

July 27, 2005

Mr. J. Conway
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 INTEGRATED INSPECTION REPORT 05000263/2005003
AND NOTICE OF VIOLATION

Dear Mr. Conway:

On June 30, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Monticello Nuclear Generating Plant. The enclosed report documents the inspection findings which were discussed on July 7, 2005, with Mr. Rick Jacobs and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, an issue was reviewed under the NRC traditional enforcement process and determined to be a Severity Level IV violation of an NRC requirement. The circumstances surrounding the violation is described in detail in the subject inspection report. The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's web site at www.nrc.gov; select **What We Do, Enforcement**, then **Enforcement Policy**. The violation was cited in the enclosed Notice of Violation (Notice) because your staff failed to restore compliance and failed to place the issue into the corrective action program.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Additionally, there were one NRC-identified and two self-revealed findings of very low safety significance, of which two involved violations of NRC requirements. However, because these violations were of very low safety significance and because the issues were entered into the licensee's corrective action program, the NRC is treating these findings as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy. In addition, licensee identified violations are listed in Section 4OA7 of this report.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Monticello Nuclear Generating Station.

In accordance with 10 CFR 2.390 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/

Mark A. Satorius, Director
Division of Reactor Projects

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

Enclosure: 1. Notice of Violation
2. Inspection Report 05000263/2005003
w/Attachment: Supplemental Information

cc w/encl: J. Cowan, Executive Vice President
and Chief Nuclear Officer
Manager, Regulatory Affairs
J. Rogoff, Vice President, Counsel, and Secretary
Nuclear Asset Manager, Xcel Energy, Inc.
Commissioner, Minnesota Department of Health
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
Manager - Environmental Protection Division
Minnesota Attorney General's Office

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NOTICE OF VIOLATION

Nuclear Management Company, LLC
Monticello Nuclear Generating Plant

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

During an NRC inspection conducted from April 1, 2005, through June 30, 2005, a violation of NRC requirements was identified. In accordance with the for NRC Enforcement Policy the violations is listed below:

1. Section (b)(3)(iv)(A) of 10 CFR 50.72 requires the licensee notify the NRC Operations Center as soon as practical and in all cases within eight hours for any event or condition that results in a valid actuation of certain specified systems.

Contrary to the above, on April 2, 2005, the licensee failed to make a required notification to the NRC when it experienced a valid actuation of the reactor building ventilation isolation system, the A standby gas treatment system, and the A control room emergency filtration train and a partial primary containment group II isolation, systems which were specified under 10 CFR 50.72 as being reportable upon a valid actuation. As of June 30, 2005, the licensee failed to notify the NRC Operations Center, a period in excess of eight hours.

This is a Severity Level IV violation (Supplement I).

Pursuant to the provisions of 10 CFR 2.201, Nuclear Management Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555 with a copy to the Regional Administrator, Region III, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include: (1) the reason for the violation, or if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given for extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records (PARS) component of the NRC's document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at <http://www.nec.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room). If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the basis for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 27 day of July 2005

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-263

License No: DPR-22

Report No: 05000263/2005003

Licensee: Nuclear Management Company, LLC

Facility: Monticello Nuclear Generating Plant

Location: 2807 West Highway 75
Monticello, MN 55362

Dates: April 1 through June 30, 2005

Inspectors: S. Burton, Senior Resident Inspector
S. Ray, Senior Resident Inspector
R. Orlikowski, Resident Inspector
C. Acosta Acevedo, Reactor Engineer
D. Eskins, Resident Inspector, Lasalle
M. Holmberg, Reactor Inspector
M. Jordan, Reactor Engineer
D. Karjala, Resident Inspector, Prairie Island
C. Zoia, Acting Project Engineer

Observers: None

Approved by: B. Burgess, Chief
Branch 2
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000263/2005003; 04/01/2005 - 06/30/2005; Monticello Nuclear Generating Plant; Operability Evaluations and Event Follow-up.

This report covers a 3-month period of baseline resident inspection, Temporary Instruction (TI) 2515/163, "Operational Readiness of Offsite Power," and an announced baseline inspection of heat sink performance. The inspections were conducted by Region III reactor inspectors and the resident inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (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. Inspector-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance and Non-Cited Violation (NCV) was identified on August 3, 2004, by the inspectors when the engineering and operations groups failed to fully evaluate the availability of a vent path credited in the operability evaluation for a degraded high energy line break (HELB) issue. Specifically, the inspectors identified that the ventilation damper credited as a vent path for a feedwater HELB failed in the shut position on a loss of service air, isolating the vent path. The primary cause of this finding was related to the cross-cutting area of Human Performance. The licensee entered this into their corrective action program (CAP) and completed plant modifications to install HELB dampers to isolate the turbine building mild environments from the turbine building harsh environments.

The inspectors determined that the issue was more than minor because it directly impacted the equipment performance attribute for availability and reliability of the mitigating systems. The finding was of very low safety significance because it was considered a design deficiency which did not result in loss of function per Generic Letter 91-18, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions," Revision 1. This issue was a Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criteria III, "Design Control." (Sections 1R15, 4OA4.1, and 4OA5.2)

- Green. A finding of very low safety significance was self-revealed on March 8, 2005, when residual heat removal (RHR) flow to the shutdown reactor was lost for approximately 13 minutes due to an inadequately written and reviewed isolation procedure for outage work. The primary cause of this finding was related to the cross-cutting area of Human Performance. Corrective actions included immediate restoration of shutdown cooling, placing all outage isolations on hold for additional reviews and impact assessments, an operations department stand down, and increased management observations of equipment isolations. Additional corrective actions to

revise work control and outage processes were in progress and being tracked through the corrective action program.

The inspectors evaluated the finding using the IMC 0609 Appendix G, "Shutdown Significance Determination Process (SDP)." Using a Phase 3 SDP, the NRC determined that the finding was of very low safety significance because multiple systems were available for manual injection and recovery of RHR was uncomplicated. Because procedures required by Technical Specifications for initiating isolations were adequate and were followed, albeit inadequately, this finding was not considered a violation of NRC requirements. (Sections 4OA3.4 and 4OA4.2)

- Green. A finding of very low safety significance and Non-Cited Violation (NCV) was self-revealed when, on April 2, 2005, with the reactor shutdown during a refueling outage, performance of an inadequately written and reviewed post-maintenance test (PMT) resulted in a temporary loss of electrical bus 16 and actuation of several engineered safety features. The primary cause of this finding was related to the cross-cutting area of Human Performance. Corrective actions included restoring the bus and increasing technical and management reviews of PMTs. In addition, the licensee was in the process of revising the PMT development process to strengthen the levels of review in a graded approach.

The event was more than minor because it involved the Mitigating Systems Cornerstone attribute of procedure quality and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. During the time period that bus 16 was lost, one train of mitigating system equipment was not available. The finding was determined to be of very low safety significance by comparing it with the results of a Phase 3 SDP for a similar earlier event. Since, in this case, shutdown cooling was not actually lost and other plant conditions were similar to the previous event, the significance was no more than for the previous event which had been categorized as of very low safety significance. This was an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for a PMT procedure that was not appropriate for the circumstances. (Sections 4OA3.6 and 4OA4.3)

- Severity Level IV. The inspectors identified a Severity Level IV violation when the licensee failed to make a notification, within 8 hours, to the NRC Operations Center, in accordance with 10 CFR 50.72(b)(3)(iv)(A), for an event involving loss of bus 16 and actuation of engineered safety features on April 2, 2005. The licensee did not restore compliance or take any corrective actions.

Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. The violation of 10 CFR 50.72 is categorized in accordance with the NRC Enforcement Policy at Severity Level IV. Since the licensee failed to place the violation into a corrective action program to address recurrence, the violation was cited. (Sections 4OA3.5 and 4OA4.3)

B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Monticello started the inspection period in a shutdown condition for a refueling outage. The reactor was made critical on April 10, 2005, the generator was placed on the grid on April 13, and the plant reached full power on April 16. The plant operated at full power for the remainder of the inspection period except for brief down-power maneuvers to accomplish rod pattern adjustments.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

Readiness for Seasonal Susceptibilities

a. Inspection Scope

The inspectors performed a detailed review of the licensee's procedures and a walkdown of two systems to observe the licensee's preparations for adverse weather, including conditions that could result from high temperatures or high winds. The inspectors focused on plant specific design features for the systems and implementation of the procedures for responding to or mitigating the effects of adverse weather. Inspection activities included, but were not limited to, a review of the licensee's adverse weather procedures, preparations for the summer season, and a review of analysis and requirements identified in the Updated Safety Analysis Report (USAR). The inspectors also verified that operator actions specified by plant specific procedures were appropriate. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors evaluated readiness for seasonal susceptibilities for the following systems for a total of two samples:

- emergency diesel generator - emergency service water (EDG-ESW); and
- switchyard.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

Partial Walkdown

a. Inspection Scope

The inspectors performed partial walkdowns of accessible portions of trains of risk-significant mitigating systems equipment. The inspectors reviewed equipment alignment to identify any discrepancies that could impact the function of the system and potentially increase risk. Identified equipment alignment problems were verified by the inspectors to be properly resolved. The inspectors selected redundant or backup systems for inspection during times when equipment was of increased importance due to unavailability of the redundant train or other related equipment. Inspection activities included, but were not limited to, a review of the licensee's procedures, verification of equipment alignment, and an observation of material condition, including operating parameters of equipment in-service. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors selected the following equipment trains to assess operability and proper equipment line-up for a total of three samples:

- A residual heat removal (RHR) train with B RHR out-of-service for maintenance;
- B residual heat removal service water (RHRSW) train with 12 control rod drive (CRD) pump out-of-service for maintenance; and
- B core spray (CS) train with A CS train out-of-service for maintenance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Zone Walkdowns (71111.05Q)

a. Inspection Scope

The inspectors walked down risk significant fire areas to assess fire protection requirements. The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and had implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems or features. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events (IPEEE), or the potential to impact equipment which could initiate or mitigate a plant transient. The inspection activities included, but were not limited to, the control of transient combustibles and ignition sources, fire detection equipment, manual suppression capabilities, passive suppression capabilities, automatic suppression capabilities, compensatory measures, and barriers

to fire propagation. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors selected the following areas for review for a total of nine samples:

- Fire Zone 24, diesel fire pump room;
- Fire Zone 12-A, lower 4160 volt bus area (buses 11, 13, and 15);
- Fire Zone 8, cable spreading room;
- Fire Zone 23-A, intake structure pump room;
- Fire Zone 34, 35, and 36, east electrical equipment room and 13 diesel generator (DG);
- Fire Zone 9, control room;
- Fire Zone 13-B; main turbine lube oil reservoir and reactor feed pump area, turbine building elevation 911;
- Fire Zone 19-B, turbine building elevation 931 motor control center (MCC) 142 and 143 area; and
- Fire Zone 31-B, first floor emergency filtration train (EFT) building (Division II).

