UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

July 17, 2006

Randall K. Edington, Vice
President-Nuclear and CNO
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000298/2006003

Dear Mr. Edington:

On June 24, 2006, 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 July 10, 2006, with Mr. S. Minahan, General Manager of Plant Operations, and other members of your staff.

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

Based on the results of this inspection, three findings were evaluated under the risk significance determination process as having very low safety significance (Green). Two of those findings were also determined to be violations of NRC requirements. However, because these violations were of very low safety significance and the issues were entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC's Enforcement Policy. These noncited violations are described in the subject inspection report. If you contest the violations or significance of the 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, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Cooper Nuclear Station facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made 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/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Kriss M. Kennedy, Chief
Project Branch C
Division of Reactor Projects

Docket: 50-298
License: DPR-46

Enclosure:
NRC Inspection Report 05000298/2006003
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

P. V. Fleming, 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
Dept. of Regulation & Licensing
Division of Public Health Assurance
301 Centennial Mall, South
P.O. Box 95007
Lincoln, NE 68509-5007

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

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

Daniel K. McGhee
Bureau of Radiological Health
Iowa Department of Public Health
Lucas State Office Building, 5th Floor
321 East 12th Street
Des Moines, IA 50319

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

Jerry C. Roberts, Director of
Nuclear Safety Assurance
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

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
930 Wildwood, P.O. Box 570
Jefferson City, MO 65102

Chief, Radiological Emergency
Preparedness Section
Kansas City Field Office
Chemical and Nuclear Preparedness
and Protection Division
Dept. of Homeland Security
9221 Ward Parkway
Suite 300
Kansas City, MO 64114-3372

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RIV:RI:DRP/C	SRI:DRP/C	C:DRS/OB	C:DRS/PSB	
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C:DRS/EB1	C:DRS/EB2	C:DRP/C		
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-298
License:	DPR-46
Report:	05000298/2006003
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	March 25 through June 24, 2006
Inspectors:	S. Schwind, Senior Resident Inspector N. Taylor, Resident Inspector G. Werner, Senior Project Engineer K. Clayton, Operations Engineer J. Adams, Reactor Inspector C. Paulk, Senior Reactor Inspector G. Replogle, Senior Reactor Inspector
Accompanying Person:	H. Crouch, Reactor Inspector, Technical Support Staff
Approved By:	K. Kennedy, Project Branch C, Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000298/2006003; 03/25/2006 - 06/24/06; Cooper Nuclear Station. Fire Protection, Personnel Performance During Nonroutine Plant Evolutions and Events.

The report covered a 3-month period of inspection by resident inspectors and region-based inspectors. Two Green noncited violations and one Green finding 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 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The NRC identified a noncited violation of Technical Specification 5.4.1.d regarding the licensee's failure to implement fire protection program procedures. On April 11 and June 8, 2006, the inspectors identified a total of four examples of transient combustible material in reactor building fire zones which did not meet the requirements of plant fire protection procedures. This issue was entered into the licensee's corrective action program as CR-CNS-2006-04622.

  The finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of protection against external factors such as fire. Using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the finding is determined to have very low safety significance because the reliability and effectiveness of the plant combustible materials program is only minimally affected by the finding. The causes of this finding are related to the crosscutting element of human performance. In the case of the scaffolding planks, a human error resulted in the inadvertent deletion of the material from the transient combustible data base without its removal from the reactor building. In the other examples, personnel failed to properly control combustibles in accordance with procedures and failed to adhere to postings regarding the placement of combustibles in the plant. (Section 1R05)

Cornerstone: Mitigating Systems

- Green. The NRC identified a finding regarding the failure to implement firefighting standards when responding to a possible fire in the radwaste building. On May 17, 2006, operators entered their emergency procedure for fires and dispatched the fire brigade in response to a report of smoke in the radwaste building. Contrary to the plant's firefighting standards, the licensee declared the fire out prior to determining the source of the smoke and completing a thorough search of the area to determine the extent of the fire. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-03651.

The finding is more than minor because it could be viewed as a precursor to a significant event in that the failure to adequately inspect an area prior to declaring a fire out could allow a fire to continue to burn unnoticed, resulting in a much larger and more significant fire. Because the finding is not suitable for significance determination process evaluation, NRC management reviewed the finding and determined that it is of very low safety significance since the performance deficiency was not pervasive, based on previous observations of fire brigade performance, and there were no actual consequences as a result of this event. The cause of the finding is related to the crosscutting element of problem identification and resolution in that the corrective actions for previous fire brigade performance deficiencies were not fully effective in preventing this similar performance deficiency. In addition, the licensee did not identify or initiate any corrective actions in response to this performance deficiency. (Section 1R14)

- Green. The NRC identified two examples of a noncited violation of Technical Specification 5.4.1.a. In the first example, on June 20, 2006, operators failed to sound the fire alarm, announce the fire, and dispatch the fire brigade, as required by plant procedures, in response to a fire alarm in the reactor building. In the second example, personnel failed to take appropriate actions for a degraded control room annunciator associated with a fire alarm, as required by plant procedures. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-04815.

  The finding is more than minor because the failure to appropriately respond to alarm indications could be viewed as a precursor to a significant event. The failure to implement the plant fire procedure is not suitable for significance determination process evaluation but has been reviewed by NRC management and is determined to be a finding of very low safety significance since there were no actual consequences as a result of this event. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the failure to address a degraded fire alarm is determined to have very low safety significance because it did not involve the loss of a safety function and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The cause of the finding is related to the crosscutting element of human performance in that these procedure requirements were unambiguous and it was within the licensee's ability to have correctly implemented those requirements. (Section 1R14)

B. Licensee-Identified Findings

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

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period at 100 percent power. On April 2, operators entered and subsequently exited a Notice of Unusual Event due to sustained wind speeds in excess of 74 mph on site. Operation at full power continued until May 22, when operators manually scrammed the reactor due to a loss of service air pressure. The plant was restarted on May 24 and reached full power on May 27 where it remained until June 16 when reactor power was reduced to 71 percent for repairs to a main condensate pump. The reactor was returned to full power operation on June 17 where it remained for the remainder of the inspection period.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Seasonal Susceptibilities

a. Inspection Scope

The inspectors completed a review of the licensee's readiness for seasonal susceptibilities involving extreme high temperatures. The inspectors: (1) reviewed plant procedures, the Updated Final Safety Analysis Report (UFSAR), and Technical Specifications (TSs) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the two systems listed below to ensure that adverse weather protection features were sufficient to support operability, including the ability to perform safe shutdown functions; and (3) reviewed the corrective action program (CAP) to determine if the licensee identified and corrected problems related to adverse weather conditions.

- April 18, 2006, Diesel Generator Building Ventilation
- June 20, 2006, Alternate Steam Tunnel Cooling

Documents reviewed by the inspectors included:

- Operating Procedure 2.1.14, “Seasonal Weather Preparations,” Revision 8
- Operating Procedure 2.2.39, “HVAC Diesel Generator Building,” Revision 24

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors observed the licensee's preparation for impending severe weather. These observations included the implementation of the adverse weather preparation procedures and compensatory measures before the onset of and during adverse weather conditions. The inspectors also verified that operator actions defined in the licensee's adverse weather procedures maintain readiness of essential systems. Observations were made on the following two occasions:

- Tornado watch issued on March 31, 2006
- Thunderstorm and subsequent Emergency Plan entry on April 2, 2006

Documents reviewed by the inspectors included:

- Emergency Procedure 5.1WATCH, "Operations During Weather Watches and Warnings," Revision 11
- Emergency Plan Implementing Procedure 5.7.1, "Emergency Classification," Revision 32

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R02 Evaluation of Changes, Tests, or Experiments (71111.02)

a. Inspection Scope

The team reviewed 7 licensee-performed safety evaluations to verify that the licensee had appropriately considered the conditions under which the licensee may make changes to the facility or procedures or conduct tests or experiments without prior NRC approval. The team also reviewed 13 licensee-performed screenings, in which a full evaluation had been excluded, to ensure consistency with the requirements of 10 CFR 50.59, "Changes, Tests, and Experiments," in the exclusion of a full evaluation. The specific evaluations and screenings reviewed by the inspectors are listed in the attachment.

