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## Agency Action Review Meeting

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# COOPER

- *Narrative Summary*
- *Annual Assessment Letter/Inspection Plan*
- *Plant Performance Summary*
- *Performance Indicators*
- *Inspection Findings*

Information in this record was deleted  
in accordance with the Freedom of Information  
Act, exemptions 5  
FOIA-2006-0007

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May 2005

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U-12

## Exhibit 7

### PRE-DECISIONAL COOPER NUCLEAR STATION PLANT PERFORMANCE SUMMARY

Assessment Period: January 1, 2004 thru December 31, 2004

#### I Operating Summary

- |              |   |
|--------------|---|
| January 1    | The plant began the assessment period at 100 percent power.   |
| February 1   | Reactor power was reduced to 70 percent for planned maintenance for approximately 12 hours.   |
| February 14  | Reactor Recirculation Pump A motor generator tripped due to exciter brush failure, causing reactor power to lower to 68 percent. Following repairs, full power operations resumed on February 16. |
| April 17     | Reactor power was reduced to 60 percent for planned maintenance for approximately 14 hours.   |
| May 2        | Reactor Feed Pump B unexpectedly decreased in speed which caused a reactor power reduction to 70 percent. Full power operation resumed on May 6 following repairs.                                |
| June 5       | Reactor power was reduced to 45 percent for emergent repairs to Steam Tunnel Fan Cooler Unit B. Full power operation was resumed approximately 18 hours later.                                    |
| August 14    | Reactor power was reduced to 70 percent for planned maintenance for approximately 6 hours.  |
| September 22 | Reactor power was reduced to 75 percent due to a reactor feed pump controller card failure. Full power operation was resumed approximately 24 hours later.  |
| October 19   | The reactor was shutdown due to elevated main turbine rotor vibrations. Following repair of the main turbine on November 10, full power operations resumed for the rest of the inspection period. |

## II Performance Overview

### A. Current Overall Assessment

Plant performance for the most recent quarter was within the Regulatory Response Column of the Action Matrix, based on a White finding identified in March 2004. This White finding involved high failure rate for the 2003 biennial requalification examination. To address operator license requalification training program deficiencies and an observed decline in operator knowledge that was identified in November of 2003 the licensee implemented broad corrective actions including both training program changes and individual operator remediation. In May 2004, the NRC conducted a combined Supplemental inspection in accordance with NRC Inspection Procedures 95001, 71111.11B, and 41500. The combined inspection concluded that the licensee's extent of condition and extent of cause evaluations of the high failure rate were not completed at the time of the inspection, and that other areas of the root cause lacked in-depth evaluation of the adequacy of operator knowledge and the establishment of objective criteria to evaluate effectiveness of the corrective actions. The inspection also concluded that the analysis and evaluation elements of a systems approach to training, described in NUREG-1220, were implemented with significant weaknesses, and that the evaluation element was inadequate during the 2-year requalification program cycle beginning February 2002. The NRC implemented an additional combined Supplemental inspection in December 2004 following additional corrective actions and testing and concluded that the programmatic changes and individual remediation were successful. The supplemental inspection report is expected to be issued later in February 2005.

Additionally, the NRC performed an inspection of the licensee's implementation of a self assessment of the Strategic Improvement Plan actions with specific focus on assessing whether actions required by the CAL were complete and effective. The NRC staff performed an independent assessment of the licensee's self assessment activities and a public meeting was held August 18, 2004, to discuss the results of the licensee's self-assessment. During this meeting the licensee verbally informed the NRC they had satisfactorily completed NPPD's commitments pending actions stemming from NPPD's self-assessment conducted in May 2004. Subsequently, in a letter dated September 2, 2004, NPPD also informed the NRC that they had satisfactorily completed actions in the CAL and recommended that NRC close the CAL (ML042950032). NRC inspectors conducted inspection and observation activities during the conduct of NPPD's self-assessment in May 2004, and conducted additional inspection in October 2004 to followup on the results of the self-assessment, including NPPD's actions in response to the results of the self-assessment. Based on these inspections, the NRC determined that Cooper had satisfactorily implemented the improvement plan and closed the CAL in January of 2005.

### B. Previous Assessment Results

Cooper Nuclear Station began the assessment period in the Multiple/Repetitive Degraded Cornerstone Column of the Action Matrix. The remaining three White findings in the Emergency Preparedness Cornerstone were closed in the 2nd Quarter of 2004. Previously, on January 30, 2003, the NRC issued a CAL to NPPD. The purpose of the

CAL was to confirm the commitments made by NPPD regarding completion of those actions in their improvement plan developed to address regulatory performance issues. Actions included in the CAL addressed long-standing performance issues in the areas of emergency preparedness, human performance, material condition and equipment reliability, plant modification and configuration control, the corrective action program and engineering programs. All CAL items were scheduled to be completed by March 31, 2004. The NRC conducted quarterly inspections to verify completion of these actions and the effectiveness of these actions in addressing specific performance issues. The NRC has completed 6 quarterly inspections of the CAL.

While the underlying performance deficiencies within the Emergency Preparedness Cornerstone has been addressed and the White findings were closed, the other five remaining areas confirmed in the CAL had not been fully addressed. As a result, on May 3, 2004, the Executive Director for Operations approved a deviation from the Action Matrix to maintain a level of regulatory oversight at CNS consistent with the Multiple/Repetitive Degraded Cornerstone Column. This provided for the appropriate level of oversight while the licensee completed the actions listed in the CAL.

The NRC performed another supplemental inspection in response to a White Performance Indicator. A 95001 supplemental inspection was conducted to assess the causes for and actions taken related to the performance indicator for unplanned scrams per 7000 critical hours crossing the threshold from Green to White. CNS performed thorough evaluations for each of the three scrams and performed a thorough and broad-based self-assessment to identify performance and process issues that should be addressed as a result of the performance indicator crossing the Green to White threshold.

### **III Inspection and Performance Indicator Results**

#### **A. Results by Strategic Performance Areas and Cornerstones**

##### **Reactor Safety**

##### **Initiating Events**

##### **Inspection Findings:**

Six Green findings were identified during the assessment period.

1. The inspectors identified a finding regarding the failure to evaluate an operator work-around created by compensatory measures for the loss of alarm functions on Reactor Feed Pump (RFP) A. The failure to perform this evaluation had a negative impact on operator performance since not all operating crews were informed of the compensatory measures.
2. The inspectors identified a finding regarding the failure to evaluate a temporary modification to the RFP A control cabinet. Two supervisory alarms were disabled due to nuisance alarms caused by a programming error in the control system. A

portable computer and remote camera were staged at the control cabinet to compensate for the loss of these alarms but adequate controls were not established in accordance with the licensee's temporary modification procedure.

3. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, for failure to take timely and effective corrective actions associated with the stratification of reactor coolant in the reactor vessel. In May 2003, following a reactor scram, stratification occurred which resulted in exceeding TS heat up and cooldown rates for the reactor vessel. Corrective actions for that event failed to prevent recurrence of the condition in November 2003.
4. A self-revealing finding was identified associated with the licensee's failure to perform adequate maintenance on Reactor Recirculation Motor Generator A. Inadequate maintenance on the motor generator field brushes resulted in the loss of field voltage, an unexpected trip of the motor generator, and an unplanned reduction in reactor power. The licensee failed to change their preventive maintenance requirements to incorporate vendor recommendations following modification of the brushes.
5. A self-revealing finding was identified for the failure to perform adequate maintenance on reactor feed pump limit switches. Inadequate maintenance on the Reactor Feed Pump B limit switch resulted in the Reactor Feed Pump B turbine speed decrease and an unplanned reduction in reactor power. The licensee failed to implement preventive maintenance requirements to ensure appropriate industry recommendations were incorporated in the preventive maintenance program.
6. A self-revealing finding was identified associated with the licensee's failure to perform adequate maintenance on service air compressors. Inadequate maintenance on the motor resulted in damage to the motor windings and the compressor was declared inoperable. The licensee failed to implement preventive maintenance requirements that incorporated vendor recommendations for the motor windings.

Performance Indicators: All three performance indicators were Green throughout the assessment period.

#### Mitigating Systems

#### Inspection Findings:

One White and 14 Green, and one apparent violation (significance to be determined) findings were identified during the assessment period.

1. The licensee failed to demonstrate satisfactory licensed operator requalification program performance as described in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8, Supplement 1, Examination Standard 601, Section E.3.a(1). Examination Standard 601 E.3.a(1)

specifies, in part, that for a requalification program to maintain satisfactory performance, 75 percent or greater of the participants must pass all portions of the biennial examinations. Failures during the biennial cycle included a 36 percent failure rate on the biennial written examination.

2. The inspectors identified two examples of a NCV of 10 CFR 50, Appendix B, Criterion XVI regarding the failure to take timely and effective corrective actions to revise HPCI procedures following the May 2003 reactor scram; and failure to promptly identify and enter HPCI procedure violations into the corrective action program following the November 2003 reactor scram.
3. The inspectors identified two examples of a NCV of TS 5.4.1(a) regarding the failure to maintain procedures for control over the offsite power circuits. This violation was identified during a closure of an unresolved item dealing with multiple historic design issues with the main switchyard and secondary offsite power circuit.
4. Two examples of an NCV of TS 5.4.1 were identified associated with the failure to implement station procedures. The two examples include the following: A NCV of TS 5.4.1(a) was identified regarding the failure to follow station procedures during recovery from a reactor scram. Operators secured the HPCI system by an incorrect method not allowed by the procedure in use at the time. This incorrect method rendered the system inoperable. The second example involved the failure to adequately implement the operability determination procedural guidance resulting in the failure to meet timeliness goals and documentation requirements for evaluating a degraded condition associated with multiple safety related reactor vessel level transmitters.
5. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to correct a condition adverse to quality regarding inadvertent actuations of safety-related relays. In May 2004, an additional inadvertent relay actuation during a maintenance activity caused Service Water Pump B to trip.
6. The inspectors identified two examples of a noncited violation of Technical Specification 5.4.1(a) for the failure to follow procedures following EDG 1 being declared inoperable due to a corrosion product buildup clogging a fuel line strainer. The first example involved personnel failing to open and verify open the diesel fuel oil storage tanks cross connect valves that was implemented as a compensatory measure. This resulted in declaring EDG 2 inoperable and entry into a two hour shutdown LCO. The second example involved the failure to perform an operability evaluation associated with cross connecting the diesel fuel oil storage tanks. The valve operators were degraded requiring excessive torque to operate. This adverse condition was previously known by the licensee and determined not to be a concern since the valves were normally shut. The licensee failed to evaluate the effect of this condition when it was decided to open the valves as a compensatory measure.

7. The inspector identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to take adequate corrective actions for degraded conditions on the diesel fuel oil transfer system. On March 23, 2004, the inlet strainer on Fuel Oil Day Tank 1 became clogged with corrosion debris, rendering Emergency Diesel Generator 1 inoperable. This was the third occurrence of this event in 13 months.
8. The team identified a noncited violation of Section III.G.2 of Appendix R to 10 CFR Part 50 for failure to ensure that redundant trains of safe shutdown systems in the same fire area were free of fire damage. For example, cables associated with the automatic depressurization system were not physically protected from fire damage, leaving them vulnerable to spurious operation. The licensee credited manual actions to mitigate the effects of fire damage in lieu of providing the physical protection required by 10 CFR Part 50, Appendix R, Section III.G.2.
9. The team identified three examples of a noncited violation of Technical Specification 5.4.1.d for failure to provide adequate instructions in Emergency Procedure 5.4 Fire-S/D, "Fire Induced Shutdown From Outside Control Room," Revision 3. In the first example, the licensee failed to provide adequate instructions to operators to assure that high pressure coolant injection flow would be secured within analyzed times in order to prevent reactor vessel overfill and subsequent damage to safety relief valves. In the second example, the licensee failed to provide adequate instructions to operators to ensure the main steam isolation valves were closed in order to prevent feedwater from overfilling the reactor vessel and damaging safety relief valves. In the third example, the licensee failed to provide adequate instructions to ensure operators would correctly position 14 motor-operated valves (required for achieving and maintaining safe shutdown) from motor-control centers. Operating motor-operated valves in this manner bypasses the valves' protective features, leaving them vulnerable to damage by over-thrust.
10. The inspectors identified Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for the failure to follow procedures for the installation of temporary shielding. During a plant tour, the inspectors identified that temporary shielding was in contact with residual heat removal system components resulting in residual heat removal shutdown cooling being declared inoperable.
11. A noncited violation of 10 CFR 55.59(b) was identified. Specifically, due to errors in resolution of regrading the 2003 licensed operator requalification biennial written examinations, three licensed operators were returned to licensed duties, but were later determined to have failed their requalification examinations. As a result, remedial training and re-examination was not completed before returning the affected operators to licensed duties.
12. A violation of 10 CFR 55.59(c) was identified. Specifically, the licensee failed to adequately implement a systems approach to training for licensed operator requalification training during the February 25, 2002, through January 11, 2004, requalification training cycle. Reduction of training on plant systems and technical specifications, lack of periodic examinations to test training

effectiveness, examination administration issues, and other failures to follow program guidance resulted in a high failure rate on requalification examinations administered in November and December 2003. The failure rate on the biennial written examination exceeded 25 percent.

