



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

October 29, 2009

EA-09-194

Stewart B. Minahan, Vice President
Nuclear and CNO
Nebraska Public Power District
72676 648A Avenue
Brownville, NE 68321

Subject: COOPER NUCLEAR STATION - NRC INTEGRATED INSPECTION
REPORT 05000298/2009004

Dear Mr. Minahan:

On September 23, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Cooper Nuclear Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on October 7, 2009, with Mr. B. O'Grady, Site Vice President, 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.

This report documents two NRC-identified findings of very low safety significance (Green), and one Severity Level IV violation. All of these findings were determined to involve violations of NRC requirements. Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. NRC is treating these violations as noncited violations consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the violations and because they are entered into your corrective action program. If you contest the violations or the significance of the noncited violations, 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, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Cooper Nuclear Station. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at Cooper Nuclear Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/readingrm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Geoffrey B. Miller, Chief
Project Branch C
Division of Reactor Projects

Docket: 50-298
License: DRP-46

Enclosure:
NRC Inspection Report 05000298/2009004
w/Attachment: Supplemental Information

cc w/Enclosure:
Gene Mace
Nuclear Asset Manager
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

John C. McClure, Vice President
and General Counsel
Nebraska Public Power District
P.O. Box 499
Columbus, NE 68602-0499

David Van Der Kamp
Licensing Manager
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

Michael J. Linder, Director
Nebraska Department of
Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

Chairman
Nemaha County Board of Commissioners
Nemaha County Courthouse
1824 N Street
Auburn, NE 68305

Julia Schmitt, Manager
Radiation Control Program
Nebraska Health & Human Services
Division of Public Health Assurance
P.O. Box 95026
Lincoln, NE 68509-5026

Deputy Director for Policy
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Nebraska Public Power District

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Director, Missouri State Emergency
Management Agency
P.O. Box 116
Jefferson City, MO 65102-0116

Chief, Radiation and Asbestos
Control Section
Kansas Department of Health
and Environment
Bureau of Air and Radiation
1000 SW Jackson, Suite 310
Topeka, KS 66612-1366

Melanie Rasmussen, State Liaison Officer/
Radiation Control Program Director
Bureau of Radiological Health
Iowa Department of Public Health
Lucas State Office Building, 5th Floor
321 East 12th Street
Des Moines, IA 50319

John F. McCann, Director, Licensing
Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601-1813

Keith G. Henke, Planner
Division of Community and Public Health
Office of Emergency Coordination
P.O. Box 570
Jefferson City, MO 65102

Art Zaremba
Director of Nuclear Safety Assurance
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

Ronald D. Asche, President
and Chief Executive Officer
Nebraska Public Power District
1414 15th Street
Columbus, NE 68601

Chief, Technological Hazards
Branch
FEMA, Region VII
9221 Ward Parkway
Suite 300
Kansas City, MO 64114-3372

Chairperson, Radiological Assistance
Committee
Region VII
Federal Emergency Management Agency
Department of Homeland Security
9221 Ward Parkway
Suite 300
Kansas City, MO 64114-3372

Electronic distribution by RIV:
 Regional Administrator (Elmo.Collins@nrc.gov)
 Deputy Regional Administrator (Chuck.Casto@nrc.gov)
 DRP Director (Dwight.Chamberlain@nrc.gov)
 DRP Deputy Director (Anton.Vegel@nrc.gov)
 DRS Director (Roy.Caniano@nrc.gov)
 DRS Deputy Director (Troy.Pruett@nrc.gov)
 Senior Resident Inspector (Nick.Taylor@nrc.gov)
 Resident Inspector (Michael.Chambers@nrc.gov)
 Branch Chief, DRP/C (Geoffrey.Miller@nrc.gov)
 Senior Project Engineer, DRP/C (David.Proulx@nrc.gov)
 Site Secretary (Amy.Elam@nrc.gov)
 Public Affairs Officer (Victor.Dricks@nrc.gov)
 Team Leader, DRP/TSS (Chuck.Paulk@nrc.gov)
 RITS Coordinator (Marisa.Herrera@nrc.gov)
 Regional Counsel (Karla.Fuller@nrc.gov)
 Congressional Affairs Officer (Jenny.Weil@nrc.gov)
 Regional State Liaison Officer (Bill.Maier@nrc.gov)
 NSIR/DPR/EP (Steve.LaVie@nrc.gov)
 OEmail Resource
 RIDSOeMailCenter
 ROPreports
 ACES (Rick.Deese@nrc.gov)
 OE (Cynthia.Carpenter@nrc.gov)
 DRS STA (Dale.Powers@nrc.gov)
 OEDO RIV Coordinator (Leigh.Trocine@nrc.gov)

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-298

License: DRP-46

Report: 05000298/2009004

Licensee: Nebraska Public Power District

Facility: Cooper Nuclear Station

Location: 72676 648A Avenue
Brownville, NE 68321

Dates: June 24 through September 23, 2009

Inspectors: M. Chambers, Resident Inspector
P. Elkmann, Senior Emergency Preparedness Inspector
S. Garchow, Senior Operations Engineer
D. Proulx, Senior Project Engineer
N. Taylor, Senior Resident Inspector

Approved By: Geoffrey B. Miller, Chief, Project Branch C
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000298/2009004; 06/24/09 - 09/23/2009; Cooper Nuclear Station, Integrated Resident and Regional Report; Fire Protection, Flood Protection Measures, Other Activities.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Two Green noncited violations and one Severity Level IV violation were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process 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 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Severity Level IV. The inspectors identified a noncited Severity Level IV violation of 10 CFR 26.27 for the willful failure of a nonlicensed operator to comply with the licensee's fitness for duty requirements. As a result, the nonlicensed operator failed to complete required reactor building logs. Specifically, between June 3-6, 2008, a non-licensed operator failed to complete required reactor building rounds. Subsequent rounds verified no missed equipment deficiencies. The licensee initiated Condition Report CR-CNS-2009-06883 to place this item into the corrective action program.

The failure to comply with the licensee's requirements affecting fitness for duty is a performance deficiency. This issue was dispositioned using traditional enforcement due to the willful aspects of the performance deficiency. In accordance with Section IV.A.4 of the Enforcement Policy, this issue is considered more than minor due to the willful aspects of the performance deficiency. In accordance with the guidance in Supplement I of the Enforcement Policy, this issue is considered a Severity Level IV violation. There were no crosscutting aspects associated with this performance deficiency (Section 40A5) (EA-09-194).

