July 29, 2002

EA 02-157

Mr. J. Forbes
Site Vice-President
Monticello Nuclear Generating Plant
Nuclear Management Company, LLC
2807 West County Road 75
Monticello, MN 55362-9637

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT
NRC INSPECTION REPORT 50-263/02-11(DRS)

Dear Mr. Forbes:

On June 21, 2002, the NRC completed an inspection at your Monticello Nuclear Plant facility. The enclosed report documents the inspection findings which were discussed on June 21, 2002, with you and members of your staff.

The inspection examined the effectiveness of activities conducted under your license as they related to implementation of your NRC approved Fire Protection Program. The inspection consisted of a selected examination of design drawings, calculations, analyses, procedures, audits, field walkdowns, and interviews with personnel.

Based on the results of this inspection, the inspectors identified six issues of very low safety significance (Green). One of the issues, involving a failure to perform safety evaluations for changes to the fire protection program, was also characterized as a Severity Level IV violation. Each of these issues was determined to involve a violation of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating these issues as Non-Cited Violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these Non-Cited Violations, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Monticello Nuclear Plant facility.

In accordance with 10 CFR Part 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Zelig Falevits, Acting Chief
Electrical Engineering Branch
Division of Reactor Safety

Docket No. 50-263
License No. DPR-22

Enclosure: Inspection Report 50-263/02-11(DRS)

cc w/encl: J. Purkis, Plant Manager
R. Anderson, Executive Vice President
and Chief Nuclear Officer
Nuclear Asset Manager
Site Licensing Manager
Commissioner, Minnesota Department of Health
J. Silberg, Esquire
Shaw, Pittman, Potts, and Trowbridge
R. Nelson, President
Minnesota Environmental Control Citizens
Association (MECCA)
Commissioner, Minnesota Pollution Control Agency
D. Gruber, Auditor/Treasurer
Wright County Government Center
Commissioner, Minnesota Department of Commerce
P. Marker, Office of Attorney General

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-263
License No:	DPR-22
Report No:	50-263/02-11(DRS)
Licensee:	Nuclear Management Company, LLC
Facility:	Monticello Nuclear Generating Plant
Location:	2807 West Highway 75 Monticello, MN 55362
Dates:	June 3 through 21, 2002
Inspectors:	K. O'Brien, Senior Reactor Engineer D. Chyu, Reactor Engineer R. Daley, Reactor Engineer
Approved by:	Zelig Falevits, Acting Chief Electrical Engineering Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000263/02-11(DRS); on 6/3-21/2002; Nuclear Management Company, LLC; Monticello Nuclear Generating Plant; Fire Protection Triennial.

The inspection was conducted by a team of three Region III inspectors. The inspection identified six Non-Cited Violations (NCVs). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Findings

Cornerstone: Mitigating Systems

Green. The inspectors identified a NCV of 10 CFR Part 50, Appendix R, Section III.G.2 associated with a failure to protect redundant trains of equipment and cabling in the intake structure area. Specifically, the inspectors identified the presence of intervening combustible between two trains of Emergency Service Water (ESW) system. The two trains were separated by more than 20 feet and the fire area contained detection and suppression capabilities.

This finding was determined to be more than minor because it affected the mitigating system cornerstone objective. This finding was evaluated using the SDP and determined to be Green. Because the finding was of very low safety significance, and was captured in the licensee's corrective action system, this finding is being treated as a NCV consistent with Section VI.A.1 of the NRC Enforcement Policy (Section 1R05.02).

Green. The inspectors identified a NCV of 10 CFR Part 50, Appendix B, Criterion V associated with a failure to ensure that some operations procedures were appropriate to the circumstances. Specifically, the inspectors determined that some operations procedures did not clearly identify the minimum set of actions necessary to ensure a safe shutdown of the reactor, following a fire, and ensure that adequate emergency lighting and communications were available to support those operator actions.

This finding was determined to be more than minor because it could reasonably be viewed as a precursor to a significant event where required operator actions may not be accomplished in a timely manner due to inadequate operations procedures, and a lack of emergency lights and radios. Using the IMC 0609, Appendix F, this finding is characterized as Green because it did not affect detection, manual suppression capability, automatic suppression capability, fire barriers, or 20-foot separation (Section 1R05.05).

Green. The inspectors identified a NCV of 10 CFR 50.48 associated with inadequate fire detection capabilities in serval fire areas. Specifically, the inspectors identified inadequate number and spacing of smoke detectors in two 4160-volt switchgear rooms

and inadequate number and spacing of heat activated detectors in the reactor feed pump (RFP) area.

This finding was determined to be more than minor because it could reasonably be viewed as a precursor to a significant event where a delay in fire detection in safety related switchgear and RFP areas could result in a more severe fire and render more equipment inoperable. In addition, the finding affected the mitigating system cornerstone objective in that the necessary number of detectors were needed to ensure the reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences. Since the finding did not affect the 3-hour fire barrier separating redundant safe shutdown functions (IMC 0609, Appendix F, Figure 4-5), this finding was characterized as Green (Section 1R05.10).

Green. The inspectors identified a NCV of 10 CFR 50.48 associated with inadequate fire suppression capabilities in several fire zones. Specifically, the inspectors determined that the sprinkler systems in fire zones 13A and 13B did not provide complete coverage of the areas.

This finding was determined to be more than minor because it can be reasonably viewed as a precursor to a significant event where an uncontrolled fire in these areas could spread and potentially cause damage to the redundant trains of safe shutdown equipment in other fire zones. Since the finding did not affect the 3-hour fire barrier separating redundant safe shutdown functions (IMC 0609, Appendix F, Figure 4-5), this finding is Green (Section 1R05.10).

Cross-Cutting Issues: Problem Identification and Corrective Action and Human Performance

Green. The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, associated with a failure to document conditions adverse to quality in the corrective action program and a failure to resolve several fire protection-related conditions adverse to quality entered into the corrective action program. Specifically, some findings, developed as a part of an internal self-assessment, were not entered into the corrective action program and other conditions adverse to quality, associated with transfer of fire protection requirements out of the Technical Specifications and inspection findings, were not corrected.

This finding is more than minor because if left uncorrected, the finding would become a more significant safety concern. Failure to enter fire protection non-compliance items and failure to resolve the items entered into the corrective actions program could potentially affect the availability, reliability, and capability of fire protection safe shutdown equipment and response efforts. This finding is not suitable for SDP analysis. However, the inspectors determined that this finding was of very low significance (Green) because each associated performance deficiency, identified during this inspection, was of very low significance. Therefore, the finding was characterized as Green (Section 4OA2).

Green. The inspectors identified a Severity Level IV NCV of 10 CFR 50.59 associated

with a failure to control and maintain changes made to the fire protection program (FPP) since 1984.

Because violations of 10 CFR 50.59 are considered to be violations that could potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the SDP. Since the SDP is not designed to assess the significance of violations that could potentially impact or impede the regulatory process, the "results of a 10 CFR 50.59 violation" are assessed using the SDP and the severity level of the 10 CFR 50.59 violation is then based on this significance determination. In this case, the licensee's failure to control and evaluate changes to components of the FPP resulted in the implementation of the program in a manner different then approved by the NRC, as documented in relevant Safety Evaluation Reports (SERs). Examples of these differences are presented in other sections of this report.

The inspectors concluded that the issue had a credible impact on safety because the licensee's failure to control and evaluate changes to the FPP could adversely affect the reliability, capability, and availability of safe shutdown capabilities, as discussed in the other sections of this report. However, based upon a review of the current plant configuration and an assessment of the impacts of the examples discussed in this report, the inspectors determined that the licensee's failure to properly control and evaluate changes to be of very low safety significance. Therefore, the issue was determined to be of very low safety significance, i.e., a Green finding (Section 4OA4).

Report Details

Summary of Plant Status

The plant operated at or near full power throughout the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events and Mitigating Systems

1R05 Fire Protection (71111.05)

The purpose of this inspection was to review the Monticello Nuclear Plant FPP for selected risk-significant fire areas. Emphasis was placed on verifying that the post-fire safe shutdown capability and the fire protection features were maintained free of fire damage to ensure that at least one post-fire safe shutdown success path was available. The inspection was performed in accordance with the NRC regulatory oversight process using a risk-informed approach for selecting the fire areas and attributes to be inspected. The lead inspector used the Monticello Individual Plant Examination for External Events (IPEEE) to choose several risk-significant areas for detailed inspection and review. The fire areas chosen for review during this inspection were:

• Fire Area VI	Fire Zone 8, Cable Spreading Room
• Fire Area IX	Fire Zone 12A, Turbine Building Load Center No. 1
	Fire Zone 13A, Lube Oil Storage Room
	Fire Zone 13B, Lube Oil Reservoir & RFP Area
	Fire Zone 13C, ESF Motor Control Center
• Fire Area XII	Fire Zone 17, Turbine Building Corridor
	Fire Zone 19A, Water Treatment Area
	Fire Zone 19B, ESF Motor Control Center

For each of these fire areas, the inspection was focused on the fire protection features, the systems and equipment necessary to achieve and maintain safe shutdown conditions, determination of license commitments, and changes to the fire protection program.

.01 Systems Required to Achieve and Maintain Post-Fire Safe Shutdown

Section III.G.1 of 10 CFR Part 50, Appendix R required the licensee to provide fire protection features that were capable of limiting fire damage to structures, systems, and components important to safe shutdown. The structures, systems, and components that were necessary to achieve and maintain post-fire safe shutdown were required to be protected by fire protection features that were capable of limiting fire damage to the structures, systems, and components so that:

- One train of systems necessary to achieve and maintain hot shutdown conditions

from either the control room or emergency control station(s) was free of fire damage; and

- Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) could be repaired within 72 hours.

Specific design features for ensuring this capability were specified by 10 CFR Part 50, Appendix R, Section III.G.2.

a. Inspection Scope

The inspectors reviewed the plant systems required to achieve and maintain post-fire safe shutdown to determine if the licensee had properly identified the components and systems necessary to achieve and maintain safe shutdown conditions for each fire zone selected for review. Specifically, the review was performed to determine the adequacy of the systems selected for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and support system functions. This review included the fire protection safe shutdown analysis (SSA).

