	1-1/2
North	12A/IX	413	931'	3
South	14B/X	9	931'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
North	12A/IX	Vent duct dampered	(3) V-DF-550
South	14B/X	Vent duct dampered	(3) V-DF-500 Blocked closed
Ceiling	30/X	Vent duct undampered	None
Floor	12A/IX	Vent duct dampered	(3) V-DF-501
Floor	12A/IX	Vent duct dampered	(3) V-DF-512
Floor	12A/IX	Vent duct dampered	(3) V-DF-516

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 14A

	<p>D. Exterior Walls: The west wall is exposed by the main and both reserve transformers. The west wall is reinforced concrete and contains two unrated metal enclosed bus duct penetrations. These penetrations are individually exposed to the individual reserve transformer it services. All three transformers are protected by separate manual deluge water spray systems. Each transformer has a separate heat detector with alarm to the Control Room. Any fire involving the transformers could be quickly extinguished using the fixed manually-operated water spray systems. The basis for acceptability of Fire Area barrier is found in CA-02-102.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. East and South (14B/X) – the steel and pyrocrete wall separating 14A and 14B is a one-way wall designed to prevent fire in Fire Zone 14B from going to Fire Zone 14A – rating is not applicable for Fire Zone 14A. The basis for acceptability of Fire Area barrier is found in CA-02-106. 2. Ceiling/(30/X) – no fire barrier rating applies – 14A communicates with the Fire Zone 30 via nonrated assemblies and ducts. The basis for acceptability of Fire Area barriers is found in CA-02-111. 3. Floor/(12A/X) – bus duct penetrations sealed and rated 3 hours. Turbine Building Hatch No. 8 provides three-hour rating when in place. 4. North/(16/IX) – the barrier is rated for two-hours. NFPA allows 1-1/2 hour door in two-hour barrier.
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. The Turbine Building ventilation system has been designed to meet NFPA standards for smoke venting.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 14A

XI	Safe Shutdown Systems Affected: See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.
XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment. Thus, the fire protection features are adequate for the fire hazards in this Fire Zone.
XIV	Conclusion: A fire in this Fire Area will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I Systems.

01463416 / 01491869

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 14B

I	Fire Area: X	Fire Zone: 14B		Floor Area: 3,077 sq ft																																		
II	Location: Turbine Building			Elevation: 931'-0"																																		
III	Description: Valve Operating Gallery																																					
IV	Combustibles: (See CLSP)																																					
V	Fire Loading: (See CLSP)																																					
VI	Equivalent Fire Severity: (See CLSP)																																					
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																					
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>14A/XIII</td> <td></td> <td>Pyrocrete on steel - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>14A/XII</td> <td></td> <td>Pyrocrete on steel - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>14A/XII</td> <td>9</td> <td>931'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>14A/XII</td> <td>Vent duct dampered</td> <td>(3) V-DF-500 Blocked Closed</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. North and West/(14A/XII) – wall designed to be a one way fire wall and will prevent spread of fire from Fire Zone 14B into Fire Zone 14A, three hour rated on Fire Zone 14B side only. 					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	14A/XIII		Pyrocrete on steel - equivalent 3 hrs	3 hrs	West	14A/XII		Pyrocrete on steel - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	North	14A/XII	9	931'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North	14A/XII	Vent duct dampered	(3) V-DF-500 Blocked Closed
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																		
North	14A/XIII		Pyrocrete on steel - equivalent 3 hrs	3 hrs																																		
West	14A/XII		Pyrocrete on steel - equivalent 3 hrs	3 hrs																																		
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																		
North	14A/XII	9	931'	3																																		
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																			
North	14A/XII	Vent duct dampered	(3) V-DF-500 Blocked Closed																																			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 14B

IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished by means of venting action through open hatchway to turbine operating floor. The Turbine Building ventilation system is designed to meet NFPA standards for smoke venting.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to negligible fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a negligible fire loading; therefore, a fire in this Fire Zone is considered inconsequential.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 14C

I	Fire Area: X	Fire Zone: 14C			Floor Area: 1,717 sq ft															
II	Location: Southwest Corner Turbine Building				Elevation: 931'-0"															
III	Description: Turbine Building Railroad Car Shelter																			
IV	Combustibles: (See CLSP)																			
V	Fire Loading: (See CLSP)																			
VI	Equivalent Fire Severity: (See CLSP)																			
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																			
VIII	<div>Construction:</div> <div>A. Fire Area Barriers:</div> <table><thead><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr></thead><tbody><tr><td>North</td><td>14A/XII</td><td></td><td>Reinforced concrete 18" thick - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>West</td><td>37/XXV</td><td></td><td>Reinforced concrete 18" thick - equivalent 3 hrs</td><td>3 hrs</td></tr></tbody></table> <div>B. Fire Doors in Required Barriers: None.</div> <div>C. Fire Dampers in Required Barriers: None.</div> <div>D. Exterior Walls: The west wall of this Fire Zone is exposed by the main transformer. The wall is solid concrete 18" thick with an unrated isophase bus duct penetration in the barrier. The wall area above this barrier has automatic deluge sprinkler protection and the main transformer has a manual water spray system. Building siding and transformer heat detectors alarm to the Control Room. Any fire involving the transformer would be quickly controlled using the water spray system. The basis for fire barrier acceptability is found in CA-02-102.</div> <div>E. Comments: None.</div>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	14A/XII		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	West	37/XXV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																
North	14A/XII		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																
West	37/XXV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																
IX	<div>Fire Protection:</div> <div>A. Detection: None.</div> <div>B. Automatic Suppression: None.</div> <div>C. Manual Suppression:</div> <div><div>1. Portable extinguishers: Located within Fire Zone.</div><div>2. Hose stations: Located within Fire Zone.</div></div>																			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 14C

	<p>D. Ventilation: Smoke and heat removal can be accomplished by means of venting action through open hatchway to turbine operating floor. The Turbine Building ventilation system is designed to meet NFPA standards for smoke venting.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIII
Fire Zone 15A

I	Fire Area: XIII	Fire Zone: 15A		Floor Area: 1,098 sq ft																																																					
II	Location: Standby Diesel Generator Building			Elevation: 931'-0" and 949'-0"																																																					
III	Description: Diesel Generator Room No. 12																																																								
IV	Combustibles: (See CLSP)																																																								
V	Fire Loading: (See CLSP)																																																								
VI	Equivalent Fire Severity: (See CLSP)																																																								
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																																								
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>South</td> <td>14A/XII</td> <td>D111</td> <td>Reinforced concrete 24" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>15B/XIV</td> <td>D102</td> <td>Reinforced concrete 12" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>37/XXV</td> <td></td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Trench</td> <td>15B/XIV</td> <td></td> <td>Div 1 trench running under 11 EDG room 2" thick Pyrocrete 241</td> <td>3 hrs</td> </tr> <tr> <td>Trench</td> <td>15C/XIV</td> <td></td> <td>Div 1 trench running under 11 EDG room 18" thick concrete - equivalent 3 hrs.</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>East/Wall D102</td> <td>15B/XIV</td> <td>10</td> <td>931'</td> <td>3</td> </tr> <tr> <td>East</td> <td>15B/XIV</td> <td>6</td> <td>949'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West</td> <td>37/XXV</td> <td>Grill undampered</td> <td>None</td> </tr> </tbody> </table>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	14A/XII	D111	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs	East	15B/XIV	D102	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs	West	37/XXV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	Trench	15B/XIV		Div 1 trench running under 11 EDG room 2" thick Pyrocrete 241	3 hrs	Trench	15C/XIV		Div 1 trench running under 11 EDG room 18" thick concrete - equivalent 3 hrs.	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	DOOR NO.	EL.	FIRE RATING (HRS)	East/Wall D102	15B/XIV	10	931'	3	East	15B/XIV	6	949'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	West	37/XXV	Grill undampered	None
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																					
South	14A/XII	D111	Reinforced concrete 24" thick - equivalent 3 hrs	3 hrs																																																					
East	15B/XIV	D102	Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs																																																					
West	37/XXV		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																																					
Trench	15B/XIV		Div 1 trench running under 11 EDG room 2" thick Pyrocrete 241	3 hrs																																																					
Trench	15C/XIV		Div 1 trench running under 11 EDG room 18" thick concrete - equivalent 3 hrs.	3 hrs																																																					
ORIENTATION	ADJ. ZONE/ AREA(S)	DOOR NO.	EL.	FIRE RATING (HRS)																																																					
East/Wall D102	15B/XIV	10	931'	3																																																					
East	15B/XIV	6	949'	3																																																					
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																																						
West	37/XXV	Grill undampered	None																																																						

01466886
01466886

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIII
Fire Zone 15A

	<p>D. Exterior Walls: Undampened air intake in west wall could potentially result in smoke being drawn into the Diesel Generator No. 12 area if diesel operation is required and a reserve transformer is on fire. The transformers are protected by manual deluge water spray systems. The transformers are provided with heat detectors. Any fire involving the transformers would be quickly extinguished using the fixed manually operated water spray systems. Redundant Diesel Generator No 11 unaffected by this scenario. The basis for fire barrier acceptability is found in CA-02-102.</p> <p>E. Comments: Fire Zone 15A includes the trench located in the 11 EDG Room (Fire Zone 15B) floor. This trench contains control/power cables in rigid metal conduit and several small bore fuel oil lines for the 12 EDG fuel oil transfer system. The west end of the trench is a block out in the 12" thick reinforced concrete wall separating 15A and 15B. The east end of the trench is a block out in the 18" thick reinforced concrete wall separating 15B and 15C. Both of these block outs are sealed full depth, height and width with concrete to prevent any liquids from entering or exiting the trench. There are no combustibles in the trench and the floor area of the trench is not included in the floor area of 15A. There is no fire detection or suppression in the trench. Reference FPPE-15-0001.</p>
IX	<p>Fire Protection:</p> <p>A. Detection: Heat and flame detectors located within Fire Zone.</p> <p>B. Automatic Suppression: Automatic pre-action sprinkler system.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-170 addresses detection system NFPA code deviations. 2. CA-03-193 addresses suppression system NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>

01466886

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIII
Fire Zone 15A

XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic pre-action sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm, heat and flame detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIV
Fire Zone 15B

I	Fire Area: XIV	Fire Zone: 15B			Floor Area: 1,263 sq ft
II	Location: Standby Diesel Generator Building			Elevation: 931'-0" and 949'-0"	
III	Description: Diesel Generator Room No. 11				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	15D/XVI	D017	Reinforced concrete 18" thick-equivalent 3 hrs	3 hrs
	South	14A/XII	D111	Reinforced concrete 24" thick-equivalent 3 hrs	3 hrs
	South	16/IX	T303	Reinforced concrete ≥ 24" thick-equivalent 3 hrs	3 hrs
	East	15C/XV	D104	Reinforced concrete 18" thick-equivalent 3 hrs	3 hrs
	East	15D/XVI	D104	Reinforced concrete 18" thick-equivalent 3 hrs	3 hrs
	East	16/IX	D106	Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	East	39/IX		Reinforced concrete 18" thick-equivalent 3 hrs	3 hrs
	West	15A/XIII	D102	Reinforced concrete 12" thick-equivalent 3 hrs	3 hrs
	South	12A/IX	D111	Reinforced concrete 24" thick-equivalent 3 hrs	3 hrs
	Trench	15A/XIII		12 EDG trench running under 11 EDG room 2" thick Pyrocrete 241	3 hrs

01466886

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIV
Fire Zone 15B

	<p>B. Fire Doors in Required Barriers:</p> <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>DOOR NO.</th><th>EL.</th><th>FIRE RATING (HRS)</th></tr><tr><td>East/Wall D104</td><td>15C/XV</td><td>12</td><td>931'</td><td>3</td></tr><tr><td>East/Wall D104</td><td>15D/XVI</td><td>12A</td><td>931'</td><td>3</td></tr><tr><td>East/Wall D106</td><td>16/IX</td><td>11</td><td>931'</td><td>3</td></tr><tr><td>West</td><td>15A/XIII</td><td>6</td><td>949'</td><td>3</td></tr><tr><td>West/Wall D102</td><td>15A/XIII</td><td>10</td><td>931'</td><td>3</td></tr></table> <p>C. Fire Dampers in Required Barriers:</p> <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr><tr><td>East/Wall D104</td><td>15C/XV</td><td>Vent opening dampered</td><td>(3) V-DF-502</td></tr><tr><td>East/Wall D104</td><td>15D/XVI</td><td>Vent opening dampered</td><td>(3) V-DF-503</td></tr></table> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>	ORIENTATION	ADJ. ZONE/ AREA(S)	DOOR NO.	EL.	FIRE RATING (HRS)	East/Wall D104	15C/XV	12	931'	3	East/Wall D104	15D/XVI	12A	931'	3	East/Wall D106	16/IX	11	931'	3	West	15A/XIII	6	949'	3	West/Wall D102	15A/XIII	10	931'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	East/Wall D104	15C/XV	Vent opening dampered	(3) V-DF-502	East/Wall D104	15D/XVI	Vent opening dampered	(3) V-DF-503
ORIENTATION	ADJ. ZONE/ AREA(S)	DOOR NO.	EL.	FIRE RATING (HRS)																																							
East/Wall D104	15C/XV	12	931'	3																																							
East/Wall D104	15D/XVI	12A	931'	3																																							
East/Wall D106	16/IX	11	931'	3																																							
West	15A/XIII	6	949'	3																																							
West/Wall D102	15A/XIII	10	931'	3																																							
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																								
East/Wall D104	15C/XV	Vent opening dampered	(3) V-DF-502																																								
East/Wall D104	15D/XVI	Vent opening dampered	(3) V-DF-503																																								
IX	<p>Fire Protection:</p> <p>A. Detection: Heat and flame detectors located within Fire Zone.</p> <p>B. Automatic Suppression: Automatic pre-action sprinkler system.</p> <p>C. Manual Suppression:</p> <ul style="list-style-type: none">1. Portable extinguishers: Located within Fire Zone.2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ul style="list-style-type: none">1. CA-02-170 addresses fire detector loaction NFPA code deviations.2. CA-03-193 addresses suppression system NFPA code deviations.																																										
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>																																										

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIV
Fire Zone 15B

XI	Safe Shutdown Systems Affected: See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.
XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: The automatic pre-action sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm, heat and flame detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment. Thus, the fire protection features are adequate for the fire hazards in this Fire Zone.
XIV	Conclusion: A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XV
Fire Zone 15C

I	Fire Area: XV	Fire Zone: 15C		Floor Area: 133 sq ft																																												
II	Location: Standby Diesel Generator Building			Elevation: 931'-0"																																												
III	Description: Day Tank Room T-45B																																															
IV	Combustibles: (See CLSP)																																															
V	Fire Loading: (See CLSP)																																															
VI	Equivalent Fire Severity: (See CLSP)																																															
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes																																															
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>South</td> <td>15D/XVI</td> <td>D105</td> <td>Hollow concrete block 8" thick - equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>East</td> <td>39/IX</td> <td></td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>15B/XIV</td> <td>D104</td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Trench</td> <td>15A/XII</td> <td></td> <td>12 EDG trench running under 11 EDG room 18" thick concrete – equivalent 3 hrs.</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>West/Wall D104</td> <td>15B/XIV</td> <td>12</td> <td>931'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West/Wall D104</td> <td>15B/XIV</td> <td>Vent opening dampered</td> <td>(3) V-DF-502</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A.</p> <p>E. Comments:</p> <p>1. South/Wall D105 – two-hour rating adequate considering the automatic pre-action sprinkler system provided in each area. The basis for fire barrier acceptability is found in CA-02-113.</p>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	15D/XVI	D105	Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs	East	39/IX		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	West	15B/XIV	D104	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	Trench	15A/XII		12 EDG trench running under 11 EDG room 18" thick concrete – equivalent 3 hrs.	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	DOOR NO.	EL.	FIRE RATING (HRS)	West/Wall D104	15B/XIV	12	931'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	West/Wall D104	15B/XIV	Vent opening dampered	(3) V-DF-502
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																												
South	15D/XVI	D105	Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs																																												
East	39/IX		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																												
West	15B/XIV	D104	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																												
Trench	15A/XII		12 EDG trench running under 11 EDG room 18" thick concrete – equivalent 3 hrs.	3 hrs																																												
ORIENTATION	ADJ. ZONE/ AREA(S)	DOOR NO.	EL.	FIRE RATING (HRS)																																												
West/Wall D104	15B/XIV	12	931'	3																																												
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																													
West/Wall D104	15B/XIV	Vent opening dampered	(3) V-DF-502																																													
IX	<p>Fire Protection:</p> <p>A. Detection: Heat and flame detectors located within Fire Zone.</p>																																															