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," regarding the licensee's failure to ensure that the design basis of certain structures, systems and components were translated into specifications, drawings, procedures, and instructions. Specifically, licensee personnel failed to ensure that the design basis flooding calculations accurately reflected the configuration of the plant. Additionally, licensee personnel failed to maintain configuration control structures, systems and components that were credited in the design basis flooding calculations. The licensee entered this issue in their corrective action program as Condition Report CR-CNS-2009-05449.

The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Using the Manual Chapter 0609 Phase 1 screening worksheet, the inspectors determined that the finding has very low safety significance because it did not result in the loss of any system safety function. The cause of this finding is related to the problem identification and resolution cross cutting component of corrective action because licensee personnel failed to take timely and appropriate corrective action for previously discovered errors in the design basis flooding calculations [P.1(d)] (Section 1R06).

- Green. The inspectors identified a Green noncited violation of Technical Specification 5.4.1.a regarding regarding the licensee's failure to follow the requirements of Maintenance Procedure 7.0.7, "Scaffolding Construction and Control." Specifically, licensee personnel failed to perform a meaningful pre-construction walkdown to ensure that a scaffold would not affect critical plant equipment. When this scaffold was completed it threatened the operability of fire detection equipment required by the Technical Requirements Manual. The licensee entered this issue in their corrective action program as Condition Report CR-CNS-2009-06471.

The finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Using the Manual Chapter 0609 Phase 1 screening worksheet, the inspectors determined that the finding has very low safety significance because it did not result in the loss of any system safety function. The cause of this finding is related to the human performance cross cutting component of work control because operations and maintenance personnel failed to coordinate to ensure that interferences with fire protection equipment were identified in the pre-construction walkdown [H.3 (b)] (Section 1R05).

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspector. Corrective actions taken or planned by the licensee has been entered into the licensee's corrective action program. This violation and associated corrective action tracking number (condition report number) is listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Cooper Nuclear Station began the inspection period at full power on June 24, 2009, and remained at full power through the end of the inspection period on September 23, 2009.

1. REACTOR SAFETY

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

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- August 6, 2009, Secondary containment structure
- August 11, 2009, Diesel Generator 1 during Diesel Generator 2 unavailability
- August 28, 2009, Reactor core isolation cooling system

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three partial system walkdowns as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

On August 20, 2009, the inspectors performed a complete system alignment inspection of the high pressure coolant injection system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- July 10, 2009, Condensate pump area, Zone 11J
- July 10, 2009, Turbine oil conditioner room, Zone 11K
- August 5, 2009, 1001' Reactor Building, Fire Zone 6
- August 26, 2009, High-pressure coolant injection room, Zone 1E

- August 28, 2009, Reactor core isolation cooling and core spray pump room, Fire Zone 1A

The inspectors reviewed areas to assess if licensee personnel 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, in accordance with the licensee's fire plan. 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 with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a regarding the licensee's failure to follow the requirements of Maintenance Procedure 7.0.7, "Scaffolding Construction and Control." Specifically, licensee personnel failed to perform a meaningful pre-construction walkdown to ensure that a scaffold would not affect critical plant equipment. When this scaffold was completed it threatened the operability of fire detection equipment required to be operable by the Technical Requirements Manual.

Description. The inspectors performed a routine fire protection inspection on August 28, 2009, in the northeast quad of the reactor building in accordance with Inspection Procedure 71111.05. The inspectors attempted to validate the key assumptions and design inputs in the station Fire Hazard Analysis.

The inspectors noted that a scaffold had been erected such that a wood-covered work platform was approximately four feet below a ceiling-mounted thermal detector. The inspectors notified control room operators, who contacted the station fire protection engineer to determine if this configuration was acceptable. Based upon this conversation, the operators declared that the thermal detector was inoperable and entered the required action statement in the Technical Requirements Manual. As required by action statement 3.11.1 condition A, operations staff began hourly fire patrols of the fire zone. Later in that shift, on August 28, 2009, operations staff directed partial disassembly of the scaffold to remove the wooden platform. After removal of the

platform, the thermal detector was declared operable and the action statement was exited.

In a subsequent meeting between the fire protection engineer and the station fire marshal on September 1, 2009, it was determined that the thermal detector would have been able to perform its function due to the narrow width of the scaffold platform. A wider platform in this location, however, would have resulted in the inoperability of the detector.

The inspectors sought to understand how the scaffold could have been built in this configuration without any apparent regard for the impact on thermal detector. In an interview with the scaffold supervisor responsible for this activity, it became clear that the scaffold builders did not know what a thermal detector was, or were they aware of any required stand-off distances from other fire protection equipment. They expected that these types of interferences would be identified in a "pre-construction examination" as described in Maintenance Procedure 7.0.7, "Scaffolding Construction and Control," Revision 26. Procedure 7.0.7 requires that for any scaffold built in a class 1 structure (such as the reactor building), operations shall accompany the scaffold crew in a pre-construction walkdown to identify any potential adverse effects on safety system performance, fire protection, security, etc. These potential impacts are included as checklist items on the Procedure 7.0.7, Attachment 1, "Scaffold Request and Evaluation Form." The inspectors reviewed this checklist for this scaffold (completed as part of work order 4639803) and discovered that while the operations representative had signed the signature block, the only potential interactions discussed were with the reactor core isolation cooling pump and its associated subsystems. No mention was made about the potential to degrade the function of the thermal detector in the overhead.

The inspectors reviewed the training records of the scaffold supervisor and determined that he was qualified as required by station procedures. The inspectors noted, however, that scaffold construction training does not require any knowledge of plant-specific configuration. As such, scaffold builders must rely on interface with operations staff ensure scaffolds do not adversely affect important plant equipment. The inspectors interviewed the operations staff who conducted the pre-construction walkdown and determined that the operators were not focused on looking for potential interferences with fire protection equipment, because Attachment 1 lists that as a maintenance activity. The operations staff was focused only on the checklist items that required an operations signature (checking for interaction with safety-related or risk-significant equipment). As such, no one in the process did a thorough examination of the area to identify the potential degradation of fire protection or security equipment.

