January 16, 2002

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

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT
NRC INSPECTION REPORT 50-263/01-10(DRP)

Dear Mr. Forbes:

On December 29, 2001, the NRC completed an inspection at your Monticello Nuclear Generating Plant. The results of this inspection were discussed on January 3, 2002, with you and members of your staff. The enclosed report presents the results of that inspection.

The inspection was an examination of activities conducted under your license as they relate to reactor safety, verification of performance indicators, event followup, radiation safety, inservice inspection, and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green) which was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because your staff has entered the issue into your corrective action program, the NRC is treating the issue as a Non-Cited Violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny the Non-Cited Violation, you should provide a response with the basis for your denial within 30 days of the date of this inspection report to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Monticello facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures 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/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket No. 50-263
License No. DPR22

Enclosure: Inspection Report 50-263/01-10(DRP)

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

REGION III

Docket No:	50-263
License No:	DPR-22
Report No:	50-263/01-10(DRP)
Licensee:	Nuclear Management Company, LLC
Facility:	Monticello Nuclear Generating Plant
Location:	2807 West Highway 75 Monticello, MN 55362
Dates:	November 15 through December 29, 2001
Inspectors:	S. Burton, Senior Resident Inspector D. Kimble, Resident Inspector M. Mitchell, Regional Health Physics Inspector D. Jones, Regional Engineering Inspector
Approved by:	Bruce L. Burgess, Chief Branch 2 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000263/01-10(DRP), on 11/15-12/31/2001; Nuclear Management Company, LLC; Monticello Nuclear Generating Plant; Post-Maintenance Testing.

The inspection was conducted by resident and regional inspectors. The report covers a 6½-week period. The inspection identified one Green finding. The significance of all of the findings are indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at http://www.nrc.gov/NRR/OVERSIGHT/index.html.

A. Inspector Identified Findings

Cornerstones: Barrier Integrity, Mitigating Systems, and Initiating Events

- Green. The inspectors reviewed the post modification test for the Division II Low Pressure Core Injection 5 Minute Timer Bypass Modification. During the testing evolution, an error associated with a jumper bypass in the test procedure resulted in the loss of shutdown cooling to the reactor vessel. The failure of the licensee to provide an appropriate procedure to test the modification constitutes a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion V. The finding was of very low safety significance because of the low decay heat load present in the reactor and the licensee's ability to manually recover shutdown cooling in a short period of time (Section 1R19.2).

B. Licensee Identified Violations

None.

Report Details

Summary of Plant Status

The Unit began the inspection period shutdown for Refuel Outage No. 20. The plant was taken critical on December 13, 2001, with main generator synchronization to the grid occurring on December 15, 2001. Full power was reached on December 18, 2001. A power reduction to approximately 75 percent was performed on December 21, 2001, for rod pattern adjustment, with return to full power operation on December 22, 2001. The Unit remained at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather (71111.01)

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. Cold weather protection, such as heat tracing, was verified to be in operation where applicable.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

The inspectors performed a partial walkdown of various Division I equipment during the Division II refuel outage work window to verify operability and proper equipment lineup while the counterpart train was disabled due to planned maintenance. These systems were selected due to the increase in core damage frequency, which resulted from rendering other risk significant equipment out-of-service for maintenance. The inspectors verified the position of critical redundant equipment and looked for any discrepancies between the existing equipment lineup and the required lineup.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors walked down the following risk significant areas looking for any fire protection issues. The inspectors selected areas containing systems, structures, or components that the licensee identified as important to reactor safety.

- Fire Zone A.3-03-C, Vessel Instrument Rack Area - Elevation 962'
- Fire Zone A.3-03-E, Contaminated Records Area
- Fire Zone A.3-04-A, Reactor Building 3rd Floor South
- Fire Zone A.3-04-B, Reactor Building Closed Cooling Water Heat-Exchanger Area

The inspectors reviewed the control of transient combustibles and ignition sources, fire detection equipment, manual suppression capabilities, passive suppression capabilities, automatic suppression capabilities, and barriers to fire propagation.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities (71111.08)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's ISI program for monitoring degradation of the reactor coolant system boundary and the risk significant piping system boundaries. Specifically, the inspectors verified through observations that in-process ultrasonic and magnetic particle inspections of residual heat removal (RHR) discharge piping weld ISI-13142-18-B was conducted in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspectors also reviewed ISI procedures and personnel and equipment certifications.

The inspectors reviewed the NIS-2 forms for Code repairs performed during the outage (Refueling Outage No. 20) and confirmed that ASME Code requirements were met. In addition, the inspectors reviewed reports concerning ISI issues to verify that an appropriate threshold for identifying issues had been established. The inspectors also evaluated the effectiveness of the corrective actions for identified issues.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

The inspectors reviewed the evaluation of simulator annual examination scenarios and reviewed licensed operator performance in mitigating the consequences of events. The scenario included transient and emergency actions and resulted in execution of multiple emergency operating procedures. Areas observed by the inspectors included: sequence of actions, prioritization of activities, procedural adequacy and implementation, and emergency plan requirements.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the Maintenance Rule (10 CFR 50.65) to ensure rule requirements were met for the selected systems. The following systems were selected based on being designated as risk significant under the Maintenance Rule, or being in the increased monitoring (Maintenance Rule category a(1)) group:

- Standby Liquid Control System
- Residual Heat Removal Service Water
- Alternate Shutdown System
- Off-Gas Recombiner System
- Reactor Pressure Relief System

The inspectors verified the licensee's categorization of specific issues, including evaluation of the performance criteria. The inspectors reviewed the licensee's implementation of the maintenance rule requirements, including a review of scoping, goal-setting, and performance monitoring; short-term and long-term corrective actions; functional failure determinations associated with the condition reports reviewed; and current equipment performance status.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed and observed emergent work, preventive maintenance, or planning for risk significant maintenance activities. The inspectors observed maintenance or planning for the following activities or risk significant systems undergoing scheduled or emergent maintenance.

