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LR-N06-0046

JAN 31 2006

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 fourth 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.

In-depth assessments of the work environment were conducted in the first half of 2004. The Business Plan for the remainder of 2004 and for 2005 was revised to address the issues identified by these assessments. Business Objectives of SCWE, Corrective Action Program, Work Management, Leadership Effectiveness, and Facilities/Housekeeping were developed, with the first three objectives having the most significant and immediate impact on improving our work environment. The 2004/2005 Business Plan is now complete, with the exception of two Facility initiatives (i.e., renovation of the Hope Creek cafeteria and the Salem Instrumentation & Control shop) that will be completed in 2006.

Implementation of the Business Plan initiatives has resulted in substantial and visible improvements at Salem and Hope Creek Generating Stations. Significant reductions in maintenance backlogs and significant improvements in implementation of the Corrective Action Program were achieved. Safety system

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performance improved during 2005 as a result of more effectively managing our problem resolution processes and most safety system performance indicators are currently at annual top quartile performance levels. Visible facility improvements have also been made that improve the material condition of the stations as well as provide renovated workspaces for our staff.

PSEG recognizes the need to sustain these improvements. Self-assessments of SCWE and Problem Identification and Resolution (PI&R) processes noted positive changes in many areas, as well as additional opportunities for improvement. Subsequent NRC inspection of these areas concluded that progress has been made in addressing our work environment problems and, consistent with our self-assessments, noted issues that require additional action and focused attention. PSEG will continue to monitor our performance and utilize the Corrective Action Program to continuously increase the effectiveness of our improvement efforts.

An overall evaluation of our progress toward sustained performance against the "pillars" of a healthy SCWE yielded the following results:

Pillar 1: Willingness to Raise Concerns

The metric monitoring this pillar is Total Notifications Generated.

The indicator shows that site personnel continue to write Notifications at a rate indicative of a low threshold for problem reporting. There was an increase in the number of notifications generated from 2004 to 2005. Personnel surveys and interviews conducted during self-assessments indicate improvement in this area is, in part, due to a greater confidence that identified problems will be responded to and corrected. Overall performance of this metric for 2005 reflects the continued confidence of the workforce in the Corrective Action Program.

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).

Metrics and equipment performance show that problem resolution has substantially improved.

Long-standing equipment deficiencies were resolved through a 90 percent reduction in the online corrective maintenance backlog, which reached the year-end goal of less than 15 items per unit and reflects top industry performance levels. Similarly, the online elective maintenance backlog was reduced by 48 percent, reaching the year-end goal to achieve top industry performance levels.

Evaluations in the Corrective Action Program continued to be completed in a timely manner and corrective action quality remained high. The number of open evaluations in the Corrective Action Program was reduced by 67 percent and the number of open corrective actions was reduced by 59 percent over the course of the year. A sustained focus on the 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 remained at annual top quartile performance levels as a result of more effectively managing our problem resolution processes. Performance in prior years is causing the three-year rolling average goal not to be met in some instances. The focus will remain on sustaining annual top quartile performance levels and improvements are expected in the three-year rolling average metrics as historical performance data is replaced.

Facility improvements have also been made, including application of approximately 450,000 square feet of new plant coatings at the stations and renovations to the workspaces of more than 40 percent of our staff. This visible effort reflects PSEG's expectations for the plant material condition as well as the value placed on improving the workspace for our personnel.

A minor change was made to the metrics for Operational Challenges, that track the number of plant operational issues warranting response by a multi-discipline team. An Event Review Team replaced the Operational Challenges

Response Team previously used for addressing these operational issues when the applicable procedure was changed to the Exelon Management Model on December 29, 2005. The two teams are equivalent and the Operational Challenge metrics have been revised accordingly with the new terminology.

Pillar 3: Alternate Mechanisms to Raise Concerns

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

In 2005, PSEG completed a number of actions to address the results of an Employee Concerns Program (ECP) self-assessment as well as an NRC inspection of the program. Overall, ECP continues to provide an effective, alternate means for identifying issues. During the fourth quarter, there was a decrease in the number of total contacts and the number of confidentiality requests. There were also no anonymous concerns. An increase in the use of anonymous Notifications may be contributing to these changes. No adverse trend was detected. Outreach efforts by the ECP staff continue to communicate the important elements of this program with the workforce.

Pillar 4: Detection/Prevention of Retaliation & Chilling Effect

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

In 2005, more than 200 Executive Review Board (ERB) reviews were performed and none of the proposed personnel actions (e.g., personnel movements, discipline) had retaliation or chilling effect implications, which demonstrates strong performance in this pillar. ECP data showed a significant decrease in retaliation/discrimination issues in the fourth quarter. This is the third consecutive quarter where the frequency of these types of issues declined. Management actions continue to reflect a sound understanding of and respect for the work environment.

In summary, performance in each pillar has shown substantial improvement due to implementation of many initiatives, including the 2004/2005 Business Plan. PSEG's ability to resolve problems has substantially improved, resulting in improvements to the work environment, facilities, and safety system performance. Continued active and open communications with personnel at all

levels in the organization, operating standards reflective of top industry performance levels, clear accountability for personnel and organizational behaviors, and strong performance in the Work Management and Corrective Action Programs will demonstrate PSEG's ability to sustain these improvements.

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

Sincerely,

Attachment

C U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

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U. S. Nuclear Regulatory Commission
Mail Stop 08B1
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USNRC Senior Resident Inspector - HC (X24)

USNRC Senior Resident Inspector - Salem (X24)

