

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

July 14, 2003

Clay C. Warren, Vice President of Nuclear Energy Nebraska Public Power District P.O. Box 98 Brownville, Nebraska 68321

SUBJECT: COOPER NUCLEAR STATION - NRC INSPECTION REPORT 05000298/2003003

Dear Mr. Warren:

On May 23, 2003, the NRC completed an inspection at your Cooper Nuclear Station. The enclosed report documents the inspection findings, which were discussed on May 23 and July 2, 2003, with you 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. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has identified one finding of very low safety significance (Green). If you contest the violation or significance of the noncited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; 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 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/ by RLN for CSM

Charles S. Marschall, Chief Engineering and Maintenance Branch Division of Reactor Safety Nebraska Public Power District

Docket: 50-298 License: DPR-46

Enclosure: NRC Inspection Report 5000298/2003003

cc w/enclosure: Michael T. Coyle Site Vice President Nebraska Public Power District P.O. Box 98 Brownville, Nebraska 68321

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION REGION IV

Docket:	50-298
License:	DPR 46
Report No.:	05000298/2003003
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	May 5-23, 2003
Lead Inspector:	W. McNeill, Senior Reactor Inspector, Engineering and Maintenance Branch
Inspectors:	P. Goldberg, Senior Reactor Inspector, Engineering and Maintenance Branch T. McConnell, Reactor Inspector, Engineering and Maintenance Branch R. Mullikin, Senior Reactor Inspector, Engineering and Maintenance Branch S. Schwind, Senior Resident Inspector, Projects Branch C J. Taylor, Reactor Inspector, Engineering and Maintenance Branch
Accompanying Personnel:	C. Baron, Contractor, Beckman and Associates
Approved By:	Charles S. Marschall, Chief Engineering and Maintenance Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000298/2003003; 5/3-23/2003; Cooper Nuclear Station; Safety System Design and Performance Capability

The NRC conducted an inspection with six regional inspectors and one contractor. The inspection identified one green finding. The NRC indicates the significance of most findings by their color (green, white, yellow, red) using IMC 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 described the program for overseeing the safe operation of commercial nuclear power reactors in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Cornerstone: Barrier Integrity

• <u>Green</u>. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," regarding the surveillance test procedures associated with Technical Specification Surveillance Requirement 3.6.4.3.4. The surveillance test procedures used to periodically verify that bypass flow through the idle train of the standby gas treatment system did not include adequate allowances for test measurement uncertainty in the acceptance criteria. The damper provided some flow in the idle train to prevent fire in the charcoal filter medium, but idling the train means a lower filtering efficiency in the idle train.

> The finding is greater than minor because the standby gas treatment system bypass flow did not meet the design limits for control room dose rate concerns (See Example 3.i of Appendix E of Inspection Manual Chapter 0612). The licensee's engineering staff recalculated the maximum allowable flow. The new analysis demonstrated that control room habitability remained assured. The inspectors considered this finding to be of very low safety significance because it did not represent an actual loss-of-safety function (Section 1R21.6).

Report Details

1. **REACTOR SAFETY**

Introduction

The NRC conducted an inspection to verify that the licensee adequately preserved the facility safety system design and performance capability and that the licensee preserved the initial design in subsequent modifications of the systems selected for review. The scope of the review also included any necessary nonsafety-related structures, systems, and components that provided functions to support safety functions. This inspection also reviewed the licensee's programs and methods for monitoring the capability of the selected systems to perform the current design basis functions. This inspection verified aspects of the initiating events, mitigating systems, and barrier cornerstones.

The licensee based the probabilistic risk assessment model for the Cooper Nuclear Station on the capability of the as-built safety systems to perform their intended safety functions successfully. Inspectors determined the area and scope of the inspection by reviewing the licensee's probabilistic risk analysis models to identify the most risk significant systems, structures, and components. Inspectors establish this according to their ranking and potential contribution to dominant accident sequences and/or initiators. The inspectors also used a deterministic effort in the selection process by considering recent inspection history, recent problem area history, and all modifications developed and implemented.

Inspectors reviewed in detail the containment and dc systems. The primary review prompted parallel review and examination of support systems, such as, electrical power, instrumentation, and related structures and components.

The inspectors assessed the adequacy of calculations, analyses, engineering processes, and engineering and operating practices that the licensee used for the safety systems selected and the necessary support systems during normal, abnormal, and accident conditions. Acceptance criteria used by the NRC inspectors included NRC regulations, the technical specifications, applicable sections of the Updated Safety Analysis Report, applicable industry codes and standards, and industry initiatives implemented by the licensee's programs.

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

a. Inspection Scope

Inspectors reviewed six licensee-performed 10 CFR 50.59 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 inspectors reviewed an additional ten licensee-performed 10 CFR 50.59 screenings, in which the licensee determined that evaluations were not required, to ensure that the licensee's exclusion of a full evaluation was consistent with the requirements of 10 CFR 50.59.

The inspectors reviewed and evaluated the most recent licensee 10 CFR 50.59 program audit to determine whether the licensee conducted sufficient in-depth analyses of their program to allow for the identification and subsequent resolution of problems or deficiencies.

b. Findings

No findings of significance were identified.

1R21 <u>Safety System Design and Performance Capability (71111.21)</u>

- .1 <u>System Requirements</u>
- a. Inspection Scope

The inspectors inspected the following attributes of the containment and dc systems: (1) process medium (water, steam, and air), (2) energy sources, (3) control systems, and (4) equipment protection. The inspectors examined the procedural instructions to verify instructions as consistent with actions required to meet, prevent, and/or mitigate design basis accidents. Inspectors also considered requirements and commitments identified in the Updated Safety Analysis Report, technical specifications, design basis documents, and plant drawings.

b. Findings

No findings of significance were identified.