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Review (71111.05A)

a. Inspection Scope

The inspectors reviewed fire drill activities to evaluate the licensee's ability to control combustibles and ignition sources, the use of fire fighting equipment, and their ability to mitigate the event. The inspection activities included, but were not limited to, the fire brigade's use of fire fighting equipment, effectiveness in extinguishing the simulated fire, effectiveness of communications amongst fire brigade members and the control room, command and control of the fire commander, and observation of the post-drill critique. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors observed the following fire drill for a total of one sample:

- the licensee's fire brigade response to an announced fire drill at the 2R auxiliary transformer.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors performed an annual review of flood protection barriers and procedures for coping with internal and external flooding. The inspection focused on determining whether flood mitigation plans and equipment were consistent with design requirements and risk analysis assumptions. The inspection activities included, but were not limited to, a review and/or walkdown to assess design measures, seals, drain systems, contingency equipment condition and availability of temporary equipment and barriers, performance and surveillance tests, procedural adequacy, and compensatory measures. The inspectors utilized the documents listed in the attachment to accomplish the objectives of the inspection procedure.

The inspectors selected the following equipment for a total of two samples:

- external flood protection measures; and
- turbine building 931 east elevation and 125 volt battery rooms.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

Biennial Review

a. Inspection Scope

The inspectors reviewed the performance of the A and B RHRSW room coolers (a total of two heat exchangers). These heat exchangers were chosen for review based on their high risk assessment worth in the licensee's probabilistic safety analysis. This review resulted in the completion of two inspection samples. While on-site, the inspectors verified that the inspection/maintenance were adequate to ensure proper heat transfer. This was done by conducting independent heat transfer capability calculations, reviewing the methods used to inspect the heat exchangers, and verifying that the as-found results were appropriately dispositioned, such that the final condition was acceptable. The inspectors also verified by review of procedures and test results that chemical treatments, ultrasonic tests, and methods used to control biotic fouling corrosion and macrofouling were sufficient to ensure required heat exchanger performance.

The inspectors verified that the condition and operation were consistent with design assumptions in heat transfer calculations by conducting a service water system walkdown and reviewing related procedures and surveillance. The inspectors also verified that redundant and infrequently used heat exchangers were flow tested periodically at maximum design flow. This was performed by reviewing related procedures and surveillance.

The inspectors verified the performance of the ultimate heat sink and its sub-components, such as piping, intake screens, intake bays, pumps, valves, etc. by reviewing procedures, surveillance, and inspections conducted on the system.

The inspectors verified that the licensee had entered significant heat exchanger/heat sink problems into their corrective action program (CAP). The inspectors reviewed issues entered to verify that the corrective actions taken were appropriate.

The documents that were reviewed as part of this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Requalification Activities Review by Resident Staff

a. Inspection Scope

The inspectors performed a quarterly review of licensed operator requalification training. The inspection assessed the licensee's effectiveness in evaluating the requalification program, ensuring that licensed individuals operate the facility safely and within the conditions of their license, and evaluated licensed operator mastery of high-risk operator actions. The inspection activities included, but were not limited to, a review of high risk activities, emergency plan performance, incorporation of lessons learned, clarity and formality of communications, task prioritization, timeliness of actions, alarm response actions, control board operations, procedural adequacy and implementation, supervisory oversight, group dynamics, interpretations of Technical Specifications (TS), simulator fidelity, and licensee critique of performance. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors observed the following requalification activity for a total of one sample:

- an operating crew during an evaluated simulator scenario that included a recirculation pump runup, feedwater pump rupture, and stuck open safety relief valve with a tailpipe rupture, which resulted in a manual reactor scram, entry into emergency operating procedures, and emergency depressurization.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

Routine Maintenance Effectiveness Inspection

a. Inspection Scope

The inspectors reviewed systems to assess maintenance effectiveness, including maintenance rule activities, work practices, and common cause issues. Inspection activities included, but were not limited to, the licensee's categorization of specific issues including evaluation of performance criteria, appropriate work practices, identification of common cause errors, extent of condition, and trending of key parameters. Additionally, the inspectors reviewed implementation of the Maintenance Rule (10 CFR 50.65) requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, functional failure determinations associated with reviewed CAP documents, and current equipment performance status. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors performed the following maintenance effectiveness reviews for a total of two samples:

- an issue/problem-oriented review of the RHRSW system because it was designated as risk significant under the Maintenance Rule and the system experienced a blockage of flow to the 12/14 RHRSW pump motor coolers due to sand/grit build-up after long standing issues with debris/sand fouling in the RHRSW system; and
- an issue/problem-oriented review of the non-essential DG system because it was designated as risk significant under the Maintenance Rule and the system experienced performance problems which resulted in it being placed in the Maintenance Rule (a)(1) category.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed maintenance activities to review risk assessments (RAs) and emergent work control. The inspectors verified the performance and adequacy of RAs, management of resultant risk, entry into the appropriate licensee-established risk bands, and the effective planning and control of emergent work activities. The inspection activities included, but were not limited to, a verification that licensee RA procedures were followed and performed appropriately for routine and emergent maintenance, that RAs for the scope of work performed were accurate and complete, that necessary actions were taken to minimize the probability of initiating events, and that activities to ensure that the functionality of mitigating systems and barriers were performed. Reviews also assessed the licensee's evaluation of plant risk, risk management,

scheduling, configuration control, and coordination with other scheduled risk significant work for these activities. Additionally, the assessment included an evaluation of external factors, the licensee's control of work activities, and appropriate consideration of baseline and cumulative risk. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors observed maintenance or planning for the following activities or risk significant systems undergoing scheduled or emergent maintenance for a total of five samples:

- troubleshooting of an emergent reactor core isolation cooling (RCIC) system operability problem while breaker 8N12 and the 12 service water pump were also out-of-service;
- routine scheduled maintenance and risk management during planned maintenance on the 12 CRD pump;
- routine scheduled maintenance and risk management during troubleshooting of 14 ESW pump for high vibrations;
- routine scheduled maintenance and risk management during planned maintenance on the high pressure coolant injection (HPCI) system and the 2R and 2RS transformers; and
- troubleshooting of an emergent RHRSW pressure control valve problem while the 2R and 2RS transformers were also out-of-service.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed operability evaluations which affected mitigating systems or barrier integrity to ensure that operability was properly justified and that the component or system remained available. The inspection activities included, but were not limited to, a review of the technical adequacy of the operability evaluations to determine the impact on TS, the significance of the evaluations to ensure that adequate justifications were documented, and that risk was appropriately assessed. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors reviewed the following operability evaluations for a total of five samples:

- indications of localized wall thickness reduction in the service water supply line to the A RHR heat exchanger;
- non-destructive examination thickness less than 87.5 percent of nominal thickness on the B feedwater to reactor line;
- inadvertent closure of AO-2886, condensate service water system cross-tie header;
- failure of Division I RHR torus cooling injection/test inboard valve to close; and

- high energy line break (HELB) calculations for differential pressure challenge turbine building wall qualification.

b. Findings

Introduction: The inspectors identified a finding of very low safety significance involving a Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion III, "Design Control." The inspectors identified that the engineering and operations groups failed to fully evaluate the availability of a vent path credited in the operability evaluation for a degraded HELB issue. Specifically, the inspectors identified that the ventilation damper credited as a vent path for a feedwater HELB failed in the shut position on a loss of service air, isolating the vent path. This item, previously discussed in Inspection Report 05000263/2004004, Section 1R15, was Unresolved Item (URI) 05000263/2004004-01. The URI is closed in Section 4OA5.2 of this report.

Description: On June 2, 2004, the engineering group identified that the GOTHIC computer model used to analyze a turbine building HELB failed to include four flow paths within the turbine building. The condition had the potential to affect the operability of equipment associated with the 4160 volt system (bus 15 and bus 16), the 480 volt system (LC-103 and LC-104), and the 125 volt system (D111 and D211). Specifically, the engineering group identified three heating, ventilation, and air conditioning (HVAC) flow paths that existed between a single turbine building mild environment and three turbine building harsh environments. The turbine building mild environment included both 4160 volt essential switchgear rooms, the 941 elevation cableway, and the 931 elevation Division II essential MCCs. The harsh environments included the 911 elevation condenser area, the 951 elevation turbine building operating floor, and the 911 elevation feedwater pump area. The unanalyzed flow paths might have allowed steam to travel to the mild environment areas during a HELB via the existing HVAC ductwork.

Upon discovery, the engineering department initiated CAP033462 to document the issue. The operations department took compensatory measures to block shut three dampers to isolate the flow paths between the turbine building harsh and mild environments. An operability evaluation was performed documenting the operability of the potentially affected equipment.

On August 3, 2004, the inspectors reviewed the operability evaluation and noted that it took credit for a vent path in the ventilation system that would help mitigate the consequences of a HELB by relieving steam and pressure. However, when the inspectors raised questions about the design of a damper in the vent path, it was identified that the damper failed shut on a loss of service air, thus isolating the vent path. The engineering department initiated CAP034281 to document the issue. Subsequently, compensatory measures were taken to ensure the vent path damper remained open. A period of approximately 55 days passed from the time compensatory measures were first taken to isolate the flow paths to when the licensee took compensatory measures to block open the damper to ensure the vent path remained open.