Analysis. The performance deficiency associated with this finding involved the licensee's failure to comply with the requirements of Technical Specification 5.4.1.a. Specifically, licensee personnel failed to perform a meaningful pre-construction walkdown to ensure that a scaffold would not affect critical plant equipment. The finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Using the Manual Chapter 0609 Phase 1 screening worksheet, the inspectors determined that

the finding has very low safety significance because it did not result in the loss of any system safety function. The cause of this finding is related to the human performance cross cutting component of work control because operations and maintenance personnel failed to coordinate to ensure that interferences with fire protection equipment were identified in the pre-construction walkdown [H.3 (b)].

Enforcement. Technical Specification 5.4.1.a requires written procedures to be implemented as recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 9.a of Regulatory Guide 1.33, Appendix A, recommends procedures for performing maintenance that can affect safety-related equipment. Contrary to this requirement, on August 25, 2009, licensee personnel failed to conduct a meaningful pre-construction examination of scaffolding for work order 4625194. As a result, the completed scaffold threatened the operability of fire protection equipment that was required by the Technical Requirements Manual. Because the finding is of very low safety significance and has been entered into the licensee's CAP as CR-CNS-2009-06471, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000298/2009004-01, "Failure to Follow Scaffold Procedure Threatens Fire Protection Equipment."

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also walked down the areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- August 6, 2009, P3, C3, P4, C4 cable vaults
- August 24, 2009, Residual heat removal heat exchanger A Room 903'

These activities constitute completion of one flood protection measures inspection sample and one inspection of cables located in underground bunkers as defined in Inspection Procedure 71111.06-05.

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," regarding the licensee's failure to ensure that the design basis of certain structures, systems and components were translated into specifications, drawings, procedures, and instructions. Specifically, licensee personnel

failed to ensure that the design basis flooding calculations accurately reflected the configuration of the plant. Additionally, licensee personnel failed to maintain configuration control structures, systems and components that were credited in the design basis flooding calculations.

Description. The inspectors performed a routine internal flooding inspection in the Train A residual heat removal heat exchanger 903' room in accordance with Inspection Procedure 71111.06. The inspectors attempted to validate the key assumptions and design inputs to the station flooding analysis as documented in NEDC 91-069 Revision 7.

The design basis flooding calculation assumes that the scenario of concern is a break in the 20" service water piping to the residual heat removal heat exchanger. The flooding analysis credits several drain paths including three annular gaps around floor penetrations, a floor drain, a 3.5" equipment drain, the gap underneath the door to the room and the louvers in the door panel. With these assumptions, the analysis demonstrates that in the design basis event the water level in the room would crest at 16", and that the lowest piece of essential equipment is at 17.5", leaving 1.5 inches of margin.

Inspectors discovered that all of these assumptions in the calculation were either incorrect or had been invalidated by improper configuration control. The following table summarizes the results of the inspection:

Assumption	Actual
Door gap width is 36"	Door gap width is actually 34.5"
Annular gaps exist in each of three floor penetrations for flood abatement	Annular gaps no longer exist (they have been sealed)
A 3.5" equipment drain is credited for flood abatement	The equipment drain is partially blocked by temporary hose (approximately one inch in diameter)
Louvers in door begin at 8" off the floor	Louvers in door actually begin at 10.5" off the floor

Assumption	Actual
Floor drain is credited for flooding abatement	Recent condition report documents that the floor drain is blocked.
Lowest piece of essential equipment is 17.5" off the floor	Lowest piece of essential equipment is actually 13" off the floor (motor for RHR-MOV-MO57)

The inspectors met with engineering personnel to determine the impact of the design basis flooding event in light of the actual configuration of the room. The licensee's final analysis demonstrated that the actual water level would crest at 18.1 inches and would result in the submergence of the motor operator for RHR-MOV-MO57. This valve is classified as essential and has a safety function to close upon receipt of a primary containment isolation signal in a design basis seismic event. Because this valve was not required to operate in the design basis flooding scenario, the inspectors determined that this vulnerability would not have prevented the licensee's ability to achieve safe shutdown for a break in the service water piping.

In addition to physically inspecting the room, the inspectors reviewed the preventive maintenance plan that checks the ability of the drains to perform their function. For the equipment drain, the inspectors learned that no preventive maintenance plan exists, so it could not be determined that the drain would pass the required flow rate to support the analysis. For the floor drain, the inspectors learned that a preventive maintenance plan does exist that proves that the drain does pass water and has been regularly accomplished. The inspectors noted, however, that the preventive maintenance task makes no attempt to measure the flow rate though the drain to ensure that the drain is capable of passing the required volume to support the analysis. Additionally, the inspectors noted that CR-CNS-2009-02715 documented on April 3, 2009 that the floor drain was plugged and incapable of meeting its design function. In the operability determination associated with this condition report, operators documented that the drain was required for the design basis analysis but that the failure of the drain would not have a significant impact on the result of the analysis. The inspectors determined that this was a missed opportunity to discover the other invalid inputs to the analysis. Additionally, the inspectors revisited the licensee's analysis to determine if this additional degradation could have interfered with the licensee's ability to achieve safe shutdown. Updating the licensee's analysis with the as-found conditions and removing the outflow through the floor and equipment drains from the flooding analysis results in a final flood height of 21.7", still below that required to cause a loss of safety function. The inspectors noted that a similar violation had been identified in NRC Inspection Report 05000298/2008004. In response to the previous violation, the licensee had identified a need to upgrade the existing flooding calculations. The licensee created this action outside of the corrective action program in LO-WT-CNS-00071 CA27 with a due date of December 16, 2009. The intent of this action was to "develop a plan to upgrade the current flooding calculations." The inspectors determined that this untimely and non-

specific corrective action was yet another missed opportunity to discover that the design basis flooding calculations for the residual heat removal heat exchanger room were incorrect.

As a result of this inspection, the licensee initiated several condition reports. CR-CNS-2009-05449 documents the incorrect assumptions in the calculations for the residual heat removal heat exchanger room. CR-CNS-2009-06096 identifies the new understanding that the RHR-MOV-MO57 motor would actually be submerged in the design basis flooding event. Finally, CR-CNS-2009-06139 documents that not all of the errors identified in NCV 05000298/2008004-01 were corrected at the time of this inspection.