Mr. K. Tosch, Manager IV
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PO Box 415
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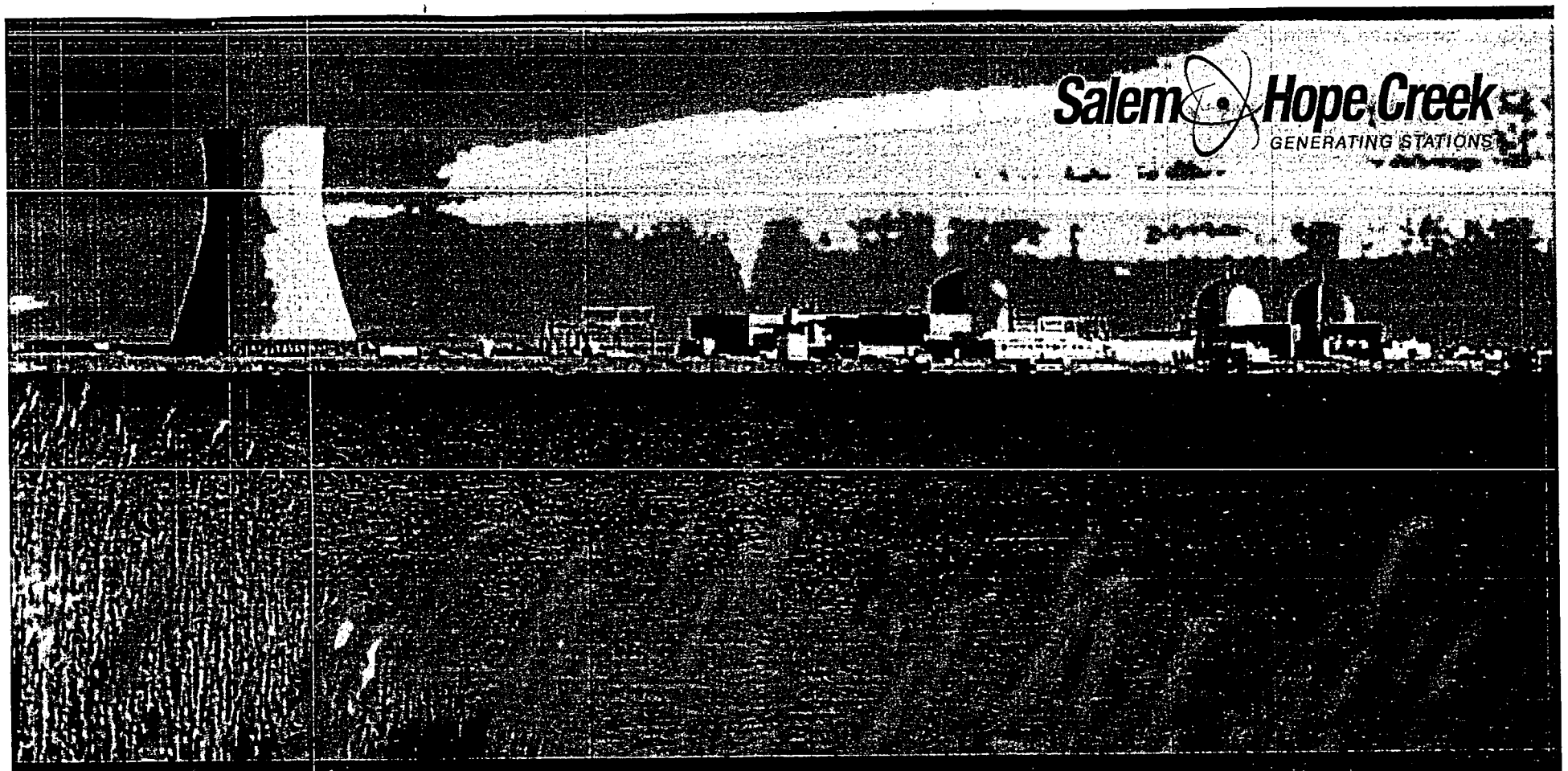
ATTACHMENT

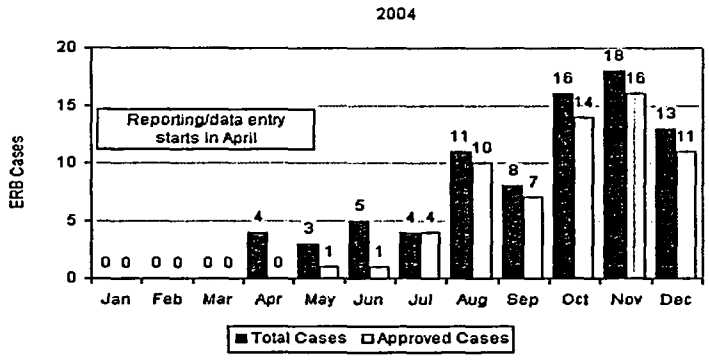


Safety Conscious Work Environment

December 2005

PSEG Nuclear, LLC	December 2005	Status	Definition
EXECUTIVE REVIEW BOARD (ERB) ACTION APPROVALS	Updated: Monthly	G 3Q 2005 / G 4Q 2005	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**

History



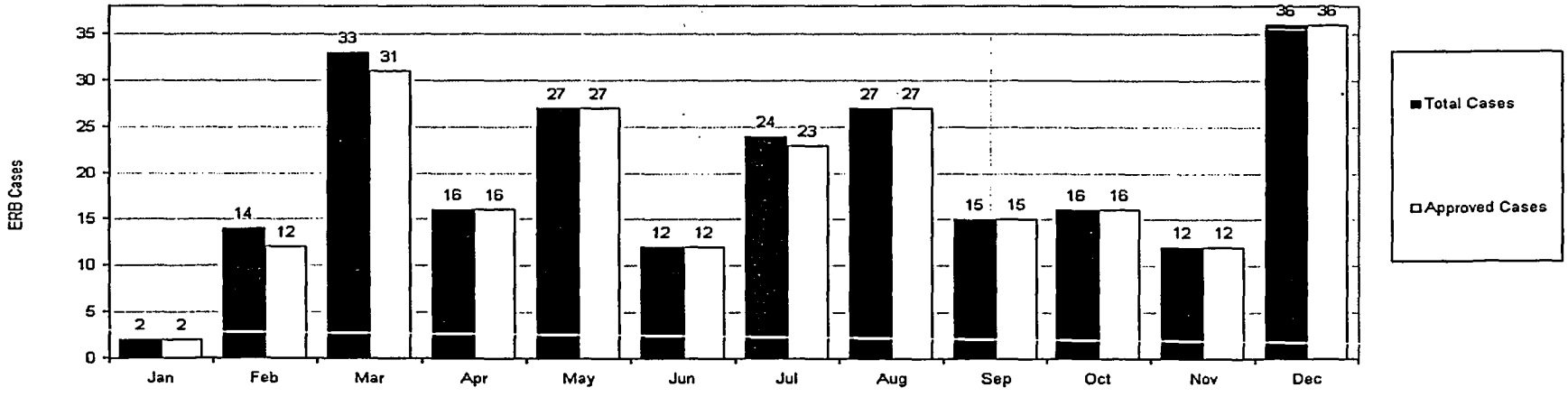
Intent of Indicator

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 and Actions

Analysis: During the 4th Quarter of 2005, PSEG conducted 64 ERBs. None were "Objected To" or "Tabled" and there is no adverse trend. This is a 100% success rate for the Quarter and 98% success rate for the year. Actions taken in this area have been effective. Furthermore, no retaliatory issues were identified in 2005.

