

OCT 31 2005  
LR-N05-0536

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RECEIVED

Mr. Samuel Collins  
Regional Administrator  
United States Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

**PSEG METRICS FOR IMPROVING THE WORK ENVIRONMENT  
SALEM AND HOPE CREEK GENERATING STATIONS  
QUARTERLY REPORT  
DOCKET NOS. 50-272, 50-311 AND 50-354**

Dear Mr. Collins:

This letter provides a copy of the PSEG Nuclear (PSEG) Safety Conscious Work Environment (SCWE) metrics for the third quarter 2005. PSEG put these metrics in place to objectively measure the effectiveness of the SCWE improvements at Salem and Hope Creek Generating Stations. PSEG conducted an analysis of each metric and decided whether and to what extent the results warrant additional actions.

The metric of SCWE Management Training Attendance is no longer provided since the training was reported as complete in the submittal of the first quarter 2005 metrics. Also, the Synergy Survey Results Comparisons metric was reported in the second quarter 2005 and will not be resubmitted until the completion of the next employee survey, which is planned for 2006.

PSEG's SCWE action plans continue to provide an effective means to improve the work environment, with several significant action plan changes described on Attachment 1 that supercede previous actions taken. These changes were identified in a recent self-assessment that examined the stations' progress in improving SCWE.

PSEG considered the results of the recent self-assessment as well as the SCWE metrics in an overall evaluation of its progress toward sustained performance against the "pillars" of a healthy SCWE with the following results:

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### **Pillar 1: Willingness to Raise Concerns**

The metric monitoring this pillar is Total Notifications Generated. Overall, personnel will raise nuclear safety concerns and their willingness to do so has improved, in part due to a greater confidence that identified problems will be responded to and corrected. The recent self-assessment of SCWE revealed that employees who are more willing to raise concerns outnumber those who are less willing by nearly seven to one.

The indicator for total notifications shows that site personnel continue to identify problems and write notifications at a high rate. There has been a 25 percent increase in the average number of notifications from 2004 to 2005. Personnel are knowledgeable of the multiple avenues available to raise concerns (e.g., Corrective Action Program, management, NRC). Focused improvement efforts are underway in several work groups that have not shown the improvement generally observed across the workforce.

PSEG has also continued a number of visible steps to reinforce the expectations for problem identification and reporting. For example, prompt communication of emerging issues is a daily focus during the Salem Unit 1 refueling outage currently in progress; a paired field observation program is in place for managers and their direct reports to jointly observe work activities to ensure standards and expectations for proper behaviors, including problem identification, are being reinforced; and a "Good Catch" program is used for recognition of those who identify a problem that may not have otherwise been discovered.

### **Pillar 2: Effective Problem Resolution**

The metrics monitoring this pillar are Online Corrective and Elective Maintenance Backlogs, Corrective Action Problem Resolution, Condition Report Activities Overdue, Open Condition Report Evaluations with Due Date Extensions, Repeat Maintenance Issues, Operational Challenges, Unplanned Shutdown Limiting Condition of Operation (LCO) Entries, Unplanned Non-Shutdown Limiting Condition of Operation (LCO) Entries, and Safety System Unavailability (i.e., Emergency Diesel Generators, Auxiliary Feedwater System, Chemical Volume Control and Safety Injection System, High Pressure Injection and Reactor Core Isolation Cooling Systems, and Residual Heat Removal System).



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Metrics and equipment performance show that problem resolution has improved, although some latent balance-of-plant equipment reliability issues still exist that reveal weaknesses in historical resolution of problems. The recent self-assessment indicated that the workforce has broadly recognized the overall improvements. Those perceiving better corrective actions are being implemented outnumber those seeing poorer corrective actions by nearly fourteen to one.

During the third quarter, corrective and elective maintenance backlog reduction continued, evaluations in the Corrective Action Program were completed in a timely manner, and corrective action quality continued to be good. A deliberate focus on management and workforce behaviors that foster effective problem resolution has resulted in metrics that reflect the positive outcomes of these efforts, including a low frequency of repeat maintenance and generally low safety system unavailability.

Most safety systems performance indicators are currently at annual top quartile performance levels, though performance in prior years is causing the three-year rolling average goal not to be met in some instances. For those systems where goals were not met, additional actions have been identified to improve their performance and achieve the established goal.

Equipment reliability issues during the quarter resulted in some operational challenges and caused unplanned LCO entries. Several ongoing initiatives address this area for improvement, including a review of internal and external operating experience for events leading to plant shutdowns and derates, single point vulnerabilities of selected plant systems, and latent equipment issues that may challenge plant operations.

There were also changes to previously reported data for several metrics. Accounting errors were discovered on the metrics for Salem Unit 1 Emergency Diesel Generator Unavailability and Salem Unit 2 Emergency Diesel Generator Unavailability. The corrected values are reflected in the attached metrics and there was no material impact on the overall assessment of these metrics. This issue has been captured in the Corrective Action Program.

### **Pillar 3: Alternate Mechanisms to Raise Concerns**

The metric monitoring this pillar is Employee Concerns Program – Concerns Confidentiality/Anonymity Request.



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The Employee Concerns Program received an increased number of contacts in the third quarter. The consistent use by PSEG employees and contractors demonstrate their confidence in the program as an effective, alternative means to raise issues. The recent self-assessment noted some individuals were concerned with the confidentiality of the process. Efforts to educate the workforce on the comprehensive measures in place to maintain confidentiality are in progress.

#### **Pillar 4: Detection/Prevention of Retaliation & Chilling Effect**


The metrics monitoring this pillar is Executive Review Board (ERB) Action Approvals.

Like previous quarters, the ERB reviews found that proposed personnel actions (e.g., personnel movements, discipline) did not have retaliation or chilling effect implications, which demonstrates strong performance in this pillar. The interview results of the recent SCWE self-assessment reinforced the conclusions of the ERB that management actions do not contain elements of retaliation or chill the work environment.

In summary, performance in each pillar has shown improvement. PSEG continues to focus on effective problem resolution (i.e., pillar 2) for the largest impact on SCWE. Through active, open and frequent communications with personnel at all levels in the organization, implementation of the improved operating standards and behaviors, and strong performance in the Work Management and Corrective Action Programs, substantial and sustainable progress in improving the work environment will be demonstrated.

PSEG will continue to monitor its progress and report quarterly to the NRC. If you have any questions, please contact Darin Benyak, Director, Regulatory Assurance at 856-339-1740.

Sincerely,



William Levis

Attachments



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### **Significant Changes to the PSEG SCWE Action Plans**

In a letter dated June 25, 2004, PSEG summarized the action plans to improve the work environment at Salem and Hope Creek Generating Stations. The plans focused on the three key areas of Corrective Action Program, Work Management Program, and SCWE as the basis for long-term improvement in the work environment. NRC's review of the action plans was subsequently documented in a letter dated July 30, 2004 that included PSEG's commitment to provide a brief description of any significant changes to the action plan. A recent self-assessment of the work environment action plans identified the following significant changes from the PSEG letter dated June 25, 2004:

Original Action: Implement a Safety Conscious Work Environment organization with capabilities to diagnose, intervene in, and assist the line organization with resolution of concerns.

Revised Action: Designate a SCWE Team Leader to assist the line organization with resolution of concerns, including diagnosis and intervention capabilities.

Current Status: The intent of the SCWE organization (i.e., diagnose, intervene, and assist) has been met as well as its fundamental principle of maximizing line ownership of SCWE issues. However, a recent self-assessment identified that some aspects of the charters initially established as guidance for the SCWE organization were not effectively implemented (e.g., projected staffing of the organization, routine assessments). The SCWE Team Leader has been in place and champions the diagnosis, intervention, and assistance relating to SCWE issues. The need for the SCWE Team Leader's assistance will continue to decrease over time as the line organization matures and effectively resolves their SCWE-related concerns without this assistance.

Original Action: Develop and implement an issues management program.

Revised Action: Develop and implement policies and processes that include guidance for resolving SCWE-related issues.

Current Status: The Executive Protocol Group (EPG) supplanted the People Team. One of the processes associated with the People Team, the issue management program, was similarly replaced by the EPG. A recent self-assessment identified that the charter initially established for issue management was not effectively implemented. The existing SCWE policy, Executive Review

Board charter, and Executive Protocol Group procedure describe sufficient methods for issue management and resolution of SCWE-related issues without the need for a separate issues management program.

Original Action: Refocus the Corrective Action Review Board to include Corrective Action Program oversight to improve the oversight of the overall program health.

Revised Action: Provide appropriate oversight of the Corrective Action Program and the overall program health.

Current Status: The Corrective Action Review Board functions and responsibilities are being integrated into the Management Screening Committee (MSC), which is made up of senior managers who provide a collegial challenge of the issues and ensure actions are sufficient to resolve the identified problems. Each station's MSC reviews and approves new notifications, completed evaluations, and effectiveness reviews as well as review coming due and overdue actions. Additionally, the MSCs periodically perform "check and adjust" meetings to ensure that the expectations and standards are being met.

The monitoring of overall program health has also been integrated into the routine activities of the station management teams (e.g., Operational Excellence Review meetings, Nuclear Review Boards, and Plan of the Day meetings).



SALEM • Ueno Corp

*Safety Conscious Work Environment*

*September 2005*



# EXECUTIVE REVIEW BOARD (ERB) ACTION APPROVALS

Updated Monthly



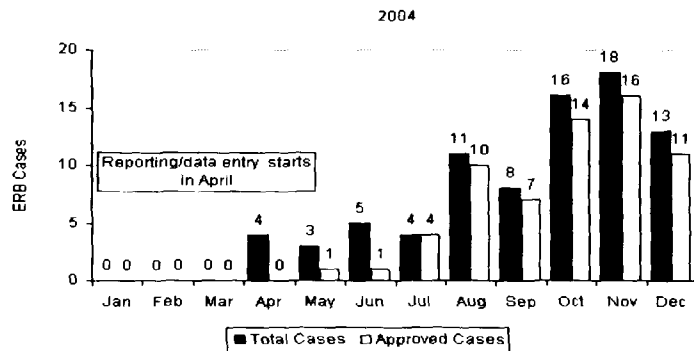
Executive Review Board (ERB) reviews proposed personnel actions to ensure no retaliation or chilling effect implications.

Chart Owner

Safety Conscious Work Environment Manager

Goal:

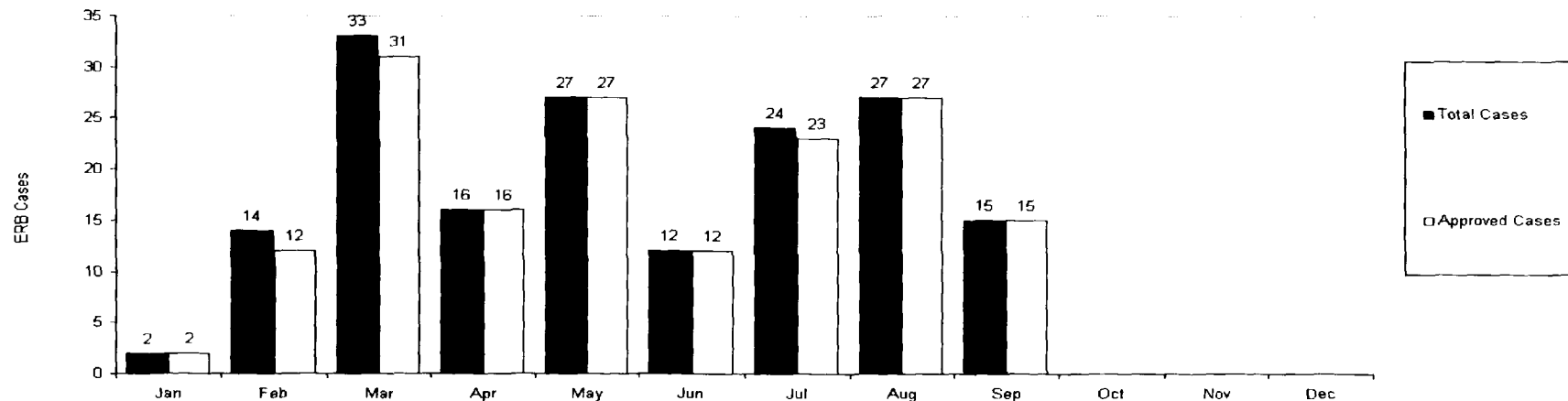
No Adverse Trend



The Executive Review Board (ERB) was established to ensure that no adverse action is taken or perceived to be taken against site personnel for raising nuclear safety issues. This Board reviews significant proposed discipline, promotions, transfers and terminations for PSEG employees and supplemental (contract) personnel.

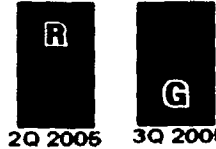
**Analysis:** There is no adverse trend in the ERB's review of 66 cases during the third quarter of 2005. Objecting to only one proposed action, the success rate for the quarter was 98% (97% YTD). The objection was not related to any 10CFR50.7 or chilling effect issues. The success rate is indicative of management proposing actions (personnel movements and/or discipline) on the basis of objective criteria and with consideration to work environment impact, irrespective of any protected activity on the part of employees.

**Actions:** No actions required.



**EMPLOYEE CONCERNS PROGRAM - CONCERNS CONFIDENTIALITY/ANONYMITY REQUEST**

Updated: Monthly



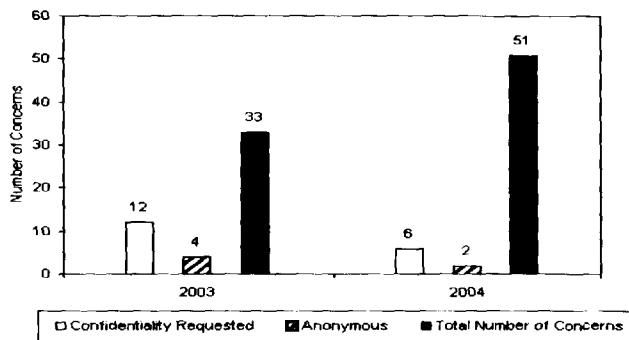
The number of Employee Concerns Program concerns filed anonymously/confidentially versus total number of concerns per month. Chart does not include NRC 30-day requests.