Analysis: The inspectors reviewed the finding and determined that a performance deficiency existed because engineering and operations personnel failed to fully evaluate the availability of a vent path credited in the operability evaluation for a degraded HELB issue. The inspectors determined that the issue was more than minor because a feedwater HELB had the potential to directly impact the equipment performance attribute for availability and reliability of the mitigating systems as well as human performance and the finding affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors reviewed this finding in accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Using the Phase 1 Significance Determination Process (SDP) worksheet for the Mitigation Systems Cornerstone, the inspectors determined that this finding was considered a design deficiency which did not result in loss of function per Generic Letter 91-18, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions," Revision 1. Therefore, this finding was considered to be of very low safety significance (Green). This finding was assigned to the Mitigating Systems Cornerstone and also involved the cross-cutting area of Human Performance.

Enforcement: Title 10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, that design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design. Monticello USAR, Appendix I, "Postulated Pipe Failures Outside of Containment," states, in part, that both 4160 volt essential switchgear rooms, the 941 elevation cableway, and the 931 elevation Division II essential MCCs were mild environments and were not adversely affected by ruptures in pipes carrying high energy fluid.

Contrary to the above, on June 2, 2004, operations personnel implemented compensatory field changes to the turbine building HVAC system. These changes were intended to prevent interactions between a single turbine building mild environment and three turbine building harsh environments through HVAC flow paths that existed in the turbine building. On August 3, 2004, NRC inspectors identified that one of dampers credited in the operability analysis (OPR000101) as providing a vent flow path would fail shut on a loss of service air. The licensee took compensatory measures to ensure the vent path damper remained open and initiated CAP034281 to document the issue. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program, the violation was being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy, (NCV 05000263/2005003-01). The licensee subsequently completed plant modifications to install HELB dampers to isolate the single turbine building mild environment from the three turbine building harsh environments.

1R16 Operator Workarounds (71111.16)

.1 Operator Workaround Semiannual Review of Cumulative Effects

a. Inspection Scope

The inspectors performed a semiannual review of the cumulative effects of operator workarounds (OWAs). The inspectors reviewed OWAs to identify any potential effect on the functionality of mitigating systems. The inspection activities included, but were not limited to, a review of the cumulative effects of the OWAs on the availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents. Additionally, reviews were conducted to determine if the workarounds could increase the possibility of an initiating event, if the workaround was contrary to training, required a change from long standing operational practices, created the potential for inappropriate compensatory actions, impaired access to equipment, or require equipment uses for which the equipment was not designed. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding. This inspection constituted one sample of the semiannual requirement.

b. Findings

No findings of significance were identified.

.2 Quarterly Review of Selected Operator Workarounds

a. Inspection Scope

The inspectors reviewed an operator workaround involving the operation of the EDG-ESW during DG operation. The inspectors reviewed the workaround's potential to impact the operators' ability to isolate the ESW system from the service water system to prevent deadheading the ESW pumps during operation of the EDG. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding. This review represented one inspection sample.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors verified that the post-maintenance testing (PMT) procedures and activities were adequate to ensure system operability and functional capability. Activities were selected based upon the structure, system, or component's ability to impact risk. The inspection activities included, but were not limited to, witnessing or reviewing the integration of testing activities, applicability of acceptance criteria, test equipment calibration and control, procedural use and compliance, control of temporary

modifications or jumpers required for test performance, documentation of test data, system restoration, and evaluation of test data. Also, the inspectors verified that maintenance and PMT activities adequately ensured that the equipment met the licensing basis, TS, and USAR design requirements. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors selected the following PMT activities for review for a total of seven samples:

- repair of CRD 38-31 insert line;
- replace the screen wash fire pump with a rebuilt unit;
- repair of the RCIC controller;
- repair of bus 16 safeguards relay 97-31;
- preventive maintenance and repair of the 12 CRD pump;
- preventive maintenance and repairs on the HPCI system; and
- RHRSW check valves SW-21-1 and SW-21-2 post-repair testing.

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated outage activities for a refueling outage that was in progress at the beginning of the inspection period and ended on April 13, 2005. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule, developed mitigation strategies for loss of key safety functions, and adhered to operating license and TS requirements to ensure defense-in-depth. The inspection activities included, but were not limited to, a review of the outage plan, control of outage activities and risk, observation of reduced inventory operations, observations of startup and physics testing, and other maintenance and refueling activities. This inspection constituted the completion of a sample that was initiated and accounted for in NRC Inspection Report 05000263/2005002. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

In addition to activities inspected utilizing specific procedures, the following represents a partial list of the major outage activities the inspectors reviewed/observed, all or in part:

- control room turnover meetings and selected pre-job briefings;
- control room demeanor, communications, self/peer checking, and equipment panel control;
- outage management turnover meetings;
- walkdowns of the reactor and turbine building to observe ongoing work activities;
- walkdowns of the main control room to observe alignment of systems important to shutdown risk;

- leak rate testing activities;
- outage equipment configuration and risk management;
- electrical line-ups;
- selected clearances;
- control and monitoring of decay heat removal;
- drywell closure;
- startup and heatup activities, including criticality, feed pump startup, main turbine generator startup and synchronization, and elements of power escalation to full power; and
- identification and resolution of problems associated with the outage.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed surveillance testing activities to assess operational readiness and to ensure that risk-significant structures, systems, and components were capable of performing their intended safety function. Activities were selected based upon risk significance and the potential risk impact from an unidentified deficiency or performance degradation that a system, structure, or component could impose on the unit if the condition was left unresolved. The inspection activities included, but were not limited to, a review for preconditioning, integration of testing activities, applicability of acceptance criteria, test equipment calibration and control, procedural use, control of temporary modifications or jumpers required for test performance, documentation of test data, TS applicability, impact of testing relative to performance indicator (PI) reporting, and evaluation of test data. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors selected the following surveillance testing activities for review for a total of six samples:

- drywell prestart inspection;
- 13 ESW quarterly pump and valve tests;
- reactor coolant pressure boundary (RCPB) leakage test;
- condenser low vacuum scram instruments test and calibration;
- reactor high pressure scram functional test; and
- RHR loop A quarterly pump and valve test.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed a temporary modification to assess the impact of the modification on the safety function of the associated system. The inspection activities included, but were not limited to, a review of design documents, safety screening documents, USAR, and applicable TS to determine that the temporary modification was consistent with modification documents, drawings and procedures. The inspectors also reviewed the post-installation test results to confirm that tests were satisfactory and the actual impact of the temporary modification on the permanent system and interfacing systems were adequately verified. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors selected the following temporary modification for review for a total of one sample:

- replace feeder cable for 11 recirculation pump motor generator (MG) set motor.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors selected emergency preparedness exercises that the licensee had scheduled as providing input to the Drill/Exercise PI. The inspection activities included, but were not limited to, the classification of events, notifications to off-site agencies, protective action recommendation development, and drill critiques. Observations were compared with the licensee's observations and CAP entries. The inspectors verified that there were no discrepancies between observed performance and PI reported statistics. As part of this inspection, the documents in the attachment were utilized to evaluate the potential for an inspection finding.

The inspectors selected the following emergency preparedness activity for review for a total of one sample:

- an emergency response drill with a simulated reactor coolant leak that was performed on May 16, 2005, in conjunction with licensed operator requalification training, including simulated notifications to state, county, and local agencies for an alert classification.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the routine inspections documented in this report, the inspectors verified that the licensee entered the problems identified during the inspection into its CAP. Additionally, the inspectors verified that the licensee was identifying their issues at an appropriate threshold and entering them in the CAP, and verified that problems included in the licensee's CAP were properly addressed for resolution. Attributes reviewed included: complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrence reviews were proper and adequate; and that the classification, prioritization and focus were commensurate with safety and sufficient to prevent recurrence of the issue.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing daily CAP summary reports and attending corrective action review board meetings.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors reviews were focused on radiation protection and procedural error issues, but also considered the results of daily inspector CAP item screening discussed in

Section 4OA2.2 of this report, licensee trending efforts, and licensee human performance results. The inspectors reviews nominally considered the period of January 2005 through June 2005, although some examples expanded beyond those dates when the scope of the trend warranted.

Inspectors reviewed adverse trend CAP items associated with various events that occurred during the period. The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and maintenance rule assessments. The specific items reviewed are listed in the attachment to this report. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending documents. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy.

The inspectors also evaluated the licensee's trending report against the requirements of the licensee's CAP as specified in 4 AWI-10.01.01, "Corrective Action Program," and 10 CFR 50, Appendix B. Additional documents reviewed are listed in the attachment to this report.

b. Assessment and Observations

There were no findings of significance identified. The inspectors evaluated the licensee trending methodology and observed that the licensee had performed a detailed review. The licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in their CAP data. The inspectors compared the licensee process results with the results of the inspectors' daily screening and did not identify any discrepancies.

4. Selected Issue Follow up (Annual Sample): RHRSW System Motor Cooling Issues

a. Inspection Scope

On June 14, 2005, the licensee entered an unplanned limiting condition for operations (LCO) action requirement for Division II CS due to sand intrusion within the B RHRSW system. The inspectors chose to perform a more in-depth review of the licensee's corrective actions for this issue. Previous CAPs and work orders (WOs) pertaining to the RHRSW system were also reviewed to ensure that the licensee's corrective actions were commensurate with the significance of previously identified issues. The inspectors reviewed CAPs and WOs looking for any previous history of sand intrusion, previous instances of reduced motor cooler flow, or repeat equipment issues related to the A and B RHRSW system motor coolers.

b. Issues

The inspectors identified a discrepancy between the corrective actions associated with two similar CAPs. On November 4, 2004, CAP035620 was written to document that flow through the 12 and 14 RHRSW motor coolers was within the procedure's acceptance band but required an air flush. Operators performed an air flush of the

system and then measured the as-left motor cooler flow. The as-left flow measurement again met the requirement for pump operability, but was outside the as-left flow range of the procedure. The licensee wrote WO0403809 to perform a cleaning of the 12 and 14 RHRSW motor coolers.

On May 6, 2005, CAP038945 was written to document that the 12 and 14 RHRSW as-found combined motor cooler flow was within the procedure's acceptance band but required an air flush. After the air flush was performed, the as-left motor cooler flow was greater than the minimum required for pump operability but was still outside the as-left acceptance band, the same condition following the licensee's November 4, 2004, air flush activity. The CAP was closed to trend and no cleaning of the 12 and 14 motor coolers was performed.