The inspectors also reviewed the operators' ability to perform the necessary manual actions for achieving safe shutdown including a review of procedures, accessibility of safe shutdown equipment, and the available time for performing the actions.

The inspectors reviewed the updated final safety analysis report and the licensee's engineering and/or licensing justifications (e.g., NRC guidance documents, license amendments, technical specifications, SERs, exemptions, and deviations) to determine the licensing basis.

b. Findings

No findings of significance were identified.

.02 Fire Protection of Safe Shutdown Capability

Section III.G.2 of 10 CFR Part 50, Appendix R required separation of cables and equipment and associated circuits of redundant trains by a fire barrier having a three hour rating. If the requirements cannot be met, then alternative or dedicated shutdown capability and its associated circuits, independent of cables, systems or components in the area, room, or zone under consideration should be provided (Section III. G.3).

a. Inspection Scope

For each of the selected fire areas, the inspectors reviewed the licensee's SSA to ensure that at least one post-fire safe shutdown success path was available in the event of a fire. This included a review of manual actions required to achieve and maintain hot shutdown conditions and make the necessary repairs to reach cold shutdown within 72 hours. The inspectors also reviewed procedures to verify that adequate direction was provided to operators to perform these manual actions. Factors, such as timing, access to the equipment, and the availability of procedures, were considered in the review. The inspectors also evaluated the adequacy of fire suppression and detection systems, fire area barriers, penetration seals, and fire doors to ensure that at least one train of

safe shutdown equipment was free of fire damage. To do this, the inspectors observed the material condition and configuration of the installed fire detection and suppression systems, fire barriers, and construction details and supporting fire tests for the installed fire barriers. In addition, the inspectors reviewed license documentation, such as deviations, detector placement drawings, fire hose station drawings, carbon dioxide pre-operational test reports, smoke removal plans, fire hazard analysis reports, safe shutdown analyses, and National Fire Protection Association (NFPA) codes to verify that the fire barrier installations met license commitments.

b. Findings

(1) Introduction

The inspectors identified a Green NCV for a failure to meet the requirements contained in 10 CFR Part 50 Appendix R, Section III.G.2 regarding the separation of redundant trains of safe shutdown equipment and the presence of intervening combustibles.

(2) Description

Fire Zone 12A contained redundant ESW pumps and redundant ESW cabling. This equipment and cabling were separated by a distance of more than 20 feet, and fire detection and an automatic fire suppression system were installed in the area. However, intervening combustibles existed between the redundant cabling and equipment. Consequently, while the majority of the requirements in 10 CFR Part 50 Appendix R, Section III.G.2.b, were complied with, the rule, in its entirety, was not met.

(3) Analysis

This finding was determined to be more than minor because it affected the mitigating system cornerstone objective. The requirement to have at least 20-foot separation with no intervening combustibles between redundant trains of safe shutdown equipment was to ensure the availability and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding using IMC 0609, Appendix F. The finding affected the 20-foot separation, one of the defense-in-depth elements. Consequently, the finding met the criteria of Phase 1, Step 1 (IMC 0609, Appendix F, Figure 4-1). Since there was intervening combustibles located in the combustible-free zone, a Phase 2 evaluation was performed to determined the risk significance of this finding.

The inspectors toured the areas and determined that there were electrical cabinets which could ignite the intervening cable trays in the overhead and propagate fire to both redundant trains of ESW system. The inspectors used the ignition frequencies of 2.4E-3 per reactor year for all of the electrical cabinets in the intake structure as referenced in the licensee's IPEEE ($\log_{10}$(IF)= -2.62). The use of this number was conservative because the ignition frequency was for all electrical cabinets in the intake structure and not prorated for only the electrical cabinets affecting the intervening cable trays. There were no fire barriers between the redundant trains of cables and the 20-foot separation was degraded (FB=0). The automatic fire suppression and manual fire fighting capabilities were assumed to be in normal operating states because no finding was

identified within these capabilities (AS= -1.25; MS= -1). Since the exposure time for the degraded condition existed more than 30 days, the estimated likelihood rating for the postulated fire event was determined to be 1E-5 per reactor year.

The inspectors also reviewed the cables in the intervening cable trays and determined that a fire associated with the intervening cable trays would cause a loss of power conversion systems since many cables were associated with the circulating water system. In addition, a fire in the intervening cable trays could cause direct damage to the cabling for essential service water (ESW) A and B pumps. These pumps were required to support the operation of the emergency diesel generators (EDGs). However, in this case, the EDGs were not needed, because a fire in the intake structure would not cause a loss of offsite power. Therefore, two SDP worksheets, Transients and Transients without Power Conversion System, were used to evaluate the finding. Other redundant safe shutdown equipment would remain available to mitigate the consequences of a fire in the intervening cable trays in that area. Based upon the inspection team's evaluation of the Fire Protection SDP using these inputs, the finding was determined to be Green.

(4) Enforcement

Section III.G.2 of 10 CFR Part 50, Appendix R stated, in part, that where cables or equipment, 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 shutdown conditions are located within the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;

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 combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or

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.

Contrary to the above, Fire Zone 12A, Intake Structure Pump Room, contained redundant safe shutdown equipment that were not separated by any of these three options. This failure to meet the separation criteria for redundant cabling and equipment in Fire Zone 12A, Intake Structure Pump Room, is a violation of the requirements in 10 CFR Part 50 Appendix R, Section III.G.2. Because the licensee entered the finding into the corrective action program as Condition Report (CR) 2002-5645, this violation is

being treated as a NCV in accordance with Section VI.A.1 of the NRC's Enforcement Policy (NCV 50-263/02-11-01).

.03 Post-Fire Safe Shutdown Circuit Analysis

Section III.G.1 of 10 CFR Part 50, Appendix R required, in part, that structures, systems, and components important to safe shutdown be provided with fire protection features capable of limiting fire damage to ensure that one train of systems necessary to achieve and maintain hot shutdown conditions remained free of fire damage. Options for providing this level of fire protection were delineated in 10 CFR Part 50, Appendix R, Section III.G.2. Where the protection of systems whose function was required for hot shutdown did not satisfy 10 CFR Part 50, Appendix R, Section III.G.2, an alternative or dedicated shutdown capability and its associated circuits, was required to be provided that was independent of the cables, systems, and components in the area. For such areas, 10 CFR Part 50, Appendix R, Section III.L.3, specifically required the alternative or dedicated shutdown capability to be physically and electrically independent of the specific fire areas and capable of accommodating post-fire conditions where offsite power was available and where offsite power was not available for 72 hours.

a. Inspection Scope

On a sample basis, the inspectors investigated the adequacy of separation provided for the power and control cabling of redundant trains of shutdown equipment. This investigation focused on the cabling of selected components in systems important for safe shutdown. The inspectors' review also included a sampling of components whose inadvertent operation due to fire may adversely affect post-fire safe shutdown capability. The purpose of this review was to determine if a single exposure fire, in one of the fire areas selected for this inspection, could prevent the proper operation of both safe shutdown trains.

b. Findings

No findings of significance were identified.

.04 Alternative Safe Shutdown Capability

Section III.G.1 of 10 CFR Part 50, Appendix R, required, in part, that structures, systems, and components important to safe shutdown be provided with fire protection features capable of limiting fire damage to ensure that one train of systems necessary to achieve and maintain hot shutdown conditions remained free of fire damage. Options for providing this level of fire protection were delineated in 10 CFR Part 50, Appendix R, Section III.G.2. Where the protection of systems whose function was required for hot shutdown did not satisfy 10 CFR Part 50, Appendix R, Section III.G.2, an alternative or dedicated shutdown capability independent of the area under consideration was required to be provided. Additionally, alternative or dedicated shutdown capability must be able to achieve and maintain hot standby conditions and achieve cold shutdown conditions within 72 hours and maintain cold shutdown conditions thereafter. During the post-fire safe shutdown, the reactor coolant process variables must remain within those predicted for a loss of normal alternating current (AC) power, and the fission product

boundary integrity must not be affected (i.e., no fuel clad damage, rupture of any primary coolant boundary, or rupture of the containment boundary).

a. Inspection Scope

The inspectors reviewed the licensee's systems required to achieve alternative safe shutdown to determine if the licensee had properly identified the components and systems necessary to achieve and maintain safe shutdown conditions. The inspectors also focused on the adequacy of the systems to perform reactor pressure control, reactivity control, reactor coolant makeup, decay heat removal, process monitoring, and support system functions.

b. Findings

One finding of significance was identified and is discussed in Section 1R05.05.b(2).

.05 Operational Implementation of Alternative Shutdown Capability

Section III.L.2.d of 10 CFR Part 50, Appendix R, required that the process monitoring function should be capable of providing direct readings of the process variables necessary to perform and control the functions necessary to achieve reactivity control, reactor coolant makeup, and decay heat removal.

a. Inspection Scope

The inspectors performed a review and walkdown of a sample of the actions defined in procedures C.4-B.8.5.A, "Plant Fire," and C.4-C, "Shutdown Outside the Control Room." The procedures, in part, defined the licensee's course of action for responding to plant fires, and, if necessary, shutting down the reactor from either the control room or the alternate shutdown panel. The inspectors verified that operators could reasonably be expected to perform the procedure actions, and that necessary emergency communications and lighting were identified and available.

b. Findings

(1) Introduction

The inspectors identified a Green, Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V associated with operations procedures which did not ensure adequate emergency lighting, communications, or identification of minimal set of operator actions necessary for a proper response.

(2) Description

The inspectors determined that the licensee's procedures for ensuring a safe shutdown of the reactor following a fire, from either the control room or the dedicated shutdown panel, were not appropriate to the circumstances. Specifically, the inspectors noted that the procedures: 1) directed numerous non-control room and non-alternate shutdown panel activities, which were neither identified as optional activities nor which were

supported by identified emergency lighting and communication capabilities; 2) relied, in part, on the use of portable radios and emergency lighting, though measures were not included to ensure that these items were available to all staff; and 3) assumed a transitioning of the reactor to a cold shutdown status within approximately five hours, for some fire scenarios, without directing the assumed actions.