01466886

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XV
Fire Zone 15C

	<p>B. Automatic Suppression: Automatic pre-action sprinkler system.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-170 addresses fire detector location NFPA code deviations. 2. CA-03-147 addresses EDG Day Tank room flooding due to suppression system actuation. 3. CA-03-193 addresses suppressions system NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Rated Fire Barriers are designed to prevent fire spread to other plant Fire Areas. Although fire loading exceeds the fire barrier ratings, the barriers meet requirements and are therefore adequate.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic pre-action sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm and heat and flame detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416 / 01491869

01463416 / 01491869

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XVI
Fire Zone 15D

I	Fire Area: XVI	Fire Zone: 15D		Floor Area: 133 sq ft																																											
II	Location: Standby Diesel Generator Building			Elevation: 931'-0"																																											
III	Description: Day Tank Room T-45A																																														
IV	Combustibles: (See CLSP)																																														
V	Fire Loading: (See CLSP)																																														
VI	Equivalent Fire Severity: (See CLSP)																																														
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes																																														
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>15C/XVI</td> <td>D105</td> <td>Hollow concrete block 8" thick - equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>South</td> <td>15B/XIV</td> <td>D107</td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>39/IX</td> <td></td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>15B/XIV</td> <td>D104</td> <td>Reinforced concrete 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>West/Wall D104</td> <td>15B/XIV</td> <td>12A</td> <td>931'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West/Wall D104</td> <td>15B/XIV</td> <td>Vent opening dampered</td> <td>(3) V-DF-503</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	15C/XVI	D105	Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs	South	15B/XIV	D107	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	East	39/IX		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	West	15B/XIV	D104	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	West/Wall D104	15B/XIV	12A	931'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	West/Wall D104	15B/XIV	Vent opening dampered	(3) V-DF-503
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																											
North	15C/XVI	D105	Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs																																											
South	15B/XIV	D107	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																											
East	39/IX		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																											
West	15B/XIV	D104	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																																											
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																											
West/Wall D104	15B/XIV	12A	931'	3																																											
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																												
West/Wall D104	15B/XIV	Vent opening dampered	(3) V-DF-503																																												

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XVI
Fire Zone 15D

	<p>E. Comments:</p> <ol style="list-style-type: none"> 1. North/Wall D105 – two-hour rating adequate considering the automatic pre-action sprinkler system provided in each area. The basis for fire barrier acceptability is found in CA-02-113.
IX	<p>Fire Protection:</p> <p>A. Detection: Heat and flame detectors located within Fire Zone.</p> <p>B. Automatic Suppression: Automatic preaction sprinkler system.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-170 addresses fire detector location NFPA code deviations. 2. CA-03-147 addresses flooding due to suppression system actuation. 3. CA-03-193 addresses suppression system NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Rated Fire Barriers are designed to prevent fire spread to other plant Fire Areas. Although fire loading exceeds the fire barrier ratings, the barriers meet requirements and are therefore adequate.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic pre-action sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm and heat and flame detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 / 01491869

01463416 / 01491869

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XI
Fire Zone 15E

I	Fire Area: XI	Fire Zone: 15E	Floor Area: 120 sq ft
II	Location: Diesel Fuel Oil Pump House		Elevation: 928'-0"
III	Description: Diesel Fuel Oil Pump House		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: None. D. Ventilation: Smoke and heat removal can be accomplished using portable smoke ejectors. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: The location of this Fire Zone precludes fire impact on other Fire Areas or Fire Zones.		
XI	Safe Shutdown Systems Affected: See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.		

01463416 / 01491869

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XI
Fire Zone 15E

XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Due to the remote location of this Fire Zone and its low fire loading, a fire in this Fire Zone would be expected to consume all combustibles before presenting any significant risk to plant safe shutdown capability.
XIV	Conclusion: A fire in this Fire Zone will not spread to another Fire Area thus Safe Shutdown can be accomplished using Division II Systems.

01463416

01463416 / 01491869

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 16

I	Fire Area: IX	Fire Zone: 16			Floor Area: 2,372 sq ft
II	Location: Turbine Building			Elevation: 911'-0" and 931'-0"	
III	Description: Turbine Building Corridor				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 90 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	18A/XII	T303	Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	North	15B/XIV	T303	Reinforced concrete ≥ 24" thick-equivalent 3 hrs	3 hrs
	South	14A/XII		Reinforced concrete ≥ 6" thick and gypsum board on metal stud-equivalent 3 hrs	2 hrs
	South	12C/X	T107	Reinforced concrete and solid concrete block ≥ 42" thick-equivalent 3 hrs	3 hrs
	South	12C/X	T305	Reinforced concrete and solid concrete block ≥ 42" thick-equivalent 3 hrs	3 hrs
	South	12C/X	T129	Reinforced concrete ≥ 42" thick-equivalent 3 hrs	3 hrs
	East	19A/XII	T330	Hollow concrete block 8" thick-equivalent 2 hrs	2 hrs
	West	14A/XII		Gypsum board on metal stud plus part concrete 8" thick-equivalent 3 hrs	3 hrs
	West	15B/XIV	D106	Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3hrs
	Ceiling	14A/XII		Concrete slab assembly-equivalent 3 hrs	3 hrs
	Ceiling	18/XII		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
Floor	12C/X		Reinforced concrete over access to condenser bay - equivalent 3 hrs	3 hrs	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 16

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
South	14A/XII	31	931'	1-1/2
East	12C/X	18A	911'	3
East/Wall T330	19A/XII	28	931'	1-1/2
South/Wall	12C/X	25	911'	
West/Wall D106	15B/XIV	11	931'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
South/Wall T107	12C/X	Vent duct coated	3
Ceiling	17/XII	Vent duct coated	3

D. Exterior Walls: N/A

E. Comments:

1. South/Wall T107 and Ceiling/(17/XII) – vent duct coated on Fire Zone 16 side three-hour rated.
2. East/Wall T330 – the barrier is rated for two-hours, NFPA allows 1-1/2 hour door in two-hour barriers.
3. South/(14A/XII) – the barrier is rated for two-hours, NFPA allows 1-1/2 hour door in two-hour barriers.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 16

IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located on 911' elevation. 2. Hose stations: Located on 911' elevation. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas. The spread of fire from Fire Zone 16 to Fire Zone 13B would be unlikely due to the tortuous path.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment. Thus, the fire protection features are adequate for the fire hazards in this Fire Zone.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 17

I	Fire Area: XII	Fire Zone: 17	Floor Area: 1,071 sq ft																																															
II	Location: Turbine Building		Elevation: 941'-6"																																															
III	Description: Turbine Building Cable Way																																																	
IV	Combustibles: (See CLSP)																																																	
V	Fire Loading: (See CLSP)																																																	
VI	Equivalent Fire Severity: (See CLSP)																																																	
VII	Minimum Fire Barrier Rating for this Fire Zone: 60 minutes																																																	
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>39/IX</td> <td></td> <td>Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>South</td> <td>12C/X</td> <td>T305</td> <td>Reinforced concrete 42" thick - equivalent 3 hrs</td> <td>1 hr</td> </tr> <tr> <td>South</td> <td>13B/IX</td> <td>T321</td> <td>Hollow concrete block 8" thick – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>Ceiling</td> <td>30/X</td> <td></td> <td>Reinforced concrete 10" thick - equivalent 3 hrs</td> <td>None</td> </tr> <tr> <td>Floor</td> <td>16/IX</td> <td></td> <td>Reinforced concrete 12" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>Ceiling</td> <td>30/X</td> <td>Vent duct undampered</td> <td>None</td> </tr> <tr> <td>Floor</td> <td>12C/X</td> <td>Vent duct undampered</td> <td>1</td> </tr> <tr> <td>Floor</td> <td>16/IX</td> <td>Vent duct coated</td> <td>3</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. South (floor)/(12C/X) – there is a vent duct that passes through the floor to Fire Zone 16 where it is encased in concrete. It then goes to the condenser bay (Zone 12C/X). There exists a potential path between Fire Zone 17 and Fire Zone 12C. The barrier, consisting essentially of the duct, is rated at one-hour per provisions of NFPA 90A; one-hour rating acceptable for this barrier interface. 2. South/(13B/IX) – the fire load on the Fire Zone 13B side of the barrier necessitates a three-hour rating. The basis for fire barrier acceptability is found in CA-02-103. 3. Ceiling/(30/X) – this barrier is not rated due to nonrated assemblies and open vent duct penetrations, the unrated barrier is adequate. The basis for acceptability of Fire Area barrier is found in CA-02-111. 				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	39/IX		Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs	South	12C/X	T305	Reinforced concrete 42" thick - equivalent 3 hrs	1 hr	South	13B/IX	T321	Hollow concrete block 8" thick – equivalent 2 hrs	2 hrs	Ceiling	30/X		Reinforced concrete 10" thick - equivalent 3 hrs	None	Floor	16/IX		Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	Ceiling	30/X	Vent duct undampered	None	Floor	12C/X	Vent duct undampered	1	Floor	16/IX	Vent duct coated	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																														
North	39/IX		Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs																																														
South	12C/X	T305	Reinforced concrete 42" thick - equivalent 3 hrs	1 hr																																														
South	13B/IX	T321	Hollow concrete block 8" thick – equivalent 2 hrs	2 hrs																																														
Ceiling	30/X		Reinforced concrete 10" thick - equivalent 3 hrs	None																																														
Floor	16/IX		Reinforced concrete 12" thick - equivalent 3 hrs	3 hrs																																														
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																															
Ceiling	30/X	Vent duct undampered	None																																															
Floor	12C/X	Vent duct undampered	1																																															
Floor	16/IX	Vent duct coated	3																																															

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 17

IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. The Turbine Building ventilation system is designed to meet NFPA standards for smoke venting, and this Fire Zone can be vented via the turbine operating floor.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas. The maximum allowable combustible loading is 95,000 btu/hr. The basis for acceptability of maximum combustible loading is provided by FPEE-13-009.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416 / 01491869
01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 18A

I	Fire Area: XXIV	Fire Zone: 18A		Floor Area: 1196 sq ft																										
II	Location: North of and Adjoining Northeast Corner Turbine Building			Elevation: 931'-0"																										
III	Description: East 13.8 kV Switchgear Room (Bus 11)																													
IV	Combustibles: (See CLSP)																													
V	Fire Loading: (See CLSP)																													
VI	Equivalent Fire Severity: (See CLSP)																													
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																													
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>South</td> <td>16/IX</td> <td></td> <td>Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>South</td> <td>19A/IX</td> <td></td> <td>Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>South</td> <td>19A/IX</td> <td>27</td> <td>931'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers: None</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	16/IX		Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs	South	19A/IX		Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA	DOOR NO.	EL.	FIRE RATING (HRS)	South	19A/IX	27	931'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																										
South	16/IX		Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs																										
South	19A/IX		Reinforced concrete $\geq 12"$ thick - equivalent 3 hrs	3 hrs																										
ORIENTATION	ADJ. ZONE/ AREA	DOOR NO.	EL.	FIRE RATING (HRS)																										
South	19A/IX	27	931'	3																										
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke Detectors</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> Portable extinguishers: Located within Fire Zone. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using a small vent in the room ceiling that exhausts to the turbine building via a weighted, automatic louver that opens by air pressure when air flow exists. If necessary, portable smoke ejectors can be utilized.</p>																													

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 18A

	E. Comments: None.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 18B

I	Fire Area: XXIV	Fire Zone: 18B	Floor Area: 662 sq ft
II	Location: Northwest Corner Hot Machine Shop		Elevation: 931'-0"
III	Description: West 13.8 kV Switchgear Room, Bus 12		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Smoke Detector B. Automatic Suppression: None. C. Manual Suppression: 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. D. Ventilation: <p>There is no natural ventilation (in or out) of FX-18B. The three doors on the East wall can be used to ventilate fo FZ-18A, which has a small vent in the room ceiling that exhausts to the turbine building. This is the only smoke removal for FZ-18A.</p> E. Comments: None		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 18B

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: This Fire Zone has a low fire loading; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 19A

I	Fire Area: XII	Fire Zone: 19A			Floor Area: 2,188 sq ft
II	Location: Turbine Building				Elevation: 931'-0"
III	Description: Water Treatment Area				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	13B/IX		Gypsum board on metal stud -equivalent 2 hrs	2 hrs
	North	18A/XXIV		Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs
	South	13B/IX		Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs
	West	13B/IX		Gypsum board on metal stud - equivalent 2 hrs	2 hrs
	West	12C/X	T318	Reinforced concrete ≥ 42" thick - equivalent 3 hrs	3 hrs
	West	16/IX	T330	Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs
	East	34/XXIV		Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs
	East	20/XXIV		Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs
	Ceiling	30/X		Unrated ceiling/floor assembly	None
	Floor	13A/IX		Concrete 12" thick on protected steel beams and columns – equivalent 3 hrs	3 hrs
Floor	13B/IX		Concrete 12" thick on protected steel beams and columns – equivalent 3 hrs	3 hrs	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 19A

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
West/Wall T330	16/IX	28	931'	1-1/2
West	13B/IX	39	931'	1-1/2
West	13B/IX	40	931'	1-1/2
North	18A/XXIV	27	931'	

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
Floor	13A/IX	Vent duct dampered	(3) V-DF-244
Floor	13B/IX	Vent duct dampered	(3) V-DF-522
West	13B/IX	Four grill openings dampered	(1-1/2) V-DF-527 (1-1/2) V-DF-528 (1-1/2) V-DF-529 (1-1/2) V-DF-530

D. Exterior Walls: N/A

E. Comments:

1. North/South/West/(13B/IX) –the two-hour wall is designed in conjunction with the water curtain and full sprinkler protection on the Fire Zone 13B side to provide adequate protection for the Fire Zone 19A to Fire Zone 13B interface. The basis for fire barrier acceptability is found in CA-02-103.
2. West/(16/IX) – NFPA allows 1-1/2 hour door in two-hour barrier.
3. Ceiling/(30/X) – no fire dampers have been installed. No fire rating applies. Fire Zone 19A freely communicates with Fire Zone 30. The basis for fire barrier acceptability is found in CA-02-103.