The 12 and 14 RHRSW pump motor cooler flows were never measured to be less than the minimum required for operability. However, after the May 6, 2005, quarterly surveillance was performed, CAP038945 was closed to trend and no work order was written to perform a motor cooler cleaning as had been done for CAP035620. While there is no regulatory requirement to perform a motor cooler cleaning, it was generally considered a good practice.

The inspectors also discussed with the system engineer the possibility that the degraded flow identified on November 4, 2004, and May 6, 2005, could have been an indication that the 12 and 14 RHRSW system line was fouling and that is what led to the B RHRSW system being declared inoperable on June 14, 2005, due to insufficient motor cooler flow. The system engineer provided the inspectors with the results from the surveillance performed during the first quarter of 2005 that found the 12 and 14 RHRSW motor cooler flows to be within the acceptance band of the procedure. This led the inspectors to conclude that there was not a declining trend in the 12 and 14 RHRSW motor cooler flow that could have alerted licensee personnel to a degraded condition of the B RHRSW motor cooler flow.

No findings of significance were identified.

4OA3 Event Follow-up (71153)

.1 (Closed) Licensee Event Report (LER) 05000263/2004-002-00: Cable Separation Issue Identified During Appendix R Re-analysis.

On September 1, 2004, during a reconstitution review of the Monticello 10 CFR 50, Appendix R, Safe Shutdown Analysis (SSDA) Program, the licensee discovered a nonconformance with 10 CFR 50, Appendix R, III.G.2 divisional criteria. The licensee determined that the 4160 volt motor power cables for the Division I RHR and CS pumps passed through a Division II area without an adequate barrier. The cause of this issue was a failure by personnel to recognize a 10 CFR 50, Appendix R, compliance issue with the cable routing in the original SSDA. Corrective actions include a modification to provide a 3-hour rated fire barrier for the Division I RHR and CS cables. The licensee entered this into their corrective action program as CAP033003. A licensee-identified violation is discussed in Section 4OA7.1.

.2 (Closed) LER 05000263/2005-001-00 and (Closed) LER 05000263/2005-001-01:
Single Failure Identified That Could Prevent Energizing Buses 15 and 16.

Some of the issues described in this LER were previously discussed in Inspection Report 05000263/2005002, Section 1R14. On February 4, 2005, the licensee identified a single point vulnerability between the 4160 volt vital bus circuit breakers 152-610 and 152-511 overcurrent relays. Activation of the supply circuit's overcurrent relays due to a hot smart short could initiate a respective bus (15/16) lockout. The licensee attributed the apparent cause of the single point vulnerability issue to a failure to recognize an original plant construction design which was noncompliant to 10 CFR 50, Appendix A, "General Design Criteria." Corrective actions included design modifications to remove the 4160 volt vital bus relaying and metering single point vulnerability. The licensee entered this into their corrective action program as CAP036987.

On February 23, 2005, upon further evaluation, the licensee identified a previously undiscovered Appendix R non-compliance related to the 1AR transformer breaker 152-610 to safeguards bus 16 current transformers. During a postulated fire in the control room and/or cable spreading room, this noncompliance could have caused a lockout of bus 16 that would not be able to be overridden during a transfer to the alternate shutdown system (ASDS), preventing Division II equipment operation from the control room and ASDS panel. The apparent cause of the Appendix R vulnerability was a failure to completely implement the original ASDS design recommendation by General Electric (GE) Safe Shutdown Analysis reports. Corrective actions included disconnecting the cable to isolate the ASDS Appendix R vulnerability. The licensee also performed an engineering review of the ASDS design to validate compliance with the originally proposed General Electric ASDS design recommendation. The licensee entered this into their corrective action program as CAP037264.

On April 5, 2005, as an additional result of the review discussed above, the licensee discovered that the bus 16 source to load center 104 had a similar potential vulnerability with the ASDS isolation design that could result in load center 104 being locked out in the event of a control room or cable spreading room fire. The licensee reported this latest issue in Revision 1 of the original LER. Plant modifications were performed to remove the vulnerabilities.

A licensee-identified violation is discussed in Section 4OA7.2.

.3 (Closed) LER 05000263/2005-002-00: Failure of #11 Reactor Protection System Motor-Generator Set Results in an Engineered Safety Feature Actuation.

This event, which occurred on February 24, 2005, was previously discussed in Inspection Report 05000263/2005002, Section 4OA3.2. The licensee issued the LER on April 25, 2005, within the required time frame. Based on an evaluation by a vendor, the licensee attributed the MG set failure to a winding short due to age-related degradation of the winding insulation. The inspectors determined that the event did not involve a performance deficiency and that it was of minor safety significance, for the reasons discussed in the LER. In addition to repairing the motor, licensee corrective actions consisted of an extent of condition review looking for other motors with extended duty times and a planned evaluation to determine the frequency for re-winding or

replacing various motors on the plant critical equipment list. The LER was reviewed by the inspectors and no findings of significance were identified. In addition to the LER, other documents reviewed during this inspection are listed in the attachment. The licensee entered this issue into its corrective action program as CAP037306.

.4 (Closed) LER 05000263/2005-003-00: Loss of Shutdown Cooling Due to #12 Residual Heat Removal Pump Trip.

Introduction: A finding of very low safety significance was self-revealed on March 8, 2005, when RHR flow to the shutdown reactor was lost for approximately 13 minutes due to an inadequately written and reviewed isolation procedure for outage work.

Description: On March 8, 2005, while performing an isolation for outage work on safety relief valves, de-energizing the electrical supply breakers designated on the isolation caused the unexpected loss of a large number of logic circuits for various pieces of equipment and initiated several annunciators in the control room. Operations supervision ordered the isolation to be restored, and while it was being restored, the running 12 RHR pump spuriously sensed a closure of its suction valve, and tripped as designed. After a few minutes, operators recognized the loss of shutdown cooling and initiated actions to restart the pump. Shutdown cooling had been lost for a total of about 13 minutes. Reactor coolant temperature and level did not change measurably during the time cooling was lost. The licensee reported the event to the NRC in accordance with 10 CFR 50.72 as Event Number 41468 and entered it into its corrective action program as CAP037567.

As part of the CAP review, the licensee performed a root cause evaluation and initiated extensive corrective actions. The cause of the event was determined to be an inadequately planned isolation. The outage isolation was written in advance of the outage but due to manpower shortages, pre-outage milestone pressures, inadequate change management, inadequate management oversight, and personnel performance issues, this isolation specified isolation of 125 volt supply breakers, which supplied numerous circuits in addition to the ones that needed to be de-energized. Had the isolation writer made a more careful review of the electrical prints or used pre-approved isolation points in the maintenance procedure, individual circuit fuses would have been used as isolation points and power would have been maintained on the rest of the circuits.

Additional opportunities to prevent this event were missed during the review, approval, and pre-job briefing processes for the isolation when the reviewer did not ask for help when he had trouble reading the prints, when questions regarding the potential effect of the isolation on shutdown cooling were not pursued, and when the pre-job briefing concentrated almost exclusively on personnel safety and not on the adequacy of the isolation itself.

Corrective actions included immediate restoration of shutdown cooling, placing all outage isolations on hold for additional reviews and impact assessments, an operations department stand down, and increased management observations of equipment

isolations. Additional corrective actions to revise work control and outage processes were in progress and being tracked through the corrective action program.

Analysis: The inspectors evaluated the finding using the IMC 0609 Appendix G, "Shutdown Significance Determination Process". Based on checklist 6, the inspectors determined that this finding required a Phase 2 analysis because it resulted in a loss of the decay heat removal system. The NRC Region III Senior Reactor Analyst (SRA) evaluated the finding using the worksheet for the Loss of an Operating Train of RHR in Plant Operating State 2. Because the finding resulted in a loss of RHR and the loss of all automatic emergency core cooling system (ECCS) injection capability, no credit was initially given for these functions. A credit of 3 was given for recovery of RHR because the system was restored quickly and because a large amount of time was available to recover RHR prior to reactor coolant system boiling and subsequent core uncovering. A credit of 2 was given for manual injection of other available injection systems. This Phase 2 result was determined to be Yellow with a dominant sequence of the loss of RHR, failure to recover RHR, and the failure to manually inject to the reactor coolant system with other systems. The SRA determined that this result was overly conservative given that multiple systems were available for manual injection, and recovery of RHR and automatic injection systems was not difficult. The Phase 2 worksheets assumed a low dependence between the recovery of RHR and the operator action to manually inject using other systems. For this particular scenario, the SRA determined that no dependence existed between these two operator actions because they would not be close in location or time and the operators would have many indications, including reactor low level alarms, to determine that manual injection was necessary. Therefore, a Phase 3 analysis was performed and additional credit for manual injection was given. This resulted in a finding of very low safety significance (Green) (Finding (FIN) 05000263/2005003-02). This finding was assigned to the Mitigating Systems Cornerstone and also involved the cross-cutting area of Human Performance.

Enforcement: This event was primarily caused by human performance errors in the writing and review of an isolation for outage work. Procedures required by TS for initiating isolations were adequate and were followed, but performed inadequately. Therefore, this finding was not considered a violation of NRC requirements.

.5 (Closed) LER 05000263/2005-005-00: Inadvertent Engineered Safety Function Actuations During Testing.

Introduction: A finding of very low safety significance and NCV was self-revealed when, on April 2, 2005, performance of an inadequately written and reviewed PMT resulted in a temporary loss of the electrical bus 16 and actuation of several engineered safety features (ESFs). In addition, the inspectors identified that the licensee failed to report the event in accordance with 10 CFR 50.72. This failure to report was dispositioned as a Severity Level IV violation under the traditional enforcement program.

