ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-298
License No.:	DPR 46
Report No.:	50-298/98-09
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	December 27, 1998, through February 6, 1999
Inspectors:	C. Skinner, Acting Senior Resident Inspector M. Miller, Senior Resident Inspector B. Smallridge, Resident Inspector, Wolf Creek Nuclear Station
Approved By:	C. Marschall, Chief, Branch C Division of Reactor Projects

ATTACHMENT: Supplemental Information

EXECUTIVE SUMMARY

Cooper Nuclear Station
NRC Inspection Report No. 50-298/98-09

Operations

- The inspectors identified that on two occasions operators failed to perform an operability determination or evaluation when required, despite test data that failed to meet established acceptance criteria. Additionally, one operability determination was inadequate to ensure that the reactor equipment cooling system would continue to be operable under all conditions. Inspector involvement was required to assure proper licensee resolution of the potential safety aspects of these three issues (Section O2.1).

- Following overspeed trips of both steam turbines, the licensee identified that the fill and vent procedures for the high pressure coolant injection and reactor core isolation cooling systems were inadequate. The procedures incorrectly stated that the instructions would vent the entire system. This is a noncited violation of Technical Specification 5.4.1 (Section O3.1).

Maintenance

- A number of equipment problems occurred following the refueling outage. Two of the equipment problems were caused by inadequate skill of the craft and procedural adequacy, and four do not have a root cause identified. These equipment problems have not directly resulted in significant safety concerns (Section M2.1).

- Technicians improperly installed steam supply flanges, resulting in a high pressure coolant injection steam supply valve flange leak. Licensee investigators determined that technicians improperly installed the flanges because of inadequate skill of the craft (Section M4.1).

- A 1997 licensee event report documented a degraded lubricating oil pump on the diesel generator. Maintenance personnel had incorrectly installed the pump during maintenance caused by an inadequate procedure. The pump clearance information from the vendor manual was not correctly incorporated into the work instructions. This is a noncited violation of 10 CFR Part 50, Appendix B, Criterion V (Section M8.2).

Engineering

- Engineering personnel, who wrote and reviewed an engineering evaluation on the reactor equipment cooling time delay relays, failed to recognized that data included in the evaluation indicated that one of the time delay relays was inoperable. Also, the inspectors identified that the acceptance criteria for surveillance procedures written to test the subject relays did not include repeat accuracy of the relays. The licensee wrote a problem identification report to enter this issue into the corrective action program. This is a noncited violation of Technical Specification 5.4.1 (Section E2.1).

Report Details

Summary of Plant Status

At the beginning of the inspection period, the plant was at 100 percent power. On January 16, 1999, licensed operators reduced power to 70 percent to perform a control rod line adjustment. Operators restored power to 100 percent that same day. Later, on January 16, Feedwater Pump A tripped and power was stabilized at 70 percent. On January 23 following repairs, licensed operators returned Feedwater Pump A to service and returned the plant to 100 percent power. The plant remained at 100 percent power throughout the remainder of the inspection period.

I. Operations

O2 Operational Status of Facilities and Equipment

O2.1 Inadequate Operability Determinations

a. Inspection Scope (71707 and 37551)

The inspectors reviewed a problem identification report that documented accuracy problems with time delay relays for the reactor equipment cooling system, an engineering evaluation on the same time delay relays, and an operability determination on the failure of service water temperature control valves. Discussions were held with operators, engineers, and management personnel.

b. Observations and Findings

Failure to Perform an Operability Determination or Evaluation For Relays Outside Acceptance Criteria

On January 18, 1999, system engineers wrote Problem Identification Report 4-00383 to document that test results from all four time delay relays used for sequential loading of heavy loads on the diesel generators during a loss of offsite power had an increasing trend. The engineers projected that increasing timing of the relays could result in the relays not meeting the procedure acceptance criteria by the end of a cycle. The system engineers further documented that the acceptance criteria was ± 10 percent, and the accuracy of the time delay relays was also ± 10 percent. The engineering supervisor who reviewed the problem identification report documented a need for an operability determination and an engineering evaluation. However, operators had indicated in the operation's review section of the report that no operability determination nor operability evaluation were needed because the issue was programmatic.