(3) Analysis

The inspectors determined that the finding affected the Reactor Safety Cornerstone and the reliability, capability, and availability of safe shutdown systems relied upon in respond to a fire initiating event. The finding was determined to be more than minor because the failure to identify those minimal set of operator actions necessary to ensure the operator's ability to safely shutdown the reactor, following a fire, could result in the operator not: 1) completing the necessary actions in a timely manner, and 2) having the emergency lighting and communications necessary to complete the required actions. Using the IMC 0609, Appendix F, the finding was determined to be Green because the finding did not directly affect detection, manual suppression capability, automatic suppression capability, fire barriers, or 20-foot separation defense in depth features.

(4) Enforcement

Criterion V of 10 CFR Part 50, Appendix B required, in part, that activities affecting quality should be conducted in accordance with written and approved procedures appropriate to the circumstances. Contrary to the above, as of June 21, 2002, the licensee's procedures for responding to a plant fire, were not appropriate to the circumstances. Specifically, plant procedures C.4-B.8.5.A, "Plant Fire," and C.4-C, "Shutdown Outside the Control Room" and other related procedures: 1) directed numerous non-control room and non-alternate shutdown panel activities, which were neither identified as optional activities nor were supported by identified emergency lighting and communication capabilities; 2) relied, in part, on the use of portable radios and portable emergency lighting, though measures were not included to ensure that these items were available to and used by all staff; and 3) assumed a transitioning of the reactor to a cold shutdown status within approximately 5 hours, for some fire scenarios, without directing the assumed actions. The licensee documented the finding in their corrective action system through CRs 2002-5298 and 5351. In addition, the licensee also issued instructions to the operators to ensure their understanding of the time limits associated with fire response activities and necessary fire protection equipment and communications. Because the licensee entered the finding into the corrective action program, this violation is being treated as a NCV in accordance with Section VI.A.1 of the NRC's Enforcement Policy (NCV 50-263/02-11-02).

.06 Communications

For a fire in an alternative shutdown fire area such as the cable spreading room, control room evacuation is required and a shutdown is performed from outside the control room. Radio communications are relied upon to coordinate the shutdown of the unit and for fire fighting and security operations. Section III.H of 10 CFR Part 50, Appendix R, required

that equipment provided for the fire brigade include emergency communications equipment.

a. Inspection Scope

The inspectors reviewed the adequacy of the communication system to support plant personnel in the performance of alternative safe shutdown functions and fire brigade duties.

b. Findings

One finding of significance was identified and is discussed in Section 1R05.05.b(2).

.07 Emergency Lighting

Section III.J of 10 CFR Part 50, Appendix R, required that emergency lighting units with at least an eight-hour battery power supply be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.

a. Inspection Scope

The inspectors performed a walkdown of a sample of the actions defined in Procedures C.4-B.8.5.A, “Plant Fire,” and C.4-C, “Shutdown Outside the Control Room.” As part of the walkdowns, the inspectors verified that sufficient emergency lighting existed for access and egress to areas and for performing necessary equipment operations.

b. Findings

One finding of significance was identified and is discussed in Section 1R05.05.b(2).

.08 Cold Shutdown Repairs

Section III.L.5 of 10 CFR Part 50, Appendix R, required that equipment and systems comprising the means to achieve and maintain cold shutdown conditions should not be damaged by fire; or the fire damage to such equipment and systems should 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.

a. Inspection Scope

The inspectors reviewed the licensee’s procedures to determine if any repairs were required to achieve cold shutdown. The inspectors determined that the licensee did require repair of some equipment to reach cold shutdown based on the safe shutdown methods used. The inspectors reviewed the procedures for adequacy.

b. Findings

No findings of significance were identified.

.09 Fire Barriers and Fire Zone/Room Penetration Seals

Section III.M of 10 CFR Part 50, Appendix R, required that penetration seal designs be qualified by tests that are comparable to tests used to rate fire barriers.

a. Inspection Scope

The inspectors reviewed the test reports for three-hour rated barriers installed in the plant and performed visual inspections of selected barriers to ensure that the barrier installations were consistent with the tested configuration. The inspectors performed a walkdown and test documentation review for penetration seals M-7-3-23-E24 (on the south wall of the vital switchgear room) and M-7-3-7-S8 (on the west wall of the vital switchgear room).

b. Findings

No findings of significance were identified.

.10 Fire Protection Systems, Features, and Equipment

a. Inspection Scope

The inspectors reviewed the material condition, operations lineup, operational effectiveness, and design of fire detection systems, fire suppression systems, manual fire fighting equipment, fire brigade capability, and passive fire protection features. The inspectors reviewed deviations, detector placement drawings, fire hose station drawings, halon system pre-operational test reports, and fire hazard analysis reports to ensure that selected fire detection systems, sprinkler systems, portable fire extinguishers, and hose stations were installed in accordance with their design, and that their design was adequate given the current equipment layout and plant configuration.

b.1 Findings

(1) Introduction

The inspectors identified a Green NCV associated with a failure to meet the requirements contained in 10 CFR 50.48 for maintaining adequate fire detection capabilities in several fire zones.

(2) Description

Section 4-4.6 of National Fire Protection Association (NFPA) 72E - 1974 states, for smoke detectors, “If the beams exceed 18 inches in depth and are more than 8 feet on centers, each bay shall be treated as a separate area requiring at least one detector.” During in-plant walkdowns, the inspectors determined that beam pockets, that exceeded 18 inches in depth and were more than 8 feet on centers, existed, without smoke detectors, in the following zones: 12A, “Turbine Building Load Center No. 1;” 14A, “Turbine Building Load Center No. 2;” 19A, “Water Treatment Area;” and 19B, “ESF Motor Control Center.” Additionally, in Zone 13B, “Lube Oil Reservoir and RFP Area,”

the inspectors determined that the heat activated detectors (HADs) did not meet code requirements. Section 3-5.3 of NFPA No. 72E - 1974 states, for heat activated detectors, "If the beams project more than 18 inches below the ceiling, each bay formed by the beams shall be treated as a separate area." During in-plant walkdowns, the inspectors determined that three bays with beams that project more than 18 inches below the ceiling in zone 13B did not contain HADs.

(2) Analysis

The inspectors determined that the finding was more than minor because it could reasonably be viewed as a precursor to a significant event where a delay in fire detection in safety related switchgear and reactor feed pump (RFP) areas could result in a more severe fire and render more equipment inoperable. In addition, the finding affected the mitigating system cornerstone objective in that the necessary number of detectors needed to ensure the availability of systems that respond to initiating events to prevent undesirable consequences were not available. The inspectors evaluated the finding using IMC 0609, Appendix F. The finding affected the detection capability, one of the defense-in-depth elements. Consequently, the finding met the criteria of step 1 of phase 1 (IMC 0609, Appendix F, Figure 4-1). Since the finding did not affect the 3-hour fire barrier separating redundant safe shutdown functions (IMC 0609, Appendix F, Figure 4-5), the finding was characterized as Green.

(3) Enforcement

The inspectors identified a Green NCV for a failure to meet the requirements contained in 10 CFR 50.48(b)(1)(i) which states that "fire protection features proposed or implemented by the licensee have been accepted by the NRC staff as satisfying the provisions of Appendix A to Branch Technical Position (BTP) APCSB 9.5-1 reflected in NRC fire protection SERs issued before the effective date of February 19, 1981."

Monticello SER dated February 12, 1981, states, "We find that since the fire detectors will be bench tested and considering that the fire detection systems meet appropriate NFPA Codes, we find the existing fire detectors acceptable." The inspectors identified that both smoke detectors and HADs did not meet the appropriate NFPA Code, NFPA No. 72E - 1974, "Standard on Automatic Fire Detectors," and therefore did not meet the requirements as set forth in 10 CFR 50.48(b)(1)(i).

This failure to maintain full area detector coverage in Zones 12A, 14A, 13B, 19A, and 19B is a violation of the requirements in 10 CFR 50.48(b)(1)(i). Because the licensee entered the finding into the corrective action program as CR 2002-4912 and 5144, this violation was being treated as a NCV in accordance with Section VI.A.1 of the NRC's Enforcement Policy (NCV 50-24/50-/02-11-03).

b.2 Findings

(1) Introduction

The inspectors identified a Green NCV for failure to meet the requirements contained in 10 CFR 50.48 for maintaining adequate suppression capabilities in several fire zones.

(2) Description

Zone 13A did not contain a deluge system as per the SER, but rather it was protected by a wet pipe sprinkler system. While the systems were different, the level of protection afforded by this wet pipe sprinkler system was similar to that of a deluge system. However, the inspectors noted that in Zone 13A, a portion of the floor which ran under the walk-in platform in the room was not covered by sprinkler detection. The primary purpose of the sprinkler system in the area was to suppress a lube oil fire. Had a lube oil fire occurred, the sprinkler system would not have suppressed the fire in this one portion of the room causing the fire to continue unabated in this one localized area. Additionally, the deluge sprinkler system in Zone 13B was obstructed by numerous large objects including cable raceways, piping, and other structural components. While it would be extremely difficult to measure the actual floor area that was obstructed and the effects that the obstructed area would have on the suppression capability if a lube oil fire were to occur, it was apparent that portions of the floor would be obstructed from direct sprinkler coverage thereby rendering the system less than optimum in its overall coverage.

(3) Analysis

The inspectors determined that the finding was more than minor because it could reasonably be viewed as a precursor to a significant event where an uncontrolled fire in these areas could continue to spread and potentially cause damage to the redundant trains of safe shutdown equipment in other fire zones. The inspectors evaluated the finding using IMC 0609, Appendix F. The finding affected the automatic suppression capability, one of the defense-in-depth elements. Consequently, the finding met the criteria of Phase 1, Step 1 (IMC 0609, Appendix F, Figure 4-1). However, the finding was determined to have no significant safety impact, because a fire in Zone 13A would not affect any safe shutdown equipment, and a fire in Zone 13B only had the potential to affect a single division of safe shutdown equipment. Therefore, since the finding did not affect the 3-hour fire barrier separating redundant safe shutdown functions (IMC 0609, Appendix F, Figure 4-5), the finding was characterized as Green.

(4) Enforcement

10 CFR Part 50.48(b)(1)(i) stated, in part, that: “fire protection features proposed or implemented by the licensee have been accepted by the NRC staff as satisfying the provisions of Appendix A to BTP APCSB 9.5-1 reflected in NRC fire protection SERs issued before the effective date of February 19, 1981.”

