

October 23, 2003

Mr. T. Palmisano  
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 05000263/2003005

Dear Mr. Palmisano:

On September 30, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Monticello Nuclear Generating Plant. The enclosed integrated inspection report documents the inspection findings which were discussed on October 2, 2003, with you 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 upon the results of this inspection, no findings of significance were identified. Additionally, a licensee identified violation is 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, 801 Warrenville Road, Lisle, IL 60532-4351; 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.

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Sincerely,

*/RA/*

Bruce L. Burgess, Chief  
Branch 2  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000263/2003005  
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-263

License No: DPR-22

Report No: 05000263/2003005

Licensee: Nuclear Management Company, LLC

Facility: Monticello Nuclear Generating Plant

Location: 2807 West Highway 75  
Monticello, MN 55362

Dates: July 1 through September 30, 2003

Inspectors: S. Burton, Senior Resident Inspector  
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Observers: None

Approved by: Bruce L. Burgess, Chief  
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Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

IR 05000263/2003005; 07/01/2003 - 09/30/2003; Monticello Nuclear Generating Plant. Routine Integrated Report.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections of radiation protection. 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: Emergency Preparedness**

Severity Level IV Non-Cited Violation. On July 27, 2003, the NRC issued a Non-Cited Violation to the licensee associated with an incident that occurred at the Monticello Nuclear Generating Plant on May 7, 2002.

The incident involved an individual closing an EP surveillance procedure without all procedurally required steps being completed. The NRC Office of Investigations investigated the matter and concluded that the individual deliberately closed the surveillance procedure knowing that several steps in the procedure were not complete.

Since the violation was determined to be deliberate, the NRC did not assign a significance to the violation using the significance determination process. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation was categorized at Severity Level IV. (Section 40A5)

### B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 40A7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Monticello operated at full power for the entire assessment period except for brief down-power maneuvers to accomplish rod pattern adjustments and to conduct planned surveillance testing activities.

#### 1. REACTOR SAFETY

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

#### 1R04 Equipment Alignment (71111.04)

##### a. Inspection Scope

The inspectors performed one partial walkdown and one semiannual complete walkdown of accessible portions of trains of risk-significant mitigating systems equipment. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. 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.

The inspectors selected the following equipment trains to verify operability and proper equipment line-up:

- a partial walkdown of the high pressure coolant injection (HPCI) system with the reactor core isolation (RCIC) cooling system out-of-service for maintenance during the week ending 8/16;
- a complete walkdown of the core spray system during the week ending 8/8.

##### 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 ten risk significant fire areas to assess fire protection requirements. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. 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, the potential to impact equipment which could initiate or mitigate a plant transient, or the impact on the plant's ability to respond to a security event. 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.

The inspectors selected the following areas for review:

- recirculation pump motor generator set room during the week ending 7/19;
- reactor building closed cooling water heat exchanger area during the week ending 7/19;
- Division I 250V battery room during the weeks ending 7/19 through 9/20;
- Division II 125V battery room during the week ending 7/26;
- security diesel generator building during the week ending 8/16;
- reactor building elevation 896' tank room during the week ending 8/16;
- radwaste area for fuel pool waste processing during the week ending 8/16;
- fuel pool skimmer tank room during the week ending 8/16;
- reactor feed pump lube oil reservoir room during the weeks ending 8/2 through 8/30; and
- diesel generator 13 and associated fuel oil tank rooms (fire zone 34) during the week ending 9/27.

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Review (71111.05A)

a. Inspection Scope

The inspectors performed an annual observation of a fire drill. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection

finding. The inspectors reviewed 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.

The inspectors observed the following fire drill:

- the licensee's fire brigade and off-site fire fighters' response to an announced fire drill in the 13 diesel generator and associated fuel oil storage rooms on 9/29.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

The inspectors performed a quarterly review of licensed operator requalification training. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. 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, simulator fidelity, and licensee critique of performance.

The inspectors observed the following requalification activity:

- a training crew during an evaluated simulator scenario that included a loss of rod position information followed by a loss of one recirculation pump and a subsequent failure to scram, which resulted in the operators entering associated emergency procedures, injecting boron and completing a shutdown of the reactor during the week ending 9/27.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed three systems to assess maintenance effectiveness. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. The inspectors reviewed areas 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 condition reports, and current equipment performance status.

The inspectors performed the following maintenance effectiveness reviews:

- a function-oriented review of the 12 emergency diesel generators because it was designated as risk significant under the Maintenance Rule, during the week ending 8/2;
- an issue/problem-oriented review of the instrument air compressor 11 because it was designated as risk significant under the Maintenance Rule and the system was found in the tripped condition, during the weeks of 9/22 and 9/30; and
- an issue/problem-oriented review of the intake debris traveling screen system because it was designated as risk significant under the Maintenance Rule and the system experienced repetitive failures, during the weeks 7/19 through 9/20.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed five maintenance activities to review risk assessments (RAs) and emergent work control. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. 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 the 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.

The inspectors observed maintenance or planning for the following activities or risk significant systems undergoing scheduled or emergent maintenance:

- replace the Division I battery during the week ending 7/19;
- replace the thermal overload relay for the Division I combustible gas control system booster pump during the weeks ending 7/19, 8/23, and 9/13;
- reassessment of daily risk for elevated risk associated with a change in grid stability during the week ending 9/13;
- failure of residual heat removal Valve CV-1994 after testing during the weeks ending 9/13 and 9/20; and
- assessment of planned half-scrum signals in daily maintenance schedule during the week ending 9/27.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed five operability evaluations of degraded or non-conforming systems that potentially impacted mitigating systems or barrier integrity. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. The inspectors reviewed operability evaluations affecting 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 Technical Specifications (TS), the significance of the evaluations to ensure that adequate justifications were documented, and that risk was appropriately assessed.

The inspectors reviewed the following operability evaluations:

- drywell equipment drain tank high level timer not functioning during the week ending 7/12;
- ungrounded standby liquid control circuit during the weeks ending 7/19 and 9/13;
- motor control center (MCC) 133B relay operable but degraded due to replaced relay with standard quality relay in lieu of safety grade relay during the weeks ending 9/13 and 9/20;
- standby liquid control system shutdown margin could not be readily verified to refueling analysis during the weeks ending 8/23 and 9/20; and
- fire rating qualifications for battery room doors was undocumented during the weeks 7/26 through 9/20.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed six post-maintenance testing activities. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. The inspectors verified that the post-maintenance test 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 post-maintenance testing activities adequately ensured that the equipment met the licensing basis, TS, and USAR design requirements.

The inspectors selected the following post-maintenance testing activities for review:

- single rod scram relay input to the rod worth minimizer (RWM) during the week ending 7/12;
- Division 1, 24 VDC battery after replacement during the week ending 7/19;
- CRV-EFT damper VD-9111B following actuator replacement during the week ending 8/15;
- 4kV circuit breaker (4kVB-05) following maintenance during the week ending 8/15;
- 13 residual heat removal service water (RHRSW) motor cooler following acid cleaning of cooler during the week ending 9/12; and
- 13 diesel generator broken terminal block during the week ending 9/27.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed seven surveillance test activities. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. The inspectors reviewed surveillance testing activities to assess operational readiness and 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 were 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 reporting, and evaluation of test data.