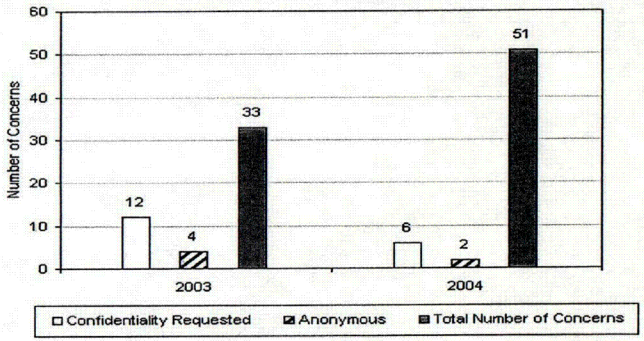
Actions: Continue to monitor for trends and communicate ERB applicability.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
EMPLOYEE CONCERNS PROGRAM - CONCERNS CONFIDENTIALITY/ANONYMITY REQUEST	Updated: Monthly	G 3Q 2005 G 4Q 2005	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**

History



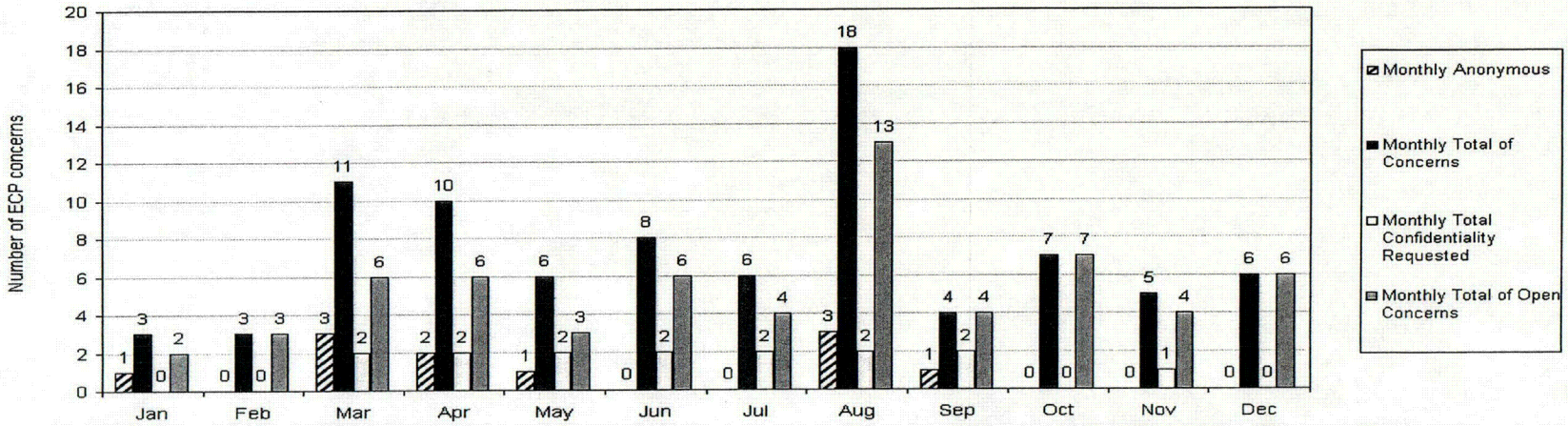
Important Metric

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 and Actions

Analysis: There were no adverse trends for the 4th Quarter. There were zero anonymous concerns submitted to the Employee Concerns Program in the 4th Quarter. There was one concern in the 4th Quarter, where Confidentiality was requested. Overall for 2005, the numbers of Anonymous and Confidential concerns in the 4th Quarter is much lower than the first three quarters of the year. Implementation and increasing use of the Anonymous Notification process may be contributing to this reduction. There have been two requests for Confidentiality in each of the months in 2005 with the exceptions of January, February, October, November and December.

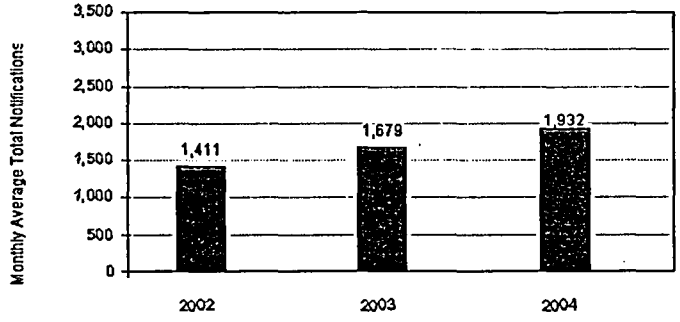
Actions: No actions required.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
TOTAL NOTIFICATIONS GENERATED	Updated: Monthly	G (3Q 2005) G (4Q 2005)	Total notifications generated on a monthly basis.
Chart Owner			
Corrective Action Program Manager		Goal:	No Adverse Trend