The team reviewed changes made to the UFSAR and permanent plant modifications to determine if the requirements of 10 CFR 50.59 were properly implemented.

The inspectors reviewed a sample of three corrective action documents associated with safety evaluations, written by licensee personnel, to determine whether licensee personnel properly identified and subsequently resolved problems or deficiencies.

The inspectors completed 7 evaluation samples and 13 screening samples.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of the three risk important systems listed below and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned; and (2) compared deficiencies identified during the walkdown to the licensee's UFSAR and CAP to ensure problems were being identified and corrected.

- April 12, 2006, Standby Liquid Control System
- May 1, 2006, Emergency Diesel Generator (EDG) 1 Building Ventilation
- June 1, 2006, Low Pressure Safety Injection, Division 2

Documents reviewed by the inspectors included:

- Operating Procedure 2.2.74, “Standby Liquid Control System,” Revision 37
- Operating Procedure 2.2.74A, “Standby Liquid Control System Component Checklist,” Revision 7
- Change Evaluation Document 2000-0078, “Replacement of SLC-RV-10RV & SLC-RV-11RV”
- Drawing 2221, “HVAC - Plans & Sections, Diesel Generator Bldg., Heating Boiler Room,” Revision 3
- Drawing 2024, Sheet 2, “HVAC Misc Service Bldg.,” Revision 36
- Operating Procedure 2.2.69.1, “RHR LPCI Mode,” Revision 21

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors: (1) reviewed plant procedures, drawings, the UFSAR, TSs, and vendor manuals to determine the correct alignment of the high pressure coolant injection (HPCI) system; (2) reviewed outstanding design issues, operator workarounds, and UFSAR documents to determine if open issues affected the functionality of the HPCI system; and (3) verified that the licensee was identifying and resolving equipment alignment problems.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors walked down the eight plant areas listed below to assess the material condition of active and passive fire protection features and their operational alignment. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional and that access to manual actuators was unobstructed; (4) verified that fire extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers, steel fire proofing, penetration seals, and oil collection systems) were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features and that the compensatory measures were commensurate with the significance of the deficiency; and (7) reviewed the CAP to determine if the licensee identified and corrected fire protection problems.

- April 11, 2006, Fire Zone 2A, Control Rod Drive (CRD) Units - North
- April 12, 2006, Fire Zone 2C, CRD Units - South
- April 17, 2006, Fire Zone 9A, Cable Spreading Room
- April 17, 2006, Fire Zone 9B, Cable Expansion Room
- May 22, 2006, Fire Zone 12C, Condenser and Heater Bay Areas
- June 20, 2006, Fire Zone 22A, Augmented Radwaste Building Basement

- June 20, 2006, Fire Zone 22A, Augmented Radwaste Building First Floor

- June 20, 2006, Fire Zone 22A, Augmented Radwaste Building Second Floor

Documents reviewed by the inspectors included:

C Cooper Nuclear Station Fire Hazards Analysis Report, June 20, 2002
C Administrative Procedure 0.7.1, "Control of Combustibles," Revision 21

The inspectors completed eight samples.

b. Findings

Introduction: The inspectors identified a Green noncited violation (NCV) of TS 5.4.1.d regarding the licensee's failure to adequately implement the fire protection program.

Description: During a plant tour on June 8, 2006, the inspectors observed scaffolding installed in the Division 2 residual heat removal (RHR) heat exchanger room, which had a large number of wooden scaffolding planks. This large volume of wood (approximately 500 pounds by the licensee's estimate) did not appear to have been properly controlled in accordance with Administrative Procedure 0.7.1, "Control of Transient Combustibles," Revision 21. This procedure requires one of five different methods for controlling transient combustible material to be utilized for any material brought into a fire zone. These methods include: (1) constant attending of the material, (2) storage in a designated storage area, (3) evaluation of the combustible loading by the Fire Protection Group, (4) identification with an approved transient combustible tag, or (5) evaluation under a plant modification for permanently installed combustible status. The licensee confirmed that the wood was not being controlled in accordance with Procedure 0.7.1, and Condition Report CR-CNS-2006-04534 was written to document this procedure violation. During a subsequent investigation, the licensee determined that the wood had been entered and tracked in the transient combustible data base when the scaffolding was erected in 2004 but, due to human error, it had been deleted from the database even though it remained in the room. The licensee was able to demonstrate that the combustible loading from the wood was bounded by existing fire hazard analysis for the room.

In addition to this example, on April 11, 2006, while conducting a fire protection walkdown on Elevation 903 of the reactor building, the inspectors identified a number of transient combustible items that were not being controlled as required by Procedure 0.7.1. The items included a plastic chair, portable yellow plastic signs, and approximately 60 feet of rubber hose temporarily installed in an area of the building directly beneath the penetrations to the cable expansion room, an area marked as a "limited combustible area." The licensee determined that the individual items constituted only a minor contribution to the overall combustible loading in this area; however, they had not been controlled in accordance with Procedure 0.7.1. As a result, the licensee initiated Condition Reports CR-CNS-2006-02982, 02987, and 03006 and the items were subsequently removed from the building.

On April 12, 2006, the inspectors identified an additional transient combustible item on Elevation 903 of the Reactor Building, a bench with a protective plastic coating on it. The bench was appropriately tagged with a transient combustible permit in accordance with Procedure 0.7.1; however, it was located directly beneath a red sign on the reactor building wall which stated, “Combustible Free Zone - No Transients.” The licensee documented this in Condition Report CR-CNS-2006-02846 and later determined that the sign was overly conservative and not required by the fire protection design basis. The sign was removed and the licensee demonstrated that it was acceptable for the bench to remain in place.

The inspectors concluded that these transient combustible items, individually and collectively, contributed insignificantly to the overall combustible loading in the reactor building. However, multiple departments responsible for placing these items in the reactor building failed to comply with fire protection program procedures and many of these items were in place for extended periods of time without being questioned by plant personnel. Therefore, these items were indicative of a programmatic issue with proper implementation of the fire protection program.

Analysis: The performance deficiency associated with this finding involved a failure by station personnel to follow the requirements of Procedure 0.7.1. The finding is more than minor because it is associated with the Initiating Events cornerstone attribute of protection against external factors (fire) and affects the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using the Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because the reliability and effectiveness of the plant combustible materials program is only minimally affected by the finding.

The causes of this finding are related to the crosscutting element of human performance. In the case of the scaffolding planks, a human error resulted in the inadvertent deletion of the material from the transient combustible data base without its removal from the reactor building. In the other examples, personnel failed to properly control combustibles in accordance with procedures and failed to adhere to postings regarding the placement of combustibles in the plant.

Enforcement: TS 5.4.1.d requires that written procedures be established, implemented, and maintained covering the activities in the fire protection program. Administrative Procedure 0.7.1, “Control of Combustibles,” Revision 21, requires that transient combustible material being brought into an established fire zone be controlled in one of five different methods listed in the procedure. Contrary to this, inspectors identified four examples of transient combustibles in the reactor building without any of the required controls being implemented. Because the finding is of very low safety significance and has been entered into the licensee’s CAP as Condition Report CR-CNS-2006-04622, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000298/2006003-01, "Failures to Properly Control Combustibles in the Plant."