Chart Owner

Employee Concerns Program Manager

Goal:

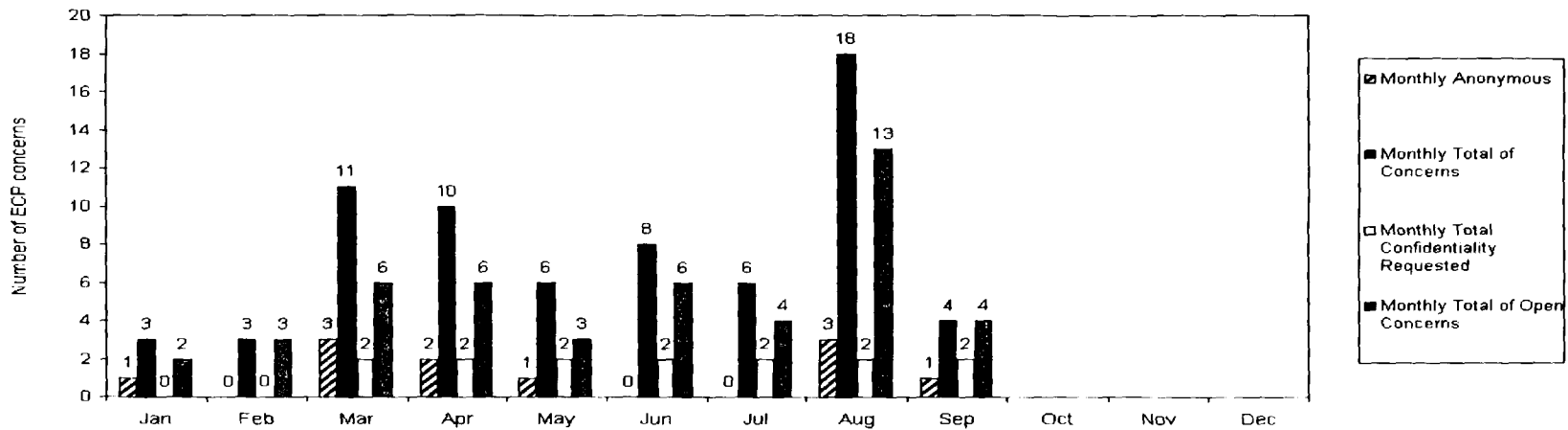
No Adverse Trend



This metric shows the total number of concerns brought to the Employee Concerns Manager. This is an alternate means to have issues addressed outside of line management.

**Analysis:** There were no adverse trends. There were four anonymous concerns submitted to ECP in the third quarter. Three of the anonymous concerns were received in the recently installed ECP drop boxes. Two of those concerns were industrial safety issues, which were addressed using the corrective action process. There was a significant increase in the number of concerns ECP received in the third quarter. The anticipated increase in August was event driven. The increase was primarily due to the upcoming announcement of the new organization scheduled in September. After the announcement of the new organization, the numbers returned to normal in September. In addition, one individual raised a concern in August that ECP separated into five concerns.

**Actions:** No actions required.



# TOTAL NOTIFICATIONS GENERATED

Updated: Monthly

Total notifications generated on a monthly basis.

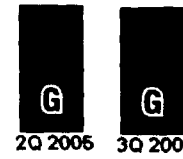
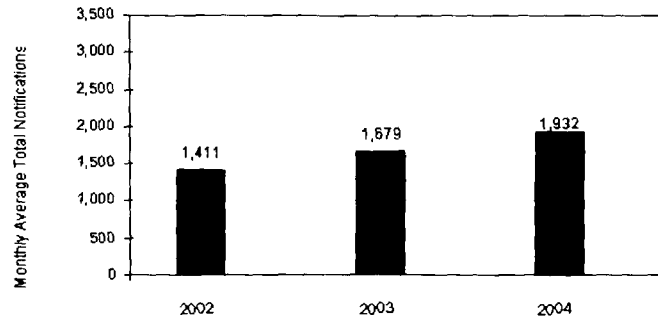


Chart Owner

Corrective Action Program Manager

Goal:

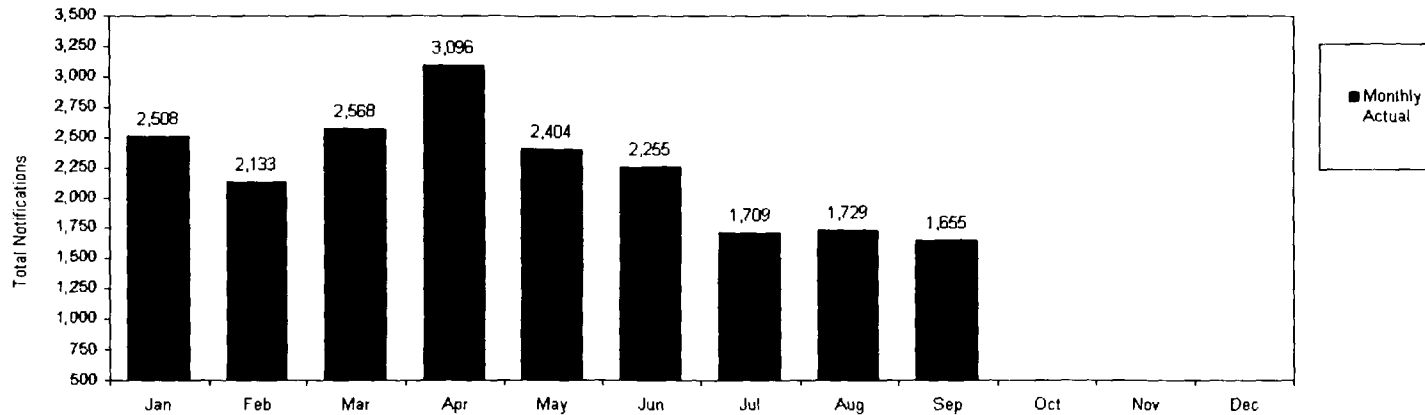
No Adverse Trend



Site personnel write a notification in the Corrective Action Program (CAP) to identify an issue that needs attention. This metric illustrates the total number of notifications written each month by site personnel. Monitoring ensures that the volume of issues is consistent with expected trends, based on past performance as well as industry perspective.

**Analysis:** There is no adverse trend noted for this quarter. The notifications generated for the third quarter of 2005 were 5,093 as compared to 4,771 for the third quarter of 2004. A seasonal effect (vacations) has impacted the rate of notifications generated, as reflected in a comparison with the previous quarter's results.

**Actions:** No actions required.



# ONLINE CORRECTIVE MAINTENANCE BACKLOG

Updated Monthly

**G**  
2Q 2005

**G**  
3Q 2005

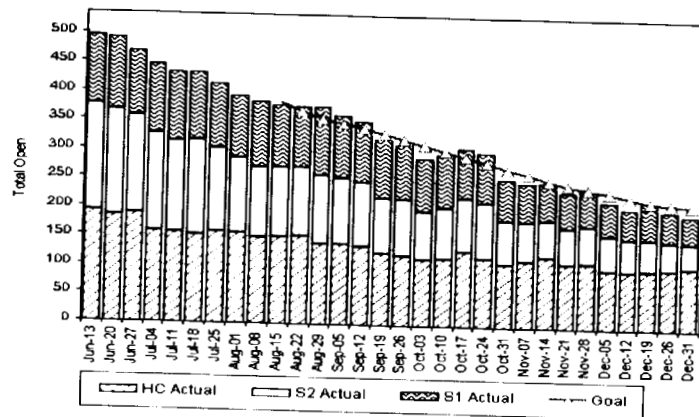
The number of open online corrective maintenance work items

Chart Owner

Salem Maintenance Manager and Hope Creek Maintenance Manager

Goal:

45 by year end



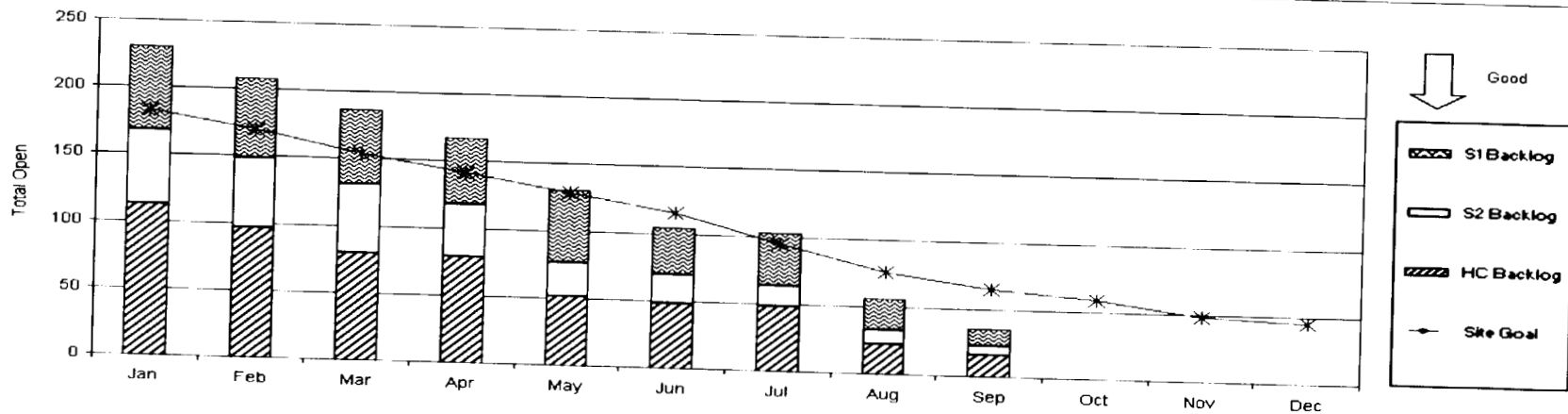
This metric measures the total backlog of on-line corrective maintenance. These are items that have an impact on plant operations and can be fixed while the unit is in service. Benchmarking indicates the industry median at 90, with top performance at 45 for the site. The goal is to achieve top performance by the end of 2005.

Analysis:

Below goal for the third quarter and on track to meet end of year goal.

Actions:

Continue with the Corrective Maintenance reduction efforts



Good

- S1 Backlog
- S2 Backlog
- HC Backlog
- Site Goal

# ONLINE ELECTIVE MAINTENANCE BACKLOG

Updated: Monthly

**R**  
2Q 2005

**R**  
3Q 2005

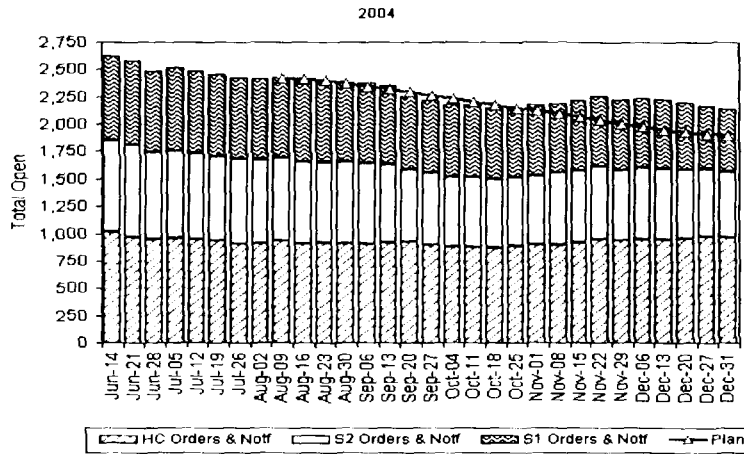
The number of open online elective maintenance work items.

Chart Owner

Salem Maintenance Manager and Hope Creek Maintenance Manager

Goal:

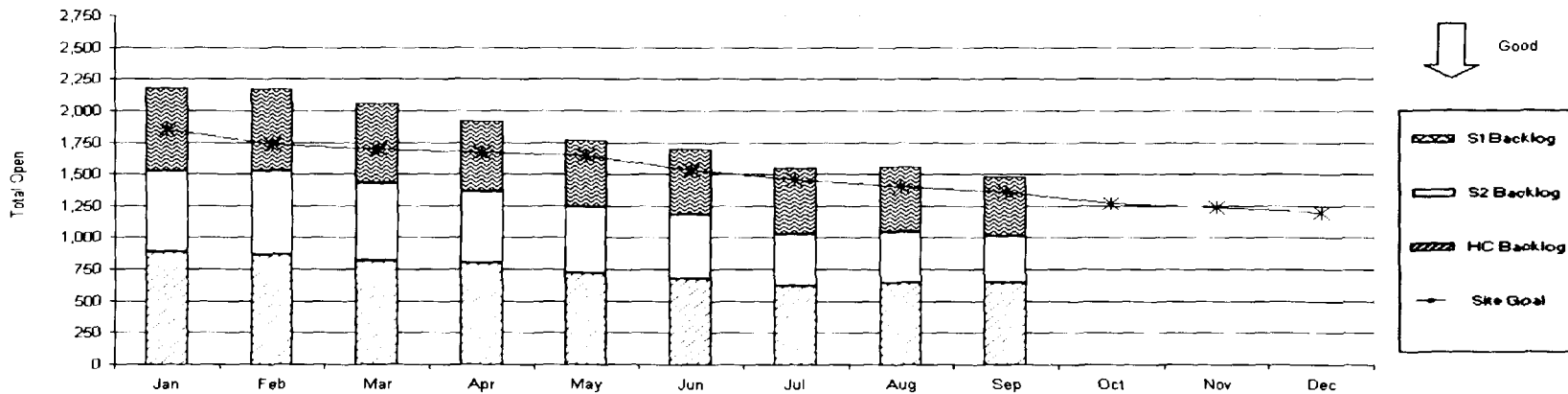
1,200 by year end



This metric measures the total backlog of on-line elective maintenance. These are items that do NOT have an impact on plant operations and can be fixed while the unit is in service. Benchmarking indicates the industry median at 1450, with top performance at 1200 for the site. The goal is to achieve top performance by the end of 2005.

**Analysis:** The overall site EL backlog was reduced by 221 items in the third quarter and it is expected to make the goal by the end of the year

**Actions:** Continue efforts to focus on EL backlog, increase workdown rate, and monitor upcoming work weeks.



# CORRECTIVE ACTION PROBLEM RESOLUTION

Updated: Monthly



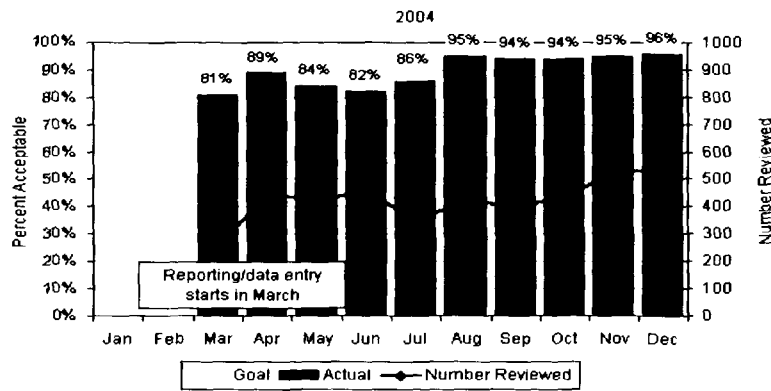
The percent of corrective action closures determined to be acceptable by Corrective Action Closure Board review, based on the problem resolution criteria. The performance indicator is a monthly value.