History



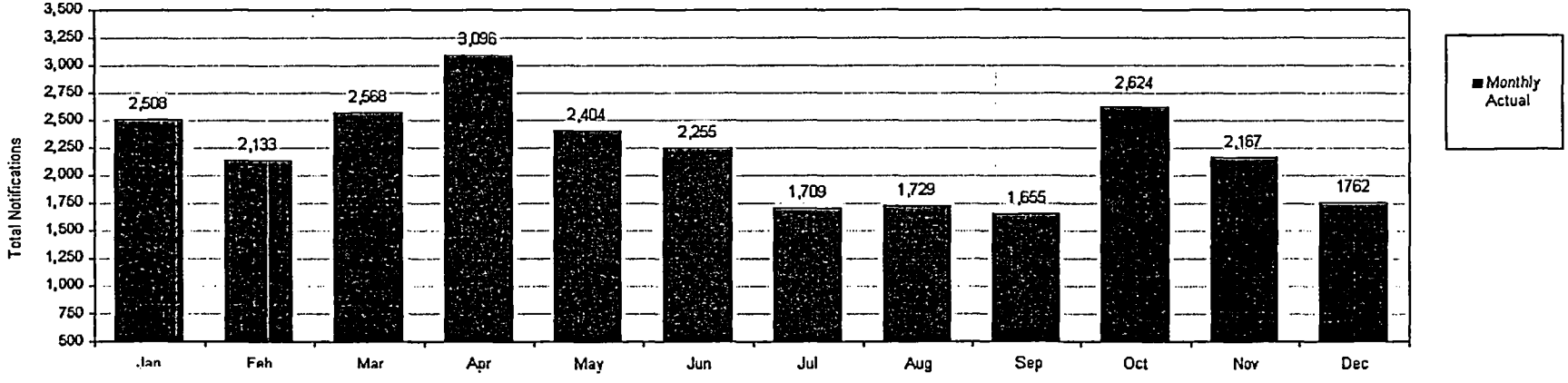
Intent of Metric

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 and Actions

Analysis: The average for the 4th Quarter of 2005 was 2184. This is comparable to previous 4th Quarters in 2004, at 2301and 2003, at 1935. In December, the initiation rate decreased below the values in comparable months in past years. This decrease was anticipated based on improved plant performance that allowed personnel to take vacation in December. There is no adverse trend. The 2005 yearly average was 2218.

Actions: Continued monitoring of this area will be performed.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
ONLINE CORRECTIVE MAINTENANCE BACKLOG	Updated: Monthly	3Q 2005: G 4Q 2005: G	The number of open online corrective maintenance work items.
Chart Owner			
Salem Maintenance Manager and Hope Creek Maintenance Manager		**Goal:**	**45 by year end**

History

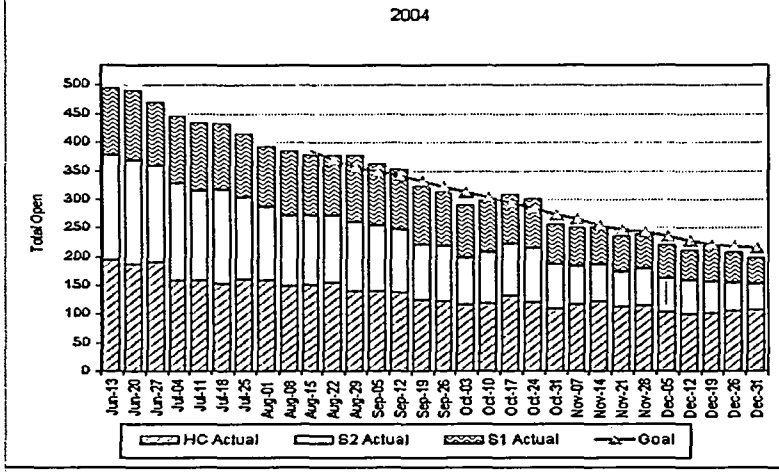


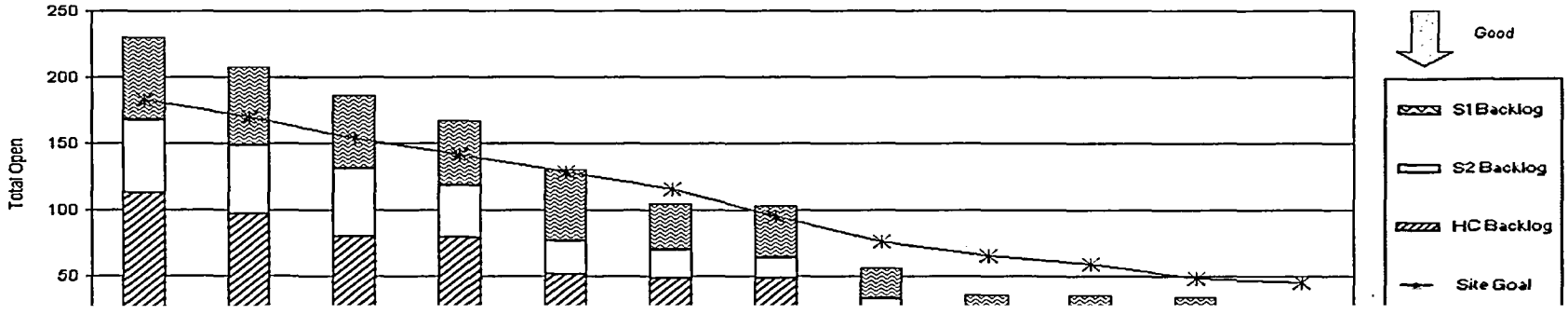
Chart Owner Comments

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 and Actions

Analysis: The year-end goal of ≤ 45 has been met.

Actions: Sustain performance at or below goal.



PSEG Nuclear, LLC | December 2005 | Status | Definition

ONLINE ELECTIVE MAINTENANCE BACKLOG

Updated: Monthly

3Q 2005: R
4Q 2005: G

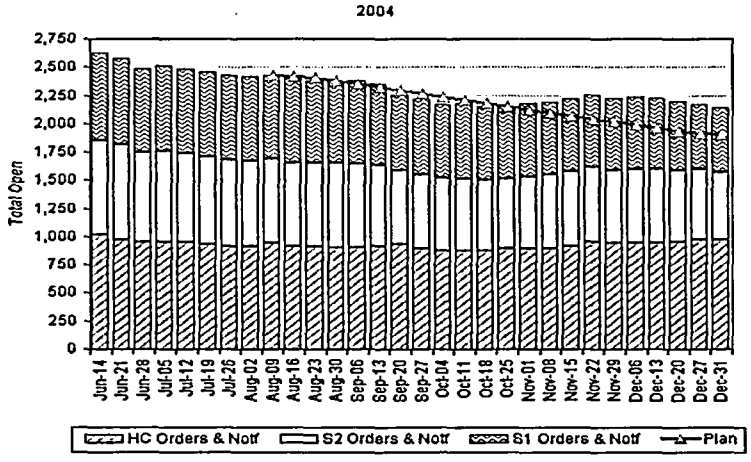
The number of open online elective maintenance work items.