IX Fire Protection:

A. Detection: Smoke detectors located within Fire Zone.

B. Automatic Suppression: None.

C. Manual Suppression:

1. Portable extinguishers: Located within Fire Zone.
2. Hose stations: Located within Fire Zone.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 19A

	<p>D. Ventilation: Smoke and heat removal accomplished by venting action up to turbine operating floor. If necessary, portable smoke ejectors can be utilized. The Turbine Building ventilation systems have been designed to meet NFPA standards for smoke venting.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Area will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416 / 01491869
01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 19B

I	Fire Area: XII	Fire Zone: 19B			Floor Area: 942 sq ft
II	Location: Southeast Corner Turbine Building			Elevation: 931'-0"	
III	Description: ESF Motor Control Center including EFT Cable Tunnel				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 90 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	South	10/VI		Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs
	South	7A/VI		Reinforced concrete ≥12" thick - equivalent 3 hrs	3 hrs
	South	8/VI	T135	Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs
	South	19C/IX	T311	Hollow concrete block 8" thick - equivalent 2 hrs	2 hrs
	South	13C/IX	Stair Encl	Gypsum board on metal stud - equivalent 3 hrs	3 hrs
	East	31B/XXII		Reinforced concrete ≥ 18" thick - equivalent 3 hrs	3 hrs
	East	32A/XXI		Reinforced concrete ≥ 42" thick - equivalent 3 hrs	3 hrs
	East	32B/XXII		Reinforced concrete ≥ 18" thick - equivalent 3 hrs	3 hrs
	East	13C/IX	Stair Encl	Gypsum board on metal stud - equivalent 3 hrs	3 hrs
	West	13C/IX	Stair Encl	Gypsum board on metal stud - equivalent 3 hrs	3 hrs
	West	12C/IX	T318	Reinforced concrete ≥ 42" thick - equivalent 3 hrs	3 hrs
	East	33/XXII		Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 19B

ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
West	19C/IX	T322	Reinforced concrete 18" thick lower and concrete block 18" thick with protected steel upper - equivalent 3 hrs	3 hrs
Ceiling	30/X		Unrated ceiling/floor assembly	None
Floor	13C/IX		Concrete 12" thick on protected steel beams and columns - equivalent 3 hrs	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
South	10/VI	105	931'	3
South/Wall T315	8/VI	125	939'	3 (eq)
South/Wall T311	19C/IX	26	931'	1-1/2
East	20/XXIV	3	931'	3
South	13C/IX	414	931'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
East	32B/XXII	Vent duct dampered	(3) V-DF-136
East	31B/XXII	Vent duct dampered	(3) V-DF-113
East	32A/XXI	Vent duct dampered	3
South	9/VIII	Vent ducts dampered	(3) V-DF-121A (3) V-DF-121B (3) V-DF-124A (3) V-DF-124B (3) V-DF-125A (3) V-DF-125B (3) V-DF-126A (3) V-DF-126B

D. Exterior Walls: N/A

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XII
Fire Zone 19B

	<p>E. Comments:</p> <ol style="list-style-type: none"> 1. South/(8/VI) – Fire Door No. 125 is a bullet proof equivalent to three-hours. 2. Ceiling/(30/X) – Fire Zone 19B communicates with Fire Zone 30 through a nonrated stair enclosure. The basis for fire barrier acceptability is found in CA-02-103.
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished by venting to the turbine operating floor via open stairway. If necessary, portable smoke ejectors can be utilized. The Turbine Building ventilation system has been designed to meet NFPA standards for smoke venting.</p> <p>E. Comments: None</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Area will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I Systems.</p>

01463416 / 01491869

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 19C

I	Fire Area: IX	Fire Zone: 19C			Floor Area: 204 sq ft
II	Location: Southeast Corner Turbine Building				Elevation: 931'-0"
III	Description: Pipe and Cable Tray Penetration Area				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 60 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	19B/XII	T311	Hollow concrete block 8" thick – equivalent 2 hrs	2 hrs
	South	8/VI	T315	Reinforced concrete ≥ 12" thick - equivalent 3 hrs	3 hrs
	South	10/VI	T315	Reinforced concrete ≥ 12" thick - equivalent 3 hrs	1 hr
	East	19B/XII	T322	Reinforced concrete 18" thick lower and concrete block 18" thick with protected steel upper - equivalent 3 hrs	3 hrs
	West	12C/X	T318	Reinforced concrete ≥ 42" thick - equivalent 3 hrs	3 hrs
	Ceiling	30/X		Concrete 12" thick - equivalent 3 hrs	3 hrs
	B. Fire Doors in Required Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA	DOOR NO.	EL.	FIRE RATING (HRS)
	North/Wall T311	19B/XII	26	931'	1-1/2
C. Fire Dampers in Required Barriers:					
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening		FIRE RATING Damper No.	
South/Wall T315	10/VII	Two vent ducts undampened		1	
West/Wall T318	12C/X	Two vent duct dampened		(3) V-DF-245 (3) V-DF-246	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 19C

	<p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. North/Wall T311 – fire door rating 1-1/2 hours; barrier rating two-hours based on NFPA 80. 2. South/Wall T315 – vent ducts of stainless steel construction go from Fire Zone 19C to Fire Zone 10 in the chemical laboratory. Because of these ducts, Fire Zone 10 rates at 1 hour based on NFPA 90A. The basis for acceptability is found in CA-02-114.
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416 01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 20

I	Fire Area: XXIV	Fire Zone: 20		Floor Area: 1,419 sq ft																																													
II	Location: East of and Adjoining Southeast Corner Turbine Building			Elevation: 930'-0"																																													
III	Description: Auxiliary Boiler Room																																																
IV	Combustibles: (See CLSP)																																																
V	Fire Loading: (See CLSP)																																																
VI	Equivalent Fire Severity: (See CLSP)																																																
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																																																
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>South</td> <td>31B/XXII</td> <td></td> <td>Reinforced concrete \geq 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>South</td> <td>32A/XXI</td> <td></td> <td>Reinforced concrete \geq 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>31A/XXI</td> <td></td> <td>Reinforced concrete \geq 18" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>32A/XXI</td> <td></td> <td>Reinforced concrete \geq 10" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>East</td> <td>31B/XXII</td> <td></td> <td>Reinforced concrete \geq 10" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>19A/XI</td> <td></td> <td>Reinforced concrete \geq 12" thick - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>West</td> <td>19B/XII</td> <td>3</td> <td>931'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	31B/XXII		Reinforced concrete \geq 18" thick - equivalent 3 hrs	3 hrs	South	32A/XXI		Reinforced concrete \geq 18" thick - equivalent 3 hrs	3 hrs	East	31A/XXI		Reinforced concrete \geq 18" thick - equivalent 3 hrs	3 hrs	East	32A/XXI		Reinforced concrete \geq 10" thick - equivalent 3 hrs	3 hrs	East	31B/XXII		Reinforced concrete \geq 10" thick - equivalent 3 hrs	3 hrs	West	19A/XI		Reinforced concrete \geq 12" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	West	19B/XII	3	931'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																													
South	31B/XXII		Reinforced concrete \geq 18" thick - equivalent 3 hrs	3 hrs																																													
South	32A/XXI		Reinforced concrete \geq 18" thick - equivalent 3 hrs	3 hrs																																													
East	31A/XXI		Reinforced concrete \geq 18" thick - equivalent 3 hrs	3 hrs																																													
East	32A/XXI		Reinforced concrete \geq 10" thick - equivalent 3 hrs	3 hrs																																													
East	31B/XXII		Reinforced concrete \geq 10" thick - equivalent 3 hrs	3 hrs																																													
West	19A/XI		Reinforced concrete \geq 12" thick - equivalent 3 hrs	3 hrs																																													
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																													
West	19B/XII	3	931'	3																																													
IX	<p>Fire Protection:</p> <p>A. Detection: Heat detectors located within Fire Zone.</p>																																																

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 20

	<p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable air ejectors.</p> <p>E. Comments: None</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic heat detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 21A

I	Fire Area: I	Fire Zone: 21A	Floor Area: 606 sq ft																					
II	Location: Radwaste Building		Elevation: 935'-0"																					
III	Description: Radwaste Control Room																							
IV	Combustibles: (See CLSP)																							
V	Fire Loading: (See CLSP)																							
VI	Equivalent Fire Severity: (See CLSP)																							
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																							
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>North</td><td>2C/II</td><td>233</td><td>Reinforced concrete 36" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/AREA</th><th>DOOR NO.</th><th>EL.</th><th>FIRE RATING (HRS)</th></tr> </thead> <tbody> <tr> <td>North/Wall 223</td><td>2C/II</td><td>47</td><td>935'</td><td>3</td></tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	2C/II	233	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	North/Wall 223	2C/II	47	935'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																				
North	2C/II	233	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs																				
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																				
North/Wall 223	2C/II	47	935'	3																				
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p>																							

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 21A

	E. Comments. None.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 21B

I	Fire Area: I	Fire Zone: 21B	Floor Area: 1,290 sq ft
II	Location: Radwaste Building		Elevation: 935'-0"
III	Description: Baler and Dry Waste Storage Area		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None B. Fire Doors in Required Barriers: None C. Fire Dampers in Required Barriers: None D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located within Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 21B

X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas. The only safe shutdown equipment within this fire area is in the Reactor Building. The Reactor Building is separated from the Radwaste building by a three hour rated wall which is a well sealed secondary containment boundary. The minimum wall thickness in this Fire Area boundary is 18" but the wall is 36" thick along the South Wall Fire Area Boundary. In addition, the walls and space that constitute Fire Zone 21A/I separate Fire Zone 21B/I from 2C/I providing additional barriers to fire spread. This Fire Area barrier wall continues adjacent to Fire Zone 2B/I separating Fire Zone 21B/I from 2B/I, thus it can be assumed that this barrier continues past the denoted Fire Area boundary on the FHA drawings with at least the 18" minimum thickness the Fire barrier provides. Although fire loading exceeds the fire barrier ratings, the construction of the barriers is sufficiently thick and sealed to provide an equivalent fire resistance of more than 30 minutes.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>No Safe Shutdown Systems lost. Rated three-hour Fire Area barriers and equivalent three-hour Fire Zone barriers, as they exist, form the Radwaste Building-Reactor Building interface, which precludes fire spread to the Reactor Building and thereby protect Safe Shutdown Systems from a fire in the Radwaste Building.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 21C

I	Fire Area: I	Fire Zone: 21C			Floor Area: 5,431 sq ft															
II	Location: Radwaste Building				Elevation: 935'-0"															
III	Description: Radwaste Shipping Area																			
IV	Combustibles: (See CLSP)																			
V	Fire Loading: (See CLSP)																			
VI	Equivalent Fire Severity: (See CLSP)																			
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																			
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>North</td><td>2C/II</td><td>233</td><td>Reinforced concrete 36" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> <tr> <td>East</td><td>2C/II</td><td>200</td><td>Reinforced concrete 18" thick - equivalent 3 hrs</td><td>3 hrs</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	2C/II	233	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs	East	2C/II	200	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																
North	2C/II	233	Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs																
East	2C/II	200	Reinforced concrete 18" thick - equivalent 3 hrs	3 hrs																
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke and heat detectors located in zone.</p> <p>B. Automatic Suppression: Partial preaction sprinkler.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> Portable extinguishers: Located within Fire Zone. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems or by opening rollup doors. If necessary, portable smoke ejectors can be utilized.</p> <p>E. Comments: None.</p>																			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 21C

X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Rated Fire Barriers are designed to prevent fire spread to other plant Fire Areas.
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No Safe Shutdown systems are lost.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: The automatic partial pre-action sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm to the Control Room will result in prompt fire brigade response and extinguishment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 21D

I	Fire Area: I	Fire Zone: 21D			Floor Area: 12,645 sq ft
II	Location: Radwaste Building				Elevation: 935'-0", 947'-0", 962'-0" and 985'-0"
III	Description: Radwaste Miscellaneous Areas				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	3C/II	327	Reinforced concrete 36" thick - equivalent 3 hrs	1 hr
	North	3D/II	325	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs
	North	2C/II	233	Reinforced concrete 24" thick equivalent 3 hrs	3 hrs
	East	3C/II	306	Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs
	Floor	2C/II		Reinforced concrete 36" thick - equivalent 3 hrs	3 hrs
	Floor	2H/II		Reinforced concrete 48" thick - equivalent 3 hrs	3 hrs
	Floor	3C/II		Reinforced concrete on steel beam on steel column	None
	Floor	1F/IV		Sealed pipe chase	3 hrs
	B. Fire Doors in Required Barriers: None.				
	C. Fire Dampers in Required Barriers: None.				
	D. Exterior Walls: N/A				
	E. Comments:				
	1. North/Wall 327 – vent ducts are undamppered – as per NFPA 90A, ducts adequate for 1-hour rating; barrier 1-hour rated.				

FIRE HAZARDS ANALYSIS MATRIX
Fire Area I
Fire Zone 21D

	2. Floor/(1F/IV) – CA-02-100 addresses small gaps in penetration FZ-0531 3. Floor/(3C/II) – Barrier has no rating. The consequences of having a nonrated barrier between different Fire Areas in the Reactor Building at 962'-6" and 985'-6" are analyzed in CA-02-109.
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: None.
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: This Fire Zone has a low fire loading; therefore a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 22

I	Fire Area: X	Fire Zone: 22		Floor Area: 3,400 sq ft																		
II	Location: West of and Adjoining Southwest Corner Turbine Building			Elevation: 930'-0", 938'-0" and 940'-0"																		
III	Description: Recombiner Building																					
IV	Combustibles: (See CLSP)																					
V	Fire Loading: (See CLSP)																					
VI	Equivalent Fire Severity: (See CLSP)																					
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																					
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>37/XXV</td> <td></td> <td>Reinforced concrete and unrated sheet metal</td> <td>None</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>37/XXV</td> <td>Vent grill</td> <td>None</td> </tr> </tbody> </table> <p>D. Exterior Walls: The North wall of this Fire Zone is exposed by the main transformer. This wall is a combination of reinforced concrete and unrated sheet metal. Unrated pipe and ventilation penetrations exist in concrete portions of the barrier. The main transformer is equipped with a manual deluge water spray system and automatic heat alarm to the Control Room. The basis for fire barrier acceptability is found in CA-02-102.</p> <p>E. Comments: None.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	37/XXV		Reinforced concrete and unrated sheet metal	None	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North	37/XXV	Vent grill	None
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																		
North	37/XXV		Reinforced concrete and unrated sheet metal	None																		
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																			
North	37/XXV	Vent grill	None																			
IX	<p>Fire Protection:</p> <p>A. Detection: None</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <p>1. Portable extinguishers: Located within Fire Zone.</p>																					

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 22

	<p>2. Hose stations: Located in adjacent Fire Zone.</p> <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression::</p> <p>This Fire Zone has a low fire loading; therefore a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 23A

I	Fire Area: IX	Fire Zone: 23A			Floor Area: 4,023 sq ft															
II	Location: Intake Structure				Elevation: 919'-0"															
III	Description: Intake Structure Pump Room																			
IV	Combustibles: (See CLSP)																			
V	Fire Loading: (See CLSP)																			
VI	Equivalent Fire Severity: (See CLSP)																			
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes																			
VIII	<div>Construction:</div> <div>A. Fire Area Barriers:</div> <table><thead><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr></thead><tbody><tr><td>Ceiling</td><td>24/XXIII</td><td></td><td>Concrete 1' - 9" thick - equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>Ceiling</td><td>41/IX</td><td></td><td>Concrete 1' - 9" thick - equivalent 3 hrs</td><td>3 hrs</td></tr></tbody></table> <div>B. Fire Doors in Required Barriers: None.</div> <div>C. Fire Dampers in Required Barriers: None.</div> <div>D. Exterior Walls: N/A</div> <div>E. Comments: None.</div>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	Ceiling	24/XXIII		Concrete 1' - 9" thick - equivalent 3 hrs	3 hrs	Ceiling	41/IX		Concrete 1' - 9" thick - equivalent 3 hrs	3 hrs
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																
Ceiling	24/XXIII		Concrete 1' - 9" thick - equivalent 3 hrs	3 hrs																
Ceiling	41/IX		Concrete 1' - 9" thick - equivalent 3 hrs	3 hrs																
IX	<div>Fire Protection:</div> <div>A. Detection: Smoke and heat detectors located within Fire Zone.</div> <div>B. Automatic Suppression: Automatic pre-action sprinkler system.</div> <div>C. Manual Suppression:<div><div>1. Portable extinguishers: Located within Fire Zone.</div><div>2. Hose stations: Located within Fire Zone.</div></div></div> <div>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</div> <div>E. Comments:<div><div>1. CA-03-120 addresses suppression system NFPA code deviations.</div><div>2. FPEE-05-001 addresses partial area fire suppression and detection that covers Fire Zone 23A.</div></div></div>																			

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 23A

X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>An Exemption has been requested and approved for this Fire Zone. The exemption justifies the loss of only one train of Safe Shutdown equipment.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic pre-action sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm and smoke, and heat detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment. Thus, the fire protection features are adequate for the fire hazards in this Fire Zone.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area. In accordance with the station Exemption Request, only Division 1 <u>or</u> Division 2 is considered affected leaving the other division available for safe shutdown capability.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 23B

I	Fire Area: IX	Fire Zone: 23B	Floor Area: 1,034 sq ft
II	Location: Connects Intake Structure to Turbine Building		Elevation: 916'-3"
III	Description: Intake Structure Corridor		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 23B

XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a low fire loading; therefore a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 systems.</p>

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIII
Fire Zone 24

I	Fire Area: XXIII	Fire Zone: 24			Floor Area: 214 sq ft										
II	Location: Adjoining Intake Structure				Elevation: 934'-9"										
III	Description: Diesel Fire Pump Room														
IV	Combustibles: (See CLSP)														
V	Fire Loading: (See CLSP)														
VI	Equivalent Fire Severity: (See CLSP)														
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes														
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>Floor</td> <td>23A/IX</td> <td></td> <td>Concrete 12" thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: N/A</p> <p>E. Comments: None.</p>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	Floor	23A/IX		Concrete 12" thick – equivalent 3 hrs	3 hrs
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING											
Floor	23A/IX		Concrete 12" thick – equivalent 3 hrs	3 hrs											
IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: None. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>														

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIII
Fire Zone 24

X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>The location of this Fire Zone and the equivalent three hour rating of the floor separating this Fire Zone from Fire Zone 23A/IX, precludes fire impact on other Fire Areas or Fire Zones.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Due to the remote location, fire barriers and equipment contained in this Fire Zone, a fire will have no impact on safe shutdown capability.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XVII
Fire Zone 25