Description: On April 2, 2005, with the reactor shutdown during a refueling outage, operators were performing a PMT following a relay replacement. As described in the LER, due to an inadequate procedure, the essential bus transfer logic sensed a loss of bus 16 voltage and tried to transfer to an alternate source. However, the alternate

sources were out-of-service as part of the outage, resulting in the loss of bus 16. Loss of bus 16 caused a loss of its loads, including reactor protection system (RPS) bus B. When RPS bus B was lost, several safety systems actuated as designed. The actuations were isolation of reactor building ventilation, initiation of the A standby gas treatment system, initiation of the A control room EFT, tripping of the reactor water cleanup (RWCU) system, a partial primary containment group II isolation, and initiation of a half scram. Shutdown cooling was not lost and the actuations did not cause any significant complications. Power was restored to bus 16 expeditiously.

The licensee did not make an 8-hour notification to the NRC in accordance with 10 CFR 50.72 because the licensee determined that the actuation was "invalid" because the initial sensed loss of power signal was invalid (bus 16 was still energized at the time). However, the inspectors informed the licensee that the NRC position was that the ESF actuations were caused by the subsequent actual loss of bus 16 and the associated RPS bus. The NRC position was that the systems actuated as designed due to valid plant conditions, even though the cause of the loss of voltage was an invalid signal to the bus transfer logic. Despite being given the NRC position, the licensee failed to notify the NRC Operations Center of the event, in accordance with 10 CFR 50.72. The licensee did issue the LER in a timely manner in accordance with 10 CFR 50.73, but still maintained in the LER that the actuation was invalid.

Analysis: For the event itself, the inspectors determined that the failure to adequately write and review the PMT in sufficient detail to avoid the unintended loss of a vital bus and a challenge to the engineered safety systems was a human performance deficiency requiring an evaluation using the SDP. The event was more than minor because it involved the Mitigating Systems Cornerstone attribute of Procedure Quality and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. During the time period that bus 16 was lost, one train of mitigating system equipment was not available. The inspectors used IMC 0609, Appendix G, "Shutdown Significance Determination Process," Checklist 6 and screened the issue as very low safety significance in Phase 1. As an alternative, the inspectors also reviewed the results of the Phase 3 SDP conducted in response to the event described in Section 4OA3.4 of this report and determined that, since shutdown cooling was not actually lost and other plant conditions were similar, the significance was no more than for the previous event (very low safety significance) and the finding was Green. The finding was assigned to the Mitigating Systems Cornerstone and also involved the cross-cutting area of Human Performance.

Enforcement: Criterion V, of Appendix B, or 10 CFR 50, requires, in part, that activities affecting quality shall be prescribed by documented instruction, procedures, or drawings of a type appropriate to the circumstances. Contrary to this requirement, on April 2, 2005, a marked up copy of Procedure 0036-01, "ECCS Emergency Bus Undervoltage Test and ECCS Loss of Normal Auxiliary Power Test," was used to perform a post-maintenance test, an activity affecting quality. As described in the LER, the procedure was not appropriate for the circumstances because one necessary step was not specified to be accomplished, resulting in an unexpected loss of power to a vital bus and actuation of ESF equipment. However, because the event was of very low safety significance and because the issue was entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1

of the Enforcement Policy (NCV 05000263/2005003-04). The licensee entered the event into its corrective action program as CAP0038433. Corrective action included restoring the bus and increasing technical and management reviews of PMTs. In addition, the licensee was in the process of revising the PMT development process to strengthen the levels of review in a graded approach.

Section (b)(3)(iv)(A) of 10 CFR 50.72 required an 8-hour report to the NRC for any event or condition that results in valid actuation of certain specified systems. On April 2, 2005, the licensee experienced a valid actuation of the reactor building ventilation isolation, "A" standby gas treatment system, "A" control room EFT, a partial primary containment group II isolation, tripping of the RWCU system, and a half scram. The first three of those systems are specified under 10 CFR 50.72 as being reportable upon a valid actuation. The licensee did not make an 8-hour report to the NRC for this event. The failure to properly report was considered to be a violation that potentially impeded or impacted the regulatory process and such issues are dispositioned using the traditional enforcement process instead of the SDP. The failure to notify the NRC Operations Center within 8 hours of occurrence of a valid actuation of specified systems is categorized as a Severity Level IV violation in accordance with the NRC Enforcement Policy. The licensee position, as stated in the LER, was that the event was not reportable under 10 CFR 50.72 because it was not a valid actuation. Thus, the reportability issue was not entered into the licensee's CAP to address recurrence. The violation was assigned to the Mitigating Systems Cornerstone.

40A4 Cross-Cutting Aspects of Findings

- .1 A NRC-identified finding described in Section 1R15 of this report had, as its primary cause, human performance deficiencies, in that the engineering and operations groups failed to fully evaluate the availability of a vent path credited in the operability evaluation for a degraded HELB issue, such that the ventilation damper in the vent path would fail shut on a loss of service air.
- .2 A self-revealed finding described in Section 40A3.4 of this report had, as its primary cause, human performance deficiencies, in that the isolation for an outage work item was inadequately written and reviewed, such that a brief loss of shutdown cooling occurred when it was executed.
- .3 A self-revealed finding described in Section 40A3.6 of this report had, as its primary cause, human performance deficiencies, in that the procedure used for a PMT was not adequately written and reviewed, resulting in an unexpected loss of a vital electrical bus.

40A5 Other Activities

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

.1 Operational Readiness of Offsite Power (Temporary Instruction (TI) 2515/163)

The objective of TI2515/163, "Operational Readiness of Offsite Power," was to confirm, through inspections and interviews, the operational readiness of offsite power (OSP)

systems in accordance with NRC requirements. The inspectors reviewed licensee procedures and discuss the attributes identified in TI2515/163 with licensee personnel. In accordance with the requirements of TI2515/163, inspectors evaluated licensee procedures against the attributes discussed below.

The operating procedures that the control room operator uses to assure the operability of the OSP have the following attributes:

1. Identify the required control room operator actions to take when notified by the transmission system operator (TSO) that post-trip voltage of the OSP at the nuclear power plant will not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply.
2. Identify the compensatory actions the control room operator is required to perform if the TSO is not able to predict the post-trip voltage at the nuclear power plant for the current grid conditions.
3. Identify the notifications required by 10 CFR 50.72 for an inoperable offsite power system when the nuclear station is either informed by its TSO or when an actual degraded voltage condition is identified.

The procedures to ensure compliance with 10 CFR 50.65(a)(4) have the following attributes:

1. Direct the plant staff to perform grid reliability evaluations as part of the required maintenance risk assessment before taking a risk-significant piece of equipment out-of-service to do maintenance activities.
2. Direct the plant staff to ensure that the current status of the OSP system has been included in the risk management actions and compensatory actions to reduce the risk when performing risk-significant maintenance activities or when loss of offsite power or station blackout mitigating equipment are taken out-of-service.
3. Direct the control room staff to address degrading grid conditions that may emerge during a maintenance activity.
4. Direct the plant staff to notify the TSO of risk changes that emerge during ongoing maintenance at the nuclear power plant.

The procedure to ensure compliance with 10 CFR 50.63 has the following attribute:

Direct the control room operators on the steps to be taken to try to recover offsite power within the station blackout coping time.

The results of the inspectors' review were forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation.

.2 (Closed) URI 05000263/2004004-01: Feedwater Line HELB Could Potentially Impact Multiple Safety Related Systems.

This item was reviewed in Section 1R15 and 4OA4.1 of this report and a Green finding and associated NCV was identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. Rick Jacobs and other members of licensee management on July 7, 2005. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. One proprietary letter was identified and returned to the licensee.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Heat Sink Biennial Inspection with Mr. B. Sawatzke and other members of licensee management on May 20, 2005.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of NRC Enforcement Policy, NUREG-1600, for being dispositioned as Non-Cited Violations.

Cornerstone: Mitigating Systems

- .1 This issue relates to LER 05000263/2004-002-00 discussed in Section 4OA3.1 of this report. Section III.G.2 of 10 CFR 50 Appendix R, "Divisional Separation Criteria," stated, in part, that cables or equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions that are located in the same fire area, shall have means provided to ensure that one of the redundant trains remains free of fire damage. Contrary to this requirement, as discussed in the LER, the licensee determined that the 4160 volt motor power cables for the Division I RHR and CS pumps passed through a Division II fire area without an adequate barrier.

The inspectors and the Region III SRA evaluated the finding using IMC 0609 Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that the finding category was localized cable or component protection because the finding was a deficiency in the licensee's compliance with 10 CFR 50, Appendix R, III.G.2. The degradation rating assigned to the finding was moderate and the duration was greater than 30 days. The Phase 1 initial quantitative screening determined that a Phase 2 analysis was required. The Region III SRA reviewed the

finding and determined that no credible fire scenario could be developed which would impact both the Division I RHR and CS cables and the Division II safe shutdown equipment because the cables were on two separate elevations in the fire area and were separated by more than 30 feet. In Step 2.3 of the Phase 2 SDP, the SRA determined that there was no basis for defining a fire spread that could encompass both sets of cables beyond the fire ignition sources considered. Additionally, there were no scenarios of sufficient intensity to result in a hot gas layer that could damage both Division I and Division II cables. Based on the above, this finding was determined to be of very low safety significance (Green). Corrective actions include a modification to provide a 3-hour rated fire barrier for the Division I RHR and CS cables. The licensee entered this into their corrective action program as CAP033003.

- .2 This finding relates to LERs 05000263/2005-001-00 and 05000263/2005-001-01, discussed in Section 4OA3.2 of this report. Section XVI of 10 CFR 50 Appendix B, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to this requirement, the licensee failed to identify and correct an ASDS design issue during an engineering review performed in 2001 under CAP002941.