Monticello SER dated February 12, 1981 states, in part, that: “On December 11, 1979, the licensee provided by letter a description of their proposed method of extending the deluge system coverage in Fire Zone 13A. The submittal indicated that the deluge system was extended to provide complete coverage of Fire Zones 13B and a portion of Fire Zone 13C.” The inspectors identified that the systems in both Fire Zones 13A, “Lube Oil Storage Tank Room,” and 13B, “Lube Oil Reservoir and RFP Area,” did not provide complete coverage. This condition was contrary to the requirements of the Monticello FPP as outlined in their approved SER, and therefore did not meet the requirements as set forth in 10 CFR 50.48(b)(1)(i).

This failure to maintain complete sprinkler/deluge coverage in Fire Zones 13A and 13B is a violation of the requirements in 10 CFR 50.48(b)(1)(i). Because the licensee entered the finding into the corrective action program as CR 2002-5494, this violation is being treated as a NCV in accordance with Section VI.A.1 of the NRC's Enforcement Policy (NCV 50-263/02-11-04).

b.3 Findings

The inspectors reviewed the licensing basis and test results for the halon gaseous suppression system in the cable spreading room, Fire Zone 8. The inspectors noted that the system was designed to extinguish a surface fire per the requirements of NFPA 12A, 1980. As such, the system was not designed to meet the NUREG/CR-3656 criteria for extinguishing a deep-seated fire. During walkdowns of the area, the inspectors noted that cables, present in the area since original construction, may have the potential to develop a deep-seated fire. Through discussions with the licensee and NRC Headquarters staff, the inspectors determined that the licensee provided information on the type and loading present in the cable spreading room when the system was initially proposed and approved by the NRC. Therefore, any further action regarding a re-evaluation of the cable spreading room halon system will be completed by NRC Headquarters staff.

.11 Compensatory Measures

a. Inspection Scope

The inspectors conducted a review to verify that adequate compensatory measures were put in place by the licensee for out-of-service, degraded or inoperable fire protection and post-fire safe shutdown equipment, systems, or features. The inspectors also verified that short term compensatory measures were adequate to compensate for a degraded function or feature until appropriate corrective actions were taken.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problem

a. Inspection Scope

The inspectors reviewed the corrective action program procedures and samples of corrective action documents to verify that the licensee was identifying issues related to fire protection at an appropriate threshold and entering them in the corrective action program. The inspectors reviewed selected samples of CRs, work orders, design packages, and fire protection system non-conformance documents.

b. Findings

(1) Introduction

The inspectors identified a Green, NCV of 10 CFR Part 50, Appendix B, Criterion XVI, for the licensee's failure to enter items of non-compliance into the corrective action program and failure to resolve several items relating to fire protection non-compliances entered into the program.

(2) Description

The inspectors determined through a reviewed recent self-assessments of the FPP and corrective action documents that conditions adverse to quality were not being identified in the corrective action program and, in some cases, actions taken to address known conditions adverse to quality did not correct the adverse condition. Specifically, the inspectors noted that several findings, developed during this inspection, were very similar or duplicates of issues developed during a 2000 licensee self-assessment of the fire protection program. Examples of issues included in the 2000 self-assessment included: 1) inadequate procedural definition of the minimum set of operator actions necessary to ensure a safe shutdown of the reactor following a fire; 2) inadequate correlation between required fire protection safe shutdown procedural actions and necessary emergency lighting or communications: and 3) a failure to maintain the SSA current with plant and FPP changes.

The inspectors also determined through a review of recent corrective action documents, that, in at least one case, the licensee's staff failed to correct a condition adverse to quality documented in the corrective action program. Specifically, the inspectors noted that the licensee's corrective actions to CR 2001-4459, as documented in CR 2001-6169, did not re-institute the previous 24-hour LCOs, associated with a loss of backup suppression capabilities, or initiate a license amendment consistent with the guidance provided in Generic Letter 88-12.

In addition, during the inspection, the inspectors noted on several occasions the licensee's staff initially resolved issues, developed by the inspectors, in a manner that did not appear to be either consistent with the applicable regulatory or FPP requirements. The inspectors noted that in these cases, the licensee's staff was often not fully aware of the applicable regulatory or programmatic requirements. However, as the inspection progressed, the licensee identified and better applied the applicable SERs and regulations to ensure prompt comprehensive corrective actions. Examples of revised corrective actions included periodic fire watches for several fire zones; installation of a design modification to address a deficient sprinkler system installation; and re-institution of a previously deleted 24-hour LCO.

(3) Analysis

This finding is more than minor because if left uncorrected, the finding would become a more significant safety concern. Failure to enter fire protection non-compliance items and failure to resolve the items entered into the corrective actions program could potentially cause fire protection equipment degradation, a failure of equipment to fulfill

intended functions, adverse effects to the safe shutdown capabilities, etc. This finding is not suitable for SDP analysis. However, the inspectors determined that this finding was of very low significance (Green) because each associated performance deficiency, identified during this inspection, was of very low significance. Also, during the inspection, the inspectors reviewed the overall safe shutdown capabilities in selected fire areas and determined that the licensee's FPP and defense-in-depth features were still adequate to ensure safe shutdown capabilities. Therefore, the finding is characterized as Green.

(4) Enforcement

Criterion XVI of 10 CFR Part 50, Appendix B, requires, in part, that conditions adverse to quality, shall be identified and corrected. Contrary to the above, as of June 3, 2002, the licensee had not identified, in their corrective action program, conditions adverse to quality, as documented in the December 2000 Fire Protection Line Management Self-Assessment, and had not corrected a known condition adverse to quality, as documented in their closure of CR 2001-6169. Specifically, the licensee did not enter conditions adverse to quality identified during a 2000 internal self- assessment, including; 1) deficiencies with action steps, emergency lighting, and communications referenced in operations procedures utilized during a fire response;
2) deficiencies with the equipment and methods relied upon for installation and operation of the portable diesel fuel oil transfer pump; and 3) indications that the fire protection SSA and hazard analysis were not being properly changed or maintained. The licensee also completed actions required under CR 2001-6169 without re-instituting a 24-hour LCOs previously associated with a loss of backup fire suppression. As of the end of the inspection, the licensee had initiated two condition reports, CR 2002-5672 and CR 2002-5635, to track, assess, and resolve the specifics of these issues and any generic implications. Because the licensee entered the finding into their corrective action program, this violation is being treated as a NCV in accordance with Section VI.A.1 of the NRC's Enforcement Policy. (NCV 50-263/02-11-05)

4OA4 Cross-Cutting Issues - Human Performance

a. Inspection Scope

The inspectors reviewed the licensee's maintenance and control of the FPP licensing basis.

b. Findings

(1) Introduction

The inspectors identified a Green Severity Level IV NCV of 10 CFR 50.59 associated with the licensee's staff failure to control and maintain changes made to the FPP since 1984.

(2) Description

The inspectors identified that in the early 1980's, the licensee incorporated, either directly or by reference, the fire protection plan (FPP), fire hazard analysis (FHA), and safe shutdown analysis (SSA) into the Final or Updated Safety Analysis Reports (USAR). As a result, the licensee could make changes to the FPP and related documents, consistent with the requirements of 10 CFR 50.59 in effect at the time, as they related to fire protection issues, without prior Commission approval. In April 2001, the licensee received Licensee Amendment 119 which revised License Condition 2.C.4 to conform to the guidance provided in Generic Letter 86-10 and relocated FPP provisions from the Technical Specifications to other FPP documents.

Following incorporation of the FPP, FHA, and SSA, into the USAR, the licensee made changes to these documents, mostly as a result of plant modifications. Licensee's records indicated that each of the plant modifications would have received a 50.59 safety evaluation and a review by an "Appendix R" reviewer. However, the licensee also noted that, during this time period, it was unlikely that the plant staff fully appreciated that the SSA and FHA were a part of the USAR. Therefore, the 50.59 reviews may not have fully considered the plant modifications impact on these documents. In addition, though plant modifications during this time period required an Appendix R review, the licensee was unaware of specific acceptance criteria for documentation of these evaluations.

An example of a change to the plant which did not receive proper review in accordance with the requirements of 10 CFR 50.59 was the installation of fire stops in Fire Area 12A in lieu of meeting the requirements of 10 CFR Part 50 Appendix R, Section III.G.2 (Section 1R05.02). The Commission had previously denied an exemption request made by the licensee to have intervening combustibles within the 20-foot separation zone with no automatic fire suppression system in that area. The licensee subsequently installed a sprinkler system in the area and installed fire stops in the intervening cable trays. A 10 CFR 50.59 review was not performed to ensure that the fire stops would satisfy the requirement for no intervening combustibles or fire hazards in the 20-foot separation zone. Such a 10 CFR 50.59 review would have required the licensee to request for a license amendment to the fire protection program as incorporated into the USAR.

During this same time period, the licensee controlled changes to the FHA and SSA as technical document changes. Making changes to a technical document would have been similar to updates made to a vendor equipment manual. Therefore, specific 50.59 reviews of the actual document changes, either associated with the plant modification process or not, were not performed. Additionally, the licensee's staff did not periodically provide the NRC with a report of these changes as required by 10 CFR 50.59.

Because of the licensee's staff apparent incomplete understanding of how the FPP, FHA, and SSA, are combined to form the licensing and design basis for the plant, a number of the other issues discussed in the report were allowed to exist for an extended period of time. In addition, weaknesses in the licensee's understanding of the current change process for the FPP, FHA, and SSA resulted in the licensee not immediately conducting required "adverse to safe shutdown" evaluations for modifications being implemented to resolve some of the inspection findings.

(3) Analysis

Because violations of 10 CFR 50.59 are considered to be violations that could potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the SDP. In this case, the licensee's failure to control and evaluate changes to the FHA and SSA resulted in inconsistencies between the FPP and the as-built plant configuration. Furthermore, some of the changes either to the plant FPP or the plant as-built configuration, would have required prior NRC approval. However, such NRC approval was not obtained by the licensee.

