



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064**

November 2, 2000

EA-00-226

J. H. Swailes, Vice President of
Nuclear Energy
Nebraska Public Power District
P.O. Box 98
Brownville, Nebraska 68321

**SUBJECT: COOPER NUCLEAR STATION - NRC INSPECTION REPORT NO. 50-298/00-10
AND NOTICE OF VIOLATION**

Dear Mr. Swailes:

On August 25, 2000, the NRC completed a team inspection at the Cooper Nuclear Station facility. The enclosed report presents the results of this inspection. We discussed the preliminary results of the onsite inspection on August 25, 2000, with members of your staff. On September 21, 2000, we conducted a telephonic exit meeting with you and members of your staff, to inform your staff of the results of the in-office review following the team's departure from the site.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations, and the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities and interviews with personnel.

The NRC determined that three violations of NRC requirements occurred. Primarily, the underlying issues associated with these violations involved multiple instances of: (1) failure to initiate problem identification and condition reports (2) failure to perform operability determinations, (3) failure to implement timely corrective actions, and (4) failure to implement fully effective corrective actions. These issues have been entered into your corrective action program and are discussed in the summary of findings and in the body of the enclosed inspection report. Of the three violations, two are not being cited because of their very low risk significance. These two violations are being treated as Non-cited Violations, consistent with Section VI.A of the Enforcement Policy. If you contest these Non-Cited Violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the 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, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Cooper Nuclear Station facility.

The other violation of NRC requirements is being cited (EA-00-226) and is incorporated into this inspection report as Enclosure 1. The violation is being cited in accordance with NUREG-1600, "NRC Enforcement Policy," Section VI.A.1a, because corrective action to restore compliance to a safety-related system was not accomplished in a prompt manner. Specifically, neither the inadequate maintenance procedure nor the nonconforming high pressure coolant injection system operating panels had been corrected. This item was previously designated as a Non-cited Violation in NRC Inspection Report 50-298/99-16, dated January 20, 2000.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

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/NRC/ADAMS/index.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/

John L. Pellet, Chief
Operations Branch
Division of Reactor Safety

Docket No.: 50-298
License No.: DPR-46

Enclosures:
Notice of Violation
NRC Inspection Report No.
50-298/00-010

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Nebraska Public Power District

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ENCLOSURE 1

NOTICE OF VIOLATION

Nebraska Public Power District
Cooper Nuclear Station

Docket No.: 50-298
License No.: DPR 46
EA-00-226

During an NRC inspection conducted on August 21, 2000, through September 21, 2000, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

Criterion XVI of 10 CFR Part 50, Appendix B, states, in part, that measures shall be established to assure that conditions adverse to quality and nonconformances are promptly corrected.

Contrary to the above, as of September 21, 2000, the licensee's measures did not assure that a nonconformance was promptly corrected. Specifically, the high pressure coolant injection system environmentally qualified protective operating panels were not secured against their gaskets; although, this nonconformance had been identified on November 30, 1999. Additionally, corrective actions to revise maintenance procedures to address environmental qualification aspects of maintenance had not been implemented nor had an analysis to evaluate the discrepant condition been performed.

This violation is associated with a green SDP finding (50-298/0010-03).

Pursuant to the provisions of 10 CFR 2.201, Nebraska Public Power District is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 2nd day of November 2000

ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-298
License No.: DPR 46
Report No.: 50-298/00-10
Licensee: Nebraska Public Power District
Facility: Cooper Nuclear Station
Location: P.O. Box 98
Brownville, Nebraska
Dates: August 21 through September 21, 2000
Inspector: T. O. McKernon, Senior Operations Engineer, Operations Branch
A. T. Gody Jr., Senior Resident Inspector, Projects Branch A
J. A. Clark, Senior Resident Inspector, Project Branch
R. L. Bywater Jr., Senior Resident Inspector, Projects Branch D
G. E. Werner, Operations Engineer, Operations Branch
Approved By: J. L. Pellet, Chief
Operations Branch
Division of Reactor Safety

ATTACHMENTS:

Attachment 1: Supplemental Information
Attachment 2: Initial Material Request
Attachment 3: NRC's Revised Reactor Oversight Process

SUMMARY of FINDINGS

IR 05000298-00-010; on 08/21-09/21/2000; Nebraska Public Power District; Cooper Nuclear Station; Identification and Resolution of Problems Report; Identification and Resolution of Problems; Mitigating Systems.

The inspection was conducted by a regional-based team inspection, which consisted of three senior resident inspectors and two regional operations engineers. This inspection identified three green findings, two of which are being treated as Non-Cited Violations and the third as a Cited Violation. The significance of the findings is indicated by their color (green, white, yellow, red), and was determined by the Significance Determination Process.