1R06 Flood Protection (71111.06)

Annual External Flooding

The inspectors: (1) reviewed the UFSAR, the plant flooding analysis, and plant procedures to assess seasonal susceptibilities involving external flooding; (2) reviewed the UFSAR and CAP to determine if the licensee identified and corrected flooding problems; (3) verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and (5) walked down the areas listed below to verify their adequacy in protecting against flooding:

- April 27, 2006, Levee system, power block embankments, external flooding equipment trailer, control building, radwaste and administrative building roofs

Documents reviewed by the inspectors included:

- Maintenance Procedure 7.0.11, "Flood Control Barriers," Revision 5
- Burns & Roe Drawing 4004 Sheet 1, "Final Paving, Grading and Drainage"
- Burns & Roe Drawing 4022, "Excavation Plan"
- Work Order 4433944

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

.1 Quarterly Inspection

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators in the simulator on two separate occasions to verify adequacy of the training, to assess operator performance, and to assess the evaluator's critique. The inspectors observed a simulator scenario involving an anticipated transient without scram and an unisolable steam leak. The second observed scenario involved a reactor scram with a stuck-open safety relief valve. Documents reviewed by the inspectors included:

- May 9, 2006, Simulator Scenario SKL052-52-80
- May 31, 2006, Simulator Scenario SKL054-01-27

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

.2 Requalification Inspection

a. Inspection Scope

The following inspection activities were performed using Inspection Procedure 71111.11, "Licensed Operator Requalification Program," and 10 CFR 55.46, "Simulation Facilities," as acceptance criteria.

The inspector reviewed the simulator annual performance tests for 2006 using ANS/ANSI 3.5 -1985, "Nuclear Power Plant Simulators for Use in Operator Training and Examination," as committed to by the licensee in their "Simulator Physical Fidelity," Procedure NTP 7.3, Revision 4. The inspector also reviewed the licensee verification and validation process for the simulator upgrade project. The project included complete replacement of the reactor core neutronics, reactor core thermal hydraulics, reactor recirculation, reactor vessel instrumentation, and main steam models. These new models were released to the Training and Operations departments in January of 2006. The inspector also discussed recent facility operating events with the resident staff.

The inspector reviewed core performance test plans for control rod density, shutdown margin, and thermal power. The purpose of this review was to determine if the simulator discrepancies were being addressed with the new models and to determine if the simulator was capable of supporting initial examinations and requalification training required for all licensed operators on shift. Documents reviewed during the inspection are listed in the attachment to this report.

The inspector interviewed two instructors, two reactor operators, and two senior reactor operators for feedback regarding the fidelity of the simulator, the simulator discrepancy reporting system effectiveness, and training on differences between the simulator and the plant. The lesson plan for the simulator differences was reviewed for adequacy and roster completeness for all licensed-operators at the plant.

During interviews, a number of instructors and operators noted how the new simulator better reflected plant behavior. For example, during training and testing scenarios, operators found it more challenging to control reactor vessel level or to diagnose when adequate core injection had been established during certain plant transients. Accordingly, the scope of the inspection was expanded to include a review of how well the licensee anticipated the needed changes to training as a result of the improved simulator modeling and how effectively the licensee used lessons learned from other licensee's who implemented similar changes to their simulators. In addition, the scope was further expanded to include a review of how the licensee implemented the system's approach to training once the identified weaknesses were found. As part of this expanded effort, the inspector reviewed the licensee's focused crew remediation and lesson plans for both classroom and simulator training.

The inspector reviewed several program documents that described the overall simulator program and how management groups, such as the simulator review board, coordinate discrepancy priorities and their subsequent repair decisions such as cost versus training impact and major model upgrades in order to enhance training on the emergency operating procedures. These items were reviewed in order to satisfy the requirements of 10 CFR 55.46(d) for continued assurance of simulator fidelity through problem identification and resolution, proper reporting, root cause evaluations, and a planned schedule for implementing timely corrective actions with proper content.

The inspector ran two transient tests and four small scenarios on the simulator in order to verify reasonable model performance based on the current design of the plant and the specified standard reference plant data used for comparison. These tests were: (1) manual reactor trip Transient Test One; (2) design basis loss-of-coolant accident with a corresponding loss-of-offsite-power Transient Test Eight; (3) high power trip scenario with various differences in timeliness of operator actions for level recovery in the reactor pressure vessel; (4) reactor pressure vessel protective features (L4 down through L1 actions); (5) reactor pressure vessel protective features (L4 up through L8 actions), and (6) grid instability conditions with subsequent loss of offsite power. In addition, the inspector verified that the licensee's training programs included grid instability topics as described in Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power," dated February 1, 2006.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the two maintenance effectiveness performance issues listed below to: (1) verify the appropriate handling of structure, system, and component (SSC) performance or condition problems; (2) verify the appropriate handling of degraded SSC functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of SSC issues reviewed under the requirements of the maintenance rule, 10 CFR Part 50, Appendix B, and the TSs.

- February 26, 2006, failure of Source Range Monitor (SRM) A
- March 2, 2006, indications of a reactor fuel cladding leak

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

Risk Assessment and Management of Risk

The inspectors reviewed the four assessment activities listed below to verify: (1) performance of risk assessments when required by 10 CFR 50.65 (a)(4) and licensee procedures prior to changes in plant configuration for maintenance activities and plant operations; (2) the accuracy, adequacy, and completeness of the information considered in the risk assessment; (3) that the licensee recognized, and/or entered as applicable, the appropriate licensee-established risk category according to the risk assessment results and licensee procedures; and (4) the licensee identified and corrected problems related to maintenance risk assessments.

- March 29, 2006, Diving operations in the service water intake bay, Work Order 4491523
- April 3, 2006, RHR A maintenance window, Work Order 4473894
- April 17, 2006, Main Power Transformer Oil Cooler cleaning, Work Order 449989
- May 3, 2006, EDG 1 surveillance testing

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors observed operators in the control room respond to the four events listed below. In addition, the inspectors: (1) reviewed operator logs, plant computer data, and/or strip charts for the below listed evolutions to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the nonroutine evolutions sampled.

- April 2, 2006: A severe thunderstorm and high winds at the site necessitated an entry into the Emergency Plan and the declaration of a Notification of Unusual Event
- May 17, 2006: A report of smoke in the radwaste building and the activation of the plant fire brigade

- May 22, 2006: A manual scram due to a loss of plant air
- June 20, 2006: A fire alarm on Elevation 903 of the Reactor Building

Documents reviewed by the inspectors included:

- Emergency Procedure 5.1WATCH, "Operations During Weather Watches and Warnings," Revision 11
- Emergency Plan Implementing Procedure 5.7.1, "Emergency Classification," Revision 32
- Emergency Procedure 5.4FIRE, "General Fire Procedure," Revision 12
- Emergency Procedure 5.2AIR, "Loss of Instrument Air," Revision 13
- Operating Procedure 2.0.6, "Operational Event Response and Review," Revision 27
- Operating Procedure 2.1.5, "Reactor Scram," Revision 52

The inspectors completed four samples.

b. Findings

.1 Introduction: The inspectors identified a Green finding regarding the licensee's failure to implement firefighting standards during the response to a fire in the radwaste building.

Description: On May 17, 2006, in response to a report of the smell of smoke near the chemistry laboratory in the radwaste building, an auxiliary operator was dispatched to the area. The auxiliary operator reported smoke in the vicinity of fluorescent lighting near the ceiling, but no flames were visible. Based on this report and the fact that the source of the smoke was not definitively known, control room operators entered Emergency Procedure 5.4FIRE, "General Fire Procedure," Revision 12, at 7:06 a.m. and the fire brigade was activated. The auxiliary operator was directed to open Breakers 1 through 9 on Lighting Panel LPRW-3 to de-energize the lights in the area, since the fluorescent light fixtures could have been the source of smoke. Afterward, the operator reported that there was no new smoke being generated and there were no visible flames. The control room declared the fire out at 7:15 a.m. based on this information. Emergency Procedure 5.4FIRE was exited at 7:27 a.m. and the "all clear" signal was sounded.