Chart Owner

Salem Maintenance Manager and Hope Creek Maintenance Manager

Goal: 1,200 by year end

History

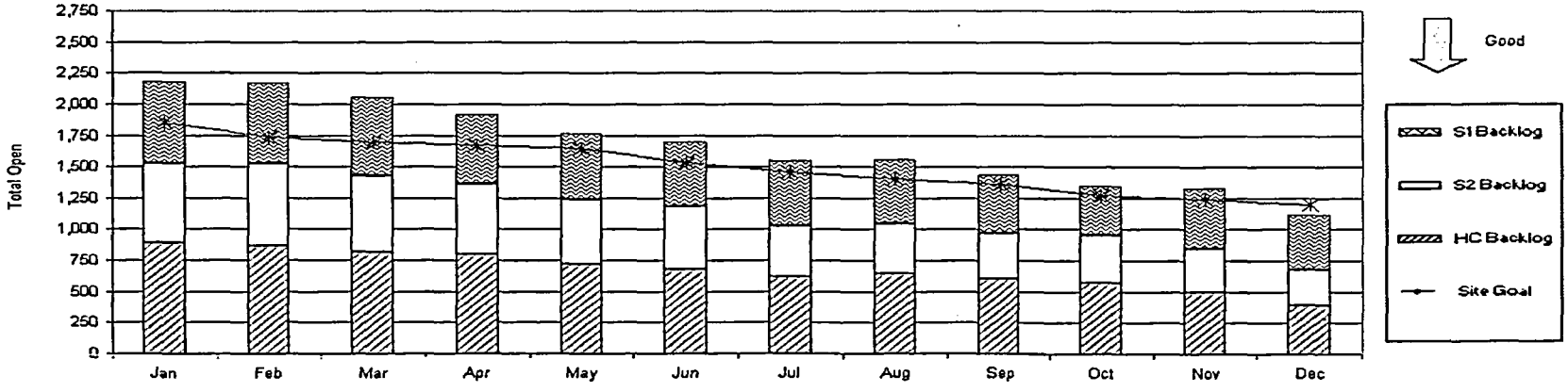


This metric measures the total backlog of on-line elective maintenance. These are items that do NOT have an impact on plant operations and can be fixed while the unit is in service. Benchmarking indicates the industry median at 1450, with *top performance at 1200 for the site.* The goal is to achieve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

Analysis and Actions

Analysis: The year-end goal of ≤1,200 was met.

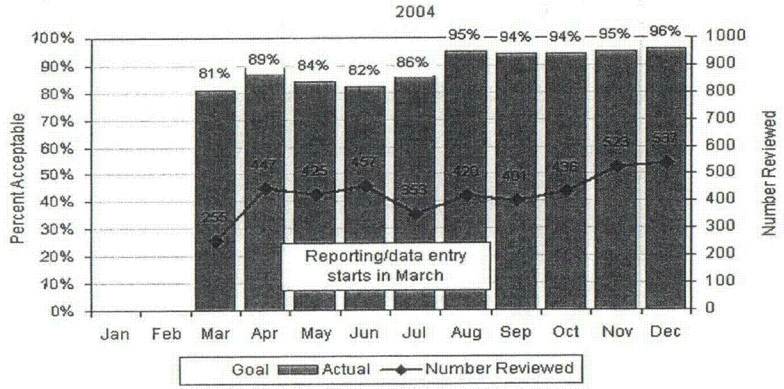
Actions: Sustain performance at or below goal.



Salem • Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
CORRECTIVE ACTION PROBLEM RESOLUTION	Updated: Monthly	G (3Q 2005) G (4Q 2005)	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%**

History



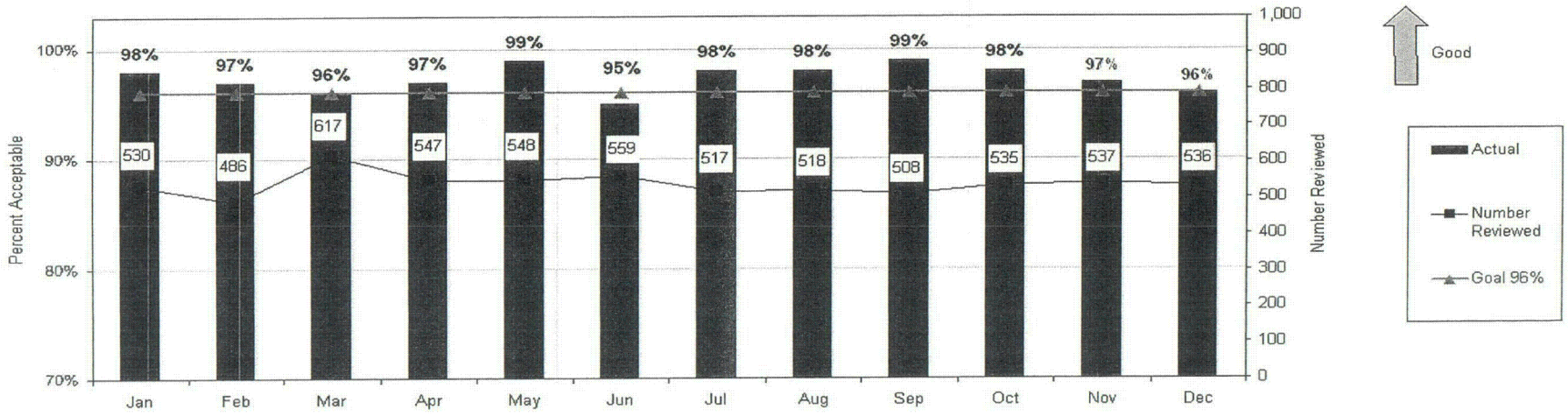
Intent of Metric

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 and Actions

Analysis: The Corrective Action Closure Board acceptance rate results were within goal for the 4th Quarter of 2005. Specific closure failures continue to be addressed by their department management and personnel. No trends are evident.