Cross-cutting Issues: Identification and Resolution of Problems

- While the team did not identify any safety significant issues, a number of violations, findings, and issues in the identification and resolution of problems program were identified. Primarily, these issues were in areas of problem identification, evaluation of issues and their impact on the operating plant, determinations of the extent of conditions, and timeliness of implementing corrective actions. Based on the interviews conducted during the inspection, workers at the site felt free to input safety issues into the Problem identification and resolution program (Section 4OA2.1b;2b;3b;4b).

Cross-cutting Issues: Identification and Resolution of Problems

- Green. The licensee did not take timely corrective actions for restoration of environmentally qualified electrical and controls equipment control panels for the high pressure coolant injection system, which were not properly secured. Furthermore, the licensee did not implement measures through maintenance procedure revisions and corrective actions to address environmental qualification aspects of maintenance on safety-related equipment. This issue had previously been identified as a Non-Cited Violation in NRC Inspection Report 50-298/9916-01, yet actions to revise maintenance procedures and restore compliance had not been promptly taken and continued to be uncorrected 9 months after initial identification. No formally reviewed and approved analysis had been performed to justify not correcting the discrepant condition, which could affect equipment operability. Nonconformance conditions are required to be promptly corrected or sufficient interim compensatory measures established, or technical evaluations performed to justify the existing condition. The failure to establish prompt corrective actions for conditions adverse to quality was a violation of 10 CFR Part 50, Appendix B, Criterion XVI (50-298/0010-03) (Section 4OA2.3.b).

This issue was characterized as a green finding using the significance determination process. The issue was determined to have very low risk significance because of redundant systems and the actual impact on the affected equipment was low.

Cornerstone: Mitigating Systems

- Green. Eleven examples of failure to follow required procedures were identified. The majority involved failure to perform operability evaluations as required by Procedure 0.5.OPS and parent Procedure 0.5, "Conduct of Problem Identification and Resolution Process." One example was for not performing an operability determination for the "D" diesel-driven fire water pump associated with the failure of an engine cooling system raw water solenoid valve to stroke during a surveillance test. Failure to follow Procedure 0.5 OPS was a violation of Technical Specification 4.5.1.a. This violation is being treated as a Non-Cited Violation in accordance with Section VI.A of the NRC Enforcement Policy. This issue was entered into the licensee's corrective action program as Problem Identification Report 4-11393 (50-298/0010-01)(Section 4OA2.1.b).

This issue was characterized as a green finding using the Significance Determination Process. It was determined to have very low risk significance because the system remained operable in the examples identified or the specific example had been previously addressed by the Significance Determination Process at this level.

Cornerstone: Mitigating Systems

- Green. The licensee failed to establish an adequate work control procedure because it did not contain the requirement to establish a basis for deferring corrective maintenance on Valve HPCI-MOV-MO19 for degraded conditions (i.e., degraded grease in motor-operator valve motor actuators) beyond the next refueling outage. Generic Letter 96-07, "Periodic Evaluation of Motor Operated Valves," provided evaluation guidance for degraded grease and the impact on motor operated valve operability. However, no technical evaluation or justification was performed for deferral of the corrective maintenance. The issue was placed into the licensee's corrective action program as Problem Identification Report 4-11043. This violation of 10 CFR Part 50, Appendix B, Criterion V, is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy (50-298/0010-02) (Section 4OA2.2.b).

This issue was characterized as a green finding using the Significance Determination Process. It was determined to have a very low risk significance because alternate means for safe shutdown and cooldown were available for the degraded deferred components and the valve passed its last refueling outage surveillance tests.

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

.1 Effectiveness of Problem Identification

a. Inspection Scope

The team interviewed plant personnel to ascertain how the problem identification and resolution process was being implemented by plant staff and how well the process and its' objectives were understood and accepted.

The team reviewed the entire open work order backlog (approximately 750 items) and selected a sample of approximately 100 work orders, which potentially represented degraded or nonconforming plant conditions. The open work orders were reviewed to ascertain if the degraded or nonconforming condition was placed into the corrective action program as a problem identification report, then dispositioned and resolved appropriately. Other items were reviewed to ascertain whether operability determinations were sufficiently addressed. Specific items reviewed are included in Attachment 1 to this report.

b. Issues and Findings

The team determined that while a large volume of problem identification reports had been entered into the program during the past year, there were a number of instances of problems identified by the licensee but not entered into the program. Further, the team identified other instances in which licensee issues, identified through other processes, were not captured in the official corrective action process. One green finding with multiple examples was identified.