Analysis. The performance deficiency associated with this finding involved the licensee's failure to comply with the requirements of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." Specifically, licensee personnel failed to ensure that the design basis flooding calculations accurately reflected the configuration of the plant. Additionally, licensee personnel failed to maintain configuration control structures, systems and components that were identified in the design basis flooding calculations. The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Using the Manual Chapter 0609 Phase 1 screening worksheet, the inspectors determined that the finding has very low safety significance because it did not result in the loss of any system safety function. The cause of this finding is related to the problem identification and resolution cross cutting component of corrective action because licensee personnel failed to take timely and appropriate corrective action for previously discovered errors in the design basis flooding calculations [P.1(d)].

Enforcement. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that the design basis of certain structures, systems and components be translated into specifications, drawings, procedures and instructions. Contrary to this requirement, from June 12, 1991 to July 16, 2009, licensee personnel failed to ensure that the design basis flooding calculations accurately reflected the configuration of the plant. Specifically, licensee personnel failed to ensure that the calculation assumptions for the residual heat removal heat exchanger 903' room were true, and failed to maintain configuration control of several design basis drain paths from the room. Because the finding is of very low safety significance and has been entered into the licensee's Corrective Action Program as CR-CNS-2009-05449, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000298/2009004-02, "Incorrect Assumptions and Loss of Configuration Control in Internal Flooding Analysis."

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the

reactor equipment cooling heat exchanger. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, "Heat Exchanger Performance Monitoring Guidelines"; the licensee properly utilized biofouling controls; the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one heat sink inspection sample as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Inspection

a. Inspection Scope

On August 25-27, 2009, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements.

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

.2 Annual Inspection

a. Inspection Scope

The inspector reviewed the annual operating test results for 2009. Since this was the first half of the biennial requalification cycle, the licensee was not required to administer a written examination. These results were assessed to determine if they were consistent with NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," guidance and Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process," thresholds. This review included the test results for a total of seven crews composed of 37 licensed operators, which included: shift-standing senior operators, staff senior operators, and shift-standing reactor operators. All the crews and all but one individual passed the simulator scenario portion of the annual operating and all individuals passed all other portions of the test. The individual failure was remediated before returning to shift duties.

The inspector completed one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- July 20, 2009, Gas void found in Residual Heat Remover B
- July 24, 2009, RR-AOV-741AV failed stroke time test

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices

- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or (a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- July 28, 2009, Core Spray 'A' outage
- August 9, 2009, Emergency transformer outage due to loss of 69kV line
- September 9, 2009, Diesel Generator 2 unavailability

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4)

and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- July 10, 2009, Inadequate battery technical specification requirements
- July 24, 2009, Inoperability of Residual Heat Removal B
- August 3, 2009, Double-nutted Diesel Generator 2 fuel oil day tank
- August 11, 2009, Diesel Generator 2 lube oil suction piping vibrations
- August 20, 2009, Nonconservative Battery Specific Gravity Technical Specification

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Updated Safety Analysis Report to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with

operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- August 11, 2009, CS-5B motor replacement
- August 28, 2009, High pressure coolant injection maintenance window
- September 6, 2009, Reactor building crane load test
- September 11, 2009, Engine Combustion Report
- September 14, 2009, Diesel Generator 1, Emergency Generator 1 breaker failure during testing
- September 14, 2009, Diesel Generator 2 operating system governor postmaintenance testing

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the

corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct

- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- August 5, 2009, Severe accident mitigation diesel generator load test
- August 11, 2009, Diesel Generator 2 surveillance test
- August 12, 2009, CS-11B stroke test
- August 25, 2009, Core spray initiation relay testing
- August 28, 2009, High-pressure coolant injection valve and pump inservice test
- September 16, 2009, Drywell floor drain sump flow measuring system test

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert Notification System Testing (71114.02)

a. Inspection Scope

The inspector discussed with licensee staff the operability and testing of offsite siren emergency warning systems, tone alert radio systems, and backup alerting methods, to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee's alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1; Federal Emergency Management Agency (FEMA) Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current FEMA-approved alert and notification system design report, "A Prompt Alert and Notification System Design Report for the Cooper Nuclear Station," Revision 12. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.02-05.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspector discussed with licensee staff the operability and testing of primary and backup systems for augmenting the on-shift emergency response staff to determine the adequacy of the licensee's methods for staffing their emergency response facilities in accordance with their emergency plan. The inspector reviewed the documents and references listed in the attachment to this report to evaluate the licensee's ability to staff their emergency response facilities in accordance with their emergency plan and the requirements of 10 CFR Part 50, Appendix E. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.03-05.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspector reviewed licensee procedure 0.29.4, "Other Regulatory Reviews," Revision 10, to determine licensee criteria and requirements for identifying decreases in effectiveness of the emergency plan, and reviewed five Decrease in Effectiveness evaluations of changes to the licensee's emergency plan implementing procedures, to verify the licensee's implementation of the requirements of 10 CFR 50.54(q).

These reviews were performed as part of the inspectors' normal review of licensee regulatory evaluations and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspector reviewed the licensee's corrective action program requirements as described in Procedures 0.5, "Conduct of the Condition Report Process," Revision 65, and 0.5CR, "Condition Report Initiation, Review, and Classification," Revision 13. The

inspector reviewed summaries of eighty-six corrective action program documents assigned to the emergency preparedness department and emergency response organization between August 2007 and June 2009, and selected eleven for detailed reviews against the program requirements. The inspector evaluated the response to the corrective action requests to determine the licensee's ability to identify, evaluate, and correct problems in accordance with the licensee program requirements, planning standard 10 CFR 50.47(b)(14), and 10 CFR Part 50, Appendix E. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.05-05.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on August 26, 2009, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the postevolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the Second Quarter 2009 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program.