The inspectors selected the following surveillance testing activities for review:

- turbine control valve fast closure scram time test and calibration during the week ending 7/12;
- condenser low vacuum scram testing during the week ending 8/2;
- drywell-torus monthly vacuum breaker check during the week ending 8/9;
- Division 2 residual heat removal (RHR) quarterly pump and valve tests during the week ending 8/9;
- emergency core cooling system pump start permissive sensor test during the week ending 9/27;
- average power range monitor heat balance during the week ending 8/23; and
- Division 1 core spray quarterly pump and valve test week ending 9/27.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed one emergency preparedness drill. As part of this inspection, the documents in Attachment 1 were utilized to evaluate the potential for an inspection finding. The inspectors selected exercises that the licensee had scheduled as providing input to the Drill/Exercise Performance Indicator. 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 corrective action program entries. The inspectors verified that there were no discrepancies between observed performance and performance indicator reported statistics.

The inspectors observed the following emergency preparedness activity:

- a communications drill performed in conjunction with licensed operator requalification training, which included drill notifications to the state, county, and local agencies for an alert classification on 9/22.

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

### Cornerstone: Occupational Radiation Safety

#### 2OS1 Access Control to Radiologically Significant Areas (71121.01)

##### .1 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

###### a. Inspection Scope

The inspectors reviewed the licensee's occupational exposure control cornerstone performance indicators (PIs) to determine whether or not the conditions surrounding the PIs had been evaluated and identified problems had been entered into the corrective action program for resolution.

###### b. Findings

No findings of significance were identified.

##### .2 Plant Walkdowns, Radiological Boundary Verification, and Radiation Work Permit Reviews

###### a. Inspection Scope

The inspectors reviewed the implementation of physical and administrative controls over access to radiologically controlled areas (RCAs), including worker adherence to these controls, by reviewing station procedures, radiation work permits (RWP), electronic dosimetry alarm set points, and walking down radiologically significant areas (airborne radioactivity areas, radiation areas, high radiation areas (HRAs), and locked HRAs of the station. Specifically, areas in the reactor and turbine buildings were observed and independent measurements of area radiation levels were made to verify these areas were posted and controlled in accordance with 10 CFR Part 20, licensee procedures, and TS.

The inspectors reviewed the RWP and work package used to access the condensate demineralizer area in the turbine building to identify the work control instructions and control barriers that had been specified. In that area, the inspectors observed the replacement of condensate demineralizer filters. Electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. Workers were interviewed to verify that they were aware of the actions required when their electronic dosimeters noticeably malfunctioned or alarmed.

###### b. Findings

No findings of significance were identified.

##### .3 High Risk Significant, High Dose Rate, Locked HRA and Very HRA Controls

a. Inspection Scope

The inspectors reviewed the station's implementation of physical and administrative controls over access to locked HRAs and very HRAs, including a discussion of these controls with radiation protection (RP) supervisors and lead RP technicians, to verify that processes and procedures (including any recent changes) implementing these controls provided an appropriate level of worker protection. The inspectors conducted walkdowns of all accessible locked HRA boundaries to verify adequate posting and control of all entrances into these areas. Additionally, the inspectors reviewed selected plant survey maps to confirm that no very HRAs existed in the current plant configuration as discussed with the RP staff.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors selected licensee corrective actions related to access control to radiologically significant areas and verified that the licensee had entered identified problems into their corrective action program. The inspectors verified that the licensee identified issues at an appropriate threshold, that these issues were correctly entered in the corrective action program, and that these issues were properly addressed for resolution.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

During observation of the replacement of condensate demineralizer filters in the condensate demineralizer area of the turbine building, the inspectors evaluated radiation worker performance with respect to stated RP work requirements and evaluated whether workers were aware of the significant radiological conditions in their workplace, the RWP controls and limits in place, and that their performance had accounted for the level of radiological hazards present.

b. Findings

No findings of significance were identified.

**Cornerstone: Public Radiation Safety**

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs (71122.03)

.1 Review of Environmental Monitoring Reports and Data

a. Inspection Scope

The inspectors reviewed the 2002 Annual Radiological Environmental Monitoring Program Report. Sampling location commitments, monitoring and measurement frequencies, land use census, the vendor laboratory's Interlaboratory Comparison Program, and data analysis were assessed. Anomalous results including data, missed samples, and inoperable or lost equipment were evaluated. The review of the Radiological Environmental Monitoring Program (REMP) was conducted to verify that the REMP was implemented as required by the Offsite Dose Calculation Manual (ODCM), and associated TS, and that changes, if any, did not affect the licensee's ability to monitor the impacts of radioactive effluent releases on the environment. The most recent quality assessment of the licensee's REMP vendor was reviewed to verify that the vendor laboratory performance was consistent with licensee and NRC requirements.

b. Findings

No findings of significance were identified.

.2 Walkdowns of Radiological Environmental Monitoring Stations and Meteorological Tower

a. Inspection Scope

The inspectors conducted a walkdown of selected environmental air sampling stations and thermoluminescent dosimeters to verify that their locations were consistent with their descriptions in the ODCM and to evaluate the equipment material condition. The inspectors also conducted a walkdown of primary and back-up meteorological monitoring sites to validate that sensors were adequately positioned and operable. The inspectors reviewed the 2002 Annual Radiological Environmental Operating Report to evaluate the onsite meteorological monitoring program's data recovery rates, routine calibration and maintenance activities, and non-scheduled maintenance activities. The review was conducted to verify that the meteorological instrumentation was operable and was calibrated and maintained in accordance with licensee procedures. The inspectors also reviewed indications of wind speed, wind direction, and atmospheric stability measurements to verify that the indications were available in the control room and that the instrument indications were operable.

b. Findings

No findings of significance were identified.

.3 Review of REMP Sample Collection and Analysis

a. Inspection Scope

The inspectors accompanied the licensee REMP technician to observe the collection and preparation of air filters, charcoal canisters, river water and milk samples to verify that representative samples were being collected in accordance with procedures and the ODCM. The inspectors observed the technician perform air sampler field check maintenance to verify that the air samplers were functioning in accordance with procedures. Selected air sampler calibration and maintenance records for 2002 and 2003 were reviewed to verify that the equipment was being maintained as required. The environmental sample collection program was compared with the ODCM to verify that samples were representative of the licensee's release pathways. Additionally, the inspectors reviewed results of the vendor laboratory's Interlaboratory Comparison Program to verify that the vendor was capable of making adequate radio-chemical measurements.

b. Findings

No findings of significance were identified.

.4 Unrestricted Release of Material From the Radiologically Controlled Area

a. Inspection Scope

The inspectors evaluated the licensee's controls, procedures, and practices for the unrestricted release of material from radiologically controlled areas and conducted reviews to verify that: (1) radiation monitoring instrumentation used to perform surveys for unrestricted release of materials was appropriate; (2) instrument sensitivities were consistent with NRC guidance contained in Inspection and Enforcement (IE) Circular 81-07 and Health Physics Positions in NUREG/CR-5569 for both surface contaminated and volumetrically contaminated materials; (3) criteria for survey and release conformed to NRC requirements; (4) licensee procedures were technically sound and provided clear guidance for survey methodologies; and (5) radiation protection staff adequately implemented station procedures.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed a chemistry department self-assessment of the REMP and three nuclear oversight observation reports addressing issues involving the REMP to determine if problems were being identified and entered into the corrective action program for timely resolution. The inspectors also reviewed selected 2002 and

2003 condition reports that addressed REMP deficiencies, to verify that the licensee had effectively implemented the corrective action by emphasizing that problems were identified, characterized, prioritized and corrected.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

**Cornerstones: Mitigating Systems, Barrier Integrity, and Occupational Radiation Safety**

Reactor Safety Strategic Area

a. Inspection Scope

The inspectors reviewed the licensee submittals for five performance indicators (PIs). The inspectors used PI guidance and definitions contained in Nuclear Energy Institute (NEI) Document 99-02, Revision 2, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the PI data. As part of the inspection, the documents listed in Appendix 1 were utilized to evaluate the accuracy of PI data. The inspectors' review included, but was not limited to, conditions and data from logs, licensee event reports, condition reports, and calculations for each PI specified.