The inspectors concluded that the issue had a credible impact on safety because the licensee's failure to control and evaluate changes to the FHA, and SSA could adversely affect the safe shutdown capabilities. However, based upon a review of the current plant configuration and an assessment of the impacts of the examples discussed in this report, the inspectors determined that the licensee's failure to properly control and evaluate changes to the FHA, and SSA, to be of very low safety significance. Therefore, the issue was determined to be of very low safety significance, i.e., a Green finding.

(4) Enforcement

Because this issue involved the licensee's failure to control, evaluate, and submit changes to the FPP, FHA, and SSA prior to March 2001, the issue was evaluated against the previous 10 CFR 50.59 requirements. Specifically, 10 CFR 50.59(d)(1) and (2) stated, in part, that the licensee shall maintain records of changes in the facility and of changes in procedures made pursuant to requirements of this section [10 CFR 59.59]. These records must include a written safety evaluation which provides the basis for the determination that the change does not involve an unreviewed safety question [condition adverse to safe shutdown of the reactor]. Also, the licensee shall submit a report of any changes, including a summary of the safety evaluation, in accordance with 10 CFR 50.71(e).

The inspectors also evaluated the issue against the current 10 CFR 50.59 requirements in accordance with the guidance of Chapter 8 of the Enforcement Policy. The current 10 CFR 50.59 requirements, as outlined in 10 CFR 50.59(d)(1) and (d)(2), are identical to those contained in the earlier version of 10 CFR 50.59.

Contrary to the above, as of June 21, 2002, the licensee failed to perform written safety evaluations for and to summit a summary of those safety evaluations to the NRC for changes to the FPP's FHA and SSA which were implemented between the early 1980s and April 2001. The results of the violation were determined to be of very low safety significance; therefore, this violation of 10 CFR 50.59 was classified as a Severity Level IV Violation. However, because this non-willful violation was non-repetitive, and was captured in the licensee's corrective action program (CR 2002-5634), it is considered a Non-Cited Violation (NCV 50-263-02-11-06 (DRS)) consistent with Section VI.A.1 of the NRC Enforcement Policy.

4OA6 Meeting(s)

Exit Meeting

On June 21, 2002, at the conclusion of the on-site inspection activities, the inspectors presented their initial findings to Mr. J. Forbes and other members of the licensee's management at the Monticello Nuclear Plant. The licensee's representatives acknowledged the findings presented. The inspectors identified the proprietary information reviewed during the inspection and noted that the information would be handled accordingly. The licensee did not identify any other material reviewed during the inspection as being proprietary.

KEY POINTS OF CONTACT

Licensee

G. Brevig, Acting Manager of Nuclear Oversight, Nuclear Management Company
J. Ertman, Fleet Fire Protection Lead, Nuclear Management Company
D. Fadel, Director of Engineering
J. Forbes, Site Vice-President
T. Hurrle, Appendix R Engineer
D. Neve, Licensing Manager
R. Olson, Supervisor of Component Engineering
J. Purkis, Plant Manager
B. Sawatzke, General Superintendent, Maintenance
C. Schibonski, General Superintendent, Safety Assessment
B. Thomas, Fire Protection System Engineer

NRC

S. Burton, Senior Resident Inspector
D. Kimble, Resident Inspector

LIST OF ACRONYMS USED

BTP	Branch Technical Position
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
ESW	Emergency Service Water
FPP	Fire Protection Program
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
LCO	Limiting Condition for Operation
LLC	Limited Liability Company
NCV	Non-Cited Violation
NFPA	National Fire Protection Association
NMC	Nuclear Management Company, LLC
NRC	U.S. Nuclear Regulatory Commission
RFP	Reactor Feed Pump
SDP	Significance Determination Process
SER	Safety Evaluation Report
SSA	Safe Shutdown Analysis

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-263/02-11-01	NCV	Failure to Meet the Separation Criteria for Redundant Cabling and Equipment in Fire Zone 12A, Intake Structure Pump Room (Section 1R05.02)
50-263/02-11-02	NCV	Procedures C.4-b.8.5.A, “Plant Fire,” C.4-C, “Shutdown Outside the Control Room,” and Other Related Procedures Associated with Responding to a Plant Fire Were Not Appropriate to the Circumstances (Section 1R05.05)
50-263/02-11-03	NCV	Failure to Maintain Full Area Detector Coverage in Zones 12A, 14A, 13B, 19A, and 19B (Section 1R05.10.b.1)
50-263/02-11-04	NCV	Failure to Maintain Complete Sprinkler Coverage in Fire Zones 13A and 13B (Section 1R05.10.b.2)
50-263/02-11-05	NCV	Failure to Enter Conditions Adverse to Quality into the Corrective Action Program and to Correct Conditions Adverse to Quality (Section 4OA2)
50-263/02-11-06	NCV	Failure to Perform Written Safety Evaluations and Submit a Summary to the NRC for Changes Made to the FPP’s, FHA and SSA from 1980 to 2001

Closed

50-263/02-11-01	NCV	Failure to Meet the Separation Criteria for Redundant Cabling and Equipment in Fire Zone 12A, Intake Structure Pump Room (Section 1R05.02)
50-263/02-11-02	NCV	Procedures C.4-b.8.5.A, “Plant Fire,” C.4-C, “Shutdown Outside the Control Room,” and Other Related Procedures Associated with Responding to a Plant Fire Were Not Appropriate to the Circumstances (Section 1R05.05)
50-263/02-11-03	NCV	Failure to Maintain Full Area Detector Coverage in Zones 12A, 14A, 13B, 19A, and 19B (Section 1R05.10.b.1)
50-263/02-11-04	NCV	Failure to Maintain Complete Sprinkler Coverage in Fire Zones 13A and 13B (Section 1R05.10.b.2)
50-263/02-11-05	NCV	Failure to Enter Conditions Adverse to Quality into the Corrective Action Program and to Correct Conditions Adverse to Quality (Section 4OA2)
50-263/02-11-06	NCV	Failure to Perform Written Safety Evaluations and Submit a Summary to the NRC for Changes Made to the FPP’s, FHA and SSA from 1980 to 2001

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee's documents reviewed during the inspection, including documents prepared by others for the licensee. Inclusion on this list does not imply that NRC inspectors reviewed the documents in their entirety, but, rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort.

Technical Manuals

NX-16991	Updated Fire Hazards Analysis	Rev. 10
NX-16991-1	Fire Protection Engineer Evaluations (Table of Contents only)	Rev. 8
NX-17016	Safe Shutdown Analysis Engineering Report	Rev. 10

Drawings

NE-36394-10	RHR Service Water Pump P-109A ACB No. 152-508	Rev. M
NE-36394-10A	RHR Service Water Pump P-109B Schemes ACB No. 152-608	Rev. V
NE-36394-10B	RHR Service Water Pump P-109C Schemes ACB No. 152-507	Rev. M
NE-36394-10C	RHR Service Water Pump P-109D Schemes ACB No. 152-607	Rev. R
NE-36394-18	Emergency Service Water Pumps	Rev. F
NE-36394-18A	Emergency Service Water Pumps	Rev. F
NE-36404-12	Automatic Blow Down System P-111B Scheme B4319	Rev. P
NE-36404-15	Core Spray System	Rev. L
NE-36404-15A	Reactor Auxiliary Systems	Rev. H
NE-36404-4	RHR Pump P-202A ACB 152-504 Control	Rev. Y
NE-36404-4A	RHR Pump P-202B ACB 152-604 Schematic Diagram	Rev. AC
NE-36404-4B	RHR Pump P-202C ACB 152-503 Control	Rev. AB
NE-36404-4C	RHR Pump P-202D ACB 152-603 Control	Rev. AD
NE-36404-5	Core Spray Pump P-208A ACB 152-505 Control	Rev. P
NE-36404-5A	Core Spray Pump P-208B ACB 152-605 Control	Rev. S
NE-93194-13	Unit No. 1 480V Sta Aux MCC-134A MCC-B Turb Blg East El 911'-0"	Rev. K

NE-93519-2	Emergency Service Water Pump P-111C Division I	Rev. E
NE-93570	Loop Diagram ESW Pumps P-111C &P-111D Discharge Press	Rev. A
NF-100335-1	Alternate Shutdown System Schematic	Rev. H
NF-100335-3	Alternate Shutdown System Schematic	Rev. C
NF-100351	ASDS Panel C292 Connection Diagram	Rev. G
NF-36069	Turbine Building Mezzanine Floor Plan at 931’-0"	Rev. N
NF-36148	Turbine Building Operating Floor Framing Plan at El 951’-0"	Rev. B
NF-36273	Turbine Generator Building Conduits & Trays Above El 911’-0" West	Rev. AJ
NF-36274	Turbine Generator Building Conduits & Trays Above El 911’-0" East	Rev. AJ
NF-36276	Turbine Generator Building Conduits & Trays Above El 931’-0" West	Rev. AQ
NF-36277	Turbine Generator Building Conduits & Trays Above El 931’-0" East	Rev. AN
NF-36319-2	Door Schedule	Rev. L
NF-36453	Intake Structure Plan at El 934’-0"	Rev. E
NF-36454	Intake Structure Plan at El 919’-0"	Rev. D
NF-36455	Intake Structure Plan at El 919’-0"	Rev. A
NF-36754	FW & Cond Benchboard C06 Annuciators Cabinets A & B	Rev. Z
NF-36755	Feedwater & Condensate Bench Board C06 Annunciator Cabinet C	Rev. P
NF-74413-6	Underground Services of Div. II Cable Raceway System	Rev. C
NF-89373	Appendix R Modifications Fire Areas 14A-12A, 19C-12C, 2F-1F, 12C-13C	Rev. A
NF-91994-2	Containment Atmosphere Monitoring System - Elementary Diagram	Rev. E
NF-95915-1	Blowdown Control System Division I Elementary Diagram	Rev. G
NF-95915-2	Blowdown Control System Division I Elementary Diagram	Rev. E
NF-95915-3	Blowdown Control System Division I Elementary Diagram	Rev. C
NF-95915-4	Blowdown Control System Division I Elementary Diagram	Rev. F