Technical Specifications Surveillance Requirement 3.8.1.10 requires verification that the interval between each sequenced load is to be within ± 10 percent of nominal timer setpoint. The nominal timer setpoint was 20 seconds, based on the Updated Safety Analysis Report. Calibration Procedure 6.1(2)REC.302, "REC Pumps Time Delay Relay Testing and Setting," established a nominal setpoint of 20 seconds with an acceptance criteria of 18 to 22 seconds.

The inspectors reviewed the problem identification report and determined that, if the acceptance criteria and the accuracy of the time delay relays were the same, then the only acceptable as-left value would be exactly 20 seconds. If the relay was not set at 20 seconds, the accuracy listed in the vendor documentation indicated to the inspectors that there was no assurance that the relay would meet the Technical Specification requirement of ±10 percent the next time the relay actuated. The inspectors identified that none of the four relays had been set at exactly 20 seconds. Therefore, the inspectors determined that an operability determination or evaluation was needed. The operators issued another problem identification report documenting the inspectors' concern and performed an operability determination. This demonstrated the time delay relays were operable based on an evaluation using historical as-found test data. The licensee showed that, historically, the repeat accuracy was ±5 percent and this better accuracy was corroborated by verbal information from the vendor. The inspectors reviewed the operability determination and no other concerns were identified.

Failure to Complete an Operability Determination or Evaluation When Required

On January 21, the inspectors identified that the time delay relay for Reactor Equipment Cooling Pump D appeared to be inoperable based on information in Engineering Evaluation 1999-002. The details of this example were documented in Section E2.1 of this inspection report.

Inadequate Operability Determination

On January 31, Reactor Equipment Cooling Heat Exchanger B Outlet Valve SW-TCV-451B failed to control temperature as designed. Operators placed the valve in local manual control. Licensee personnel developed Operability Determination 4-00603, dated February 1. In this document, engineers concluded that the valve was operable provided that a minimum service water flow through the reactor equipment heat exchanger of 400 gallons per minute was established and maintained. The flow was established by manually throttling Valve SW-TCV-451B.

The inspectors reviewed the safety function of Valve SW-MOV-651, another valve in the system downstream of Heat Exchanger B. Valve SW-MOV-651 performs an automatic function on a Group 6 isolation. The valve's function is to ensure that sufficient flow is available through Heat Exchanger B and the residual heat removal service water system simultaneously. The valve is designed to reposition to 10 percent open if the valve was less than 10 percent open prior to the Group 6 isolation. The valve fails in its prior position if the valve was greater than 10 percent open prior to the group isolation. Emergency procedures direct the operators to manually reposition the valve to 10 percent open after 10 minutes. This position provides a flow of 400 to 1200 gallons per minute to Heat Exchanger B provided that Valve TCV-451B is fully open.

The inspectors determined that, if the temperature control valve were failed in any position other than fully open, then the flow through the heat exchanger may be less than 400 gallons per minute. Depending on valve position, operator action may be required to open Valve TCV-451B following a Group 6 isolation. Operators identified

that emergency procedures addressed the need to fully open the temperature control valve, but were not clearly indexed for operator use and should be more clearly referenced.

The licensee concluded that the safety significance of this finding was low, because the temperature control valve had not been closed sufficiently to allow significant reduction in service water flow. Licensee management acknowledged the need to have performed a more thorough operability determination and documented the concern in a problem identification report. A night order was issued to document this concern and reference portions of relevant procedures in the case of an emergency. Procedure changes were in process to more clearly reference system operating constraints under emergency conditions. Operators found that procedures adequately constrained system configuration once they were clarified, and an operability determination was no longer necessary.

c. Conclusion

The inspectors identified that on two occasions operators failed to perform an operability determination or evaluation when required, despite test data that failed to meet established acceptance criteria. Additionally, one operability determination was inadequate to ensure that the reactor equipment cooling system would continue to be operable under all conditions. Inspector involvement was required to assure proper licensee resolution of the safety aspects of these three issues.

O3 Operations Procedures and Documentation

O3.1 Failure of High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) Systems Tests Caused by Inadequate System Venting

a. Inspection Scope (71707)

On December 17, 1998, the control room crew performed required surveillance testing of the RCIC system. The RCIC turbine tripped on overspeed 26 seconds after starting. Licensee technicians performed troubleshooting on the overspeed emergency trip spring tension and made minor adjustments. The test was performed again with similar results. During the next shift, licensed operators performed testing of the HPCI system, and the pump turbine tripped on overspeed less then 1 minute after starting.