Chart Owner

Corrective Action Program Manager

Goal:

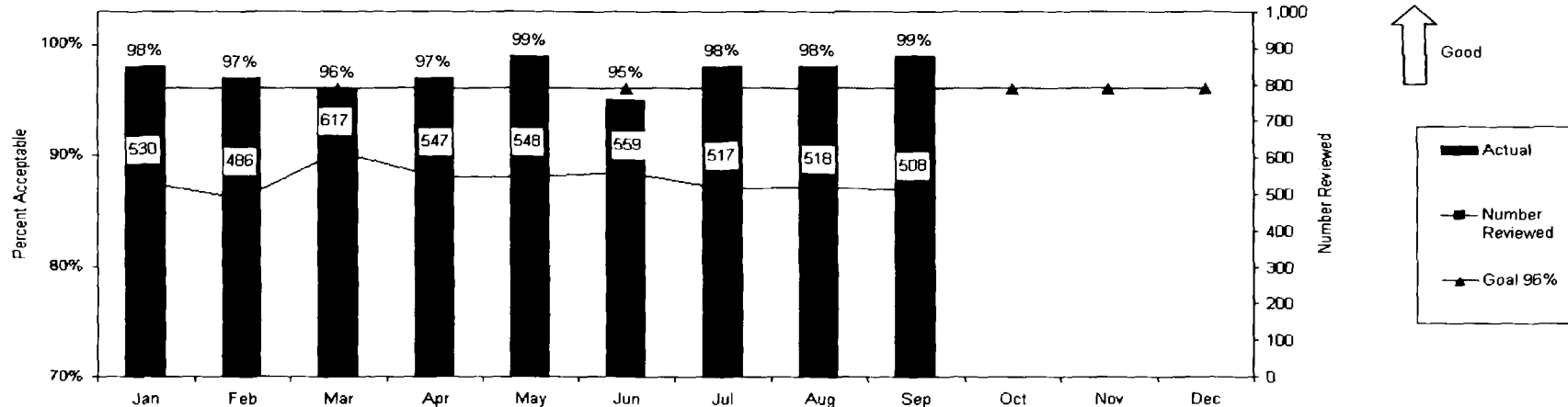
96%



Site personnel write a notification in the Corrective Action Program (CAP) to identify an issue that needs attention. This metric tracks the quality of the corrective actions that resulted with a goal of greater than or equal to 96% Closure Board acceptance rate, meaning the correct actions resulted from the notification. Items that are not accepted by the Board are not closed until the issue is reworked and the Board approves.

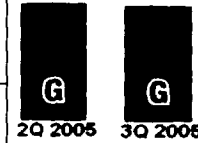
**Analysis:** The Corrective Action Closure Board acceptance rate results were within goal at an average of 98.3% for the quarter. Individual notifications were written by the departments that failed to meet closure requirements and the corrective actions were reopened to correct deficiencies noted.

**Actions:** The Corrective Action Program Excellence Plan continues to provide focus in this area.



# CONDITION REPORT ACTIVITIES OVERDUE

Updated: Monthly



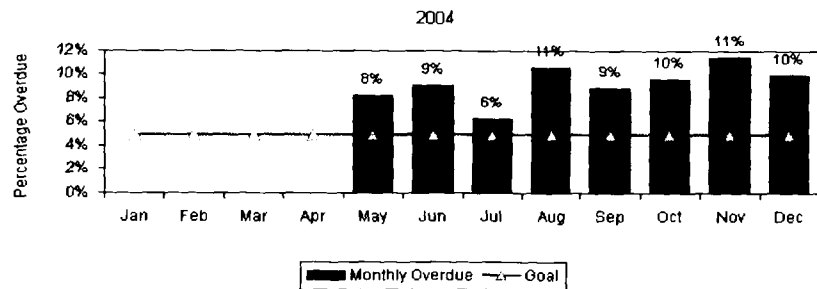
Percentage of Nuclear Condition Report activities overdue on a monthly basis, measured as activities with an actual finish date occurring after the due date.

Chart Owner

Corrective Action Program Manager

Goal:

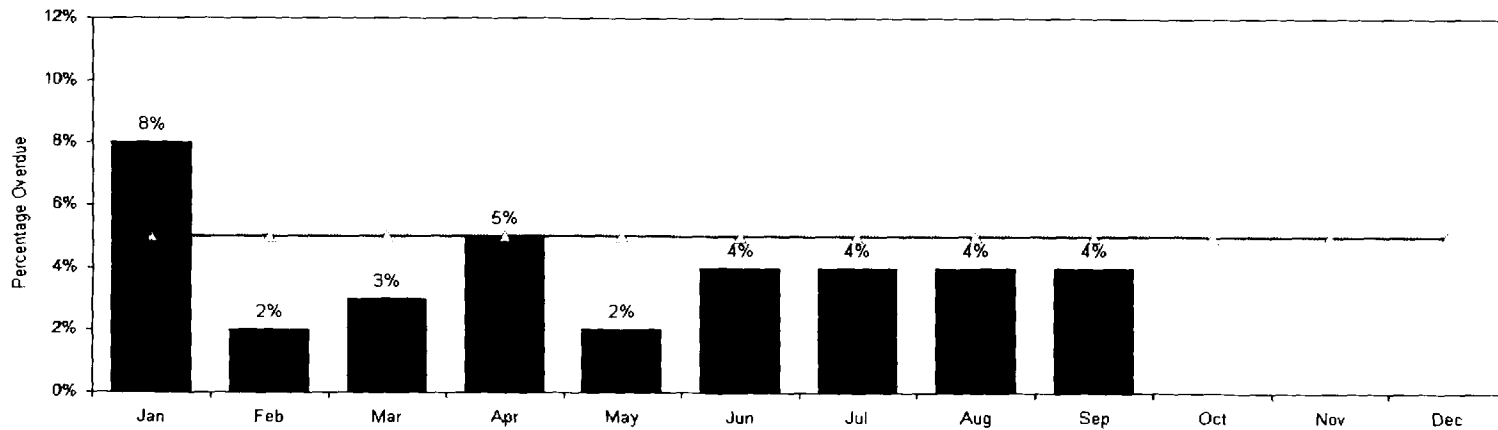
5%



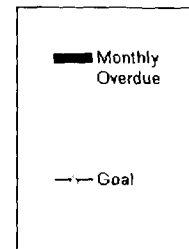
Site personnel write a notification in our Corrective Action Program (CAP) to identify an issue that needs attention. This metric tracks the timeliness of our review and corrective actions by measuring the percentage overdue, with a goal of less than or equal to 5%.

**Analysis:** The average percent per month for the quarter was 4% versus a goal of 5%. The monthly goal was met for each month in the period. In September, 1,152 Condition Report activities were completed, of which 44 items (or 3.8%) were completed after the due date.

**Actions:** No actions required

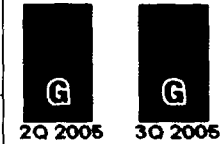


Good



# OPEN CONDITION REPORT EVALUATIONS WITH DUE DATE EXTENSIONS

Updated: Monthly



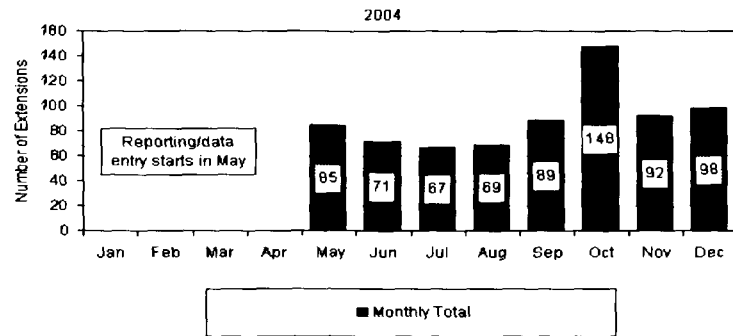
The number of due date extensions approved for open Nuclear Condition Report evaluations.

Chart Owner

Corrective Action Program Manager

Goal:

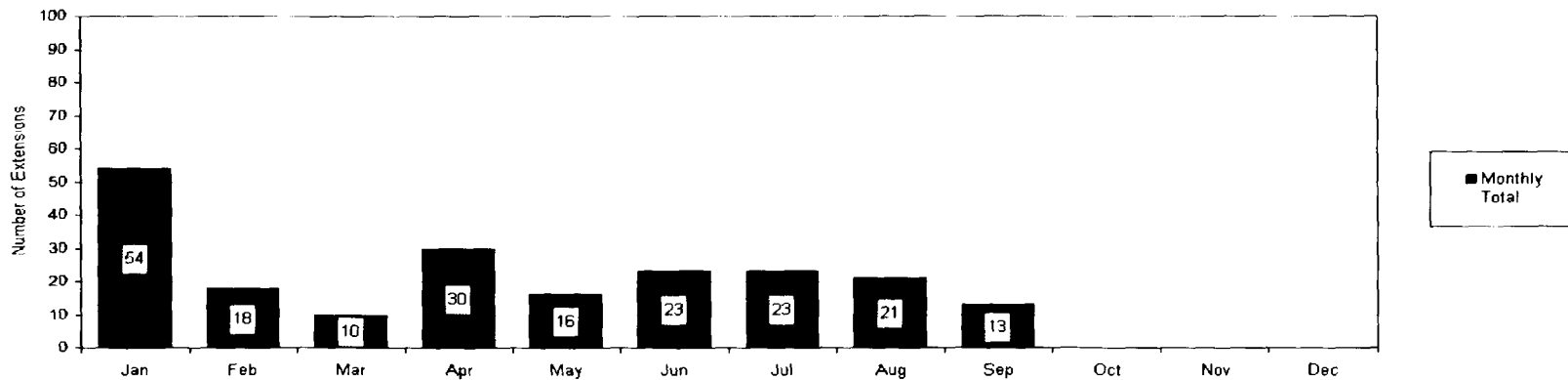
No Adverse Trend



Site personnel write a notification in the Corrective Action Program (CAP) to identify an issue that needs attention. This metric looks at the timeliness of review and corrective actions by tracking the number that have a due date extension, which is allowed by the process. By tracking those that are extended, an improvement trend in overall timeliness is expected.

**Analysis:** There is no adverse trend. Evaluations extended beyond their due dates continue to improve. 57 evaluations were extended in the third quarter as compared to 69 extended in the second quarter and 82 extended in the first quarter. Significant improvement was made in September when evaluation extensions were reduced to 13 for the month.

**Actions:** No actions required.





# SALEM UNIT 1 REPEAT MAINTENANCE ISSUES

Updated Monthly

The number of repeat maintenance issues identified on safety-related equipment.

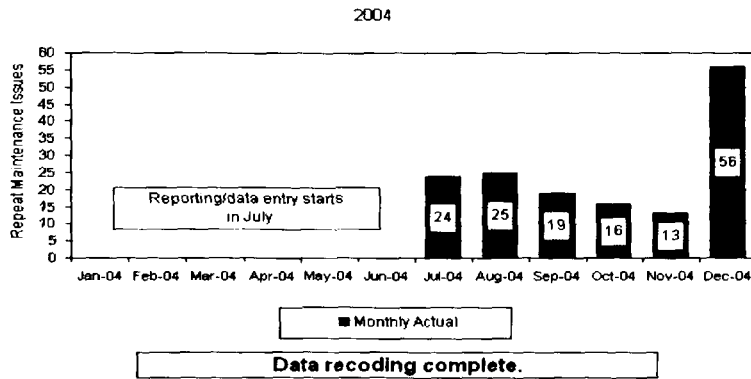
Chart Owner



Salem Maintenance Manager

Goal:

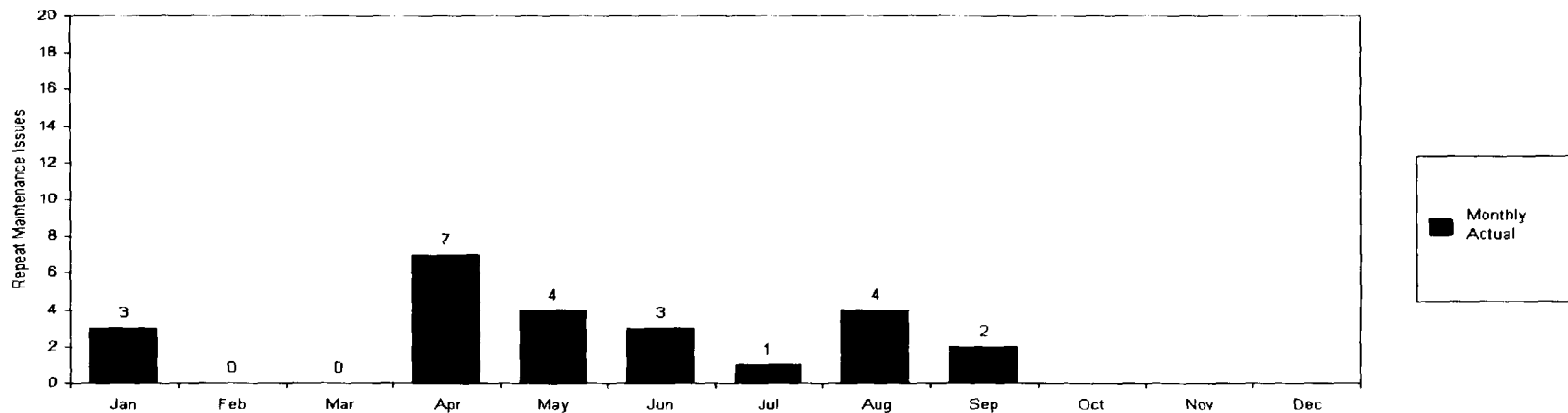
No Adverse Trend



This metric monitors the number of issues that were not fixed correctly the first time on safety-related equipment. Items that have been fixed and need to be reworked within twelve months are tracked. This metric is to ensure a reduction as the corrective action program improves.

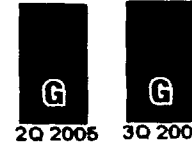
**Analysis:** There is no adverse trend. Of the seven identified issues, six were equipment failures and one was knowledge based with no commonalities identified between Units 1 and 2.

**Actions:** The equipment issues are being addressed through the Corrective Action Program and the knowledge based issue is being addressed for training opportunities.



# SALEM UNIT 2 REPEAT MAINTENANCE ISSUES

Updated: Monthly



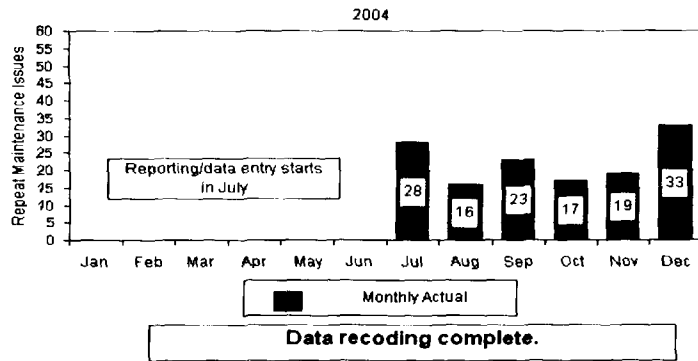
The number of repeat maintenance issues identified on safety-related equipment.