NF-95916-1	Blowdown Control System Division II Elementary Diagram	Rev. H
NF-95916-2	Blowdown Control System Division II Elementary Diagram	Rev. E
NF-95916-3	Blowdown Control System Division II Elementary Diagram	Rev. C
NF-95916-4	Blowdown Control System Division II Elementary Diagram	Rev. G
NF-95916-5	Blowdown Control System Division II Elementary Diagram	Rev. C
NF-97017	Appendix R Modifications Fire Areas 2G-2H, 12A-14A & 16-17	Rev. A
NF-97018	Appendix R Modifications Fire Areas 12A-14A	Rev. A
NH-36051	P&ID Diesel Oil System	Rev. AD
NH-36246	P&ID Residual Heat Removal System	Rev. BH
NH-36247	P&ID Residual Heat Removal System	Rev. BL
NH-36664	P&ID RHR Service Water & Emergency Service Water Systems	Rev. BG
NH-94896	Combustible Gas Control System Div I P&ID	Rev. N
NH-94897	Combustible Gas Control System Div II P&ID	Rev. M
NX-16518-1	Ground Floor Plan Turbine Bldg.	Rev. B
NX-16518-2	Conduit Layout	Rev. C
NX-16518-3	Conduit Layout for N.S.P.	Rev. B
NX-16991-10	Fire Hazards Analysis, Plan View Reactor Bldg Elev 896’-3’	Rev. A
NX-16991-14	Fire Hazards Analysis Plan View - Admin Building Elev. 928'-0"	Rev. A
NX-20598-2	C-108A Cable Spreading Halon System	Rev. B
NX-20819-17	Wiring Diagram ASDS Panel C292	Rev. J
NX-21349-1	C-372 Intake Structure Sprinkler System Equipment and Detector Layout	Rev. B
NX-21349-3	Intake Structure Sys Plan El 919-0	Rev. A
NX-22595	Appendix R Upgrade Fire Damper V-DF-550	Rev. A
NX-28019-11	Wiring Diagram ASDS Panel #C292	Rev. C
NX-7823-4-11	Elementary Diagram Primary Containment	Rev. R

NX-7831-143-2	Elementary Diagram-Automatic Blowdown System	Rev. P
NX-7831-80-6	RHR Suction Line EQ Valve MOV-4086 RHR Discharge Lines EQ Valve MOV-4085A	Rev. N
NX-7833-21-1	Core Spray System Schematic Diagram	Rev. AC
NX-7833-21-2	Core Spray System S/D	Rev. Q
NX-7833-21-3	Core Spray System	Rev. H
NX-7833-21-4	Core Spray System	Rev. E
NX-7833-21-4A	Core Spray System	Rev. L
NX-7833-21-5	S/D Core Spray System	Rev. J
NX-7905-46-14	Elementary Diagram Residual Heat Removal System	Rev. N
NX-7905-46-14A	11 RHR LPCI Inboard Isolation MO-2014 Scheme B3334	Rev. A
NX-7905-46-14E	11 RHR Ctmt Spray Otbd Isol MO-2020, Scheme B3339	Rev. C
NX-7905-46-15	Elementary Diagram Residual Heat Removal System	Rev. P
NX-7905-46-15A	11 RHR Hx Byp MO-2002, Scheme B3336	Rev. C
NX-7905-46-15C	11 RHR Torus Clg Injection MO-2008, Scheme B3337	Rev. C
NX-7905-46-15D	11 RHR Torus Spray Injection MO-2010, Scheme B3338	Rev. C
NX-7905-46-15E	11 RHR Ctmt Spray Inbd Isol MO-2022, Scheme B3309	Rev. C
NX-7905-46-17	Elementary Diagram Residual Heat Removal System	Rev. S
NX-7905-46-17E	12 RHR Ctmt Spray Otbd Isol MO-2021, Scheme B4339	Rev. C
NX-7905-46-18	Elementary Diagram Residual Heat Removal System	Rev. R
NX-7905-46-18A	12 RHR Hx Byp MO-2003, Scheme B4210	Rev. C
NX-7905-46-18C	12 RHR Torus Clg Injection MO-2009, Scheme B4337	Rev. C
NX-7905-46-18D	12 RHR Torus Spray Injection MO-2011, Scheme B4338	Rev. B
NX-7905-46-18E	12 RHR Ctmt Spray Inbd Isol MO-2023, Scheme B4209	Rev. B
NX-9215-2	C-108 Cable Spreading Smoke Detection System	Rev. A
NX-9275-15	Lube Oil Areas, Seal Oil Unit & Storage Rm Fire Protection	Rev. B
NX-9275-20	Turbine Lube Oil Reservoir Deluge System	Rev. B

Condition Reports Initiated During the Inspection

20024866	C-condulet cover missing in conduit run above C-21 panel
20024912	Upper and Lower 4KV smoke detector layout questioned by NRC
20025144	Evaluate NFPA-10, 1969 code discrepancies in Fire Zones 12A/13B14A
20025272	Adverse trend of NFPA code deviations discovered during NFPA code reviews
20025289	Self Assessment - Proto-Power NFPA code conformance review
20025290	Fire strategies found with discrepancies during NFPA code review and 86-10 reviews
20025295	Not all FP related SERs could be provided to NRC as many of them are contained within and not identified as such
20025298	App R repair/shutdown guidance needs to be clarified in procedures
20025305	Fire Zone data in the Cable & Raceway Information System has incorrect information
20025351	Appendix R lighting adequacy questioned during NRC Fire Protection Inspection
20025370	Monticello implementation of fire protection program does not identify clear overall ownership
20025371	Failure to identify NRC commitment to provide summary of Fire Protection Pump Impairments in 50.71 (e) submittals
20025373	Regulatory basis for making changes to the Fire Protection Program is not clear
20025374	Fire Protection Plan changes not reported via 10CFR50.71 (e) in past USAR updates
20025375	Fire Protection Program updates required to be reported to NRC via 10CFR50.71 (e) submittal not clearly identified
20025376	Fire Protection Program Plan not updated to reflect License Amendment 119
20025494	Sprinkler Coverage in Lube oil Tank Room (Fire Zone 13A) is inadequate
20025545	4 AWI-08.01.00 (Fire Protection Program Plan) is not reflective of MNGP's current organizational structure
20025558	Fire Protection Program implementing procedure 4AWI-04.02.01 (HOUSEKEEPING) does not require OC review
20025587	Lack of complete documentation for fire barrier penetration seals
20025604	Lack of formal documentation to evaluate changes to Fire Protection program documents against std license condition

20025606 931’ TB Ease detector layout may not meet requirements

20025634 FP reviews of Mods and program changes lacked rigor/structured evaluation methodology to assure compliance w/ licensing basis

20025635 No administrative action statement in place for open ended fire protection requirements

20025645 III.G.2 compliance question in the intake structure during the triennial inspection, question #141

20025648 Inadequate Fire Detector Installation results in need of hourly fire watches

20025650 Cable C101-C91/1 is listed on the Appendix R Safe Shutdown Analysis table 4-3-1 (NX-17016)

20025655 No adverse to safe shutdown evaluation was performed for revision 3 of Fire Strategy A.3-13-A

20025685 Appendix R safe shutdown procedure requirements (lighting, communication, manpower) questioned during triennial inspection

Condition Reports

20004922 Update safe shutdown analysis (NX-17016) to incorporate NMC audit team recommendations (2DO)

20004955 Enhance procedure for use of portable diesel oil transfer pump per NMC fire protection assessment during week of 12/4/00 (2DO)

20004957 Update electrical coordination analysis per NMC fire protection recommendations during 12/4/00 assessment (2DO)

20004958 Revise test 0275-01 to incorporate recommendation from NMC fire protection assessment during week of 12/4/00 (2DO)

20010281 Use of halon may not be adequate to extinguish a charcoal fire - Standby Gas Treatment System

20011046 ASDS design deficiency results in vulnerability to a single hot short during control room / cable spreading room fire

20011340 DOOR-141 is not identified as a HELB barrier in the CHAMPS Equipment Module, in procedures, or on the door label

20011481 Bechtel calculation used incorrect load combination for the HELB barrier over Turbine Building stairwell number 1

20012186 3M Fire Barrier 2000+ silicone sealant received on site was not on the Chemical Control Plan

20012223 Fire Brigade qualification affected by person’s restriction from radiological controlled area due to medical body burden

20012426 No Vehicle Barriers Installed Around HWC H2 & O2 Skids per USAR Sect 4.6.1 and EPRI NP-5283-SR-A. (See CR 20012546)

20012964 Found towel draped over Cable Spreading room halon horn

20012983 Update HELB Barrier Checklist to include instructions to notify SS of deficiencies found and to formalizes changes

20013125 A CGCS procedure requires moving removable fire barrier to verify position of 4 toggle switches. Ops challenge 01-037

20013156 Post LOCA "A" CGCS startup actions require fire barrier to be removed and fire watch. Ops challenge 01-037

20013310 Misc Maint procedures were sent to wrong OC sub-committee - procedures sent to "D" should have been sent to "B"

20013367 Broken Door knob on Door 28 caused fire impairment requiring an hourly firewatch patrol

20013546 Minimal or no clearance between Core Spray line TW7-10"GE and floor penetration curb at 962’ level

20013562 During calibration of PS-1971 the reset setpoint could not be consistently repeated

20013608 During C-371 battery replacement, power relay was found to be defective

20013782 Unplanned Fire Impairment Hourly Fire Patrol and HELB watch established due to Door-31 failing to latch

20013866 Declared Door-105 inop due to failure to close properly

20014125 Maintenance placed combustibles on refuel floor without AWI-08.01.01 required review being performed

20014168 Perform NFPA code of record (code compliance) review

20014170 Review 86-10 evaluation to determine if enhancements are needed

20014177 Polarization index for electric fire pump motor below recommended value

20014323 Diesel fire pump inadvertently auto-started during test 0266

20014459 No action item exists for situation where backup fire suppression is not in place

20014888 Failed PMT for WO 0107088 - FP-236-6 leaks due to leakage past FP-236-2

20015129 Fire Doors 142, 124 and 125 were found to have inadequate latch throw during test 0275-03

20015176 Non-Appendix R Exciter Sprinkler pilot line diaphragm leaks about 5 GPH thru drip check valve

20015616 Fire Brigade Equip Invent 1224, calls for 12 turnout coats total available is correct, only 4 with removable liners