The finding was identified by the licensee through its' external event review process. Since the finding only affected the ability to reach and maintain cold shutdown conditions and the probability of the specific hot short that would cause the problem was extremely low, the Region III SRA screened it as having very low safety significance (Green) per Inspection Manual Chapter 0609, Appendix F, Fire Protection Significance Determination Process. The licensee entered this into their corrective action program as CAP037264.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Conway, Site Director for Operations
R. Jacobs, Plant Manager
R. Baumer, Regulatory Compliance
K. Jepsen, Radiation Protection Manager
J. Fields, Regulatory Affairs Manager (Acting)
B. Sawatzke, Plant Manager (Acting)
S. Kibler, Principal Engineer
J. Ohotto, System Engineer

Nuclear Regulatory Commission

B. Burgess, Chief, Reactor Projects Branch 2
A. M. Stone, Chief, Engineering Branch 2
S. Burgess, Senior Reactor Analyst
L. Kozak, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000263/2005003-01	NCV	Failure to Fully Evaluate the Availability of a Vent Path Credited in the Operability Evaluation for a Degraded HELB Issue (Sections 1R15, 4OA4.1, and 4OA5.2)
05000263/2005003-02	FIN	Loss of Shutdown Cooling Due to #12 Residual Heat Removal Pump Trip (Sections 4OA3.4 and 4OA4.2)
05000263/2005003-04	NCV	Inadvertent Engineered Safety System Actuations During Testing (Sections 4OA3.5 and 4OA4.3)
05000263/2005003-05	VIO	Failure to Report Inadvertent Engineered Safety System Actuations during Testing (Sections 4OA3.5 and 4OA4.3)

Closed

05000263/2004-002-00	LER	Cable Separation Issue Identified During Appendix R Re-analysis (Sections 4OA3.1 and 4OA7.1)
05000263/2005-001-00	LER	Single Failure Identified That Could Prevent Energizing Buses 15 and 16 (Sections 4OA3.2, and 4OA7.2)
05000263/2005-001-01	LER	Single Failure Identified That Could Prevent Energizing Buses 15 and 16 (Sections 4OA3.2, and 4OA7.2)

05000263/2005-002-00	LER	Failure of #11 Reactor Protection System Motor-Generator Set Results in an Engineered Safety Feature Actuation (Section 4OA3.3)
05000263/2005-003-00	LER	Loss of Shutdown Cooling Due to #12 Residual Heat Removal Pump Trip (Sections 4OA3.4 and 4OA4.2)
05000263/2005-004-00	LER	Voluntary LER "Control Rod Drive Insert Line Leakage" (Sections 4OA3.5 and 4OA5.3)
05000263/2005-005-00	LER	Inadvertent Engineered Safety System Actuations During Testing (Sections 4OA3.6 and 4OA4.3)
05000263/2005003-01	NCV	Failure to Fully Evaluate the Availability of a Vent Path Credited in the Operability Evaluation for a Degraded HELB Issue (Sections 1R15, 4OA4.1, and 4OA5.2)
05000263/2005003-02	FIN	Loss of Shutdown Cooling Due to #12 Residual Heat Removal Pump Trip (Sections 4OA3.4 and 4OA4.2)
05000263/2005003-04	NCV	Inadvertent Engineered Safety System Actuations During Testing (Sections 4OA3.6 and 4OA4.3)
05000263/2004004-01	URI	Feedwater Line HELB Could Potentially Impact Multiple Safety Related Systems (Sections 1R15 and 4OA5.2)
05000263/2005002-02	URI	Reactor Coolant Leakage Identified at the Insert Line and Flange Interface for Control Rod 38-31 (Sections 4OA3.5 and 4OA5.3)

Discussed

05000263/2001-006-00	LER	Alternate Shutdown System Design Deficiencies Result in Vulnerability to Single Hot shorts During Postulated Control Room or Cable Spreading Room Fire (Section 4OA3.1)
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LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the 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. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection reports.

1R01 Adverse Weather

Documents and Procedures:

2206 Plant Prestart Checklist EDG - ESW System; Revision 3
1150 Summer Checklist; Revision 35
2154-22 EDG - ESW Prestart Valve Checklist; Revision 20
4 AWI-04.02.01; Housekeeping; Revision 11

Corrective Action Program Documents:

CE010725; Further Review of NRC Questions Concerning Wind Generated Missiles Is Required (NRC-Identified)
CAP033894; Further Review of NRC Questions Concerning Wind Generated Missiles Is Required (NRC-Identified)
CAP021998; Revise 4 AWI-04.02.01, Housekeeping to Recognize Periodic Inspection Requirement (NRC-Identified)

1R04 Equipment Alignment

Documents and Procedures:

2154-11; CS System Prestart Valve Checklist; Revision 18
2154-12; RHR System Prestart Valve Checklist; Revision 40
2154-23; RHR Service Water System Prestart Valve Checklist; Revision 26

Corrective Action Program Documents:

CAP038535; Past Operability Issues Not Addressed in CAP038041 and CAP037627

1R05 Fire Protection

Pre-Fire Fighting Procedures and Strategies:

A.3-12-A; Lower 4160 Volt Bus Area (Busses 11, 13, and 15); Revision 9
A.3-24; Diesel Fire Pump Room; Revision 6
A.3-08; Cable Spreading Room; Revision 9
A.3-23-A; Intake Structure Pump Room; Revision 7
A.3-34; East Electrical Equipment Room; Revision 7

A.3-09; Control Room; Revision 5
A.3-13-B; Reactor Feedpump and Lube Oil Reservoir Room; Revision 7
A.3-19-B; Essential MCC Area (No. 142 & 143) 931' Elevation; Revision 8
A.3-31-B; EFT Building 1st Floor (Division II); Revision 10
A.3-37; Transformers; Revision 4

Documents and Procedures:

NSPLMI-95001; Monticello Individual Plant Examination of External Events - Appendix B
- Internal Fires Analysis; Revision 1

Corrective Action Program Documents:

CAP038786; Loose Metallic Tape in Diesel Fire Pump Room
CAP038820; Small Holes in Cable Spreading Room Ceiling & Wall, Not Through Barrier
(NRC-Identified)

1R06 Flood Protection Measures

Documents and Procedures:

Modification 02Q085; Modify Doors in the Hot Shop; Revision 2

Corrective Action Program Documents:

CAP023293; Perform a Flood Analysis for Internal Flooding Scenarios
CAP029566; Document the Focused Self-Assessment of the Monticello Nuclear
Generating Plant Internal Flooding Program Which was Conducted September 8th
through 11th, 2003
CAP020306; Document All Postulated Internal Flooding Scenarios Affecting Safe
Shutdown Equipment in Vital Plant Areas

1R07 Heat Sink Performance

Documents and Procedures:

Design Basis Document; ESW System; Revision 3
Drawing —112; RHR Service Water and ESW Systems; Revision BM
Drawing —811; Service Water System and Make-up Intake Structure; Revision CF
Drawing NF-36458; Intake Structure Sections and Details, Sheet 1 of 3; Revision A
Drawing NF-36461; Intake Structure Wing Walls and Apron; Revision O
Drawing NF-93492; Service Water Supply From Pump-111D to VEAC-14B (Intake
Structure and Access Tunnel); Revision C
Drawing NX-8763-23; V-AC-4 Air Cooling Unit; Revision C
Drawing NX-8763-24; V-AC-5 Cooling Unit; Revision C
Letter; Response to Generic Letter 89-13, Service Water Problems Affecting
Safety-Related Equipment; January 29, 1990

Letter; Follow-up Response to Generic Letter 89-013, Service Water Problems
 Affecting Safety-Related Equipment; June 27, 1991
 MOD 99Q050; ESW Flow Improvement; Revision 0
 Ops Man B.06.04-05; Circulating Water System; Revision 34
 Ops Man B.08.01.05-01; Biocide Injection; Revision 1
 Procedure 20-A-10; Southwest Equip Rm V-AC-4; Revision 6
 Procedure 20-A-17; Southeast Equip Rm V-AC-5 High Temp; Revision 5
 Procedure 242-A-37; 13-14 ESW Pump Trouble; Revision 3
 Procedure 0255-11-III-3; 13 ESW Quarterly Pump and Valve Tests; January 4, 2005
 Procedure 0255-11-III-3; 13 ESW Quarterly Pump and Valve Tests; October 4, 2004
 Procedure 0255-11-III-3; 13 ESW Quarterly Pump and Valve Tests; June 10, 2003
 Procedure 0255-11-III-3; 13 ESW Quarterly Pump and Valve Tests; May 17, 2003
 Procedure 0255-11-III-4; 14 ESW Quarterly Pump and Valve Tests; April 1, 2005
 Procedure 0255-11-III-4; 14 ESW Quarterly Pump and Valve Tests; January 17, 2005
 Procedure 0255-11-III-4; 14 ESW Quarterly Pump and Valve Tests; October 18, 2004
 Procedure 0255-11-III-4; 14 ESW Quarterly Pump and Valve Tests; May 17, 2003
 Procedure 3590; Service Water Component Inspection; Revision 4
 Procedure 40-57-PM; Intake Bay/Traveling Screen Forebay Inspection;
 September 1, 2004
 Procedure 40-57-PM; Intake Bay/Traveling Screen Forebay Inspection; July 1, 2003
 Procedure 40-57-PM; Intake Bay/Traveling Screen Forebay Inspection; April 30, 2002
 Procedure 40-57-PM; Intake Bay/Traveling Screen Forebay Inspection;
 November 28, 2001
 Procedure 40-57-PM; Intake Bay/Traveling Screen Forebay Inspection; June 16, 2000
 Procedure 4058-05-PM; A RHR Room Air Cooling Unit V-AC-5 Internal, External
 Cleaning and Visual Inspection; March 12, 2005
 Procedure 4058-05-PM; A RHR Room Air Cooling Unit V-AC-5 Internal, External
 Cleaning and Visual Inspection; May 12, 2003
 Procedure 4058-05-PM; A RHR Room Air Cooling Unit V-AC-5 Internal, External
 Cleaning and Visual Inspection; November 14, 2001
 Procedure 4058-05-PM; A RHR Room Air Cooling Unit V-AC-5 Internal, External
 Cleaning and Visual Inspection; January 26, 2000
 Procedure 4058-06-PM; B RHR Room Air Cooling Unit V-AC-5 Internal, External
 Cleaning and Visual Inspection; March 30, 2005
 Procedure 4058-06-PM; B RHR Room Air Cooling Unit V-AC-5 Internal, External
 Cleaning and Visual Inspection; May 5, 2003
 Procedure 4058-06-PM; B RHR Room Air Cooling Unit V-AC-5 Internal, External
 Cleaning and Visual Inspection; November 28, 2001
 Procedure 4058-06-PM; B RHR Room Air Cooling Unit V-AC-5 Internal, External
 Cleaning and Visual Inspection; January, 14, 2000
 Procedure 4125-PM; East Service Water Bay Inspection/Dredging; May 13, 2003
 Procedure 4125-PM; East Service Water Bay Inspection/Dredging; November 15, 2001
 Procedure 4125-PM; East Service Water Bay Inspection/Dredging; January 25, 2000
 Procedure 4126-PM; West Service Water Bay Inspection/Dredging; May 5, 2003
 Procedure 4126-PM; West Service Water Bay Inspection/Dredging;
 November 28, 2001
 Procedure 4126-PM; West Service Water Bay Inspection/Dredging; January 14, 2000
 Procedure A.6; Acts of Nature; Revision 19
 Procedure EWI-08.22.01; Generic Letter 89-013; Revision 0