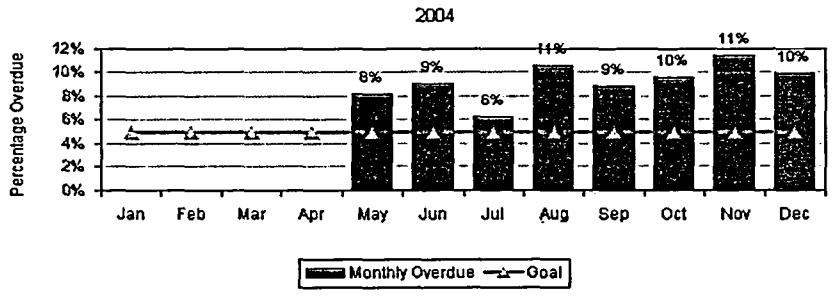
Actions: Continue implementation of the CAP Excellence Plan to sustain performance at or above goal.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
CONDITION REPORT ACTIVITIES OVERDUE	Updated: Monthly	3Q 2005: G; 4Q 2005: G	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%**

History



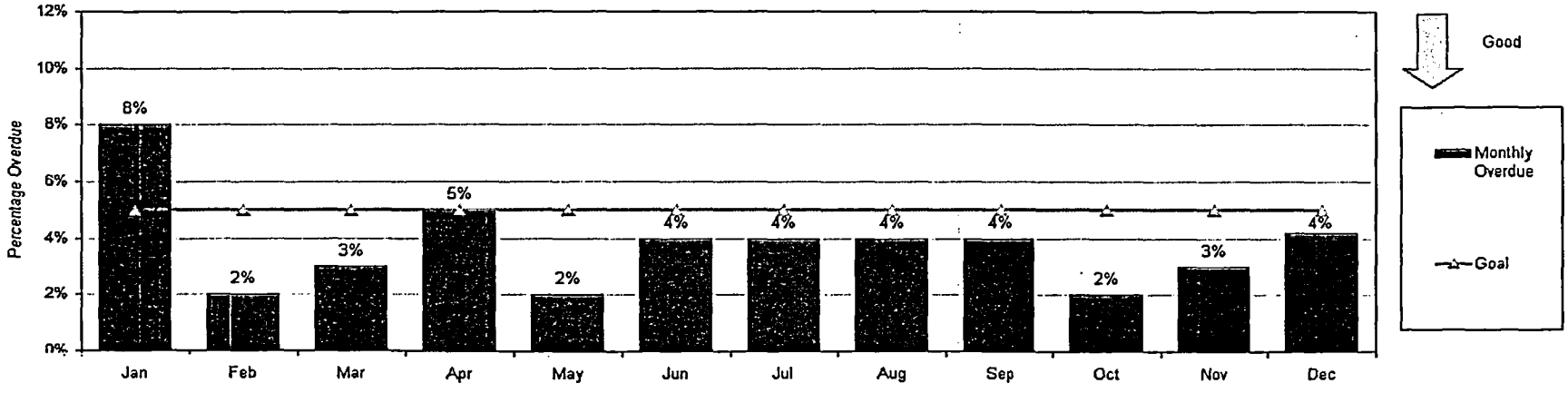
Impact of Trend

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 and Actions

Analysis: Overdue condition report activities remained below goal for the 4th Quarter.

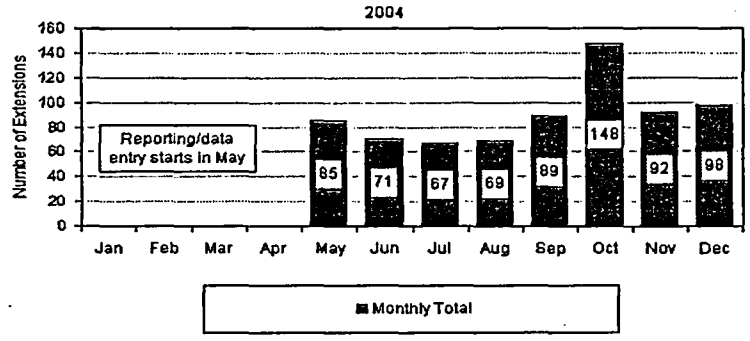
Actions: Continue implementation of the CAP Excellence Plan to sustain performance at or below goal.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
OPEN CONDITION REPORT EVALUATIONS WITH DUE DATE EXTENSIONS	Updated: Monthly	3Q 2005: G 4Q 2005: G	The number of due date extensions approved for open Nuclear Condition Report evaluations.
Chart Owner			
Corrective Action Program Manager		**Goal:**	**No Adverse Trend**

History



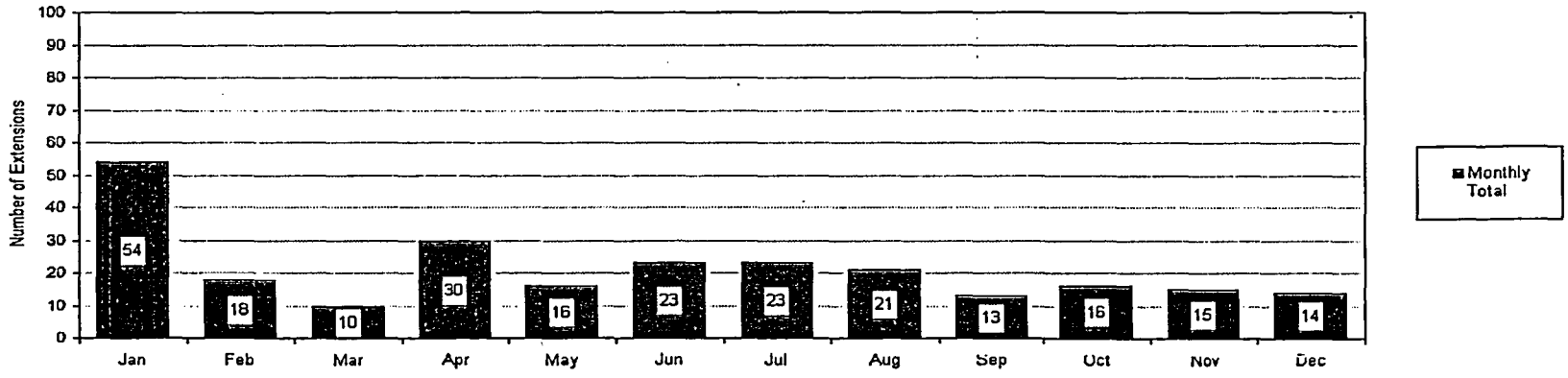
Improvement Plan

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 and Actions

Analysis: Evaluations with due date extensions continue to be low. There is no adverse trend.