20015873 Impairment to Fire Door-105 due to ventilation changes in the turbine bldg

20015928 Failure of Door-142 to latch renders EFT boundary INOP requiring unplanned 24 hour LCO entry and fire impairment

20016552 Unauthorized items stored in auxiliary fire brigade room

20016644 Electric fire pump auto-started when returning cooling deluge system to service following valve re-packing

20016933 Appendix R Fire Door-39 would not self-close due to interference from adjacent I&C cabinet

20016950 Door-413 (TB931 Stairway) and Door-125 (Cable Spreading Rm) are Appendix R Doors but Are Not Labeled as Such

20017849 "Penetration Authorized to be Open" portion of Form 8136-03 for WO 0005057 not filled in during work steps

20018401 Two fire drills per year requirement not met for two members of the Fire Brigade

20018408 BLUE CARD: Fire Brigade leader duties and equipment should include having vital area keys during emergency responses

20020142 Shift Fire Brigade exceeded 90 day Appendix R requirement to perform fire drill

20020231 Recommend that a qualified Appendix R engineer should be hired prior to the triennial fire protection audit

20020467 During Reactor cooldown due to steam seal leakage, the Turb Gen Sprinkler Actuated

20021044 Document NRC Resident fire protection questions from monthly fire strategy walkdowns

20021703 Loose wire from penetration in 985’ Radwaste pump room

20022126 Test performance reveals inop fire detector which resulted into entry of a 1 hour fire watch and 14 day Fire Impairment

20022433 Ops Man B.08.06-01 states all normal waste drains in machine shop are plugged - however one drain appears open

20022570 WO 0201715 Determined That NW-7, 8 & 9 Act as Fire Barriers Between EDG Rooms, But CHAMPS Doesn’t List the Spec Concern

20022586 Unplanned 14 day Fire Impairment and 1 hour fire patrol required due to spurious alarm from detector in A RHR Room

20023146 Halon Tank 4M Pressure Low out of spec

20023158 Upper and lower 4KV area fire strategies figures have discrepancies

20023229 Adverse trend on the accuracy of the fire strategy maps - Not all equipment shown on numerous maps

20023252 Failed PMT on WO 0201804

20023285 Too much oil in collection cans and too many rags in rag receptacle around H2 seal oil unit and generator casing drains

20023302 Ground wires found attached to painted lug

20023707 Fire Door-39/40 (TB931) no longer Appendix R fire doors Space could be used for I&C storage cabinets

20023740 Failed to document entry to 7 day Fire Pump Impairment when running Electric Fire Pump per procedure

20024156 MNGP Fire Brigade and Monticello Fire Dept Drill critique identifies areas for improvement

20024573 Updated Fire Hazards Analysis (UFHA) discrepancies discovered during 86-10 preparations

20024576 There is not a Fire Strategy for the SJAE room (Zone 12E) and the TBA

20024579 Fire Area Drawings (NX-16691-XX Series) discrepancies discovered during 86-10 preparations

20024611 Feed pump hatch sprinkler curtain does not meet NFPA code requirements

20024656 Lube oil reservoir/Feed pump deluge system discovered to have NFPA code discrepancies

20024749 Stock # SMHSDI contains both 5/16” and ½” orifice size sprinkler heads

20024821 Sprinkler Head and Link Mislabeling on Items in Warehouse Stock

20024824 Fire drill evaluation identifies areas for improvement in area of donning personal protective equipment

20024825 During unannounced fire drill, brigade radio not selected to proper channel initially caused distraction to Brig. Leader

20024866 C-condulet cover missing in conduit run above C-21 panel

20024873 Discrepancy identified in SSDA Engr Rpt (NX-17016) as part during NRC Information Gathering Visit for FP Inspection

20024912 Upper and Lower 4KV smoke detector layout questioned by NRC

20024970 Section 3 of Fire Drill Procedure not properly completed. Unannounced fire drill

20025044 Evaluate Cable Spreading Room (VI/8) NFPA-10 code Discrepancies

20025139 On a computer room fire, Operators must take actions to shut down power supplies before activating the halon system

20025144 Evaluate NFPA-10, 1969 code discrepancies in Fire Zones 12A/13B14A

20025151 Cable Spreading Room Halon System does not meet all NFPA-12 1980 Code requirements

20025208 Various Fire Areas have NFPA-14, 1969 (Installation of Hose and Standpipe) code discrepancies

20025249 Portable diesel fuel transfer pump stored in warehouse #1 egress path blocked

20025272 Adverse trend of NFPA code deviations discovered during NFPA code reviews

20025283 Unable to meet OWI-01.04, OPERATIONS GENERAL PROCEDURAL GUIDANCE during performance of FIRE DRILL PROCEDURE 2176

20025289 Self Assessment - Proto-Power NFPA code conformance review

20025290 Fire strategies found with discrepancies during NFPA code review and 86-10 reviews

20025295 Not all FP related SERs could be provided to NRC as many of them are contained within and not identified as such

20025298 App R repair/shutdown guidance needs to be clarified in procedures

20025305 Fire Zone data in the Cable & Raceway Information System has incorrect information

20025306 Fire Area/Zone in the Turb. Bldg/EFT Tunnel appears to be incorrectly classified as X / 30, should be XII / 19B

20025351 Appendix R lighting adequacy questioned during NRC Fire Protection Inspection

20025370 Monticello implementation of fire protection program does not identify clear overall ownership

20025371 Failure to identify NRC commitment to provide summary of Fire Protection Pump Impairments in 50.71 (e) submittals

20025373 Regulatory basis for making changes to the Fire Protection Program is not clear

20025374 Fire Protection Plan changes not reported via 10CFR50.71 (e) in past USAR updates

20025375 Fire Protection Program updates required to be reported to NRC via 10CFR50.71 (e) submittal not clearly identified

20025376 Fire Protection Program Plan not updated to reflect License Amendment 119

20025413 No procedure for manual initiation of halon for cable spreading room

20025494	Sprinkler Coverage in Lube oil Tank Room (Fire Zone 13A) is inadequate
20025545	4 AWI-08.01.00 (Fire Protection Program Plan) is not reflective of MNGP's current organizational structure
20025558	Fire Protection Program implementing procedure 4AWI-04.02.01 (HOUSEKEEPING) does not require OC review
20025561	Ability to fill Diesel Fire Pump Day tank with Diesel Oil Service Pump questionable
20025587	Lack of complete documentation for fire barrier penetration seals
20025604	Lack of formal documentation to evaluate changes to Fire Protection program documents against std license condition
20025606	931' TB Ease detector layout may not meet requirements
20025634	FP reviews of Mods and prog changes lacked rigor/structured eval methodology to assure compliance w/ licensing basis
20025635	No administrative action statement in place for open ended fire protection requirements
20025645	III.G.2 compliance question in the intake structure during the triennial inspection, question #141
20025648	Inadequate Fire Detector Installation results in need of hourly fire watches
20025650	Cable C101-C91/1 is listed on the Appendix R Safe Shutdown Analysis table 4-3-1 (NX-17016)
20025655	No adverse to safe shutdown evaluation was performed for revision 3 of Fire Strategy A.3-13-A
20025685	Appendix R safe shutdown procedure requirements (lighting, communication, manpower) questioned during triennial inspection

Procedures

0152	Group 1 Isolation Simulated Automatic Initiation Test	Rev. 15
0256	Fire Detection Instrumentation Detector Functional Test	Rev. 24
0268	Fire Protection System Flow Test	Rev. 14
0328	Cable Spreading Room Halon System	Rev. 15
0395	ASDS Cycle Functional Test for Division II RHR, RHR SW, ESW Switches and Control Room Annuniciator for ASDS Master Transfer Switch	Rev. 7

0419-01	ASDS Cycle Functional Test For 12 Diesel Generator /Diesel Oil Transfer Pump Switches	Rev. 6
0419-02	ASDS Cycle Functional Test For "B" Core Spray and 14 Emergency SW System Switches	Rev. 5
1050	Safety Relief Valves Functional Tests	Rev. 18
1061	Emergency Lighting Monthly Operability Test	Rev. 27
1294	8-Hour Emergency Lighting Discharge Test	Rev. 22
1306	Portable Diesel Oil Pump Operability Test	Rev. 8
2167	Startup Checklist	Rev. 41
2176	Fire Drill Procedure	Rev. 12
4 AWI-02.05.02	New Technical Manuals	Rev. 2
4 AWI-02.05.03	Technical Manual Revisions	Rev. 2
4 AWI-05.01.13	Design Change Package Review and Approval	Rev. 12
4 AWI-08.01.00	Fire Protection Program Plan	Rev. 1
4 AWI-08.01.01	Fire Prevention Practices	Rev. 19
4 AWI-08.01.04	Fire Protection Combustible Loading	Rev. 0
4 AWI-10.01.03	Condition Report Process	Rev. 18
B.05.17-01	Alternate Shutdown System - Function and General Description of System	Rev. 2
B.05.17-02	Alternate Shutdown System - Description of Equipment	Rev. 2
B.05.17-02	Alternate Shutdown System - Description of Equipment	Rev. 2
B.05.17-04	Alternate Shutdown System - References	Rev. 6
B.05.17-05	Alternate Shutdown System - System Operation	Rev. 3

B.05.17-06	Alternate Shutdown System - Figures	Rev. 0
B.08.05-01	Fire Protection - Function and General Description of System	Rev. 4
B.08.05-02	Fire Protection - Description of Equipment	Rev. 4
B.08.05-03	Fire Protection - Instrumentation and Controls	Rev. 11
B.08.05-04	Fire Protection - References	Rev. 19
B.08.05-05	Fire Protection - System Operation	Rev. 23
B.08.05-06	Fire Protection - Figures	Rev. 6
B.08.11-05	Diesel Oil System - System Operation	Rev. 10
B.09.08-05	Emergency Diesel Generators - System Operation	Rev. 11
C.1	Startup Procedure	Rev. 33
C.4-B.08.05.A	Plant Fire	Rev. 6
C.4-C	Shutdown Outside Control Room	Rev. 19
C.4-C	Shutdown Outside Control Room	Rev. 20
C.6-006-C-06	Diesel Gen TK T-45A Level/Flow Low	Rev. 1
C.6-006-C-06	Diesel Gen TK T-45A Level/Flow Low	Rev. 1
C.6-006-C-07	Diesel Gen TK T-45B Level/Flow Low	Rev. 2
C.6-006-C-07	Diesel Gen TK T-45B Level/Flow Low	Rev. 2
OWI-01.06	Duty Operations Personnel Requirements and Responsibilities	Rev. 10