The following PIs were reviewed:

- safety system unavailability for emergency AC power systems, for the period of January 1, 2002, through June 30, 2003;
- safety system unavailability for residual heat removal system, for the period of January 1, 2002, through June 30, 2003;
- safety system functional failures, for the period of July 1, 2002, through June 30, 2003;
- reactor coolant system (RCS) specific activity, for the period of October 1, 2002, through June 30, 2003; and
- reactor coolant system leakage, for the period of July 1, 2002, through June 30, 2003.

b. Findings

No findings of significance were identified.

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

For inspections performed and documented in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action system at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Minor issues entered into the licensee's corrective action system as a result of inspectors' observations are included in the list of documents reviewed attached to this report.

b. Findings

No findings of significance were identified.

**Cornerstone: Mitigating Systems, Initiating Events**

.2 Plant Aging

Introduction

As part of the plant status and maintenance effectiveness inspections the inspectors verified that the licensee had entered identified problems into their corrective action program. During these activities, the inspectors identified that several condition reports (CRs) for equipment problems that appeared to be related to aging of plant equipment. Because of the number of issues identified, the inspectors selected licensee corrective actions related to plant aging for periodic review of the problem identification and resolution program per NRC Inspection Procedure (IP) 71152. Additionally, the inspectors verified that the issues were correctly entered and addressed for resolution in the licensee's corrective action program.

The inspectors questioned licensee staff and reviewed procedures and programs for trending and coping with plant aging issues. The following CRs and those included in Attachment 1 document plant aging issues that were part of the inspectors' review:

- multiple isolations of 11 SJAE suction valve resulted in significant operational transients, CR 03001187, was initiated to identify the root cause of two operational transients that were determined to be the result of age-related failures of capacitors in the control circuitry;
- site lacks procedure to assure that age-related instrument drift is identified/corrected prior to impacting operability, CR 03000526, was initiated to establish a process to detect age-related failures of instruments that could be identified through increased calibration requirements;
- recent solenoid failures indicate an adverse trend in the effectiveness of SOV program and its scope, CR 02011130, referenced three condition reports that identified solenoid valve failures in various systems, and was initiated to identify a potential age-related failure trend;

- age-related failures/degradation of electrolytic capacitors, CR 03001334, referenced three condition reports that identified age-related failures of electrolytic capacitors, and was initiated to identify a potential adverse trend; and
- age-related failure adversely affected performance of HPCI and challenged operations, and adversely affected generation, CR 03006261, was initiated due to an adverse trend associated with HPCI system component failures that appeared to be caused by age-related failures.

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed the above listed CRs and those included in Attachment 1. The inspectors' review included verification that problem identification was complete, accurate, and timely, and that the issue considered that the evaluations for extent of condition, generic implications, common causes, and previous occurrences were adequate.

(2) Issues

For each condition report reviewed the licensee had identified the unique contributor for the problem and addressed the issue individually considering each as an isolated failure, until a trend was identified. For example, CRs 02010836, 03001593, 03001749, and 03001187 identified issues related to aging of controllers. When assessed individually, the licensee appropriately corrected each failure. Subsequent to two failures of SJAE controllers which caused significant power transients, the licensee identified the root cause as age-related degradation of electronic sub-components in associated controllers, thereby extending the condition to a broader group of components. Similarly, CR 02011130 identified a trend associated with solenoid failures and was issued to assess the effectiveness of the solenoid valve program.

Subsequently, an outside audit conducted in parallel to the inspectors review identified that the licensee had age-related failures which adversely impacted operations and equipment performance. The licensee generated CR 03006261 to assess actions to enhance monitoring of aging, equipment performance, and equipment reliability.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors reviewed the above listed CRs and those included in Attachment 1. The inspectors considered the licensee's evaluation and disposition of performance issues, evaluation and disposition of operability issues, and application of risk insights for prioritization of issues.

(2) Issues

Conditions appeared to be appropriately prioritized and evaluated for risk. Evaluations of and prioritization of the generic aging issues appeared to be covered by the scope of CR 03006261, which was not completed at the time of this inspection.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed the above listed CRs and those included in Attachment 1 to determine if the condition reports addressed generic implications and that corrective actions were appropriately focused to correct the problem.

(2) Issues

As noted in section 4OA2.1.a(2) above, corrective actions appeared to initially focus on only the issue identified; as multiple issues were identified the aging aspects were expanded to related components through the generation of trend CRs. The licensee indicated that various programs, such as equipment health, program health, and the “top 10 material condition issues list,” would review trends related to “equipment types,” and would also identify aging issues. However, when the inspectors reviewed the historical database, component failures were not consistently entered into the system. Because of this inconsistency, using rate-of-repair, or frequency of work order generation as an effective tool to identify degradations may be limited.

The inspectors found that programs and procedures were not established that considered leading indicators of aging or obsolescence. However CR 03000526, which did not have all assigned actions completed at the time of the inspection, considered using the rate of change in instrument drift between calibrations as a leading indicator of age-related degradation. Other than CR 03000526, the inspectors did not identify any formal tools, procedures, or additional corrective actions which considered the use of precursors to anticipate age-related failures. Currently, age-related deficiencies were identified through multiple failures and the recognition for the need of an associated trend CR. The inspectors found that obsolescence was identified only when spares were ordered and the licensee identified that the components were not supported or the manufacturer no longer existed. Condition Report 03006261 recognized many of the shortfalls associated with equipment aging, but the corrective actions were not complete at the time of this inspection.

.3 Maintenance Rework and Failed Post-Maintenance Tests

Introduction

The inspectors identified several condition reports (CRs) related to maintenance rework and failed post-maintenance tests. Because of the number of issues identified, the inspectors selected licensee corrective actions related to maintenance rework and failed post-maintenance tests for periodic review of the problem identification and resolution program per NRC Inspection Procedure (IP) 71152. Additionally, the inspectors verified that the licensee identified issues at an appropriate threshold, that these issues were

correctly entered in the corrective action program, and that they were properly addressed for resolution.

The CRs listed below document maintenance rework and failed post-maintenance tests that were part of the CR review:

- following maintenance on the electric fire pump discharge relief valve, RV-3408, indication of seat leakage was observed during performance of post-maintenance testing, CR 03001674;
- during planned preventive maintenance to swap out the feeder breaker 52-202 to MCC-121, the circuit breaker failed post-maintenance testing, CR 03005100 and CR 03005115;
- during performance of surveillance testing and post-maintenance testing for WO 0204458, bearing point 4 axial vibration for 12 EDG failed to meet the acceptance criteria, CR 03005021
- valve MO-1987, loop B RHR pump torus suction valve, failed post-maintenance testing following planned preventative maintenance, CR 02005790

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed the above listed CRs and multiple associated condition reports. The inspectors' review included verification that problem identification was complete, accurate, and timely, and that the issue considered that the evaluations for extent of condition, generic implications, common causes, and previous occurrences were adequate.

(2) Issues

The licensee documented in CR 03005100 that maintenance on a circuit breaker, performed by a vendor, was inadequate. The licensee determined that four other breakers had maintenance performed by the same vendor and included those additional breakers in the assessment of the CR. In CR 02005790, the licensee documented that the failure of valve MO-1987 was due to an Agastat relay failure and determined that this event had generic implications on other similar Agastat relays. These CRs followed the licensee's requirements for problem identification.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors reviewed CRs 02005790, 03001674, and 03005100. The inspectors considered the licensee's evaluation and prioritization of performance issues and application of risk insights for prioritization of issues.