The inspectors reviewed the licensee's actions and evaluation in response to these failures. Discussions were held with operators, engineers, and management personnel. The inspectors reviewed the following procedures:

- Surveillance Procedure 6.RCIC.309, "RCIC (150 PSIG) Beginning of Cycle Test"
- Surveillance Procedure 6.HPCI.313, "HPCI (150 PSIG) Beginning of Cycle Test"
- Procedure 2.2.33, "High Pressure Coolant Injection System," Revision 46
- Procedure 2.2.67, "Reactor Core Isolation Cooling System," Revision 4

b. Observations and Findings

The HPCI and RCIC systems have common suction lines from the emergency condensate storage tanks. Operators had drained both systems to facilitate maintenance during the refueling outage. Upon completion of the maintenance activities, operators had vented the common suction line in accordance with Procedures 2.2.33 and 2.2.67. However, these procedures did not provide sufficient guidance to vent the entire suction line. Following the pump failures, operators vented the systems again, but this time they used additional vent valves on the suction line that were not listed in the procedures. After the venting process was complete, the operators repeated the surveillance testing, and both systems performed satisfactorily.

Licensee personnel initiated Problem Identification Report 3-53339. Through investigation, they determined that the root cause was inadequate procedures. The system operating procedures did not require the operators to vent the suction lines from the emergency condensate storage tanks. The procedures documented that the instructions would vent the entire system, but following the procedural steps only resulted in venting the discharge piping. This procedural inadequacy is a violation of Technical Specification 5.4.1 (50-298/98009-01). However, this Severity Level IV violation is being treated as a noncited violation, consistent with Appendix C of the NRC enforcement policy. This violation is in the licensee's corrective action program as Problem Identification Report 3-53339.

Additionally, the inspectors identified that the operators did not formally control the system configuration when the additional valves were cycled to vent the suction line. The only procedure addressing formal control of valve configuration applicable to this circumstance was Procedure 0.9, "Tagging Orders," Revision 22c3. Steps 2.3.1.2 and 8.4.2 required the use of caution tags for identifying and tracking components that were not in their normal position and were not being controlled by any other station procedure or process.

Operator's could have initiated a revision to correct the fill and vent procedures to include the three valves prior to implementing the procedures again. The operators did not use any alternative method to control or document that the valves were opened and/or closed. The failure to use a formal method of control of the system configuration such as a caution tag order or another method of administrative control and failure to document the specific valve manipulations were examples of informal control of configuration and less than rigorous immediate corrective actions. The valves were restored to the correct position after venting. Therefore, safety significance was minor.

c. Conclusion

Following overspeed trips of both steam turbines, the licensee identified that the fill and vent procedures for the high pressure coolant injection and reactor core isolation cooling systems were inadequate. The procedures incorrectly stated that the instructions would vent the entire system. This is a noncited violation of Technical Specification 5.4.1. The inspectors identified that, while appropriately venting the systems, operators failed to

follow a formal process to control the system configuration when three valves were manipulated, although two formal processes were available. The safety significance of this action was minor.

O8 Miscellaneous Operations Issues (92700 and 92901)

O8.1 (Closed) Licensee Event Report 50-298/98-012: Overspeed trip of HPCI and RCIC systems during the 150 psig vessel pressure test. This event was discussed in Section O3.1 of this inspection report and is closed.

O8.2 (Closed) Inspector Followup Item 50-298/97003-04: continuing problems with procedural adherence and adequacy. In 1997, during the review process for closing Violations 50-298/95008-01 and 50-298/95017-02, written for procedural adherence and adequacy issues, the inspectors identified a continuing problem in these same areas. This followup item was written to evaluate the licensee's actions to address procedure performance problems.

The licensee had opened an item in their tracking system to ensure that the issues would be addressed. This item was still open at the end of the current inspection period with a due date of March 6, 1999. The due date for this open item has been extended five times since the original due date of June 30, 1997.