- .2 System Condition and Capability
- a. Inspection Scope

Inspectors reviewed the periodic testing procedures for the containment and dc systems to verify that the licensee periodically verified the capability of the systems. The inspectors also reviewed the systems' operations by conducting system walkdowns; reviewing normal, abnormal, and emergency operating procedures; and reviewing the Updated Safety Analysis Report, technical specifications, design calculations, drawings, and procedures.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors examined a sample of problems identified by the licensee in the corrective action program to evaluate the effectiveness of corrective actions related to design issues. The sample included open and closed condition reports for the past 3 years that identified issues affecting the selected systems. Inspectors reviewed older condition reports that the inspectors identified while performing other areas of the inspection.

b. <u>Findings</u>

No findings of significance were identified.

- .4 System Walkdowns
- a. Inspection Scope

The inspectors performed walkdowns of the accessible portions of the containment and dc systems, and required support systems. Inspectors focused on the installation and configuration of switchgear, motor control centers, manual transfer switches, field cabling, raceways, piping, components, and instruments. During the walkdowns, the inspectors assessed:

- The placement of protective barriers and systems;
- The susceptibility to flooding, fire, or environmental conditions;
- The physical separation of trains and the provisions for seismic concerns;
- Accessibility and lighting for any required local operator action;
- The material condition and preservation of systems and equipment; and
- The conformance of the currently-installed system configurations to the design and licensing bases.

b. Findings

No findings of significance were identified.

.5 Design Review

a. Inspection Scope

The inspectors reviewed the current as-built instrument and control, electrical, and mechanical design of the containment and dc systems. These reviews included an examination of design assumptions, calculations, required system thermal-hydraulic performance, electrical power system performance, protective relaying, control logic, and instrument setpoints and uncertainties. The inspectors also performed selected single-failure evaluations of individual components and circuits to determine the effects of such failures on the capability of the systems to perform their design safety functions.

The inspectors inspected calculations, drawings, specifications, vendor documents, the Updated Safety Analysis Report, technical specifications, emergency operating procedures, and temporary and permanent modifications.

b. Findings

No findings of significance were identified.

- .6 Safety System Inspection and Testing
 - a. Inspection Scope

The inspectors reviewed the program and procedures for testing and inspecting selected components in the containment and dc systems. The review included the results of surveillance tests required by the technical specifications and selective review of Class 1E control circuits for capability to test system functions.

b. <u>Findings</u>

Introduction

The inspectors identified a finding of very low safety significance involving a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." Specifically, the inspectors identified that the surveillance test procedures used to verify the standby gas treatment system cross-tie damper position did not include allowances for test measurement uncertainty in the acceptance criteria.

Description

The inspectors observed that Technical Specification Surveillance Requirement 3.6.4.3.4 requires verification of the standby gas treatment system's cross-tie damper throttle position. Operators verified this requirement by the performance of a flow test. The inspectors also determined that the engineers based the dose calculation for the design basis fuel handling accident on a flow value only 3 percent greater than the upper limit of the surveillance test acceptance criteria. As a result, the standby gas treatment cross-tie flow could have exceeded the value used in the fuel handling accident radiological dose

calculation, resulting in higher than expected control room doses during an accident. Engineers acknowledged that the uncertainty was greater than 3 percent.

Engineers designed this system with a cross tie between the two standby gas treatment trains to allow air flow in the idle train to reduce the risk of a charcoal fire due to excessive decay heat from Iodine buildup. The design limited the maximum post-accident flow through the idle train because the idle train had lower efficiencies for iodine removal. Calculation NEDC 99-032, "Control Room Habitability and Offsite Dose for a Fuel Handling Accident," Revision 3, addressed the upper design limit of the standby gas treatment cross-tie flow. This calculation used a standby gas treatment cross-tie flow of 288 cubic feet per minute.

Inspectors also reviewed the surveillance procedures associated with Technical Specification Surveillance Requirement 3.6.4.3.4. Surveillance Procedures 6.1SGT.401, "Standby Gas Treatment A Fan Capacity Test, Standby Gas Treatment B Cooling Flow Test and Check Valve IST (Division 1)," Revision 9, and 6.2SGT.401, "Standby Gas Treatment B Fan Capacity Test, Standby Gas Treatment A Cooling Flow Test and Check Valve IST (Division 2)," Revision 8, included a maximum standby gas treatment cross-tie flow acceptance criteria of 280 cubic feet per minute.

In response to the inspectors' concerns regarding the cross-tie flow acceptance criteria, the licensee initiated Notification 10248715 on May 22, 2003. This notification stated that the engineering staff failed to review the standby gas treatment cross-tie flow test acceptance criteria when the engineering staff revised and approved Calculation NEDC 99-032, on March 20, 2003.

A subsequent informal analysis determined that the design flow limit could be increased from 288 to approximately 316 cubic feet per minute without exceeding the control room dose limit. This would result in over 12 percent available flow margin versus an estimated 7 percent test instrument uncertainty. Based on this analysis, the licensee concluded that no operability issue existed.

<u>Analysis</u>

The inspectors determined that this condition affected the barrier integrity cornerstone because of the potential of degraded secondary containment integrity. The inspectors considered this finding more than minor since the finding was similar to Example 3.i of Appendix E of Inspection Manual Chapter 0612. The finding was greater than minor because engineers had to re-perform the calculation to ensure the control room remained habitable after adding flow instrument uncertainty. The engineers had to recalculate the maximum flow because the margin between the maximum design flow and the acceptance criteria was less than the test measurement uncertainty.

The inspectors assumed a potential fuel handling accident release event for the risk assessment. The inspectors found this finding resulted from a performance deficiency of very low safety significance (Green: Question 1 of Appendix E to the Inspection Manual

Chapter 0612, regarding degraded standby gas treatment). Inspectors determined no other cornerstones degraded as a result of this finding.

The inspectors assessed this finding as green because it does not represent an actual loss of the standby gas treatment system or secondary containment safety functions. The licensee implemented appropriate corrective actions to ensure continued operability of these systems.