I	Fire Area: XVII	Fire Zone: 25	Floor Area: 2,500 sq ft
II	Location: Discharge Structure		Elevation: Grade
III	Description: Discharge Structure Pump Room		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: None within Fire Zone. Hose house located near structure. D. Ventilation: Smoke and heat vented to atmosphere. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: The location of this Fire Zone precludes fire impact on other Fire Areas or Fire Zones.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XVII
Fire Zone 25

XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Due to the remote location and equipment contained in this Fire Zone, a fire will have no impact on safe shutdown capability.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XVIII
Fire Zone 26

I	Fire Area: XVIII	Fire Zone: 26	Floor Area: 707 sq ft
II	Location: Offgas Stack		Elevation: Grade
III	Description: Offgas Stack		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: None. D. Ventilation: Smoke and heat vented to atmosphere. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: The location of this Fire Zone precludes fire impact on other Fire Areas or Fire Zones.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XVIII
Fire Zone 26

XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Due to the remote location and equipment contained in this Fire Zone, a fire will have no impact on safe shutdown capability.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XVIII
Fire Zone 27

I	Fire Area: XVIII	Fire Zone: 27	Floor Area: 480 sq ft
II	Location: Offgas Retention Building		Elevation: Grade
III	Description: Offgas Retention Building		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: None. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: The location of this Fire Zone precludes fire impact on other Fire Areas or Fire Zones. Therefore fire loading in excess of fire barrier rating is of no consequence.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XVIII
Fire Zone 27

XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Due to the remote location and equipment contained in this Fire Zone, a fire will have no impact on safe shutdown capability.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIX
Fire Zone 28A

I	Fire Area: XIX	Fire Zone: 28A	Floor Area: 2,730 sq ft
II	Location: Guard House		Elevation: Grade
III	Description: Guard House		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Heat and smoke detectors within Fire Zone. B. Automatic Suppression: Automatic wet pipe sprinklers system (partial) and automatic Halon 1301 (partial). C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. D. Ventilation: Smoke and heat vented to atmosphere. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: The location of this Fire Zone precludes fire impact on other Fire Areas or Fire Zones. Therefore fire loading in excess of fire barrier rating is of no consequence.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIX
Fire Zone 28A

XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic partial sprinkler and partial Halon 1301 systems are expected to control a fire in this Fire Zone. In addition, the waterflow alarm and heat and smoke detectors alarm locally to the continually manned Security Center and will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIX
Fire Zone 28B

I	Fire Area: XIX	Fire Zone: 28B	Floor Area: 5,005 sq ft
II	Location: Security Access Facility		Elevation: Grade
III	Description: Security Access Facility		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Smoke detectors. B. Automatic Suppression: None. C. Manual Suppression: 1. Portable extinguishers: Located within Fire Zone. D. Ventilation: Normal building ventilation may be supplemented with portable smoke extractors. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: The location of this Fire Zone precludes fire impact on other Fire Areas or Fire Zones. Therefore fire loading in excess of fire barrier rating is of no consequence.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XIX
Fire Zone 28B

XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Smoke detectors alarm locally to the continually manned Security Center and will result in prompt fire brigade response and extinguishment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XX
Fire Zone 29

I	Fire Area: XX	Fire Zone: 29	Floor Area: 575 sq ft
II	Location: Security Diesel Building		Elevation: Grade
III	Description: Security Diesel Building		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Smoke and heat detectors within Fire Zone. B. Automatic Suppression: Automatic pre-action sprinkler. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: None. D. Ventilation: Normal building ventilation may be supplemented with portable smoke extractors. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: The location of this Fire Zone precludes fire impact on other Fire Areas or Fire Zones. Therefore fire loading in excess of fire barrier rating is of no consequence.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XX
Fire Zone 29

XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic partial sprinkler system is expected to control a fire in this zone. In addition, the heat and smoke detectors alarm locally to the Security Center and will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 30

I	Fire Area: X	Fire Zone: 30			Floor Area: 26,198 sq ft
II	Location: Turbine Building			Elevation: 951'-0"	
III	Description: Turbine Operating Floor				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	37/IX		Unrated sheet metal panel	None
	South	2A/III		Reinforced concrete ≥ 12" thick-equivalent 3 hrs and concrete block 6" thick-equivalent 2 hrs	2 hrs
	South	2F/II		Explosion relief panels installed-no equivalent Rating	None
	South	2C/II		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	South	9/VIII		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	South	11/VI		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	South	3A/V		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	South	3D/II		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	South	4D/I		Reinforced concrete ≥ 12" thick 3 unprotected openings in wall	None
	South	4E/I		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs
	East	32A/XXI		Reinforced concrete ≥ 18" thick-equivalent 3 hrs	3 hrs
East	32B/XXII		Reinforced concrete ≥ 18" thick-equivalent 3 hrs	3 hrs	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 30

West	37/XXV		Unrated sheet metal panel	None
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
Floor	14A/XII		Unrated floor/ceiling assembly	None
Floor	19A/XII		Unrated floor/ceiling assembly	None
Floor	17/XII		Reinforced concrete $\geq 12"$ thick-equivalent 3 hrs	None
Floor	13B/IX		Open hatchway	None
Floor	19B/XII		Unrated floor/ceiling assembly	None
Floor	19C/IX		Concrete 12" thick-equivalent 3 hours	3 hrs

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
South	9/VIII	141	951'	3
South	2A/III	65	951'	3
South	2C/II	67	951'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
South	4D/I	Vent duct undampered	1
Floor	17/XII	Vent duct undampered	None
Floor	14A/XII	Vent duct undampered	None
Floor	19A/XII	Vent duct undampered	None
Floor	19B/XII	Vent duct undampered	None

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 30

	<p>D. Exterior Walls: The west wall is exposed by the main and reserve transformers. This wall is of unrated metal panel construction. An automatic deluge water spray system is provided to protect the building siding from a transformer fire. Building siding and transformer heat detectors alarm to the Control Room. Any fire involving the transformers could be quickly extinguished using the fixed manually-operated water spray systems. The basis for fire barrier acceptability is found in CA-02-102.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. For more detailed description of nonrated Fire Area barrier adequacy, see adjacent Fire Zone comments and applicable plant area fire barrier analyses.
IX	<p>Fire Protection:</p> <p>A. Detection: Heat detectors located within Fire Zone.</p> <p>B. Automatic Suppression: Exterior of west wall protected by automatic deluge water spray system actuated by the building siding heat detectors and/or manually. Turbine generator bearings and under skirting oil piping are protected by pre-action sprinkler systems.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>

01463416 / 01491869

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 30

XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic partial deluge water spray and pre-action sprinkler systems are expected to control a fire in this Fire Zone. In addition, the waterflow alarm and heat detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXI
Fire Zone 31A

I	Fire Area: XXI	Fire Zone: 31A		Floor Area: 371 sq ft																																										
II	Location: Emergency Filtration Train Building			Elevation: 932'-0"																																										
III	Description: EFT, First Floor, Division I																																													
IV	Combustibles: (See CLSP)																																													
V	Fire Loading: (See CLSP)																																													
VI	Equivalent Fire Severity: (See CLSP)																																													
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes																																													
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>South</td> <td>31B/XXII</td> <td>E103</td> <td>Removable panels and gypsum board on metal stud</td> <td>2 hrs</td> </tr> <tr> <td>West</td> <td>31B/XXII</td> <td>E102</td> <td>Gypsum board on metal stud – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>South</td> <td>31B/XXII</td> <td>E101</td> <td>Reinforced concrete 18" thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>West/Wall E102</td> <td>31B/XXII</td> <td>169</td> <td>932'</td> <td>3</td> </tr> </tbody> </table> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>West/Wall E102</td> <td>31B/XXII</td> <td>Vent duct dampered</td> <td>(3) V-DF-102</td> </tr> <tr> <td>West/Wall E102</td> <td>31B/XXII</td> <td>Vent duct in wall</td> <td>(3) V-DF-103</td> </tr> </tbody> </table> <p>D. Exterior Walls: N/A</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	31B/XXII	E103	Removable panels and gypsum board on metal stud	2 hrs	West	31B/XXII	E102	Gypsum board on metal stud – equivalent 2 hrs	2 hrs	South	31B/XXII	E101	Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/ AREA	DOOR NO.	EL.	FIRE RATING (HRS)	West/Wall E102	31B/XXII	169	932'	3	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	West/Wall E102	31B/XXII	Vent duct dampered	(3) V-DF-102	West/Wall E102	31B/XXII	Vent duct in wall	(3) V-DF-103
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																										
South	31B/XXII	E103	Removable panels and gypsum board on metal stud	2 hrs																																										
West	31B/XXII	E102	Gypsum board on metal stud – equivalent 2 hrs	2 hrs																																										
South	31B/XXII	E101	Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs																																										
ORIENTATION	ADJ. ZONE/ AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																										
West/Wall E102	31B/XXII	169	932'	3																																										
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																											
West/Wall E102	31B/XXII	Vent duct dampered	(3) V-DF-102																																											
West/Wall E102	31B/XXII	Vent duct in wall	(3) V-DF-103																																											

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXI
Fire Zone 31A

	<p>E. Comments:</p> <ol style="list-style-type: none"> 1. South/Wall E103 – four removable panels reported to be three-hour rated. 2. South/Wall E-103 (31B/XXII), South/Wall E101 (31B/XXII), West/Wall E102 (31B/XXII) – the basis for two hour barrier acceptability is found in CA-02-107.
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> 1. CA-02-115 addresses fire detector location NFPA code deviations.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416
01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 31B

I	Fire Area: XXII	Fire Zone: 31B			Floor Area: 1,152 sq ft
II	Location: Emergency Filtration Train Building			Elevation: 932'-0" and 943'-8"	
III	Description: EFT, First Floor, Division II				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	31A/XXI	E103	Removable panels and gypsum board on metal stud – equivalent 3 hrs	3 hrs
	East	31A/XXI	E102	Gypsum board on metal stud – equivalent 2 hrs	2 hrs
	North	20/XII		Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs
	South	10/VI		Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs
	North	31A/XXI	E101	Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs
	West	20/XII		Reinforced concrete 10" thick – equivalent 3 hrs	3 hrs
	West	19/XII		Reinforced concrete 10" thick – equivalent 3 hrs	3 hrs
	Ceiling	32B/XXII		Concrete on protected steel – equivalent 3 hrs	3 hrs
Ceiling	32A/XXI		Concrete on protected steel – equivalent 3 hrs	3 hrs	

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 31B

B. Fire Doors in Required Barriers:

ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)
South	10/VI	340	932'	3 (eq)
South	10/VI	341	932'	3 (eq)
East/Wall E106	31A/XXI	169	932'	3

C. Fire Dampers in Required Barriers:

ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.
West	19B/XII	Vent duct dampered	(3) V-DF-113
North	32A/XXII	Vent duct dampered	(3) V-DF-120 (3) V-DF-137
East/Wall E102	31A/XXI	Vent duct dampered	(3) V-DF-102
Ceiling	32A/XXI	Vent duct dampered	(3) V-DF-134
East/Wall E102	31A/XXI	Vent duct dampered	(3) V-DF-103

D. Exterior Walls: N/A

E. Comments:

1. North/Wall E103 – four removable panels, three hour rated.
2. South/Wall E-103 (31A/XXI), North/Wall E101 (31A/XXI), East/Wall E102 (31A/XXI), – the basis for two-hour fire barrier acceptability is found in CA-02-107.

IX

Fire Protection:

A. Detection: Smoke detectors located within Fire Zone.

B. Automatic Suppression: None.

C. Manual Suppression:

1. Portable extinguishers: Located within Fire Zone.
2. Hose stations: Located within Fire Zone.

D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 31B

	<p>E. Comments:</p> <p>1. CA-02-115 addresses fire detector location NFPA code deviations.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.</p>

01463416 / 01491869
01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXI
Fire Zone 32A

I	Fire Area: XXI	Fire Zone: 32A		Floor Area: 835 sq ft																																																																						
II	Location: Emergency Filtration Train Building			Elevation: 943'-8" and 959'-7"																																																																						
III	Description: EFT, Second Floor, Division I																																																																									
IV	Combustibles: (See CLSP)																																																																									
V	Fire Loading: (See CLSP)																																																																									
VI	Equivalent Fire Severity: (See CLSP)																																																																									
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes																																																																									
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>20/XII</td> <td></td> <td>Reinforced concrete $\geq 18"$ thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>South</td> <td>32B/XXII</td> <td>E201</td> <td>Gypsum board on metal stud – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>South</td> <td>32B/XXII</td> <td>E203</td> <td>Gypsum board on metal stud – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>East</td> <td>32B/XXII</td> <td>E202</td> <td>Gypsum board on metal stud – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>West</td> <td>20/XI</td> <td></td> <td>Reinforced concrete 18" thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>30/X</td> <td></td> <td>Reinforced concrete 18" thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>19B/XII</td> <td></td> <td>Reinforced concrete 22" thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ceiling</td> <td>33/XXII</td> <td></td> <td>Concrete slab $\geq 6"$ thick on protected steel equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>Ladder Enclosure</td> <td>33/XXII</td> <td></td> <td>Gypsum board on metal stud – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>Floor</td> <td>31B/XXII</td> <td></td> <td>Concrete on protected steel - equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>South/Wall E201</td> <td>32B/XXII</td> <td>174</td> <td>943' – 8"</td> <td>3</td> </tr> <tr> <td>Ladder Enclosure</td> <td>33/XXII</td> <td>176</td> <td>959'</td> <td>3</td> </tr> </tbody> </table>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	20/XII		Reinforced concrete $\geq 18"$ thick – equivalent 3 hrs	3 hrs	South	32B/XXII	E201	Gypsum board on metal stud – equivalent 2 hrs	2 hrs	South	32B/XXII	E203	Gypsum board on metal stud – equivalent 2 hrs	2 hrs	East	32B/XXII	E202	Gypsum board on metal stud – equivalent 2 hrs	2 hrs	West	20/XI		Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs	West	30/X		Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs	West	19B/XII		Reinforced concrete 22" thick – equivalent 3 hrs	3 hrs	Ceiling	33/XXII		Concrete slab $\geq 6"$ thick on protected steel equivalent 3 hrs	3 hrs	Ladder Enclosure	33/XXII		Gypsum board on metal stud – equivalent 2 hrs	2 hrs	Floor	31B/XXII		Concrete on protected steel - equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	South/Wall E201	32B/XXII	174	943' – 8"	3	Ladder Enclosure	33/XXII	176	959'	3
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																																						
North	20/XII		Reinforced concrete $\geq 18"$ thick – equivalent 3 hrs	3 hrs																																																																						
South	32B/XXII	E201	Gypsum board on metal stud – equivalent 2 hrs	2 hrs																																																																						
South	32B/XXII	E203	Gypsum board on metal stud – equivalent 2 hrs	2 hrs																																																																						
East	32B/XXII	E202	Gypsum board on metal stud – equivalent 2 hrs	2 hrs																																																																						
West	20/XI		Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs																																																																						
West	30/X		Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs																																																																						
West	19B/XII		Reinforced concrete 22" thick – equivalent 3 hrs	3 hrs																																																																						
Ceiling	33/XXII		Concrete slab $\geq 6"$ thick on protected steel equivalent 3 hrs	3 hrs																																																																						
Ladder Enclosure	33/XXII		Gypsum board on metal stud – equivalent 2 hrs	2 hrs																																																																						
Floor	31B/XXII		Concrete on protected steel - equivalent 3 hrs	3 hrs																																																																						
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																																						
South/Wall E201	32B/XXII	174	943' – 8"	3																																																																						
Ladder Enclosure	33/XXII	176	959'	3																																																																						

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXI
Fire Zone 32A

	<p>C. Fire Dampers in Required Barriers:</p> <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr><tr><td>South/Wall E201</td><td>32B/XXII</td><td>Two vent ducts dampered</td><td>(3) V-DF-129 (3) V-DF-130</td></tr><tr><td>South/Wall E203</td><td>32B/XXII</td><td>Vent ducts dampered</td><td>(3) V-DF-119 (3) V-DF-138 (Maintained closed)</td></tr><tr><td>South</td><td>31B/XXII</td><td>Vent ducts dampered</td><td>(3) V-DF-120 (3) V-DF-137</td></tr><tr><td>Ceiling</td><td>33/XXII</td><td>Exhaust duct coated</td><td>NA</td></tr><tr><td>Floor</td><td>31B/XXII</td><td>Vent duct dampered</td><td>(3) V-DF-134</td></tr></table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <p>1. South/Wall E-201 (32B/XXII), South/Wall E203 (32B/XXII), East/Wall E202 (32B/XXII), Ladder Enclosure – the basis for two-hour fire barrier acceptability is found in CA-02-107.</p>	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	South/Wall E201	32B/XXII	Two vent ducts dampered	(3) V-DF-129 (3) V-DF-130	South/Wall E203	32B/XXII	Vent ducts dampered	(3) V-DF-119 (3) V-DF-138 (Maintained closed)	South	31B/XXII	Vent ducts dampered	(3) V-DF-120 (3) V-DF-137	Ceiling	33/XXII	Exhaust duct coated	NA	Floor	31B/XXII	Vent duct dampered	(3) V-DF-134
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																						
South/Wall E201	32B/XXII	Two vent ducts dampered	(3) V-DF-129 (3) V-DF-130																						
South/Wall E203	32B/XXII	Vent ducts dampered	(3) V-DF-119 (3) V-DF-138 (Maintained closed)																						
South	31B/XXII	Vent ducts dampered	(3) V-DF-120 (3) V-DF-137																						
Ceiling	33/XXII	Exhaust duct coated	NA																						
Floor	31B/XXII	Vent duct dampered	(3) V-DF-134																						
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <p>1. Portable extinguishers: Located within Fire Zone.</p> <p>2. Hose stations: Located within Fire Zone.</p> <p>3. EFT Charcoal Filter Sprinkler Header: Available by manually connecting to Hose Station.</p> <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <p>1. CA-02-115 addresses fire detector location NFPA code deviations.</p>																								
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>																								

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXI
Fire Zone 32A

XI	Safe Shutdown Systems Affected: See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.
XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: A fire in this Fire Zone will not spread beyond this Fire Area, thus Safe Shutdown can be accomplished using Division 2 Systems.