NRC Inspection Reports 50-298/98-07 and 50-298/98-08 issued December 11, 1998, and January 22, 1999, respectively, documented procedural adherence problems. Violation 50-298/98008-01 required a response to state the licensee's corrective actions. The licensee's actions to address procedural adherence issues will be reviewed during the closure process for the subject violation. Therefore, the issue regarding procedural adherence addressed by this inspector followup item is closed.

Inspectors routinely review licensee's procedures to determine their adequacy to facilitate safety-related activities in all functional areas. These inspection activities are included and directed by the core inspection program. As such, there is no need to specifically track an issue to evaluate the licensee's overall program for evaluation and improvement of procedural adequacy. Therefore, this inspection followup item is administratively closed.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope (62707 and 61726)

The inspectors observed the performance of various maintenance activities. The following procedures and work packages were reviewed:

Maintenance Work Request 98-2622	Emergency Lighting Upgrade
Surveillance Procedure 6.HPCI.103	High Pressure Coolant Injection In-service Test and 92-Day Test Mode
Surveillance Procedure 6.RCIC.705	Reactor Core Isolation Cooling Turbine High Exhaust Pressure Channel Functional Test
Surveillance Procedure 15.RF.601	Reactor Feedwater Pump Turbine Overspeed Test
Preventive Maintenance 02125	Reactor Pressure Local Gage Preventive Maintenance
Preventive Maintenance 08874	Reactor Core Isolation Cooling Steam Supply Valve Mechanical Examination
Preventive Maintenance 08905	Reactor Core Isolation Cooling Steam Supply Valve Electrical Examination

b. Observations and Findings

During direct observation and/or review of the maintenance documentation, the inspectors did not identify any significant negative or positive findings. The technicians followed work instructions, equipment was properly tagged out of service, and the correct Technical Specifications were entered when required. Health physics and security requirements were followed.

c. Conclusion

Routine observation of maintenance activities were properly conducted.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Equipment Problems

a. Inspection Scope (62707)

The inspectors noted a number of equipment problems that had occurred since plant startup from the recent refueling outage. Discussions were held with operators, engineers, maintenance technicians, and management personnel.

b. Observations and Findings

A number of plant equipment problems were identified by inspectors, the licensee, and/or were self-revealing. The more significant problems included:

- The inspectors noted numerous lubricating oil leaks on the diesel generator engines that appeared to have existed for an extended period. Oil and dust had built up on the lower portions of the engines and on the adjacent lubricating oil system piping, along with an accumulation of old rags, strips of plastic, old absorbent pads, and small articles of trash. The housekeeping associated with these less accessible areas of the diesel generators was inadequate. The licensee issued work requests to repair the oil leaks. The direct safety significance was low because the combustible loading was bounded by the 100 gallon transient combustible loading analysis.

- The temperature recorder for Safety Relief Valve 71HRV recorded 13 spikes from 110 degrees to 150 degrees (maximum) from December 20-28, 1998. The temperature indication then stabilized at 115 degrees. The Safety Relief Valve 71GRV temperature recorder indicated 125 degrees, rose to 190 degrees for 6 days, then decreased to and stabilized at 140 degrees. The temperature recorder for Safety Relief Valve 71FRV increased from 165 to 200 degrees and continued to indicate 200 degrees through the remainder of the inspection period. Licensed operators continued to monitor the recorders and engineering personnel planned to correlate the temperature to a leak rate and then establish an upper temperature limit. The root cause for the temperature indications were unknown at the end of the inspection period.

- The licensee identified that both service water outlet valves for the residual heat removal heat exchanger, Valves SW-MOV-MO89A and SW-MOV-MO89B, leaked and could not isolate flow. Similar leakage has historically resulted in silt intrusion into the residual heat removal service water system and the residual heat removal heat exchangers. Licensee maintenance technicians had rebuilt both valves in the last two outages. While in an operational mode, operators have run the service water booster pumps for 15 minutes weekly and have monitored the discharge pipe temperature to avoid silt buildup. Also, licensee personnel have monitored the valve body thickness to detect erosion.