CNS Operations Manual Administrative Procedure 0.5.SUPV, "Supervisory Review of Problem Identification Reports," Revision 0, provided guidance and direction for supervisory or management review of problem identification reports and for the identification of appropriate work item categories for condition resolution. Work items did not require an operations review unless the supervisor determined the issue warranted it. Procedure 0.5.SUPV described that issues warranting an operations review involved problems or deficiencies of equipment (systems, structures, or components). The inspectors were informed by the licensee that regardless of the actual procedural requirements, each problem identification report is reviewed by a licensed senior operator. Additionally, Procedure 0.5.OPS required that an operability determination be performed if a condition existed, which could directly or indirectly affect the operability of a structure, system, or component. Both procedures were subordinate

to Procedure 0.5, "Conduct of Problem Identification and Resolution Process." The NRC inspectors identified numerous instances in which required operability determinations were not performed or issues were not considered for their impact on the plant, as required by the licensee's procedures. For example:

- Problem Identification Report 4-10703 identified the failure of a solenoid valve to close following a surveillance test of the 'D' diesel-driven fire pump on August 3, 2000. The solenoid valve provided raw water to the cooling system of the engine and only closed following additional operator actions. After discussions with the team, the licensee agreed that the basis for why no Operability Determination was performed was weak and, therefore, performed an Operability Determination on August 25, 2000, which documented that failure of the solenoid valve to open (its only required function) was not a credible failure mode for the condition documented in this problem identification report. Procedure 0.5.OPS required that an Operability Determination be performed for degraded conditions of structures, systems, or components where functionality is called into question. The failure to perform an Operability Determination for Problem Identification Report 4-10703 was identified as an example of a failure to follow Procedure 0.5 OPS, a violation of Technical Specification 5.4.1.a (50-298/0010-01). This violation is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy. The licensee entered this and other similar issues into the corrective action program as Problem Identification Report 4-11393.
- Problem Identification Report 4-10807 identified on August 10, 2000, that 2.5 feet of insulation on the 'A' standby liquid control system suction piping was ripped open. The operations review concluded that the system was operable and that no operability determination was required because, "Temperatures meet Tech Spec acceptance criteria." The team concluded that the facts documented in the supervisory review section were the basis for considering why the standby liquid control system was operable in its degraded condition, and that this should have been addressed in an operability determination as required by Procedure 0.5.OPS. The failure to perform a required operability determination was identified as another example of Violation 50-298/0010-01.
- Problem Identification Report 4-10939 identified on August 16, 2000, that the 'C' residual heat removal service water booster pump wear ring injection flow was out of specification low. The supervisory review indicated that no operations review of the problem identification report was required, but stated in the Basis for Operations Review Section that, "Gland water is being supplied to Tech Spec equipment." A work control center senior operator reviewed the problem identification report and also concluded that no operations review was required, but documented that, "Wear ring injection flow is not needed for an operative pump, Reference DCD for RHRSW booster pump." However, the team concluded that this information was appropriate input for an operations review and operability determination that should have been performed as required by Procedure 0.5.OPS. This was another example of Violation 50-298/0010-01.

- Problem Identification Report 4-07976 indicated that the grease samples from the high pressure coolant injection isolation Valve HPCI-MOV-MO19 did not meet the acceptance criteria of Procedure 7.2.50.1, Step 4.3.2. This deficiency was properly noted in the work instructions and a problem identification report was appropriately written. The supervisory review included a statement that the actuator should be reviewed by the motor-operated valve program engineer to determine if it was acceptable to wait until the next refueling outage for repairs. The required control room operability evaluation was not performed. This was another example of Violation 50-298/0010-01. The valve was considered operable because it passed the refueling outage surveillance test.
- Problem Identification Report 4-10527 was initiated to document the failure of boiler room Ventilator Fan HV-VENT-(RV-BR-1C) on July 18, 2000. This event could have seriously injured personnel in the area, however, the problem identification report was initiated as a "work instruction only" problem identification report. Procedure 0.5.CLSS identified that problem identification reports that document events which could have resulted in personnel hazards or equipment damage are required to be dispositioned with a resolve condition report-apparent cause. The failure to follow Procedure 0.5 CLSS and its parent Procedure 0.5 was considered a violation. This was another example of Violation 50-298/0010-01.

Additional examples of Violation 50-298/0010-01, "Failure to Follow Procedures," were identified (e.g., Problem Identification Reports 4-10714, "Slow Control Rod Insertion"; 4-10639, "River Well Supply Water Line Obstructed"; 4-10603, "Low Service Water Pump Gland Flow"; and 4-08057,"Industry Events").