(2) Issues

The review of the CRs revealed that the licensee had taken immediate and appropriate corrective action, and prioritized the issues based on safety or risk significance.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed the CRs listed above, and multiple related condition reports to determine if the condition reports addressed generic implications and that the corrective actions were appropriately focused to correct the problem.

(2) Issues

Each CR reviewed found no violations of applicable procedures. The licensee determined in CR 02006093 that the replacement frequency for relays of the type that failed and caused the failure of valve MO-1987 would be changed from the current 10-year frequency to an 8-year frequency. The licensee stated that the manufacturer recommended replacement interval was typically less than 5 years and used engineering judgement based on economical and historical performance to institute the 8-year replacement frequency.

The inspectors noted that the licensee had a procedure, MDI-06.05, "Rework/Recurring Problems Process," to assess and correct generic and specific issues associated with maintenance rework. Rework items identified by the inspectors were also identified by the licensee and evaluated using the process described in MDI-06.05.

.4 Instrument Air Compressor Found in Tripped Condition

Introduction

On April 5, 2003, the No. 11 instrument air compressor was found in the tripped condition by plant operators and would not have started automatically if needed. Normal station air pressure was being properly maintained by No. 14 air compressor. The No. 11 air compressor along with No. 13 compressor are normally in standby and automatically start if station air pressure decreases below specified values. Operators successfully returned the No. 11 compressor to standby operation without incident. The compressor had been unavailable for several hours.

The inspectors performed a review of the licensee's corrective action program implementation for this adverse condition because having the No. 11 air compressor out-of-service reduced the defense-in-depth for the instrument air system (IAS). In the event air pressure is lost, plant operators would be required to scram the reactor inducing a plant transient and subsequent challenge to safety systems. The IAS is considered by the licensee to be risk significant.

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed CR 03003651, which documented the issue. The inspectors confirmed that the issue was properly included in the licensee's corrective action program, that the information in the condition report was complete and accurate, and that corrective actions were performed in a timely manner and was commensurate with the issue's significance and ease of discovery.

(2) Issues

No issues were identified.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors verified that the classification and prioritization of the resolution of the issue was commensurate with its safety significance. The inspectors also reviewed the licensee's cause determination to ensure that it was sufficiently thorough and appropriate for the condition. In addition, the inspectors evaluated whether consideration was given for extent of condition, generic implications, common cause, and previous occurrences.

(2) Issues

The licensee did not determine the cause for the tripped air compressor. The licensee attempted to identify the cause, which included a check for loose wires in the compressor's control cabinet. Also, a review was performed of the operating procedure that was used to operate the compressor and place it in standby service. In addition, the licensee interviewed the operator who had operated the compressor earlier in the day when the compressor was found tripped to determine the possibility of the compressor being left in the tripped condition. The licensee also contacted the air compressor vendor regarding the issue. These evaluation efforts, however, did not reveal the cause of the problem.

The licensee's corrective action program recommends that an extent of condition be performed for Level 2 CRs, which was the level assigned to the issue, and recommends a review of operating experience (OE) at Monticello and in the industry. The OE review was not performed. Additionally, the licensee indicated that the information provided by the vendor was not useful in determining the cause of the problem. The licensee made no further attempts to explore the potential cause of the problem.

The inspectors considered the licensee's extent of condition review for the tripped compressor. Based on the high risk significance of the IAS, and that the licensee's procedures recommend a review of external operating experience during causal determinations, the inspectors concluded that more thorough actions could have been taken in an attempt to identify the cause of the failure; including a more comprehensive review of external operating experience and the use of temporary instrumentation to monitor equipment performance upon return to service. Although the cause of the compressor trip was not determined, the compressor was operated successfully several

times since the condition was discovered and no further instances of being found in the tripped condition have occurred.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed the licensee's corrective actions to determine if they were appropriately focused to correct the problem. The inspectors also evaluated whether completion of the corrective actions were timely and performed in a manner commensurate with the safety significance of the issue.

(2) Issues

The licensee's corrective actions identified above were reasonable for the problem as evaluated. However, these actions were not based on a thorough evaluation. Because the cause of the compressor trip was not found, the inspectors concluded that more action was prudent to further evaluate the cause of the failure. The inspectors discussed this conclusion with the licensee who agreed and subsequently reopened the issue by initiating CR 03009915.

In addition, the inspectors discussed with the licensee the impact of not knowing the cause of the failure as it relates to implementation of the maintenance rule. In this case, the licensee initially determined that the failure represented a maintenance rule functional failure (MRFF). Further, the licensee determined that a maintenance preventable functional failure (MPFF) had not occurred because it was not likely that maintenance practices had caused the problem. The inspectors concluded that it was difficult to determine whether an MPFF had occurred without understanding the cause of the failure. As a result, the licensee initiated CR 03009946 to review the extent of condition for other similar situations.

4OA3 Event Follow-up (71153)

(Closed) License Event Report 50-263/2003-001: Degraded Fire Barrier Penetration Discovered During Walkdown

On March 13, 2003, while conducting a walkdown of 3-hour fire barrier FZ-4900, the licensee discovered a portion of the penetration seal of fire barrier FZ-4900 was degraded, allowing communication between the lower and upper 4kV rooms. The barrier was declared inoperable and a fire watch was established. The licensee made an 8-hour event notification in accordance with 10 CFR 50.72(b)(3)(ii). On March 15, 2003, the licensee repaired the degraded penetration seal. The inspectors confirmed that appropriate compensatory actions were taken until the seal was repaired and also verified the repair of the seal.

The inspectors determined that the degradation of fire barrier FZ-4900 constituted a performance deficiency because the penetration is inspected during each refueling outage and that the inadequate installation was not identified. Additionally, during the 2001 refueling outage inspection, surface cracks were identified and cosmetically

repaired. The inspectors considered this condition a precursor to the breach and that further investigation would have revealed that the licensee identified contributing causes, turbine building vibrations, age-related material degradation, and maintenance-related activities, were negatively impacting the integrity of the gypsum board that was used for the barrier. The degradation of the fire barrier was determined to be more than minor because it affected the availability, reliability, and capability of systems that respond to initiating events under the “protection against external factors: fire” attribute of the Mitigating Systems Cornerstone.

The inspectors evaluated this deficiency for significance using IMC 0609, “Significance Determination Process (SDP),” Appendix F. Using Figures 4-1 and 4-2 (for Scheme 1) of Appendix F, the inspectors determined that the deficiency affected the 3-hour rated fire barrier separating two redundant safe shutdown areas, and a Phase 2 SDP analysis was performed.

The inspectors reviewed the relationship between potential ignition sources and combustible materials in the affected rooms for the development of a realistic fire scenario. The fire modeling analysis indicated that the temperature of the hot gas layer would not reach sufficient magnitudes to damage the equipment in the upper 4kV room. It was also determined that the redundant safe shutdown function remained available to mitigate the consequences of a fire in the lower 4kV room. Therefore, this finding was considered to be of very low safety significance (Green). The inspectors determined that the issue was a licensee identified Non-Cited Violation of 10 CFR Part 50, Appendix R, Section III.G.2. This Non-Cited Violation is discussed in Section 4OA7 of this report. The licensee entered this deficiency into their corrective action program as CR 03002744.