Lessons Plans & Training Documents

M-8107L-083	Alternate Shutdown System Lesson Plan	Rev. 4
M-8117S-501	ASDS/C.4-C Lesson Plan	Rev. 0
M-8119S-109	C.4-B.09 Section Part 1 Exercise Guide Lesson Plan	Rev. 1
R7600W-0201	Monticello Brigade Practical Lesson Plan	Rev. 0
R7605-001	Level 1 Requal Lesson Plan	Rev. 1
R7605L-001	Level 1 Requalification Exercise	Rev. 1
R7605L-002	Self Study Module 1 - Fire Behavior	Rev. 1
R7605L-002	Self Study Module 2 - Fire Hazards	Rev. 1
R7605L-002	Self Study Module 3 - Fire Detection Systems	Rev. 1
R7605L-002	Self Study Module 4 - Fire Extinguisher Systems	Rev. 1
R7605L-002	Self Study Module 5 - Special Hazards	Rev. 1
R7605L-002	Self Study Module 6 - Emergency Planning	Rev. 1
R7605L-002	Self Study Module 7 - Firewatch	Rev. 1
R7605L-002	Level 1 Requal, Self Study Lesson Plan	Rev. 1
R7605L-002	Level 1 Requalification Fire Extinguisher Exercise	Rev. 1
R7627A	Advanced Fire Team - Practical Lesson Plan	Rev. 1
R7627A-001	Advanced Fire Team Job Performance Measure	Rev. 1
R7637A-002	Fire Extinguishers Lesson Plan	Rev. 1
R7637A-003	Personal Protective Equipment Lesson Plan	Rev. 1
R7637A-013	Fire Brigade Intial, Plant Tour Lesson Plan	Rev. 0
R7637A-014	Initial Fire Brigade Practical Lesson Plan	Rev. 0
R7637L-001	Fire Behavior Lesson Plan	Rev. 2
R7637L-004	Self Contained Breathing Apparatus Lesson Plan	Rev. 2
R7637L-005	Installed Fire Detection Systems Lesson Plan	Rev. 1
R7637L-006	Installed Fire Protection Systems Lesson Plan	Rev. 1
R7637L-007	Ventilation Lesson Plan	Rev. 1
R7637L-008	Forcible Entry Lesson Plan	Rev. 1
R7637L-009	Basic Rescue Lesson Plan	Rev. 1

R7637L-010	Fire Control Lesson Plan	Rev. 2
R7637L-011	Fire Brigade Member Roles and Responsibilities Lesson Plan	Rev. 2
R7637L-012	Hose, Nozzles and Appliances Lesson Plan	Rev. 1
R7638L-001	Organizational Structure Lesson Plan	Rev. 1

Correspondence

GE	Engineering Report FE-NE-L12-00832-1, Revision 0, "10 CFR Part 50 Appendix R Compliance for Fuel Cladding, Reactor Vessel, and Containment Integrity," (Task 17.2)	09/03/96
NMC	Revisions to Correspondence Service Lists Nuclear Management Company, LLC	09/28/00
NMC	Fire Protection Technical Specification Changes, Conformance to NRC GL 86-10	12/13/00
NSP	Comparison of Existing Fire Protection Provisions to the Guideline Contained in Standard Review Plan 9.5.1	12/10/76
NSP	Completion of Fire Protection Review	07/06/77
NSP	Description of Proposed Cable Spreading Room and Diesel Generator Room Fire Protection Systems	05/08/80
NSP	Report of In Situ Testing Program for Fire Detectors	09/30/80
NSP	Request for Extension of Completion Dates for Approved Fire Protection Modifications and Additional Information for Staff Consideration of "Open" Fire Protection Modifications	02/06/81
NSP	Plans and Schedule for Meeting the Provisions of Paragraphs 50.48(c)(2), (c)(3) and (c)(5) of 10 CFR Part 50; Fire Protection Modifications	03/19/81
NSP	Fire Protection & Safe Shutdown Analysis for Meeting the Reqts of Appendix R, Section III.G.2, Including Exemption Request	06/30/82
NSP	Information Related to Alternate Shutdown System Design	12/15/83
NSP	Information Related to Alternate Shutdown System Design	03/19/84
NSP	Clarification of Inspection Report 50-263/86008 (DRS)	02/11/87
NRC	Fire Detection Open Items Closure	10/29/80
NRC	Evaluation by Brookhaven National Laboratory of MNGP Fire Detection System	06/04/80

NRC	Alternate Shutdown System Design	09/11/85
NRC	Fire Protection Safety Evaluation Open Items & SER	10/02/85
NRC	Inspection 50-263/86008 (DRS) Appendix R Compliance - Conducted October 20-24, 1986	12/03/86
NRC	Implementation of Fire Protection Requirements (Generic 86-10)	04/24/86
NRC	Review of Monticello Individual Plant Examination of External Events (IPEEE) Submittal (TAC No. M83644)	04/14/00
NRC	BWR Owners Group Appendix R Fire Protection Committee Position on SRVS + Low Pressure Systems used as "Redundant" Shutdown Systems Under Appendix R (Topical Report GE-NE-T43-0002-00-03-R01)	12/12/00
NRC	Monticello Nuclear Generating Plan - Issuance of Amendment 119 Re: Fire Protection Technical Specification Changes	04/05/01

Calculations

Calc CA-01-177	Determination of Coolant Loss and Torus Drawdown Resulting from Recirc LOCA	
Calc CA-02-123	Hatch Sprinkler Curtain Flow and Pressure Determination	
Calc CA-02-134	Clean/Dirty Lub Oil Storage Room Sprinkler Flow	
Calc CA-90-023	Minimum Allowable Fuel Oil Stroage Tank Level	
Calc E#8IN301	Hydraulic Calculation for Intake Structure Monticello Northern States Power Company	10/06/83
NEDC-30291	GE Report - Alternate Shutdown System for Monticello Nuclear Generating Plant Northern States Power Company	12/83
NEDO-22087	GE Report - Fire Protection and Safe Shutdown Systems Analysis Report Monticello Nuclear Generating Plant Northern States Power Company	6/82

References

NFPA 10	Standard for the Installation of Portable Fire Extinguishers	1969
NFPA 12A	Halon 1301 Fire Extinguishing Systems	1980

NFPA 13	Standard for the Installation of Sprinkler Systems	1969
NFPA 13	Standard for the Installation of Sprinkler Systems	1969
NFPA 14	Standard for the Installation of Standpipe and Hose Systems	1969
NFPA 72D	Protective Signaling Systems	1975
NFPA 72E	Standard for Automatic Fire Detectors	1974
	Fire Protection Handbook	18th Edition
NFPA 13	Standard for the Installation of Sprinkler Systems	1999
Generic Letter 81-12	Fire Protection Rule	10/19/83
Generic Letter 86-12	Implementation of Fire Protection Requirements	4/24/86
Generic Letter 88-12	Removal of Fire Protection Requirements from Technical Specifications	8/2/88

Miscellaneous

MPS-2061	Cable and Raceway Notes and Details	Rev. 3
NSPLMI-95001	Individual Plant Examination of External Events (IPEEE)	Rev. 1
Self-Assessment	Fire Protection Line Management Self-Assessment Plan	12/4/00
AG 1999-S-4	Internal Audit Report - Plant Support (Testing Laboratory, Fire Protection)	1/20/00
2001-004-05	4th Quarter 2001 Nuclear Oversight Assessment of Monticello	2/5/02
AG 2000-S-4	Internal Audit Report - Plant Support (Fire Protection)	1/31/01
DBD T.1	Fire Protection/Appendix R Program (reference section only)	Rev. B
Design Chg 792005	Extension of Turbine Lube Oil Deluge	1/11/79
FHA-13	Fire Hazards Analysis Plan View - Administration Building Elev. 928’-0" (superceded by NX-16991-14)	Rev. 2
LGP 4.9	Licensing Group Procedure - Document Control for Processing Nuclear Plan Operating License Amendments and Records	Rev. 3
Mod 92Q500	Replace 3 hour fire barrier	

Mod 79Z028	Fire Protection Modification (Halon System - Cable Spreading Room)	
Report	Evaluation of Response Time for Chemetron (Fenwal) Model 27121 Heat Detectors Installed in the Monticello Cable Spreading Room	6/4/02
SCR-02-0007	NMC Standard 10 CFR 50.59 Screening - B.08.05-05, Rev. 23	
SCR-01-0057	NMC Standard 10 CFR 50.59 Screening - Alteration 01A002	
SCR-01-0320	NMC Standard 10 CFR 50.59 Screening - Ops Man B.08.05-05	
SCR-01-0356	NMC Standard 10 CFR 50.59 Screening - Procedure 8165	
SCR-01-0486	NMC Standard 10 CFR 50.59 Screening - B.08.05-05 Rev 23	
Spec 10040-M651	Technical Specification for Contract for Furnishing, Installing & Testing Halogenated Agent Extinguishing System for MNGP	11/28/79
Strategy A.3-08	Fire Zone 8 Cable Spreading Room	Rev. 7
Strategy A.3-12-A	Fire Zone 12-A Lower 4 KV Bus Area (11, 13, & 15)	Rev. 6
Strategy A.3-13-C	Fire Zone 13-C Turbine Bldg, 911’ Elevation MCC Area	Rev. 2
Vol F Memo 2072	Fire Protection Impairment with loss of more than one fire pump	6/18/02
OQAP	Appendix C, Operational Quality Assurance Plan	Rev. 24
OQAP	Appendix D, Operational Quality Assurance Plan	Rev. 24
Bulletin 110Q	Model G Reliable Automatic Sprinklers Spray Upright, Spray Pendent and Conventional	
Bypass 02-023	Jumper Bypass Engineering Evaluation - Turbine Bldg 951’ Sprinkler Curtain Head Replacement & Separation Baffle Upgrade	