- Degradation and Replacement of Secondary Containment Isolation Bladders in the Main Steam Line

- Outage Planning and Emergent Work Review

The inspectors also reviewed the licensee's evaluation of plant risk, risk management, scheduling, and configuration control for these activities in coordination with other scheduled risk significant work. The inspectors verified that the licensee's control of activities considered assessment of baseline and cumulative risk, management of plant configuration, control of maintenance, and external impacts on risk. In-plant activities were reviewed to ensure that the risk assessment of maintenance or emergent work was complete and adequate, and that the assessment included an evaluation of external factors. Additionally, the inspectors verified that the licensee entered the appropriate risk category for the evolutions.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (OWA) (71111.16)

a. Inspection Scope

The inspectors reviewed the following operator workarounds. The inspectors assessed each workaround's potential to impact: system function; the operators' ability to respond to accident conditions and implement emergency operating procedures; and equipment operability.

- Operator Workaround 00-073, "Loss of CRD [Control Rod Drive] Pump During LOCA [Loss of Coolant Accident] With Fuel Failure Creates a Potential Leakage Pathway"

- Operator Workaround 01-114, "Normal Operation of EDG-ESW [Emergency Diesel Generator-Emergency Service Water] Pumps Requires Closure of SW-239-1 and SW-239-2 to Prevent Dead-Heading the Pumps"

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Miscellaneous Post-Maintenance Testing Activities

a. Inspection Scope

The inspectors selected the following post-maintenance activities for review. Activities were selected based upon the structure, system, or component's ability to impact risk.

- No. 11 Emergency Diesel Generator
- Residual Heat Removal System Return Throttle Valve MO-2012
- Low Pressure Coolant Injection Swing Bus Cross-Tie Breaker B-4300
- Control Rod Drive 10-39

The inspectors verified by witnessing the test or reviewing the test data that post-maintenance testing activities were adequate for the above maintenance activities. The inspectors' reviews included, but were not limited to, 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, Technical Specification applicability, 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, Technical Specifications, and Updated Safety Analysis Report (USAR) design requirements.

b. Findings

No findings of significance were identified.

.2 Division II Low Pressure Coolant Injection (LPCI) 5 Minute Timer Bypass Switch

a. Inspection Scope

The inspectors reviewed the post modification tests associated with the Division II LPCI 5 minute timer bypass switch installation modification. This activity was selected based upon the LPCI system's overall contribution to risk. The inspectors verified by witnessing selected testing activities and by reviewing the test data that the testing activities were adequate for the bypass switch installation. The inspectors' reviews included, but were not limited to, integration of the testing activities, applicability of the acceptance criteria, test equipment calibration and control, procedural use and compliance, control of temporary jumpers required for test performance, documentation of test data, Technical Specification applicability, system restoration, and evaluation of test data. Also, the inspectors verified that the testing activities adequately ensured that the equipment met the licensing basis, Technical Specifications, and USAR design requirements.

b. Findings

Inspectors identified one finding of very low safety significance (Green) and an associated NCV.

On November 26, 2001, the licensee was conducting a post modification test for the installed bypass switches for the 5 minute (LPCI) initiation timer on Division II. This modification was an operational enhancement, intended to improve emergency operating procedure performance, and was being conducted during a scheduled Division II equipment work window. At step 8.5.B of the procedure, an inadvertent closure of the Division I LPCI injection valve, MO-2012, occurred and shutdown cooling to the reactor vessel was lost.

The licensee's investigation identified that step 8.5.B of the test procedure required installing a jumper in Panel C-33 on Relay 10A-K43B from stud 4 to stud 3. A review of drawing NX-7905-46-9, "Residual Heat Removal (RHR) System Schematic Diagram," indicated that the proper studs to jumper were studs 5 and 6. Jumpering studs 4 and 3 on Relay 10A-K43B, as required by the procedure, provided a closure signal to MO-2012. The licensee completed a detailed review of the test procedure, corrected the procedure, and completed the testing satisfactorily.

The inspectors evaluated this finding using NRC Inspection Manual Chapter IMC 0610*, Appendix B, "Thresholds for Documentation," and determined it to be more than minor in that it had an actual and credible impact on safety. Specifically, the inspectors determined that the loss of RHR Division I injection capability with Division II out-of-service for planned work represented some credible risk to the Unit. Further, the inspectors determined that the finding impacted the mitigating systems cornerstone of nuclear safety in that it affected the operability, availability, reliability, and/or function of a train in a mitigating system, in this case, LPCI. As a result, the inspectors assessed the finding using the SDP for shutdown operations in IMC 0609, Appendix G. During the screening process, the inspectors determined that because the resulting reactor coolant system heatup was small with respect to the available margin to boiling and the licensee had the ability to manually open the Division I injection valve and restore shutdown cooling in a short period of time, the finding was of very low safety significance (Green). The licensee has entered this issue into their corrective action program as CR 20017538.