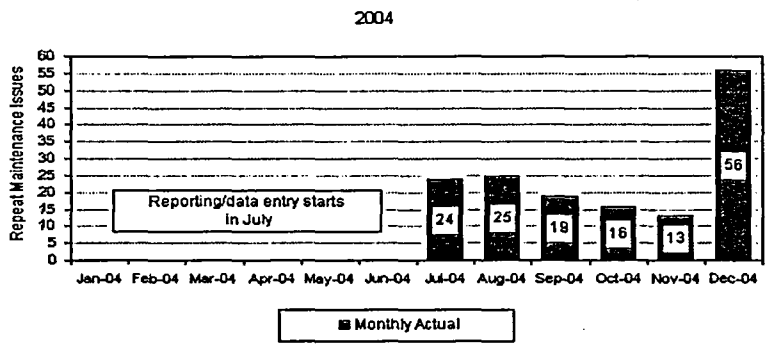
Actions: Continue implementation of the CAP Excellence Plan.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
SALEM UNIT 1 REPEAT MAINTENANCE ISSUES	Updated: Monthly	3Q 2005: G 4Q 2005: G	*The number of repeat maintenance issues identified on safety-related equipment.*
Chart Owner			
Salem Maintenance Manager		**Goal:**	**No Adverse Trend**

History



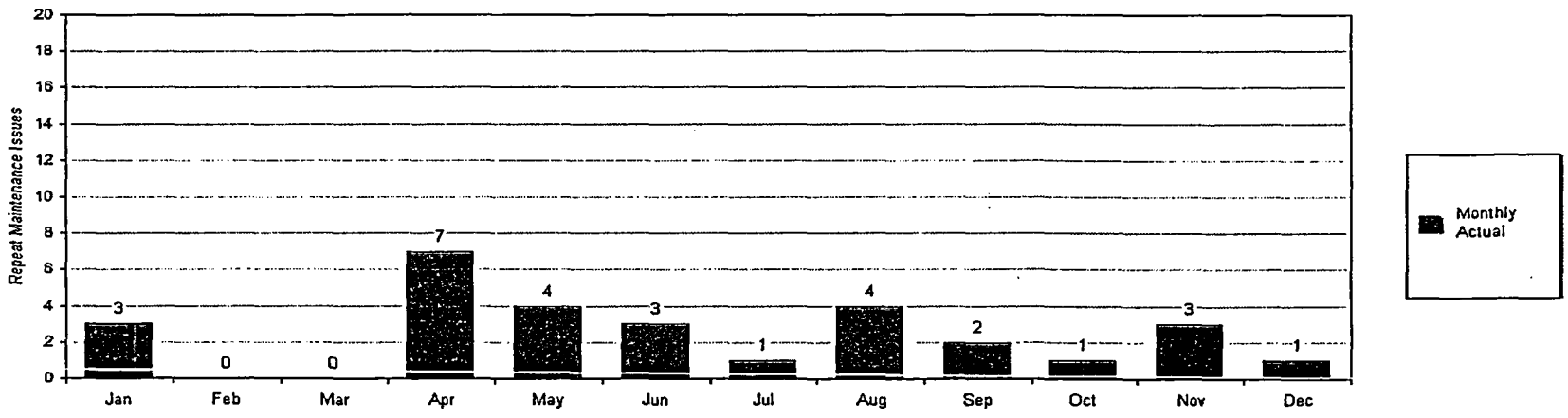
Program Intent

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 and Actions

Analysis: *There is no adverse trend.* There were a total of five Repeat Issues in the 4th Quarter. An evaluation of these issues for commonalities was performed. Two issues associated with maintenance practices were identified, but no trend was evident.

Actions: The items identified in the 4th Quarter are being addressed in the Corrective Action and Corrective Maintenance Programs and actions are being implemented. Equipment reliability will be enhanced through the Plant Health Committee and any deficiencies will be corrected.



Salem • Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC | December 2005 | Status | Definition

SALEM UNIT 2 REPEAT MAINTENANCE ISSUES

Updated: Monthly

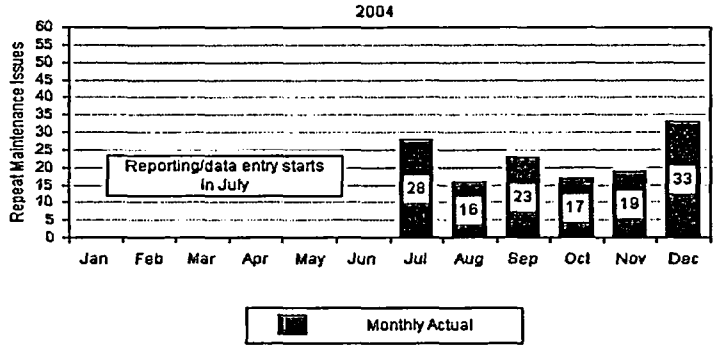
The number of repeat maintenance issues identified on safety-related equipment.