The inspectors observed the licensee's response to this event in the control room and questioned the adequacy and completeness of the information used to declare the fire out. These questions were based on several facts: (1) the source of the smoke was not definitively known when the fire was declared out, (2) the fire was declared out before the fire brigade had arrived on the scene to conduct a thorough search for any spread of the fire (fire extension), (3) there is a false ceiling in this area (cellulose ceiling tiles) which would make it very difficult to locate the source of the smoke or to verify that there

was no active or incipient fire above the ceiling in a remote location, and (4) the cursory inspections of the area prior to declaring the fire out were conducted with the majority of lights in the area de-energized, which would make it difficult to locate any new smoke being generated.

During subsequent inspections of the area, the licensee was unable to locate signs of any damage to the fluorescent lights, which indicated that they were not the source of the smoke. However, further inspection of the area using a thermal imaging camera identified a hot spot in Ventilation Fan HV-RW-1G located above the false ceiling. The fan motor had seized but the breaker, located on Lighting Panel LPRW-1, had not tripped. At 8:16 a.m., a local disconnect switch was opened to remove power from the fan motor. Based on the previous facts, and the failure to identify the seized fan motor as the true source of the smoke until an hour after the fire was declared out, the inspectors concluded that the fire was declared out prematurely.

During followup inspection of this event, the inspectors reviewed the corrective actions associated with Condition Report CR-CNS-2005-03420, which was initiated to evaluate a fire event in March 2005 during which the fire was prematurely declared out prior to determining the extent of the fire. Corrective Action 4 to this condition required additional training of fire brigade personnel to include training on determining the extent of fires and when to declare a fire out. This training, contained in Training Lesson GEN005-07-02, Revision 40, was conducted in January 2006 and provided general standards for when a fire should be declared out. These standards include checking to ensure the fire would not rekindle and that there was no extension of the fire. During the search for fire extension, the training stated that the fire brigade should determine what was on fire (building contents or the structure) and concealed horizontal spaces should be opened and inspected. These standards were not implemented in determining that the fire in the radwaste building was out. Specifically, the licensee did not identify the source of the smoke (the ventilation fan motor) and the concealed horizontal spaces above the ceiling tiles were not thoroughly inspected prior to declaring the fire out.

During further inspections of the fan motor, the licensee determined that there were thermal overloads inside the motor which opened after it seized, de-energizing the motor (the breaker did not trip). This design feature of the motor most likely extinguished the fire while it was in its incipient stage. Although there was no way to determine the exact time that the thermal overloads opened, it reasonably occurred prior to the fire being declared out. Despite this fact, the licensee did not fully understand the event prior to declaring the fire out and recalling the fire brigade.

The licensee entered this issue into the CAP as Condition Report CR-CNS-2006-03651. However, the inspectors noted that the licensee did not identify or initiate any corrective actions as a result of the condition report. Since this issue was not considered to be a violation of regulatory requirements and there were no actual consequences resulting from the issue, the licensee classified this condition report as “closed to trend” and closed the condition report without taking any actions to address the performance deficiency.

Analysis: The performance deficiency associated with this finding involved the failure of licensee personnel to implement firefighting standards. The finding is more than minor because it could be viewed as a precursor to a significant event in that the failure to adequately inspect an area prior to declaring a fire out could allow a fire to continue to burn unnoticed, resulting in a much larger and more significant fire. The finding effected the Mitigating Systems Cornerstone. Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," does not address performance of the fire brigade; therefore, the finding is not suitable for significance determination process (SDP) evaluation, but has been reviewed by NRC management and is determined to be a finding of very low safety significance. This determination took into consideration the inspectors' conclusion that the performance deficiency was not pervasive based on previous observations of fire brigade performance, and there were no actual consequences as a result of this event.

The cause of the finding is related to the crosscutting element of problem identification and resolution in that the corrective actions for previous fire brigade performance issues were not fully effective in preventing similar performance deficiencies. In addition, the licensee did not identify or initiate any corrective actions in response to this performance deficiency.

Enforcement: No violation of NRC requirements was identified. FIN 05000298/2006003-02, "Failure to Implement Fire Fighting Standards."

Fire Alarm on Elevation 903 of the Reactor Building

.2 Introduction: The inspectors identified two examples of a Green NCV of TS 5.4.1 regarding operator response to control room alarms.

Description: On June 20, 2006, at approximately 1:28 p.m., the control room received a manual pull station fire alarm from the southeast stairwell on Elevation 903 of the reactor building. As directed by Alarm Procedure 2.3_FP-2, "Fire Protection (Manual Pull Alarms) - Annunciator 2," Revision 2, control room operators immediately entered Emergency Procedure 5.4FIRE, "General Fire Procedure," Revision 12. The first actions required to be implemented by the control room when entering Procedure 5.4FIRE include sounding the fire alarm, making a plant announcement regarding the location of the fire, and directing the fire brigade to respond to the appropriate area. None of these actions were performed. Instead, the control room dispatched an operator to the area to investigate the alarm. Approximately 4 minutes later, the operator reported that the manual pull station had not been activated and there was no fire in the area. The control room exited Procedure 5.4FIRE at 1:33 p.m.

The inspectors learned of this event on June 21 while reviewing the control room logs for the previous day and questioned why the control room had not implemented all of the actions in Procedure 5.4FIRE. Operations Procedure 2.0.1.2, "Operations Procedure Policy," Revision 26, requires that, if steps in an emergency procedure are not performed, justification for the nonperformance shall be documented in the logs. There was no such documentation in the June 20 log entries. Furthermore, the fire alarm response procedures for Cooper Nuclear Station distinguish between risk-significant and nonrisk-significant areas. For nonrisk-significant areas, the alarm

procedures allow operators to investigate the alarm and verify the presence of a fire before implementing Procedure 5.4FIRE. However, for risk-significant areas, including all areas in the reactor building, operators are to implement the requirements of Procedure 5.4FIRE without delay. The operators on shift during the alarm explained that the annunciator for this manual pull station was degraded. They stated that, when it activated, the annunciator was flashing when it should have been a solid light and there had previously been a number of spurious alarms from this pull station so there was reason to question the indication of a fire in the reactor building. (Section 4OA2.3 discusses an adverse trend in false fire alarms.) The operators also showed the inspectors that the annunciator had been "flagged" with a self-adhesive green flag to indicate that the annunciator was degraded.

The inspectors challenged the use of the green flag on this annunciator based on a review of Alarm Procedure 2.3.1, "General Alarm Procedure," Revision 51. Alarm Procedure 2.3.1 allows the use of flags on annunciators for only two situations: (1) for expected alarms such as those associated with surveillance procedures or other maintenance activities, and (2) for annunciators which have been disabled. There were no tests or other maintenance activities in progress on this manual pull station, so no alarms should have been expected and, since the annunciator was not disabled, the use of the green flag was inappropriate in this situation. Alarm Procedure 2.3.1 also states that, "All alarms are to be treated as valid until proven otherwise." Therefore, the control room should either have treated this fire alarm as a real alarm or have taken previous action to disable the alarm. Had this alarm been disabled in accordance with Alarm Procedure 2.3.1, specific compensatory measures would have been required to account for the partial loss of fire detection capability in the reactor building.

The licensee entered this issue into the CAP as Condition Report CR-CNS-2006-04815.