13. A self-revealing apparent violation of 10 CFR Part 50, Appendix B, Criterion V, was identified for the failure to provide adequate instructions for restoring the service water system to an operable configuration following the completion of maintenance activities. This condition existed from January 21 through February 11, 2004, and resulted in Division 2 of the service water system as well as Emergency Diesel Generator 2 being inoperable for 21 days. The final significance of this finding is still pending.
14. The inspectors identified a Green noncited violation of Technical Specification 5.4.1.d for failure to implement the station's fire watch procedure. Specifically, on October 22, 2004, the inspectors identified that a compensatory fire watch, responsible for protecting equipment important to safety from fire damage, was not alert and therefore was inattentive to the areas assigned as directed by procedural requirements.
15. A finding was identified involving the failure to perform an adequate design change for the reactor feed system startup flow control valves. The design change failed to ensure component temperature ratings were not exceeded, which resulted in adversely affecting valve operation. Specifically, the licensee's evaluation failed to recognize and address acceptable O-ring types for the temperatures of the reactor feed system.
16. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI involving the failure to promptly identify and correct conditions adverse to quality. Specifically, on numerous occasions the licensee failed to promptly identify that environmental temperatures outside design specifications could potentially affect the function of equipment important to safety. As a result, the licensee failed to promptly evaluate this adverse condition in a timely manner. The failure to promptly identify and correct this condition adverse to quality involved cross-cutting aspects associated with problem identification and resolution.

**Performance Indicators:** The five performance indicators were Green throughout the assessment period.

Barrier Integrity

**Inspection Findings:**

One Green finding was identified during the assessment period.

1. A self-revealing violation of Technical Specification 5.4.1(a) occurred when personnel failed to implement a tagout correctly and opened the wrong breaker, resulting in an inadvertent partial isolation of containment.

#### Emergency Preparedness

##### Inspection Findings:

No findings were identified in this area during the assessment period.

Performance Indicators: The three performance indicators were Green throughout the assessment period.

#### Occupational Radiation Safety

##### Inspection Findings:

Three Green findings were identified during this assessment period.

1. The inspector identified a non-cited violation of 10 CFR 20.1501(a) for failure to perform an adequate survey that resulted in a radiation area not being posted as required by regulations. On March 31, 2004, the licensee identified an unposted radiation area on the inside of the rain ring of the "B" Condensate Storage Tank. The survey discovered a spot near the base of the tank that read 160 millirem per hour on contact and 8 millirem per hour at 30 centimeters. The inspector determined that the radiation area had not been identified for approximately one year.
2. The inspector reviewed a self-revealing non-cited violation of Technical Specification 5.7.1 because the licensee failed to provide an individual radiation monitoring device that could be detected when a preset integrated dose alarm was received. On December 15, 2003, an individual unknowingly exceeded the alarm setpoint of a required electronic dosimeter while working in an area with radiation levels as high as 200 millirem per hour. The electronic dosimeter was set to alarm at 20 millirem, but upon exiting the area the electronic dosimeter read 31 millirem and was alarming. The individual did not hear the alarm until the area was exited.
3. The inspector identified a non-cited violation of Technical Specification 5.7.1, since the licensee failed to barricade and conspicuously post a high radiation area. On November 30, 2004, the inspector identified piping located in the

Residual Heat Removal "B" heat exchanger room that had dose rates elevated to greater than 100 millirem per hour. The licensee performed a survey and confirmed dose rates were 600 millirem per hour on contact with the pipe and 160 millirem per hour at 12 inches from the pipe. The area was immediately barricaded and posted. The licensee entered this issue into its corrective action program.

Performance Indicators: The performance indicator was Green throughout the assessment period.

Public Radiation Safety

Inspection Findings:

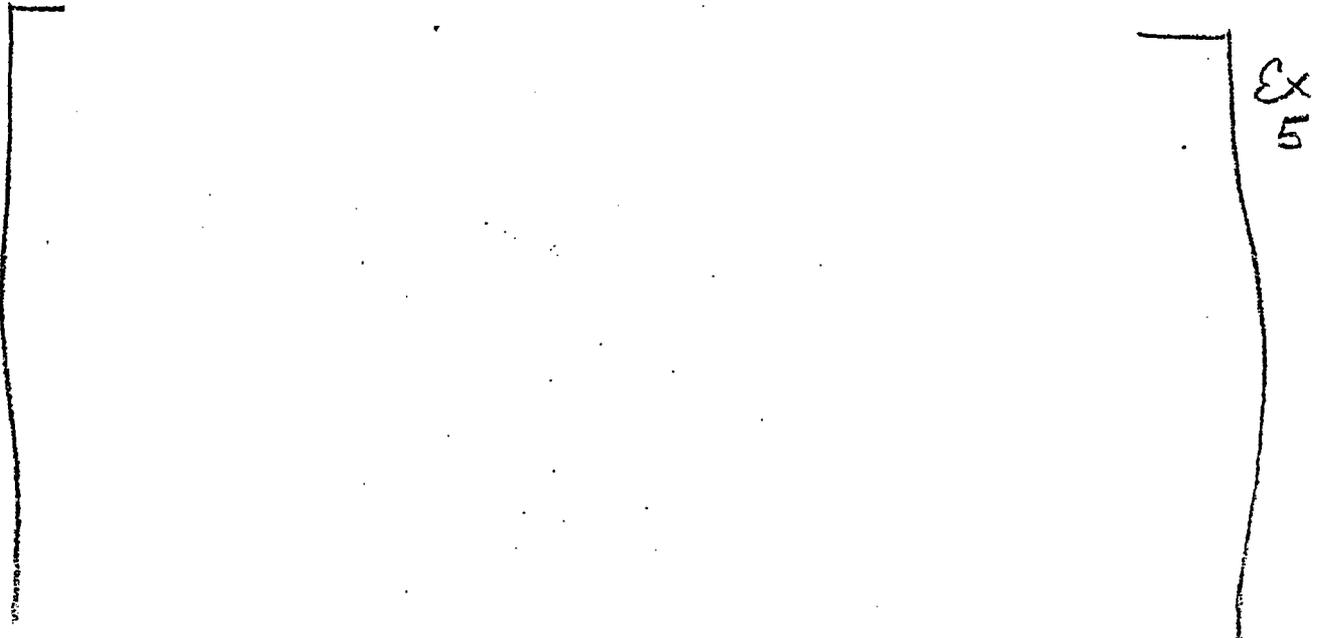
No findings were identified in this area during the assessment period.

Performance Indicators: The performance indicator was Green throughout the assessment period.

Security: To be discussed at the EOC Summary Meeting.

#### IV Other Issues

##### A. Inspection Results for Cross-Cutting Areas



Over the course of the assessment period, 10 Green findings and one White finding was identified in the initiating events, mitigating systems and barrier integrity cornerstones with a causal relationship of failure to follow procedures (personnel) and inadequate programs and procedures (resources).

Failure to Follow Procedures (personnel)

1. Failure to follow station procedures during recovery from a reactor scram. Operators secured the high pressure coolant injection system by an incorrect method not allowed by the procedure in use at the time. This incorrect method rendered the system inoperable and unavailable for automatic restart to respond to design basis accident conditions.
2. Failure to follow the operability determination procedure. An asymmetrical control rod pattern established to perform repairs created a resonant pressure wave in the quadrant of the reactor vessel adjacent to the Reference Leg 3A condensing chamber. Control room operators noted anomalous indications on narrow-range Level Instruments A and C. Both instruments were oscillating between 32 and 37 inches, approximately five times the oscillation amplitude normally seen on these instruments, for approximately 18 hours before an operability assessment for this adverse condition was completed.
3. Two examples involving the failure to follow procedures following EDG 1 being declared inoperable due to a corrosion product buildup clogging a fuel line strainer. The first example involved personnel failing to open and verify open the diesel fuel oil storage tanks cross connect valves that was implemented as a compensatory measure. This resulted in declaring EDG 2 inoperable and entry into a two hour shutdown LCO. The second example involved the failure to perform an operability evaluation associated with cross connecting the diesel fuel oil storage tanks. The valve operators were degraded requiring excessive torque to operate. This adverse condition was previously known by the licensee and determined not to be a concern since the valves were normally shut. The licensee failed to evaluate the effect of this condition when it was decided to open the valves as a compensatory measure.

4. Failure to follow procedures for the installation of temporary shielding. The inspectors identified temporary shielding in contact with residual heat removal system instrumentation lines resulting in residual heat removal shutdown cooling being declared inoperable.
5. Failure to implement the station's fire watch procedure. The inspectors identified a compensatory fire watch, responsible for protecting equipment important to safety from fire damage, was not alert and therefore was inattentive to the areas assigned as directed by procedural requirements.
6. Failure to implement a tagout correctly results in opening the wrong breaker. This error resulted in an inadvertent partial isolation of containment.

Inadequate Programs and Procedures (resources)

1. A White finding was identified involving licensed operator high failure rate of the biennial requalification written examination. The failure to adequately implement the systems approach to training was identified based on training and testing deficiencies that resulted in a decline in licensed operator knowledge over time. The NRC found that this decline in operator knowledge was evident in both plant operating experience and biennial requalification examination performance. Failures during the biennial cycle included a 36 percent failure rate on the biennial written examination. Immediate corrective actions implemented by the licensee included remedial training and retesting prior to returning operators to shift.
2. A self-revealing finding was identified associated with the licensee's failure to adequately evaluate and implement vendor recommended preventive maintenance. Inadequate maintenance on the motor generator field brushes resulted in the loss of field voltage, an unexpected trip of the motor generator, and an unplanned reduction in reactor power. The licensee failed to change their preventive maintenance requirements to incorporate vendor recommendations following modification of the brushes.
3. A self-revealing finding was identified associated with the licensee's failure to adequately evaluate and implement vendor recommended preventive maintenance on reactor feed pump limit switches. Inadequate maintenance on the Reactor Feed Pump B limit switch resulted in the Reactor Feed Pump B turbine speed decrease and an unplanned reduction in reactor power. The vendor recommended replacement of the switches every turbine overhaul (approximately every 5 years). The licensee had never replaced the switches.

4. A self-revealing finding was identified associated with the licensee's failure to adequately evaluate and implement vendor recommended preventive maintenance on the service air compressor motors. Inadequate maintenance on the motor resulted in damage to the motor windings and the compressor was declared inoperable.
5. A self-revealing finding was identified associated with the licensee's failure to adequately evaluate vendor data in support of a modification to the reactor feed system startup flow control valves. The design change failed to ensure component temperature ratings were not exceeded, which resulted in adversely affecting valve operation. Specifically, the licensee's evaluation failed to recognize and address acceptable O-ring types for the temperatures of the reactor feed system.

These adverse trends have also been identified by the licensee during the assessment period as an area for improvement in both their strategic improvement plan (developed in response to entering the Multiple/Repetitive Degraded Cornerstone) and Corrective Action Program adverse trend reports. The NRC recognizes that Cooper Nuclear Station has implemented actions to improve human performance (e.g., training, oversight, process improvements, raised standards and expectations) and that some improvement has been observed throughout the assessment period; however, until the substantive cross-cutting issue is closed based on a reduction in the number of findings associated with the previously identified casual factors, the NRC will continue to focus baseline inspection efforts in this area.

**Safety-Conscious Working Environment: No issues or findings.**

**Problem Identification and Resolution Cross-Cutting Concern:**

Over the course of the assessment period, nine Green findings were identified in the initiating events and mitigating systems cornerstone with a causal relationship of failure

to promptly identify and correct adverse conditions and failures to implement effective corrective actions to prevent recurrence of failures.

### Identification

1. The licensee failed to promptly identify and enter HPCI procedure violations into the corrective action process following the November 2003 reactor scram. Inspectors had to prompt licensee to enter this condition into the corrective action program.
2. Due to errors in resolution of regrading the 2003 licensed operator requalification biennial written examinations, three licensed operators were returned to licensed duties, but were later determined to have failed their requalification examinations. As a result, remedial training and re-examination was not completed before returning the affected operators to licensed duties. The failure to accurately grade the requalification written examinations was a performance deficiency that was more than minor because the licensee did have an opportunity to identify and correct the grading errors prior to returning operators to licensed duties. The finding is of very low safety significance because it resulted in six operators passing the requalification examination who should have been evaluated as failed.
3. The inspectors identified Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for the failure to follow procedures for the installation of temporary shielding. During a plant tour, the inspectors identified that temporary shielding was in contact with residual heat removal system components resulting in residual heat removal shutdown cooling being declared inoperable. This finding has crosscutting aspect associated with problem identification and resolution based on the fact that the licensee missed several opportunities to identify and evaluate the shielding.
4. On October 22, 2004, the inspectors identified that a compensatory fire watch, responsible for protecting equipment important to safety from fire damage, was not alert and therefore was inattentive to the areas assigned as directed by procedural requirements. This finding had crosscutting aspects associated with problem identification and resolution due to the licensee's failure to enter this condition into the corrective action program until prompted by the inspectors approximately 10 days following its identification.
5. Specifically, on numerous occasions the licensee failed to promptly identify that environmental temperatures outside design specifications could potentially affect the function of equipment important to safety. As a result, the licensee failed to promptly evaluate this adverse condition in a timely manner. Failure to take timely and effective corrective actions associated with the stratification of reactor

coolant in the reactor vessel. In May 2003, following a reactor scram, stratification occurred which resulted in exceeding Technical Specification heat up and cooldown rates for the reactor vessel. Corrective actions for that event failed to prevent recurrence of the condition in November 2003.