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Unplanned Scrams with Complications (IE02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications performance for the period from the fourth quarter 2008 through the second quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC integrated inspection reports for the period of September 2008 through June 2009 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two unplanned scrams with complications samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspector sampled licensee submittals for the Drill and Exercise Performance, performance indicator for the period October 2008 through June 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspector reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspector reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator; assessments of performance indicator opportunities during pre-designated control room simulator training sessions, performance during the 2008 biennial exercise, and performance during other drills. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the drill/exercise performance sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization Drill Participation performance indicator for the period October 2008 through June 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, rosters of personnel assigned to key emergency response organization positions, and exercise participation records. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the emergency response organization drill participation sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.5 Alert and Notification System (EP03)

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System performance indicator for the period October 2008 through June 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and the results of periodic alert notification system operability tests. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the alert and notification system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

40A2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed 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 program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included: the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus,

and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Selected Issue for Followup Inspection

a. Inspection Scope

In addition to the routine review, the inspectors selected the issues listed below for a more in-depth review. The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

- CR-CNS-2008-00968, "Oil Leak From Weld on DG-2 Main Lube Oil Pump Discharge Pipe"
- 'A' Zurn Strainer failure Apparent Cause Investigation

Documents reviewed by the inspectors included:

- CNS Memo CNSS915646, M. Unruh to A. Wiese, "Time Estimates for Repairs Required per Procedure 5.4.3.1," May 30, 1991
- CR-CNS-2008-00968 Root Cause Report Revision 0
- CR-CNS-2008-00968 Root Cause Report Revision 1
- CR-CNS-2008-00968 Root Cause Report Revision 2
- CR-CNS-2009-06069
- CR-CNS-2009-06130
- EE 08-009, "DG Day Tank & Storage Tank Calculation Revisions for Vortex Issues," Revision 0
- EPM Letter EL04191-027, R. Kalantari to A. Wiese, "Evaluation of 10 CFR 50 Post-Fire Repair Required Implementation Times," June 13, 1991
- NEDC 87-051, "Emergency Diesel Generator Day Tank Capacities," Revision 3
- NEDC 97-012, "Emergency Diesel Generator Fuel On-Site Storage Technical Specification Requirements," Revision 3

These activities constitute completion of two in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-05.

b. Findings and Observations

The inspectors reviewed the licensee's treatment of Condition Report CR-CNS-2008-00968, root cause investigation, revision 2, completed July 29, 2009. This revised report was written to document the licensee's final position on the cracking and subsequent oil leakage from the emergency diesel generator 2 lubricating oil discharge piping on February 13, 2008. This root cause investigation was reperformed after a special inspection into emergency diesel generator lubricating oil pipe cracking and amphenol connector deficiencies was performed May 12 2009, and documented in Inspection Report 05000298/2009008 (ADAMS ML091610324). In this report the NRC concluded that revision 1 of the root cause analyses was ineffective and contributed to recurrence of a pipe crack on January 27, 2009, in the emergency diesel generator 1 lubricating oil discharge piping flange weld heat affected zone. The NRC identified concerns related to the rigor of root cause analyses, technical training, craft skills, and procedure instructions.

The initial root cause, revision 0, was completed March 11, 2008 and concluded the pipe failure resulted from high cycle fatigue caused by forces exerted from a flexible hose downstream of the break location. The licensee did question if it was reasonable for the relatively small forces from the misaligned flex hose compared to the tensile strength of

the piping material to have initiated a crack. On November 17, 2008, revision 1 of the root cause investigation concluded that misapplication of a large external load to the piping was the real cause of the pipe failure. The inspectors noted that this cause determination, which was based almost entirely on analysis, contradicted the physical evidence, observations by plant employees and conclusions drawn by industry experts. Southwest Research Institute Final Report, "A Failure Analysis Investigation of Leakage and Cracking in a Lube Oil Elbow Joint," dated April 3rd, 2008, documented the conclusion that, "The crack initiated...and progressed via high cycle fatigue."

As a result of the conclusions of revision 1, the licensee focused their corrective action efforts on maintenance training and, therefore missed opportunities to detect and correct diesel engine vibration concerns prior to additional failures. The resident inspectors and technical experts from the NRC Office of Nuclear Reactor Regulation discussed this concern with the licensee's engineering staff to point out the evidence of a high cycle fatigue failure in December 2008. The licensee failed to seriously consider the inspectors' concerns until the recurrence of a pipe crack on emergency diesel generator 1 on January 27, 2009.

Following this repeat failure the licensee reopened the root cause investigation into the February 13, 2008, emergency diesel generator 2 piping crack and in a parallel effort commissioned an independent assessment by an outside contractor to look at revision 0 and revision 1 root cause reports.

The July 29, 2009, Revision 2 of the licensee's root cause investigation determined the root cause of the oil piping cracking was due to inadequate procurement specifications for the lubrication oil piping flexible hose adjacent to the crack location with a contributing cause that the work instructions did not specify installation tolerances. Additional loading from the misaligned flexible hose applied thrust loads to the emergency diesel generator pump discharge pipe crack site. The inspectors had previously documented this conclusion in report 05000298/2008005 (ADAMS ML 092150253) with noncited violation 05000298/2008005-01, "Misaligned Lubricating Oil Piping Causes Diesel Generator 2 Failure."

The lack of timeliness in evaluating the problem and resultant initial inadequate corrective actions to prevent recurrence of the piping crack was captured in the NRC special inspection report by noncited violation 05000298/2009008-01, "Inadequate Corrective Actions to Repair a Lubricating Oil Pipe."

The licensee has redesigned the lubrication pump discharge piping with a new type of flexible hose located closer to the pump discharge elbow with additional supports. Testing of the new design installed on both emergency diesel generators showed lowered vibrations and adequate margin from the natural frequencies of the oil pump and adjacent piping. The inspectors determined the licensee has implemented effective corrective actions to prevent any further recurrence of emergency diesel generator lubrication pipe cracking at this location.

No findings of significance were identified in this review.

40A5 Other Activities

Willful Failure to Report the Use of Prescription Medication

a. Inspection Scope

The NRC conducted an investigation concerning a nonlicensed operator's failure to complete required reactor building logs. The NRC conducted interviews with the individuals in question as well as licensee management. The inspectors also reviewed the results of the licensee's investigation, extent of condition review, and corrective actions. This investigation was completed on December 11, 2008. This initial investigation found that the nonlicensed operator's failure to complete required rounds was because the individual was not fit for duty. Thus, the NRC conducted a followup investigation to address the willful aspects of this concern. The followup investigation into the fitness for duty aspects of this issue was completed on July 15, 2009.

b. Findings

Introduction. The inspectors identified a noncited Severity Level IV violation of 10 CFR 26.27 for the willful failure of a nonlicensed operator to report the use of prescription medication that affected the individual's his fitness for duty. As a result, the nonlicensed operator failed to complete required reactor building logs.