Appendix B to 10 CFR 50, Criterion V requires, in part, that activities affecting quality shall be prescribed by documented instructions appropriate to the circumstances. Contrary to this requirement, the post modification test procedure for the Division II LPCI 5 minute timer bypass switch modification was not appropriate in that it failed to provide the correct terminal studs to jumper. This violation is being treated as a NCV consistent with Section VI.A of the NRC Enforcement Policy (NCV 50-263/01-10-01(DRP)).

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors continued evaluation of outage activities for Refueling Outage No. 20, which began on November 3, 2001, and ended on December 13, 2001. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule. The inspectors observed or reviewed the outage equipment configuration and risk management, electrical lineups, selected clearances, control and monitoring of decay heat removal, control of containment activities, startup and heatup activities, 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 selected the following surveillance test activities for review. 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.

- High Pressure Coolant Injection - Torus Suction Valve Operability Test
- No. 12 EDG Functional Test From the Alternate Shutdown Panel
- Emergency Core Cooling System (ECCS) Automatic Initiation Test

The inspectors observed the performance of surveillance testing activities, including reviews 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, Technical Specification applicability, impact of testing relative to performance indicator reporting, and evaluation of test data.

Additionally, the inspectors monitored the reactor vessel hydrostatic test and reviewed the results. Particular emphasis was placed upon control rod drive hydraulic (CRDH) system insert and withdraw lines. Emphasis was placed on the CRDH system due to transgranular stress cracking corrosion that was observed on the CRDH system withdraw lines during the 1998 and 2000 outages. Because multiple condition reports indicated that the contributor was polyvinyl-chloride label tape, which remains installed on piping inside the drywell, the inspectors determined that increased review was warranted. Actions that resulted from inspector observations, including evaluation of the condition, corrective actions, and proposed inspection enhancements for the 2003 refueling outage, were also reviewed.

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 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspector conducted walkdowns and radiological surveys of radiologically significant areas (radiation and high radiation areas) to verify the adequacy of the licensee's radiological controls (surveys, postings, barricades). Specifically, the inspector walked down radiologically significant areas located in the reactor building, including the drywell, reactor core isolation cooling system (RCIC) room during testing, and turbine building to determine whether prescribed radiation work permits (RWPs), procedure and engineering controls were in place, and whether licensee surveys and postings were complete and accurate. The inspector also reviewed RWPs used to access these areas to verify that work instructions and controls had been adequately specified and that electronic pocket dosimeter set points were in conformity with survey indications.

b. Findings

No findings of significance were identified.

.2 Job-In-Progress Reviews

a. Inspection Scope

The inspector observed the following high exposure or high radiation area work activities performed during the ongoing refueling outage and evaluated the licensee's use of radiological controls:

- Miscellaneous Valve Repair in Reactor Water Clean-Up Room
- CV-2790 Valve Work
- Drywell General Entry
- Radiation Protection (RP) Coverage in the Drywell
- Helper/Laborer Entry into the Drywell

The inspector reviewed all radiological job requirements for each activity and observed job performance with respect to those requirements. The inspector reviewed required surveys, including system breach radiation, contamination, and airborne surveys; radiation protection job coverage; and contamination controls to verify that appropriate radiological controls were utilized. The inspector also reviewed surveys and applicable postings and barricades to verify their accuracy. The inspector observed radiation protection technician and worker performance at work sites to determine if the technicians and workers were aware of the significance of the radiological conditions in their workplace, the RWP controls/limits, and that their performance was adequate, given the level of radiological hazards present and the level of their training.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls (71121.02)

.1 Exposure Histories

a. Inspection Scope

The inspector reviewed the station's collective exposure histories for 1998 to the present. The review included collective exposures during the year 2001 forced outages and the 2001 refueling outage. The inspector performed the reviews to evaluate the licensee's ALARA program's strengths and weaknesses. The inspector also reviewed the station's three-year rolling average exposure information and compared it with national boiling water reactor industry data.

b. Findings

No findings of significance were identified.

.2 Job Site Inspections and ALARA Control

a. Inspection Scope

The inspector selected the following high exposure or high radiation area activities performed during the 2001 refueling outage and evaluated the licensee's use of ALARA controls:

- Miscellaneous Valve Repair in Reactor Water Clean-Up Room
- Replacement of Flow Elements in RHR Room
- Drywell General Entry
- Nozzle ISI and Insulation Work
- RP Coverage in the Drywell
- Helper/Laborer Entry into the Drywell

The inspector reviewed ALARA plans for each activity and observed work activities associated with the CV-2790 valve, drywell general entry, RP coverage in the drywell, and helper/laborer entry into the drywell. The inspector evaluated the licensee's use of engineering controls to achieve dose reductions. The inspector also determined if workers were utilizing the low dose waiting areas for each activity and whether the first-line supervisor for each job ensured that the jobs were conducted in a dose efficient manner. The inspector also reviewed individual exposures of selected work groups to determine if any significant exposure variations existed among workers.

b. Findings

No findings of significance were identified.

.3 Source Term Reduction and Control

a. Inspection Scope

The inspector reviewed the status of the licensee's source term reduction program. The inspector did the review to determine what results had been achieved and what effects, if any, those results were having on exposures during the refueling outage.

b. Findings

No findings of significance were identified.