Chart Owner

Salem Maintenance Manager

Goal:

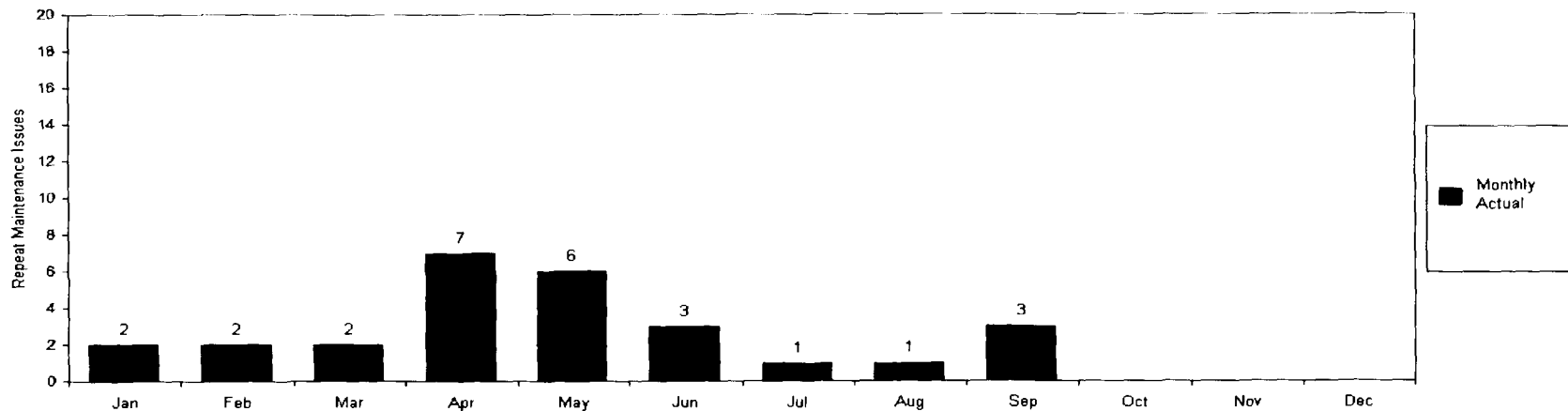
No Adverse Trend



This metric monitors the number of issues that were not fixed correctly the first time on safety-related equipment. Items that have been fixed and need to be reworked within twelve months are tracked. This metric is to ensure a reduction as the corrective action program improves.

**Analysis:** There is no adverse trend. Of the five identified issues, three were equipment failures and two were knowledge based with no commonalities identified between Units 1 and 2.

**Action:** The equipment based issues are being addressed through the Corrective Action Program and the knowledge based issues are being addressed for training opportunities.

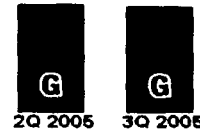


# HOPE CREEK REPEAT MAINTENANCE ISSUES

Updated Monthly

The number of repeat maintenance issues identified on safety-related equipment.

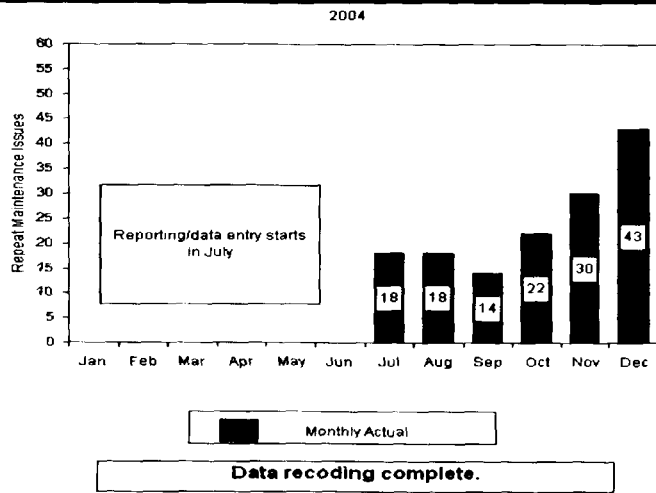
Chart Owner



Hope Creek Maintenance Manager

Goal:

No Adverse Trend



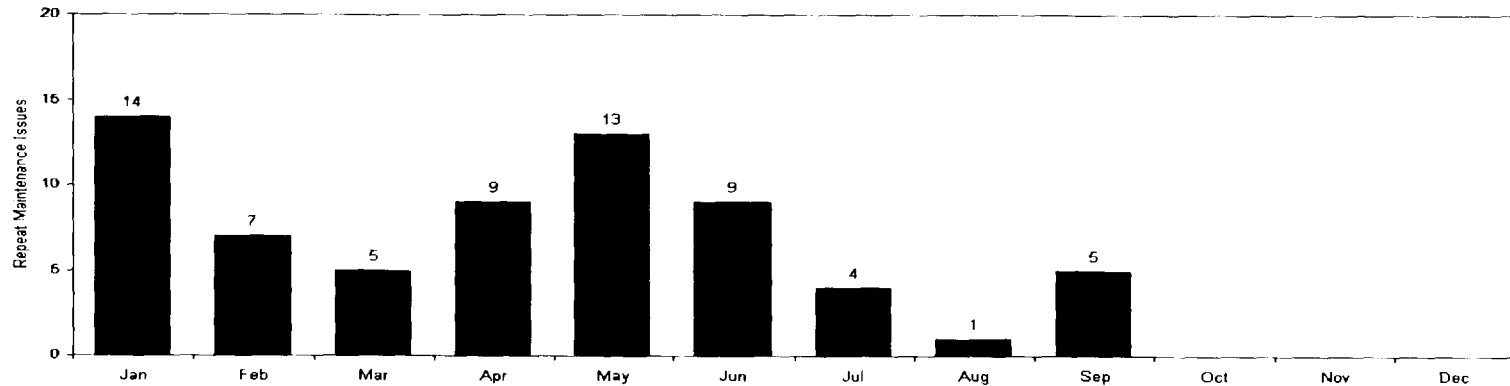
This metric monitors the number of issues that were not fixed correctly the first time on safety-related equipment. Items that have been fixed and need to be reworked within twelve months are tracked. This metric is to ensure a reduction as the corrective action program improves.

**Analysis**

There is no adverse trend. An in-depth review of repeat maintenance issues began in the first quarter 2005 and will continue going forward to ensure coding accuracy. The Troubleshooting Dynamic Learning Activity (DLA) completed in the second quarter has improved performance and problem identification is more timely and accurate. There were 10 safety-related items identified as "repeat" in the third quarter of 2005. A total of five of those items were attributed to recorder failures.

**Actions:**

The items identified the third quarter are being addressed in the Corrective Action and Corrective Maintenance Programs and actions are being implemented as per the schedule. Reliability of this equipment will be enhanced through the Plant Health Committee and will be evaluated in the Hope Creek training process. Additional actions are being scheduled to evaluate continued failures of aged recorders.



# SALEM UNIT 1 OPERATIONAL CHALLENGES

Updated: Monthly



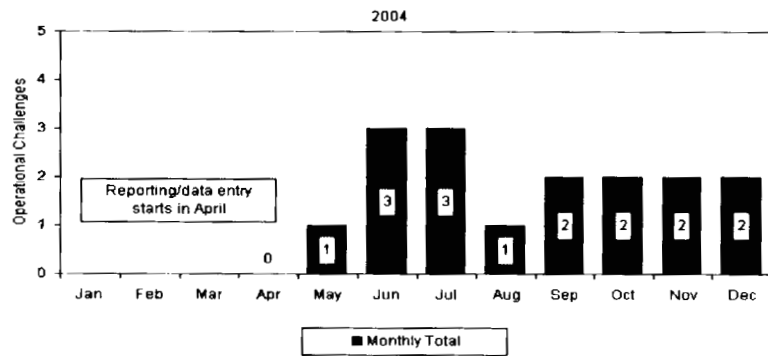
The number of plant operational issues that warrant implementation of the Operational Challenges Response Team

Chart Owner

Salem Plant Manager

Goal:

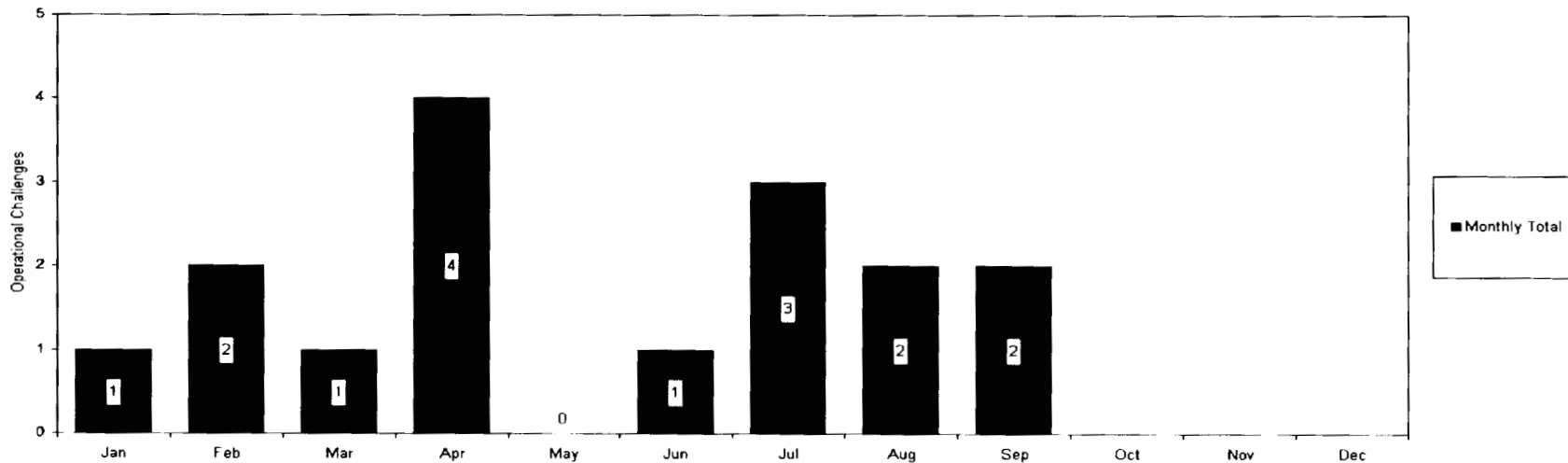
No Adverse Trend



A procedure was established to allow operating crews to request additional assistance to address emergent issues. These are called "Operational Challenges." This metric measures the number of times each month operators engage this assistance. The goal is to minimize the challenges to the operating crews. By tracking and reviewing the challenges, common causes and potential trends can be investigated.

**Analysis:** There is no adverse trend. There were seven operational challenges initiated in the third quarter. Overall station average stands at approximately two operational challenge responses per month.

**Actions:** No actions required.



**SALEM UNIT 2 OPERATIONAL CHALLENGES  
(Includes Unit 2, Unit 3, and Common)**

Updated Monthly



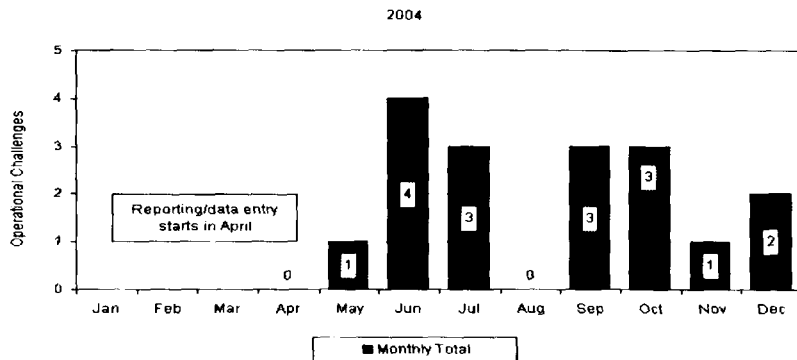
The number of plant operational issues that warrant implementation of the Operational Challenges Response Team

Chart Owner

Salem Plant Manager

Goal:

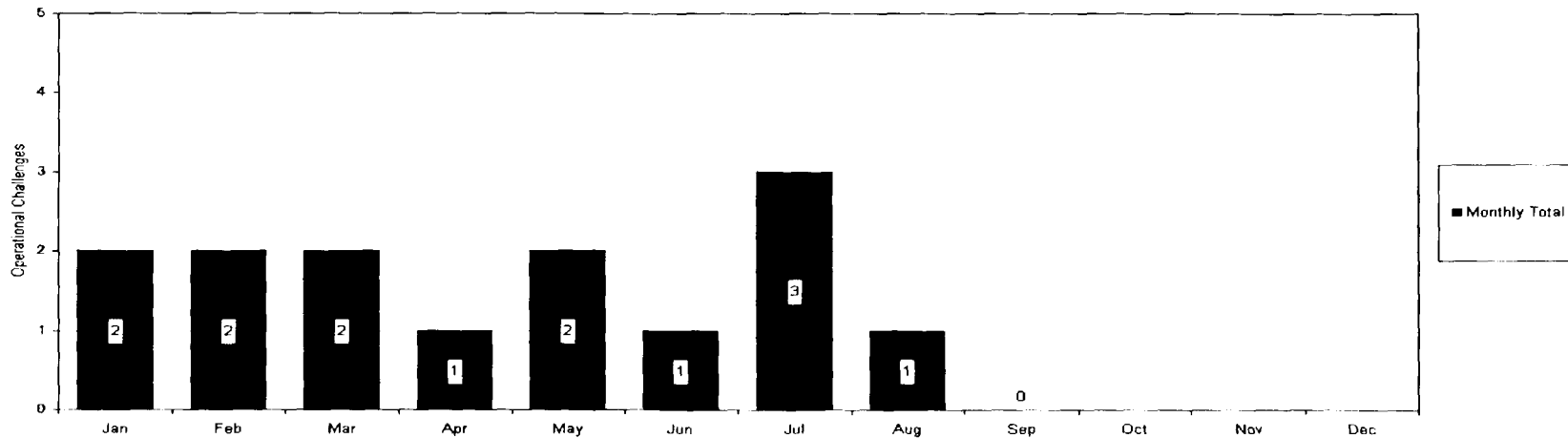
No Adverse Trend



A procedure was established to allow operating crews to request additional assistance to address emergent issues. These are called "Operational Challenges." This metric measures the number of times each month operators engage this assistance. The goal is to minimize the challenges to the operating crews. By tracking and reviewing the challenges, common causes and potential trends can be investigated.

**Analysis:** There is no adverse trend. There were four operational challenges initiated in the third quarter. Overall station average stands at approximately two operational challenge responses per month.