On January 15, 2000, operators failed to enter a condition adverse to quality into the corrective action program. The inspectors noted that the operators were conducting a plant startup when Control Rod 42-19 exhibited excessive rod speed. This was indicated by rod drift alarms and the multiple notching of the control rod. The operators noted the abnormal condition but failed to identify an operability concern with this control rod and to take Technical Specification 3.1.3 required actions to fully insert and disarm the control rod, based upon inoperability for reasons other than sticking. The inspectors noted that a Non-Cited Violation of NRC requirements was issued in a previous inspection report for the failure to follow technical specifications (50-298/0006-03). While this issue was resolved through corrective actions to the Non-Cited Violation, the inspectors also noted that this was an example in which the licensee failed to identify a condition adverse to quality, and write a significant or resolve condition report and process the issue through the problem identification and resolution program.

On January 11, 2000, while attempting to close reactor recirculation Loop 'A' isolation Valve RR-MOV-MO53A to place Residual Heat Removal Loop 'A' shutdown cooling in service, a 250 Vdc bus ground fault was received, which cleared when Valve RR-MOV-MO53A was de-energized. No problem identification report was written for this issue. After a subsequent failure to open, the licensee wrote Problem Identification Report 4-06125, dispositioned it as a work item, and subsequently closed it with no operability determination conducted. On March 4, 2000, during a planned refueling outage shutdown, Valve RR-MOV-53A failed to close on demand while

attempting to place residual heat removal Loop 'A' shutdown cooling in service. The licensee's failure to conduct an operability determination for this issue was determined to be a Non-Cited Violation of Technical Specification 5.4.1(a) in NRC Inspection Report 50-298/00-04. The risk exposure for this fault was assessed in NRC Inspection Report 50-298/00-04 and determined to have low risk significance. The licensee documented these issues in its corrective action process as Problem Identification Report 4-07643. This example highlighted several issues: (1) the licensee failed to place a degraded condition into the problem identification and resolution process on January 11, 2000, (2) the licensee inappropriately dispositioned Problem Identification Report 4-07643 as a work item in lieu of performing an operability determination, and (3) the maintenance work request written for Problem Identification Report 4-07643 was closed as "trend-for-now" based on engineering recommendations.

Finally, on March 29, 2000, the licensee failed to enter a human error condition into the corrective action process. A human error review board was conducted to investigate problems where an incorrect control rod hydraulic control unit was tagged for maintenance. Operations personnel preparing for the review board noted that no problem identification report had been submitted for this problem. Subsequently, operations personnel submitted Problem Identification Report 4-07836 to enter the problem into the corrective action process.

.2 Prioritization and Evaluation of Issues

a. Inspection Scope:

The team reviewed approximately 50 significant condition reports, resolve condition reports, problem identification reports, and associated root cause analyses to ascertain whether the licensee's evaluation of the problems identified and considered the full extent of conditions, generic implications, common causes and previous occurrences. In addition, the inspectors also reviewed several work items that were deferred beyond the Spring 2000 refueling outage to ascertain if the provisions of NRC Generic Letter 91-18, "Resolution of Degraded and Non-Conforming Conditions," and 10 CFR Part 50, Appendix B, were satisfied regarding timeliness of corrective action. Specific items reviewed are listed in Attachment 1.

b. Issues and Findings:

The team determined that the licensee had not evaluated the full extent of conditions and impact on the plant in several cases. A number of processes through which discrepant conditions could bypass the identification and resolution of problems program were noted. One green finding was identified and it involved a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, for a failure to establish an adequate procedure for deferral of corrective maintenance.

Problem Identification Report 98-0493 documented that grease in Valve Actuators HPCI-MOV-MO17 and HPCI-MOV-MO58 was dark in color and possibly degrading. The inspectors found that the licensee had rescheduled the maintenance work order to refurbish the actuator from the Spring 2000 refueling outage to the next refueling outage with no formal evaluation or technical justification for the decision. Generic Letter 96-07, "Periodic Verification of Motor Operated Valves," provides guidance for evaluation of motor operated valves with degraded grease. Specifically, the

valve stem friction coefficient from the last motor operated valve static test should have been adjusted by some degradation factor and the applicable design calculation verified as still valid. Such an evaluation would have provided some assurance that the valve's stem thrust was not degraded due to increased friction resulting from the breakdown of the grease. Criterion V, Appendix B, of 10 CFR Part 50, "Instructions, Procedures, Drawings," indicates that activities affecting quality be prescribed by documented instructions, procedures, or drawings, which shall include appropriate acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to this requirement, the inspectors found that CNS Operations Manual Administrative Procedure 0.4, "Work Control," was inadequate because it did not require establishing the technical basis for deferring corrective maintenance work orders for degraded conditions beyond the next refueling outage. As such, no technical evaluation or justification was performed for the deferral of corrective maintenance. The licensee rescheduled maintenance on motor-operated valves with grease degraded beyond criteria contained in CNS Operations Manual Maintenance Procedure 7.2.50.1, Step 4.3.2, with no engineering justification or alternate acceptance criteria. This violation of 10 CFR Part 50, Appendix B, Criterion V, is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy (50-298/0010-02). The issue was placed into the licensee's problem identification and resolution program as Problem Identification Report 4-11043.