Analysis: The performance deficiency associated with this finding involved the licensee's failure to respond to a fire alarm in accordance with plant procedures and the failure to take actions for a degraded control room annunciator in accordance with plant procedures. The finding is more than minor because the failure to appropriately respond to alarm indications and react to them accordingly could be viewed as a precursor to a significant event. The finding affected the Mitigating System Cornerstone. Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," does not address personnel performance issues when responding to fires; therefore, the failure to implement the requirements of Procedure 5.4FIRE is not suitable for SDP evaluation, but has been reviewed by NRC management and is determined to be a finding of very low safety significance. This determination was based on the fact that there were no actual consequences as a result of this event. Regarding the failure to take the appropriate action for a degraded alarm, the Phase 1 Worksheet in Manual Chapter 0609, "Significance Determination Process," was used to determine that the finding is of very low safety significance because it did not involve the loss of a safety function and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The cause of the finding is related to the crosscutting element of human performance in that the procedure requirements of Procedure 5.4FIRE and Alarm Procedure 2.3.1 are unambiguous and it was within the operators' ability to have correctly implemented these requirements.

Enforcement: TS 5.4.1.a requires that written procedures be established, implemented, and maintained covering the activities specified in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978.

Regulatory Guide 1.33, Section 6(v) requires procedures for combating plant fires. Emergency Procedure 5.4FIRE, "General Fire Procedure," Revision 12, requires that operators sound the plant fire alarm, make a plant announcement regarding the location of the fire, and direct the fire brigade to respond to the appropriate area in response to fire alarms in risk-significant areas. Contrary to these requirements, on June 20, 2006, in response to a manual pull station fire alarm in the reactor building, operators entered Procedure 5.4FIRE but did not sound the fire alarm, make a plant announcement, or dispatch the fire brigade.

Regulatory Guide 1.33, Section 5, requires procedures for alarm conditions. Alarm Procedure 2.3.1, "General Alarm Procedure," Revision 51, allows control room annunciators to be marked with a self-adhesive flag only when the alarm is expected due to planned activities or if the alarm has been disabled. Contrary to this requirement, on June 20, 2006, a green self-adhesive flag was on the control room annunciator for the manual pull station fire alarm in the southeast stairwell on Elevation 903 in the reactor building indicating that the alarm was degraded. As a result, operators did not respond to this alarm as if it were an actual condition.

Because the finding is of very low safety significance and has been entered into the licensee's CAP as Condition Report CR-CNS-2006-04815, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy:
NCV 05000298/2006003-03, "Failure to Respond to Control Room Alarms in Accordance with Plant Procedures."

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plant status documents such as operator shift logs, emergent work documentation, deferred modifications, and standing orders to determine if an operability evaluation was warranted for degraded components; (2) referred to the UFSAR and design basis documents to review the technical adequacy of licensee operability evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on any TSs; (5) used the SDP to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- April 11, 2006, Diesel starting air check Valve DGSA-19CV stuck open

- April 14, 2006, Reactor core insolation cooling system gland seal tank condensate pump failure

- May 1, 2006, HPCI flow oscillations

- May 3, 2006, EDG 1 operability during surveillance testing

Documents reviewed by the inspectors included:

- Operating Procedure 2.2.67, "Reactor Core Isolation Cooling," Revision 56
- Condition Report CR-CNS-2006-02734
- Condition Report CR-CNS-2006-02896
- Condition Report CR-CNS-2004-07481
- Condition Report CR-CNS-2006-03221
- Condition Report CR-CNS-2006-03093

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17B)

a. Inspection Scope

The inspectors reviewed eight permanent plant modification packages and associated documentation, including safety evaluation screenings, safety evaluations, and calculations to verify that they were performed in accordance with plant procedures. The inspectors also reviewed the procedures governing plant modifications to evaluate the effectiveness of the programs for implementing modifications to risk-significant SSCs, such that these changes did not adversely affect the design and licensing basis of the facility.

The inspectors interviewed the cognizant design and system engineers for the identified modifications as to their understanding of the modification packages.

The inspectors evaluated the effectiveness of the licensee's corrective action process to identify and correct problems concerning the performance of permanent plant modifications. In this effort, the inspectors reviewed five corrective action documents and the subsequent corrective actions pertaining to licensee-identified problems and errors in the performance of permanent plant modifications.

The inspectors completed eight samples. These samples are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected five postmaintenance tests associated with the maintenance activities listed below for risk significant systems or components. For each item, the inspectors: (1) reviewed the applicable licensing basis and/or design basis documents to determine the safety functions; (2) evaluated the safety functions that may have been affected by the maintenance activity; and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test equipment was calibrated, procedures were followed, jumpers were properly controlled, the test data results were complete and accurate, the test equipment was removed, the system was properly realigned, and deficiencies during testing were documented. The inspectors also reviewed the UFSAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- May 2, 2006, Service Water Pump C packing replacement
- May 3, 2006, Reactor building supply fan inboard isolation valve (HV-AOV-257) repairs
- May 8, 2006, ESST tap changes
- June 1, 2006, RHR hydrolazing tap welds
- June 2, 2006, RHR piping weld repair

Documents reviewed by the inspectors included:

- Surveillance Procedure 6.1SW.1.1, "Service Water Surveillance Operation (DIV 1)(IST)," Revision 20
- Work Order 4477220
- Work Order 4503675
- Work Order 4496825
- Work Order 4478526
- Work Order 4507484

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During a 2-day forced outage beginning on May 22, 2006, the inspectors reviewed the licensee's outage work scope and the outage risk profile and verified that key shutdown safety functions, such as power availability and decay heat removal, were not challenged by the outage work scope. In addition, the inspectors toured various portions of the plant which are not normally accessible during power operations, such as the turbine deck, the feedwater heater bay, and the main condenser bay.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and TSs to ensure that the five surveillance activities listed below demonstrated that the SSCs tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of ASME Code requirements; (12) updating of performance indicator data; (13) engineering evaluations, root causes, and bases for returning tested SSCs not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- April 20, 2006, Standby Gas Treatment B monthly operability test (IST)
- April 26, 2006, HPCI flow test from alternate shutdown panel
- May 3, 2006, EDG 1 monthly test (IST)
- May 3, 2006, EDG 1 Appendix R test
- May 10, 2006, Scram discharge volume level switch functional test

Documents reviewed by the inspectors included:

- Surveillance Procedure 6.2SGT.301, "SGT Operability Test/Off Gas Flow Monitor Channel Functional Test IST (Div 2)," Revision 9

- Surveillance Procedure 6.HPCI.102, “HPCI Test Mode Surveillance Operation from ASD-HPCI Panel,” Revision 15

- Surveillance Procedure 6.1DG.101, “Diesel Generator 31 Day Operability Test (IST)(Div 1),” Revision 41

- Surveillance Procedure 6.1DG.104, “Diesel Operability Test With Isolation Switches in Isolate (DIV 1),” Revision 12

- Surveillance Procedure 6.1RPS.708, “North SDV High Water Level Switches and Transmitters Channel Functional Test (Div 1),” Revision 7

- Condition Report CR-CNS-2006-03523

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed an emergency preparedness drill conducted on June 21, 2006. The observations were made in the control room simulator and the emergency operations facility. The inspectors: (1) observed the drill to verify proper performance in the areas of classification, notification, and Protective Action Requirements development activities; (2) reviewed any identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee is properly identifying failures; and (3) determined whether licensee assessment of performance was in accordance with the guidance in Nuclear Energy Institute 99-02, "Voluntary Submission of Performance Indicator Data.”

Documents reviewed by the inspectors included:

- Emergency Plan for Cooper Nuclear Station, Revision 51
- Emergency Plan Implementing Procedures for Cooper Nuclear Station
- Emergency Preparedness Drill Scenario for June 21, 2006

The inspectors completed one sample

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Cornerstone: Barrier Integrity

a. Inspection Scope

The inspectors sampled licensee submittals for the two performance indicators listed below for the period June 24, 2004, through December 31, 2005 (4Q04-1Q06). The definitions and guidance of Nuclear Energy Institute 99-02, “Regulatory Assessment Indicator Guideline,” Revision 4, were used to verify the licensee’s basis for reporting each data element in order to verify the accuracy of performance indicator data reported during the assessment period. The inspectors: (1) reviewed reactor coolant system (RCS) chemistry sample analyses for dose equivalent Iodine-131 and compared the results to the TS limit; (2) observed a chemistry technician obtain and analyze an RCS sample; (3) reviewed operating logs and surveillance results for measurements of RCS identified leakage; and (4) observed a surveillance test that determined RCS identified leakage. Licensee performance indicator data were also reviewed against the requirements of Administrative Procedure 0-PI-01, "Performance Indicator Program," Revision 18.