**Actions:** No actions required.



# HOPE CREEK OPERATIONAL CHALLENGES

Updated: Monthly



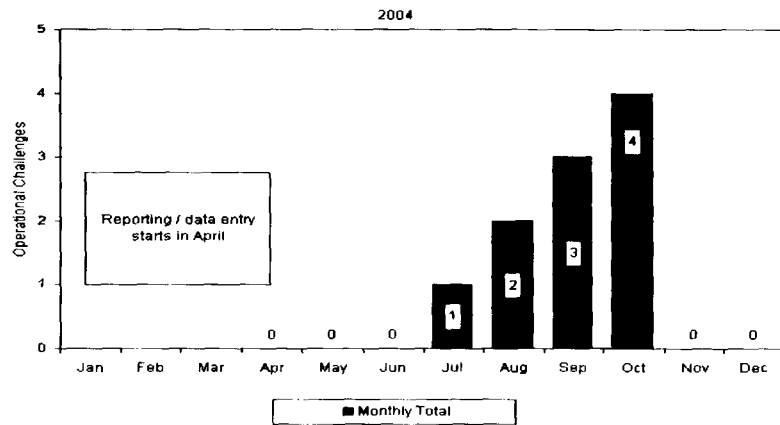
The number of plant operational issues that warrant implementation of the Operational Challenges Response Team

Chart Owner

Hope Creek Plant Manager

Goal:

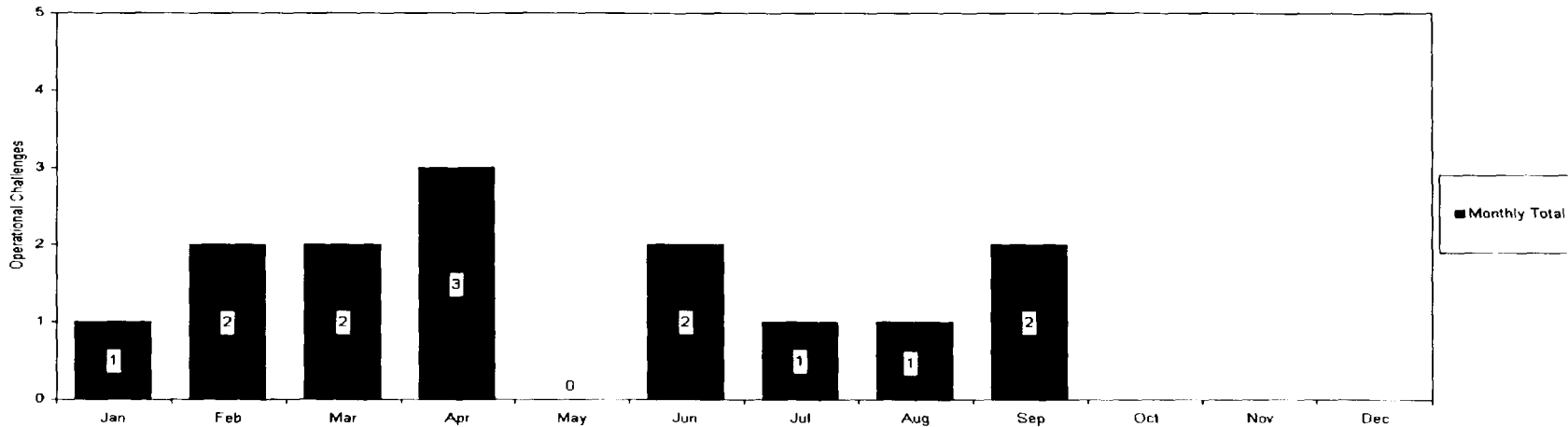
No Adverse Trend



A procedure was established to allow operating crews to request additional assistance to address emergent issues. These are called "Operational Challenges." This metric measures the number of times each month operators engage this assistance. The goal is to minimize the challenges to the operating crews. By tracking and reviewing the challenges, common causes and potential trends can be investigated.

Analysis: There is no adverse trend. There were four operational challenges initiated in the third quarter. Overall station average stands at approximately two operational challenge responses per month.

Actions: No actions required.



# SALEM UNIT 1 UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES

Updated: Monthly

**R** **R**  
2Q 2005 3Q 2005

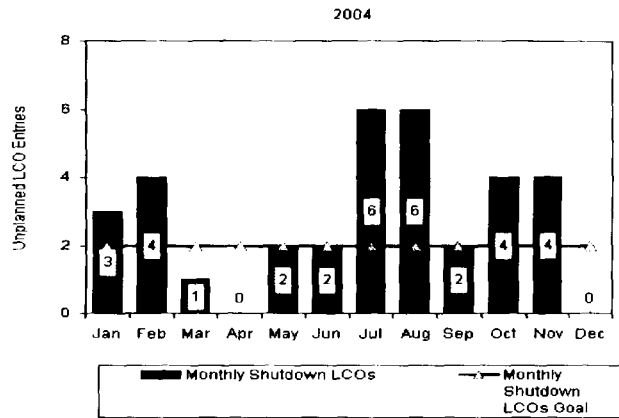
The number of Unplanned Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month

Chart Owner

Salem System Engineering Manager

Goal:

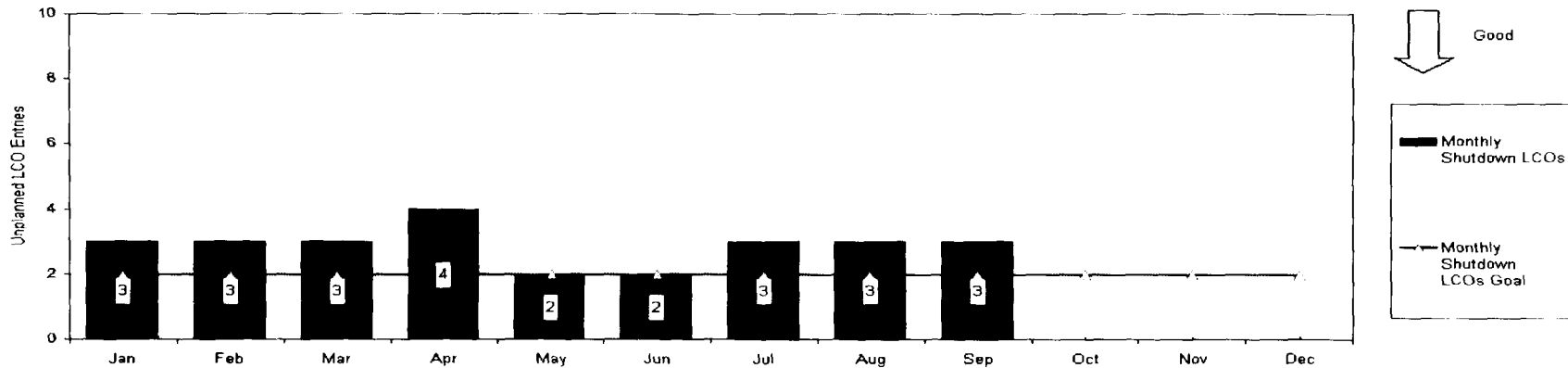
2 per Month



Nuclear plants are operated under a fundamental set of rules from the Nuclear Regulatory Commission (NRC) called Technical Specifications. Certain rules require operators to enter a shutdown LCO, meaning the equipment must be fixed in a defined period of time, or unit shutdown is required. This metric measures the unplanned entries made at Salem Unit 1, compared to the expected number at top performing nuclear units (less than or equal to 2/month).

**Analysis:** There were nine Unplanned Shutdown LCO's this quarter. The goal of two per month was not met.

**Actions:** Evaluations of the individual failures were conducted. The causes of these LCOs varies. A major contributor to the unplanned LCOs is the performance of the Containment Fan Cooler Units (CFCU). Currently, Design Engineering is conducting a study which will determine the feasibility of a fixed flowrate modification to improve CFCU reliability.



# SALEM UNIT 1 UNPLANNED NON-SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES

Updated: Monthly

**G**

2Q 2006

**G**

3Q 2006

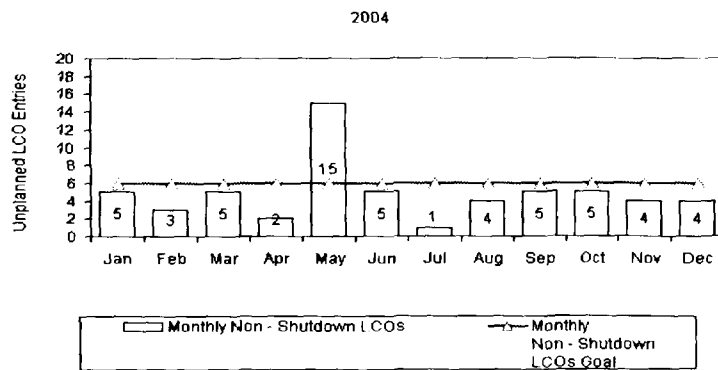
The number of Unplanned Non-Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.

Chart Owner

Salem System Engineering Manager

Goal:

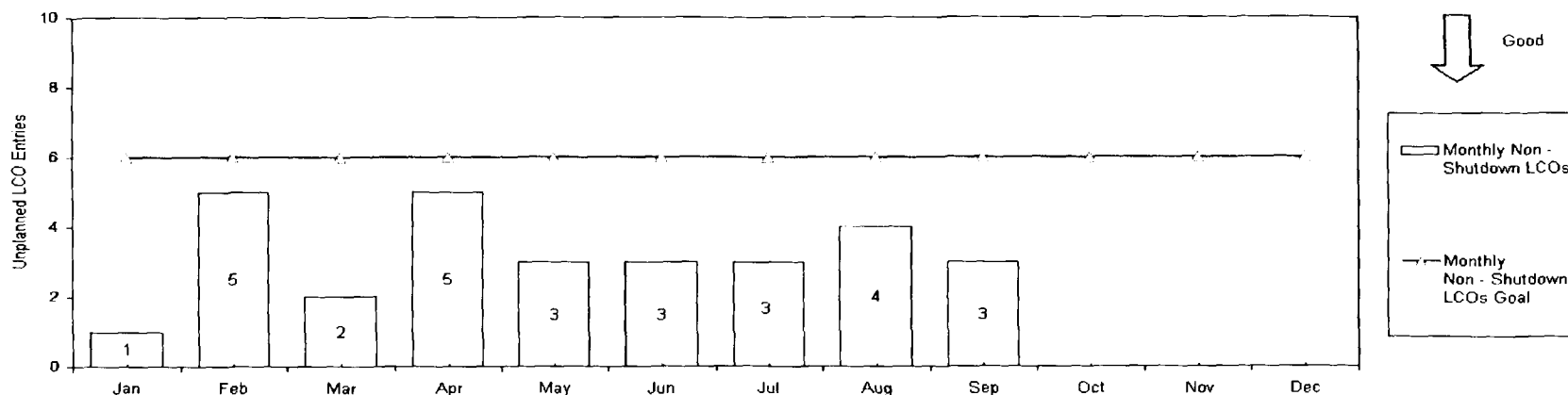
6 per Month



Nuclear plants are operated under a fundamental set of rules from the Nuclear Regulatory Commission (NRC) called Technical Specifications. Certain rules require operators to enter a non-shutdown LCO, meaning the equipment must be fixed in a defined period of time, or you are required to take compensatory measures. This metric measures the unplanned entries made at Salem Unit 1, compared to the expected number at top performing nuclear units (less than or equal to 6/month).

**Analysis:** For the third quarter, there were a total of ten Unplanned Non-Shutdown LCOs. The monthly goal was met.

**Actions:** No actions required

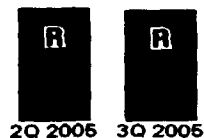


↓ Good



# SALEM UNIT 2 UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES

Updated Monthly

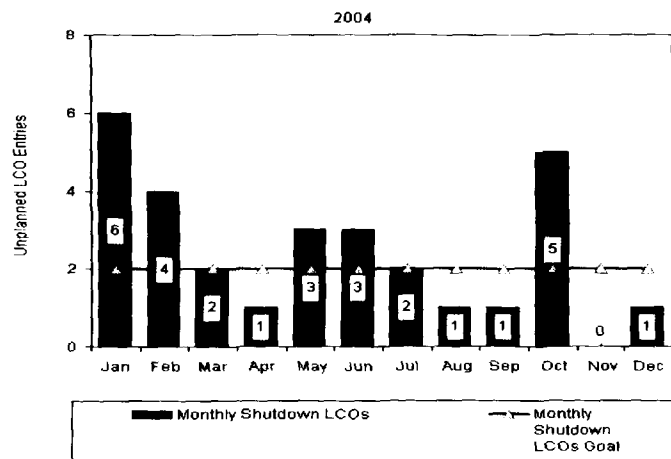


The number of Unplanned Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.

Chart Owner

Salem System Engineering Manager

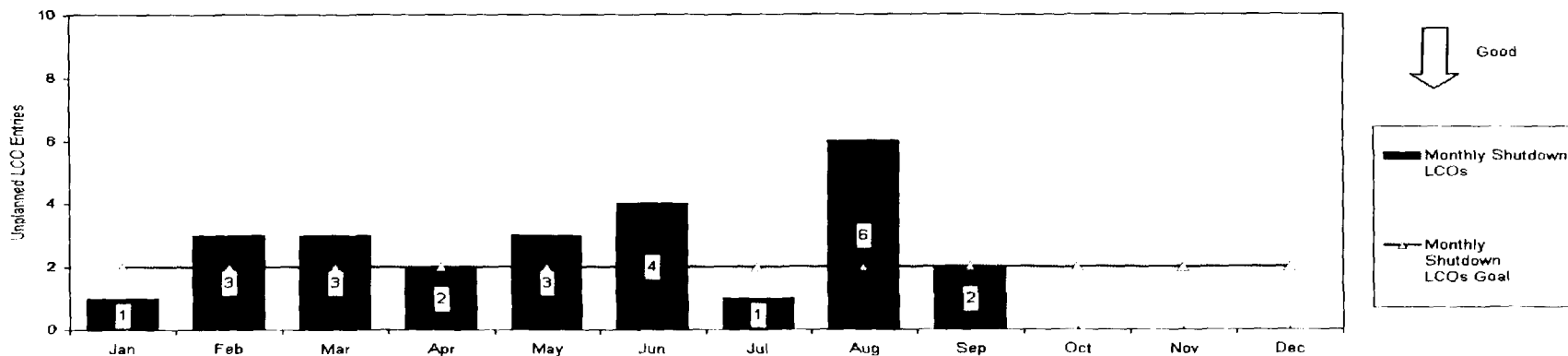
Goal: 2 per Month



Nuclear plants are operated under a fundamental set of rules from the Nuclear Regulatory Commission (NRC) called Technical Specifications. Certain rules require operators to enter a shutdown LCO, meaning the equipment must be fixed in a defined period of time, or unit shutdown is required. This metric measures the unplanned entries made at Salem Unit 2, compared to the expected number at top performing nuclear units (less than or equal to 2/month)

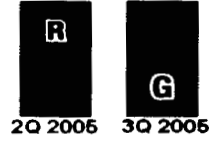
**Analysis:** There were nine Unplanned Shutdown LCO's this quarter. The goal of two per month was not met.

**Actions:** Evaluations of the individual failures were conducted. The causes of these LCOs varies. A major contributor to the unplanned LCOs is the performance of the Containment Fan Cooler Units (CFCU). Currently, Design Engineering is conducting a study which will determine the feasibility of a fixed flowrate modification to improve CFCU reliability.



# SALEM UNIT 2 UNPLANNED NON-SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES

Updated: Monthly



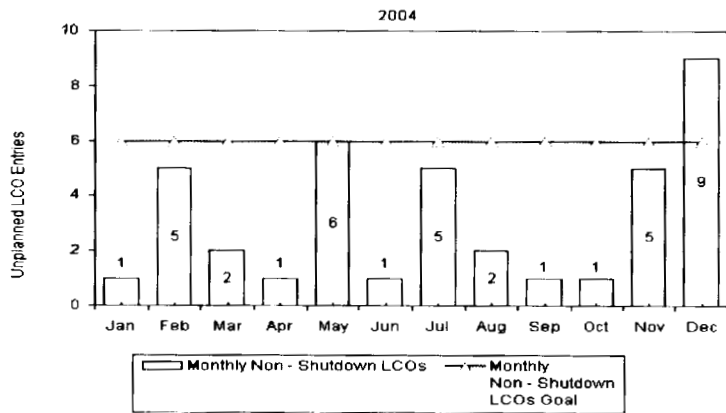
The number of Unplanned Non-Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.