This issue was characterized as a green finding using the Significance Determination Process. It was determined to have a very low risk significance because alternate means for safe shutdown and cooldown were available for the degraded deferred components.

In another example, Resolve Condition Report 00-0250 contained a root cause analysis for the loss of vessel and cavity inventory event that occurred on March 19, 2000. The team determined that the long-term corrective actions were narrowly focused and failed to address the broader operational issue of lack of understanding of current plant conditions when releasing or restoring clearance orders. Both reactor operators used a system lineup for restoration of the clearance, but failed to look at system prints and evaluate the impact of the restoration on plant conditions. The restored system lineup allowed both divisions of residual heat removal to be cross-connected and provided a drain path from the vessel and the cavity. The root cause analysis contained written statements from the human error review board. While the review board addressed the need to use prints in addition to component lineups, the long-term corrective actions did not address this specific issue. The long-term corrective actions solely focused on the control of the two residual heat removal cross-connect valves, which should minimize the chance of additional inadvertent residual heat removal system cross-connect errors. As such, the corrective actions did not consider the full extent of the problem. The long-term corrective actions did not address the human performance issue from a programmatic aspect.

With respect to extent of condition evaluation for the previously discussed failure of Valve RR-MOV-53A to close, the inspectors identified an instance in which the licensee used an inconclusive electrical test during trouble shooting. On March 4, 2000, during a planned refueling outage shutdown, Reactor Recirculation Loop A Isolation Valve RR-MOV-53A failed to close on demand while attempting to place residual heat removal Loop 'A' shutdown cooling in service. To compensate, the operators manually closed the

valve. Resolve Condition Report 00-0164 concluded the root cause was a commutator brush assembly failure on the 250 Vdc motor powering the valve actuator. Only one other valve (Valve RR-MOV-MO53B) in the plant had the exact motor with the same approximate age. The inspectors found that the licensee's corrective actions were appropriate with one notable exception. The 150 ft-lb motor failed because more than one of the spring mounted brushes did not have sufficient pressure against the commutator. The licensee stated that this was caused by binding of the spring mechanism in one case and what appeared to be a weak spring in the other. The licensee conducted an electrical test with an oscilloscope to monitor the armature current while stroking the valve. The licensee could not produce sufficient technical justification for the test method. The inspectors reviewed oscilloscope traces and noted that the scale selected was of such a large magnitude that conditions affecting operability would not have been detected. By performing an inconclusive test, the licensee limited the extent of its condition review. Valve RR-MOV-MO53B also passed its forced outage surveillance test prior to plant startup. The licensee agreed with the observations. The issue was placed into the licensee's problem identification and resolution program as Problem Identification Report 4-11045.

With respect to condition evaluation, the inspectors observed that plant personnel used several tracking, trending, or improvement processes that identified issues, but did not enter the issues into the corrective action process. As such, the proceduralized identification and resolution of problems process was bypassed. Examples of these issues included:

- Lessons learned cards were used during outages. Licensee corrective action group personnel reviewed these cards and observed a programmatic breakdown trend in the work package planning process. This was subsequently submitted to the corrective action process through Problem Identification Report 4-07905. The inspectors reviewed this report and noted that these cards also included numerous comments about procedure inadequacies, potential operability concerns, and material deficiencies. The inspectors also noted that the initiator of many of these cards provided recommended corrective actions. For example, Lessons Learned Card 123 identified that the safety relief valves were installed without proper fasteners. The inspectors noted that an additional trip into the drywell was required to correct this problem. The inspectors noted the initiator recommended inspecting refurbished valves before entering the drywell for installation. Subsequent reviews indicated that no safety issues existed.
- Further, all the problem identification reports addressed in Section 4OA2.1.b above, "Effectiveness of Problem Identification," were "work instruction only" problem identification reports. Neither the corrective action program screening group nor the condition review group reviewed these problem identification reports for corrective action program applicability. While measures were in place through the daily plant status meetings to identify such work items, none of the subject problem identification reports were captured and entered into the corrective action program.

The practice of not screening all problem identification reports for corrective action program applicability resulted in the licensee not detecting multiple examples of problems

not entering the process for identification of root cause and corrective actions. Several of these instances had been previously identified as failures to follow procedures.