- RCS specific activity
- RCS leakage

The inspector completed two samples during this inspection.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

The inspectors performed a daily screening of items entered into the licensee's CAP. This assessment was accomplished by reviewing condition reports and work orders and attending corrective action review and work control meetings. The inspectors: (1) verified that equipment, human performance, and program issues were being identified by the licensee at an appropriate threshold and that the issues were entered into the CAP; (2) verified that corrective actions were commensurate with the significance of the issue; and (3) identified conditions that might warrant additional follow-up through other baseline inspection procedures.

.2 Selected Issue Follow-up Inspection

a. Inspection Scope

In addition to the routine review, the inspectors selected the issue 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.

C June 5, 2006, Average power range monitor (APRM) spikes causing APRM HIGH and ROD BLOCK Alarms

Documents reviewed by the inspectors included:

- Condition Report CR-CNS-2004-0316
- Condition Report CR-CNS-2004-3200

The inspectors completed one sample.

b. Findings

No finding of significance were identified.

.3 Semiannual Trend Review

a. Inspection Scope

The inspectors completed a semiannual trend review of repetitive or closely related issues that were documented in corrective action documents, corrective maintenance documents, and the control room logs to identify trends that might indicate the existence of more safety significant issues. The inspectors' review covered the 6-month period between January 2006 and June 2006. When warranted, some of the samples expanded beyond those dates to fully assess the issue. The inspectors reviewed the following issues:

- APRM spiking
- False fire alarms
- Control room annunciator failures
- Equipment grounds
- SRM failures
- Sump pump related failures
- CRD accumulator alarms

The inspectors compared their results with the results contained in the licensee's routine trend reports. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy. Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one inspection sample.

b. Assessment and Observations

The inspectors evaluated the licensee's CAP trending methodology, attended departmental trending meetings, and observed that the licensee had performed detailed reviews of developing issues. In the past 6 months, over 40 condition reports were written to evaluate emerging trends. In addition to those trends identified by the licensee, the inspectors noted the following:

(1) APRM Spiking: The inspectors noted a recent increase in the frequency of APRM upscale alarms in the control room logs. Discussions with engineering personnel validated that the frequency of alarms had increased significantly since an apparent cause evaluation was performed in August 2004. For example, in May 2005 operators received a total of three rod blocks due to APRM spiking compared with 42 alarms in May 2006. In addition, the data also suggested an increase in the magnitude of the spikes. In 2005, the highest recorded spike was 109 percent of rated thermal power; in 2006 there have been four spikes at 109 percent, nine at 110 percent and one at 111 percent power.

In the August 2004 apparent cause evaluation, the licensee attributed the APRM spiking to a phenomenon called "bi-stable flow" that was described in General Electric Service Information Letter (SIL) 467, dated July 28, 1988. The inspectors noted that the SIL, and other documents from General Electric, contained recommended actions that the licensee has not implemented. The inspectors also noted that no reevaluation of this trend had occurred since August 2004. After discussions with the licensee, CR-CNS-2006-04377 was initiated to document the emerging trend.

(2) False Fire Alarms: The inspectors conducted a search of control room logs, work orders, and CAP documents for fire alarm entries. The inspectors identified four actual fires and 29 false alarms over the past 12 months. In addition, there was evidence that personnel are becoming desensitized to fire alarms due to the number of false alarms (Section 1R14 describes one example in more detail). The fire detection system was included in the licensee's top 20 technical issues list, but the existing trend was not documented in the CAP and no specific plans have been identified to correct the trend. In addition, the licensee's existing trend processes were not capturing all the data available on fire alarms. Based on the inspectors' review, the licensee initiated the following four condition reports to analyze specific equipment issues as well as address the broader trends of fire alarms: CR-CNS-2006-04508, CR-CNS-2006-04511, CR-CNS-2006-04514, and CR-CNS-2006-04520.

(3) SRM Failures: The inspectors identified that in the past 2 years there were 40 SRM failures in the 68 days that the unit was in a mode requiring them to be operable. The SRM system was also included on the licensee's top 20 technical issues list, but the adverse trend was not documented in the CAP. During discussion of this trend, the licensee stated that the SRMs are being moved to the top 10 technical issues list and a multidiscipline team is being formed to address the performance of the system. As a result of discussions with the inspectors, the licensee initiated CR-CNS-2006-04549 to document the existing trend.

(4) CRD Accumulator Alarms: The inspectors noted that there had been 112 CRD accumulator low pressure or high level alarms in the past year. Over half of these alarms came from four individual CRD accumulators. The inspector reviewed the trending and maintenance plans in place and noted that the licensee had previously identified or repaired each of the four individual accumulators noted by the inspectors. The licensee has initiated a phased replacement plan for the CRD accumulators which appears to be effective in reducing the number of CRD accumulator alarms. The licensee initiated CR-CNS-2006-04185 to document the existing trend.

4OA3 Event Follow-up (71153)

.1 (Closed) Licensee Event Report (LER) 05000298/2006-001-00: Reheat Valve Failure to Re-open Due to Contaminated Control Fluid Results in Manual Scram

On February 26, 2006, Reheat Valve 1B did not re-open after the valve was closed during a surveillance test on the main turbine reheat/intercept valves. In accordance with station procedures, control room operators manually scrammed the reactor. The licensee documented this issue in Condition Report CR-CNS-2006-01515 and conducted a root cause investigation which determined that the cause of the event was contamination of the electrohydraulic fluid in the turbine control system from an inadvertent introduction of waste fluid to the control system fluid reservoir on August 14, 2005. The contamination of the control fluid system reservoir was reviewed by the inspectors in NRC Inspection Report 05000298/2005004, during which the inspectors determined that the licensee's corrective actions were reasonable in scope. Corrective actions for the February 2006 scram included replacing the test solenoid valves for the turbine reheat/intercept and main stop valves and flushing and replacing the electrohydraulic fluid in the turbine generator control system. No violations of NRC requirements were identified during the review of this LER. This LER is closed.

.2 (Closed) LER 05000298/2006-002-00: Scram Time Testing Following Reactor Pressure Vessel Pressure Tests in Past Outages Violated Technical Specifications

During a review of industry operating experience on March 24, 2006, CNS personnel discovered that a condition prohibited by TSs had occurred on four previous occasions. This condition involved the conduct of control rod scram time testing coincident with reactor pressure vessel Class 1 leakage testing while in Mode 4 (Cold Shutdown). TS 3.10.1 allows for reactor coolant temperature to rise above 212EF without entering Mode 3 (Hot Shutdown) specifically for the performance of the leakage testing.

However, on four occasions (April 11, 2000; December 17, 2001; April 6, 2003; and February 12, 2005) the leakage testing was completed and the scram time testing continued without exiting from TS 3.10.1 and entering Mode 3 as required. The licensee documented this issue in Condition Report CR-CNS-2006-02300 and conducted a root cause investigation, which determined that inadequate procedures were in place that allowed control rod scram time testing to continue under TS 3.10.1 after the completion of the leakage testing. Corrective actions included procedural changes to remove this vulnerability. The inspectors performed an in-office review of the root cause analysis and determined that the licensee's corrective actions were adequate. The enforcement aspects of this licensee-identified violation of TS 3.10.1 are discussed in Section 4OA7. This LER is closed.