.4 Radiological Work Planning

a. Inspection Scope

The inspector selected the following refueling outage job activities that were expected to exceed five person-rem to assess the adequacy of the radiological controls and work planning:

- Drywell General Entry
- Snubber Change-out in the Drywell
- ALARA efforts in the Drywell
- Helper/Laborer Drywell Enter
- General ISI work in the Drywell

For each job activity, the inspector reviewed ALARA evaluations including initial reviews, in-progress reviews, and associated dose mitigation techniques and evaluated the licensee's exposure estimates and performance. The inspector also assessed the integration of ALARA requirements into work packages to evaluate the licensee's communication of radiological work controls.

b. Findings

No findings of significance were identified.

.5 Verification of Exposure Goals and Exposure Tracking System

a. Inspection Scope

The inspector reviewed the methodology and assumptions used for the 2001 refueling outage exposure estimates and exposure goals and compared job dose rate and man-hour estimates for accuracy. The inspector examined job dose history files and dose reductions anticipated through lessons learned to verify that the licensee appropriately forecasted outage doses. The inspector also reviewed the licensee's exposure tracking system to determine if the level of exposure tracking detail, exposure report timeliness, and exposure report distribution was sufficient to support control of collective exposures.

b. Findings

No findings of significance were identified.

.6 Identification and Resolution of Problems (71121.01 and 71121.02)

a. Inspection Scope

The inspector evaluated the effectiveness of the self-assessment process to identify, characterize, and prioritize problems. The inspector reviewed the 2001 refueling outage related ALARA and access control issues to determine if they were adequately addressed. The inspector also reviewed chemistry and radiation protection effectiveness reports for the year 2001 that, in part, assess the condition reports for adequacy of the licensee's ability to identify problems and make effective corrective actions.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03)

.1 Source Tests and Calibration of Radiological Instrumentation

a. Inspection Scope

The inspector reviewed the most recent calibration records for radiological instruments associated with transient high and very high radiation areas (area radiation monitors (ARMs)). The inspector also reviewed calibration records for instruments used for providing surveys of high radiation work and/or for air monitoring for jobs with the potential for workers to receive greater than 100 millirem committed effective dose equivalent (CEDE). The inspector reviewed these records to verify that radiological

instrumentation had been calibrated in accordance with procedures and that alarm set-points (if applicable) were properly set. In particular, the inspector reviewed selected ARMs in the spent fuel pool, primary coolant sampling station, off-gas storage building and radioactive waste control room to verify that they had been appropriately calibrated and function and operation tested in calendar year 2001. The inspector reviewed the calibration procedures and calendar year 2001 calibration records to verify that selected portable radiation survey instruments had been properly calibrated consistent with the licensee's procedures. The inspector also reviewed the calibration procedures and calendar year 2001 calibration records for the whole body counter to verify that it had been properly calibrated. The inspector observed the calibration of selected area monitoring instruments to verify that the instruments were calibrated in compliance with the appropriate procedures.

b. Findings

No findings of significance were identified.

.2 Self-Contained Breathing Apparatus (SCBA) Program

a. Inspection Scope

The inspector reviewed R.05.07 "SCBA Inspection and Functional Test", to verify the adequacy of the program to provide SCBA for unknown or emerging conditions. The inspector walked down the available SCBA equipment and filling stations, reviewed the status and surveillance records of SCBA staged for use in the plant, assessed the licensee's capability for refilling and transporting SCBA bottles for use in the control room and support locations in the plant, and reviewed calendar year 2001 training and qualification records of selected individuals to verify compliance with Subpart H of 10 CFR Part 20 and with station procedures.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed quarterly 2001 radiation protection department self-assessments of the occupational radiation protection program to evaluate the effectiveness of the self-assessment process to identify, characterize, and prioritize problems and to verify that previous radiological instrumentation and SCBA-related issues were adequately addressed. The inspector also reviewed selected year 2001 condition reports that addressed radiation instrument deficiencies. The review was used to determine if any significant radiological incidents involving radiation instrument deficiencies had occurred during the year 2001. The review was also conducted to verify that the licensee had effectively implemented the corrective action program.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Cornerstone: Occupational Radiation Safety

a. Inspection Scope

The inspector reviewed the licensee's assessment of its performance indicator (PI) for occupational radiation safety to determine if indicator-related data was adequately assessed and reported. Since no reportable elements were identified by the licensee for the last four quarters, the inspector compared the licensee's data with fourth quarter of 2000 and the first three quarters of 2001 condition reports to verify that there were no occurrences concerning the occupational radiation safety cornerstone.

b. Findings

No findings of significance were identified.

4OA6 Meeting

Exit Meeting

The inspectors presented the inspection results to Mr. Forbes and other members of licensee management on January 3, 2002. 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.

In addition to the January 3 exit, interim exits were conducted on November 28, November 30, and December 21 with Mr. Forbes and Mr. Jepsen to discuss ISI and Radiological Protection areas.

KEY POINTS OF CONTACT

Licensee

G. Bregg, Manager, Quality Services
R. Deopere, Inservice Inspection Supervisor
D. Fadel, Director of Engineering
J. Forbes, Site Vice-President
R. Frederickson, Superintendent Material Inspection and Repair
J. Grubb, General Superintendent, Engineering
K. Jepson, General Superintendent, Chemistry and Radiation Services
B. Linde, Superintendent, Security
D. Neve, Acting Licensing Project Manager
J. Purkis, Plant Manager
B. Sawatzke, General Superintendent, Maintenance
C. Schibonski, General Superintendent, Safety Assessment
E. Sopkin, General Superintendent, Operations

NRC

None.