#### Corrective Action

1. In May 2003, following a reactor scram, stratification occurred which resulted in exceeding Technical Specification heat up and cooldown rates for the reactor vessel. Corrective actions for that event failed to prevent recurrence of the condition in November 2003.
2. Inadequate maintenance on the Reactor Feed Pump B limit switch resulted in the Reactor Feed Pump B turbine speed decrease and an unplanned reduction in reactor power. The licensee failed to implement preventive maintenance requirements to ensure appropriate industry recommendations were incorporated in the preventive maintenance program. This finding has cross-cutting aspects associated with problem identification and resolution based on the fact that corrective actions for a similar limit switch failure were never implemented.
3. The licensee failed to correct a condition adverse to quality regarding inadvertent actuations of safety-related relays. In May 2004, an additional inadvertent relay actuation during a maintenance activity caused Service Water Pump B to trip.
4. On March 23, 2004, the inlet strainer on Fuel Oil Day Tank 1 became clogged with corrosion debris, rendering Emergency Diesel Generator 1 inoperable. This was the third occurrence of this event in 13 months.

These adverse trends have also been identified by the licensee during the assessment period as an area for improvement in both their strategic improvement plan (developed in response to entering the Multiple/Repetitive Degraded Cornerstone) and Corrective Action Program adverse trend reports. The NRC recognizes that Cooper Nuclear Station has implemented actions to improve consistent implementation of the corrective action program (e.g., improved root and apparent cause analysis, lower threshold for entering problems into the system, improved metrics, etc.) and that some improvement has been observed throughout the assessment period; however, until the substantive cross-cutting issue is closed based on a reduction in the number of findings associated with the previously identified casual factors the NRC will continue to focus baseline inspection efforts in this area.

#### B. Performance Indicator Verification

No significant issues were identified during the review of licensee performance indicators.

**C. Non-SDP Enforcement Action**

None

**V Miscellaneous Topics/Conclusions/Recommendations**

Following closure of the White emergency preparedness inspection findings, Region IV received approval to deviate from the Action Matrix and maintain the level of oversight of CNS consistent with the Multiple/Repetitive Degraded Cornerstone Column of the Action Matrix; while CNS continued to implement improvement initiatives in the other areas confirmed in the CAL.

During a public meeting on January 25, 2005, the NRC informed NPPD that the commitments documented in the CAL were satisfied and that the CAL was closed. The NRC based this decision on baseline inspections, six quarterly inspections that verified completion of CAL actions and the effectiveness of the actions in addressing specific performance issues. Closure was also based on an NRC independent review of the licensee's CAL self-assessment. As a result of closing the CAL, NRC oversight of CNS will be reduced to a level consistent with the Regulatory Response Column of the NRC Action Matrix. Currently, CNS has a White inspection finding in the Mitigating Systems Cornerstone.

**VI Attachments**

Plant Issues Matrix

Proposed Inspection Plan

Previous mid-cycle assessment letter



# U.S. Nuclear Regulatory Commission



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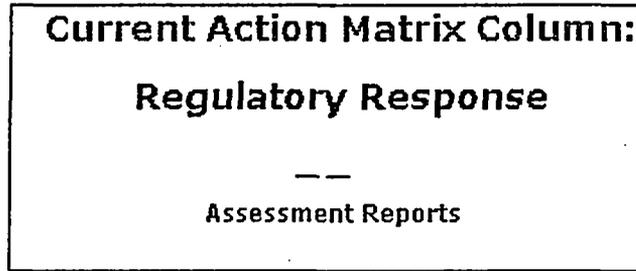
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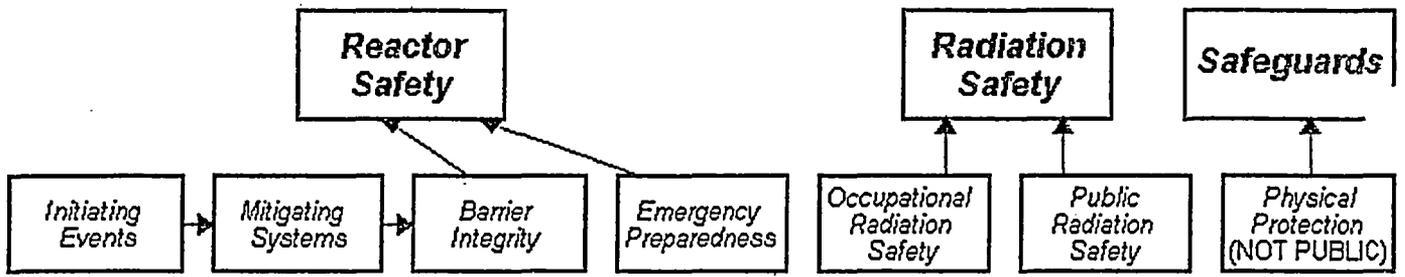
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## Cooper 4Q/2004 Performance Summary

*Release*



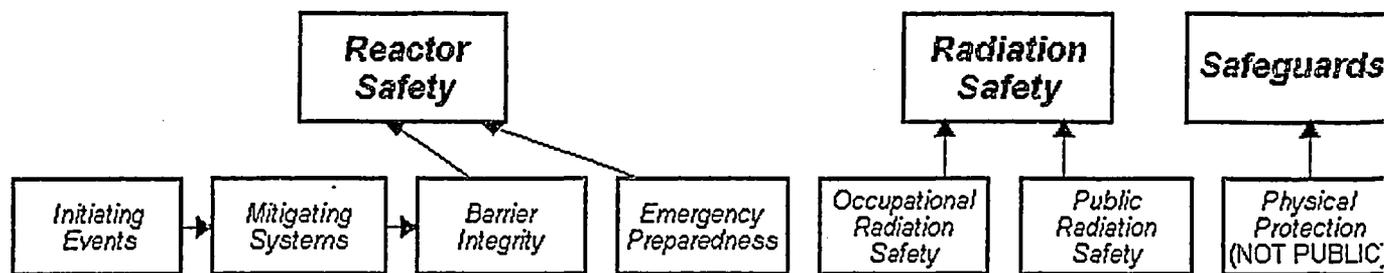


**Performance Indicators**

Unplanned Seizure (G)	Emergency Power System Unavailability (G)	Reactor Coolant System Activity (G)	Oil/Exerciser Performance (G)	Occupational Exposure Control Effectiveness (G)	RETS/ADCM Radiation Event (G)
Seizure with loss of Normal Power Removal (G)	High Pressure Injection System Unavailability (G)	Reactor Coolant System Leakage (G)	ERD Performance (G)		
Unplanned Power Change (G)	Heat Removal System Unavailability (G)		Alerting Notification System (G)		
	Residual Heat Removal System Unavailability (G)				
	Safety System Functional Failure (G)				

Last Modified: March 9, 2005

Legend: R=Red    W=White    T=Thresholds under development    N=Not Applicable    D=Discrepant  
 Y=Yellow    G=Green    I=Insufficient data to calculate PI    U=Unique Design



**Most Significant Inspection Findings**

4Q/2004	No findings this quarter	G	No findings this quarter	No findings this quarter	G	No findings this quarter
3Q/2004	G	G	No findings this quarter	No findings this quarter	G	No findings this quarter
2Q/2004	No findings this quarter	G	No findings this quarter			
1Q/2004	G	W (1)	G	No findings this quarter	No findings this quarter	No findings this quarter

Miscellaneous findings

**Additional Inspection & Assessment Information**

◆ Assessment Reports/Inspection Plans:

- 4Q/2004
- 3Q/2004
- 2Q/2004
- 1Q/2004

◆ List of Inspection Reports

◆ List of Assessment Letters/Inspection Plans

◆ Cross Reference Of Assessment Reports

Last Modified: March 9, 2005



**U.S. Nuclear Regulatory Commission**

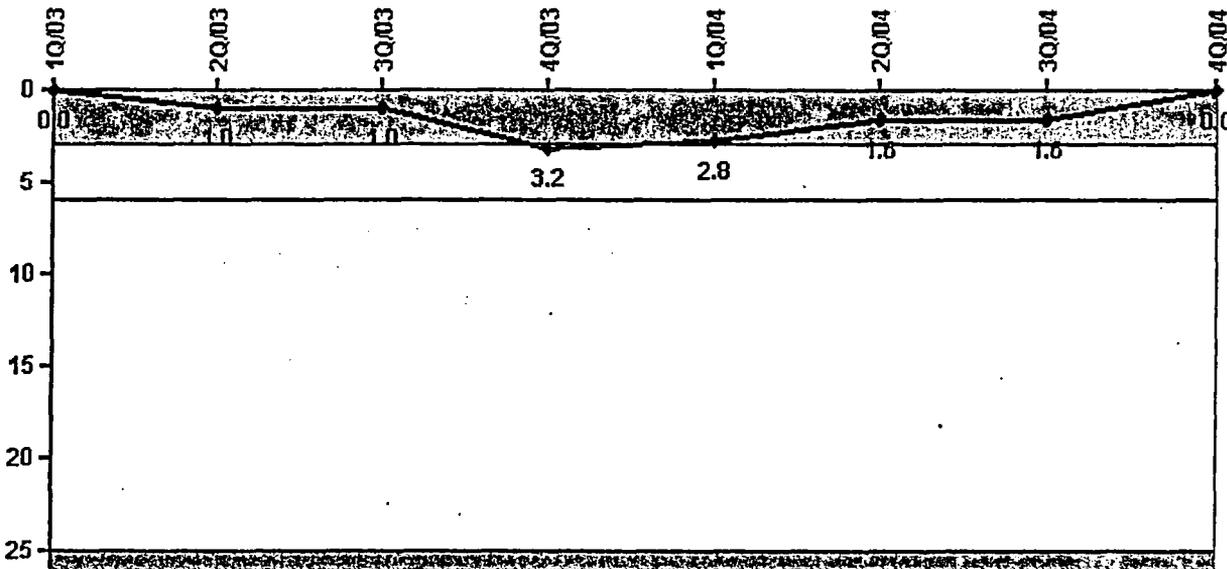
**Cooper**

*Release*

**4Q/2004 Performance Indicators**

Licensee's General Comments: Forced Turbine Outage in October-November

**Unplanned Scrams per 7000 Critical Hrs**



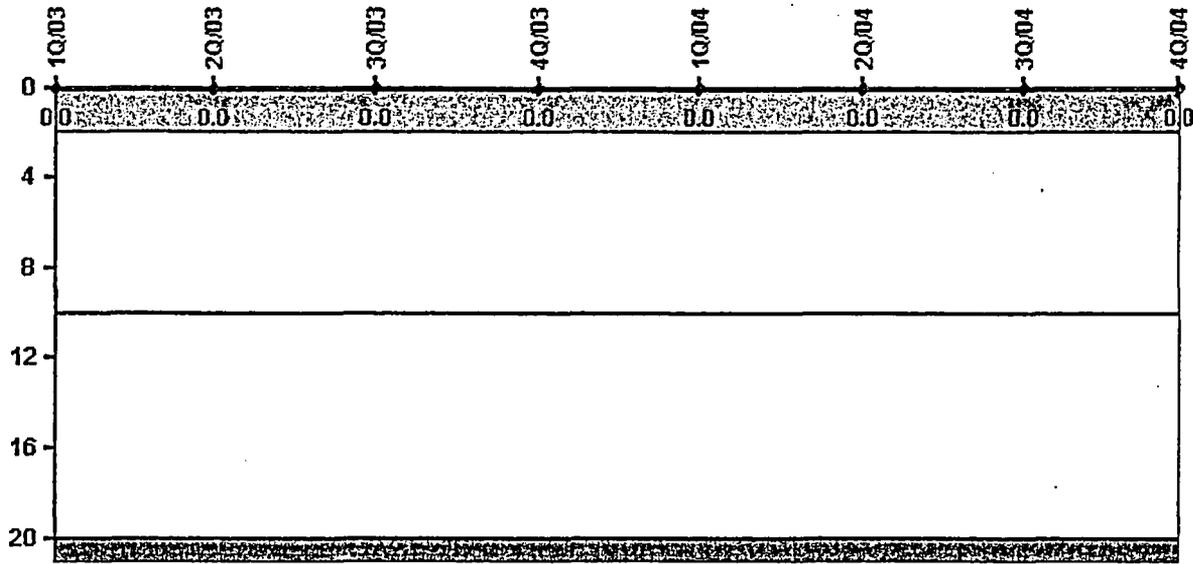
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

**Notes**

Unplanned Scrams per 7000 Critical Hrs	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
Unplanned scrams	0	1.0	0	2.0	0	0	0	0
Critical hours	1296.0	988.6	2208.0	2000.7	2184.0	2183.0	2208.0	1743.0
Indicator value	0	1.0	1.0	3.2	2.8	1.6	1.6	0