Description. On June 17, 2008, the licensee informed the inspectors that they had terminated the employment of a nonlicensed operator because of falsified operator logs on June 6, 2008. As documented in Condition Report CR-CNS-2008-04761, on June 7, 2008, the shift manager noted that a nonlicensed operator received significantly less dose for the shift than normal (1 millirem versus 4-5 millirem) for taking logs for the reactor building rounds. Based on a review of security records, the licensee determined that the nonlicensed operator had not entered the reactor building during the second half of his shift, despite logging data from equipment located in the reactor building for that time. The licensee's investigation determined that the individual falsified the operator logs and the licensee subsequently terminated the individual's employment. In addition, the licensee blocked the individual's name in the Personnel Access Data System on June 16, 2008.

Operator reactor building logs taken during subsequent shifts indicated that equipment was operating normally, and thus the failure to complete the logs on June 6, 2008, was of no consequence. The failure to implement reactor building logs was a minor violation of Technical Specification 5.4.1.a not subject to enforcement action.

Following notification of the NRC, the NRC's Office of Investigations initiated an investigation into the potential willful failure to complete reactor building rounds on July 1, 2008. This investigation was completed on December 11, 2008, and determined that the failure to complete operator rounds on June 6, 2008, was not willful, because the individual was unfit for duty. The nonlicensed operator had not informed the licensee as required by Procedure 0-FFD-01, "NPG Fitness for Duty Program and Behavioral Observation Program," Revision 22.

Based on this information, on January 8, 2009, the NRC initiated an investigation to determine if the failure to report as required by the licensee's procedures was willful. The investigation concluded that the individual was trained and knowledgeable of the responsibilities as delineated in the licensee's fitness for duty procedures, and knew of the requirement to report in accordance with the licensee's procedures. However, the individual decided not to report the issue to avoid embarrassment. Thus, the investigation determined that the failure to report as required by the licensee's fitness for duty program was a willful violation of 10 CFR 26.27 and Procedure 0-FFD-01. The NRC's investigation was completed on July 15, 2009.

On September 10, 2009, the inspectors described the results of the NRC investigations to the licensee. The licensee initiated Condition Report CR-CNS-2009-06883 to place this item into the corrective action program.

Analysis. The failure to comply with the licensee's requirements affecting fitness for duty is a performance deficiency. This issue was dispositioned using traditional enforcement due to the willful aspects of the performance deficiency. In accordance with Section IV.A.4 of the Enforcement Policy, this issue is considered more than minor due to the willful aspects of the performance deficiency. In accordance with the guidance in Supplement I of the Enforcement Policy, this issue is considered a Severity Level IV violation. There were no crosscutting aspects associated with this performance deficiency.

Enforcement. Title 10 CFR Part 26.27, "Written Policies and Procedures," prescribes requirements and standards for the establishment and maintenance of certain aspects of fitness for duty programs and procedures, and requires that each licensee subject to this part establish and implement written policies and procedures to meet these objectives. Procedure 0-FFD-01, "NPG Fitness for Duty Program and Behavioral Observation Program," Revision 22, Section 2.10.7, states, in part, that all personnel at Cooper Nuclear Station are responsible for reporting to their supervision certain conditions that may affect the individual's fitness for duty. Contrary to this requirement, on June 3-6, 2008, a nonlicensed operator failed to notify his supervisor. Although this violation was willful, it involved the isolated acts of a low-level individual without management involvement, and it was addressed by significant remedial action. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2009-06883. Therefore, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000298/2009004-03 (EA-2009-194), "Willful Failure to Implement the Fitness for Duty Program."

40A6 Meetings

Exit Meeting Summary

On July 10, 2009, a regional inspector presented the results of the onsite inspection of the licensee's emergency preparedness program to Mr. B. O'Grady, Site Vice President, and other members of the licensee's staff. The licensee acknowledged the issues presented. The

inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On August 12, 2009, a regional inspector discussed the inspection results of the licensed operator requalification program annual operating test with Mr. W. Gilbert, Operations Training Specialist, Operations Training. The licensee acknowledged the results. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On September 10, 2009, a regional inspector presented the results of the fitness for duty investigations Mr. D. VanDerKamp, Manager, Licensing. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 7, 2009, the resident inspectors presented the inspection results to Mr. B. O'Grady, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a noncited violation.

Title 10 of the Code of Federal Regulations, Part 50.47(b)(10) requires the licensee develop and have in place guidelines for the choice of protective actions during an emergency that are consistent with federal guidance. Contrary to this, the licensee's guidelines for extending existing protective action recommendations into additional emergency planning zone sectors under conditions of changing wind vectors were not consistent with the guidance of EPA-400-R-92-001. The licensee's practices result in unnecessary recommendations for protective actions in areas where valid dose projections show federal protective action guides are not exceeded, and may expose members of the public to unjustified risks. This issue is documented in the licensee's corrective action program as Condition Report CR-CNS-2009-05114. This finding is of very low safety significance because it is not a risk significant planning standard functional failure or degraded function because the licensee would issue protective action recommendations to offsite authorities in accordance with federal guidance for all areas of the emergency planning zone where protective action guides are exceeded.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

J. Austin, Manager, Emergency Preparedness
J. Behl, Manager, Security
B. Beilke, Manager, Chemistry
M. Boruch, Manager, Site Human Resources
M. Boyce, Director, Projects
P. Carlock, Supervisor, Security Operations
R. Estrada, Manager, Corrective Action and Assessments
J. Furr, Manager, Quality Assurance
E. Mace, Manager, Nuclear Assets
D. Madsen, Licensing Engineer, Licensing
E. McCutchen, Senior Licensing Engineer
D. Montgomery, Lead, Quality Assurance Performance
J. Neddenriep, Instrument and Controls Engineer, Design Engineering Department
S. Norris, Manager, Work Control
B. O'Grady, Site Vice President
A. Ohrablo, Shift Technical Engineer, Operations
D. Oshlo, Manager, Radiation Protection
D. Parker, Manager, Maintenance
R. Penfield, Manager, Operations
A. Sarver, Supervisor, System Engineering
J. Schwarting, Supervisor, Security Services
T. Stevens, Manager, Design Engineering
D. Sealock, Manager, Training
D. VanDerKamp, Manager, Licensing
D. Willis, Manager, Plant Operations
A. Zaremba, Director, Nuclear Safety Assurance