- Maintenance personnel rebuilt Sump Pumps G-1 and G-2 during the last refueling outage. These pumps provide indication of the identified equipment leakage in the drywell, as required by Technical Specifications. After the outage, the licensee identified that Sump Pump G-1 failed to operate properly. On one occasion, the pump failed to automatically operate on demand. When the pump was manually started, the running amperage was higher than normal and the flow rate was lower than normal. Near the end of the inspection period, the pump tripped on electrical overloads immediately after a start signal. Outage management personnel added work on the pump to the forced outage list. The root cause for the Sump Pump G-1 problem was unknown at the end of the inspection period.

- The licensee identified a steam leak on High Pressure Coolant Injection Steam Inlet Valve HPCI-MOV-MO-14. The licensee's evaluation determined that the workers failed to align the flanges during reassembly, causing the tongue flange

to improperly fit into the groove flange. The licensee replaced the gasket and reassembled the flange. This was discussed more fully in Section M4.1 of this inspection report.

- The control rod drive pump lower bearing failed because the inboard bearing oil bubbler was improperly replaced after oil addition. The licensee replaced the pump and injected too much grease into the coupling, increasing pump vibration. The grease was removed and the vibration returned to normal. The root causes for these problems were inadequate training for operators and an inadequate procedure, respectively.

- Reactor Recirculation Pump B and Reactor Feedwater Pump B have indicated intermittent high vibrations. Licensee personnel determined that the vibration probes for both of these pumps had failed or intermittently given false indications of high vibrations. The licensee concluded that vibrations were actually normal.

- Following a decrease in plant power, a low flow annunciator for Reactor Recirculation Pump B Seal Cavity 2 alarmed. The seal cavity pressure fluctuated between 350 to 600 psig and the temperature dropped 2 degrees. When reactor power was restored to 100 percent, seal cavity pressure and temperature returned to normal indications. The licensee continued to monitor the pressure and temperature. The licensee ordered new seal parts and scheduled the seal work in their forced outage schedule.

- On January 16, 1999, Feedwater Pump A tripped on an overspeed trip signal. Maintenance personnel determined that the overspeed device had a defective part. Additionally, during troubleshooting, technicians identified that the main pump bearing was worn. Maintenance personnel replaced the overspeed device and main pump bearing. A contractor using sensitive vibration equipment monitored the main pump bearing when the feedwater pump was returned to service.

c. Conclusion

A number of equipment problems occurred following the refueling outage. Two of the equipment problems were caused by inadequate skill-of-the-craft and procedural adequacy, and four do not have a root cause identified. These equipment problems have not directly resulted in significant safety concerns.

M4 Maintenance Staff Knowledge and Performance

M4.1 High Pressure Coolant Injection Steam Supply Valve Flange Leak

a. Inspection Scope (62707)

The inspectors reviewed the licensee's evaluation for a leak that developed on the high pressure coolant injection steam supply valve during a surveillance test. Discussions were held with maintenance and engineering personnel and with licensee management.

b. Observations and Findings

On December 18, 1998, operators identified a steam leak on High Pressure Coolant Injection Steam Supply Valve HPCI-MO-14 during a surveillance test. The leak developed on the downstream flange of the steam supply valve. The control room operators tripped the high pressure coolant injection turbine and isolated the leak.

The cause of the steam leak was personnel error by maintenance personnel. The steam leak occurred because of a misalignment of the outlet flange of the steam supply valve and the piping flange. Licensee reviewers determined that the misalignment was attributed to inattention to detail during the flange alignment process. The work that resulted in the misalignment was performed during the recent refueling outage.

Licensee personnel incorporated this issue into the lesson learned for future refueling outages, general employee training, continuing training for maintenance personnel, and initial training for contractor craft personnel. Corrective actions taken, but not documented in the problem identification report, included placing guidance into the maintenance writer's guide.

c. Conclusion

Technicians improperly installed steam supply flanges resulting in a high pressure coolant injection steam supply valve flange leak. Licensee investigators determined that technicians improperly installed the flanges because of inadequate skill of the craft.

M8 Miscellaneous Maintenance Issues

M8.1 (Closed) Inspection Followup Item 50-298/98005-02: diesel generator lubricating oil pump failures. In paragraph M2.2 of NRC Inspection Report 50-298/98-05, the inspectors determined that Emergency Diesel Generator 1 was degraded because maintenance personnel had failed to correctly set the engine-driven lubricating oil pump clearances. The inspectors opened an inspection followup item to determine the extent of the degradation. Licensee personnel determined that the degradation of Emergency Diesel Generator 1 was limited to the engine-driven lubricating oil pump, and the inspectors found this reasonable. This issue was discussed further in Section M8.2 of this inspection report. No additional followup is required.