Chart Owner

Salem System Engineering Manager

Goal:

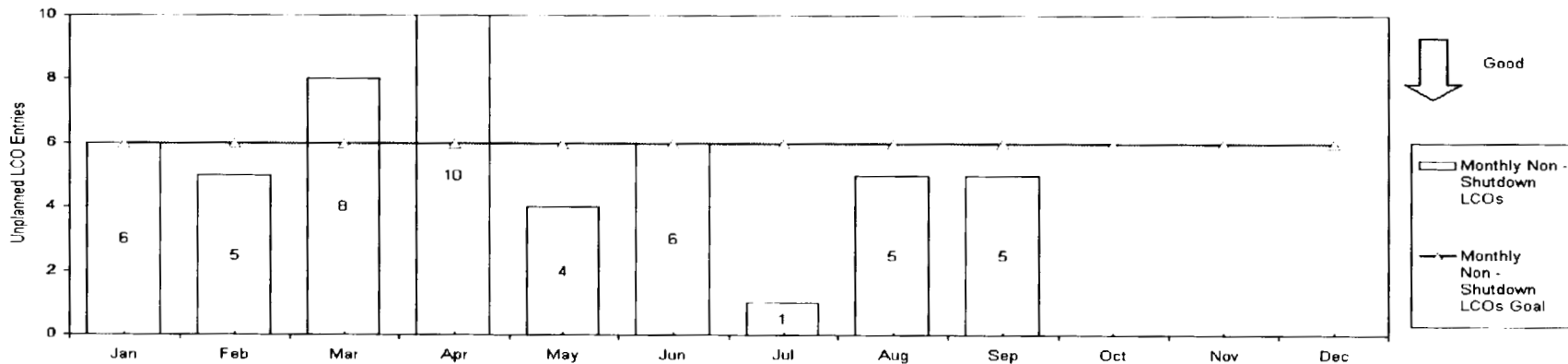
6 per Month



Nuclear plants are operated under a fundamental set of rules from the Nuclear Regulatory Commission (NRC) called Technical Specifications. Certain rules require operators to enter a non-shutdown LCO, meaning the equipment must be fixed in a defined period of time, or you are required to take compensatory measures. This metric measures the unplanned entries made at Salem Unit 2, compared to the expected number at top performing nuclear units (less than or equal to 6/month).

**Analysis:** For the third quarter, there were a total of 11 Unplanned Non-Shutdown LCOs. The monthly goal was met.

**Actions:** No actions are required.



Good

# HOPE CREEK UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES

Updated: Monthly

The number of Unplanned Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.

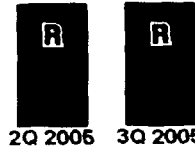
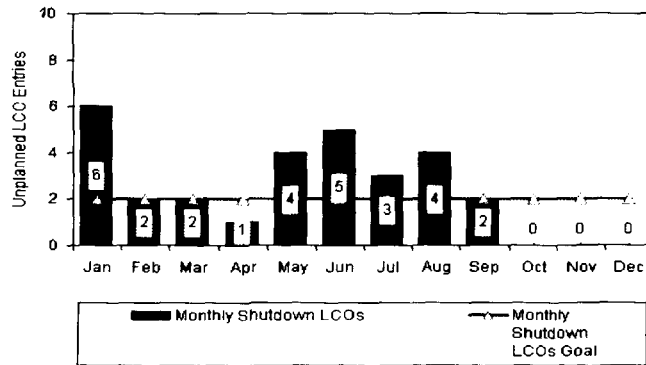


Chart Owner

Hope Creek System Engineering Manager

Goal:

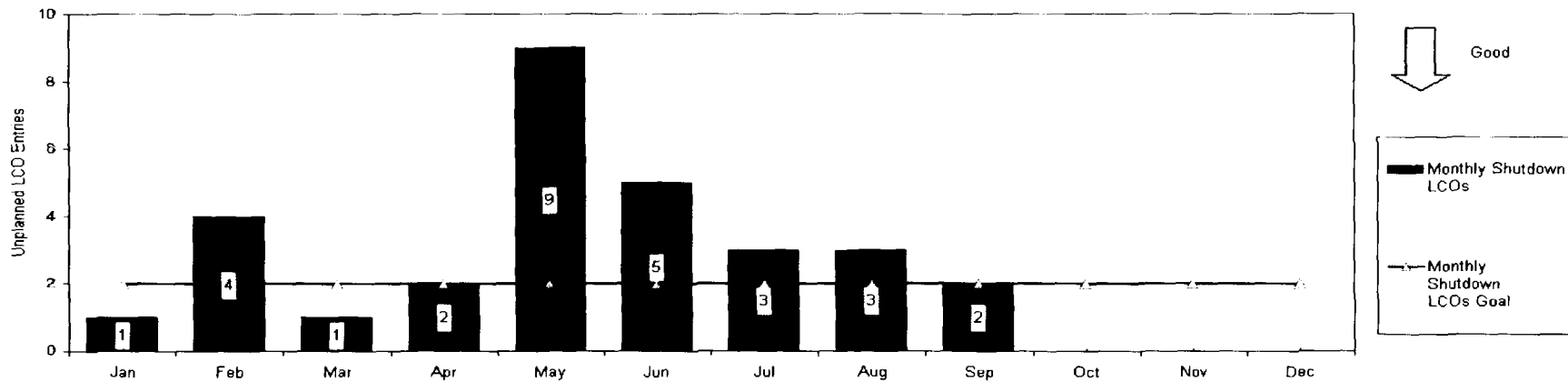
2 per Month



Nuclear plants are operated under a fundamental set of rules from the Nuclear Regulatory Commission (NRC) called Technical Specifications. Certain rules require operators to enter a shutdown LCO, meaning the equipment must be fixed in a defined period of time, or unit shutdown is required. This metric measures the unplanned entries made at Hope Creek, compared to the expected number at top performing nuclear units (less than or equal to 2/month).

**Analysis:** There were eight Unplanned Shutdown LCOs this quarter. The goal of two per month was not met.

**Actions:** An extent of condition evaluation of the eight shutdown LCO for this quarter was performed. The conclusion is that there are no common causes identified among each individual equipment failures. For the one failure that resulted in a unit shutdown, a failed drywell vacuum breaker, a cause determination has been completed and identified corrective actions to prevent reoccurrence have been completed.



# HOPE CREEK UNPLANNED NON-SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES

Updated: Monthly

**G** **G**  
2Q 2005 3Q 2005

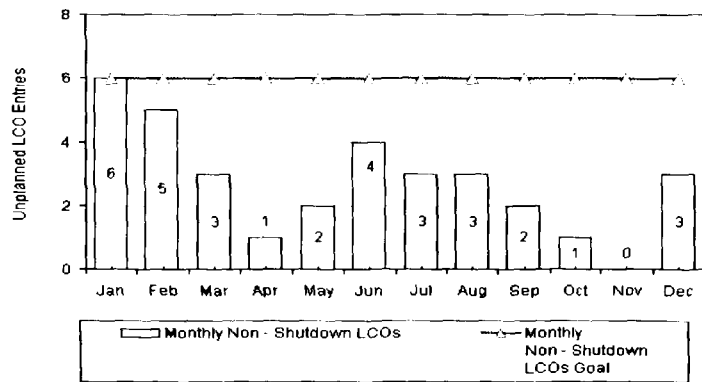
The number of Unplanned Non-Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.

Chart Owner

Hope Creek System Engineering Manager

Goal:

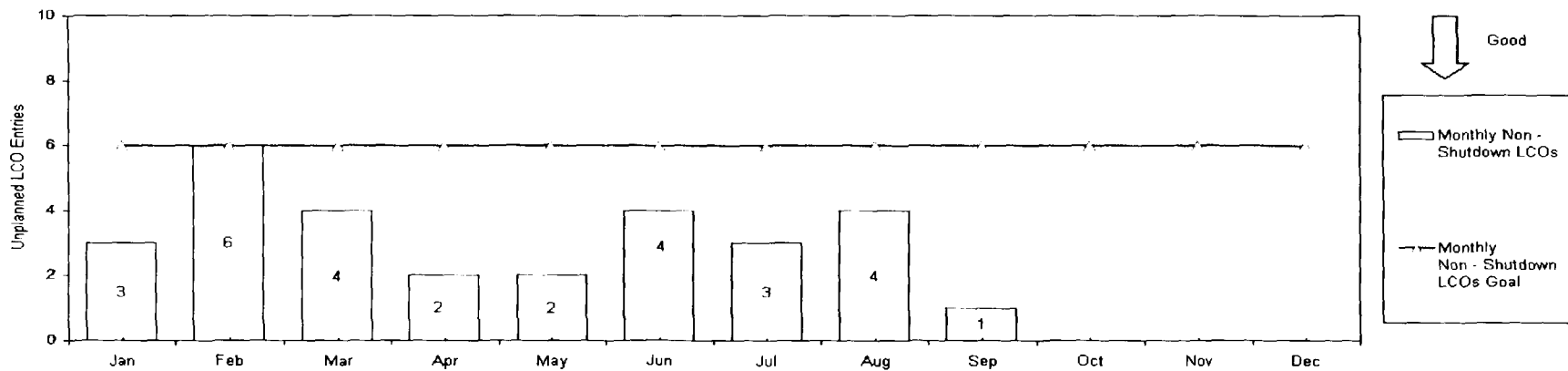
6 per Month



Nuclear plants are operated under a fundamental set of rules from the Nuclear Regulatory Commission (NRC) called Technical Specifications. Certain rules require operators to enter a non-shutdown LCO, meaning the equipment must be fixed in a defined period of time, or you are required to take compensatory measures. This metric measures the unplanned entries made at Hope Creek, compared to the expected number at top performing nuclear units (less than or equal to 6/month).

**Analysis:** The goal was met with eight Unplanned Non-Shutdown LCOs for the third quarter 2005 versus a goal of six per month (18 total).

**Actions:** No actions required.



Good  
↓

# SALEM UNIT 1 EMERGENCY DIESEL GENERATOR UNAVAILABILITY

Updated Monthly

**R** **R**  
2Q 2005 3Q 2005

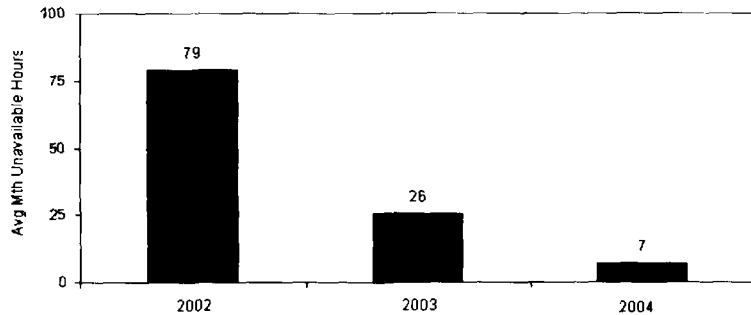
The sum of the planned and unplanned hours that the Emergency Diesel Generators were not available.

Chart Owner

Salem System Engineering Manager

Goal:

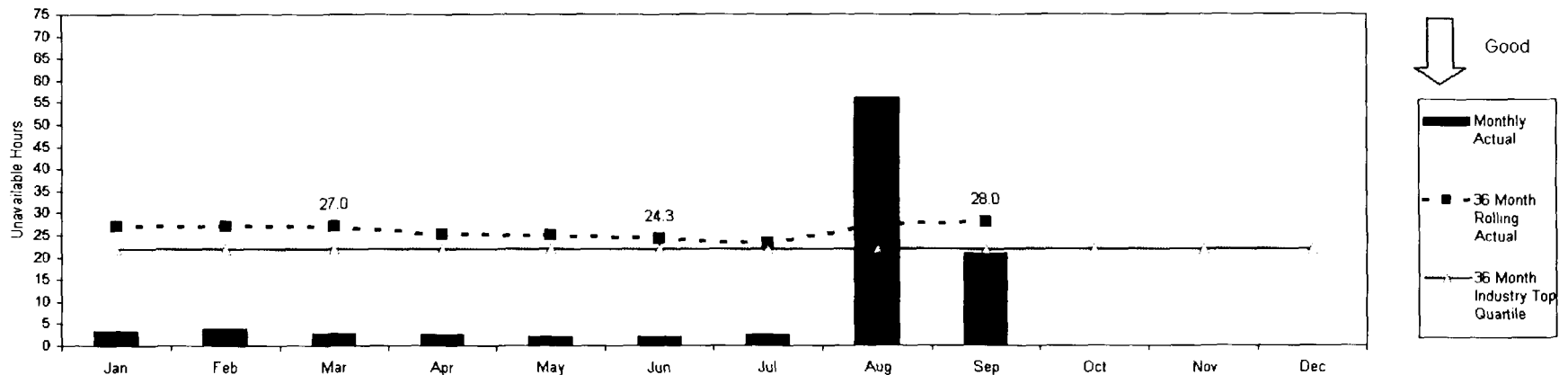
**21.9 hours per month**  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Emergency Diesels are out of service, compared against industry top quartile. The total represents the sum of the unavailable hours of the three Emergency Diesel Generators at Salem Unit 1. This is a long-term trend of our performance.

**Analysis:** The goal of no more than 21.9 hours has not yet been achieved. The Salem Unit 1 Emergency Diesel Generator (EDG) 36-month rolling average unavailability increased from 24.3 hours at the end of the second quarter to 28.0 hours. The primary contributors to unplanned availability for the Unit 1 EDG's were the 1B EDG relay failure and the 1C EDG cylinder head failure in August.

**Actions:** Failed components have been replaced and the failure analyses has been completed for the 1B and 1C EDG component failures. The increase in August unavailability has moved the "goal met by" date from the second quarter projection of August 2005 to December 2005.

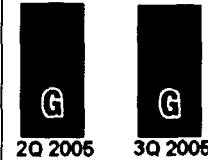


Good

Monthly Actual  
 36 Month Rolling Actual  
 36 Month Industry Top Quartile

# SALEM UNIT 2 EMERGENCY DIESEL GENERATOR UNAVAILABILITY

Updated Monthly



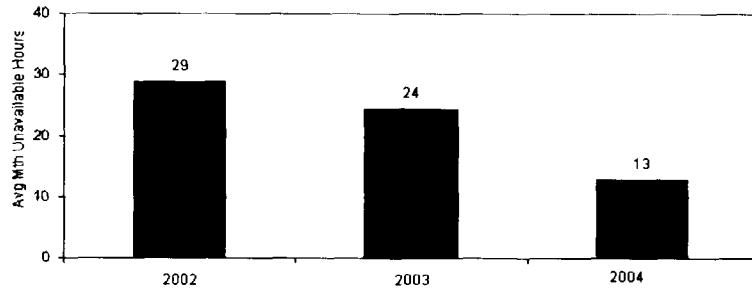
The sum of the planned and unplanned hours that the Emergency Diesel Generators were not available.