Licensee Comments: none

### Scrams with Loss of Normal Heat Removal



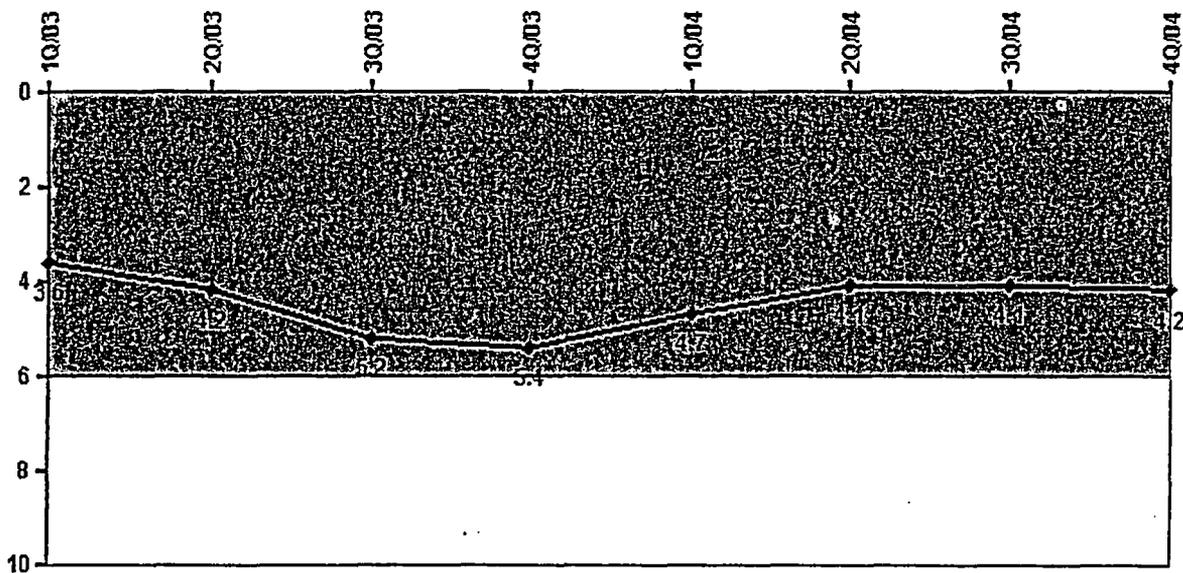
Thresholds: White > 2.0 Yellow > 10.0 Red > 20.0

Notes

Scrams with Loss of Normal Heat Removal	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
Scrams	0	0	0	0	0	0	0	0
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

## Unplanned Power Changes per 7000 Critical Hrs



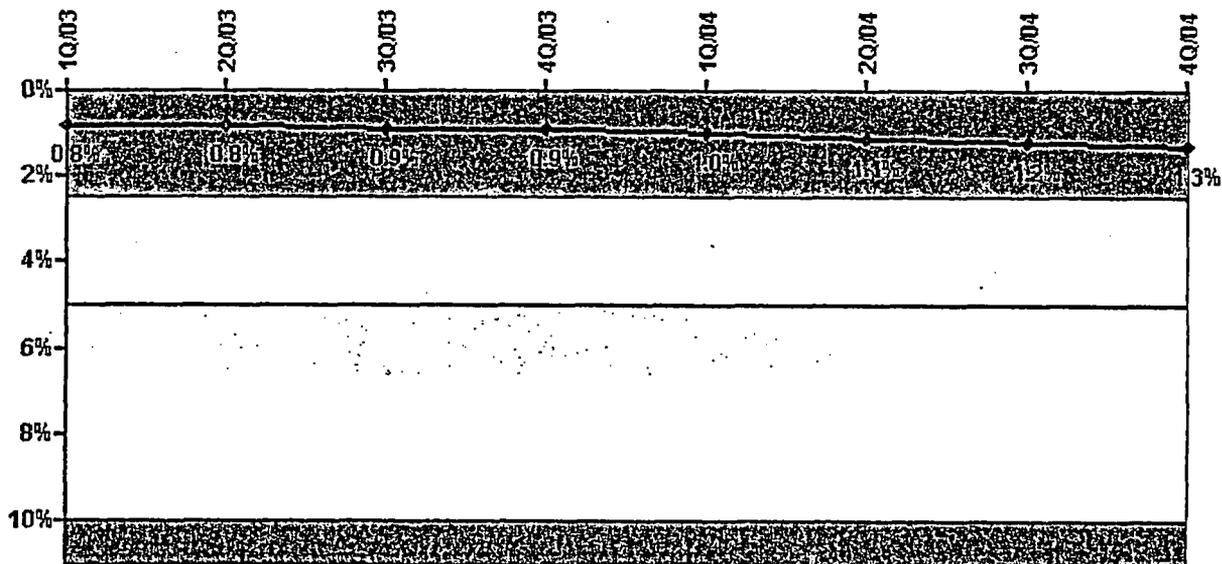
Thresholds: White > 6.0

### Notes

Unplanned Power Changes per 7000 Critical Hrs	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
Unplanned power changes	1.0	2.0	1.0	1.0	1.0	2.0	1.0	1.0
Critical hours	1296.0	988.6	2208.0	2000.7	2184.0	2183.0	2208.0	1743.0
Indicator value	3.6	4.2	5.2	5.4	4.7	4.1	4.1	4.2

Licensee Comments: none

## Safety System Unavailability, Emergency AC Power



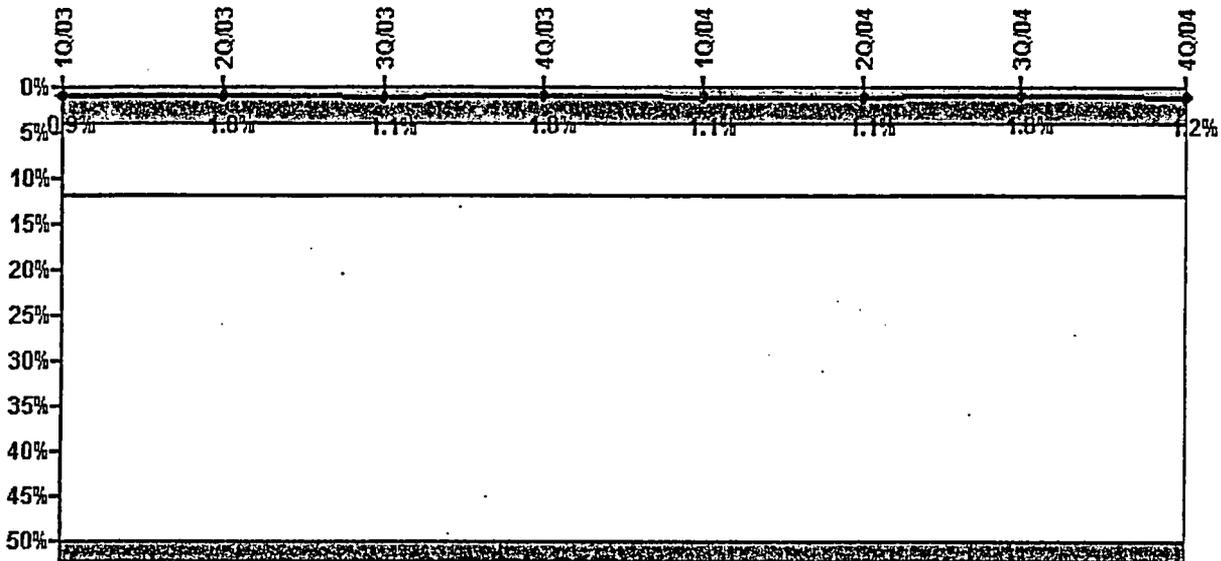
Thresholds: White > 2.5% Yellow > 5.0% Red > 10.0%

### Notes

Safety System Unavailability, Emergency AC Power	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
<b>Train 1</b>								
Planned unavailable hours	0	14.72	16.12	17.97	4.72	28.40	5.43	24.57
Unplanned unavailable hours	0	0	0	0	66.50	0	0	23.75
Fault exposure hours	0	0	0	0	0	0	0	0
Effective Reset hours	0	0	0	0	0	0	0	0
Required hours	2160.00	2183.00	2208.00	2209.00	2184.00	2183.00	2208.00	2209.00
<b>Train 2</b>								
Planned unavailable hours	0	6.07	4.25	52.73	7.20	29.57	81.48	20.03
Unplanned unavailable hours	0	0	9.53	0	27.75	0	0	0
Fault exposure hours	0	0	0	0	0	0	0	0
Effective Reset hours	0	0	0	0	0	0	0	0
Required hours	2160.00	2183.00	2208.00	2209.00	2184.00	2183.00	2208.00	2209.00
<b>Indicator value</b>	<b>0.8%</b>	<b>0.8%</b>	<b>0.9%</b>	<b>0.9%</b>	<b>1.0%</b>	<b>1.1%</b>	<b>1.2%</b>	<b>1.3%</b>

Licensee Comments: none

# Safety System Unavailability, High Pressure Injection System (HPCI)



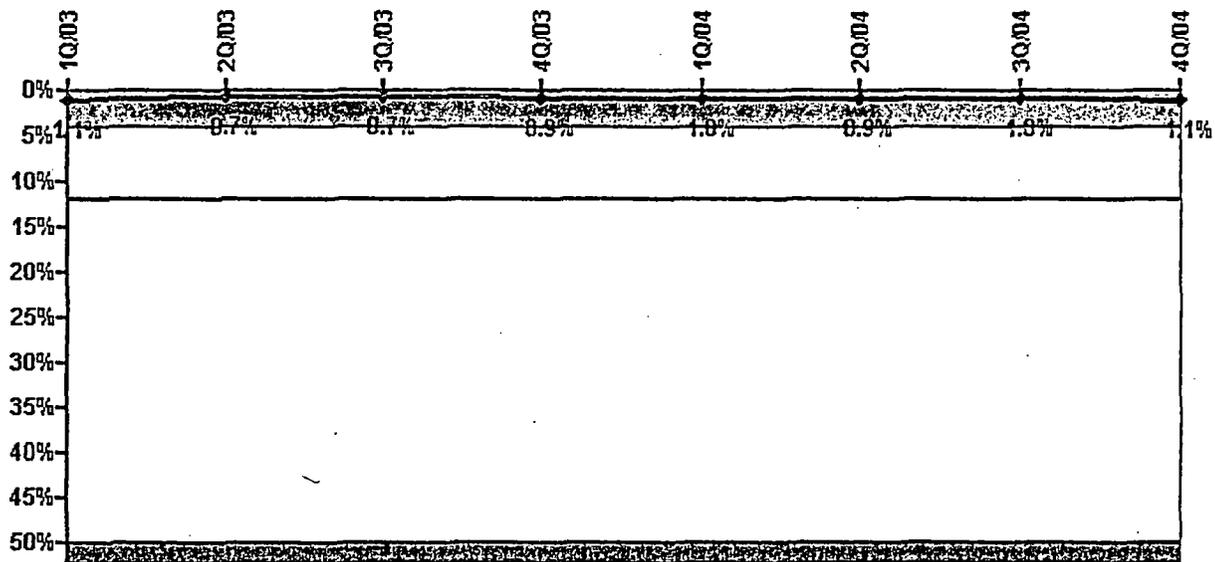
Thresholds: White > 4.0% Yellow > 12.0% Red > 50.0%

## Notes

Safety System Unavailability, High Pressure Injection System (HPCI)	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
<b>Train 1</b>								
Planned unavailable hours	1.22	12.82	18.48	17.70	22.93	2.42	1.66	62.12
Unplanned unavailable hours	0	2.13	0	0	0	0	0	0
Fault exposure hours	0	0	0	0	0	0	0	0
Effective Reset hours	0	0	0	0	0	0	0	0
Required hours	1299.40	941.33	2208.00	2002.37	2184.00	2183.00	2208.00	1741.76
Indicator value	0.9%	1.0%	1.1%	1.0%	1.1%	1.1%	1.0%	1.2%

Licensee Comments: none

## Safety System Unavailability, Heat Removal System (RCIC)



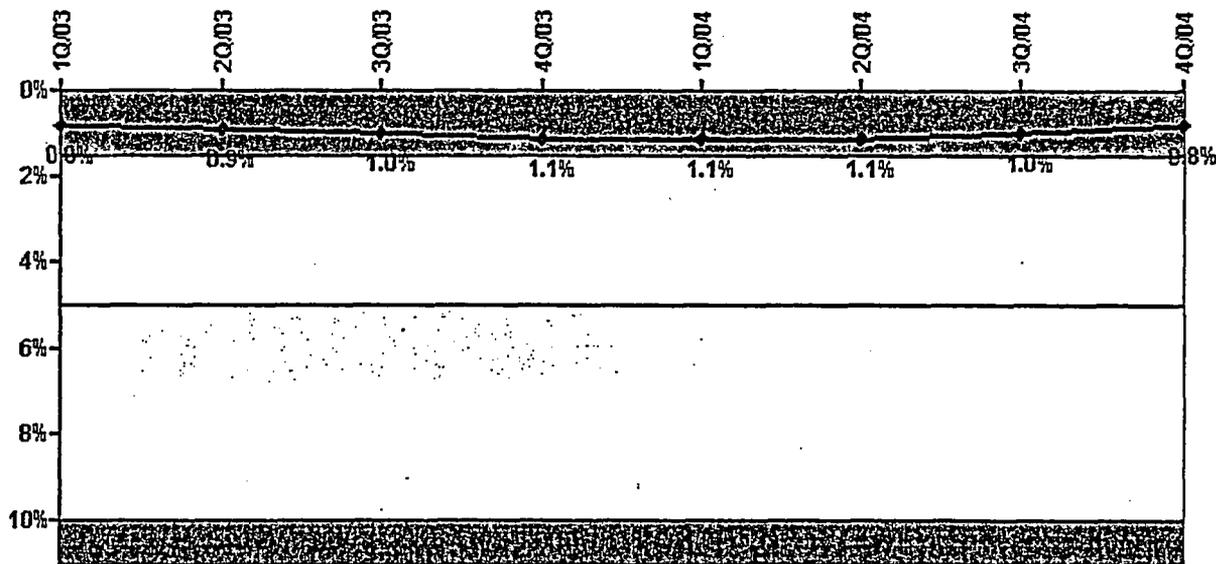
Thresholds: White > 4.0% Yellow > 12.0% Red > 50.0%