Enforcement

Criterion III, "Design Control," of 10 CFR Part 50, Appendix B, requires correct translation of design requirements into procedures. Contrary to this requirement, since March 20, 2003, the licensee's engineering staff did not correctly translate the design basis into the surveillance test procedures associated with Technical Specification Surveillance Requirement 3.6.4.3.4. Specifically, the licensee failed to include adequate allowances for test measurement uncertainty in the acceptance criteria. As a result, the actual standby gas treatment cross-tie flow could have exceeded the value used in the fuel handling accident radiological dose calculation, resulting in higher than expected control room doses during an accident.

Because of the very low safety significance of the finding and because the licensee entered this issue into their corrective action program as Notification 10248715 on May 22, 2003, the inspectors treated this as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000298/2003003-01).

4. OTHER ACTIVITIES (OA)

4OA6 Management Meetings

Exit Meeting Summary

The team leader presented the inspection results to Mr. Clay C. Warren, Vice President of Nuclear Energy, and other members of licensee management at the conclusion of the onsite inspection on May 23, 2003 who acknowledged the findings. In addition, the team leader held a final a telephone exit meeting on July 2, 2003, with Mr. Gary Kline, General Manager Engineering, and other members of licensee management.

At the conclusion of these meetings, the team leader asked the licensee's management whether any materials retained by the inspectors was proprietary. The licensee identified that the inspectors had no proprietary information.

KEY POINTS OF CONTACT

Licensee

- D. E. Buman, Assistant Design Engineering Manger
- P. V. Fleming, Licensing and Regulatory Affairs Manager
- T. E. Hottovy, Assistant Plant Engineering Manager
- J. A. Hutton, Plant Manager
- G. J. Kline, Senior Manager of Engineering
- D. F. Kunsemiller, Senior Manager Quality Assurance
- T. P. McClure, Mechanical Engineering Supervior
- M. R. McCormack, Design Engineering Supervisor-Electrical
- C. C. Warren, Chief Nuclear Officer
- A. L. Williams, Engineering Support Manager
- R. L. Wulf, Plant Engineering Manager

ITEMS OPENED AND CLOSED

Opened and Closed

NCV (05000298/2003003-01)

Failure to implement Criterion III of 10 CFR 50, Appendix B, regarding the control of acceptance criteria (Section 1R21.6).

DOCUMENTS REVIEWED

The inspectors selected and reviewed the following documents to accomplish the objectives and scope of the inspection and to support any findings:

CALCULATIONS

<u>Number</u>	Title	<u>Revision</u>
90-319	Post-Accident Monitoring Containment Level Calculation	1
97-090I	Plant Specific Technical Guidelines/Severe Accident	1
97-090N	Technical Guidelines Primary Containment Pressure Limits Plant Specific Technical Guidelines/Severe Accident Technical Guidelines Reactor Pressure Vessel Level Instruments	2
97-0900	Plant Specific Technical Guidelines/Severe Accident Technical Guidelines Net Positive Suction Head Limits	1
03-010	Evaluation of Penetration X-12 for Potential Overpressurization	1
NEDC 87-131A	250 Volt DC Division 1 Load and Voltage Study	8
NEDC 87-131A CED/EE EE02-038	250 Volt DC Division 1 Load and Voltage Study	9

Number	Title	<u>Revision</u>
NEDC 87-131B CED/EE EE02-040	250 Volt DC Division 2 Load and Voltage Study	9
NEDC 87-131C CED/EE EE02-041	125Volt Division 1 Load and Voltage Study	9
NEDC 87-131D CED/EE EE02-042	125Volt Division 2 Load and Voltage Study	9
NEDC 88-209	250 Volt Battery, Rack Mounting, Charger Mountings, and Test Reviews	2
NEDC 89-1966	Drywell Cooler Heat Removal Capacity	0
NEDC-91-069	Moderate Energy Line Break and Flooding Calculations	5
NEDC 93-128	Flooding Interaction between Torus Area and Quads	3
NEDC 93-184	Residual Heat Removal Heat Exchangers Thermal Performance and Tube Plugging Margin	1
NEDC 94-034A	Containment Analysis Input Parameters	0
NEDC 94-034B	Containment System Response for Net Positive Suction Head	0
NEDC 94-261	Calculation for Safety Analysis Report Question 5.17 and Surveillance Procedure 6.PC.503	2C1
NEDC 95-058	Evaluation of the Overpressurization Potential for Isolated Penetrations in Accordance with Generic Letter 96-06	3
NEDC 96-058	Evaluation of the Overpressurization Potential for Isolated Penetrations in Accordance with Generic Letter 96-06	3
NED C 97-044A	Net Positive Suction Head Margins for the Residual Heat Removal and Core Spray Pumps	3
NEDC 98-017	PC-PS-12A, B, C, D and PC-PS-101A, B, C, D Setpoints H Margins for the Residual Heat Removal and Core Spray Pumps	0
NEDC 98-042	Estimate of Containment Volumes	0
NEDC 98-043	Containment Flooding Volumes	0
NEDC 99-032	Control Room Habitability and Offsite Dose for a Fuel Handling Accident	1
NEDC-00-080	Flood Door Gap Analysis	3
NEDC 00-095A	Equipment Qualification Normal Temperature, Relative Humidity, Pressure and Radiation	0
NEDC 01-080	Drywell Normal Equipment Qualification Temperature	0

DESIGN CRITERIA DOCUMENTS

Number	Description	Dated
DCD-05	DC Electrical Distribution System	July 7, 2002
DCD-09	Primary Containment (PC) System	November 20, 2002
DCD-31	Secondary Containment Topical	July 1, 2002
DCD-36	High Energy Line Break/Moderate Energy Line	January 23, 2003
	Break	
DCD-38	Internal Flooding	September 4, 2002