Chart Owner

Salem System Engineering Manager

Goal:

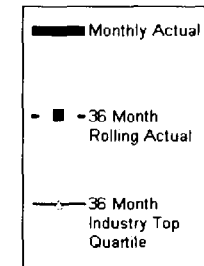
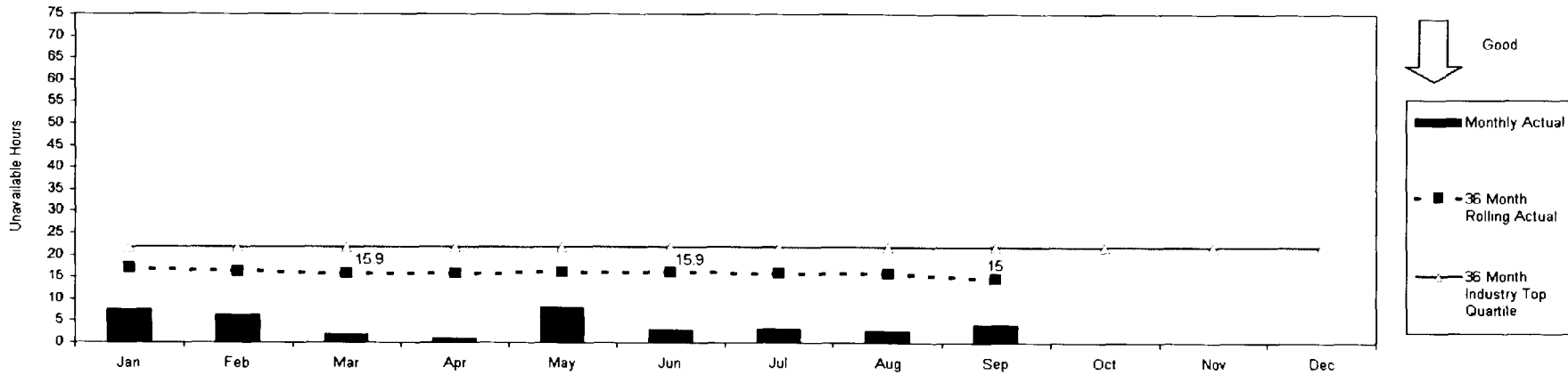
21.9 hours per month  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Emergency Diesels are out of service, compared against industry top quartile. The total represents the sum of the unavailable hours of the three Emergency Diesel Generators at Salem Unit 2. This is a long-term trend of our performance.

**Analysis:** The goal was met. Salem Unit 2 Emergency Diesel Generator unavailability was 14.6 hours versus a goal of no more than 21.9 hours on a 36-month rolling average.

**Actions:** No actions required.



# HOPE CREEK EMERGENCY DIESEL GENERATOR UNAVAILABILITY

Updated: Monthly

**R**  
2Q 2006

**R**  
3Q 2006

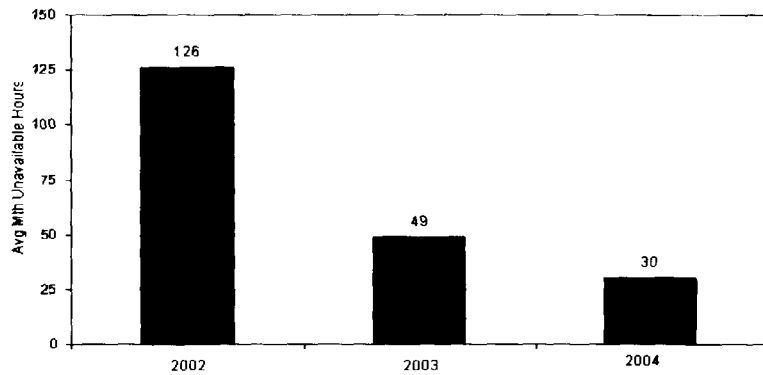
The sum of the planned and unplanned hours that the Emergency Diesel Generators were not available

Chart Owner

Hope Creek System Engineering Manager

Goal:

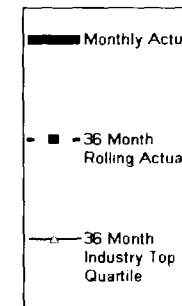
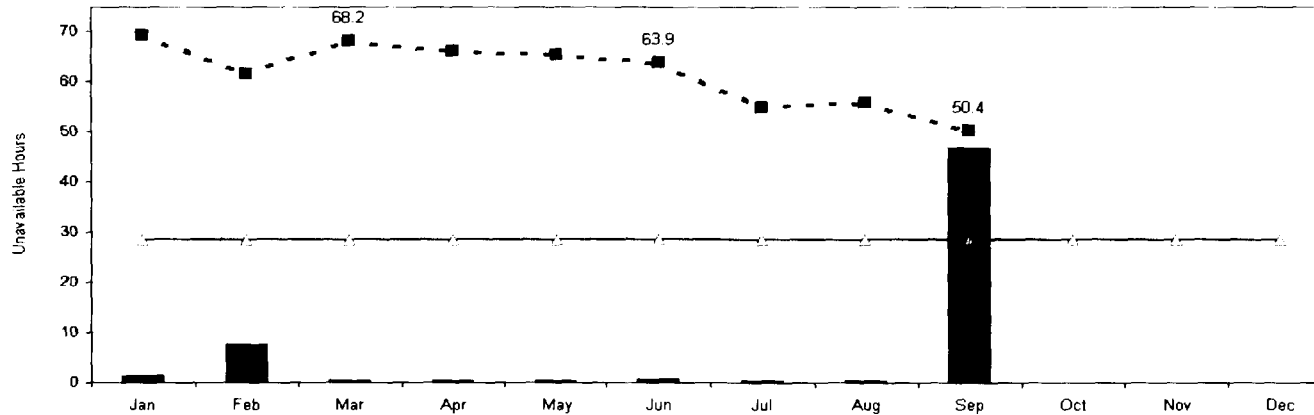
**29.2 hours per month**  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Emergency Diesels are out of service, compared against industry top quartile. The total represents the sum of the unavailable hours of the four Emergency Diesel Generators at Hope Creek. This is a long-term trend of our performance.

**Analysis:** The three year rolling average goal was not met but continues to improve. The system remains on target to meet the one year top quartile performance. The unavailability increase in September 2005 was due to planned actions to improve Emergency Diesel Generator reliability.

**Actions:** Additional preventive maintenance work is planned for the first quarter 2006 which supports achieving the goal by June 2006.



Good  
↓

# SALEM UNIT 1 AUXILIARY FEEDWATER SYSTEM UNAVAILABILITY

Updated: Monthly

R  
2Q 2005

R  
3Q 2005

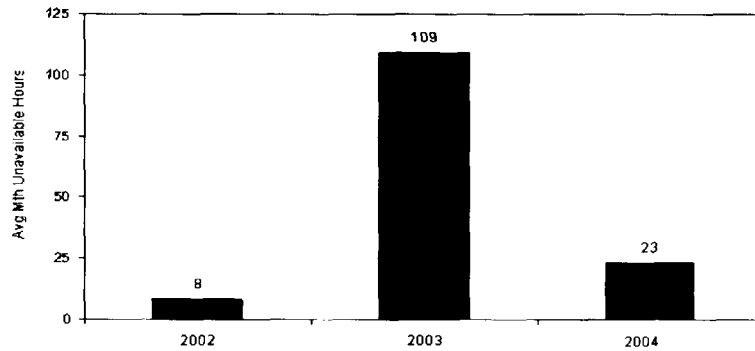
The sum of the planned and unplanned hours that the Auxiliary Feedwater Systems were not available.

Chart Owner

Salem System Engineering Manager

Goal:

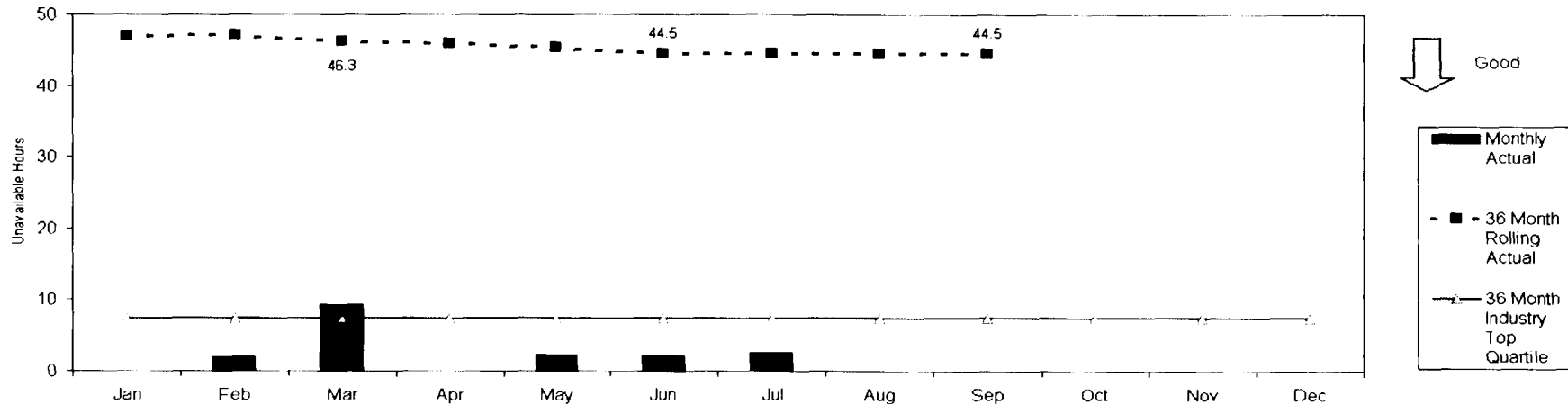
7.4 hours per month  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Salem Unit 1 Auxiliary Feedwater System is out of service compared against industry top quartile. The total represents the sum of the three Auxiliary Feedwater Systems on Salem Unit 1. This is a long-term trend of our performance.

**Analysis:** The three year rolling average goal was not met and remained constant throughout the third quarter. The system remains on target to meet the one year top quartile performance.

**Actions:** Corrective actions implemented relative to scheduling maintenance during outages will increase system availability. Continuing at the current level of performance, Salem Unit 1 Auxiliary Feedwater unavailability will be at goal by January 2007. This change is an improvement from the second quarter 2005 "goal met by" projection of October 2007.



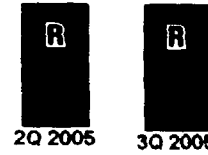
↓ Good

■ Monthly Actual  
 - ■ - 36 Month Rolling Actual  
 - - - 36 Month Industry Top Quartile



# SALEM UNIT 2 AUXILIARY FEEDWATER SYSTEM UNAVAILABILITY

Updated: Monthly

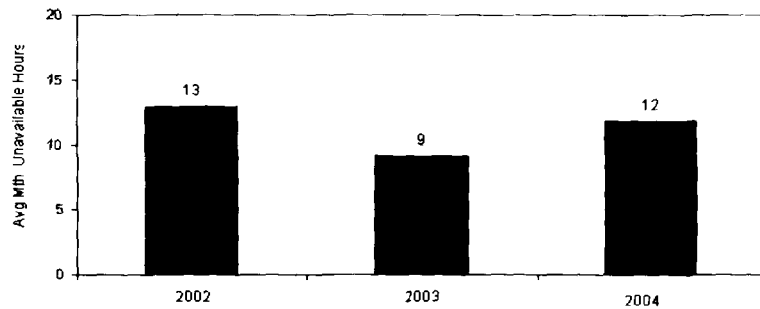


The sum of the planned and unplanned hours that the Auxiliary Feedwater Systems were not available.

Chart Owner

Salem System Engineering Manager

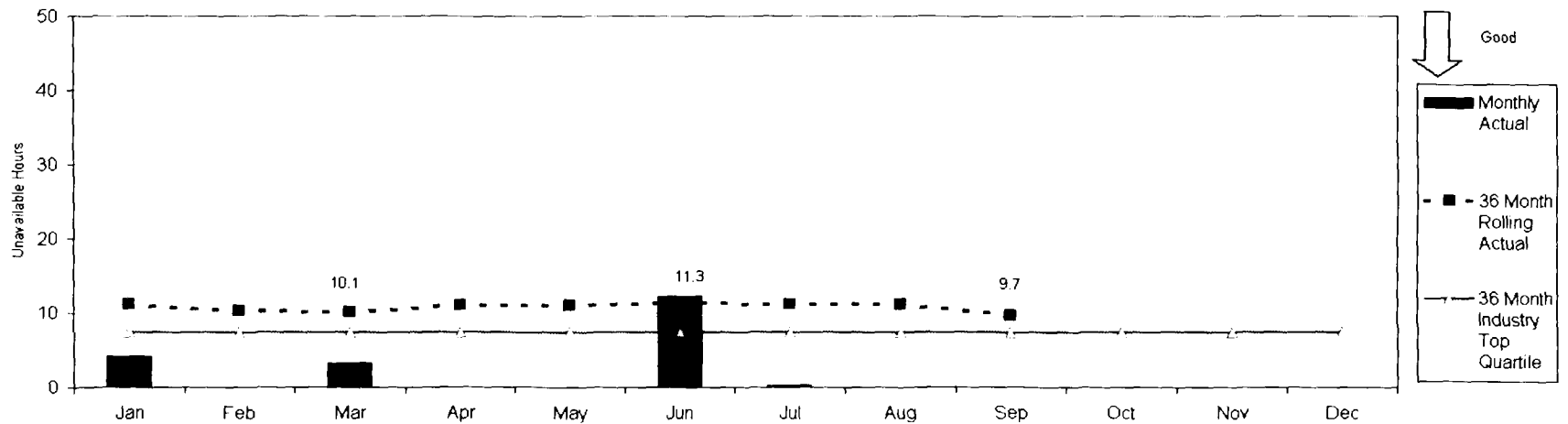
Goal: **7.4 hours per month**  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Salem Unit 2 Auxiliary Feedwater System is out of service compared against industry top quartile. The total represents the sum of the three Auxiliary Feedwater Systems on Salem Unit 2. This is a long-term trend of our performance.

**Analysis:** The three year rolling average was not met but continues to improve. The system remains on target to meet the one year top quartile performance.

**Actions:** Corrective actions implemented relative to scheduling maintenance during outages will increase system availability. Continuing at the current level of performance, Unit 2 Auxiliary Feedwater unavailability will be at goal by February 2006.



# HOPE CREEK RESIDUAL HEAT REMOVAL SYSTEM UNAVAILABILITY

Updated Monthly

**G**  
2Q 2005

**G**  
3Q 2005

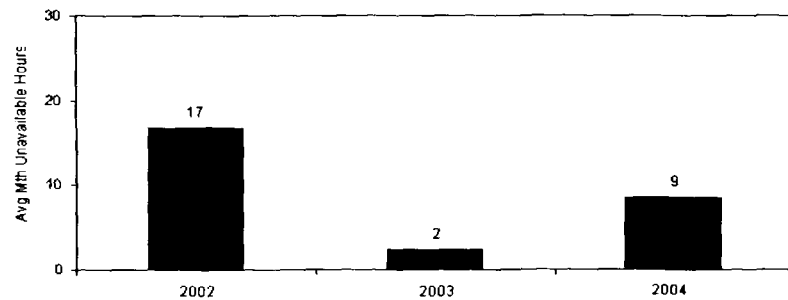
The sum of the planned and unplanned hours that the Residual Heat Removal Systems were not available.