### Notes

Safety System Unavailability, Heat Removal System (RCIC)	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
<b>Train 1</b>								
Planned unavailability hours	1.35	2.45	2.84	41.63	10.29	1.07	22.17	31.79
Unplanned unavailability hours	0	0	0	7.87	3.33	0	1.60	0
Fault exposure hours	0	0	0	0	0	0	0	0
Effective Reset hours	0	0	0	0	0	0	0	0
Required hours	1299.40	941.33	2208.00	2002.37	2184.00	2183.00	2208.00	1741.76
<b>Indicator value</b>	<b>1.1%</b>	<b>0.7%</b>	<b>0.7%</b>	<b>0.9%</b>	<b>1.0%</b>	<b>0.9%</b>	<b>1.0%</b>	<b>1.1%</b>

Licensee Comments: none

### Safety System Unavailability, Residual Heat Removal System



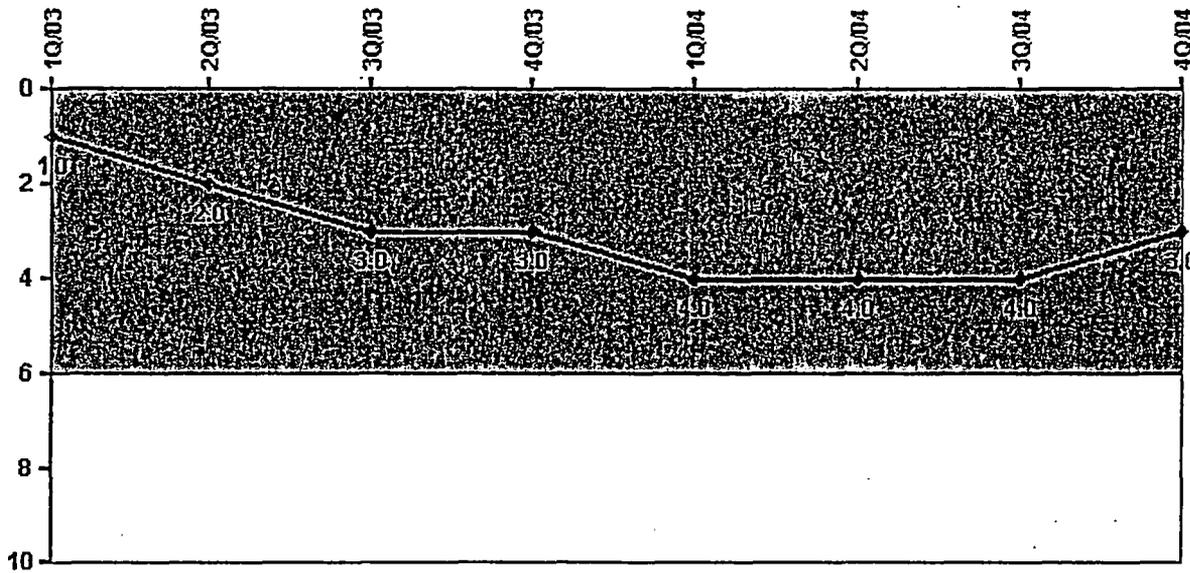
Thresholds: White > 1.5% Yellow > 5.0% Red > 10.0%

Notes

Safety System Unavailability, Residual Heat Removal System	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
<b>Train 1</b>								
Planned unavailable hours	21.42	26.82	0	0	1.08	0	7.55	0
Unplanned unavailable hours	0	0	0	33.34	0	0	0	0
Fault exposure hours	0	0	0	0	0	0	0	0
Effective Reset hours	0	0	0	0	0	0	0	0
Required hours	2160.00	2183.00	2208.00	2209.00	2184.00	2183.00	2208.00	2209.00
<b>Train 2</b>								
Planned unavailable hours	50.50	15.58	0	21.92	1.15	0	10.08	0
Unplanned unavailable hours	0	0	64.50	0	0	0	0	0.27
Fault exposure hours	0	0	0	0	0	0	0	0
Effective Reset hours	0	0	0	0	0	0	0	0
Required hours	2160.00	2183.00	2208.00	2209.00	2184.00	2183.00	2208.00	2209.00
<b>Indicator value</b>	<b>0.8%</b>	<b>0.9%</b>	<b>1.0%</b>	<b>1.1%</b>	<b>1.1%</b>	<b>1.1%</b>	<b>1.0%</b>	<b>0.8%</b>

Licensee Comments: none

### Safety System Functional Failures (BWR)



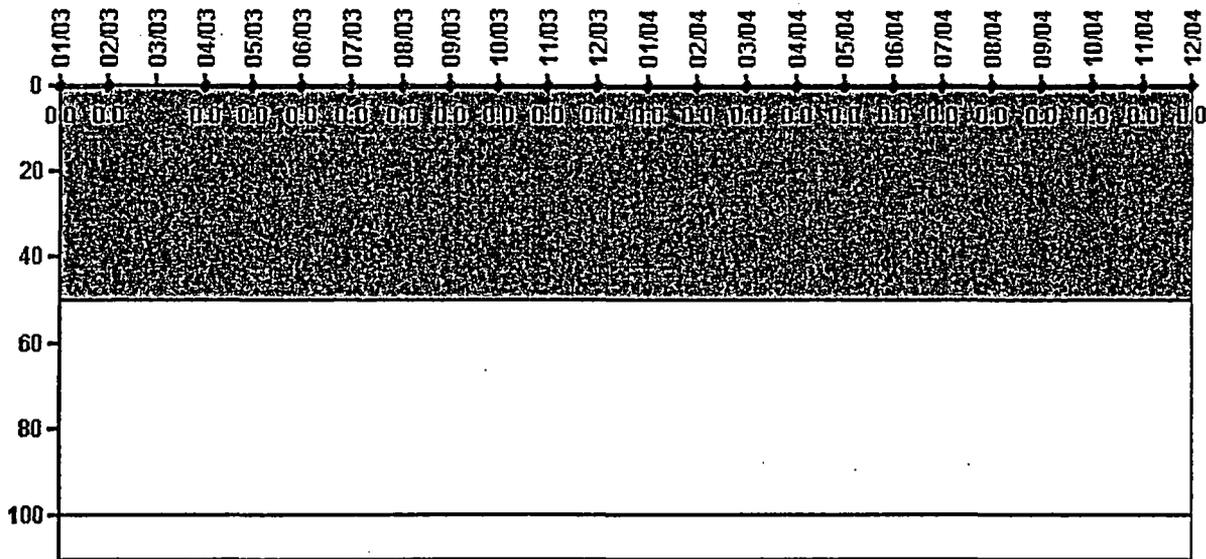
Thresholds: White > 6.0

Notes

Safety System Functional Failures (BWR)	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
Safety System Functional Failures	0	1	1	1	1	1	1	0
Indicator value	1	2	3	3	4	4	4	3

Licensee Comments: none

# Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

## Notes

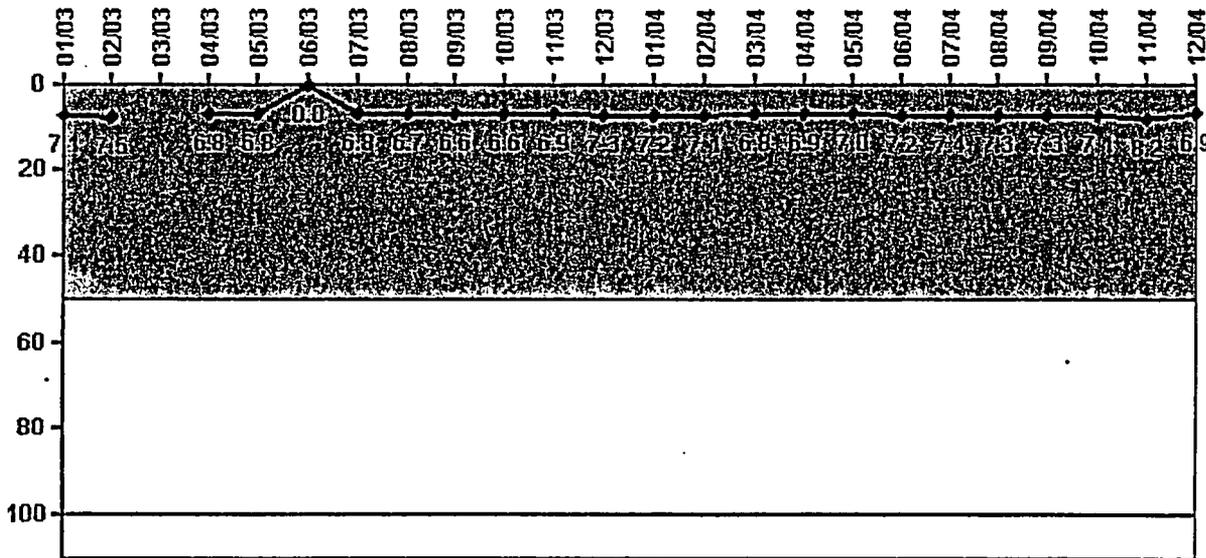
Reactor Coolant System Activity	1/03	2/03	3/03	4/03	5/03	6/03	7/03	8/03	9/03	10/03	11/03	12/03
Maximum activity	0.000050	0.000021	N/A	0.000023	0.000042	0.000008	0.000014	0.000010	0.000023	0.000019	0.000053	0.000043
Technical specification limit	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indicator value	0	0	N/A	0	0	0	0	0	0	0	0	0

Reactor Coolant System Activity	1/04	2/04	3/04	4/04	5/04	6/04	7/04	8/04	9/04	10/04	11/04	12/04
Maximum activity	0.000036	0.000025	0.000018	0.000038	0.000026	0.000023	0.000027	0.000026	0.000022	0.000023	0.000031	0.000022
Technical specification limit	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indicator value	0	0	0	0	0	0	0	0	0	0	0	0

Licensee Comments: none

## Reactor Coolant System Leakage



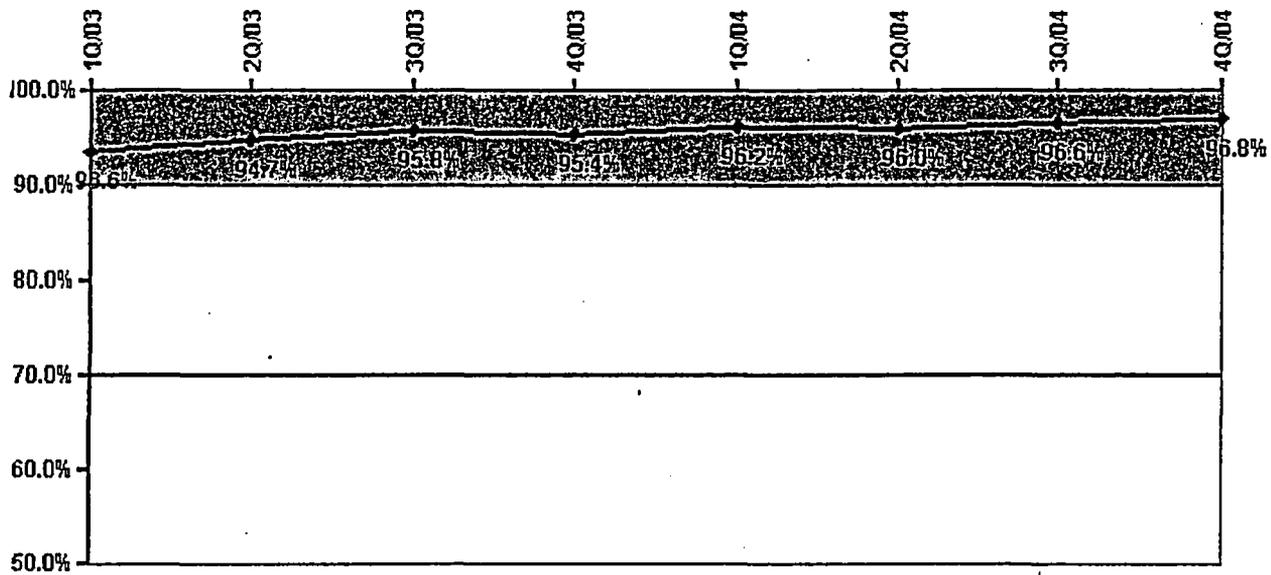
Thresholds: White > 50.0 Yellow > 100.0

### Notes

Reactor Coolant System Leakage	1/03	2/03	3/03	4/03	5/03	6/03	7/03	8/03	9/03	10/03	11/03	12/03
Maximum leakage	2.130	2.252	N/A	2.030	2.030	0	2.030	2.000	1.980	1.980	2.080	2.180
Technical specification limit	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Indicator value	7.1	7.5	N/A	6.8	6.8	0	6.8	6.7	6.6	6.6	6.9	7.3
Reactor Coolant System Leakage	1/04	2/04	3/04	4/04	5/04	6/04	7/04	8/04	9/04	10/04	11/04	12/04
Maximum leakage	2.168	2.123	2.030	2.060	2.100	2.160	2.223	2.192	2.180	2.144	2.454	2.060
Technical specification limit	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Indicator value	7.2	7.1	6.8	6.9	7.0	7.2	7.4	7.3	7.3	7.1	8.2	6.9