DRAWINGS

<u>Drawing Number</u> /Sheet Number	Title	<u>Revision</u>
2010/3	Service Air	N40
2022/1	Primary Containment Cooling & Nitrogen Inerting System	N78
2022/2	Primary Containment Cooling & Nitrogen Inerting System	N01
2022/3	Primary Containment Cooling & Nitrogen Inerting System	N02
2027/1	Loop "A" Reactor Recirculation & Suppression Chamber Vent Systems & Connections	N61
2027/2	Loop "A" Reactor Recirculation & Suppression Chamber Vent Systems & Connections	N10
2028	Reactor Building & Drywell Equipment Drain System	N43
2029	Reactor Building Demineralized Water System	N33
2031/1	Reactor Building Closed Cooling Water System	N20
2031/2	Reactor Building Closed Cooling Water System	N61
2031/3	Reactor Building Closed Cooling Water System	N23
2039	Control Rod Drive Hydraulic System	N49
2045/1	Core Spray System	N54
2045/2	Standby Liquid Control System	N18
2047 2048	Drywell & Suppression Chamber Composite Systems	N03 N01
3006/5	Drywell & Suppression Chamber Composite Systems Auxiliary One Line Diagram Starter Racks LZ and TZ,	N68
3000/5	Motor Control Center's K, L, LX, RA, RX, S, T, TX, X	INUO
3050/1	Wire & Cable Description & Schedule Index	N08
3050/49D	Cable and Conduit Schedule	N03
3050/49E	Cable and Conduit Schedule	N03
3050/56D	Cable and Conduit Schedule	N03
3050/56E	Cable and Conduit Schedule	N03
3058	DC One Line Diagram	N43
450208882	Electrical Penetration Assy	NA
CNS-HV-39	Reactor Building Drywell Cooling Developed Flow	1
	Diagram w/Measurement & Damper Locations	

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ENGINEERING EVALUATIONS

<u>Number</u>	Description	<u>Revision</u>
01-035	Equipment Qualification Temperature Profile in Containment Based	0
	on Small Steam Line Break and Design Basis Accident-Loss of	
	Coolant Accident	
01-080	Effect of Loss of Coolant Accident & Small Steam, Line Break	0
	Accident Conditions on Drywell Fan Coil Units in Containment and	
	Containment Penetration Piping for Closure of Generic Letter 96-06	
	Issue	
02-067	Design Basis Accident Radiological Dose Assessment	0
	Methodologies (License Amendments 187 and 196)	

LICENSEE EVENT REPORTS

<u>Title'</u>	Dated
Torus to Drywell Vacuum Breaker Misalignment Places Plant in Condition Prohibited by Technical Specifications	April 4, 2000
Failed Valve Motor Places Plant in Condition Prohibited by Technical Specifications	April 3, 2000
Failed Valve Motor Places Plant in Condition Prohibited by Technical Specifications	May 10, 2000
Non-conservative Drywell Temperature Profile Places Plant in Condition Outside of Design Basis	May 1, 2000
Non-conservative Drywell Temperature Profile Places Plant in Condition Outside of Design Basis	August 28, 2000
Confusing or Incomplete Standards and Administrative Controls Results in Failure to Test an Excess Flow Check Valve	March 12, 2001
Failure to Adequately Revise Procedures Resulted in Inadequate Fire Watches Under Certain Battery/Battery Charger Configurations and an Unanalyzed Condition	July 6, 2001
Scheduling Error and Oversight Results in Loss of Reactor Building-to-Suppression Chamber Vacuum Relief Function	December 31, 2001
Excessive Primary Containment Leakage Discovered During Local Leak Rate Testing of Reactor Feedwater Check Valves	January 8, 2002
	 Torus to Drywell Vacuum Breaker Misalignment Places Plant in Condition Prohibited by Technical Specifications Failed Valve Motor Places Plant in Condition Prohibited by Technical Specifications Failed Valve Motor Places Plant in Condition Prohibited by Technical Specifications Non-conservative Drywell Temperature Profile Places Plant in Condition Outside of Design Basis Non-conservative Drywell Temperature Profile Places Plant in Condition Outside of Design Basis Confusing or Incomplete Standards and Administrative Controls Results in Failure to Test an Excess Flow Check Valve Failure to Adequately Revise Procedures Resulted in Inadequate Fire Watches Under Certain Battery/Battery Charger Configurations and an Unanalyzed Condition Scheduling Error and Oversight Results in Loss of Reactor Building-to-Suppression Chamber Vacuum Relief Function Excessive Primary Containment Leakage Discovered During Local Leak Rate Testing of Reactor Feedwater Check

MODIFICATIONS

Number	<u>Title</u>	Dated
CED 1998-0179	Upgrade of Air Supply to Control Valves HV-SOV-(SPV-259) and HV-SOV-(SPV-261)	December 30, 1998
CED 1998-0183	Dragon Model 500F Generic Valve Replacement	March 25, 1999
CED 1998-0292	Replacement of Non-Essential Solenoid Valve PC-SOV-(AD-R-1A) with ASCO Model 8344B5	December 21, 1999
CED 2000-0077	Installation of Washers on Torus to Drywell Vacuum Breakers	June 5, 2000
CED 2000-0098,	Installation of Washers on Torus to Drywell Vacuum Breakers	May 24, 2000
CED 2000-0184	Replacement of Miscellaneous Drywell Gaskets where the Material Changed from Silicone Rubber to EPDM Rubber	October 18, 2000
CED 2001-0028	Revision of Programs to Include Residual Heat Removal Containment Spray Mode Components	December 10, 2001
DC 93-050	Appendix J Testing in the Accident Direction	October 31, 2000
DC 94-212D	Penetrations X-21 and X-22 Upgrades	July 21, 1998
DC 94-212F	Primary Containment Nitrogen/Air Supply Penetrations	July 27, 1998
MP 97-039	Thermal Overpressure Protection X-18, X-19, and X-20	September 9, 1997