4OA5 Other Activities

.1 Implementation of Temporary Instruction (TI) 2515/165 - Operational Readiness of Offsite Power and Impact on Plant Risk

a. Inspection Scope

The objective of TI 2515/165, "Operational Readiness of Offsite Power and Impact on Plant Risk," was to confirm, through inspections and interviews, the operational readiness of offsite power systems in accordance with NRC requirements. On March 8-10, 2006, the inspectors reviewed licensee procedures and discussed the attributes identified in TI 2515/165 with licensee personnel. In accordance with the requirements of TI 2515/165, the inspectors evaluated the licensee's operating procedures used to assure the functionality/operability of the offsite power system, as well as, the risk assessment, emergent work, and/or grid reliability procedures used to assess the operability and readiness of the offsite power system.

The information gathered while completing this TI was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation.

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item 05000298/2005008-05: Double Sequencing Unanalyzed

During the safety system design and performance capability team inspection in 2005, the team identified an unresolved item associated with the susceptibility for a multiple sequencing event when the offsite electrical grid is degraded or overstressed. The reason for the item being opened was that there were no evaluations for such occurrences.

During this inspection, the inspectors reviewed the license requirements for loss-of-offsite power and determined that the license did not require a demonstration to show the plant could withstand multiple sequencing events. Therefore, no evaluations would be required. However, through discussions with licensee engineers, the inspectors found that the electrical components could withstand multiple starts without failure; the

only apparent detriment would be a reduced life of the component. Additionally, licensee engineers demonstrated that the core would remain within the safety limits during a triple-sequence event.

On the basis of this review, no violation of regulatory requirements was identified. This item is closed.

4OA6 Meetings, Including Exit

On May 4, 2006, the inspector discussed the results of the licensed operator requalification program and simulation facilities inspections with Mr. R. Edington and other members of the licensee's staff. The licensee acknowledged the findings presented in the final exit meeting.

On May 18, 2006, the inspectors presented the results of the evaluation of changes, tests, or experiments and permanent plant modifications inspection to Mr. R. Edington and other members of licensee management at the conclusion of the onsite inspection. The licensee acknowledged the findings presented. The lead inspector verified that no proprietary information was reviewed during the inspection.

On July 10, 2006, the resident inspectors presented the results of their inspection activities to Mr. S. Minahan and other members of the licensee's staff who acknowledged the findings. The inspector confirmed that the supporting details in this report contained no proprietary information.

4OA7 Licensee-identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and met the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- TS 3.10.1 allows the licensee to remain in Mode 4 with reactor coolant temperature greater than 212EF specifically for the performance of hydrostatic testing. Contrary to this, on four occasions (April 11, 2000; December 17, 2001; April 6, 2003; and February 12, 2005), the licensee remained in TS 3.10.1 after hydrostatic testing was completed without entering Mode 3 when reactor coolant temperature exceeded 212EF. Using Appendix G of NRC Inspection Manual Chapter 0609, the inspectors determined this violation to be of very low safety significance (Green). This issue was identified in the licensee's CAP as CR-CNS-2006-02300.

- Title 10 of the Code of Federal Regulations, Section 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," requires the licensee to assess and manage the increase in risk that may result from proposed maintenance activities including surveillance tests. Contrary to this, on May 3, 2006, the licensee failed to adequately assess the increase in risk associated with the performance of Surveillance Procedure 6.1DG.104, "Diesel Operability test with Isolation Switches in Isolate (Div 1)," Revision 12. The online risk assessment for May 3 assumed that the test would only render one

emergency diesel generator inoperable, resulting in a Yellow risk condition. However, during performance of the test, operators discovered that the test also rendered one offsite power source inoperable which resulted in the higher online risk category of Orange. This issue was entered into the licensee's corrective action program as CR-CNS-2006-03342. The finding was determined to be of very low safety significance because the incremental core damage probability deficit for the inadequate risk assessment was less than 1E-6.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

T. Bahensky, System Engineer
K. Chambliss, Operations Manager
J. Dykstra, Electrical Engineering Program Supervisor
R. Edington, Chief Nuclear Officer
R. Estrada, Corrective Actions Manager
J. Flaherty, Licensing
J. Florence, Simulator Supervisor
J. Gren, System Engineer
G. Hadley, System Engineer
G. Kline, Director, Engineering
J. Larson, Supervisor, Quality Assurance
C. Long, Engineering Specialist
M. McCormack, Electrical Systems/I&C Engineering Supervisor
E. McCutchen, Senior Licensing Engineer
S. Minahan, General Manager of Plant Operations
A. Mitchell, Manager, Design Engineering
J. Roberts, Director, Nuclear Safety and Assurance
A. Sarver, Balance of Plant Engineering Supervisor
T. Shudak, Fire Protection Program Engineer
T. Stevens, Supervisor, Mechanical Engineering
D. Van Der Kamp, Acting Manager, Licensing
J. Waid, Training Manager

NRC

E. Owen, Reactor Inspector
S. Schwind, Senior Resident Inspector
N. Taylor, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000298/2006003-01	NCV	Failure to Properly Control Combustibles in the Plant
05000298/2006003-02	FIN	Failure to Implement Fire Fighting Standards
05000298/2006003-03	NCV	Failure to Respond to Control Room Alarms in Accordance with Plant Procedures

Closed

05000298/2006-001-00	LER	Reheat Valve Failure to Re-open Due to Contaminated Control Fluid Results in Manual Scram
05000298/2006-002-00	LER	Scram Time Testing Following Reactor Pressure Vessel Pressure Tests in Past Outages Violated Technical Specifications
05000298/2005008-05	URI	Double Sequencing Unanalyzed

LIST OF DOCUMENTS REVIEWED

1R02 - Evaluations of Changes, Tests, or Experiments

Condition Reports:

CR-CNS-2006-03671
CR-CNS-2006-03694
CR-CNS-2006-03696

Procedures:

NUMBER	TITLE	REVISION
4.6.4	Reactor Vessel Temperature Instrumentation	14, 15
6.LPRM.301	LPRM Calibration Adjustments	13
6.LPRM.303	LPRM Calibration	6
6.RCS.301	Technical Specification Monitoring of RCS Heatup and Cooldown Rate	11, 12, 13

Safety Evaluations:

NUMBER	TITLE	REVISION
03-035	Reactor Pressure Vessel Heatup and Cooldown Rate Basis	0

Safety Evaluations:

NUMBER	TITLE	REVISION
04-004	Reactor Pressure Vessel and Recirculation System Stratification Evaluation	0
2002-011	TS [Technical Specification] Bases B 4.7.3, REC [Reactor Equipment Cooling] System Change	0
2003-002	Addition of Alarm Time Delays to the Service Water Radiation Monitor System	0, 1
2003-005	Revision of Technical Specification Bases for SR 3.0.3 in Bases Section B 3.0	0
2002-0013	Technical Requirement Manual (TRM), Section TSR3.7.1, TSR 3.7.2, and B3.7.2	0
2004-0003	Relaxation of Upper Bound Peak Cladding Temperature Limit	0

Safety Evaluation Screenings:

NUMBER	TITLE	REVISION/ DATE
6.REACT.603	Shutdown Margin Evaluation	8
CED TCC 4249663	Installation of Temporary River Water Temperature Monitoring Instruments	November 18, 2002
CED 6006679	Replacement of RHR-MOV-M016B Valve Stem	February 12, 2002
CED 6009641	Reactor Feed Pump Minimum Flow Line Condenser Sparger Material Change	February 13, 2005
CED 6010061	Scram Solenoid Pilot Valve Replacement	February 11, 2004
CED 6011142	Residual Heat Removal Heat Exchanger Service Water Outlet Valve (SW-MOV-MO89A/B) Trim Replacement	August 11, 2003

Safety Evaluation Screenings:

NUMBER	TITLE	REVISION/ DATE
CED 6014280	SIL 131 Containment Isolation Logic Change	April 7, 2005
CED 6016580	Turbine Generator EH Fluid Automatic Temperature Control	February 8, 2006
CED 6017100	Battery Room Heating	December 19, 2005
CED 6017160	ES-PT-75A/B Pressure Transmitter Replacement	March 9, 2005
EE 05-054	Lost Parts Analysis for Water Stop Filter Introduced into the Condenser	0
PCR 2.2.69	Residual Heat Removal System	68
PCR 2.2.69.1	Residual Heat Removal Low Pressure Cooling Injection Mode	19

Section 1R04: Equipment Alignment

HPCI System Health Report, March 2006

Operating Procedure 2.2.33A, "High Pressure Coolant Injection System Component Checklist," Revision 21

Engineering Procedure 3.4.4, "Temporary Configuration Changes," Revision 8

Condition Report CR-CNS-2005-01805

Condition Report CR-CNS-2005-02868

Work Orders:
4438533
4441737
4454360
4479793

Section 1R11: Licensed Operator Requalification Program

Open Simulator Discrepancy Reports (current as of April 2006)
Closed Simulator Discrepancy Reports from January through April 2006
Simulator Model upgrades list (includes those not implemented yet but planned)

Simulator Annual Performance Test packages for 2006 (various)
Simulator Configuration Management Memorandum dated January 22, 2006
Simulator Differences Lesson Plan (SKL012-06-02, Revision 00)
Operating Procedure "Reactor Scram," 2.1.5, Revision 53
Operating Procedure "Degraded Grid Voltage," 5.3GRID, Revision 16
Risk Assessment Document for Cooper Nuclear Station, including operator actions
Cooper Simulator Upgrade Site Acceptance Test Plan, Revision 0
Core physics testing packages for simulator (various including control rod density)
"Simulator Configuration Management," Procedure, NTP 7.2, Revision 4
"Simulator Physical Fidelity," Procedure, NTP 7.3, Revision 4
"Simulator Performance Test Documentation," Procedure, NTP 7.4, Revision 2
"Simulator Performance Review Committee," Procedure, NTP 7.5, Revision 5
"Simulator Performance Testing," Desk Guide, DG 4.1, Revision 3
Operator licensing tracking system active operator licenses (R4 OLTS report)
Current operator license list from Cooper Nuclear Station

Condition Reports:

CR-CNS-2005-01805 CR-CNS-2005-02868

Work Orders:

WO 4438533 WO 4441737 WO 4454360
WO 4479793

1R17 - Permanent Plant Modifications

Calculations:

NUMBER	TITLE/SUBJECT	REVISION
88-298	Review of S&L Calc. 8206-E1, Control Building Heat Loads	2/12/1989
NEDC 88-300A	Review of S&L Calc. COOHC-01, Hydrogen Concentration Calc. For Battery Rooms 1A & 1B and RPS Rooms	1/15/90
NEDC 89-2163	Review of S&L [Sargent & Lundy] Calc. COOLC-03, Desired Thermostat Setpoints	3/2/90

Condition Reports:

CR-CNS-2005-03995 CR-CNS-2005-03546 CR-CNS-2006-03693
CR-CNS-2005-03800 CR-CNS-2005-03014

Design Changes:

NUMBER	DESCRIPTION	REVISION
CED TCC 4249663	Installation of Temporary River Water Temperature Monitoring Instruments	November 18, 2002
CED 6006679	Replacement of RHR-MOV-M016B Valve Stem	February 12, 2002
CED 6009641	Reactor Feed Pump Minimum Flow Line Condenser Sparger Material Change	February 13, 2005
CED 6010061	Scram Solenoid Pilot Valve Replacement	February 11, 2004
CED 6011142	Residual Heat Removal Heat Exchanger Service Water Outlet Valve (SW-MOV-MO89A/B) Trim Replacement	August 11, 2003
CED 6014280	SIL 131 Containment Isolation Logic Change	April 7, 2005
CED 6017100	Battery Room Heating	December 19, 2005
CED 6017160	ES-PT-75A/B Pressure Transmitter Replacement	March 9, 2005

Drawings:

NUMBER	TITLE	REVISION
2018	Turbine Generator BLDG. & Control BLDG. Heating and Ventilating	N31
709791	Drag Valve 14 X 14, 300 ANSI Service Water RHR	4
Anchor Valve Co. 833-3	4"-300# Gate Valve-R5-Bolted Bonnet Cast Carbon Steel-Stellite Trim-BW Ends SMB-000 (5'#) Motor Operator	E

Miscellaneous Documents:

NUMBER	TITLE/SUBJECT	REVISION / DATE
	Letter from J. R. Hall (NRR) to G. R. Horn (CNS), "Approval of SAFER/GESTR LOCA Analysis for Cooper Nuclear Station (TAC No. M98293)"	September 23, 1997
	Letter from S. A. Richards, (NRR) to J. F. Klapproth (CNS), "Review of NEDE-23785P, Vol. III, Supplement 1 Revision 1, 'GESTR-LOCA and SAFER Models for Evaluation of Loss-of-Coolant Accident Volume III, Supplement 1, Additional Information for Upper Bound PCT Calculation' (TAC No. MB2774)"	February 1, 2002
NEDC 91-90E	Review of ADVENT LCA Calculation 96007TR-31 Rev. 0 for RHR-MOV-M016B and SW-MOV-M0887MV	2
SIL 251	Control of Reactor Pressure Vessel Head Temperatures	October 31, 1977

Procedures:

NUMBER	TITLE	REVISION
2.2.38	HVAC [Heating Ventilation and Air Conditioning] Control Building	28
2.2.38.2	Portable Heating System	12
EDP-06	Supporting Requirements for Configuration Change Control	17

Section 4OA2: Identification and Resolution of Problems

Condition Reports:

CR-CNS-2005-07815	CR-CNS-2006-03983	CR-CNS-2006-04815
CR-CNS-2006-04330	CR-CNS-2006-04331	CR-CNS-2006-04508
CR-CNS-2006-04511	CR-CNS-2006-04514	CR-CNS-2006-04520

GE Nuclear Energy Report GE-NE-GENE 0000-0034-7630-01, "APRM Spiking Evaluation and Mitigation Report," Revision 0, December 2004

GE Nuclear Energy Service Information Letter Number 467, “Recirculation System Bi-Stable Flow in Jet Pump BWRs,” July 28, 1988

Change Evaluation Document 6017822, “APRM Time Delay Filter""

System Health Pages

Top 10 Lists

4OA5 - Other

EE-05-032	Evaluation of Double Sequencing Event on CNS	Revision 1
Emergency Procedure 5.3GRID	Degraded Voltage	Revision 16
NEDC 92-034	Water Hammer Analysis of Service Water System	Revision 3
Technical Report 1007320	The Probability and Consequences of Double Sequencing Nuclear Power Plant Safety Loads	October 2002
USQE-1998-0073	Rerouting of the 161kV Line from 345/161 kV Auto-Transformer to the Startup Station Service Transformer via New 161 kV Switchyard	Revision 1
WO 29428, MDC 81-53	Rerouting of the 161kV Line from 345/161 kV Auto-Transformer to the Startup Station Service Transformer via a New 161 kV Switchyard	Revision 0

Condition Reports:

CR-CNS-2005-04202
CR-CNS-2005-06371
CR-CNS-2006-03668
CR-CNS-2006-03676
CR-CNS-2006-03677

LIST OF ACRONYMS

APRM	average power range monitor
CAP	corrective action program
CDF	core damage frequency
CRD	control rod drive
CFR	Code of Federal Regulations
EDG	emergency diesel generator
ESST	emergency station service transformer
HPCI	high pressure coolant injection
IST	inservice test
LER	licensee event report
NCV	noncited violation
RCS	reactor coolant system
RHR	residual heat removal
SIL	service information letter
SDP	significance determination process
SRM	source range monitor
SSC	structure, system, and component
TI	temporary instruction
TSs	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item