M8.2 (Closed) Licensee Event Report 50-298/97015-00 and -01: Diesel Generator 1 was inoperable because of a degraded lubricating oil pump. In Revision 1 of this licensee event report, the licensee documented that Emergency Diesel Generator 1 failed to slow start because the engine-driven lubricating oil pump had been installed with incorrect clearances between the pump idler assembly and the pump head plate. Subsequently, a fast start of the emergency diesel generator was conducted, as required by the Technical Specifications. Therefore, no operability concern with Emergency Diesel Generator 1 existed.

However, the incorrect installation of the engine-driven lubricating oil pump and the failure of the emergency diesel generator to slow start resulted from the use of inadequate maintenance procedures. Pump clearance information from the vendor manual was not correctly incorporated into the work instructions. The failure to ensure that design requirements were appropriately translated into work instructions is a violation of 10 CFR Part 50, Appendix B, Criterion V (50-298/98009-02). This Severity Level IV violation is being treated as a noncited violation, consistent with Appendix C of the NRC enforcement policy. This violation is in the licensee's corrective action program as Problem Identification Report 2-25033.

M8.3 (Closed) Violation 50-298/97010-01: a procedure used inappropriate methodology in determining if the acceptance criteria was met. The inspectors verified the corrective actions described in the licensee's response letter dated February 11, 1998, were reasonable and complete. No similar problems were identified.

M8.4 (Closed) Violation 50-298/97011-03: a procedure allowed the installation of nonessential fuses in essential fuse applications. The licensee previously provided an operability evaluation that concluded that the nonessential fuses that had been installed in essential applications were operable. Licensee personnel changed the fuse dedication and usage program. The use of nonessential fuses in essential fuse applications now requires an engineering review. The inspectors found the corrective actions described in the licensee's response letter, dated April 8, 1998, to be reasonable and complete.

M8.5 (Closed) Licencee Event Report 50-298/98011-00: steam leak at the high pressure coolant injection turbine valve caused by a misalignment of the flanges. This event was discussed in Section M4.1 of this inspection report.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Inadequate Procedures for the Reactor Equipment Cooling System Time Delay Relays

a. Inspection Scope (37551)

As documented in Section O2.1 of this inspection report, on January 21, the inspectors identified that the time delay relay for Reactor Equipment Cooling Pump D appeared to

be inoperable based on information in Engineering Evaluation 1999-002. The inspectors reviewed Engineering Evaluation 1999-02, the vendor manual, and Procedures 6.1REC.302 and 6.2REC.302, "REC Pumps Time Delay Relay Testing." In addition, the inspectors held discussions with engineers and management personnel.

b. Observations and Findings

In response to Problem Identification Report 4-00383, engineers wrote Engineering Evaluation 1999-002 to address the failure of the reactor equipment cooling pump time delay relays to stay within operability limits. As previously stated, engineers had concluded that a repeatability of ± 5 percent of the previous setting was more appropriate than the ± 10 percent. Engineers had documented that the calibration procedure should be revised to recalibrate the relays if the as-found value was outside the tolerance band of 19.5 - 20.5 seconds. This would ensure a repeatability of ± 5 percent and that the next as-found values would be within Technical Specification tolerances.

The inspectors reviewed the as-left test values for the four reactor equipment cooling pump time delay relays documented during the last refueling outage. The inspectors noted that the as-left value for the Pump D time delay relay was 18.92 seconds. The inspectors discussed this finding with the shift technical engineer and the system engineer. A problem identification report was written to document that the relay had been left outside the previously established tolerance band, and the relay was conservatively declared inoperable. A clearance order was issued to disable the pump from starting after a loss of power and subsequent restoration of power to the critical bus. Licensee technicians recalibrated the time delay relay within the calibration tolerance, declared the relay operable, and returned the system to a standby alignment.

During the research and review of the evaluation, the engineers had failed to identify that one of the as-left values was outside the ± 5 percent and operability was therefore questionable. However, evaluation of the specific relay indicated that it had remained operable.