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-263/01-10-01	NCV	Inadequate Test Procedure for LPCI 5 Minute Timer Bypass Switch Modification (Section 1R19.2)

Closed

50-263/01-10-01	NCV	Inadequate Test Procedure for LPCI 5 Minute Timer Bypass Switch Modification (Section 1R19.2)

Discussed

None.

LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
ARM	Area Radiation Monitor
ASME	American Society of Mechanical Engineers
AWI	Administrative Work Instruction
CAM	Continuous Air Monitor
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Requirements
CR	Condition Report
CRD	Control Rod Drive
CRDH	Control Rod Drive Hydraulic
DRP	Division of Reactor Projects
DW	Drywell
ECCS	Emergency Core Cooling System
ED	Electronic Dosimeter
EDG	Emergency Diesel Generator
ESW	Emergency Service Water
HPCI	High Pressure Core Injection
HPGE	High Purity Germanium
IMC	Inspection Manual Chapter
ISI	Inservice Inspection
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
LPCI	Low Pressure Core Injection
MOV	Motor-Operated Valve
mrem	Millirem
NCV	Non-Cited Violation
NIOSH	National Institute of Safety & Health
NMC	Nuclear Management Company
NRC	Nuclear Regulatory Commission
NUMARC	Nuclear Management and Resources Council
OWA	Operator Workaround
PI	Performance Indicator
PMT	Post-Maintenance Testing
RBCCW	Reactor Building Closed Cooling Water
RCA	Radiologically Controlled Area
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RP	Radiation Protection
RPV	Reactor Pressure Vessel
RWCU	Reactor Water Cleanup
RWP	Radiation Work Permit
SBLC	Standby Liquid Control
SBO	Station Blackout
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SRI	Safety Review Item

SRV	Safety Relief Valve
TS	Technical Specification
USAR	Updated Safety Analysis Report
WBC	Whole Body Count
WO	Work Order

LIST OF DOCUMENTS REVIEWED

1R01 Adverse Weather

	USAR:	Revision 18
Section 5.3.4	- Reactor Building Heating and Ventilating Systems	
Section 10.3.2	- Plant Heating, Ventilating, and Air Conditioning Systems	
M-149	Chilled Water Piping System Drawing	Revision N
1151	Winter Checklist	Revision 40

1R04 Equipment Alignment

Section B.8.1.3	Design Basis Document for RHR Service Water	Revision 2
	Operations Manual:	
Section B.3.1	- Core Spray System	
Section B.3.4	- Residual Heat Removal System	
Section B.8.1.3	- RHR Service Water System	
M-120	[Division 2] Residual Heat Removal System	Revision BH
M-121	[Division 1] Residual Heat Removal System	Revision BK
M-112	RHR Service Water and Emergency Service Water System	Revision BF
M-811	Service Water and Make-up Water Intake Structure	Revision C
	Technical Specifications and Bases:	
TS 3/4.5	- Core and Containment Spray/Cooling Systems	
	USAR:	Revision 18
Section 6.2.3	- Residual Heat Removal System	
Section 10.4.2	- Residual Heat Removal Service Water System	
4AWI-08.15.01	Risk Management For Outage and On-Line Activities	Revision 0

1R05 Fire Protection

NX-16991	Monticello Updated Fire Hazards Analysis	
	Monticello Fire Strategies:	
A.3-03-C	- Vessel Instrument Rack Area - Elev 962'	Revision 4
A.3-03-E	- Contaminated Records Area	Revision 3*
A.3-04-A	- Reactor Building 3rd Floor South	Revision 3*
A.3-04-B	- RBCCW Hx Area	Revision 2*

	Procedures and Administrative Work Instructions (AWIs):	
4AWI-08.01.01	- Fire Prevention Practices	Revision 17
4AWI-08.01.02	- Combustion Source Use Permit	Revision 6
QUAD-5-80-009	Quadrex Corporation Report, Specifications for Installation of Electrical and Mechanical Penetration Seals at the Monticello Nuclear Generating Plant	Revision 7
0275-2	Fire Barrier Wall, Damper, and Floor Inspection	Revision 16
0275-1	Fire Barrier Penetration Seal Visual Inspection	Revision 9

1R08 Inservice Inspection

	Inservice Inspection (ISI) Examination Summary Report-Refueling Outage No. 20	May 30, 2000
CR 20000209	In-Vessel Inspections Found Indications on Jet Pump Brace	
CR 20000318	Minor Indications Found on CRD Lines During Eddy Current Examination	
ISI-MT-1	Dry Powder Magnetic Particle Examination	October 18, 2001
ISI-NDE-0	Equipment, Personnel and Material Reporting	January 24, 2001
ISI-UT-1A	Ultrasonic Examination of Ferritic Piping Welds to Appendix VIII	November 2, 2001
ISI-VT-4.0	Visual Examination of Monticello Reactor Vessel Interior	November 8, 2001
PDI-ISI-254	Remote Inservice Examination of Reactor Vessel Shell Welds	October 24, 2001

1R11 Licensed Operator Requalification Program

RQ-SS-03	Licensed Operator Annual Examination Scenario	Revision 20
RQ-SS-15	Licensed Operator Annual Examination Scenario	Revision 7