Procedure I.05.29; Operation of the Sodium Hypochlorite System Equipment;
Revision 14
Procedure I.05.31; Operation of the Non-Oxidizing Biocide System; Revision 6
Procedure FP-PE-SW-01; Service Water and Fire Protection Inspection Program;
Revision 1

Corrective Action Program Documents:

CAP039098; Minimum Dredging Criteria for Service Water Bays Not Provided in
Predictive Maintenance Procedures; (NRC-Identified)
SA023227; Snapshot Assessment SA0223227, Preparation for Upcoming 2004
NRC Ultimate Heat Sink Inspection; December 1, 2004

1R11 Licensed Operator Requalification Program

Documents and Procedures:

Simulator Exercise Guide RQ-SS-62; Recirculation Pump Runup, Feedwater Rupture,
Stuck Open Safety Relief Valve with Tailpipe Rupture and Emergency Depressurization;
Revision 1

1R12 Maintenance Effectiveness

Documents and Procedures:

Monticello Maintenance Rule Periodic Update for February 2005; March 3, 2005
Monticello Maintenance Rule Program System Basis Document; Non-Essential DG;
June 18, 1996
Monticello Maintenance Rule Program System Basis Document; RHRSW System;
October 23, 1997
Maintenance Rule Performance Data for RHRSW; January 2003 to June 2005

Corrective Action Program Documents:

CAP031758; Received 86 Lockout on 52-710 While Trying to Synchronize 13 DG to
LC-107 During Monthly Operability Test
CAP032199; Received 86 Lockout on 52-710 While Trying to Synchronize 13 DG to
LC-107 During Monthly Operability Test
CAP032246; Bracket on 52-710 Used to Ensure Breaker is Tripped Prior to Racking it In
or Out Bent Up
CAP032979; 13 Diesel Maintenance Rule Status Changed to Red (a)(1)
CAP033222; Lack of Spare Breaker Will Challenge Maintenance Rule Availability for
13 DG
CAP034785; 11 RHRSW Pump Motor Cooling SV-4937A Leaks
CAP035622; SV 4937D Fails to Close after Being Cycled
CAP036114; RHRSW Motor Cooling Solenoid Supply Valves Not Well Suited for the
Application
CAP038720; SV-4937B Leakage Will Not Allow RHRSW Loop B to Proper Pressure
When Shutdown

CAP038945; #12 & #14 RHRSW Combined Motor Cooler Flow Outside of As Left Acceptance Band
CAP039503; Unplanned 7 Day LCO's entered for Division II Containment Spray for the Failure of PCV-3005

1R13 Maintenance Risk Assessments and Emergent Work Control

Documents and Procedures:

0255-08-1A-1; RCIC Quarterly Pump and Valve Tests; Revision 60 (with additional Temporary Change on May 10, 2005)
3334; IST Program Surveillance Test Frequency Notification for Pump P-111D; Revision 4; May 16, 2005
3108; Pump/Valve/Instrument Record of Corrective Action for Pump P-111D; Revision 13; May 16, 2005
3108; Pump/Valve/Instrument Record of Corrective Action for Pump P-111D; Revision 7; July 19, 2000
Maintenance Schedule for Work Week 5512; May 22 through 28, 2005
Maintenance Schedule for Work Week 5302; June 12 through June 18, 2005

Corrective Action Program Documents:

CAP038969; Entered Unplanned LCO for RCIC During the Performance of 0255-08-1A-1
CAP038972; Anomalous Behavior of RCIC System During April 16, 2005, Surveillance Not Captured in CAP
CAP038991; RCIC Speed Signal Cable Shield Not Grounded
CAP039065; 14 ESW Motor Vibration Levels Elevated in Alert and Required Actions Range
OPR000104; Operability Recommendation for P-111D, 14 ESW Pump
CAP039172; 12 CRD Pump Motor is Missing Its' Dust Shield on the Outboard Bearing
CAP039177; Rigging Point for 12 CRD Pump Motor Challenged Motor Removal Schedule
CAP039187; 12 CRD Pump Check Valve Leaks
CAP039479; HPCI Aux Oil Pump Alignment Criteria Specified by PM Could Not Be Obtained
CAP039490; Shim Was Missing Underneath Motor Foot of HPCI Aux Oil Pump P-217
CAP039491; No Jacking Bolts on Motor
CAP039503; Unplanned 7 Day LCOs Entered for Division II Containment Spray for the Failure of PCV-3005
CAP039507; Unplanned Core Damage Failure Color Change From Green to Yellow Due to Equipment Failure

Work Orders:

0307083; PM 12 CRD Pump Motor (P-201B)
0108318; Minor Oil Leak on 12 CRD Motor Outboard Bearing
0506222; Isolate HPCI for Maintenance Activities

1R15 Operability Evaluations

Documents and Procedures:

Electrical Power Research Institute (EPRI) Sourcebook for Microbiologically Influenced Corrosion in Nuclear Power Plants

CA-05-091; Evaluate Line RHRSW SW9-18-GF for Thinning Found While Performing Nondestructive Examination

FAC-05-032; Flow Accelerated Corrosion (FAC) Program Thickness Data Report

FAC-05-048; FAC Program Thickness Data Report

QC-101; Engineer's Receiving Report for Feedwater System Line FW2B-10"

645-3601; Tensile Test and Chemical Analysis of Steel Pipe Sections; Job Number

5828; Twin Cities Testing and Engineering Laboratories, Inc.

CA-05-108; Evaluation of Wall Thinning on FW2B-10-ED

CA05-005; Motor Control Center MCC-143 Internal Temperature Rise from a Feedwater Break at the Feedpumps, Past Operability Analysis

Corrective Action Program Documents:

CAP038226; Indications of Localized Wall Thickness Reduction in Line SW9-18"

CAP024051; Conduct a Technical Challenge Board Prior to Startup

CE012151; Condition Evaluation for Indications of Localized Wall Thickness Reduction in Line SW9-18"

CAP038177; Nondestructive Examination Thickness <87.5% on Nominal Wall

Thickness on FW2B-10"-ED, B Feedwater to Reactor Line

CAP037389; Opening of Breaker B4117 for WO0403632 Caused an Inadvertent Closure of AO-2886

CAP035390; Hot Inboard Bearing on P-4 Condensate Service Jockey Pump

CAP033462; Winter Mode of HVAC Operation May Challenge HELB Analysis of Record

EWR023489; Formally Document the Thermal Lag Analysis Performed for MCC-143

Past Operability Using the Results of Calculation 04-200

Work Orders:

0403632; Perform MC2 Testing on P-4 Motor at Breaker

1R16 Operator Workarounds

Documents and Procedures:

Safety Review Item 92-020; Demonstration of Procedure for Loss of Alternating Current Power Concurrent with a HELB

OWI-01.07; Operations Department Self-Assessment; Section 4.9 Operational Challenges; Revision 24 & 25

OWA/Non-Transient OWA Impact Factor Report; 06/21/05

Probabilistic Risk Analysis Review of OWAs; 1/04/05, 2/21/05, 4/21/05 and 6/02/05

Acceptable As-Is Report (List of Operational Challenges Closed by Completing Procedure 2220); 06/07/05

Operational Challenges List; 06/07/05

Operations Manual B.08.1.2-01; EDG ESW; Revision 6
Operations Manual B.09.08-05; EDG Operations; Revision 19
Operations Manual B.02.02-05; RWCU System Operations; Revision 25
Operations Manual C.4-B.01.03.A; Response to Loss of CRD Pump Flow; Revision 6

Corrective Action Program Documents:

CAP039612; ESW Pump Operation in Parallel with Service Water Creates Potential to Degrade ESW Pump (NRC-Identified)

1R19 Post-Maintenance Testing

Documents and Procedures:

0266; Fire Pumps Simulated Auto-Actuation and Capability Test; Revision 41
0255-08-1A-1; RCIC Quarterly Pump and Valve Tests; Revision 60 (with Temporary Change dated May 11, 2005)
0036-01; ECCS Bus Undervoltage Test and ECCS Loss of Normal Auxiliary Power Test; Revision 21; April 2, 2005
Ops Manual B.01.03-05; CRD Hydraulic System; Revision 18
0255-06-1A-1; HPCI Quarterly Pump and Valve Tests; Revision 72
0255-05-1A-1-1; A RHRSW Quarterly Pump and Valve Tests; Revision 55

Corrective Action Program Documents:

CAP036415; Seal Leakage Noted to be Greater than Drain Line Capacity on P-104, the Screenwash Fire Pump
CAP038099; Insulation on Motor Pigtails for 12 CRD Pump is Degraded
CAP038257; 12 CRD Pump Placed in Emergency Status Only
CAP038433; Loss of Power to Bus 16 During PMT for WO0505600
CAP039176; Motor Leads Swollen From Oil Infiltration
CAP039483; Emergency Operating Procedure Entry of 90 Degrees Torus Temperature Reached During HPCI Testing (Expected)
CAP039485; Noisy Environment Caused Individual to Not Hear Dose Rate Alarm During HPCI Run
CAP039494; Loose Nuts Found Around HPCI Stop Valve

Work Orders:

0403787; Replace Screenwash Fire Pump with Rebuilt Unit
0505600; 152-610 Breaker Tripped Early During ECCS Bus Undervoltage Test and ECCS Loss of Normal Auxiliary Power Testing
0401719; Repack 11 RHRSW Pump

1R20 Outage Activities

Documents and Procedures:

2005 Refueling Outage Daily Risk Data Sheets

2005 Outage Daily Shift Turnover Reports
Monticello Nuclear Generating Plant 2005 Refuel Outage Critical Path Schedule

1R22 Surveillance Testing

Documents and Procedures:

0006-A; Condenser Low Vacuum Scram Instruments Test and Calibration Procedure (>600 PSIG [pounds per square inch gauge]); Revision 13
1371; Drywell Prestart Inspection; Revision 6
0255-11-III-3; 13 ESW Quarterly Pump and Valve Tests; Revision 31
0255-20-IIC-1; Reactor Coolant Pressure Boundary Leakage Test; Revision 22
0255-20-IIC-2; Reactor Coolant Pressure Boundary Leakage Test; Revision 18
CA-94-141; Stem Thrust Assessment of 10 inch Anchor Darling Globe Valves: MO-2008 and MO-2009; April 1, 2005
3108; Pump/Valve/Instrument Record of Corrective Action for MO-2008
Altran Corporation Letter 0404-L-001; Transmittal of Final Weak Link Calculation; March 23, 2005
0002; Reactor High Pressure Scram Instrument Test and Calibration Procedure; Revision 18
CA-95-047; Instrument Setpoint Calculation, High Reactor Pressure Scram; Revision 1
0255-04-1A-1-1; RHR Loop A Quarterly Pump and Valve Testing; Revision 67
2145; RHR System Discharge Venting; Revision 8

Corrective Action Program Documents:

CAP037415; 24 Hour Cold Shutdown LCO Entry May Be Needed to Perform IST Pump Test
CAP038713; Unplanned LCO Entry Due to Failure of MO-2008 to Close
CAP038732; MO-2008 Actuator Made Unusual Noises During Setup
CAP038722; MO-2008 VIPER Diagnostic Testing Preparations Result in Overthrust in the Open Direction
CAP038730; MO-2008 Limit Switch Wiring Discrepancies Discovered

1R23 Temporary Plant Modifications

Documents and Procedures:

Product Data Sheet for Okonite Company C-L-X Okoguard Shielded Power Cable
3352; Generic Cable Replacement Worksheet; Revision 3
3278; NMC Standard 10 CFR 50.59 Screening Form; Revision 3
8040; Generic Cable Replacement Procedure; Revision 6
3279; Test Report for Hypotential D.C. Testing of 5kv and 15kv Cable; Revision 2
ECN 2005-105; Engineering Change Notice; Revision 0
QF-0520 (FP-E-MOD-05); Plant Impact List for Contingency Replacement of 11 Reactor Recirculation Pump MG Drive Motor Cables
LF-31AC; Load Study Report for 11 Recirculation MG Set Cable Replacement
QF-0532 (FP-E-MOD-010); Turnover and Closeout Control Form for Modification 03T075C

QF-0530 (FP-E-MOD-10); Modification Turnover Punchlist for Modification 03T075C 3722; Combustible Loading Change Request for Modification 03T075C

Corrective Action Program Documents:

CAP037776; Anomalous Results Produced by Megger Test of #11 Recirculation Pump MG
CE012033; Anomalous Results Produced by Megger Test of #11 Recirculation Pump MG
CAP038326; Temporary Cable for Recirculation MG Set Motor Damaged During Armor Removal
CE012178; Temporary Cable for Recirculation MG Set Motor Damaged During Armor Removal

Work Orders:

0505345; (Contingency) Replace Feeder Cable for 11 MG Set Drive Motor

1EP6 Drill Evaluation

Documents and Procedures:

5790-102-02; Monticello Emergency Notification Report Form; Revision 30

4OA2 Identification and Resolution of Problems

Documents and Procedures:

1456-02; RHRSW Pump 12 and 14 Motor Cooler Flush Quarterly Surveillance
0255-05-IA-1-2; B RHRSW Quarterly Pump and Valve Tests

Work Orders:

WO0403809; Clean 12 RHRSW Pump Motor Cooler

Corrective Action Program Documents:

CAP038655; HPCI Jib Crane found Extended (NRC-Identified)
CAP038786; Loose Metallic Tape in Diesel Fire Pump Room (NRC-Identified)
CAP038820; Small Holes in Cable Spreading Room Ceiling and Wall, Not Through Barrier (NRC-Identified)
CAP038842; NRC Inspector Identifies Housekeeping/Severe Weather Concerns on Plant Grounds (NRC-Identified)
CAP039612; ESW Pump Operation in Parallel with SW Creates Potential to Degrade ESW Pump (NRC-Identified)
CAP039464; Balance Of Plant Testing Methodology of Pat May Not Meet 2003 Fitness For Duty Order (NRC-Identified)

List of CAPs between the period of January 1, 2005, through June 30, 2005, with a CAP Hot Button Designator of "Procedural Adherence Issue - Non-Administrative Control Procedures"

List of CAPs between the period of January 1, 2005, through June 30, 2005, with a CAP Hot Button Designator of "Administrative Control Procedure Adherence"

List of CAPs between the period of January 1, 2005, through June 30, 2005, with a CAP Hot Button Designator of "Radiation Protection, Respiratory Protection"

CAP035620; B RHRSW Cooling Flow not Acceptable

CAP038945; #12 and #14 RHRSW Combined Motor Cooler Flow Outside of As-Left Acceptance Band

CAP039503; Unplanned 7 Day LCO Entered for Division II Containment Spray for the Failure of Valve Pressure Control Valve PCV-3005

CAP038785; Solenoid Valve SV-4937A, #11 RHRSW Pump Motor Cooling Water Valve is Stuck Open

CAP036114; RHRSW Motor Cooling Supply Solenoids Not Well Suited for the Application

CAP038720; Solenoid Valve SV-4937B Leakage will not Allow RHRSW Loop B to Proper Pressure when Shutdown

4OA3 Event Follow-up

Documents and Procedures:

NRC Event Report Number 41441; Engineered Safety Feature Actuation Following Trip of Reactor Protection MG Set; February 24, 2005

NRC Event Report Number 41374; 4160 Volt Relaying and Metering Single Failure Vulnerability; February 4, 2005

NRC Event Report Number 41436; Potential Vulnerability with ASDS Isolation Design; February 23, 2005

NRC Event Report Number 41468; RHR Pump Tripped Due to Loss of Valve Position Indication; March 8, 2005

LER 05000263/2004-002-00; Cable Separation Issue Identified During Appendix R Re-analysis; November 1, 2004

LER 05000263/2005-001-00; Single Failure Identified That Could Prevent Energizing Buses 15 and 16; April 4, 2005

LER 05000263/2005-001-01; Single Failure Identified That Could Prevent Energizing Buses 15 and 16; June 6, 2005

LER 05000263/2005-002-00; Failure of #11 Reactor Protection System Motor-Generator Set Results in an Engineered Safety Feature Actuation; April 25, 2005

LER 05000263/2005-003-00; Loss of Shutdown Cooling Due to #12 RHR Pump Trip; May 9, 2005

LER 05000263/2005-004-00; Voluntary Report "CRD Insert Line Leakage"; March 9, 2005

LER 05000263/2005-005-00; Inadvertent Engineered Safety Function Actuations During Testing; June 1, 2005

Corrective Action Program Documents:

CAP037306; Failure of 11 Reactor Protection System MG Set Causes Engineered Safety Features Actuation

CAP036987; Single Failure Identified That Could Prevent Energizing Bus 15 and 16

ACE004303; Single Failure Identified That Could Prevent Energizing Bus 15 and 16

CAP037264; ASDS Isolation Design Issue Could Prevent Bus 16 from Energizing

CAP037567; Loss of Shutdown Cooling During the Isolation to Replace Safety Relief Valve Solenoid Valves

CAP038433; Loss of Power to Bus 16 During PMT for WO0505600

40A5 Other Activities

Documents and Procedures:

Operations Manual E.5; Electrical Manual: System Electrical Blackout

Operations Manual E.2; Electrical Manual: Master Power Restoration Procedure

Operations Manual C.4-B.09.02.A; Abnormal Procedures: Station Blackout

Operations Manual B.09.03-05; 345 kV Substation - System Operation

Operations Manual B.09.06-05; 4.16 kV Station Auxiliary - System Operation

Operations Manual B.09.05-05; 115 kV Substation - System Operation

4AWI-08.15.01; Risk Management for Outage and On-Line Activities; Revision 0

4AWI-04.08.01; Event Notifications; Revision 20

4AWI-04.08.02; 10 CFR 50.72 and 10 CFR 73.71 Immediate Notifications; Revision 14

Operations Manual A.2; Emergency Implementing Procedures

LIST OF ACRONYMS USED

ASDS	Alternate Shutdown System
ASME	American Society of Mechanical Engineers
BWR	Boiling Water Reactor
CAP	Corrective Action Program
CRD	Control Rod Drive
CRDM	Control Rod Drive Mechanism
CS	Core Spray
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EFT	Emergency Filtration Train
EPRI	Electrical Power Research Institute
ESF	Engineered Safety Feature
ESW	Emergency Service Water
FAC	Flow Accelerated Corrosion
GE	General Electric
FIN	Finding
HCU	Hydraulic Control Unit
HELB	High Energy Line Break
HPCI	High Pressure Core Injection
HVAC	Heating, Ventilation, and Air Conditioning
IMC	Inspection Manual Chapter
IR	Inspection Report
IST	Inservice Testing
kV	Kilovolt
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MCC	Motor Control Center
MG	Motor-Generator
NCV	Non-Cited Violation
NMC	Nuclear Management Company
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OSP	Offsite Power
OWA	Operator Workaround
PARS	Publicly Available Records
PI	Performance Indicator
PMT	Post-Maintenance Testing
PSIG	Pounds per Square Inch Gauge
RA	Risk Assessment
RCIC	Reactor Core Isolation Cooling
RCPB	Reactor Coolant Pressure Boundary
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RPS	Reactor Protection System
RWCU	Reactor Water Cleanup

SDP	Significance Determination Process
SRA	Senior Reactor Analyst
SSDA	Safe Shutdown Analysis
TI	Temporary Instruction
TS	Technical Specification
TSO	Transmission System Operator
URI	Unresolved Item
USAR	Updated Safety Analysis Report
VIO	Violation
WO	Work Order