NRC Personnel

R. Kumana, Reactor Inspector
D. Reinhart, Reactor Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000298/2009004-01	NCV	Failure to Follow Scaffold Procedure Threatens Fire Protection Equipment (Section 1R05)
05000298/2009004-02	NCV	Incorrect Assumptions and Loss of Configuration Control in Internal Flooding Analysis (Section 1R06)
05000298/2009004-03	NCV	“Willful Failure to Implement the Fitness for Duty Program.” (Section 4OA5)

Discussed

05000298/2008005-01	NCV	Misaligned Lubricating Oil Piping Causes Diesel Generator 2 Failure (Section 1R12)
05000298/2009008-01	NCV	Inadequate Corrective Actions to Repair a Lubricating Oil Pipe

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

CONDITION REPORT

CR-CNS-2009-5911

DIAGRAM

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Cooper Nuclear Station Flow Diagram	High Pressure Coolant Injection and “Reactor Feed System, Burns & Row 2044	N70

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
System Operating Procedure 2.2.33A	High Pressure Coolant Injection System Component Checklist	23

Section 1RO5: Fire Protection

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
CNS-FP-245	Cooper Nuclear Station Fire Pre Plan	Revision 3
	Cooper Nuclear Station Fire Hazards Analysis Volume II	2/28/03
EE01-071	Engineering Evaluation	Revision 0, 9/21/01
	Record of Cooper Nuclear Station SP 6.FB.601	Revision 16, performed 6/5/09
	Cooper Nuclear Station Fire Hazards Analysis Matrix, Fire Area I, Fire Zone 6	2/28/03
Figure 5	Fire Area Drawing Elevation 1001'-0"	

Section 1RO6: Flood Protection Measures

CONDITION REPORT

CR-CNS-2009-05839	CR-CNS-2009-05841	CR-CNS-2009-05843
CR-CNS-2009-05881	CR-CNS-2009-05933	

Section 1RO7: Heat Sink Performance

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Engineering Procedure 3.34	Heat Exchanger Program	Revision 12
Performance Evaluation Procedure 13.15.1	Reactor Equipment Cooling Heat Exchanger Performance Analysis	Revision 29

WORKORDER

4636429

Section 1R11: Licensed Operator Requalification Program

LESSON

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SKL054-01-31	Loss of SU XRMR, Loss of Shutdown Cooling, Earthquake	Revision 1
OTH015-06-14	OPS-RFO 25 Modifications Training	Revision 0
OTH0150116	DEH Mod Pre-Implementation Training/CED 6016559	Revision 0

Section 1R12: Maintenance Effectiveness

CONDITION REPORT

CR-CNS-2009-5527 CR-CNS-2009-5607

NOTIFICATION

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
10678645	Functional Failure Evaluation of RHR-RV-19RV, Steam Supply to RHR HX B, Function: PC-COMP1, "Maintain Primary Containment Components"	8/20/09
10678645	Functional Failure Evaluation of RHR-RV-19RV, Steam Supply to RHR HX B, Function: PC-CONT1, "Maintain Primary Containment Leakage Limits"	8/20/09
10678645	Functional Failure Evaluation of RHR-RV-19RV, Steam Supply to RHR HX B, Function: RHR-PR03B, "Support 'hot standby' and shutdown cooling operations by removing decay heat via the RHR Heat Exchangers, Train B"	8/20/09
10678645	Functional Failure Evaluation of RHR-RV-19RV, Steam Supply to RHR HX B, Function: RHR-SD4, "Provide backup to FPC in support of SFP DHR"	8/20/09
10679236	Functional Failure Evaluation of RR-AO-741A, SP-1 Inboard Isolation Valve, Function PC-Cont2A, "Maintain Primary Containment Isolation Capability (Inboard valves A)"	8/7/09

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
10679236	Functional Failure Evaluation of RR-AO-741A, SP-1 Inboard Isolation Valve, Function RR-F01, "Provide variable forced circulation of water through the reactor core."	8/12/09

WORKORDER

4712548

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

CONDITION REPORT

CR-CNS-2009-05679 CR-CNS-2009-06716

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CNS Administrative Procedure 0.49	Schedule Risk Assessment	21

WORKORDER

4624157 46599702

Section 1R15: Operability Evaluations

CONDITION REPORT

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CR-CNS-2009-05168		
CR-CNS-2009-05527		ODs Version 1 and 2
CR-CNS-2009-05746		
CR-CNS-2009-05845		
CR-CNS-2009-06066		

Section 1R19: Postmaintenance Testing

CONDITION REPORT

CR-CNS-2009-06536

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
6.2CS.201	CS Motor Operated Valve Operability Test (IST) (DIV 2)	16
PWT4626047/6.HPCI.204	"HPCI-SOV-SSV64 and HPCI-SOV-SSV87 IST Closure Test	8
10688232	Part Evaluation	9/10/09
10688395	Part Evaluation	9/11/09

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
REP-20881-004	American Crane & Equipment Corporation Site Functional and Load Test	7/15/09
Surveillance Procedure 6.1DG.101	Diesel Generator 31 Day Operability Test (IST) (DIV 2)	63
Surveillance Procedure 6.2DG.101	Diesel Generator 31 Day Operability Test (IST) (DIV 2)	63

WORKORDER

4623964 4719815

Section 1R22: Surveillance Testing

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
6.CSCS.301	CSCS Initiation Logic Relay Contact Testing	10

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
6.CSCS.301	CSCS Initiation Logic Relay Contact Testing	10
6.2CS.201	CS Motor Operated Valve Operability Test (IST) (DIV 2)	16
6.2DG.101	Diesel Generator 31 Day Operability Test (IST) (DIV 2)	63
6.HPCI.103	HPCI IST and 92 Day Test Mode Surveillance Operation	35
6.HPCI.201	HPCI Valve Operability Test (IST)	15
6.HPCI.204	HPCI-SOV-SSV64 and HPCI-SOV-SSV87 IST Closure Test	8

NOTIFICATION

10647672

Section 1EP2: Alert Notification System Testing

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
5.7.27	Alert and Notification System	17
5.7.27.1	NOAA/EAS Radio Malfunction	9
5.7.27.2	False Activation of Alert and Notification System	6
EPDG 2	Attachment C-2, "Quarterly EAS Newspaper and Radio Advisories"	9
EPDG 2	Attachment C-6, "Annual Fixed Siren Maintenance"	8
EPDG 2	Attachment C-7, "Semi-Annual Review of Potential NOAA/EAS Radio Receiver Recipient Data Providers"	2
EPDG 2	Attachment C-8, "Issuance of NOAA/EAS Radio Receivers"	1