1R12 Maintenance Rule Implementation

	NUMARC [Nuclear Management and Resources Council]:	
93-01	- Nuclear Energy Institute Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	Revision 2
93-01, Section 11	- Assessment of Risk Resulting from the Performance of Maintenance Activities	February 22, 2000
	Regulatory Guides:	
1.160	- Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	Revision 2
1.182	- Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants	May 2000
	Monticello Maintenance Rule Periodic Assessment Report	2nd Quarter - 2001
	Operations Manual:	
Section B.3.3	- Reactor Pressure Relief System	
Section B.3.5	- Standby Liquid Control System	
Section B.7.2.1	- Off Gas Recombiner System	
Section B.8.1.3	- Residual Heat Removal Service Water	
	Maintenance Rule Program System Basis Document:	
Section B.3.3	- Reactor Pressure Relief System	Revision 2
Section B.3.5	- Standby Liquid Control System	Revision 1
Section B.7.2.1	- Off Gas Recombiner System	Revision 3
Section B.8.1.3	- Residual Heat Removal Service Water	Revision 1
	USAR:	Revision 18
Section 6.6	- Standby Liquid Control System	
Section 6.2	- Residual Heat Removal	
	Technical Specifications and Bases:	
Section 3/4.4	- Standby Liquid Control System	
	SBLC System Performance Data Collection Worksheet	November 23, 2001
	Residual Heat Removal Service Water System Performance Data Collection Worksheet	December 17, 2001
	Alternate Shutdown System Performance Data Collection Worksheet	December 18, 2001
CR 20016731	"B" Off Gas Recombiner Tripped at 1158 on 11/3/01 While Placing the Mechanical Vacuum Pump in Service Per C.3 Shutdown Procedure	

CR 20017839	Leakage For "D" SRV Accumulator Was Greater Than Allowed	
CR 20015126	SBLC TIC-11-48 Switch Failed to Trip Storage Tank Heater	
CR 20011088	LI-11-66, SBLC Tank Level Indicator Indicates Full Upscale (Control Room), Local Indicator Indicates Normal	
CR 20014640	Received Second Unexpected Alarm 3-A-17 Auto Blowdown Value Bellows Leaking With White Light on C-03 For "H" SRV	
CR 20000057	"B" Recombiner Train Tripped When Mechanical Vacuum Pump Was Started During Plant Shutdown	
CR 20018006	CV-1728 Unable to Be Positioned From the Control Room Due to Interference With the Manual Handwheel	
CR 20012078	Small Amount of Gel (Emulsified Oil) Was Identified in Number 13 RHRSW Pump Lower Bearing Oil Sight Glass	
CR 20013383	Failure to Adequately Investigate the Extent of Condition on #13 RHRSW Pump in a Timely Manner	
CR 20003339	Both Recombiner Trains Will Not Transfer From Warmup to Standby	
EWI 05.02.01	Monticello Maintenance Rule Program Document	Revision 5
M-127	P&ID: Standby Liquid Control System	Revision V
WO 0000691	Blown Fuses on SBLC System	
WO 0105529	Replace Relay	
WO 0106002	Replace RV-11-39B	

1R13 Maintenance Risk Assessments and Emergent Work Control

	Procedures:	
4AWI-04.01.01	- General Plant Operating Activities	Revision 30
SWI-14.01	- Risk Management of On-line Maintenance	Revision 0
	Technical Specification and Bases:	
TS 3/4.7	- Containment Systems	

01-100	Jumper Bypass: AO-2-86A & -86B Downstream Piping Plugs	

1R16 Operator Workarounds

B.8.01.2-05	Operations Manual - Emergency Diesel Generator	Revision 11
C.4-B.01.03.A	Abnormal Procedure -Loss of CRD pump Flow	Revision 6
CR 20013155	Loss of CRD Pump During LOCA With Fuel Failure Creates a Potential Leakage Pathway	
CR 20014904	Normal Operation of EDG-ESW Pumps Requires Closure of SW-239-1 and SW-239-2 to Prevent Dead-Heading the Pumps	
OWA 01-114	Operator Workaround - Normal Operation of EDG-ESW Pumps Requires Closure of SW-239-1 and SW-239-2 to Prevent Dead-Heading the Pumps	
OWA 00-073	Operator Workaround - Loss of CRD Pump During LOCA With Fuel Failure Creates a Potential Leakage Pathway	

1R19 Post-Maintenance Testing

	Operations Manual:	
B.08.01.02	- EDG Emergency Service Water System	
B.08.11	- Diesel Oil System	
B.09.08	- Emergency Diesel Generators	
B.03.04	- Residual Heat Removal System	
	Technical Specification and Bases:	
Section 3/4.9	- Auxiliary Electrical Systems	
	Administrative Work Instructions:	
4AWI-04.05.09	- Foreign Material Exclusion/Cleanliness Control	Revision 7
4AWI-05.05.02	- Fuel Integrity Monitoring and Failed Fuel Action Plan	Revision 2
0187-01	No. 11 EDG and No. 11 ESW Pump System Tests	Revision 37
2020	Consumable Items Log	Revision 26
3661	Project Request Form: E-Number O1TOZ5, Modify B4300 Control Circuit	
CA-01-041	Calculation Cover Sheet: B4300 Control Cable Design	