#### 4OA5 Other Activities

##### Failure to Complete the Requirements of an Emergency Preparedness Surveillance

On May 7, 2002, a former EP coordinator closed an EP surveillance procedure prior to completing all the steps required by the procedure. The NRC Office of Investigations (OI) investigated the matter and concluded that the individual deliberately closed the surveillance procedure knowing that several steps in the procedure were not complete. Specifically, the former EP coordinator initialed all 59 steps, then signed and dated the “Completed By” section of the cover sheet for MNGP Surveillance Procedure 1240, “Emergency Procedures and Forms Accuracy Verification.” However, licensee staff later identified that the EP coordinator had not distributed updated EP telephone directories and revised Emergency Response Organization assignments on the “tag” boards in the licensee’s emergency response facilities as required by Surveillance Procedure 1240.

Since the incident was determined to be a deliberate violation of NRC requirements, the violation was not subject to the NRC’s Significance Determination Process, as described

in NRC Manual Chapter 0609, "Significance Determination Process." The violation was categorized in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy) NUREG-1600, at Severity Level IV. On July 27, 2003, after considering the circumstances of the case and after consulting with the Director, Office of Enforcement, a Non-Cited Violation was issued to the licensee, consistent with Section VI.A.1 of the Enforcement Policy. The involved individual was determined to be in violation of the regulations in 10 CFR 50.5 that prohibit deliberate misconduct; however, no enforcement action was taken against the individual. A closure letter was also issued to the individual on July 27, 2003.

#### 4OA6 Meetings

##### .1 Exit Meeting

The inspectors presented the inspection results to Mr. Palmisano and other members of licensee management on October 2, 2003. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

##### .2 Interim Exit Meetings

Interim exits were conducted for:

- Radiation Protection Inspection with Mr. David Wilson on August 15, 2003.

#### 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 the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-Cited Violation.

##### **Cornerstone: Mitigating Systems**

10 CFR 50, Appendix R, Section III.G.2, requires that redundant trains of equipment required to achieve and maintain safe shutdown be separated with a 3-hour rated fire barrier. Contrary to this requirement, the licensee failed to maintain a required fire barrier separating the upper and lower 4kV rooms (Section 4OA3.1). Since the redundant safe shutdown function remained available to mitigate the consequences of a fire in the lower 4kV room, this finding was considered to be of very low safety significance (Green). This was found to be consistent with the licensee's risk determination as documented in Licensee Event Report (LER) 50-263/2003-001. The licensee identified this deficiency in their corrective action program as CR 03002744.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

T. Palmisano, Site Vice President  
J. Purkis, Plant Manager  
R. Baumer, Licensing  
G. Bregg, Manager, Quality Services  
K. Jepsen, Radiation Protection Manager  
D. Neve, Regulatory Affairs Manager  
E. Sopkin, Director of Engineering

#### Nuclear Regulatory Commission

B. Burgess, Chief, Reactor Projects Branch 2

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

50-263/03-05-01	NCV	Failure to Complete the Requirements of an Emergency Preparedness Surveillance (Section 40A5)
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#### Closed

50-263/03-05-01	NCV	Failure to Complete the Requirements of an Emergency Preparedness Surveillance (Section 40A5)
50-263/2003-001	LER	Degraded Fire Barrier Penetration Discovered During Walkdown (Section 40A5)

#### Discussed

None.

## 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 of 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.

### 1R04 Equipment Alignment

#### Documents and Procedures:

2119; Plant Prestart Checklist Core Spray System; Revision 8  
2154-11; Core Spray System Prestart Valve Checklist; Revision 17\*  
4058-01-OCD; RHR Pump 11, 13 and Core Spray 11 Motor Cooler Chemical Cleaning and Pressure Test; Revision 6  
4058-02-OCD; RHR Pump 12, 14 and Core Spray 12 Motor Cooler Chemical Cleaning and Pressure Test; Revision 6  
Technical Specification 3.5; Core and Containment Spray/Cooling Systems; Amendment 122  
Operations Manual Section B.03.01-1; Core Spray Cooling System; Revision 4  
USAR Section 6.2.2; Core Spray System; Revision 19  
Operations Manual Section B.03.02-01; High Pressure Coolant Injection System; Revision 4  
USAR Section 6.2.4; High Pressure Coolant Injection System

#### Drawings and Prints:

NH-36248; Core Spray System; Revision AJ  
NH-36664; RHR Service Water & Emergency Service Water Systems; Revision BJ  
NH-85509; Service Condensate Radwaste Building; Revision AB  
NH-36249; High Pressure Coolant Injection System; Revision AM

#### Condition Reports:

03005038; Core Spray Motor Cooling Flow Doesn't Meet the Requirements of OCD  
ACC 03005394; Revise 4058-01-OCD, 4058-02-OCD as Necessary to Provide Back Flushing as Option if Motor Cooling Flow Does Not Meet Requirement  
03007307; High Pressure in the Core Spray Discharge Piping  
03008349; Packing Leakoff Connection on HPCI Testable Check Valve Does Not Match Drawing of Record. Potential Undocumented MOD

### 1R05 Fire Protection

#### Pre-Fire Fighting Procedures and Strategies:

A.3-03-A; Recirc MG Set Room; Revision 3\*  
A.3-04-B; RBCCW HX Area; Revision 2\*  
A.3-07-B; 250V Division I Battery Room; Revision 5  
A.3-07-B; 125V Division II Battery Room; Revision 3  
A.3-01-D; Reactor Building Elevation 896' Tank Room; Revision 4  
A.3-05-C; Fuel Pool Skimmer Tank Room; Revision 2\*

A.3-29; Security Diesel Building; Revision 3\*  
A.3-13-B; Reactor Feedpump and Lube Oil Reservoir Room; Revision 6  
A.3-34; East Electrical Equipment Room and 13 Diesel Generator; Revision 5

Documents and Procedures:

Procedure 0275-03; Fire Door Inspections; Revision 25  
Manual NX-16991; Updated Fire Hazards Analysis; Revision 11  
Procedure 1402-01, Fire Detection Instrumentation-EEER and 13 Diesel Generator  
(Zone 34), Revisions 12 and 13 for Semi-Annual and Annual Tests  
Procedure 2176; Fire Drill Procedure; Revision 13  
Drill Guide F; MFD Joint Drill for #13 DG & Day Tank Rooms

Condition Reports:

02008247; NFPA detector Discrepancies Discovered in Fire Zone 4B, Rx BLDG 985'  
West, RBCCW Hx Area  
02008349; NFPA detector discrepancies Discovered in Fire Zone 7B, Battery Room  
03008428; Fire Strategy Does Not Exist for the RB 985' Elevation Pump and Tank  
Room in the Reactor Building, There is no Safe Shutdown Equipment or Safety  
Related Equipment in the Zone  
03008428; Fire Strategy Does Not Exist for the RB 985' Level Pump and Tank Room,  
Fire Zone 21D

Work Orders:

0204497; Relocate Smoke Detectors in Battery Room (FZ-7B)

1R11 Licensed Operator Requalification Program

Documents and Procedures:

RQ-SS-22E; Loss of RPIS with and ATWS; Revision 1  
C.5-1100; RPV [Reactor Pressure Vessel] Control; Revision 9  
C.5.2007; Failure to Scram; Revision 12  
C.4-B.09.06.A; Loss of Buss 11 or Bus 12; Revision 5  
C.4-B.09.13.A; Loss of Y-10; Revision 3

1R12 Maintenance Effectiveness

Documents and Procedures:

4916-19-PM; Lubrication - Diesel Generator and Associated Equipment; Revision 14  
B.09.08; Operations Manual - Diesel Generators  
3.9; Technical Specifications - Auxiliary Electrical Systems  
3006; Stores Requisition - Mobilux-2 Grease for WO 03-06182; Revision 9  
4020-PM; Traveling Water Screens Monthly Lubrication; Revision 16  
4265; Mechanical Maintenance and Mechanical Construction Pre-Job Briefing Checklist  
for WO 0309978; Revision 10  
4222-PM; Traveling Water Screens; Revision 17  
4222-01-PM; Traveling Water Screens Rebuild; Revision 9

Condition Reports:

03008492; Failed PMT for WO 0306109. Traveling Screen Sheared Its Pin Within One Week of Replacement.