During their review, engineers had not included all appropriate vendor information in Procedures 6.1REC.302 and 6.2REC.302. The vendor manual included information on the relay repeat accuracy. However, the test procedures did not use or include this information in determining the required as-left values. The failure to maintain Procedures 6.1REC.203 and 6.2REC.302 to include information on repeat accuracy is a violation of the Technical Specification 5.4.1 requirement that procedures appropriate to the circumstances be established (50-298/98009-03). Licensee personnel recalibrated the relay, entered the concern into the corrective action system, and planned activities that included appropriate procedure changes and evaluations. This Severity Level IV violation is being treated as a noncited violation, consistent with Appendix C of the NRC enforcement policy. This violation is in the licensee's corrective action program as Problem Identification Report 4-00654.

c. Conclusion

Engineering personnel, who wrote and reviewed an engineering evaluation on the reactor equipment cooling time delay relays, failed to recognize that data included in the evaluation indicated that one of the time delay relays was inoperable. Also, the inspectors identified that the acceptance criteria for surveillance procedures written to test the subject relays did not include repeat accuracy of the relays. The licensee wrote a problem identification report to enter this issue into the corrective action program. This is a noncited violation of Technical Specification 5.4.1.

E8 Miscellaneous Engineering Issues

E8.1 (Closed) Violation 50-298/97011-06: inadequate surveillance requirement for the standby liquid control system relief valves. NRC Inspection Report 50-298/97-11 documented that the specific corrective actions for this violation were adequate. The licensee's corrective action for the general problem of failure to promptly identify and correct conditions adverse to quality will be evaluated as part of the closure for Escalated Enforcement Action 97-424 (NRC Inspection Report 50-298/97-12). Therefore, this item is administratively closed.

VI. Management Meeting

Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on February 11, 1999. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Buman, Assistant Manager, Plant Engineering Department
J. Burton, Performance Analysis Department Manager
P. Caudill, Senior Manager Technical Services
T Chard, Radiological Manager
L. Dewhirst, Licensing Engineer
J. DeWitt, Maintenance Engineering
P. Donahue, Engineering Support Manager
C. Fidler, Assistant Maintenance Manager
T. Gifford, Design Engineering Department Manager
M. Gillan, Assistant to Plant Manager
J. McMauam, Work Control Supervisor
L. Newman, Licensing Manager
M. Peckman, Plant Manager
B. Rash, Engineering Manager
A. Shiever, Operations Manager

INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering
IP 61726: Surveillance Observation
IP 62703: Maintenance Observation
IP 71707: Plant Operations
IP 71750: Plant Support Activities
IP 92901: Followup - Plant Operations
IP 92902: Followup - Maintenance
IP 92903: Followup - Engineering
IP 92700: LER - Onsite Review
IP 93702: Onsite Response

ITEMS OPENED AND CLOSED

Opened and Closed

50-298/98009-01	NCV	Inadequate venting procedure for the high pressure coolant injection and the reactor core isolation cooling systems (Section 03.1).
50-298/98009-02	NCV	Failure to have adequate work instructions for the diesel generator lube oil pump (Section M8.2).
50-298/98009-03	VIO	Inadequate procedures for the reactor equipment cooling system time delay relays (Section E2.1).

Closed

50-298/98-012	LER	Overspeed trip of high pressure coolant injection and reactor core isolation coolant systems during the 150 psig vessel pressure test (Section O8.1).
50-298/97003-04	IFI	Licensee continuing problems with procedural adherence and adequacy (Section O8.2).
50-298/98005-02	IFI	Diesel generator lubricating oil pump failures (Section M8.1).
50-298/97015-00 50-298/97015-01	LER	Diesel Generator 1 inoperable due to degraded lubricating oil pump (Section M8.2).
50-298/97010-01	VIO	Procedure used inappropriate methodology in determining if acceptance criteria was met (Section M8.3).
50-298/97011-03	VIO	Procedure allowed installation of nonessential fuses in essential fuse applications (Section M8.4).
50-298/98011-00	LER	Steam leak at the high pressure coolant injection turbine valve caused by a misalignment of the flanges (Section M8.5).
50-298/97011-06	VIO	Inadequate surveillance requirement for the standby liquid control system relief valves (Section E8.1).