Section 1EP3: Emergency Response Organization Augmentation Testing

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
5.7.2	Emergency Director EPIP, Attachment 4, "ERO Call-In with ANS Module or ANS (Dialogics) Unavailable"	26
EPDG 2	Attachment E-3, "Bi-Monthly ERP Call-In Test"	15
	Bi-Monthly Call-In Test Evaluation	August 8, 2008
	Bi-Monthly Call-In Test Evaluation	October 20, 2008
	Bi-Monthly Call-In Test Evaluation	December 11, 2008
	Bi-Monthly Call-In Test Evaluation	February 10, 2009
	Bi-Monthly Call-In Test Evaluation	June 16, 2009
	Evaluation Report, Off-Hours Drive-In Drill	April 13, 2009

Section 1EP4: Emergency Action Level and Emergency Plan Changes

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Emergency Plan Regulatory Review, 50.54(q): EPIP 5.7.10, "Personnel Assembly and Accountability," Revision 30	July 29, 2008
	Emergency Plan Regulatory Review, 50.54(q): EPIP 5.7.2, "Emergency Director EPIP," Revision 26	March 27, 2008
	Emergency Plan Regulatory Review, 50.54(q): EPIP 5.7.20, "Protective Action Recommendations," Revision 19	March 27, 2008
	Emergency Plan Regulatory Review, 50.54(q): EPIP 5.7.21, "Maintaining Emergency Preparedness – Emergency Exercises, Drills, Tests, and Evaluations,"	February 28, 2008

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Revision 38	
	Emergency Plan Regulatory Review, 50.54(q): EPIP 5.7.6, "Notification," Revision 44	August 15, 2007

Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
5.7.20	Protective Action Recommendations	19
5.7.24	Medical Emergency	25
5.7COMMUN	Communications	11
0-CNS-25	Self-Assessment and Benchmarking Process	18
0-QA-01	CNS Quality Assurance Program	13
0-QA-02	Conduct of Internal Audits	5
0-QA-04	QA Continuous Oversight Programs	7
0-QA-05	QA Audit Requirements, Frequencies and Scheduling	5
0-QA-12	Quality Assurance Performance Assessment Reports and Rating Process	0
07-02	QA Audit, "Emergency Preparedness"	April 26, 2007
08-01	QA Audit, "Emergency Preparedness"	March 13, 2008
S08-10	QA Surveillance: "NRC Regulatory Issue Summary 2004-013 Implementation and Emergency Action Level Upgrade Project"	August 20, 2008
09-02	QA Audit, "Emergency Preparedness"	April 2, 2009
	Drill Evaluation Report	November 14, 2007

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Drill Evaluation Report	February 13, 2008
	Drill Evaluation Report	June 18, 2008
	Drill Evaluation Report	October 7, 2008
	Tabletop Drill Evaluation Report	October 12, 2008
	Drill Evaluation Report	November 18, 2008
	Tabletop Drill Evaluation Report	December 16, 2008
	Drill Evaluation Report	March 17, 2009
	Drill Evaluation Report	April 13, 2009
	Emergency Preparedness Department On-Going Assessment, 1Q2008	
	Emergency Preparedness Department On-Going Assessment, 2Q2008	
	Emergency Preparedness Department On-Going Assessment, 3Q2008	
	Emergency Preparedness Department On-Going Assessment, 4Q2008	
	Emergency Preparedness Department On-Going Assessment, 1Q2009	
	Snapshot Assessment on CNS Drill Preparedness	September 4, 2008
	Emergency Preparedness Functional Area Performance Report, January to April 2009	June 1, 2009
	EP INPO-Based Focused Self Assessment (Learning Organization Condition Report CNSLO-2008-00297)	February 4, 2009
	2009 Focused Assessment and Benchmarking Schedule	

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	CNS Drill and Exercise Manual, Attachment H-1, "Scheduling"	28
48319	Internet Document Control System, Procedure Change Request: 0-QA-02, Conduct of Internal Audits	July 7, 2009

CONDITION REPORT

CR-CNS-2008-01017	CR-CNS-2008-01168	CR-CNS-2008-01169
CR-CNS-2008-01381	CR-CNS-2008-03439	CR-CNS-2008-04862
CR-CNS-2008-05887	CR-CNS-2008-08090	CR-CNS-2009-00897
CR-CNS-2009-01007	CR-CNS-2009-01158	CR-CNS-2009-01425
CR-CNS-2009-03244	CR-CNS-2009-04034	CR-CNS-2009-05114
CR-CNS-2009-05210	CR-CNS-2009-05222	CR-CNS-2009-05236
CR-CNS-2009-05237		

Section 1EP6: Drill Evaluation

LESSON

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SKL054-01-31	Loss of SU XRMR, Loss of Shutdown Cooling, Earthquake	1

Section 4OA1: Performance Indicator Verification

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
5.7.1	Emergency Classification	38, 39
5.7.6	Notification	47, 48
5.7.20	Protective Action Recommendations	19, 20
EPDG 2	Attachment C-1, "Semi-Monthly Alert and Notification System Siren Testing"	15

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPDG 2	Attachment G-1, "Emergency Preparedness Performance Indicator Guide"	15

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Cooper Nuclear Station Emergency Plan	

Section 40A2: Identification and Resolution of Problems

CONDITION REPORT

CR-CNS-2009-00968	CR-CNS-2009-02040	CR-CNS-2009-03414
CR-CNS-2009-06277		

MISCELLANEOUS DOCUMENTS

CR-CNS-2008-00968, "Oil Leak From Weld on DG-2 Main Lube Oil Pump Discharge Pipe," Root Cause Report, Revision 2, updated 7/29/09

Section 40A5: Other Activities

CONDITION REPORTS

CR-CNS-2008-04726	CR-CNS-2008-04761	CR-CNS-2009-06883
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PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
0-FFD-01	NPG Fitness for Duty Program and Behavioral Observation Program	22
2.1.11.2	Reactor Building Data	30
2.0.3	Conduct of Operations	63