Licensee Comments: none

## Drill/Exercise Performance



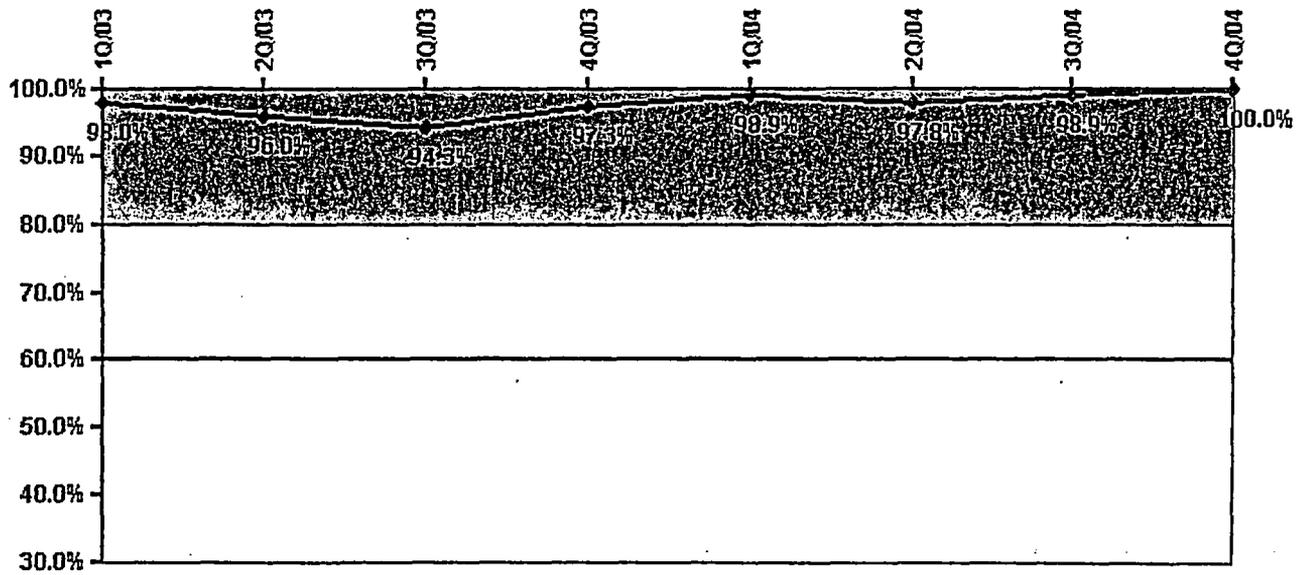
Thresholds: White < 90.0% Yellow < 70.0%

### Notes

Drill/Exercise Performance	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
Successful opportunities	3.0	2.0	58.0	116.0	24.0	2.0	71.0	23.0
Total opportunities	3.0	2.0	60.0	122.0	24.0	3.0	72.0	23.0
Indicator value	93.6%	94.7%	95.8%	95.4%	96.2%	96.0%	96.6%	96.8%

Licensee Comments: none

### ERO Drill Participation



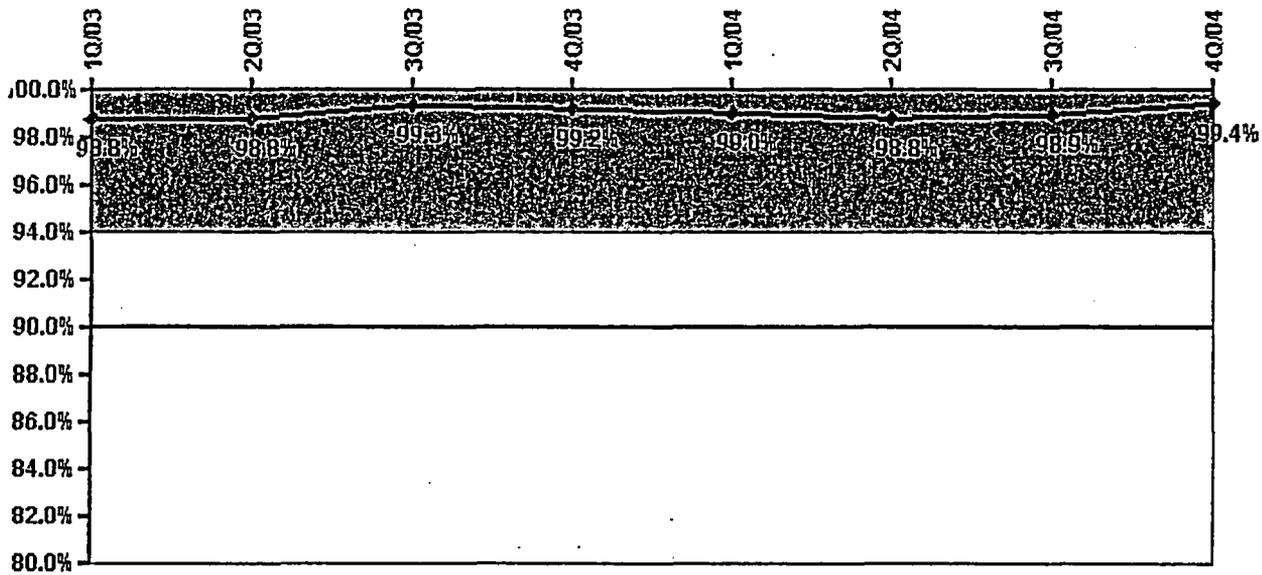
Thresholds: White < 80.0% Yellow < 60.0%

Notes

ERO Drill Participation	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
Participating Key personnel	96.0	95.0	99.0	107.0	90.0	87.0	87.0	90.0
Total Key personnel	98.0	99.0	105.0	110.0	91.0	89.0	88.0	90.0
Indicator value	98.0%	96.0%	94.3%	97.3%	98.9%	97.8%	98.9%	100.0%

Licensee Comments: none

## Alert & Notification System



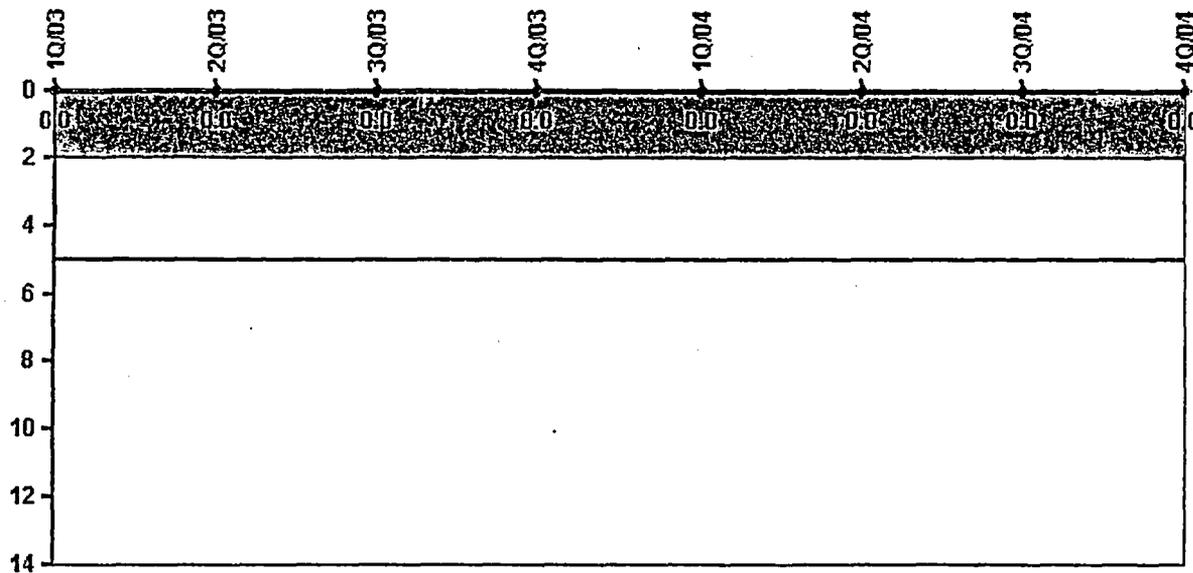
Thresholds: White < 94.0% Yellow < 90.0%

### Notes

Alert & Notification System	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
Successful siren-tests	143	144	144	166	142	143	239	311
Total sirens-tests	144	144	144	170	144	144	240	312
Indicator value	98.8%	98.8%	99.3%	99.2%	99.0%	98.8%	98.9%	99.4%

Licensee Comments: none

## Occupational Exposure Control Effectiveness



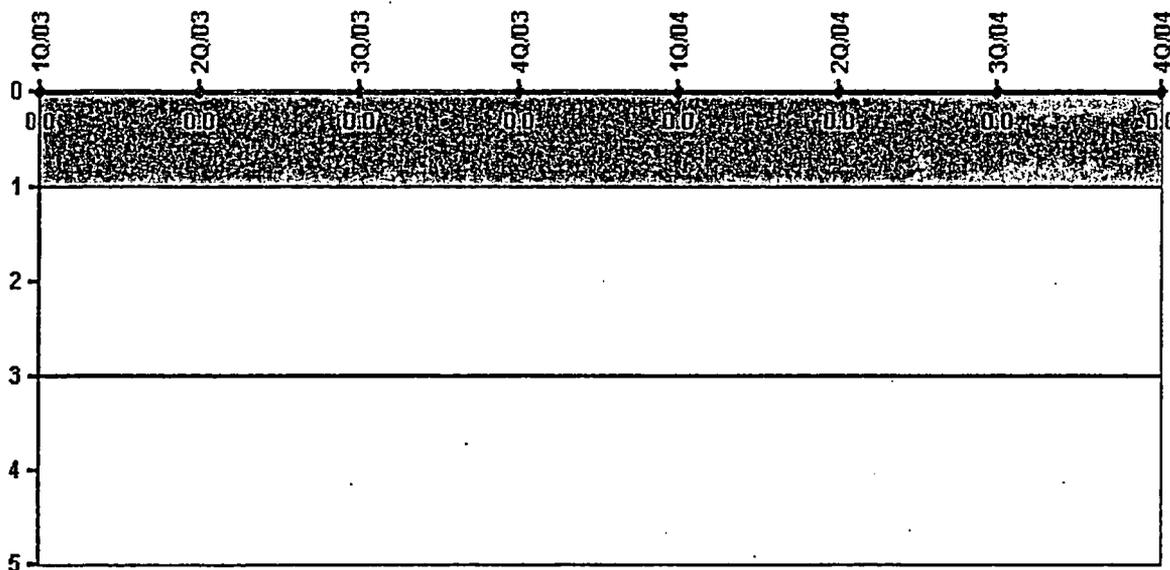
Thresholds: White > 2.0 Yellow > 5.0

**Notes**

Occupational Exposure Control Effectiveness	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
High radiation area occurrences	0	0	0	0	0	0	0	0
Very high radiation area occurrences	0	0	0	0	0	0	0	0
Unintended exposure occurrences	0	0	0	0	0	0	0	0
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

### RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

Notes

RETS/ODCM Radiological Effluent	1Q/03	2Q/03	3Q/03	4Q/03	1Q/04	2Q/04	3Q/04	4Q/04
RETS/ODCM occurrences	0	0	0	0	0	0	0	0
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

Physical Protection Information not publicly available.

[Action Matrix Summary](#) | [Inspection Findings Summary](#) | [PI Summary](#) | [Reactor Oversight Process](#)

Last Modified: March 9, 2005



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## Cooper 4Q/2004 Plant Inspection Findings

### Initiating Events

**Significance:**  Sep 23, 2004

Identified By: Self Disclosing

Item Type: FIN Finding

#### **Inadequate preventive maintenance on reactor feed pump limit switches.**

A self-revealing finding was identified for the failure to perform adequate maintenance on reactor feed pump limit switches. Inadequate maintenance on the Reactor Feed Pump B limit switch resulted in the Reactor Feed Pump B turbine speed decrease and an unplanned reduction in reactor power. The licensee failed to implement preventive maintenance requirements to ensure appropriate industry recommendations were incorporated in the preventive maintenance program.

This finding was more than minor since it affected the reactor safety initiating events cornerstone attribute of equipment performance. It was considered to be of very low safety significance since it did not contribute to the likelihood of a loss of coolant accident, did not contribute to the loss of mitigation equipment, and did not increase the likelihood of a fire or flooding event. This finding has cross-cutting aspects associated with problem identification and resolution based on the fact that corrective actions for a similar limit switch failure were never implemented.