.3 Effectiveness of Corrective Actions

a. Inspection Scope:

The inspectors reviewed problem identification reports, significant condition reports, resolve condition reports, audits, and self-assessments to verify corrective actions related to the issues were identified and implemented in a timely manner, including corrective actions to address common cause or generic concerns. A listing of specific documents reviewed during the inspection is included as Attachment 1 to this report.

b. Issues and Findings:

The Inspectors concluded that the licensee had multiple examples of limited corrective action effectiveness. A number of items were identified where the licensee was untimely in its corrective action implementation. The team noted that this observation also mirrored the licensee's corrective action program performance indicators.

One green finding was identified. The inspectors identified one violation where the licensee failed to take prompt corrective action to return system or components to program compliance.

On November 30, 1999, the inspectors noted that several electrical and control equipment operating panels for the high pressure coolant injection system were designated as environmentally qualified, but did not have their protective covers securely closed against the gaskets. Additionally, the licensee did not have maintenance procedures which addressed the post-maintenance environmental qualification requirements for safety-related equipment. Inspectors previously reported the latter condition as a Non-Cited Violation of NRC requirements (50-298/9916-01). Plant personnel entered the issue into the corrective action process and initiated Resolve Condition Report 99-0927.

The inspectors noted that, at the time of this inspection, the panels remained unsecured against the gaskets. The inspectors interviewed the high pressure coolant injection system engineer. The engineer stated that there was no apparent reason why the original programmatic issues were not captured in the corrective action process, nor why the panels had not been returned to program compliance some time ago, i.e., secured. Although the initial operability evaluation determined the equipment to be operable, no formally reviewed and approved analysis existed to justify not correcting the discrepant condition. After discussion with the inspectors, the system engineer submitted Problem Identification Report 4-11023 to address these deficiencies. Finally, the inspectors noted that the inadequate maintenance procedure identified in the original violation also had not been corrected. In summary, in response to the original violation, the licensee did not establish corrective actions to restore the panels or correct the maintenance procedure. No engineering evaluation to accept the condition had been initiated.

Criterion XVI of 10 CFR Part 50, Appendix B, requires that a nonconformance be promptly identified and corrected. Contrary to the above, the high pressure coolant injection system panels were not restored to compliance with the environmental qualification program requirements, maintenance procedures were not revised, and no analyses of the condition was performed for approximately 9 months (EA-00-226). The failure to restore conformance and compliance of the above safety-related components to NRC requirements promptly is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, requirements (50-298/0010-03).

The inspectors characterized this issue as a green finding. The associated risk was considered of very low significance because of redundant systems and the actual impact on the affected equipment was low.

The team identified other examples of limited corrective action effectiveness primarily related to corrective action timeliness and adherence to process requirements. Additional examples included:

- On March 23, 2000, the inspectors observed that there were no 10 CFR Part 50, Appendix R, "Fire Protection," emergency lighting units in the vestibule along the path to and from the service water room. The inspectors had previously identified this item as a Non-Cited Violation of NRC requirements (50-298/0004-01). The license entered the issue into the corrective action program under Problem Identification Report 4-07684. Plant personnel generated Resolve Condition Reports 00-0295 to evaluate and correct this problem.

At the time of this inspection, the inspectors noted that a root-cause determination for Resolve Condition Reports 00-0295 had been conducted. However, installation of an emergency light was awaiting engineering review. The lack of an emergency light in the service water vestibule meant the nonconformance continued for approximately 6 months. While the licensee indicated that compensatory measures (i.e., use of flashlights) had been established, no documentation existed by which this could be verified. The inspectors sampled equipment operators in the plant to verify that they routinely carried flashlights and found that they did. The inspectors concluded that while actions to restore conformance were still in progress, compensatory measures taken were not documented in the problem identification report or any other manner that would identify the compensatory measures upon which the licensee was relying.

- The inspectors also noted that the licensee failed to adequately incorporate vendor information contained in Limatorque Maintenance Update 93-1 into procedures or training in 1994 when the vendor technical manual was updated. Had this information been adequately incorporated into the maintenance of motor-operated valves, corrective actions to resolve missing T-drains would have been completed in a more timely manner. The inspectors noted that this issue was further discussed as a Non-Cited Violation in NRC Inspection Report 50-298/00-07.