03007516; Adverse Trend: #11 Traveling Screen Continues to Shear Pins

01008403; Adverse Trend - #12 Traveling Screen Shear Pin Replaced Six Times in the Last 16 Days

030003651; #11 Air Compressor Found in a Tripped Condition with the Auto Operation Light Not Lit

Work Orders:

0306182; Lube 12 Diesel Generator System

9602176-002; Perform Bearing Maintenance on K-9B Motor

0306190; Replace Drive Sprocket/Driven Sprocket #14 Screen

0309978; Replace Drive Chain, Driven Sprocket #11 Screen

0307958; Inspect Control Circuit for Bad Connection for #11 Air Compressor

1R13 Maintenance Risk Assessments and Emergent Work Control

Documents and Procedures:

0199; No. 14 and No.15 24 VDC Battery Operability Check; Revision 12

4150-PM; Maintenance of On-site and Battery Chargers at Monticello Nuclear Plant; Revision 15

3/4.9; Technical Specification - Auxiliary Electrical Systems

4848-PM; Klockner-Moller Thermal Overload Relay Test Procedure; Revision 1

3186-G-01-03; Quality Control Inspection Record (QCIN) 03-6630 for WO 0309953: Revision 5

0255-21-III-1; "A" CGCS Quarterly Pump and Valve Tests; Revision 22\*

Memo from T. Wellumson (Xcel Energy) to S. Burton (NRC); Subject - Risk Assessment of Xcel Condition Orange (09-08-03); September 9, 2003

SWI-14.01; Scheduling Work Instruction - Risk Management of On-line Maintenance; Revision 1

7110-01; RHR System Instrument Maintenance Procedure Division I LCO; Revision 1

Drawings and Prints:

NF-36298-2; DC Electrical Load Distribution One Line Diagram; Revision C

Condition Reports:

02012555; Resolve PRA Comments Made by R. Best

96000047; CGCS Booster Pump P1-B/CGC Did Not Start Under 0255-21-III-2

03007435; As-found Thermal Overload Trip Time Long (31.32 sec) for B-3471.

Adjusted to Within Band of 20-3- seconds.

03007496; Div I CGCS Booster Pump Failed to Restart per Step 30 of 0255-21-III-1

Work Orders:

0203491; Replace Div. 1 24 Volt Batteries (#15 Battery)

9600240; Investigate/Repair Tripped Thermal Overload for B-4471

9600410; Calibrate Thermal Overload Relay for B4471

0309953; Div I CGCS Booster Pump Failed to Restart for Test  
0310633; CV-1994 Failed to Open O RHR Pump Stop

#### 1R15 Operability Evaluations

##### Documents and Procedures:

4 AWI-10.01.04; Operability Determination FP-OP-OL-01; Revision 5  
Memo from Underwriters Laboratories Inc. to Todd Hurre, PO 33937;  
Subject: Engineering Evaluation of Trussbuilt Door with Reference to Alternate  
Construction Methods; September 2, 2003

##### Drawings and Prints:

NX-7879-5; Standby Liquid Control System Elementary Diagram; Revision J

##### Condition Reports:

03007093; Received Unexpected Alarm DW Equipment Drain Leak Rate Hi During the  
Pump down of the DWEDS. No Operability Concerns.  
02000078; Received Unexpected Alarm C-04-B-13. Drywell Equipment Leak Rate High  
When the Pump Started. Then Reset When the Pump Shut Off.  
01004093; Received Unexpected Alarm DW Equipment Drain Leak Rate Hi During the  
Pump Down of the DWEDS.  
03005346; Standby Liquid Control System Control Circuit Problem at Quad Cities  
(Ground on Control Circuit)  
03009220; Correct Grounding Details on Drawing NX-7879-5 (SBLC Elem.)  
03009104; Loss of Voltage Relay for MCC-133B Replaced With Standard Quality Part  
03008617; The SBLC System Shutdown Margin Design Basis Cannot Be Readily  
Compared to GE-Global Nuclear Fuel Analysis Results  
03007779; Door 103 - NRC Questioned UL Fire Rating Qualification with Regard to  
Documentation Surveillance and Modifications

##### Work Orders:

0309799; Drywell Leak Rate High Timer Malfunction

#### 1R19 Post-Maintenance Testing

##### Documents and Procedures:

0306897; Post Maintenance Testing Control Cover Sheet for WO 0306895 on # 13 RHR  
SW Pump Motor  
0306895; Post Maintenance Testing Control Cover Sheet for WO 0306895 on #13 RHR  
SW Pump Motor  
1456-01; RHRSW Pump 11 and 13 Motor Cooler Flush Quarterly Surveillance;  
Revision 5  
0308912; Post Maintenance Testing Control Cover Sheet for WO 0308912  
03A-062; Alteration Package - Install a Banana Plug Shorting Bar to Ground the Input of  
the Single Rod Scram Relay (5A-K50) When it Is Not Being Used for Test 0081 - CRD  
Scram Insertion Time Testing (i.e. During Normal Plant Operations)  
B.05.02-05; Clearing RWM Scram Data Buffers; Revision 4  
0199; No. 14 and No.15 24 VDC Battery Operability Check; Revision 12  
4150-PM; Maintenance of On-site and Battery Chargers at Monticello Nuclear Plant;

Revision 15

3/4.9; Technical Specification - Auxiliary Electrical Systems  
Technical Manual NX-17012; Maintenance Manual and Parts List  
TS 3.17; Control Room Habitability  
4051; Replace EFT Actuators; Revision 7  
USAR Section 6.7; Main Control Room, Emergency Filtration Train Building and  
Technical Support Center Habitability  
Operations Manual B.8.13-01; Control Room Heating and Ventilation and Emergency  
Filtration Train; Revision 6  
Control Room Logs between July 20, 2003 and July 24, 2003  
0465-01; Emergency Filtration Treatment System; Revision 25  
1429; CRV-EFT Low Flow Test; Revision 10  
Tech Manual NX-8974-17; Magne-Blast Circuit Breaker; Revision 7  
4858-PM; 4kV, GE, AMH Magneblast Air Circuit Breaker Maintenance; Revision 19  
USAR Section 8.3; Auxiliary Power Systems

Drawings and Prints:

NX-7834-67-12; Elementary Wiring Diagram - Reactor Protection System; Revision F  
NF-36298-2; DC Electrical Load Distribution One Line Diagram; Revision C

Condition Reports:

03007124; PMT Associated with WO 0308912 Potentially Inadequate  
03008369; NRC identified Inadequacy in PMT Documentation for Work Order 0202708

Work Orders:

0308912; Install Jumper on RWM Single Rod Scram Relay Input  
0203491; Replace Div. 1 24 Volt Batteries (#15 Battery)  
0202708; Perform PM on VD/9111B/P  
0306738; PM 4858 Minor 2 (4KVB-05 Breaker)  
0306895; PM 4085-3 (Clean 13 RHRSW Motor Cooler p-109C)

1R22 Surveillance Testing

Documents and Procedures:

0011-A; Turbine Control Valve Fast Closure Scram Time Test and Calibration;  
Revision 4  
MWI-8-M-4.15; Conductor Splicing and Cable Jacket Repair; Revision 6  
B.05.06-02; Operation Manual - Main Turbine; Revision 11  
7.6.g; USAR - Turbine Control Valve Fast Closure  
14.4.1; USAR - Generator Load Rejection Without Bypass; Revision 19  
3/4.1; TS - Protective Instrumentation  
0007-A; Condenser Low Vacuum Scram Instrument Test and Calibration Procedure  
(>600 psig); Revision 10  
0143; Drywell-Torus Monthly Vacuum Breaker Check; Revision 30\*  
Technical Specification 4.7.A.4; Pressure Suppression Chamber-Drywell Vacuum  
Breakers; Amendment 130  
USAR Section 5.2.1.2.3; Vent and Vacuum Relief System; Revision 19  
0255-04-IA-1; RHR System Valve Tests; Revision 60  
Technical Specification 3.5.A; ECCS Systems; Amendment 122

Technical Specification 3.5.C; Containment Spray/Cooling System; Amendment 122  
0032; ECCS Pump Start Permissive Sensor Test; Revision 12  
0255-03-IA-1; Core Spray Quarterly Pump and Valve Tests; Revision 36

Drawings and Prints:

NX-8435-150-1; Turbine Control Diagram; Revision B  
NH-36248; P&ID Core Spray System; Revision AJ

Condition Reports:

01004447; I&C Nitrogen Bottle and Associated Tubing Located On the Turbine Deck is  
Not Documented  
98000976; Cut in Cable Jacket Exposing Inner Conductors. Inner conductors Look OK.  
PS-7110  
NH-36258; Primary Containment & Atmospheric Control System; Revision AZ  
03008172; All LCOs Not Called Out in Procedure Step  
03009217; Adverse Trend: B Core Spray Pump Has a History of Low Flow Through  
Motor Cooling Coils

Work Orders:

0000359; Outer Jacket of Cable for PS-7110 Cut In It

1EP6 Drill Evaluation

Documents and Procedures:

RQ-SS-22E; Loss of RPIS with and ATWS; Revision 1  
5790-102-02; Monticello Emergency Notification Report Form; Revision 25  
5790-104-04; Emergency Call List - Alert/Site Area/General; Revision 83  
A.2-101; Classification of Emergencies; Revision 30  
A.2-104; Site Area Emergency; Revision 15

2OS1 Access Control to Radiologically Significant Areas

RWP (Radiation Work Permit) Number 238; Condensate Demin Resin Filter  
Replacement; Revision 2  
Observation Report No. 2002-002-5-020; Nuclear Oversight Observation  
Report - Radiation Protection; May 20, 2002  
Observation Report No. 2002-004-5-009; Nuclear Oversight Observation  
Report - Radiation Protection; November 8, 2002

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

Condition Report 20020023; Chemistry Self Assessment Program Report; 4<sup>th</sup> Quarter,  
2001  
Final Report; Radiological Environmental Monitoring Program (REMP);  
January - December, 2002  
Observation Report No. 2002-002-5-038; Radiological Protection; June 12, 2002  
Observation Report No. 2003-002-5-047; Radiological Protection; June 10, 2003  
Observation Report No. 2003-002-5-047; Environmental Monitoring; June 10, 2003  
Procedure No. I.05.33; Weekly Radiological Environmental Monitoring Procedures

(REMP); Revision 1  
Procedure No. I.05.43; REMP Air Sampler Calibration and Maintenance; Revision 1  
Procedure No. I.05.37; Environmental Milk Sampling; Revision 2  
Procedure No. 7320; Monticello Meteorological Station Calibration Procedure;  
Revision 9  
Procedure No. R.06.01; Radioactive Source Control; Revision 14  
Procedure I.06.12; Meteorological/Radiological Data Review; Revision 2  
Procedure No. 7320; Monticello Meteorological Station Calibration Procedure;  
Revision 9  
Procedure No. 5829; REMP Air Sampler Calibration; Revision 3  
MET/Gas Review Sheet for August 10, 2003  
CR 03008357; Personnel Obtaining Minneapolis Drinking Water Sample for REMP  
Program not Trained IAW NMC Procedures  
CR 03003821; REMP - Unable to Obtain Milk Control Sample Due to Farm No Longer in  
Milk Production  
CR 03006785; REMP - Power Lost to the REMP Air Sampler at MTC Met Tower  
CR 02007585; REMP - There Were 3 Missed REMP Samples for the Month of June,  
2002. Trend Only, No Operability Issues  
CR 02011774; REMP - Find New Control Sample Location for Milk and Well Water and  
Revise ODCM and Associated Procedures  
CR 03001328; REMP - Air Sample Timer Found Missing 90 Hours

#### 40A1 Performance Indicator Verification

##### Documents and Procedures:

4 AWI-04.08.11; NRC Performance Indicators; Revision 6  
Operations Manual Section B.03.04-05; Residual Heat Removal System Operation  
Operations Manual Section B.03.04-02; Residual Heat Removal System Description of  
Equipment  
NEI 99-02; Regulatory Assessment Performance Indicator Guidelines; Revision 2  
Monticello Chemistry data between October 1, 2002 and June 30, 2003  
Monticello Reactor Coolant System Leakage data between July 1, 2002 and June 30,  
2003  
Monticello Safety System Unavailability, Emergency AC Power data between January 1,  
2002 and June 30, 2003  
Monticello Safety System Unavailability, Residual Heat Removal System data;  
January 1, 2002 through June 30, 2003  
Monticello Safety System Functional Failures data; July 1, 2002 through June 30, 2003  
3530-08; NRC Performance Indicator RCS Activity Worksheet; Revision 2  
3530-09; NRC Performance Indicator Safety System Functional Failures; Revision 2  
3530-10; NRC Performance Indicator Mitigating System Worksheets for RHR and EDG;  
Revision 2  
3530-11; NRC Performance Indicator Initiating Events Worksheets; Revision 3  
3530-12; NRC Performance Indicator Drywell Equipment Drain Leakage Worksheets;  
Revision 1  
LER-2002-002; Application of Instrument Deviation Acceptance Criteria Allowed  
As-Found Settings to be Outside Technical Specification Value; Revisions 0 and 1  
LER 2002-001; Mechanical Pressure Regulator Failure Causes Reactor Scram;  
Revisions 0 and 1

LER 2002-003; Primary Containment Group 3 Isolation Signal on High Flow While Re-pressurizing Reactor Water Cleanup System Piping; Revision 0  
LER 2002-004; Unplanned Loss of Both Trains of Control Room Ventilation During Auto Start Testing Due to Timing Circuit Relay Failure; Revision 0  
LER 2002-005; Entered Unplanned LCO for Both CRV Trains Inoperable Due to Pressure Switch Drift; Revision 0  
LER 2002-006; Surveillance Activity to Isolate Transmitter Prevents a Flow Bias Scram Signal; Revision 0  
LER 2002-007; Application of Instrumentation Deviation Acceptance Criteria Allowed As-Found Settings for High Drywell Pressure to be Outside Technical Specification Value; Revision 0  
LER 2003-001; Degraded Fire Barrier Penetration Discovered During a Walkdown; Revision 0  
187-2; 12 Emergency Diesel Generator/ 12 ESW Quarterly Pump and Valve Testing; Revision 47  
0000J; Operator Daily Log -Outplant, Part J, Step 11- Reactor Coolant Drywell Leak Rate Check; Revision 84  
0255-04-1A-1; RHR Quarterly Pump and Valve Testing; Revision 60

Technical Specifications:

TS 3.6.C; Coolant Chemistry  
TS 3.0.D; Coolant Leakage

Condition Reports:

03008361; Incorrect Information Reported for I-131 Tech Spec Limit for the NRC PI for RCA  
02005767; Excessive Oil Found Leaking from MO-1987 Actuator During Performance of PM4900-2;  
02005790; MO-1987 Failed PMT Following Maintenance PM Due to Failed K37 Relay in the ASDS Panel C292  
03001523; 13 RHR Pump Failed to Start for Torus Cooling. No Breaker Flags Were Found.  
03002616; Document Evaluation of Potential Impact of Mispositioned Fuse Identified in WO 0307328. No Adverse Impact to ECCS.  
03003144; Surv 0391 RHR SD Cooling Interlock, PS-2-128A/B are Difficult to Calibrate to "As Desired" Values  
3004133; Received Under Voltage Alarm on RHR Shutdown Cooling Outboard Suction Valve MO-2030  
3005133; MO-2030 Won't Close Due to Main Feeder Breaker to MCC-313 Wasn't Closed Yet

Work Orders:

0202734; MO-2012 Inspect Actuator for Okonite Splices  
0202735; MO-2013 Inspect Actuator for Okonite Splices  
0204420; Degraded Performance of E/P-2024 (flow controller)  
0307244; #13 RHR Pump Will Not Start  
0307527; Replace Okonite Splice with Scotch 130C Splice  
0308177; Replace (3) Okonite Splices with EQ Splices  
0308556; Adjust Close Torque Switch on MO-2033

0308338; MO-2030 Will Not Close Electrically From C03

4OA2 Identification and Resolution of Problems

Documents and Procedures:

Procedure 4 AWI-10.01.03; Condition Report Process; Revision 22  
Procedure 4 AWI-04.05.06; Post-Maintenance Testing; Revision 10  
Procedure MDI-06.05; Rework/Recurring Problems Process; Revision 1  
4910-PM; Changeout Procedure for NAMCO Limit Switches; Revision 8 (proposed)

Condition Reports:

02002446; Failed PMT for WO 0202093  
02004648; Failed PMT for WO 0201677 Following Replacement of Sheaves on V-EF-40B  
03005648; Poor Information Coordination by System Engineer Results in Rework While Performing Outboard MSIV Limit Switch Changeout  
02010837; Failed PMT for WO 0201126, Packing Leakage CV-2043  
02005790; MO-1987 Failed PMT Following Maintenance PM Due to Failed K37 Relay in ASDS Panel C292  
03005021; 12 EDG Generator Bearing Axial Vibration Level Failed PMT Acceptance Criteria  
03005100; Problems Identified with Maintenance Performed on LCB-12 by Square D, This Raises Questions about Other Breakers  
03005115; Failed PMT for Work Order 0200430 on LCB-012  
03001674; Failed PMT. Indication of Possible Seat Leakage for RV-3408 Fire Pump Discharge Relief Valve  
02011130; Recent Solenoid Failures Indicate an Adverse Trend in the Effectiveness of SOV Program and its Scope  
03001334; Age Related Failures/Degradation of Electrolytic Capacitors  
03001187; Multiple Isolations of 11 SJAE Suction Valve AO-1085A Resulted in Significant Operational Transients  
03001593; HPCI Controller Erratic When Controller Placed in "Balance" During HPCI Shutdown Sequence  
03001749; Failure of HPCI Flow Controller FIC-23-108 May Have Generic Implications Affection Other Safety Related Systems  
02010836; HPCI EG-M Control Box Null Voltage Settings Found Outside Acceptance Band During Calibration Procedure 7132  
03006261; AFI EQ.1-1 Age-related Failures Adversely Affect Performance of HPCI & Challenge Ops, and Adversely Affect Generation  
03000526; Site Lacks Process to Assure That Age-related Instrument Drift Is Identified/Corrected Prior to Impacting Operability  
00003066; Unexpected Start of "A" CRV Train During Performance of Operations Manual Procedure B.8.13-5.2.b.1 Causes Unplanned 30 Day LCO Entry  
02003185; Entered Unplanned 24 Hour LCO upon Failure of V-EAC-14A to Auto Start on Low Flow per CRV-EFT Test 1429  
Degraded Struther-Dunn Relays Found in Both Divisions of Eft Unplanned 24 Hour LCO Entered TS 3.17.A.3.a & 3.17.B.1.b  
03003651; #11 Air Compressor Found in a Tripped Condition with the Auto Operation Not Liti

03009915; External OE Was Not Used When CR 03003651 Was Assessed  
 03009945; Cell Phone Use Restrictions Are Not Clearly Identified in Areas of Concern Such as Control Room or Sensitive Areas (NRC-identified issue)  
 03009948; Justification for No Operability Concern Not Clearly Stated Within Condition Report (NRC-identified issue)  
 03009959; Scaffolding Procedure Does Not Address Potential Security Issues.  
 03009971; Independent Verification of As-left Test Switch Position Improperly Performed (NRC-identified issue)  
 03009972; As Left Data or Relay 27-33 Not Recorded (NRC-identified issue)  
 03009915; External OE was Not Used When CR 03003651 was Assessed  
 03009663; Potential Adverse Trend Associated with the Adequacy of Post-maintenance Testing (NRC-identified issue)  
 03009676; NRC RI Questions of Use of CML to Direct Work as a Controlled Document (NRC-identified issue)  
 03008324; NRC Commitment Change Failed to Identify Possible Problems with TTM Regarding C.4 Abnormal Training (NRC-identified issue)  
 03008357; Personnel Obtaining Minneapolis Drinking Water Sample for REMP Program not Trained IAW NMC Procedures (NRC-identified issue)  
 03008369; NRC Identified Inadequacy in PMT Documentation for Work Order 0202708 (NRC-identified issue)  
 03008727; NRC Concerns/questions Following Walkdown of Fire Zone 13-B (NRC-identified issue)  
 03008677; Map in Fire Strategy A.3-29 Security Diesel Building Not Consistent with Defectors Listed in Procedure 1402-35 (NRC-identified issue)  
 03007943; Unable to Locate Requested Modification Procedures That Contained Safeguards Information (NRC-identified issue)  
 03007799; NRC Review of Temporary Changes Raises Several Questions with Respect to compliance with AWI (NRC-identified issue)

4OA3 Event Follow-up

Documents and Procedures:

50-263/2003-001; License Event Report Degraded Fire Barrier Penetration Discovered During Walkdown; Revision 0

Condition Reports:

03002744; During Upper 4kV Penetration Inspection, Discovered Degraded Fire Barrier Penetration

**LIST OF ACRONYMS USED**

AC	Alternating Current
ATWS	Anticipated Transient Without Scram
AWI	Administrative Work Instruction
CFR	Code of Federal Regulations
CGCS	Combustible Gas Control System
CR	Condition Report

CRV	Control Room Ventilation
ECCS	Emergency Core Cooling System
EFT	Emergency Filtration Train
EP	Emergency Preparedness
GE	General Electric
GR	Group
HPCI	High Pressure Core Injection
HRA	High Radiation Area
IAS	Instrument Air System
IE	Inspection and Equipment
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
kV	Kilovolt
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MPFF	Maintenance Preventable Functional Failure
MRFF	Maintenance Rule Functional Failure
MSIV	Main Steam Isolation Valve
MWI	Maintenance Work Instruction
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
ODCM	Offsite Dose Calculation Manual
OE	Operating Experience
OI	Office of Investigations
PI	Performance Indicator
PM	Planned or Preventative Maintenance
PMT	Post-Maintenance Testing
RA	Risk Assessment
RCA	Radiologically Controlled Area
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RP	Radiation Protection
REMP	Radiological Environmental Monitoring Program
RWM	Rod Worth Minimizer
RWP	Radiation Work Permit
SDP	Significance Determination Process
SJAE	Steam Jet Air Ejector
SOV	Solenoid Operated Valve
TS	Technical Specification
USAR	Updated Safety Analysis Report
Vdc	Volts Direct Current
WO	Work Order