Inspection Report# : [2004004\(pdf\)](#)

**Significance:**  Sep 23, 2004

Identified By: Self Disclosing

Item Type: FIN Finding

#### **Inadequate preventive maintenance on service aire Compressor A**

A self-revealing finding was identified associated with the licensee's failure to perform adequate maintenance on service air compressors. Inadequate maintenance on the motor resulted in damage to the motor windings and the compressor was declared inoperable. The licensee failed to implement preventive maintenance requirements that incorporated vendor recommendations for the motor windings.

This finding was more than minor since it affected the reactor safety initiating events cornerstone attribute of equipment performance. It was considered to be of very low safety significance since it did not contribute to the likelihood of a loss of coolant accident, did not contribute to the loss of mitigation equipment, and did not increase the likelihood of a fire or flooding event.

Inspection Report# : [2004004\(pdf\)](#)

**Significance:**  Jul 23, 2004

Identified By: NRC

Item Type: FIN Finding

#### **Inadequate PM Results in Plant Transient**

A self-revealing finding was identified associated with the licensee's failure to perform adequate maintenance on Reactor Recirculation Motor Generator A. Inadequate maintenance on the motor generator field brushes resulted in the loss of field voltage, an unexpected trip of the motor generator, and an unplanned reduction in reactor power. The licensee failed to change their preventive maintenance requirements to incorporate vendor recommendations following modification of the brushes. This finding was more than minor since it affected the Reactor Safety Initiating Events cornerstone attribute of design control and resulted in a plant transient. It was considered to be of very low safety significance since it did not contribute to the likelihood of a loss-of-coolant accident, did not contribute to the loss of mitigation equipment, and did not increase the likelihood of a fire or flooding event.



**Significance:** Mar 24, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Ineffective Corrective Actions for Failure to Promptly Identify and Correct Conditions Adverse to Quality(No. One of three examples. Other examples listed in Mitigating Systems 2004002-04)**

The Inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, for failure to take timely and effective corrective actions associated with the stratification of reactor coolant in the reactor vessel. In May 2003, following a reactor scram, stratification occurred which resulted in exceeding TS heat up and cooldown rates for the reactor vessel. Corrective actions for that event failed to prevent recurrence of the condition in November 2003. This finding was more than minor because it affected the initiating events cornerstone and was associated with the cornerstone attribute of equipment performance of Reactor Coolant System (RCS) barrier, but was of very low safety significance since it did not contribute to the likelihood of a primary or secondary system LOCA, did not contribute to a loss of mitigation equipment, and did not increase the likelihood of a fire or internal/external flood. In addition, it had crosscutting aspects associated with problem identification and resolution since the corrective actions did not prevent recurrence.

Inspection Report# : [2004002\(pdf\)](#)



**Significance:** Mar 24, 2004

Identified By: NRC

Item Type: FIN Finding

**Failure to Evaluate an Operator Work-around Created by Compensatory Measures**

The Inspectors identified a finding regarding the failure to evaluate an operator work-around created by compensatory measures for the loss of alarm functions on Reactor Feed Pump (RFP) A. The failure to perform this evaluation had a negative impact on operator performance since not all operating crews were informed of the compensatory measures. This finding was more than minor because it was associated with the configuration control of plant equipment but was considered to have very low safety significance since it did not contribute to the likelihood of a primary or secondary system LOCA, did not contribute to a loss of mitigation equipment, and did not increase the likelihood of a fire or internal/external flood.

Inspection Report# : [2004002\(pdf\)](#)



**Significance:** Mar 24, 2004

Identified By: NRC

Item Type: FIN Finding

**Failure to Appropriately Evaluate a Temporary Modification**

The Inspectors identified a finding regarding the failure to evaluate a temporary modification to the RFP A control cabinet. Two supervisory alarms were disabled due to nuisance alarms caused by a programming error in the control system. A portable computer and remote camera were staged at the control cabinet to compensate for the loss of these alarms but adequate controls were not established in accordance with the licensee's temporary modification procedure. This finding was more than minor because it was associated with the configuration control of plant equipment but was considered to have very low safety significance since it did not contribute to the likelihood of a primary or secondary system LOCA, did not contribute to a loss of mitigation equipment, and did not increase the likelihood of a fire or internal/external flood.

Inspection Report# : [2004002\(pdf\)](#)

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## Mitigating Systems



**Significance:** Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement the Station Fire Watch Procedure**

The Inspectors identified a noncited violation of Technical Specification 5.4.1.d for failure to implement the station's fire watch procedure. Specifically, on October 22, 2004, the Inspectors identified that a compensatory fire watch, responsible for protecting equipment important to safety from fire damage, was not alert and therefore was inattentive to the areas assigned as directed by procedural requirements.

This finding was considered more than minor since the finding would become a more significant safety concern if left uncorrected, but it was determined to have very low safety significance since the finding was assigned a moderate fire protection barrier degradation rating and did not degrade the automatic water-based fire suppression system in the fire area. This finding had crosscutting aspects associated with problem identification and resolution due to the licensee's failure to enter

this condition into the corrective action program until prompted by the inspectors approximately 10 days following its identification.

Inspection Report# : [2004005\(pdf\)](#)



**Significance:** Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Plant Temperatures Outside Updated Safety Analysis Report Limits**

The Inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, in that the licensee failed to promptly identify conditions adverse to quality when plant temperatures were outside the Updated Safety Analysis Report specifications. The system engineer knew of the problems but was not aware of program requirements. The failure to properly identify conditions adverse to quality in the corrective action program involved cross-cutting aspects of problem identification. The Inspectors determined that the issue had more than minor safety significance because it impacted the mitigating systems cornerstone objective and could have affected the ability of safety-related systems to perform their design basis functions. The finding was of very low risk significance because it was a design/qualification deficiency that did not result in a loss of function per Generic Letter 91-18, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions," Revision 1.

Inspection Report# : [2004005\(pdf\)](#)



**Significance:** Sep 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to follow temporary shielding procedure.**

The Inspectors identified Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for the failure to follow procedures for the installation of temporary shielding. During a plant tour, the Inspectors identified that temporary shielding was in contact with residual heat removal system components resulting in residual heat removal shutdown cooling being declared inoperable.

This finding was more than minor since it affected the reactor safety mitigating systems cornerstone attribute of configuration control but it was considered to have very low safety significance since the condition did not involve any actual loss of function to the safety-related components and did not screen as risk significant due to seismic, fire, flooding or severe weather event.

This finding has crosscutting aspect associated with problem identification and resolution based on the fact that the licensee missed several opportunities to identify and evaluate the shielding.

Inspection Report# : [2004004\(pdf\)](#)

**Significance:** TBD Jul 10, 2004

Identified By: NRC

Item Type: AV Apparent Violation

**Inadequate instructions for restoration of the SW system following maintenance**

A self-revealing apparent violation of 10 CFR Part 50, Appendix B, Criterion V, was identified for the failure to provide adequate instructions for restoring the service water system to an operable configuration following the completion of maintenance activities. This condition existed from January 21 through February 11, 2004, and resulted in Division 2 of the service water system as well as Emergency Diesel Generator 2 being inoperable for 21 days. The finding was greater than minor because it affected the reliability of the service water system, which is relied upon to mitigate the effects of an accident. The finding was determined to have a potential safety significance greater than very low significance (i.e., Greater than Green) because it caused an increase in the likelihood of an initiating event, namely, a loss of service water, as well as increasing the probability that the service water system would not be available to perform its mitigating systems function.

Inspection Report# : [2004014\(pdf\)](#)



**Significance:** May 12, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Take Corrective Actions for Safety-Related Relay Actuations**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to correct a condition adverse to quality regarding inadvertent actuations of safety-related relays. In May 2004, an additional inadvertent relay actuation during a maintenance activity caused Service Water Pump B to trip.

This finding was more than minor since it affected the availability and reliability of an operating service water pump, but it was considered to have very low safety significance since it did not represent the loss of a safety function. This finding also had crosscutting aspects associated with problem identification and resolution based on the fact that the condition was entered into the corrective action program but no corrective actions were ever implemented.

Inspection Report# : [2004003\(pdf\)](#)

**Significance:** N/A May 12, 2004

Identified By: NRC

Item Type: VIO Violation

**Failure to maintain a systems approach to training led to high failure rates on the biennial requalification examinations**

A violation of 10 CFR 55.59(c) was identified. Specifically, the licensee failed to adequately implement a systems approach to training for licensed operator requalification training during the February 25, 2002, through January 11, 2004, requalification training cycle. Reduction of training on plant systems and technical specifications, lack of periodic examinations to test training effectiveness, examination administration issues, and other failures to follow program guidance resulted in a high failure rate on requalification examinations administered in November and December 2003. The failure rate on the biennial written examination exceeded 25 percent. Immediate corrective actions implemented by the licensee included remedial training and retesting those operators who failed prior to returning operators to licensed duties. The licensee also conducted a root-cause analysis, identified several programmatic failures, and initiated corrective actions to address those programmatic issues.

Since this violation was associated with the previously issued White finding, described in Section 1R11 of NRC Inspection Report 05000298/2004-009, it is not being considered as a separate escalated enforcement action.

Inspection Report# : [2004011\(pdf\)](#)



**Significance:** G May 12, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Errors in written examination grading resulted in six operators passing who should have failed, three of which were returned to licensed duties.**

A noncited violation of 10 CFR 55.59(b) was identified. Specifically, due to errors in resolution of regrading the 2003 licensed operator requalification biennial written examinations, three licensed operators were returned to licensed duties, but were later determined to have failed their requalification examinations. As a result, remedial training and re-examination was not completed before returning the affected operators to licensed duties.

The failure to accurately grade the requalification written examinations was a performance deficiency that was more than minor because the licensee did have an opportunity to identify and correct the grading errors prior to returning operators to licensed duties. If this performance deficiency was left uncorrected it could result in inadequately trained or incompetent operators performing licensed duties. The finding is of very low safety significance because it resulted in six operators passing the requalification examination who should have been evaluated as failed.

Inspection Report# : [2004011\(pdf\)](#)



**Significance:** G Apr 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to ensure redundant safe shutdown systems located in the same fire area are free of fire damage.**

The team identified a noncited violation of Section III.G.2 of Appendix R to 10 CFR Part 50 for failure to ensure that redundant trains of safe shutdown systems in the same fire area were free of fire damage. For example, cables associated with the automatic depressurization system were not physically protected from fire damage, leaving them vulnerable to spurious operation. The licensee credited manual actions to mitigate the effects of fire damage in lieu of providing the physical protection required by 10 CFR Part 50, Appendix R, Section III.G.2.

This finding is of greater than minor safety significance because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to external events (such as fire) to prevent undesirable consequences. The team found that the manual operator actions implemented to mitigate the effects of fire damage were reasonable (as defined in Enclosure 2 of NRC Inspection Procedure 71111.05, "Fire Protection"), and could be performed within the analyzed time limits. Therefore, in accordance with Enclosure 2 of NRC Inspection Procedure 71111.05, the finding was determined to be of very low safety significance (green), and the significance determination process was not entered.

Inspection Report# : [2004008\(pdf\)](#)



**Significance:** G Apr 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Three examples of a noncited violation of Technical Specification 5.4.1.d for failure to provide adequate**

[http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/CNS/cns\\_pim.html](http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/CNS/cns_pim.html)

04/06/2005

**Instructions in Emergency Procedure 5.4 Fire-S/D, "Fire Induced Shutdown From Outside Control.**

The team identified three examples of a noncited violation of Technical Specification 5.4.1.d for failure to provide adequate instructions in Emergency Procedure 5.4 Fire-S/D, "Fire Induced Shutdown From Outside Control Room," Revision 3. In the first example, the licensee failed to provide adequate instructions to operators to assure that high pressure coolant injection flow would be secured within analyzed times in order to prevent reactor vessel overfill and subsequent damage to safety relief valves. In the second example, the licensee failed to provide adequate instructions to operators to ensure the main steam isolation valves were closed in order to prevent feedwater from overflowing the reactor vessel and damaging safety relief valves. In the third example, the licensee failed to provide adequate instructions to ensure operators would correctly position 14 motor-operated valves (required for achieving and maintaining safe shutdown) from motor-control centers. Operating motor-operated valves in this manner bypasses the valves' protective features, leaving them vulnerable to damage by over-thrust. This finding has cross-cutting aspects in the area of human performance.

This finding is of greater than minor safety significance because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to external events (such as fire) to prevent undesirable consequences. The team leader and the senior reactor analyst, performed a Phase 3 risk assessment for each of these examples using INEEL/EXT-02-10307, "SPAR-H Human Reliability Method," dated May 2004, and determined that the significance of each of these findings was very low (green). This very low significance can be attributed to a low initiating event frequency and low probability of circuit failures which would cause spurious operation.

Inspection Report# : [2004008\(pdf\)](#)



**Significance:** Mar 24, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Maintain Adequate Procedures for Control of Offsite Power Sources**

The inspectors identified two examples of a NCV of TS 5.4.1(a) regarding the failure to maintain procedures for control over the offsite power circuits. This violation was identified during a closure of an unresolved item dealing with multiple historic design issues with the main switchyard and secondary offsite power circuit.

This finding was more than minor since it was associated with configuration control. The finding was of very low safety significance since no instances were identified where the emergency AC power safety function was unavailable.