CR 20017292	PMT Failure. MOV Failed to Electrically Stroke.	
CR 20017522	MO-2012 Intermittent Operation When Handswitch Placed to Open; Valve Remains Closed per C-03 Indicating Lights	
CR 20001486	In An SBO Event, B4300 Will Attempt To Close With Low Control Power Available, Likely Resulting In A Blown Control Fuse	
CR 20017361	Diesel Oil Storage Tank Level Not Recorded on 0187-01 Test (11 EDG) as Required by Procedure (TS Required Step)	
CR 20017538	MO-2012 (Division I RHR LPCI Injection Valve) Auto Closed During Pre-op Test of Division II 5 Minute Timer Bypass Modification. Loss of Shutdown Cooling.	
CR 20016454	Control Rod 10-39 Withdrawal Motion Stopped Just Past 00. Rod Declared Inoperable.	
NRC IN 93-82	Recent Fuel and Core Performance Problems in Operating Reactors	October 12, 1993
NX-7905-46-9	RHR System Schematic Diagram	Revision N
WO 0107354	Modification of B4300 Control Circuit	
WO 0004075	MO-2012 Diss / Insp Valve (IEIN 89-1) 4900-1, VOTES	
WO 0109804	MO-2012, Incorporate 01A-017 Alteration	
WO 0109891	Adjust MO-2012 Anti-rotation Device	
WO 0109797	MO-2012 Failed to Stroke	
WO 0105741	Division II LPCI 5 Minute Timer Bypass Installation Per Mod 00Q250	
WO 0003810	Pre-op Test of LPCI 5 Minute Timer Bypass Switch	
WO 0109500	Attempt to Withdraw CRD 10-39	Revision 1

1R20 Outage Activities

	Operations Manual:	
D.2	- Reactor and Core Components Handling Equipment	
C.1	- Startup Procedure	Revision 33
C.2	- Power Operation	Revision 12
C.3	- Shutdown Procedure	Revision 28
C.4-A	- Reactor Scram	Revision 19
0074	Control Rod Drive Exercise	Revision 29
0118	Reactor Vessel Temperature Monitoring	Revision 5
0137	Master Local Leak Rate Test	Revision 22
0137-07A	Reactor Steam Supply Valves Leak Rate Testing	Revision 15
0201	Refueling Interlocks Weekly Test	Revision 12
0907	Procedure for Moving Fuel Into, Out of, and Within the Core	Revision 24
1054	Control Rod Drive Normal Drive Timing Test	Revision 11
2150	Plant Prestart Checklist	Revision 23
2167	Startup Checklist	Revision 41
8136-01	Secondary Containment Penetration Work Control Index	Revision 1
8151	Heavy Load Movement Procedure	Revision 6
9006	Reactor Well and Dryer-Separator Storage Pool Draining	Revision 15
9007-B	Shift Supervisor Refueling Checklist	Revision 14*
9010	Refueling Platform Daily Inspection and Auxiliary Bridge Inspection	Revision 13
9026	Refueling Bridge Functional Test	Revision 11
WO 0005177	Disassemble, Inspect, Reassemble No. 11 Heat Exchanger	

1R22 Surveillance Testing

	Internal Correspondence, Chemistry to Engineering: "Red Plastic Label Tape and Tan Foam-Backed Paper"	January 26, 2000
0036-02	ECCS Automatic Initiation Test, Including Loss of Auxiliary Power	Revision 21

0255-20-IIA-1	Reactor Coolant Pressure Boundary Hydrostatic Test	Revision 13
0255-06-IA-4	HPCI-31 Torus Suction Check Valve Operability Test	Revision 3
0255-20-IIC-2	Reactor Coolant Pressure Boundary Leakage Test	Revision 13
0255-20-IIC-2	Reactor Coolant Pressure Boundary Leakage Test	Revision 12
0419-01	Alternate Shutdown System Cycle Functional Test for 12 EDG and EDG Oil Transfer Pump Switches	Revision 5
3186-G-01-03	Quality Control Inspection Record for WO 0107732	Revision 5
4001-11-01	Swing Check Valve Inspection	Revision 6
4262	Mechanical Maintenance Pre-job Briefing Checklist for WO 0107732	Revision 5
4AWI-06.07.03	Chemical Compatibility In and On Plant Systems and Components	
8041	Stainless Steel Pipe Cleaning and Inspection Procedure	Revision 0
98-003	Licensee Event Report - Transgranular Stress Cracking Corrosion in Control Rod Drive Lines	
CR 20011423	Inspection Plan for CRD Pipe Cracking per CR 19981023 Did Not Include Inspection of Undervessel Insert / Withdraw Lines	
CR 20000206	Crack Indication Found On CRD Withdrawal Line Found In Drywell During Eddy Current Examination	
CR 19981023	Possible Cracked CRD Withdrawal Line in DW Found During RPV Hydro With Attachments	
CR 19981029	Remove Leaking CRD Withdrawal Line 34-27 and Have a Metallurgical Review Performed to Assist With Cause Eval	
CR 20000318	Minor Indications Found On CRD Lines During Eddy Current Examination	
CR 19981023	Possible Cracked CRD Withdrawal Line In DW Found During RPV Hydro	

CR 20000206	Crack Indication on CRD Withdrawal Line Found in Drywell During Eddy Current Examination	
CR 20011432	Inspection Plan for CRD Pipe Cracking Per CR 19981023 Did Not Include Inspection of Undervessel Insert/Withdraw Lines	
CR 20017718	Further Evaluation of Potential Degradation Mechanism & Locations of CRD Withdrawal Lines Inside Drywell Recommended (including attachments, actions, and references)	
LER 50-263/98-03	Transgranular Stress Corrosion Cracking Identified In Control Rod Drive Lines	
M-111	Reactor Building Cooling Water System	Revision AD
M-115	Nuclear Boiler Steam Supply System	Revision AV
M-118	Control Rod Hydraulic System	Revision AL
M-119	Control Rod Hydraulic System	Revision M
SIR-99-115	Review of Stainless Steel Pipe Cleaning and Inspection Procedure #8014 (SRI No. 99-07)	
SRI 99-007	Safety Review Item: Stainless Steel Pipe Cleaning and Inspection Procedure #8041	Revision 0
WO 0107732	Dis-assemble and Inspect Valve for IST Program	