NOTIFICATIONS

10086268	10181989	10234216	10246429	10247879
10088673	10183776	10238357	10246484	10247897
10093347	10184978	10242650	10246992	10248138
10093348	10185834	10246035	10247173	10248714
10093350	10192051	10246036	10247253	10248715
10093648	10222545	10246041	10247224	10248734
10100621	10227490	10246130	10247228	10248847
10103253	10229475	10246155	10247456	

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10110550	10232224	10246260	10247530
10124002	10233899	10246301	10247740
10129097	10233900	10246402	10247771

PROBABILISTIC RISK/SAFETY ASSESSMENTS

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PRA-PFN001	Primary Containment Pedestal Cavity	1
PRA-PFN002	Primary Containment Safety/Relief Valves and Tailpipe Vacuum Breakers	1
PRA-PFN003	Primary Containment Vent Lines and Vacuum Relief Systems	0
PRA-PFN004	Primary Containment Drywell and Wetwell	1
PRA-PFN005	Secondary Containment Reactor Building and Steam Tunnel	1
PRA-PFN006	Secondary Containment Torus Area	1
PRA-PFN007	Containment Venting and Standby Gas Treatment System	1
PRA-SN002	Containment Isolation System	1
PRA-SN006	Electrical Power System	1
PRA-SN021	Standby Gas Treatment System	2
PSA-ES022	Containment Bypass Due to a High-Energy Line Break Inside Containment	0

PROBABILISTIC RISK ASSESSMENT SYSTEM NOTEBOOKS

<u>Number</u>	Title	<u>Revision</u>
PRA-PFN005	Secondary Containment Reactor Building and Steam Tunnel	1
PRA-PFN007	Containment Venting and Standby Gas Treatment System	1
PRA-SN002	Containment Isolation System	1
PRA-SN006	Electric Power System	1

PROCEDURES

Number	<u>Title</u>	<u>Revision</u>
<u>0.10</u>	Operating Experience Program	11
0.5	Conduct of the Problem Identification and Resolution Process,	37
0.5.BCO	Basis for Continued Operation	2
0.5.NAIT	Corrective Action Implementation and Nuclear Action Item Tracking	17
0.5.OPS	Operations Review of Notifications/Operability Determinations	15
0.5.PIR	Problem Identification, Review, and Classification	10
0.5.TRND	Trending of Problem Identification Report Results	1
0.8	10CFR50.59 Reviews	11
1.7	Warehouse Storage	16
1.8	Warehouse Goods Issue, Return, and Shipping	34
1.6	Warehouse Marking and Tagging	13
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6.PC.207	Torus to Drywell Vacuum Breaker Operation, Revision	4
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PROCEDURE CHANGE REQUESTS

Number	<u>Title</u>	Dated
2.2.24A	250 Volt DC Power Checklist	June 19, 2000
2.2.24.1	250 Volt DC Electrical System (Division 1)	February 21, 2000
2.2.24.1	250 Volt DC Electrical System (Division 1)	March 28, 2000
2.2.24.1	250 Volt DC Electrical System (Division 1)	August 6, 2001
2.2.24.1	250 Volt DC Electrical System (Division 1)	December 2, 2001
2.2.24.1	250 Volt DC Electrical System (Division 1)	April 2, 2002
2.2.24.2	250 Volt DC Electrical System (Division 2)	February 21, 2000
2.2.24.2	250 Volt DC Electrical System (Division 2)	March 28, 2000
2.2.24.2	250 Volt DC Electrical System (Division 2)	June 12, 2001
2.2.24.2	250 Volt DC Electrical System (Division 2)	August 6, 2001
2.2.24.2	250 Volt DC Electrical System (Division 2)	December 2, 2001
2.2.24.2	250 Volt DC Electrical System (Division 2)	April 2, 2002
2.2.24.2	250 Volt DC Electrical System (Division 2)	March 12, 2003
2.2.25A	125 Volt DC Power Checklist	June 26, 2000
2.2.25A	125 Volt DC Power Checklist	February 1, 2001
2.2.25A	125 Volt DC Power Checklist	August 27, 2001
2.2.25A	125 Volt DC Power Checklist	February 11, 2002
2.2.25.1	125 Volt DC Electrical System (Division 1)	February 21, 2000
2.2.25.1	125 Volt DC Electrical System (Division 1)	December 2, 2001
2.2.25.1	125 Volt DC Electrical System (Division 1)	February 11, 2002
2.2.25.1	125 Volt DC Electrical System (Division 1)	April 2, 2002

Number	<u>Title</u>	<u>Dated</u>
2.2.24A	250 Volt DC Power Checklist	June 19, 2000
2.2.24.1	250 Volt DC Electrical System (Division 1)	February 21, 2000
2.2.25.1	125 Volt DC Electrical System (Division 1)	October 11, 2002
2.2.25.2	125 Volt DC Electrical System (Division 2)	February 21, 2000
2.2.25.2	125 Volt DC Electrical System (Division 2)	June 12, 2001
2.2.25.2	125 Volt DC Electrical System (Division 2)	December 2, 2001
2.2.25.2	125 Volt DC Electrical System (Division 2)	April 2, 2002
2.2.25.2	125 Volt DC Electrical System (Division 2)	October 11, 2002
2.2.26	24 Volt DC Electrical System (Division 2)	June 19, 2000
2.2.26	24 Volt DC Electrical System (Division 2)	October 30, 2000
2.2.26	24 Volt DC Electrical System (Division 2)	October 25, 2002
2.2.26	24 Volt DC Electrical System (Division 2)	November 1, 2002
2.2.26	24 Volt DC Electrical System (Division 2)	November 15, 2002
2.2.26A	24 Volt DC Power Checklist	June 19, 2000
2.2.60	Primary Containment Cooling and Nitrogen Inerting System	May 2, 2000
2.2.60	Primary Containment Cooling and Nitrogen Inerting System	September 13, 2000
2.2.60	Primary Containment Cooling and Nitrogen Inerting System	October 19, 2000
2.2.60	Primary Containment Cooling and Nitrogen Inerting System	March 8, 2001
2.2.60	Primary Containment Cooling and Nitrogen Inerting System	May 10, 2001
2.2.60	Primary Containment Cooling and Nitrogen Inerting System	November 16, 2001
2.2.60	Primary Containment Cooling and Nitrogen Inerting System	May 8, 2002
2.2.60	Primary Containment Cooling and Nitrogen Inerting System	May 27, 2002