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 32B

I	Fire Area: XXII	Fire Zone: 32B		Floor Area: 704 sq ft																																																		
II	Location: Emergency Filtration Train Building			Elevation: 943'-8"																																																		
III	Description: EFT, Second Floor, Division II																																																					
IV	Combustibles: (See CLSP)																																																					
V	Fire Loading: (See CLSP)																																																					
VI	Equivalent Fire Severity: (See CLSP)																																																					
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes																																																					
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>North</td> <td>32A/XXI</td> <td>E201</td> <td>Gypsum board on metal stud – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>North</td> <td>32A/XXI</td> <td>E203</td> <td>Gypsum board on metal stud – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>South</td> <td>10/VI</td> <td></td> <td>Reinforced concrete 18" thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>32A/XXI</td> <td>E202</td> <td>Gypsum board on metal stud – equivalent 2 hrs</td> <td>2 hrs</td> </tr> <tr> <td>West</td> <td>19B/XII</td> <td></td> <td>Reinforced concrete \geq 18" thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> <tr> <td>West</td> <td>30/X</td> <td></td> <td>Reinforced concrete \geq 18" thick – equivalent 3 hrs</td> <td>3 hrs</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/AREA</th> <th>DOOR NO.</th> <th>EL.</th> <th>FIRE RATING (HRS)</th> </tr> </thead> <tbody> <tr> <td>North/Wall E201</td> <td>32A/XXI</td> <td>174</td> <td>943' – 8"</td> <td>3</td> </tr> <tr> <td>South</td> <td>10/VI</td> <td>342</td> <td>943' – 8"</td> <td>3 (eq)</td> </tr> </tbody> </table>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	North	32A/XXI	E201	Gypsum board on metal stud – equivalent 2 hrs	2 hrs	North	32A/XXI	E203	Gypsum board on metal stud – equivalent 2 hrs	2 hrs	South	10/VI		Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs	West	32A/XXI	E202	Gypsum board on metal stud – equivalent 2 hrs	2 hrs	West	19B/XII		Reinforced concrete \geq 18" thick – equivalent 3 hrs	3 hrs	West	30/X		Reinforced concrete \geq 18" thick – equivalent 3 hrs	3 hrs	ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)	North/Wall E201	32A/XXI	174	943' – 8"	3	South	10/VI	342	943' – 8"	3 (eq)
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																																		
North	32A/XXI	E201	Gypsum board on metal stud – equivalent 2 hrs	2 hrs																																																		
North	32A/XXI	E203	Gypsum board on metal stud – equivalent 2 hrs	2 hrs																																																		
South	10/VI		Reinforced concrete 18" thick – equivalent 3 hrs	3 hrs																																																		
West	32A/XXI	E202	Gypsum board on metal stud – equivalent 2 hrs	2 hrs																																																		
West	19B/XII		Reinforced concrete \geq 18" thick – equivalent 3 hrs	3 hrs																																																		
West	30/X		Reinforced concrete \geq 18" thick – equivalent 3 hrs	3 hrs																																																		
ORIENTATION	ADJ. ZONE/AREA	DOOR NO.	EL.	FIRE RATING (HRS)																																																		
North/Wall E201	32A/XXI	174	943' – 8"	3																																																		
South	10/VI	342	943' – 8"	3 (eq)																																																		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 32B

	<p>C. Fire Dampers in Required Barriers:</p> <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr><tr><td>North/Wall E201</td><td>32A/XXI</td><td>Two vent ducts dampered</td><td>(3) V-DF-129 (3) V-DF-130</td></tr><tr><td>North/Wall E203</td><td>32A/XXI</td><td>Vent ducts dampered</td><td>(3) V-DF-119 (3) V-DF-138 (Maintained closed)</td></tr><tr><td>West</td><td>19B/XII</td><td>Vent duct dampered</td><td>(3) V-DF-136</td></tr></table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <div><div>1. West/Wall E210 – there is a protected I beam that passes through the fire wall.</div><div>2. North/Wall E-201 (32A/XXI), North/Wall E203 (32A/XXI), West/Wall E202 (32A/XXI) – the basis for two-hour fire barrier acceptability is found in CA-02-107.</div></div>	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	North/Wall E201	32A/XXI	Two vent ducts dampered	(3) V-DF-129 (3) V-DF-130	North/Wall E203	32A/XXI	Vent ducts dampered	(3) V-DF-119 (3) V-DF-138 (Maintained closed)	West	19B/XII	Vent duct dampered	(3) V-DF-136
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.														
North/Wall E201	32A/XXI	Two vent ducts dampered	(3) V-DF-129 (3) V-DF-130														
North/Wall E203	32A/XXI	Vent ducts dampered	(3) V-DF-119 (3) V-DF-138 (Maintained closed)														
West	19B/XII	Vent duct dampered	(3) V-DF-136														
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <div><div>1. Portable extinguishers: Located within Fire Zone.</div><div>2. Hose stations: Located within Fire Zone.</div><div>3. EFT Charcoal Filter Sprinkler Header: Available by manually connecting to hose station.</div></div> <p>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</p> <p>E. Comments:</p> <div><div>1. CA-02-115 addresses fire detector location NFPA code deviations.</div></div>																
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>																

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 32B

XI	Safe Shutdown Systems Affected: See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.
XII	Consequences of Design Basis Fire: Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: A fire in the Fire Zone will not spread beyond this Fire Area, thus Safe Shutdown can be accomplished using Division 1 Systems.

01463416

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 33

I	Fire Area: XXII	Fire Zone: 33			Floor Area: 1,139 sq ft
II	Location: Emergency Filtration Train Building			Elevation: 959'-7"	
III	Description: EFT Third Floor and Exterior Duct Bank				
IV	Combustibles: (See CLSP)				
V	Fire Loading: (See CLSP)				
VI	Equivalent Fire Severity: (See CLSP)				
VII	Minimum Fire Barrier Rating for this Fire Zone: 120 minutes				
VIII	Construction:				
	A. Fire Area Barriers:				
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING
	North	1E/II		Reinforced concrete 36" thick – equivalent 3 hrs	3 hrs
	South	10/VI		Reinforced concrete ≥ 18" thick – equivalent 3 hrs	3 hrs
	West	19B/XII		Reinforced concrete ≥ 18" thick – equivalent 3 hrs	3 hrs
	East	1F/IV		Reinforced concrete 36" thick – equivalent 3 hrs	3 hrs
	East	2C/II		Reinforced concrete 36" thick – equivalent 3 hrs	3 hrs
	Floor	32A/XXI		Concrete slab ≥ 6" on protected structural steel – equivalent 3 hrs	3 hrs
	Ladder Enclosure	32A/XXI		Gypsum board on metal stud – equivalent 2 hrs	2 hrs
B. Fire Doors in Required Barriers:					
ORIENTATION		ADJ. ZONE/ AREA	DOOR NO.	EL.	FIRE RATING (HRS)
South		10/VI	343	959'	3
West		32A/XXI	176	959'	3

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 33

	<p>C. Fire Dampers in Required Barriers:</p> <table><tr><th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>Type of Opening</th><th>FIRE RATING Damper No.</th></tr><tr><td>Floor</td><td>32A/XXI</td><td>Main exhaust duct coated</td><td>(3)N/A</td></tr></table> <p>D. Exterior Walls: N/A</p> <p>E. Comments:</p> <p>1. Ladder enclosure – the basis for the two-hour barrier acceptability is found in CA-02-107.</p>	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	Floor	32A/XXI	Main exhaust duct coated	(3)N/A
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.						
Floor	32A/XXI	Main exhaust duct coated	(3)N/A						
IX	<p>Fire Protection:</p> <p>A. Detection: Smoke detectors located within Fire Zone.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <p>1. Portable extinguishers: Located within Fire Zone.</p> <p>2. Hose stations: Located within Fire Zone.</p> <p>D. Ventilation: The EFT third floor air conditioning system (V-AC-20) is automatically shutdown by the smoke detectors in the event of a fire. The fresh air supply fan (V-SF-20) must be manually shutdown using the hand switch mounted on the east wall.</p> <p>E. Comments:</p> <p>1. CA-02-115 addresses fire detector location NFPA code deviations.</p>								
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>								
XI	<p>Safe Shutdown Systems Affected:</p> <p>See Safe Shutdown Analysis (USAR-J.04) for specific systems and components impacted.</p>								
XII	<p>Consequences of Design Basis Fire:</p> <p>Safe Shutdown components and cabling in the zone cannot be credited for a fire in this Area. See Safe Shutdown Analysis for compliance strategy.</p>								

01463416 / 01491869
01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXII
Fire Zone 33

XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.
XIV	Conclusion: A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 34

I	Fire Area: XXIV	Fire Zone: 34	Floor Area: 2,220 sq ft										
II	Location: Turbine Building		Elevation: 931'-0"										
III	Description: Non-1E Electrical Equipment Room												
IV	Combustibles: (See CLSP)												
V	Fire Loading: (See CLSP)												
VI	Equivalent Fire Severity: (See CLSP)												
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes												
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th><th>ADJ. ZONE/ AREA(S)</th><th>WALL NO.</th><th>CONSTRUCTION</th><th>FIRE BARRIER RATING</th></tr> </thead> <tbody> <tr> <td>West</td><td>19A/XII</td><td></td><td>Reinforced concrete $\geq 12"$ thick-equivalent 3 hrs</td><td>3 hrs</td></tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers: None.</p> <p>D. Exterior Walls: The north and east walls are of metal panel construction.</p> <p>E. Comments:</p> <ol style="list-style-type: none"> Battery and UPS Rooms within Fire Zone separated from remainder of zone by concrete block walls, poured concrete ceiling on unprotected steel, 1-1/2 hour fire-rated access doors (frames not stamped), and undampened HVAC penetrations. Barriers to adjacent Fire Zones in same area are unrated; however, three-hour door in south wall to Auxiliary Boiler Room (20/XXIV) and 3 hour door in east wall to Diesel Generator No. 13. 			ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	West	19A/XII		Reinforced concrete $\geq 12"$ thick-equivalent 3 hrs	3 hrs
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING									
West	19A/XII		Reinforced concrete $\geq 12"$ thick-equivalent 3 hrs	3 hrs									
IX	<p>Fire Protection:</p> <p>A. Detection: Ceiling mounted smoke detectors</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> Portable extinguishers: Located within Fire Zone. Hose stations: None within Fire Zone. Fire hose available from Hose House No. 4 and Hose House No. 2. <p>D. Ventilation: Ceiling mounted exhaust fans available for smoke removal but not recommended for extremely hot fires due to charcoal filters. Portable smoke ejectors can be used if necessary.</p>												

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 34

	E. Comments: None.
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None. Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>Automatic smoke detection with alarm to the Control Room will result in prompt fire brigade response and fire extinguishment.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.</p>

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 35

I	Fire Area: XXIV	Fire Zone: 35	Floor Area: 348 sq ft
II	Location: Turbine Building		Elevation: 931'-0"
III	Description: Diesel Generator No. 13 Room		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: All walls except north wall and doorway to Non-1E Equipment Room are exterior walls and are of metal panel construction. E. Comments: 1. The North wall to the Diesel Day Tank Room is three-hour rated. See Monticello modification No 89Z006.		
IX	Fire Protection: A. Detection: Heat and flame detectors in zone. B. Automatic Suppression: Automatic pre-action sprinkler system. C. Manual Suppression: 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: None within Fire Zone. Fire hose available from Hose House No. 4 and Hose House No. 2. D. Ventilation: Smoke and heat removal can be accomplished via ventilation louvers or by opening door in east wall backed up by use of portable smoke ejectors. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to the remote location of this fire zone, and a 180 minute rated Fire Door protecting the only propagation path to the plant, a fire will not spread beyond this Fire Area.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 35

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: The automatic pre-action sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm and heat and flame detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 36

I	Fire Area: XXIV	Fire Zone: 36	Floor Area: 96 sq ft
II	Location: Turbine Building		Elevation: 931'-0"
III	Description: Diesel Generator No. 13 Day Tank Room		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes		
VIII	Construction: A. A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: All walls except south wall to Diesel Generator No. 13 (35/XXIV) are exterior walls and are of metal panel construction. E. Comments: 1. The south wall to the Diesel Day Tank Room is three-hour rated. See Monticello modification No 89Z006.		
IX	Fire Protection: A. Detection: Heat and flame detectors in zone. B. Automatic Suppression: Automatic pre-action sprinkler system. C. Manual Suppression: 1. Portable extinguishers: None in zone. 2. Hose stations: None in zone. Fire hose available from Hose House No. 4 and Hose House No. 2. D. Ventilation: Ventilation available by opening exterior access door. Portable smoke ejectors may be used if necessary. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to the remote location and a 3 hour barrier preventing fire spread to Fire Zone 35/XXIV, a fire will not spread beyond this Fire Zone.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 36

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: The automatic pre-action sprinkler system is expected to control a fire in this Fire Zone. In addition, the waterflow alarm and heat and flame detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 or Division 2 Systems.