2OS1 Access Control to Radiologically Significant Areas (71121.01)

CR 20016820	Two Individuals Worked in RCA without Electronic Dosimetry	11/6/2001
CR 20016596	Several Items Found Crossing a Contaminated Boundary 4 AWI 08.04.03	10/31/2001
CR 20016572	Increased Frequency of ED Dose Alarms Since October 1, 2001	10/30/2001
CR 20017348	Radiation Area Not Posted From All Entry Points	11/20/2001
R.01.01	RWP Preparation and Issuance	Revision 33
R.01.03	RWP Revision	Revision 9
R.02.01	Dose Rate Surveys	Revision 12
R.02.02	Contamination Surveys	Revision 16
R.08.06	Contaminated Area Control	Revision 5

R.12.02	Radiation Protection Key Control	Revision 16
R.13.01	Job Coverage	Revision 21
R.13.06	Job Planning	Revision 9
RPIP 1621	AM-2 Area Monitor Description, Operation and Calibration	Revision 9

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls (71121.02)

	Monticello 2000 Year End ALARA Report	2/1/2001
4 AWI 10.01.03	Condition Report Process	Revision 17
4 AWI 08.04.01	Radiation Protection Plan	Revision 12
5608-02	WO/Procedure Assignment to Existing Specific RWP	Revision 4
CR 20017658	RWPs with Exposure Exceeding Estimate are not Reviewed in a Timely Manner	11/29/2001
CR 20017250	Individual Received Unplanned CEDE Greater than 10 mrem	11/16/2001
CR 20017210	Contamination Levels Inside MO-2398 Higher than Expected	11/15/2001
R.01.06	RWP ALARA Reviews	Revision 3
RWP 10527	Helper/Laborer Drywell General Entry	Revision 0
RWP 10555	CV-2790 Valve Work	Revision 1
RWP 10177	RWCU Miscellaneous Valve Work	Revision 0
RWP 10504	Perform RP Surveys and Coverage	Revision 1
RWP 10507	ALARA Efforts in the Drywell	Revision 0
RWP 10515	Drywell General Entry	Revision 1
RWP 10520	Nozzle ISI and Insulation Work	Revision 1

2OS3 Radiation Monitoring Instrumentation

	Calibration of the Canberra Fastscan WBC System and the Monticello Nuclear Generation Plant	January 18, 2001
0068	Spent Fuel Pool and Reactor Building Exhaust Plenum Monitor Calibration	Revisions 16 and 17

1024	Area Radiation Monitor Calibration	Revisions 26 and 27
2001-004-05-036	Nuclear Oversight Observation Report	December 5, 2001
4093-PM	Control Room Air Supply Cylinder Change Out	Revision 1
A.2-414	Large Volume Liquid Sample and/or Dissolved Gas Sample Obtained At Post Accident Sampling System	Revision 19
CR 20016344	Unexpected Alarm C-252 B-7 Offgas Storage Building CAM	October 21, 2001
CR 20018220	Wrong Computer Point Alarm Activated During ARM Calibration 1024 on February 22, 2001	December 20, 2001
CR 20015537	Three Area Radiation Monitors "As Found" Readings Out of Tolerance	September 20, 2001
CR 20014766	Neutron Meter (RB2) "As Found" Readings Out of Tolerance High	August 10, 2001
CR 20014764	HPGE #3 Incorrectly Returned to Service	August 10, 2001
CR 20018188	Control Room Breathing Air Supply System Hoses Have No Inventory/Inspection Requirement	December 19, 2001
CR 20017827	Condensate Drain Hose from Offgas Piping Routed to Clean Turbine Building Drain	December 12, 2001
CR 20013313	Resolve Comments on Fire Brigade Training June 8, 2001	June 12, 2001
CR 20014492	Fastscan WBC Outside of Acceptance Criteria on Quarterly Inter-Lab Comparison for Zn-65	July 30, 2001
CR 20013971	HPGE #1 Failed Daily Source Check	July 8, 2001
CR 20013335	SCBA Fiber Breathing Air Cylinders and Valve Assemblies Not NIOSH Approved	June 13, 2001
CR 20013243	HPGE #4 Detector Cs-137 Energy Calibration Activities Low	June 7, 2001
M-7704L-007	MSA SCBA Training	Revision 0
R.03.01	Instrumentation Requirements	Revision 20
R.05.07	SCBA Inspection and Functional Testing	Revision 10
R.05.08	Service Air Composition Test	Revision 3
R.09/49	NMC Portal Monitor Tests	Revision 4

R.09.01	Fastscan Quality Assurance Calibration Check	Revision 11
R.09.07	RO-2/RO-2A Tests	Revision 12
R.09.10	Johnson Extender Tests	Revision 10
R.09.13	NMC Continuous Air Monitors	Revision 10
R.09.15	Neutron Instrument Source Check	Revision 7
R.09.20	Controlled Area Portal Alarm Functional Test and Posting Verification	Revision 14
R.09.37	NMC Friskall Checks	Revision 11

4OA1 Performance Indicator Verification

CR 20017250	Individual Received Unplanned CEDE Greater than 10 mrem	November 16, 2001