Inspection Report# : [2004002\(pdf\)](#)



**Significance:** Mar 24, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Ineffective Corrective Actions for Failure to Promptly Identify and Correct Conditions Adverse to Quality**

Three examples of an NCV of 10 CFR 50, Appendix B, Criterion XVI, were identified associated with the failure to identify and correct conditions adverse to quality. An additional example listed in Initiating Events Cornerstone. The inspectors identified two examples of a NCV of 10 CFR 50, Appendix B, Criterion XVI regarding the failure to take timely and effective corrective actions to revise HPCI procedures following the May 2003 reactor scram; and failure to promptly identify and enter HPCI procedure violations into CAP following the November 2003 reactor scram. This finding was more than minor since it was associated with the mitigating system cornerstone attribute of human performance, but was of very low safety significance since it did not represent the actual loss of a safety function. In addition, it had crosscutting aspects associated with problem identification and resolution since the corrective actions that were identified were not implemented in a timely manner.

Inspection Report# : [2004002\(pdf\)](#)



**Significance:** Mar 24, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Procedures for HPCI Operation and Operability Determinations**

Two examples of an NCV of TS 5.4.1 were identified associated with the failure to implement station procedures. The two examples include the following: A NCV of TS 5.4.1(a) was identified regarding the failure to follow station procedures during recovery from a reactor scram. Operators secured the high pressure coolant injection (HPCI) system by an incorrect method not allowed by the procedure in use at the time. This incorrect method rendered the system inoperable. This finding is more than minor since it involved human performance errors during a transient. This finding is of very low safety significance since it did not represent an actual loss of safety function. In addition, it also has cross-cutting aspects associated with human performance since the operators failed to use the correct step in the procedure for two similar transients.

The inspectors identified a NCV of TS 5.4.1(a) regarding the failure to correctly implement the operability determination procedure. The licensee failed to meet timeliness goals and documentation requirements when evaluating the operability of multiple safety related level transmitters.

This finding was more than minor because the failure to follow procedures when assessing operability of safety related equipment could become a more safety significant safety concern if left uncorrected. The finding was of very low safety

significance since the licensee was ultimately able to demonstrate operability of all the affected instruments. This finding had cross-cutting aspects associated with human performance since a significant amount of training had been conducted regarding operability determinations over the past year and station procedures reflected current guidance regarding operability determinations, yet personnel still failed to follow the procedure.

Inspection Report# : [2004002\(pdf\)](#)

 Significance: Mar 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Take Corrective Actions on Diesel Fuel Oil System**

The Inspector identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to take adequate corrective actions for degraded conditions on the diesel fuel oil transfer system. On March 23, 2004, the inlet strainer on Fuel Oil Day Tank 1 became clogged with corrosion debris, rendering Emergency Diesel Generator 1 Inoperable. This was the third occurrence of this event in 13 months. This finding was more than minor since it affected the operability, availability, and reliability of a mitigating system. It was considered to have very low safety significance based on the results of a Significance Determination Process, Phase 3, evaluation. This finding also had crosscutting aspects associated with problem identification and resolution based on the recurring nature of the failure and the fact that the licensee's corrective actions only addressed symptoms of the failure and not the root cause.

Inspection Report# : [2004003\(pdf\)](#)

 Significance: Mar 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Operability Determination Procedure**

The inspectors identified a noncited violation of Technical Specification 5.4.1(a) for the failure to follow the operability determination procedure. Operators placed the diesel fuel oil system in an abnormal configuration as a compensatory measure for a degraded condition on the fuel oil storage tank cross-connect valves. This configuration was not evaluated as required by the operability determination procedure. This finding was more than minor since it was associated with the operability of mitigating equipment and could become more significant if left uncorrected. It was considered to have very safety significance because it did not represent the loss of a safety function. It also had cross-cutting aspects associated with problem identification and resolution since the degraded condition was well-documented in the corrective action program but did not receive the appropriate evaluations

Inspection Report# : [2004003\(pdf\)](#)

**W**  
Significance: Feb 05, 2004

Identified By: NRC

Item Type: FIN Finding

**Failure to demonstrate satisfactory licensed operator requalification program performance.**

The licensee failed to demonstrate satisfactory licensed operator requalification program performance as described in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8, Supplement 1, Examination Standard 601, Section E.3.a(1). Examination Standard 601 E.3.a(1) specifies, in part, that for a requalification program to maintain satisfactory performance, 75 percent or greater of the participants must pass all portions of the biennial examinations. Failures during the biennial cycle included a 36 percent failure rate on the biennial written examination. Immediate corrective actions implemented by the licensee included remedial training and retesting prior to returning operators to shift.

The finding was more than minor because it was associated with the reactor safety cornerstone attributes concerning the licensee requalification program. High operator failure rates in the biennial requalification program may be indicative of programmatic issues with the operator license requalification program. The finding was determined to be of low to moderate significance (White) because the licensee failed to meet the criteria for maintaining satisfactory performance.

Inspection Report# : [2004009\(pdf\)](#)

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## Barrier Integrity

 Significance: Mar 09, 2004

Identified By: NRC

[http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/CNS/cns\\_pim.html](http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/CNS/cns_pim.html)

04/06/2005

Item Type: NCV NonCited Violation

#### **Failure to Follow Tagout Procedure Results in Partial Containment Isolation**

A self-revealing violation of Technical Specification 5.4.1(a) occurred when personnel failed to implement a tagout correctly and opened the wrong breaker, resulting in an inadvertent partial isolation of containment. This finding was more than minor since it was similar to Example 4.b in Manual Chapter 0612, Appendix E. It was considered to have very low safety significance since it did not represent an actual barrier degradation or an open path in the reactor containment. This finding also had crosscutting aspects associated with human performance since personnel did not use the appropriate error prevention tools while implementing the tagout  
Inspection Report# : [2004003\(pdf\)](#)

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

 **Significance:** Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Barricade and Conspicuously Post a High Radiation Area**

The inspector identified a non-cited violation of Technical Specification 5.7.1, since the licensee failed to barricade and conspicuously post a high radiation area. On November 30, 2004, the inspector identified piping located in the Residual Heat Removal "B" heat exchanger room that had dose rates elevated to greater than 100 millirem per hour. The licensee performed a survey and confirmed dose rates were 600 millirem per hour on contact with the pipe and 160 millirem per hour at 12 inches from the pipe. The area was immediately barricaded and posted. The licensee entered this issue into its corrective action program.

This finding is greater than minor because it was associated with the cornerstone attribute (exposure control) and affected the cornerstone objective because failure to post a high radiation area with dose rates greater than 100 millirem per hour could increase the risk of personnel dosage. The finding was of very low safety significance because it did not involve (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose.

Inspection Report# : [2004005\(pdf\)](#)

 **Significance:** Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Provide a Radiation Monitoring Device that Could Detect High Radiation in a Work Area**

The inspector reviewed a self-revealing non-cited violation of Technical Specification 5.7.1 because the licensee failed to provide an individual a radiation monitoring device that could be detected when a preset integrated dose alarm was received. On December 15, 2003, an individual unknowingly exceeded the alarm setpoint of a required electronic dosimeter while working in an area with radiation levels as high as 200 millirem per hour. The electronic dosimeter was set to alarm at 20 millirem, but upon exiting the area the electronic dosimeter read 31 millirem and was alarming. The individual did not hear the alarm until the area was exited. The licensee entered this issue into its corrective action program.

This finding is greater than minor because it was associated with the cornerstone attribute (exposure control) and affected the cornerstone objective because the inability to detect an alarming device in a high radiation area could increase personnel dose. The finding was of very low safety significance because it did not involve (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. This finding also had crosscutting aspects associated with human performance.

Inspection Report# : [2004005\(pdf\)](#)

 **Significance:** Sep 16, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to perform an adequate survey.**

The inspector identified a non-cited violation of 10 CFR 20.1501(a) for failure to perform an adequate survey that resulted in a radiation area not being posted as required by regulations. On March 31, 2004, the licensee identified an unposted radiation

area on the inside of the rain ring of the "B" Condensate Storage Tank. The survey discovered a spot near the base of the tank that read 160 millirem per hour on contact and 8 millirem per hour at 30 centimeters. The inspector determined that the radiation area had not been identified for approximately one year.

The finding is more than minor because it affected the cornerstone attribute (exposure control) and affected the associated cornerstone objective because it resulted in a radiation area not being posted. The finding was evaluated using the Occupational Radiation Safety Cornerstone because the finding involved the potential for unplanned or unintended dose could have been significantly greater as a result of a single minor alteration of the circumstances. When processed through the Occupational Radiation Safety Significance Determination Process, the finding was found to have very low safety significance because it was not an ALARA finding, there was no overexposure or substantial potential for an overexposure and the ability to assess dose was not compromised. This finding also had crosscutting aspects associated with human performance.

Inspection Report# : [2004004\(pdf\)](#)

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## Public Radiation Safety

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### Physical Protection

Physical Protection Information not publicly available.

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### Miscellaneous

**Significance: N/A Jun 26, 2004**

Identified By: NRC

Item Type: FIN Finding

#### **6th Quarterly CAL Inspection**

In the area of emergency preparedness, the licensee's performance indicators, NRC performance indicators, and baseline inspection results indicated a satisfactory level of performance. Also in the area of engineering programs, improvements are in place and an improving trend has been noted in licensee performance indicators and no significant findings have been identified during NRC baseline inspections. In the area of human performance, baseline inspection findings continue to be identified in which personnel errors have contributed to plant performance issues. TIP action steps implemented and ongoing have provided some improvement as evidenced by two of four licensee performance indicators performing satisfactorily and the other two requiring further improvement but trending in a positive direction.

In the three remaining Confirmatory Action Letter areas, the team concluded, by reviewing licensee performance indicators, NRC performance indicators, licensee self-assessments, and NRC baseline inspection results, that a number of positive actions have been implemented but they have not yet resulted in sustained improved performance. Specifically, in the area of material condition and equipment reliability, actions completed to date have provided the necessary processes for improvement, and numerous equipment improvements have been recently completed. However, a number of the licensee's performance indicators did not meet their performance goals. In the area of plant modifications and configuration control, progress in operability determination screening and lesson learned training was noted and provides potential for enhancing the licensee's ability to prioritize and perform operability determinations by emphasizing knowledge based tools. This conclusion was reinforced through interviews with operations and engineering personnel. Lastly, in the area of corrective action, a new "take action now" philosophy has also been implemented to increase manager ownership of corrective action performance indicators, through presentations of performance indicator status to senior management on a regular basis. The early trending information or the effectiveness of the "take action now" philosophy has shown a marked improvement in timely corrective actions.

Inspection Report# : [2004007\(pdf\)](#)

**Significance: N/A May 12, 2004**

Identified By: NRC

Item Type: FIN Finding

#### **5th Quarterly CAL Inspection**

In the area of emergency preparedness, the licensee's performance indicators, NRC performance indicators, and baseline inspection results indicated a satisfactory level of performance. Also, in the area of engineering programs improvements.

place and an improving trend has been noted in licensee performance indicators and no significant findings have been identified during NRC baseline inspections. Engineering programs have been effectively developed and the implementation process is ongoing. In the area of human performance, TIP action steps implemented and ongoing have provided continued improvement as evidenced by an improving trend in human performance data over the last 6 months. Despite these improvements, baseline inspection findings continue to be identified in which personnel errors have contributed to plant performance issues. In the three remaining Confirmatory Action Letter areas, the team concluded, by reviewing licensee performance indicators, NRC performance indicators, licensee self-assessments, and baseline inspection results, that actions implemented have not resulted in sustained improved performance. Specifically, in the area of material condition and equipment reliability, actions completed to date have provided the necessary processes for improvement, and numerous equipment improvements have been recently completed. However, a number of the licensee's performance indicators did not meet their performance goals. Implementation issues have continued to be identified in the areas of operability determinations, problem evaluation, and effectiveness of corrective actions. While the NRC acknowledges that some implementation issues are not unexpected, the types of recent problems within these areas, some of which have been repetitive, should have been prevented.

Inspection Report# : [2004006\(pdf\)](#)

**Significance: N/A** Jan 22, 2004

Identified By: NRC

Item Type: FIN Finding

#### **4th Quarterly CAL Inspection**

In the area of emergency preparedness, the licensee's performance indicators, NRC performance indicators, and baseline inspection results indicated a satisfactory level of performance. In the area of human performance, efforts to improve performance have been less effective. Nevertheless, some improvements have been noted. In the four remaining Confirmatory Action Letter areas, the team concluded, by reviewing licensee performance indicators, NRC performance indicators, licensee self-assessments, and baseline inspection results that actions implemented have not resulted in sustained improved performance. Specifically, in the area of material condition and equipment reliability, actions completed to date have provided the necessary processes for improvement, and numerous equipment improvements have been recently completed. However, many of the licensee's performance indicators did not meet their performance goals, and the licensee continued to experience equipment reliability problems resulting in forced shutdowns or power reductions. Implementation issues have continued to be identified in the areas of operability determinations, problem evaluation, and effectiveness of corrective actions. Lastly, engineering program improvements are in place, but more time is needed to implement the programs and evaluate effectiveness.

Inspection Report# : [2003011\(pdf\)](#)

last modified : March 09, 2005