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXV
Fire Zone 37

I	Fire Area: XXV	Fire Zone: 37		Floor Area: 6,318 sq ft																																										
II	Location: Turbine Building East Exterior			Elevation: 931'-0"																																										
III	Description: Main, 1R and 2R Transformers																																													
IV	Combustibles: (See CLSP)																																													
V	Fire Loading: (See CLSP)																																													
VI	Equivalent Fire Severity: (See CLSP)																																													
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 min																																													
VIII	<p>Construction:</p> <p>A. Fire Area Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>WALL NO.</th> <th>CONSTRUCTION</th> <th>FIRE BARRIER RATING</th> </tr> </thead> <tbody> <tr> <td>East</td> <td>14A/XII</td> <td></td> <td>Reinforced concrete 18 " thick – equivalent 3 hrs</td> <td>None</td> </tr> <tr> <td>East</td> <td>14C/X</td> <td></td> <td>Reinforced concrete 18 " thick – equivalent 3 hrs</td> <td>None</td> </tr> <tr> <td>East</td> <td>15A/XIII</td> <td></td> <td>Reinforced concrete 18 " thick – equivalent 3 hrs</td> <td>None</td> </tr> <tr> <td>East</td> <td>30/X</td> <td></td> <td>Unrated sheet metal</td> <td>None</td> </tr> <tr> <td>South</td> <td>22/X</td> <td></td> <td>Reinforced concrete and unrated sheet metal</td> <td>None</td> </tr> </tbody> </table> <p>B. Fire Doors in Required Barriers: None.</p> <p>C. Fire Dampers in Required Barriers:</p> <table border="1"> <thead> <tr> <th>ORIENTATION</th> <th>ADJ. ZONE/ AREA(S)</th> <th>Type of Opening</th> <th>FIRE RATING Damper No.</th> </tr> </thead> <tbody> <tr> <td>East</td> <td>15A/XIII</td> <td>Grill</td> <td>None</td> </tr> <tr> <td>South</td> <td>22/X</td> <td>Grill</td> <td>None</td> </tr> </tbody> </table> <p>D. Exterior Walls: The transformers are an exposure hazard to the exterior walls of Fire Zones 15A/XII, 14A/XII, 14C/X, 22/X, and 30/X. The basis for fire barrier acceptability is found in CA-02-102.</p>				ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	East	14A/XII		Reinforced concrete 18 " thick – equivalent 3 hrs	None	East	14C/X		Reinforced concrete 18 " thick – equivalent 3 hrs	None	East	15A/XIII		Reinforced concrete 18 " thick – equivalent 3 hrs	None	East	30/X		Unrated sheet metal	None	South	22/X		Reinforced concrete and unrated sheet metal	None	ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.	East	15A/XIII	Grill	None	South	22/X	Grill	None
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																																										
East	14A/XII		Reinforced concrete 18 " thick – equivalent 3 hrs	None																																										
East	14C/X		Reinforced concrete 18 " thick – equivalent 3 hrs	None																																										
East	15A/XIII		Reinforced concrete 18 " thick – equivalent 3 hrs	None																																										
East	30/X		Unrated sheet metal	None																																										
South	22/X		Reinforced concrete and unrated sheet metal	None																																										
ORIENTATION	ADJ. ZONE/ AREA(S)	Type of Opening	FIRE RATING Damper No.																																											
East	15A/XIII	Grill	None																																											
South	22/X	Grill	None																																											

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXV
Fire Zone 37

	<p>E. Comments:</p> <ol style="list-style-type: none"> Transformers are separated from each other by concrete barriers. Area under each transformer separately diked (minimum dike height – two feet).
IX	<p>Fire Protection:</p> <p>A. Detection: Linear Heat Detection.</p> <p>B. Automatic Suppression: Open head water spray for transformers manually actuated. Open head water spray for exterior metal panel wall of Turbine Building (30/X) automatically and manually actuated. Manual actuation of each open head water spray system can be accomplished either from the Control Room, from inside the Diesel Generator No.12 Room at deluge valves, or from the manual actuation panel on the exterior portion of Diesel Generator No. 12 north wall.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> Portable extinguishers: None. Hose stations: Hose house available in vicinity. <p>D. Ventilation: N/A</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Diked areas will prevent transformer oil spills from spreading beyond affected transformer. Barriers in between transformers will prevent radiant heat transfer to adjacent transformer.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to be contained for a sufficient time to allow fire suppression activities to extinguish a fire before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>The automatic/manual open head water spray systems are expected to control a fire in this Fire Zone. In addition, the waterflow alarm and heat detectors with alarm to the Control Room will result in prompt fire brigade response and extinguishment.</p>
XIV	<p>Conclusion:</p> <p>A fire in this Fire Zone is not expected to spread to adjacent fire areas. A fixed water spray system protecting transformers (manual actuation) and Turbine Building exterior walls will limit fire damage from the affected transformer. Safe shutdown can be accomplished using Division I or Division II Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 39

I	Fire Area: IX	Fire Zone: 39			Floor Area: 6,324 sq ft																														
II	Location: Turbine Building				Elevation: 931'-0"																														
III	Description: Turbine Building Addition (TBA)																																		
IV	Combustibles: (See CLSP)																																		
V	Fire Loading: (See CLSP)																																		
VI	Equivalent Fire Severity: (See CLSP)																																		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes																																		
VIII	Construction:																																		
	A. Fire Area Barriers:																																		
	<table><tr><td>ORIENTATION</td><td>ADJ. ZONE/ AREA(S)</td><td>WALL NO.</td><td>CONSTRUCTION</td><td>FIRE BARRIER RATING</td></tr><tr><td>South</td><td>30/X</td><td></td><td>Unrated sheet metal panel</td><td>None</td></tr><tr><td>South</td><td>17/XII</td><td></td><td>Reinforced concrete ≥ 12" thick-equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>West</td><td>15B/XIV</td><td></td><td>Reinforced concrete 18" thick-equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>West</td><td>15C/XV</td><td></td><td>Reinforced concrete 18" thick -equivalent 3 hrs</td><td>3 hrs</td></tr><tr><td>West</td><td>15D/XVI</td><td></td><td>Reinforced concrete 18" thick-equivalent 3 hrs</td><td>3 hrs</td></tr></table>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	South	30/X		Unrated sheet metal panel	None	South	17/XII		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs	West	15B/XIV		Reinforced concrete 18" thick-equivalent 3 hrs	3 hrs	West	15C/XV		Reinforced concrete 18" thick -equivalent 3 hrs	3 hrs	West	15D/XVI		Reinforced concrete 18" thick-equivalent 3 hrs	3 hrs
	ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING																														
	South	30/X		Unrated sheet metal panel	None																														
	South	17/XII		Reinforced concrete ≥ 12" thick-equivalent 3 hrs	3 hrs																														
	West	15B/XIV		Reinforced concrete 18" thick-equivalent 3 hrs	3 hrs																														
	West	15C/XV		Reinforced concrete 18" thick -equivalent 3 hrs	3 hrs																														
	West	15D/XVI		Reinforced concrete 18" thick-equivalent 3 hrs	3 hrs																														
	B. Fire Doors in Required Barriers: None.																																		
	C. Fire Dampers in Required Barriers: None.																																		
	D. Exterior Walls: N/A																																		
	E. Comments:																																		
	1. South/(30/X) – this barrier is not rated due to sheet metal wall enclosing the Turbine Building operating floor. The basis for fire barrier acceptability is found in CA-02-105.																																		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 39

IX	<p>Fire Protection:</p> <p>A. Detection: None.</p> <p>B. Automatic Suppression: None.</p> <p>C. Manual Suppression:</p> <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: Located within Fire Zone. <p>D. Ventilation: Smoke and heat removal can be accomplished by opening the large rollup doors in both the east and west walls enclosing this Fire Zone. Portable smoke ejectors can be used as necessary.</p> <p>E. Comments: None.</p>
X	<p>Fire Zone Features That Have a Limiting Effect on Fire Spread:</p> <p>Fire Barriers are designed to prevent fire spread to other Fire Areas.</p>
XI	<p>Safe Shutdown Systems Affected:</p> <p>Component: None.</p> <p>Cable: None.</p>
XII	<p>Consequences of Design Basis Fire:</p> <p>No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.</p>
XIII	<p>Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression:</p> <p>This Fire Zone has a high fire loading; however, a fire in this Fire Zone does not present an exposure to safe shutdown equipment in other fire areas.</p>
XIV	<p>Conclusion:</p> <p>No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.</p>

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 40

I	Fire Area: IX	Fire Zone: 40	Floor Area: 1,398 sq ft
II	Location: Adjoining Intake Structure		Elevation: 919'-0"
III	Description: Screen House		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located in adjacent Fire Zone. 2. Hose stations: Located in adjacent Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 40

XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers. .
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: This Fire Zone has a low fire loading; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 41

I	Fire Area: IX	Fire Zone: 41	Floor Area: 569 sq ft
II	Location: Adjoining Intake Structure		Elevation: 934'-9"
III	Description: Sodium Hypochloride House		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 180 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: None. B. Automatic Suppression: None. C. Manual Suppression: 1. Portable extinguishers: Located in zone. 2. Hose stations: Located in adjacent Fire Zone. D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Due to low fire loading, fire spread to other Fire Zones within this Fire Area is not considered likely. Fire Barriers are designed to prevent fire spread to other Fire Areas.		
XI	Safe Shutdown Systems Affected: Component: None. Cable: None.		
XII	Consequences of Design Basis Fire:		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area IX
Fire Zone 41

	No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: This Fire Zone has a low fire loading; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 2 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 42

I	Fire Area: X	Fire Zone: 42			Floor Area: 362 sq ft										
II	Location: Adjoining Reactor Building and Turbine Building				Elevation: 931'-0"										
III	Description: CO ₂ and H ₂ Storage House														
IV	Combustibles: (See CLSP)														
V	Fire Loading: (See CLSP)														
VI	Equivalent Fire Severity: (See CLSP)														
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes														
VIII	<div>Construction:</div> <div>A. Fire Area Barriers:</div> <table><tr><td>ORIENTATION</td><td>ADJ. ZONE/ AREA(S)</td><td>WALL NO.</td><td>CONSTRUCTION</td><td>FIRE BARRIER RATING</td></tr><tr><td>East</td><td>2C/II</td><td></td><td>Reinforced Concrete 18 " thick – equivalent 3 hrs</td><td>3 hrs</td></tr></table> <div>B. Fire Doors in Required Barriers: None.</div> <div>C. Fire Dampers in Required Barriers: None.</div> <div>D. Exterior Walls: N/A</div> <div>E. Comments: None.</div>					ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING	East	2C/II		Reinforced Concrete 18 " thick – equivalent 3 hrs	3 hrs
ORIENTATION	ADJ. ZONE/ AREA(S)	WALL NO.	CONSTRUCTION	FIRE BARRIER RATING											
East	2C/II		Reinforced Concrete 18 " thick – equivalent 3 hrs	3 hrs											
IX	<div>Fire Protection:</div> <div>A. Detection: None.</div> <div>B. Automatic Suppression: None.</div> <div>C. Manual Suppression:</div> <div><div>1. Portable extinguishers: Located within Fire Zone.</div><div>2. Hose stations: Located in adjacent Fire Zone.</div></div> <div>D. Ventilation: Smoke and heat removal can be accomplished using normal air handling systems backed up by use of portable smoke ejectors.</div> <div>E. Comments: None.</div>														
X	<div>Fire Zone Features That Have a Limiting Effect on Fire Spread:</div> <div>Fire Barriers are designed to prevent fire spread to other Fire Areas.</div>														

FIRE HAZARDS ANALYSIS MATRIX
Fire Area X
Fire Zone 42

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: This Fire Zone has a moderate fire loading; however, a fire in this Fire Zone does not present an exposure to safe shutdown equipment in other fire areas..
XIV	Conclusion: No damage to safe shutdown equipment is anticipated. A fire in this Fire Zone will not spread beyond this Fire Area, thus safe shutdown can be accomplished using Division 1 Systems.

01463416

01463416

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 43

I	Fire Area: XXIV	Fire Zone: 43	Floor Area: 1,800 sq ft
II	Location: Northeast Corner of Turbine Building		Elevation: Grade
III	Description: CAB/Scaffold Storage Area		
IV	Combustibles: (See CLSP)		
V	Fire Loading: (See CLSP)		
VI	Equivalent Fire Severity: (See CLSP)		
VII	Minimum Fire Barrier Rating for this Fire Zone: 30 minutes		
VIII	Construction: A. Fire Area Barriers: None. B. Fire Doors in Required Barriers: None. C. Fire Dampers in Required Barriers: None. D. Exterior Walls: N/A E. Comments: None.		
IX	Fire Protection: A. Detection: Heat and smoke detectors. B. Automatic Suppression: None. C. Manual Suppression: <ol style="list-style-type: none"> 1. Portable extinguishers: Located within Fire Zone. 2. Hose stations: None. D. Ventilation: Smoke removal can be accomplished by opening rollup door on east side of building. Portable smoke removal fans can be utilized to assist in smoke removal. E. Comments: None.		
X	Fire Zone Features That Have a Limiting Effect on Fire Spread: Low fire loading in Compressed Air Building limits likelihood of spread of fire from this area to the East 13.8 kV Switchgear Room or to the NON 1E Electrical Equipment Room.		

FIRE HAZARDS ANALYSIS MATRIX
Fire Area XXIV
Fire Zone 43

XI	Safe Shutdown Systems Affected: Component: None. Cable: None.
XII	Consequences of Design Basis Fire: No safe shutdown systems lost. A fire in this zone would be expected to consume all combustibles before challenging Fire Area Barriers.
XIII	Consequences of Design Basis Fire Considering the Mitigating Effects of Detection and Suppression: This Fire Zone has a low fire loading; therefore, a fire in this Fire Zone does not present an exposure to Safe Shutdown equipment in other fire areas.
XIV	Conclusion: A fire in this Fire Zone will not spread beyond this Fire Area thus Safe Shutdown can be accomplished using Division I or Division II Systems.

01463416

01463416

Attachment B

FIRE DOORS

FIRE DOOR NUMBER	ZONE TO ZONE BOUNDARY	ORIENTATION	(FT) ELEVATION	COMMENTS
41	1C-1F	WEST	896	NEW DOOR (3 HOUR)
42	1D-1F	EAST	896	NEW DOOR (3 HOUR)
412	1G-1F	EAST	923	NEW DOOR (3 HOUR)
21	1C-1H	NORTH	896	NEW DOOR (3 HOUR)
65	2A-30	NORTH	951	PERMANENTLY BOLTED SHUT - DOOR SCHEDULE "A" (3 HOUR)
61	2B-2A	NORTH	935	DOUBLE DOOR (1-1/2 HOURS)
64	2B-2A	NORTH	951	DOOR ON 951 FT ELEVATION (1-1/2 HOUR)
62	2B-10	EAST	935	ACCESS DOOR TO REACTOR BUILDING FROM ADMINISTRATION BUILDING (3 HOUR)
410	2C-2B	EAST	935	NEW DOOR (3 HOUR)
47	2C-21A	SOUTH	935	ACCESS TO RAD. WASTE (3 HOUR)
67	2C-30	NORTH	951	DOOR PERMANENTLY BOLTED SHUT - DOOR SCHEDULE "A" (3 HOUR)
60	2E-2A	EAST	935	NEW DOOR - ACCESS TO TIP ROOM (3 HOUR)

FIRE DOOR NUMBER	ZONE TO ZONE BOUNDARY	ORIENTATION	(FT) ELEVATION	COMMENTS
211	3A-11	EAST	962	MG SET ROOM TO HV ROOM; SECURITY DOOR (3 HOUR)
73	3B-3A	NORTH	962	MG SET ROOM (3 HOUR)
411	3C-3B	EAST	962	NEW DOOR (3 HOUR)
125	8-19B	NORTH	939	SECURITY DOOR NO U.L. LABEL
141	9-30	NORTH	951	CONTROL ROOM DOOR TO TURBINE OPERATING FLOOR NO U.L. LABEL
103	10-7C	EAST	928	DOOR TO BATTERY ROOM; LOUVER IN DOOR (1-1/2 HOUR)
142	10-9	NORTH	951	CONTROL ROOM DOOR BULLETPROOF NO U.L. LABEL
105	10-19B	NORTH	935	ACCESS DOOR FROM ACCESS CONTROL TO TURBINE BUILDING (3 HOUR)
340	10-31B	NORTH	932	WEST END-HEAVY METAL DOORS NO U.L. LABEL
341	10-31B	NORTH	932	EAST END-HEAVY METAL DOORS NO U.L. LABEL
342	10-32B	NORTH	943	WEST END-HEAVY METAL DOORS NO U.L. LABEL

FIRE DOOR NUMBER	ZONE TO ZONE BOUNDARY	ORIENTATION	(FT) ELEVATION	COMMENTS
343	10-33	NORTH	959	WEST END-HEAVY METAL DOORS NO U.L. LABEL
68	12A-12B	SOUTH	911	NEW DOOR (3 HOUR)
76	12A-12B	SOUTH	911	NEW DOOR (3 HOUR)
203	12A-12B	SOUTH	911	NEW DOOR (3 HOUR)
15	12A-12E	WEST	911	DOOR TO AIR EJECTOR ROOM NO U.L. LABEL EXISTING DOOR CONSIDERED ADEQUATE DUE TO THE LOW FIRE LOADING AND AREA CONFIGURATION (2 HOUR)
413	12A-14A	SOUTH	931	NEW DOOR TO 12A STAIRWAY (3 HOUR)
25	12C-16	NORTH	931	DOUBLE DOOR. BOLTED SHUT. BACKED BY CINDERBLOCKS
39	13B-19A	EAST	931	DOOR TO EQUIPMENT HATCH ENCLOSURE - NORTH (1-1/2 HOUR)
40	13B-19A	EAST	931	DOOR TO EQUIPMENT HATCH ENCLOSURE - SOUTH (1-1/2 HOUR)
414	13C-19B	NORTH	931	STAIRWAY ENCLOSURE DOOR (3 HOUR)
9	14B-14A	NORTH	931	NEW DOOR (3 HOUR)
6	15A-15B	EAST	949	DOOR BETWEEN FAN ROOMS ABOVE NO. 11 AND NO. 12 DIESEL GENERATORS (3 HOUR)
10	15A-15B	EAST	931	NEW DOOR (3 HOUR)