Chart Owner

Hope Creek System Engineering Manager

Goal:

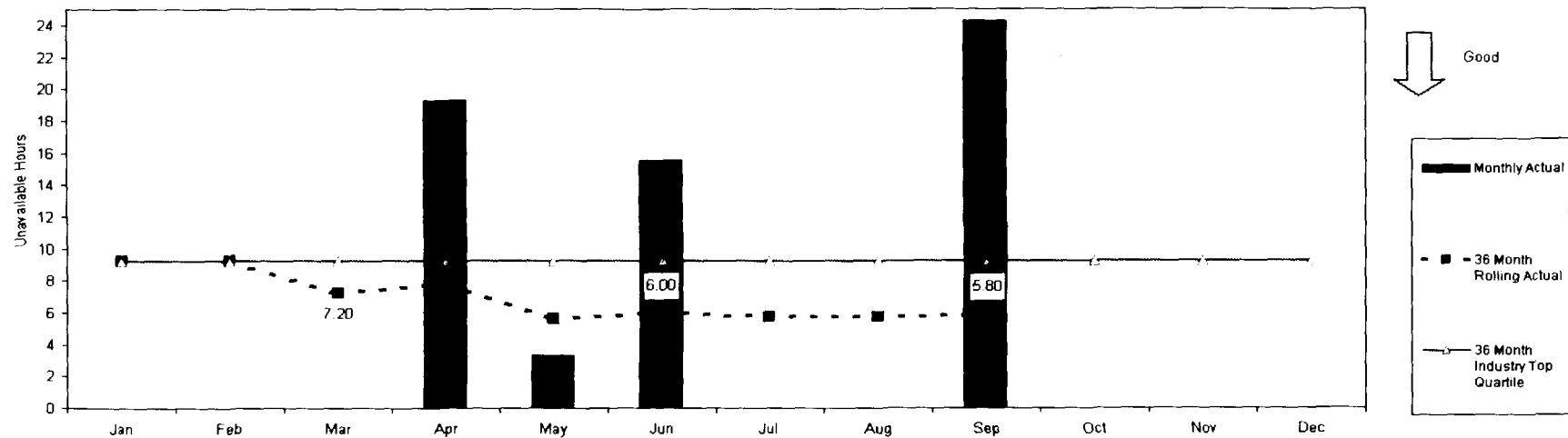
**9.2 hours per month**  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Hope Creek Residual Heat Removal Systems are out of service compared against industry top quartile. The total represents the sum of both Residual Heat Removal trains at Hope Creek. This is a long-term trend of our performance.

**Analysis:** The three year rolling average continues to improve. The RHR System unavailability goal of no more than 9.2 hours is met. The system remains on target to meet the one year top quartile performance. The 24.25 hours of unavailability in September were for planned maintenance on B RHR.

**Actions:** No actions required.



Good

■ Monthly Actual  
 - 36 Month Rolling Actual  
 — 36 Month Industry Top Quartile

# SALEM UNIT 1 CHEMICAL VOLUME CONTROL AND SAFETY INJECTION SYSTEM UNAVAILABILITY

Updated: Monthly



2Q 2005



3Q 2005

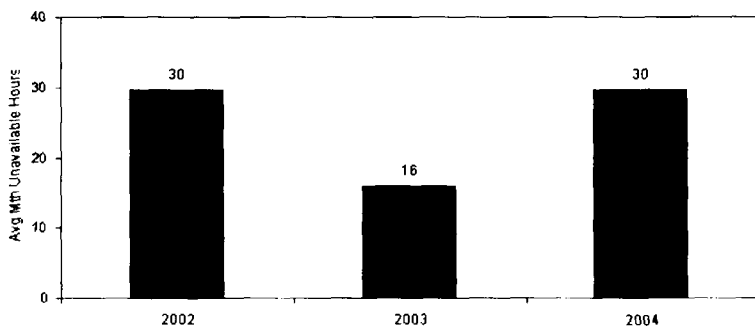
The sum of the planned and unplanned hours that the Chemical Volume Control and Safety Injection Systems were not available.

Chart Owner

Salem System Engineering Manager

Goal:

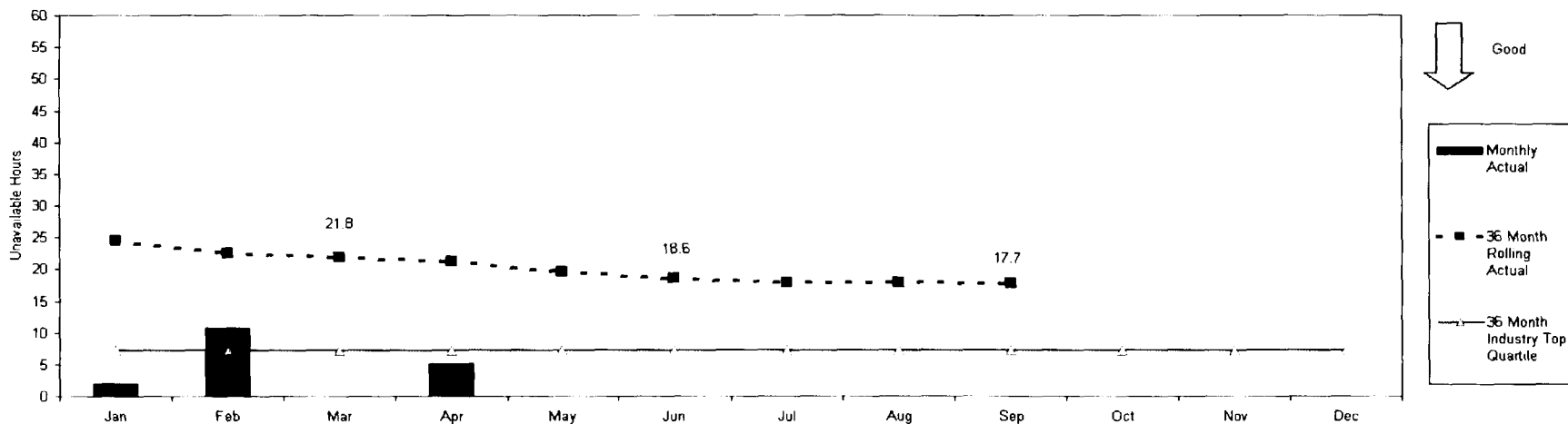
7.3 hours per month  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Salem Unit 1 Chemical Volume Control and Safety Injection Systems are out of service compared against industry top quartile. The total represents the sum of the four trains on Salem Unit 1. This is a long-term trend of our performance.

**Analysis:** The three year rolling average goal is not met but continues to improve. The system remains on target to meet the one year top quartile performance.

**Actions:** Improvements in system components' health have steadily improved system 36-month rolling unavailability. Continuing at the current level of performance, this metric will be at goal by June 2007. This is an improvement over the second quarter projection of September 2007.

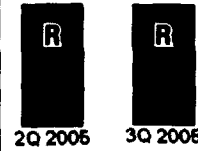


Good

- Monthly Actual
- 36 Month Rolling Actual
- 36 Month Industry Top Quartile

# SALEM UNIT 2 CHEMICAL VOLUME CONTROL AND SAFETY INJECTION SYSTEM UNAVAILABILITY

Updated Monthly



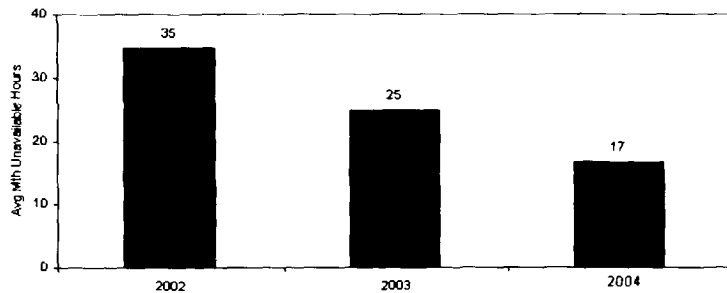
The sum of the planned and unplanned hours that the Chemical Volume Control and Safety Injection Systems were not available.

Chart Owner

Salem System Engineering Manager

Goal:

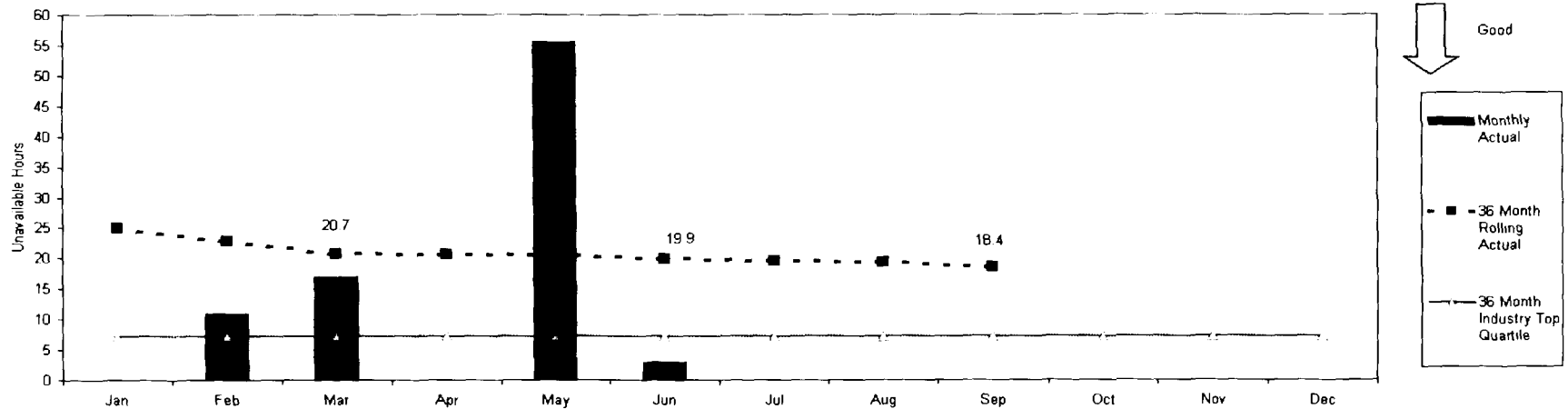
7.3 hours per month  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Chemical Volume Control and Safety Injection Systems are out of service compared against industry top quartile. The total represents the sum of the four trains on Salem Unit 2. This is a long-term trend of our performance.

**Analysis:** The three year rolling average goal was not met but continues to improve. The system remains on target to meet the one year top quartile performance. In May, unavailability was incurred due to required maintenance to correct check-valve back-leakage and oil cooler fouling due to river grass intrusion.

**Actions:** Recent improvements are expected to continue to lower system unavailability. Continuing at the current level of performance, this metric will be at goal by January 2007. This is an improvement over the second quarter projection of September 2007.



# HOPE CREEK HIGH PRESSURE INJECTION AND REACTOR CORE ISOLATION COOLING SYSTEM UNAVAILABILITY

Updated Monthly

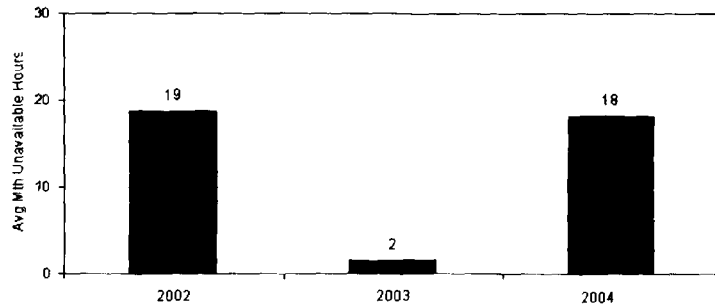


The sum of the planned and unplanned hours that the High Pressure Injection and Reactor Core Isolation Cooling Systems were not available.

Chart Owner

Hope Creek System Engineering Manager

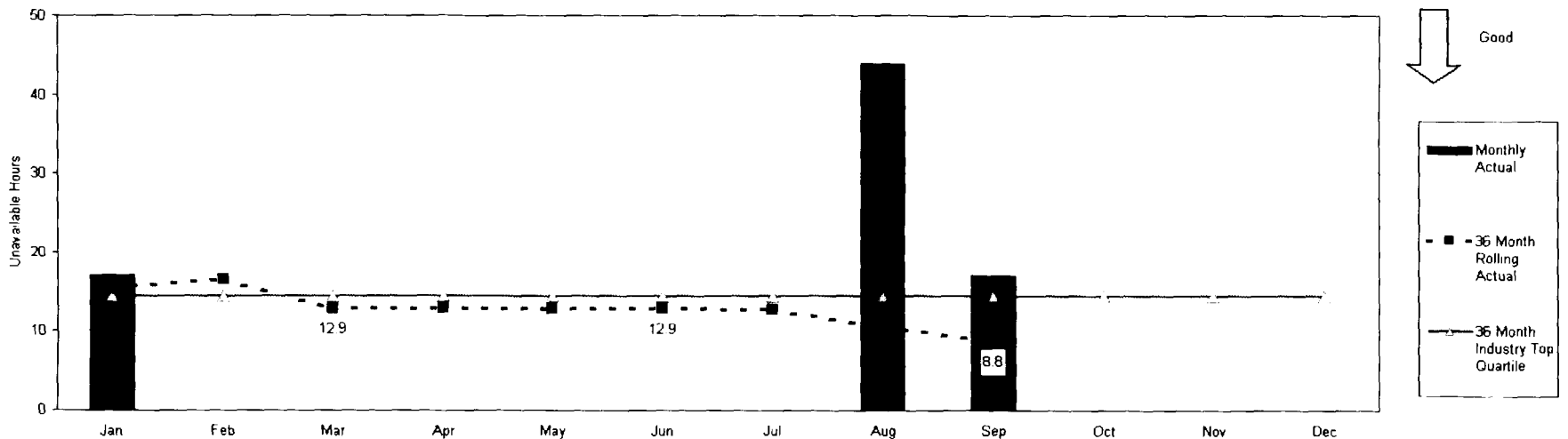
Goal: **14.6 hours per month**  
(36-month rolling average)



Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the High Pressure Injection and Reactor Core Isolation Cooling Systems are out of service compared against industry top quartile. The total represents the sum of both systems at Hope Creek. This is a long-term trend of our performance.

**Analysis:** The three year rolling average goal has been met and continues to improve. The system remains on target to meet the one year top quartile performance. The 43.9 hours accumulated in August 2005 were for scheduled RCIC maintenance, and the 17.1 hours in September 2005 were due to a combination of planned (11.7 hours) and unplanned (5.4 hours) maintenance on the High Pressure Coolant Injection system.

**Actions:** No actions required.



Good