<u>Number</u>	<u>Title</u>	Dated
2.2.24A	250 Volt DC Power Checklist	June 19, 2000
2.2.24.1	250 Volt DC Electrical System (Division 1)	February 21, 2000
2.2.60A	Primary Containment Cooling and Nitrogen Inerting System Component Checklist	May 1, 2001
2.2.60A	Primary Containment Cooling and Nitrogen Inerting System Component Checklist	February 12, 2003
2.2.60B	Primary Containment Cooling and Nitrogen Inerting System Instrument Valve Checklist	June 26, 2000
2.2.60.1	Containment H ₂ /O ₂ Monitoring Systems	September 11, 2000
2.2.60.1	Containment H ₂ /O ₂ Monitoring Systems	February 7, 2001
2.2.60.1	Containment H ₂ /O ₂ Monitoring Systems	July 6, 2001
2.2.60.1	Containment H ₂ /O ₂ Monitoring Systems	April 6, 2002
2.2.60.1	Containment H ₂ /O ₂ Monitoring Systems	May 7, 2002
2.2.61	Primary Coolant Leakage Detection System	April 12, 2000
2.2.61	Primary Coolant Leakage Detection System	March 8, 2001
2.2.61A	Primary Coolant Leakage Detection System Component Checklist	June 26, 2000
2.2.61A	Primary Coolant Leakage Detection System Component Checklist	May 1, 2001
2.2.61A	Primary Coolant Leakage Detection System Component Checklist	February 27, 2003
2.2.61A	Primary Coolant Leakage Detection System Component Checklist	March 9, 2003
2.2.63	Plant Management Information System Uninteruptible Power Supply System	August 6, 2001
2.2.63	Plant Management Information System Uninteruptible Power Supply System	October 22, 2002
2.2.63	Plant Management Information System Uninteruptible Power Supply System	November 27, 2002
2.2.63A	Plant Management Information System Uninteruptible Power Supply System Component Checklist	July 19, 2001
2.4PC	Primary Containment Control	March 8, 2001

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<u>Number</u>	<u>Title</u>	Dated
2.2.24A	250 Volt DC Power Checklist	June 19, 2000
2.2.24.1	250 Volt DC Electrical System (Division 1)	February 21, 2000
2.4PC	Primary Containment Control	April 30, 2001
2.4PC	Primary Containment Control	July 12, 2001
2.4PC	Primary Containment Control	December 16, 2002
2.4PC	Primary Containment Control	April 10, 2003
5.3DC125	Loss of 125 Volt DC	October 18, 2001
5.3DC125	Loss of 125 Volt DC	June 5, 2002
5.3DC125	Loss of 125 Volt DC	November 14, 2002
5.3DC125	Loss of 125 Volt DC	December 12, 2002
5.3DC125	Loss of 125 Volt DC	April 2, 2003
5.3DC125	Loss of 125 Volt DC	April 10, 2003
5.8.7	Primary Containment Flooding/Spray Systems	April 19, 2000
5.8.7	Primary Containment Flooding/Spray Systems	August 17, 2000
5.8.7	Primary Containment Flooding/Spray Systems	October 5, 2000
5.8.7	Primary Containment Flooding/Spray Systems	May 8, 2001
5.8.7	Primary Containment Flooding/Spray Systems	April 2, 2003
5.8.17	Primary Containment Venting	July 6, 2001
5.8.18	Primary Containment Venting for Primary Containment Pressure Limit, Pressure Suppression Pressure, or Primary Containment Flooding	April 14, 2000
5.8.18	Primary Containment Venting for Primary Containment Pressure Limit, Pressure Suppression Pressure, or Primary Containment Flooding	April 17, 2001
5.8.18	Primary Containment Venting for Primary Containment Pressure Limit, Pressure Suppression Pressure, or Primary Containment Flooding	November 7, 2001
5.8.21	Primary Containment Venting and Hydrogen Control (Less than Combustible Limits)	October 30, 2000
5.8.22	Primary Containment Venting and Hydrogen Control (Greater than Combustible Limits)	October 30, 2000

<u>Number</u>	<u>Title</u>	Dated
2.2.24A	250 Volt DC Power Checklist	June 19, 2000
2.2.24.1	250 Volt DC Electrical System (Division 1)	February 21, 2000
5.8.22	Primary Containment Venting and Hydrogen Control (Greater than Combustible Limits)	November 7, 2001
5.9H2O2	Primary Containment Combustible Gas Control (Severe Accident Guideline Number 3)	March 22, 2000

OPERABILITY EVALUATIONS

<u>Number</u>	<u>Title</u>	<u>Date or</u> <u>Revision</u>
93-000-047	Fire Door Evaluation	November 17, 1993
4-00683	Containment Structure and Spray Valves	Revision 00
4-08041	Containment Structure and Spray Valves	Revision 00
4-08332	Containment Structure and Spray Valves	Revision 00
4-09592	Residual Heat Removal-PS-119A-D	May 26, 2000
4-10631	Primary Containment Oxygen Concentration	July 31, 2000
4-12618	Standby gas treatment-AOV-270AV	November 17, 2000
4-12745	125/250 Volt DC Batteries	November 27, 2000
4-13618	125 Volt DC Batteries	March 1, 2001
4-13806	Torus Shell	September 17, 2001

SELF-ASSESSMENTS

SA-01-005, ASME Section XI Inservice Testing (IST) Program SA-01-006, Motor Operated Valve (MOV) Program SA-02-012, Design Modifications SA-02-026, Appendix J Program