FIRE DOOR NUMBER	ZONE TO ZONE BOUNDARY	ORIENTATION	(FT) ELEVATION	COMMENTS
12	15B-15C	EAST	931	DAY TANK ROOM (3 HOUR)
12A	15B-15D	EAST	931	DAY TANK ROOM (3 HOUR)
18A	16-12C	EAST	911	NEW DOOR (3 HOUR)
31	16-14A	SOUTH	931	EXISTING DOOR (1-1/2 HOUR)
11	16-15B	WEST	931	DOOR TO EMERGENCY DIESEL GENERATOR ROOM (3 HOUR)
28	16-19A	EAST	931	EXISTING DOOR (1-1/2 HOUR)
27	19A-18A	NORTH	931	NEW DOOR (3 HOUR)
3	19B-20	EAST	931	(3 HOUR)
26	19C-19B	NORTH	931	EXISTING DOOR (1-1/2 HOUR)
169	31A-31B	WEST	932	(3 HOUR)
174	32A-32B	SOUTH	943	(3 HOUR)
176	33-32A	WEST	959	LADDER ENCLOSURE (3 HOUR)

Attachment C
FIRE DAMPERS

FIRE DAMPER NUMBER	ZONE TO ZONE BOUNDARY	ORIENTATION	FIRE RATING (HRS)	COMMENTS
VDF-208	1A-1F	EAST	3	
VDF-209	1B-1F	WEST	3	
VDF-210	1C-1F	WEST	3	
VDF-211	1C-1F	WEST	3	
VDF-202	1D-1F	EAST	3	
VDF-203	1D-1F	EAST	3	
VDF-243	1E-1F	EAST	3	
VDF-212	2A-1F	FLOOR	3	
VDF-220	2B-2A	NORTH	1 - 1 / 2	GRILL OPENING
VDF-221	2B-2C	WEST	3	
VDF-242	2C-1F	FLOOR	3	
VDF-213	2E-2A	NORTH	3	
VDF-219	2E-2A	NORTH	3	
VDF-214	2E-2F	WEST	3	
VDF-218	2G-2H	WEST	3	
VDF-226	3B-3C	WEST	3	
VDF-233	3E-3A	NORTH	3	
VDF-235	3E-3D	WEST	3	
VDF-402	7B-7C	SOUTH	3	
VDF-403	7B-7C	SOUTH	3	
VDF-600	9-10	EAST	3	BATHROOM/KITCHEN EXHAUST
VDF-121A	9-19B	NORTH	3	
VDF-121B	9-19B	NORTH	3	
VDF-124A	9-19B	NORTH	3	
VDF-124B	9-19B	NORTH	3	
VDF-125A	9-19B	NORTH	3	
VDF-125B	9-19B	NORTH	3	

FIRE DAMPER NUMBER	ZONE TO ZONE BOUNDARY	ORIENTATION	FIRE RATING (HRS)	COMMENTS
VDF-126A	9-19B	NORTH	3	
VDF-126B	9-19B	NORTH	3	
VDF-410	10-7C	NORTH	3	
VDF-411	10-7C	NORTH	3	
VDF-501	12A-14A	CEILING	3	
VDF-512	12A-14A	CEILING	3	
VDF-516	12A-14A	CEILING	3	
VDF-550	12A-14A	SOUTH	3	
VDF-244	13A-19A	CEILING	3	
VDF-522	13B-19A	CEILING	3	
VDF-527	13B-19A	EAST	1-1/2	GRILL OPENING
VDF-528	13B-19A	EAST	1-1/2	GRILL OPENING
VDF-529	13B-19A	EAST	1-1/2	GRILL OPENING
VDF-530	13B-19A	EAST	1-1/2	GRILL OPENING
VDF-520	13C-12C	WEST	3	
VDF-500	14B-14A	NORTH	3	BLOCKED CLOSED
VDF-502	15B-15C	EAST	3	
VDF-503	15B-15D	EAST	3	
VDF-113	19B-31B	EAST	3	
VDF-136	19B-32B	EAST	3	
VDF-245	19C-12C	WEST	3	
VDF-246	19C-12C	WEST	3	
VDF-102	31A-31B	WEST	3	
VDF-103	31A-31B	WEST	3	

FIRE DAMPER NUMBER	ZONE TO ZONE BOUNDARY	ORIENTATION	FIRE RATING (HRS)	COMMENTS
VDF-120	31B-32A	NORTH	3	
VDF-137	31B-32A	NORTH	3	
VDF-134	32A-31B	FLOOR	3	
VDF-119	32A-32B	SOUTH	3	
VDF-129	32A-32B	SOUTH	3	
VDF-130	32A-32B	SOUTH	3	
VDF-138	32B-32A	NORTH	3	MAINTAINED CLOSED

Attachment D

CALCULATION / EVALUATION INDEX

DOCUMENT	TITLE	SUMMARY DESCRIPTION
CA-89-558	Hydraulic Calculation for EDG Room Preaction Sprinkler System	Sprinkler system hydraulic calculation for the EDG and Day Tank Rooms.
CA-96-167	Fire Zone Heat Content Due to Exposed Cables	Determines heat content value due to exposed cable in each fire zone.
CA-97-281	Plant Communication Cable Fire Loading	Determines heat content value due to exposed Radiac cable in various fire zones.
CA-02-100	Evaluation of Radwaste to Torus Area Penetration FZ-0531	Addresses acceptability of gaps in Penetration FZ-0531 between Radwaste Phase Separator Tank Room, Radwaste Building Elev. 962' (Fire Area I / Fire Zone 21D) and Torus, Reactor Building Elev. 896' (Fire Area IV / Fire Zone 1F).
CA-02-101	Evaluation of Fire Barrier Separating Fire Areas/Fire Zones IX/12A and X/12E	Addresses acceptability of non-rated barrier between the Lower Switchgear and Condensate Return Rooms and the Main Condenser Air Ejector Room.
CA-02-102	Evaluation of Turbine Building West and Recombiner Building North Exterior Walls	Addresses acceptability of the fire protection design features and configurations of the exterior walls separating the Turbine and Recombiner Buildings from the adjacent Transformer area.
CA-02-103	Evaluation of Turbine Building East Open Hatch	Addresses acceptability of the open hatch configuration on the Turbine Building east side and the ability of the Turbine Building Operating Floor to act as a conduit for fire spread between redundant divisional Fire Zones 13B (Div I) and 19A & 19B (Div II). Also addresses adequacy of the 2-hr barrier around the equipment hatch at Elevation 931'.
CA-02-104	Evaluation of Reactor Building Hatch #9 (Penetration Seal No. FZ-1356)	Addresses acceptability of Hatch #9 to act as a barrier to fire and products of combustion thus maintaining integrity of the 3-hr barrier separating Reactor Building Elev. 935' (Fire Area I / Fire Zone 2B) from the Torus area, Reactor Building Elev. 896' (Fire Area IV / Fire Zone 1F).
CA-02-105	Evaluation of Auxiliary Boiler Fuel Oil Transfer Line Route	Evaluates the potential for a leak in the Auxiliary Boiler fuel oil transfer line along its above ground route to threaten safe shutdown equipment and cables.
CA-02-106	Evaluation of Turbine Lube Oil System Lines Routed in and around Fire Zone 14A	Evaluates the potential for a leak from the Turbine Lube Oil System to threaten redundant safe shutdown equipment and cables in the northwest section of the Turbine Building.

DOCUMENT	TITLE	SUMMARY DESCRIPTION
CA-02-107	Adequacy of Emergency Filtration (EFT) Building Fire Protection Features	Addresses acceptability of the EFT Building interior fire protection features to prevent a single fire damaging redundant safe shutdown divisions.
CA-02-108	Evaluation of Fire Barrier Separating Fire Areas/Fire Zones I/4D and X/30	Addresses acceptability of the ventilation openings in the fire barrier between the Standby Gas Treatment Room, Reactor Building Elev. 985', and the Main Turbine Operating Floor, Turbine Bldg. Elev. 951.
CA-02-109	Fire Barrier Evaluation Reactor Building Elevations 962' and 985'	Addresses the acceptability of fire barriers between Reactor Building Elevations 962' and 985' that separate Division I and II safe shutdown functions.
CA-02-110	Evaluation of Fire Barrier Separating Fire Areas/Fire Zones II/2F and X/30	Addresses acceptability of the non-rated blowout panels that form a part of the boundary between the Steam Chase, Reactor Building Elev.935' (Fire Area II / Fire Zone 2F) and the Main Turbine Operating Floor, Turbine Building Elev. 951(Fire Area X / Fire Zone 30.
CA-02-111	Evaluation of Fire Barrier Separating Fire Areas/Fire Zones XII/14A & XII/17 From X/30	Addresses acceptability of the non-rated assemblies that form part of the barrier separating the Upper Switchgear and Stator Cooling Unit equipment rooms (Fire Area XII / Fire Zone 14A) and Turbine Building Cableway (Fire Area XII / Fire Zone 17) from the Main Turbine Operating Floor (Fire Area X / Fire Zone 30).
CA-02-112	Evaluation of Vent Duct Chase Between Fire Areas/Fire Zones I/4E and X/12C	Addresses acceptability of the open vent chase running between the Reactor Building Plenum Room, Reactor Building Elev. 985' (Fire Area I / Fire Zone 4E) and the Condenser Bay, Turbine Building Elev. 911' (Fire Area X / Fire Zone 12C).
CA-02-113	Evaluation of Fire Barrier Separating Fire Areas/Fire Zones XV/15C and XVI/15D	Addresses acceptability of the 2-hr rated fire barrier between the Diesel Fuel Oil Day Tank Rooms.
CA-02-114	Evaluation of Administration Building Elevation 928' Fire Barriers	Addresses acceptability of the barriers separating safe shutdown divisions on Elev. 928' of the Admin. Building. Also addresses acceptability of the barrier separating Admin. Building Elev. 928' (Fire Area VI / Fire Zone 10) from the Feedwater Valve Room (Fire Area IX / Fire Zone 19C).
CA-02-115	Evaluation of Fire Detector Locations in the EFT Building – Fire Areas / Fire Zones XXI/31A & 32A and XXII/31B, 32B, & 33	Addresses acceptability of detection system NFPA code deviations.
CA-02-116	Evaluation of Detector Locations in the Reactor Bldg. - Fire Area 1, Fire Zone 6, Refueling Floor	Addresses acceptability of detection system NFPA code deviations.

DOCUMENT	TITLE	SUMMARY DESCRIPTION
CA-02-117	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area IV, Fire Zone 1F, Suppression Pool Area (Torus)	Addresses acceptability of detection system NFPA code deviations.
CA-02-118	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area I, Fire Zone 5C, Spent Fuel Pool Cooling Equipment Room	Addresses acceptability of detection system NFPA code deviations.
CA-02-123	Hatch Sprinkler Curtain Flow and Pressure Determination	Hydraulic calculation of the Turbine Building east side equipment hatch sprinkler system.
CA-02-134	Clean / dirty lube oil storage room sprinkler flow FA/FZ-IX/13B	Addresses the acceptability of auto deluge suppression and associated heat detection system NFPA code deviations.
CA-02-155	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area I, Fire Zones 5A (South) and 5B (North)	Addresses acceptability of detection system NFPA code deviations.
CA-02-156	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area III, Fire Zone 1C, RCIC Pump Room	Addresses acceptability of detection system NFPA code deviations.
CA-02-157	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area II, Fire Zone 1A, RHR and Core Spray Pump Room, Div. II	Addresses acceptability of detection system NFPA code deviations.
CA-02-158	Evaluation of Fire Detector Locations in the Reactor BLDG. – Fire Area I, Fire Zone 1B, RHR and Core Spray Pump Room, Div. I	Addresses acceptability of detection system NFPA code deviations.
CA-02-159	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area II, Fire Zone 1E, HPCI Pump Room	Addresses acceptability of detection system NFPA code deviations.
CA-02-170	Evaluation of Fire Detector Locations in the Standby Diesel Generator Bldg. – Fire Areas XIII, XIV, XV, XVI / Fire Zones 15A, B, C, D	Addresses acceptability of detection system NFPA code deviations.
CA-02-171	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area I, Fire Zones 4A and 4B	Addresses acceptability of detection system NFPA code deviations.
CA-02-172	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area I, Fire Zone 3B, 962' Level SBLC Area	Addresses acceptability of detection system NFPA code deviations.

DOCUMENT	TITLE	SUMMARY DESCRIPTION
CA-02-173	Evaluation of Fire Detector Locations in the Reactor Bldg. – Fire Area III, Fire Zone 2A	Addresses acceptability of detection system NFPA code deviations.
CA-02-174	Evaluation of Fire Suppression and Detection Systems in the Cable Spreading Room - Fire Area VI, Fire Zone 8	Addresses acceptability of automatic Halon suppression system and detection system NFPA code deviations.
CA-02-187	Evaluation of Fire Suppression and Detection Systems in the Turbine Bldg. Lube Oil Reservoir Area - Fire Area/Zone IX/13B	Addresses acceptability of automatic deluge system and detection system NFPA code deviations.
CA-03-113	Evaluation of Fire Suppression System in the Turbine Building Condenser Area – Fire Area/Zone X/12C	Addresses acceptability of sprinkler system NFPA code deviations.
CA-03-114	Hydraulic Analysis of Condenser Bay Fire Protection System	Models and hydraulically analyzes the sprinkler system in the Condenser Bay.
CA-03-120	Evaluation of Fire Suppression System in the Intake Structure Pump Room – Fire Area/Zone IX/23A	Addresses acceptability of pre-action sprinkler system NFPA code deviations.
CA-03-121	Evaluation of Fire Suppression Systems in the Turbine Building Lube Oil Storage Tank Room, FZ/FA – IX/13A	Addresses the acceptability of wet pipe sprinkler system NFPA code deviations.
CA-03-147	EDG day tank room flood evaluation for FA/FZ – XV/15C and XVI/15D	Performs flood evals for two scenarios in the EDG day tank room so ensure adequate curbing is provided.
CA-03-151	Evaluation of Fire Suppression System in the turbine building, hydrogen seal oil area, FA/FZ – X/12B	Addresses acceptability of wet pipe sprinkler system NFPA Code deviations.
CA-03-161	Evaluation of Fire Suppression System and Detection System in the reactor building, recirculation MG Set Room, FA/FZ – V/3A	Addresses the acceptability of detection and suppression system NFPA code deviations.
CA-03-188	Evaluation of Fire Suppression Systems in the turbine building feedwater pump hatch, FA/FZ – IX/13B	Analyzes the wet pipe sprinklers in the feedwater hatch including hydraulic calculations. Calculations also address acceptability of North and South sprinkler systems NFPA code deviations.
CA-03-193	Evaluation of Fire Suppression Systems in the EDG building, FA/FZ – XIII/15A, XIV/15B, XV/15C, XVI/15D	Addresses the acceptability of preaction sprinkler system NFPA code deviations.

DOCUMENT	TITLE	SUMMARY DESCRIPTION
CA-03-201	Evaluation of response times for heat detectors installed in the cable spreading room, FA/FZ – VI/8	Estimates Halon fire suppression system heat detector response times.
CA-04-115	H ₂ seal oil hydraulic calc FA/FZ –X/12B	Sprinkler system hydraulic calculation for the H ₂ seal oil area
CA-04-116	Recirc MG set hydraulic calc FA/FZ –V/3A	Deluge system hydraulic calculation for the recirc MG set area
CA-04-134	Evaluation fire barrier FZ 4900 located between Fire Areas/Fire Zones IX/12A and XII/14A	Analyzes the fire barrier FZ 4900 located in the southwest corner of the upper 4KV switchgear room.
CA-04-160	Evaluation of fire detector locations in the reactor building, FA/FZ – II/3D	Analyzes the acceptability of fire detection system devices in the reactor building.
CA-04-182	NFPA 30 flammable and combustible liquids code evaluation.	Analyzes the storage and handling of flammable and combustible liquids in the plant.
CA-04-204	NFPA 10 installation of portable fire extinguishers code evaluation.	Analyzes the installation of portable fire extinguishers in the plant.
CA-04-205	NFPA 14 installation of standpipe and hose systems code evaluation.	Analyzes the installation of standpipe and hose systems in the plant.
CA-05-084	Combustible loading calculation.	Documents the combustible loading in each fire zone.
CA-14-017	Hydraulic calculation for Turbine Lube oil Deluge and FW Pump Hatch sprinkler curtain	Sprinkler calculation for Lube oil Deluge system and FW pump hatch sprinkler system.
EC 16471	Fire Pump Setpoint Change	Evaluates lack of diesel fire pump sequential timer
CR 02004912	Fire Detection Code review of Fire Zones 12A, Turbine Bldg 911' Elev – Div. I 4KV Swgr Room and 14A, Turbine Bldg 931' Elev – Div II Swgr Room, Indicates Modification Required	Indicates modification required due to NRC concerns with NFPA code compliance.
CR 02007029	Fire Detection Code Review of Fire Zone 8, Cable Spreading Room Indicates Compliance and Lack of Need for Fire Watches	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.
CR 02007513	Fire Detection Code Review of Fire Zone 2G, East Shutdown Cooling, Indicates Compliance and Doesn't Require Fire Watch	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.
CR 02007520	Fire Detection Code Review of Fire Zone 2H, West Shutdown Cooling, Indicates Compliance and Doesn't Require Fire Watch	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.
CR 02007991	Fire Detection Code Review of Fire Zone 17, TB 941' Cable Corridor, Indicates Compliance and Doesn't Require Fire Watch	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.