- During the review of Significant Condition Report 99-0746, which described the inadvertent loss of 4160V bus caused by grounding while using a Gould 220 recorder, the team determined that two of the corrective actions were not completed as approved in the report. Long-Term Action 1 was initiated to review the need for training for electricians on various portable electrical instruments, including the Gould 220 recorder. The implemented corrective actions only evaluated the Gould 220 recorder. Long-Term Action 2 indicated the need to evaluate training for the individual that prepare (engineers) and perform (maintenance personnel) troubleshooting activities. The evaluation was done for the maintenance personnel only. Training for engineers was not evaluated as required by the long-term action. Long-Term Actions 1 and 2 were changed without proper review and approval as required by Procedure 0.5. Significant Condition Report, "Preparation of Significant Condition Reports," Revision 0. The licensee initiated Problem Identification Reports 4-11051 and 4-11101 to address the incomplete corrective actions. The failure to obtain the required review and approval in accordance with Procedure 0.5. Significant Condition Report, was a violation of this requirement. This failure to follow procedures of the corrective action program was another example of Violation 50-298/0010-01.

In addition, the inspectors noted several examples of problems being identified during audits and reviews that were not entered into the corrective action program in accordance with the timeliness criteria of the licensee's problem identification and resolution process. In some cases, the initiation of a problem identification report lagged the problem identification by as much as 2 weeks. Specific examples of these observations included Problem Identification Report 4-07643 for Valve RR-MOV-53A and Problem Identification Report 4-10837 for mercury bulbs stored in unauthorized areas.

The team also reviewed the licensee's corrective action program performance indicators between June 1999 and June 2000. The performance indicators reflected that corrective action timeliness (e.g., corrective action review board success) were not meeting licensee expectations.

The team also interviewed the Maintenance Rule program supervisor and reviewed the licensee's administrative program for maintenance rule implementation with respect to accounting for equipment unavailability. All problem identification reports listed in Attachment 1 were reviewed. The inspectors identified no licensee maintenance rule implementation issues.

.4 Assessment of Safety Conscious Work Environment

a. Inspection Scope:

The inspectors interviewed 8 supervisors, 10 craft personnel, 3 performance assessors, 5 systems engineers, and 4 program managers, including the employees concerns program coordinator. These interviews assessed whether conditions existed that would challenge the establishment of a safety conscious work environment.

b. Issues and Findings:

The team identified no findings related to the assessment of safety conscious work environment during this inspection. The team concluded, based on information collected from interviews with 30 licensee personnel, that these employees were willing to identify issues and accepted the responsibility to proactively identify and enter safety issues into the corrective action program.

The inspectors noted that all individuals that were interviewed stated that the system had improved, but failed to give any other assessment of the overall program. All individuals stated that the system and management seemed receptive to problem identification. Some individuals stated that it was difficult to process issues through the program.

The inspectors also discussed similar concerns with the employee concerns program coordinator. This manager stated that, in general, people at the facility were not hesitant to bring issues forward. He further stated that some individuals may express frustration with the process but they believed that issues would eventually be resolved.

40AA6 Meetings

Exit Meeting

The team debriefed Mr. John McDonald, Plant Manager, and members of licensee's management on the preliminary inspection findings at the conclusion of the onsite inspection on August 25, 2000. The licensee's management acknowledged the findings presented.

A telephonic exit meeting was held on September 21, 2000, with Mr. John Swailes, Vice President Nuclear Energy, and other licensee staff members, during which the lead inspector characterized the results of the in-office review following the team's departure from the site.

The team asked the licensee's management whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Swailes, Vice President, Nuclear Energy
J. Montgomery, Chairman, Safety Review Assurance Board
S. Baker, System Engineer
K. Bissesbach, Quality Assurance
D. Cook, Training Manager
J. DeBartolo, Employee Concern Program Coordinator
P. Donahue, Plant Support Department
K. Dorwick, Performance Analysis Department Manager
K. Jones, Design Engineering Manager
W. Macesevic, Operations Manager

NRC

J. Pellet, Chief, Operations Branch

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

298/0010-03 VIO Failure to take prompt corrective actions (4OA2.3.b)

Opened and Closed

298/0010-01 NCV Failure to follow procedures (4OA2.1.b)
298/0010-02 NCV Failure to establish an adequate procedure (4OA2.2.b)

PARTIAL LIST OF DOCUMENTS REVIEWED

Problem Identification Reports

2-04150	4-05371	4-06012	4-07500	4-07904	4-08843	4-10639
3-52906	4-05603	4-06013	4-07765	4-07905	4-09974	4-10807
4-00014	4-05806	4-06014	4-07780	4-07976	4-10240	4-10939
4-00811	4-05917	4-06280	4-07810	4-08057	4-10434	4-10962
4-01326	4-05919	4-06632	4-07836	4-08081	4-10577	4-11023
4-02873	4-05973	4-07483	4-07838	4-08666	4-10603	4-11046
4-05029	4-06002					

Significant Condition Reports

99-0285	99-0527	99-0936	99-0936	00-0062
99-0399	99-0746	99-0936	00-0024	00-0158
99-0527	99-0801	99-0801	00-0024	00-0299