SETPOINT CHANGES

- 82-017, Pump Around Discharge Overpressure Protection Sutorbuilt Blower 1B
- 82-018, Pump Around Discharge Overpressure Protection Sutorbuilt Blower 1A
- 84-03, Torus Water Temp. Recorder
- 85-11, Drywell Hi/Lo Pressure Alarm
- 85-12, Suppression Chamber Pressure Recorder
- 88-38, Primary Containment Hydrogen and Oxygen Monitor Oxygen Alarm
- 88-39, Primary Containment Hydrogen and Oxygen Monitor Oxygen Alarm
- 88-59, Primary Containment Hydrogen and Oxygen Monitor Hydrogen Alarm
- 89-05, Drywell Zone 2C Temperature Alarm
- 90-07, Drywell Temperature Zone 1 Recorder and Annunciator
- 90-08, Drywell Temperature Zone 1 Recorder and Annunciator
- 92-057, Torus Hard Pipe Vent Pressure Switch
- 92-065, Suppression Chamber Reactor Building Vacuum Breakers
- 93-026, Suppression Chamber Hi/Lo Alarm Narrow Range
- 94-23, Primary Containment High Pressure

98-01, Suppression Chamber Hi/Lo Alarm - Narrow Range

98-10, Drywell High Pressure - Reactor Scram, Groups 2 and 6 Isolation & Emergency Diesel Generator Start

98-11, Drywell High Pressure - High Pressure Coolant Injection, Core Spray, and Residual Heat Removal (Low Pressure Coolant Injection Mode) Initiation, N/A

98-12, Drywell High Pressure - Reactor Scram, Groups 2 and 6 Isolation & Emergency Diesel Generator Start, N/A

2000-016, Containment Spray Drywell Permissive Interlock Pressure Switches, N/A

TEMPORARY CONFIGURATION CHANGES

4301609, "Locked Open Device for Mechanical Overspeed Trip Butterfly Valve on Diesel Generator No. 1," Revision 1

4287004, "Temporary Repair of Equipment Drain Line Leak," Revision 0

TESTING REPORTS

Procedure	<u>Title</u>	Dated
6.PC.205	Instrument Line Excess Flow Check Valve Test	April 9, 2003
6.PC.302	Calibration Test Results	July 24, 2002
6.1SGT.401	Standby Gas Treatment A Fan Capacity Test, Standby Gas Treatment B Cooling Flow Test and Check Valve IST (Division 1)	December 1, 2001
6.1SGT.401	Standby Gas Treatment A Fan Capacity Test, Standby Gas Treatment B Cooling Flow Test and Check Valve IST (Division 1)	March 7, 2003
6.2EE.305	Distribution System Breaker Alignment (Division 1)	March 2, 2003
6.2EE.305	Distribution System Breaker Alignment (Division 1)	April 6, 2003
6.2EE.305	Distribution System Breaker Alignment (Division 2)	December 7, 2002
6.2EE.305	Distribution System Breaker Alignment (Division 2)	January 5, 2003
6.2EE.305	Distribution System Breaker Alignment (Division 2)	February 2, 2003
6.2EE.305	Distribution System Breaker Alignment (Division 2)	March 2, 2003
6.2EE.305	Distribution System Breaker Alignment (Division 2)	April 6, 2003
6.2EE.601	125Volt /250Volt Station and Diesel Fire Pump Battery 7 Day Check	March 2, 2003
6.2EE.602	125Volt /250Volt Station and Diesel Fire Pump Battery 92 Day Check	March 21, 2003
6.2EE.603	125Volt Battery Service Test	April 21, 2003
6.2EE.604	125Volt Battery Charger Performance Test	August 7, 2002

Procedure	<u>Title</u>	Dated
6.2EE.605	250Volt Battery Service Test	March 22, 2003
6.2EE.606	250Volt Battery Charger Performance Test	April 21, 2003 4/21/03
6.2EE.607	125Volt Station Battery Performance Discharge Test	December 14, 2001
6.2EE.608	250Volt Station Battery Performance Discharge Test	December 8, 2001
6.2EE.609	125Volt /250Volt Station Battery. Intercell Connection Testing	March 12, 2003
6.2EE.609	125Volt /250Volt Station Battery. Intercell Connection Testing	March 15, 2003
6.2EE.610	Off-Site AC Power Alignment	March 2, 2003
6.2EE.610	Off-Site AC Power Alignment	April 6, 2003
6.2EE.611	125V/250V Battery Cell and Rack Examination	July 25. 2002
6.2EE.611	125V/250V Battery Cell and Rack Examination	October 23, 2002
6.2EE.611	125V/250V Battery Cell and Rack Examination	January 15, 2003
6.2SGT.401	Standby Gas Treatment B Fan Capacity Test, Standby Gas Treatment A Cooling Flow Test and Check Valve IST (Division 2)	December 1, 2001
6.2SGT.401	Standby Gas Treatment B Fan Capacity Test, Standby Gas Treatment A Cooling Flow Test and Check Valve IST (Division 2)	March 6, 2003

TRAINING MANUALS

<u>Number</u>	<u>Title</u>	<u>Revision</u>
COR002-03-02	OPS Containment	16
COR002-03-02	OPS DC Electrical Distribution	21
COR002-03-03	Containment	5
COR002-07-02	OPS DC Electrical Distribution	21

COR002-07-03 DC Distribution

WORK ORDERS

00-1125	4175512	4261312
00-1264	4230577	4263826
00-1265	4235345	4274285
00-1266	4235345	4278260
00-1267	4235346	4299173
00-2031	4235346	

10 CFR 50.59 EVALUATIONS

1993-024, Diesel Generator Upgrades, Revision 0

1993-0050, Appendix J Testing in the Accident Direction, dated August 25, 1995

- 2001-0013, DC 91-121A, Installation of 69kV Capacitor Bank, Revision 0
- 2001-0017, Controllers Modification CED 2001-0017, Revision 2
- 2001-0044, EE01-035 Equipment Qualification Temperature Profile in Containment based on Small Steam Line Break and Design Basis Accident-Loss of Coolant Accident, Revision 0
- 2002-0008, Implementation of NLS2001064 (Amendment 192) via EE 01-023, Revision 0
- 2003-0006, TCC4301609 Lock Open Device for Mechanical Overspeed Butterfly Valve on DG No.1, Revision 0

10 CFR 50.59 SCREENINGS

Revision of Calculation NEDC 02-026 for Issue as a Status 1 Document.