DOCUMENT	TITLE	SUMMARY DESCRIPTION
CR 02007993	Fire Detection Code review of Fire Zone 4D, SBTG Room Indicates Compliance and Does Not Require Fire Watch	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.
CR02008132	Fire Detection Code review of Fire Zone 13C, MCC 133 Area – Turbine Bldg 911' Elev, Indicates Modification Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates modification required.
CR02008166	Fire Detection Code review of Fire Zone 20, Heating Boiler Room, Indicates Compliance and Does Not Require a Fire Watch	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.
CR 02008194	Fire Detection Code Review of Fire Zone 19C, TB 931' FW Pipe Chase, Indicates Compliance and Does Not Require Fire Watch	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.
CR 02008321	Fire Detection Code review of Fire Zone 3C, Rx Bldg 962' Ele South, Indicates Compliance and Does Not Require Fire Watch	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.
CR 02008327	Fire Detection Code review of Fire Zone 3D, Rx Bldg 962' Elev – SBLC Area, Indicates Modification Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates modification required.
CR 02008344	Fire Detection Code review of Fire Zone 7A, Div. I 125V Battery Room – Admin Bldg Elev 928', Indicates Alteration Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates alteration required.
CR 02008349	Fire Detection Code review of Fire Zone 7B, Div. I 250V Battery Room – Admin Bldg Elev 928', Indicates Alteration Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates alteration required.
CR 02008354	Fire Detection Code review of Fire Zone 7C, Div. II 125V Battery Room – Admin Bldg Elev 928', Indicates Alteration Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates alteration required.
CR 02008444	Fire Detection Code review of Fire Zone 2B, Rx Bldg 935' Elev – CRD HCU Area East, Indicates Modification Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates modification required.
CR 02008450	Fire Detection Code review of Fire Zone 2C, Rx Bldg 935' Elev – CRD HCU Area West, Indicates Modification Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates modification required.

DOCUMENT	TITLE	SUMMARY DESCRIPTION
CR 02008625	Fire Detection Code review of Fire Zone 16, Turbine Bldg 931' Elev – Cable Corridor, Indicates Modification Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates modification required.
CR 02008632	Fire Detection Code review of Fire Zone 19A, Turbine Bldg 931' Elev – Water Treatment Area, Indicates Modification Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates modification required.
CR 02008636	Fire Detection Code review of Fire Zone 19B, Turbine Bldg 931' Elev – MCC 142-143 Area, Indicates Modification Required	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR. Review indicates modification required.
CR 02008886	Fire Detection Code Review of Fire Zone 23A, Intake Structure, Indicates Compliance	Evaluates detection system design against the NFPA code of record. Code review checklist attached to CR.
EE-86-030	Dike to Prevent Flammable Liquids From Flowing From #11 Emergency Diesel Generator Room to #12 Emergency Diesel Generator Room	Determines the size sill required under fire door #10 separating the fire areas.
EE-86-061	Fire Door Installation – Hot Machine Shop	Provides for replacement of non-rated entry double-door from Zone 19A with installation of 3-hr rated fire doors.
EE-86-065	Fire Hose Station – Pressure Reducing Orifices	Determines which interior hose stations require pressure reducing orifices.
FPEE-13-004	Acceptability of the one way Procrete on steel wall separating Fire Zones 12A and 12B to be qualified as one hour fire barrier.	This evaluation describes the acceptability of the one way Procrete on steel wall separating Fire Zones 12A and 12B to be qualified as one hour fire barrier.
FPEE-013-005	Evaluate the acceptability of Door 15 as a fire rated door.	This evaluation describes the acceptability of Door 15 as a rated fire door.
FPEE-013-009	Combustible Limit Changed Without Formal Documentation.	Evaluates the acceptability of changes to the combustible loading of Fire Zone 17.
FPEE-15-001	11 EDG Room, Division II Trench Fire Barrier	Assesses the acceptability of the fire barrier separating the 11 EDG Room (Division I) and the Division II trench running through this room.

01466886

Attachment E

**FIRE AREA / FIRE ZONE to CALCULATION / EVALUATION
CROSS REFERENCE INDEX**

FIRE ZONE	FIRE AREA	DESCRIPTION	DOCUMENT #
1A	II	RHR and Core Spray Pump Room, Division II, Reactor Bldg., Elev. 896'-3"	CA-02-157
1B	I	RHR & Core Spray Pump Room, Division I, Reactor Bldg., Elev. 896'-3"	CA-02-158
1C	III	RCIC Room, Reactor Bldg., Elev. 896'-3"	CA-02-156
1D	II	Reactor Bldg EI 896' Equipment and Floor Drain Tank, Reactor Bldg., Elev. 896'-3"	
1E	II	HPCI Room, Reactor Bldg., Elev. 896'-3"	CA-02-159
1F	IV	Suppression Pool Area, Reactor Bldg., Elev. 896'-3"	CA-97-281 CA-02-100 CA-02-104 CA-02-117
1G	II	CRD Pump Room, Reactor Bldg., Elev. 923'	
1H	I	RCIC Room Appendix R Cable Enclosure	
2A	III	TIP Drive Room, Reactor Bldg., Elev. 935'	CA-02-173
2B	I	CRD Hydraulic Control Unit Area, Reactor Bldg., Elev. 935'	CA-02-104 CR 02008444
2C	II	CRD Hydraulic Control Unit Area and HVAC Areas, Reactor Bldg., Elev. 935'	CA-97-281 CA-02-110 CR 02008450
2D	I	Reactor Building Railroad Car Shelter, Elev. 935'	
2E	I	TIP Room, Reactor Bldg., Elev. 935'	
2F	II	Steam Chase, Reactor Bldg., Elev. 935'	CA-02-110
2G	I	RHR Valve Room East, Reactor Bldg., Elev. 935'	CR 02007513
2H	II	RHR Valve Room West, Reactor Bldg., Elev. 935'	CR 02007520
3A	V	Reactor Recirc Pumps M-G Set Room, Reactor Bldg., Elev. 962'-6"	CA-03-161 CA-04-116
3B	I	MCC and SLC Area, Reactor Bldg, Elev. 926'-6"	CA-02-109 CA-02-172
3C	II	MCC Area, Reactor Bldg., Elev. 962'-6"	CA-02-109 CR 02008321
3D	II	Cooling Water Pump and Chiller Area, Reactor Bldg., Elev. 962'-6"	CA-97-281 CA-02-109 CA-04-160 CR 02008327
3E	I	Reactor Bldg, Elev. 962'-6"	CA-02-109
4A	I	Equipment Hatch Area, Reactor Bldg., Elev. 985'-6"	CA-02-109 CA-02-171
4B	I	Cooling Water Heat Exchanger Area, Reactor Bldg., Elev. 985'-6"	CA-97-281 CA-02-109 CA-02-171
4C	I	Corridor Outside Main Exhaust Plenum, Reactor Bldg., Elev. 985'-6"	CA-02-109
4D	I	Standby Gas Treatment System Room, Reactor Bldg., Elev. 985'-6"	CA-02-108 CA-02-109 CR 02007993
4E	I	Reactor Plenum Room, Reactor Bldg., Elev. 985'-6"	CA-02-109 CA-02-112
5A	I	Laydown and Decontamination Area, Reactor Bldg., Elev. 1001'-2"	CA-97-281 CA-02-155

FIRE ZONE	FIRE AREA	DESCRIPTION	DOCUMENT #
5B	I	Contaminated Equipment Storage Area, Reactor Bldg., Elev. 1001'-2"	CA-02-155
5C	I	Skimmer Surge Tank Area, Reactor Bldg., Elev. 1001'-2"	CA-02-118
6	I	Refueling Floor, Reactor Bldg., Elev. 1027'-8"	CA-97-281 CA-02-116
7A	VI	Battery Room, D-1 and D-5, Admin. Bldg., Elev. 928'	CA-02-114 CR 02008344
7B	VI	Battery Room, D-3, Admin. Bldg., Elev. 928'	CA-02-114 CR 02008349
7C	VII	Battery Room, D-2 and D-4, Admin. Bldg., Elev. 928'	CA-02-114 CR 02008354
8	VI	Cable Spreading Room, Admin. Bldg., Elev. 939'	CA-02-114 CA-02-174 CA-03-201 CR 02007129
9	VIII	Control Room, Admin. Bldg., Elev. 951'	
10	VI	Admin Bldg Excluding Battery Rooms, Cable Spreading Room, Control Room and HVAC Room, Admin. Bldg., Elev's. 928', 939', 951', 965'	CA-02-114
11	VI	Admin Bldg HVAC and Addition, Admin. Bldg., Elev. 965'	
12A	IX	Turbine Bldg Load Center No. 1, Lower Switchgear Room, Turbine Bldg., Elev. 911'	CA-02-101 CA-02-105 CA-02-106 CR 02004912
12B	X	Hydrogen Seal Oil Unit & Condensate Pump Area, Turbine Bldg., Elev. 911'	CA-97-281 CA-02-106
12C	X	Turbine Basement Condenser Area, Turbine Bldg., Elev. 911'	CA-97-281 CA-02-106 CA-02-112 CA-03-113 CA-03-114
12D	X	Clean Radwaste Sump Area, Turbine Bldg., Elev's. 911', 931'	
12E	X	Air Ejector Room, Turbine Bldg., Elev. 911'	CA-02-101
13A	IX	Lube Oil Storage Tank Room, Turbine Bldg., Elev. 911'	CA-02-134 CA-03-121
13B	IX	Lube Oil Reservoir and Reactor Feed Pump Area, Turbine Bldg., Elev's. 911', 931'	CA-02-103 CA-02-105 CA-02-123 CA-02-187 CA-03-188 CA-14-017
13C	IX	ESF Motor Control Center, Turbine Bldg., Elev. 911'	CA-97-281 CA-02-103 CR 02008132
14A	XII	Turbine Bldg Load Center No. 2, Upper Switchgear Room Turbine Bldg., Elev. 931'	CA-02-102 CA-02-105 CA-02-106 CA-02-111 CR 02004912
14B	X	Valve Operating Gallery Turbine Bldg., Elev. 931'	CA-02-106 CA-02-111

FIRE ZONE	FIRE AREA	DESCRIPTION	DOCUMENT #
14C	X	Turbine Bldg Railroad Car Shelter Turbine Bldg., Elev. 931'	CA-97-281 CA-02-102 CA-02-106
15A	XIII	Diesel Generator Room Turbine Bldg., Elev. 931'	EE-86-030 CA-89-558 CA-02-102 CA-02-170 CA-03-193
15B	XIV	Diesel Generator Room Turbine Bldg., Elev. 931'	EE-86-030 CA-89-558 CA-02-102 CA-02-105 CA-02-106 CA-02-170 CA-03-193
15C	XV	Day Tank Room Turbine Bldg., Elev. 931'	CA-89-558 CA-02-105 CA-02-113 CA-02-170 CA-03-147 CA-03-193
15D	XVI	Day Tank Room Turbine Bldg., Elev. 931'	CA-89-558 CA-02-105 CA-02-113 CA-02-170 CA-03-147 CA-03-193
15E	XI	Diesel Fuel Oil Pump House	
16	IX	Turbine Bldg Corridor/Cable Way, Turbine Bldg., Elev. 911'	EE-86-061 CA-02-105 CA-02-106 CA-02-111 CR 02008625
17	XII	Turbine Bldg Corridor/Cable Way Turbine Bldg., Elev. 941'	CA-02-103 CA-02-105 CA-02-111 CR 02007991
18A	XXIV	13.8 kV Switchgear Room Turbine Bldg., Elev. 931'	EE-86-061 CA-02-103 CA-02-105 CA-02-111
18B	XXIV	13.8 kV Switchgear Room Turbine Bldg., Elev. 931'	CA-02-105
19A	XII	Water Treatment Area Turbine Bldg., Elev. 931'	EE-86-061 CA-02-103 CA-02-105 CR 02008632
19B	XII	ESF Motor Control Center Turbine Bldg., Elev. 931'	CA-02-103 CA-02-105 CR 02008636
19C	IX	Pipe and Cable Tray Penetration Area, Turbine Bldg., Elev. 931'	CA-02-114 CR 02008194
20	XXIV	Auxiliary Boiler Room Turbine Bldg., Elev. 931'	CA-02-105 CR 02008166

FIRE ZONE	FIRE AREA	DESCRIPTION	DOCUMENT #
21A	I	Radwaste Control Room, Radwaste Bldg., Elev. 935'	
21B	I	Baler and Dry Waste Storage Area, Radwaste Bldg., Elev. 935'	
21C	I	Rad Waste Shipping, Radwaste Bldg., Elev. 935'	
21D	I	Rad Waste Upper Levels and High/Low Level Rad Storage Area, Radwaste Bldg., Elev's. 935', 947', 962'-6", 985'-6"	CA-02-100 CA-02-109
22	X	Recombiner Bldg Turbine Bldg., Elev. 931'	CA-02-102
23A	IX	Intake Structure Pump Room, Elev. 934'	CA-03-120 CR 02008886 FPEE-05-001
23B	IX	Intake Structure Corridor/Tunnel, Elev. 916'-4"	
24	XXIII	Diesel Fire Pump Room, Intake Structure, Elev. 934'	
25	XVII	Discharge Structure Pump Room, Intake Structure, Elev. 934'	
26	XVIII	Offgas Stack	
27	XVIII	Offgas Retention Bldg	
28A	XIX	Guard House	
28B	XIX	Security Access Facility	
29	XX	Security Diesel Bldg	
30	X	Main Turbine Operating Floor Turbine Bldg., Elev. 951'	CA-97-281 CA-02-102 CA-02-103 CA-02-105 CA-02-108 CA-02-110 CA-02-111
31A	XXI	EFT Bldg First Floor, Division I, Elev. 928'	CA-97-281 CA-02-107 CA-02-115
31B	XXII	EFT Bldg First Floor, Division II, Elev. 928'	CA-02-107 CA-02-115
32A	XXI	EFT Bldg Second Floor, Division I, Elev. 939' EFT Bldg Third Floor Ladder Enclosure, Division I, Elev. 951'	CA-97-281 CA-02-107 CA-02-115
32B	XXII	EFT Bldg First Floor, Division II, Elev. 939'	CA-02-107 CA-02-115
33	XXII	EFT Bldg Third Floor, Elev. 951', Cable Tunnel, Elev. 951', and Exterior Duct Bank, Division II	CA-02-107 CA-02-115
34	XXIV	Non-IE Electrical Equipment Room, Elev. 931'	CA-02-105
35	XXIV	Diesel Generator No. 13 Room, Elev. 931'	
36	XXIV	Diesel Generator No. 13 Day Tank Room, Elev. 931'	
37	XXV	Main, 1R and 2R Transformers, Elev. 931'	CA-02-102 CA-02-103
38	XXVI	Cooling Towers	
39	IX	Turbine Bldg Addition Turbine Bldg., Elev. 931'	CA-02-105 CA-02-106
40	IX	Screen House, Elev. 919'	
41	IX	Sodium Hypochloride House, Elev. 934'	

FIRE ZONE	FIRE AREA	DESCRIPTION	DOCUMENT #
42	X	CO ₂ and H ₂ Storage House	
43	XXIV	CAB/Scaffold Storage Area	
ALL	ALL	ALL	EE-86-065 CA-96-167 CA-05-084
N/A	XXV (Non-Transformer)	Yard Areas Excluding Transformers, Elev. 931'	CA-02-105