Resolve Condition Reports

99-0296	00-0151	00-0292	00-0558	00-0640
99-0927	00-0164	00-0292	00-0558	00-0644
99-0527	00-0250	00-0295	00-0590	00-0692
99-0927	00-0250	00-0295	00-0590	00-0692
00-0038	00-0284	00-0299	00-0624	00-0724
00-0151	00-0291	00-0501	00-0624	00-0724
00-0151	00-0291			

Work Orders

00-0137	00-2054	00-2229	00-2266	00-1954-57	99-0942
00-0293	00-2174	00-2230	00-2267	96-1758	99-1355
00-0400	00-2175	00-2231	00-2268	97-0818	99-2336
00-0868	00-2177	00-2235	00-2270	98-0493	99-2860
00-0960	00-2182	00-2238	00-2344	98-1550	99-3074
00-0962	00-2196	00-2254	00-2375	98-1875	99-3262
00-1022	00-2199	00-2257	00-2376	98-3345	99-3482
00-1173	00-2202	00-2259	00-2379	98-4207	99-3485
00-1174	00-2223	00-2260	00-2380	99-0688	99-1985-2003
00-1951	00-2224	00-2261	00-2381	99-0723	99-2007-2024
00-2047	00-2227	00-2263	00-2410	99-0859	
00-2051	00-2228	00-2265	00-2515	99-0928	
00-2053					

Training Work Requests

99-00381	99-00406	99-00512	00-160	00-351	00-545
99-00394	99-00407	99-00541	00-334	00-377	00-600
99-00399	99-00408	00-082	00-349		

Non-Cited Violations

0004-01
9903-01

Licensee Event Reports

97-011	99-005	00-007
99-001	00-003	00-007, Supp. 1
99-002	00-006	00-008-01

Procedures, Calculations, Design Changes and Others

Procedure 0-NPG-4.12, "Non-Maintenance Work Prioritization"

Design Change 96-081, Revision 5

Calculation NEDC 95-003, "Operating Parameters of MOVs," Revision 10

Calculation 93-022, "Minimum Allowable Voltage for MOVs," Revision 5

CNS Operations Manual, Maintenance Procedure 7.2.50.1, "EQ and Essential Limitorque Valve Operator Mechanical Examination," Revision 12

MEL Database List of Environmentally Qualified MOVs

Limitorque Maintenance Update 93-1, dated August 31, 1993

0.5, Conduct of the Problem Identification and Resolution Process Revision 21

0.5.PIR, Initiation of Problem Identification Reports, Revision 0

0.5.PIR, Initiation of Problem Identification Reports, Revision 1

0.5.SUPV, Supervisory Review of Problem Identification Reports, Revision 0

0.5.OPS, Operations Review of Problem Identification Reports/Operability Determinations/Evaluations Revision 1

0.5.CLSS, Classification of Problem Identification Reports, Revision 2

0.5.CRG, Condition Review Group Revision 1

0.5.NAIT, Corrective Action Implementation and Nuclear Action Item Tracking, Revision 0

0.11, 10CFR21 Evaluations, Revision 3

0.27, Maintenance Rule Program, Revision 10

0.22, Emergency Operating Procedure and Severe Accident Management Program Maintenance, Revision 1

CAP Trend Reports for August 1999 through July 2000

Operations Department Business Plan Matrix

CNS Quality Assurance Report, Audit 99-17

CNS Quality Assurance Report, Audit 00-07

CAP Self-Assessment Report, June 2000

Meeting Minutes, SRAB Special Meetings 210-S1, 211-S1, 211-S2, 211-S3, 211-S4, 212, 213

ATTACHMENT 2

INITIAL MATERIAL REQUESTED

1. Listing of SCRs and RCRs, and Root Cause Analyses
2. Listing of SCRs and RCRs sorted by Department
3. Listing of PIRs related to Electrical Systems
4. Corrective Action Program Department Performance Indicators
5. Corrective Action Program Trend Reports for the past year
6. Quality Assurance Audits and Self-assessments of the Corrective Action Program
7. Generic Communications (Information Notices, Generic Letters, etc.)
8. Licensee Event Reports
9. Corrective Action Program procedures and Deskguides
10. Open Work Orders
11. Significant Condition Report closure packages
12. Closeout packages for SCRs and RCRs associated with Non-Cited Violations

ATTACHMENT 3

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none">● Initiating Events● Mitigating Systems● Barrier Integrity● Emergency Preparedness	<ul style="list-style-type: none">● Occupational● Public	<ul style="list-style-type: none">● Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection Findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN Findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE Findings indicate issues that are of low to moderate safety significance. YELLOW Findings are issues that are of substantial safety significance. RED Findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin, but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner, which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.