- CED 1998-0179, Upgrade of Air Supply to Control Valves HV-SOV-(SPV-259) and HV-SOV-(SPV-261), dated December 5, 1998
- CED 2000-0098, Installation of Washers on Torus to Drywell Vacuum Breakers, dated April 11, 2000
- CED 6008504, Replacement Evaluation for AS-V-112 and AS-V-209, dated December 3, 2002

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- Engineering Evaluation 01-080, Effect of Loss of Coolant Accident & Small Steam Line Break Accident Conditions on Drywell Fan Cooling Units and Containment Penetration Piping for Closure of Generic Letter 96-06, Revision 0
- Engineering Evaluation 02-014, Evaluation for the Use of either Service Water Pump Discharge or River Well Pump Discharge as the Normal Supply for the Gland Water System for the Service Water Pumps, Revision 0
- Engineering Evaluation EE 02-047, Permanent Change Documenting Belzona Coating of Specific Internal Areas of Service Water Pump Intermediate and Lower Columns, Revision 0
- Engineering Evaluation 02-070, Develop an Engineering Evaluation to Change the High Cooling Water Temperature Alarm Ronan Setpoint from 140 degrees to 250 degrees F," Revision 0

Engineering Evaluation 02-079, Effect of Removal and Replacement of Snubber, Revision 0

MP 97-039, Thermal Overpressure Protection X-18, X-19, and X-20, April 23, 1997

- Procedure 13.15.1, Reactor Equipment Cooling Heat Exchanger Performance Analysis, Revision 19
- Procedure 2.2.69, Residual Heat Removal System, Revision 58

Procedure 13.17, Residual Heat Removal Heat Exchanger Performance Testing, Revision 9

Temporary Configuration Change 4287004

MISCELLANEOUS DOCUMENTS

Updated Safety Analysis Report, dated February 28, 2003

Technical Specifications, Amendment 198

Critical AC Bus Coordination Study, dated May 1994

List of Environmentally Qualified Components in Primary Containment and Electrical DC

Master Equipment List (EQ) for Primary Containment Components, Revision 20.

- Report of the Fire Endurance and Hose Stream Testing of Two Single, Fire Rated Door Assemblies with Excessive Clearances Installed in a Concrete Block Wall Cooper Nuclear Station Plant Engineering Department System Health Report, dated March 2003
- NPPD Letter NLS20022122, 10CFR50.59(d)(2) Summary Report Cooper Nuclear Station NRC Docket No. 50-298, DPR-46, dated October 17, 2002

- NPPD Letter CNSS877236, from NPPD to USNRC Regarding NPPD Response to Generic Letter 87-05, dated May 12, 1987
- NPPD Memo from Radloff to Fleming Regarding Evaluation of Commitments Associated with Generic Letter 87-05, dated March 20, 2003
- White Paper, Current Condition of the 250 Volt DC Station Batteries Related to the Five Under Charged Cells, dated April 11, 2003
- Facsimile, 2001 from Flowserve Co. to NPPD Regarding 20 inch Series 300 y-Globe Lift Check Valves, dated August 30
- C&D Technical Manual For LCR And LCY Batteries
- Purchase Order 4500014228
- 5.1.3.1, TIP Action Plan External Regulatory Communications, Revision 2a
- 5.3.3.1, TIP Action Plan Design Basis Information/Licensing Basis Information (DBI/LBI) Translation Project, Revision 2
- License Amendment No. 187, Cooper Nuclear Station Issuance of Amendment Regarding Revised Radiological Dose Assessment and Technical Specification Changes (TAC NO. MB1419), dated October 23, 2001
- License Amendment No. 189, Cooper Nuclear Station Issuance of Amendment to revise the Technical Specifications Surveillance Test Requirement SR 3.6.1.3.8, for Excess Flow Check Valves (EFCVs) (TAC NO. MB1820), dated October 26, 2001
- License Amendment No. 192, Cooper Nuclear Station Issuance of Amendment Re: Containment Overpressure to Ensure Sufficient Net Positive Suction Head (NPSH) for the Emergency Core Cooling System (ECCS) Pumps Following a Loss-of-Coolant Accident (LOCA) (TAC NO. MB 2896), dated July 19, 2002
- Reactor Equipment Cooling Containment Isolation Requirements Position Paper, dated November 29, 1994
- Third Interval Inservice Testing Program, Revision 4
- NCR 94-057, Nonconformance Report 94-057, dated May 5, 1994
- NSL2001064, NPPD Letter Proposed Licensing Amendment, dated July 30, 2001
- PIR 4-07997, During Work on Standby Gas Treatment-AOV-AO270 it was Determined that the Valve Opened 78.38 Degrees, Versus the Required 90 Degrees, dated April 2, 2000
- PIR 4-08332, Initiation of Drywell Spray and then the Subsequent Return to Primary Containment Condition for the Drywell Spray Valves May Not Be a Function They Can Perform, dated April 11, 2000

EE-DC System Health Indicators, dated April 23, 2003

Relief Requests, Relief Requests from Inservice Inspection Requirements, dated May 19, 1983

Relief Request RV-10, Relief Request for the Exercise Frequency for Excess Flow Check Valves in the Pump and Valve Testing Program (TAC NO. MB1820), dated October 26, 2001

Safety Evaluation Report 9.3.2, Reactor Building Closed Cooling Water System (RBCCWS)