Chart Owner

Salem Maintenance Manager

Goal: No Adverse Trend

History



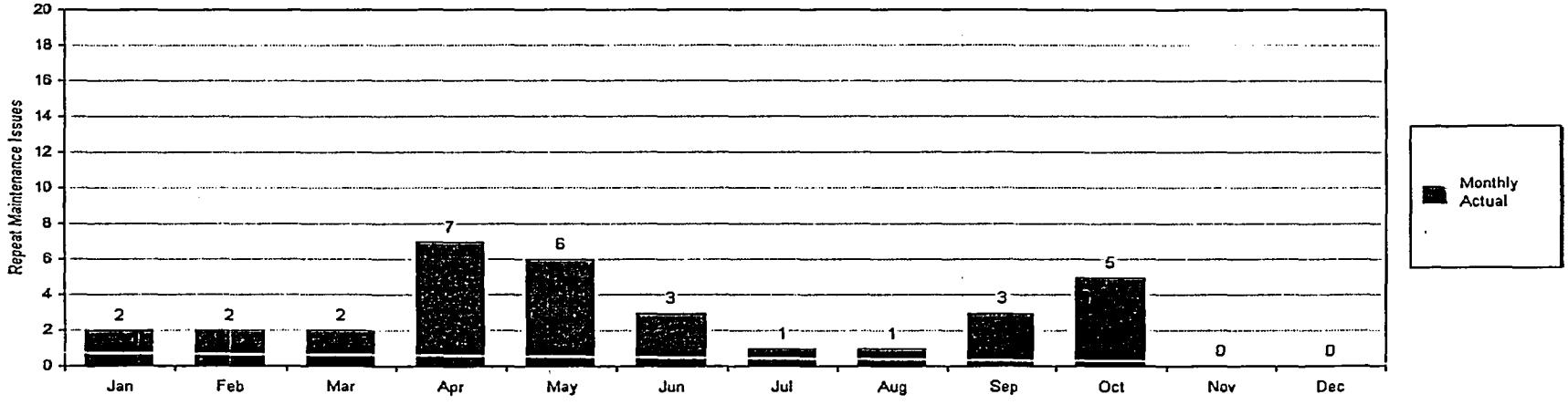
Purpose of Metric

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 and Actions

Analysis: There is no adverse trend. There were five repeat Maintenance Issues in the 4th Quarter, all in the month of October. Two issues were associated with Radiation Monitor failures. This equipment is on the Top 10 List for equipment reliability issues.

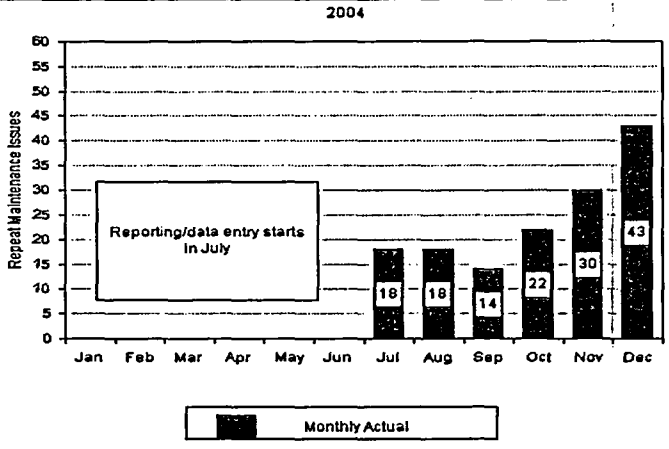
Actions: The items identified in the 4th Quarter are being addressed in the Corrective Action and Corrective Maintenance Programs and actions are being implemented. Equipment reliability will be enhanced through the Plant Health Committee and any deficiencies will be corrected.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
HOPE CREEK REPEAT MAINTENANCE ISSUES	Updated: Monthly	3Q 2005: G 4Q 2005: G	The number of repeat maintenance issues identified on safety related equipment.
Chart Owner			
Hope Creek Maintenance Manager		**Goal:**	**No Adverse Trend**

Trend



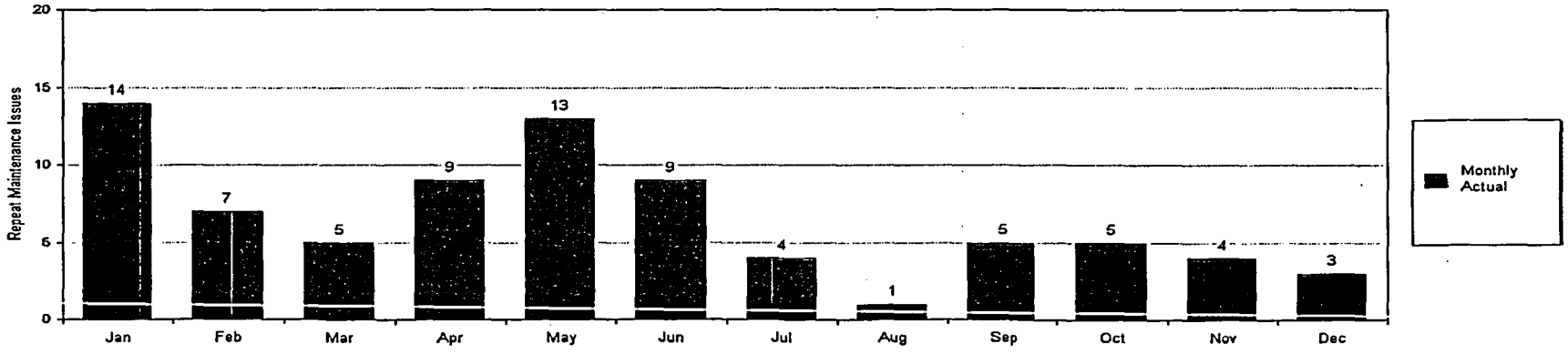
Intent of Metric

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 and Actions

Analysis: There is no adverse trend. There were a totoal of 12 repeat Maintenance issues in the 4th Quarter. An evaluation of these issues for commonalities was performed and no trend was evident.

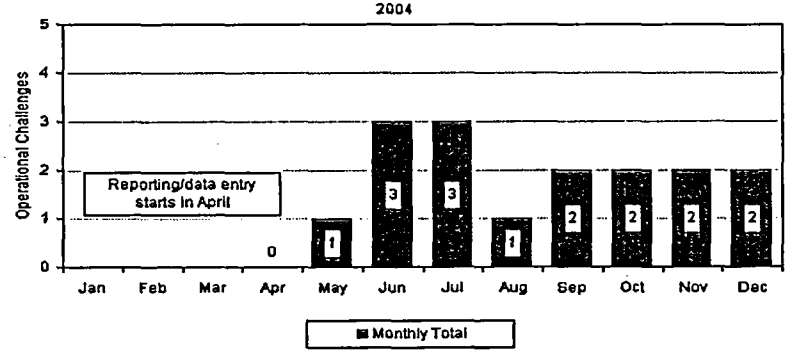
Actions: The items identified in the 4th Quarter are being addressed in the Corrective Action and Corrective Maintenance Programs and actions are being implemented. Equipment reliability will be enhanced through the Plant Health Committee and any deficiencies will be corrected.



Salem • Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
SALEM UNIT 1 OPERATIONAL CHALLENGES	Updated: Monthly	G (3Q 2005) G (4Q 2005)	*The number of plant operational issues that warrant implementation of the Event Response Team.*
Chart Owner			
Salem Plant Manager		**Goal:**	**No Adverse Trend**

History



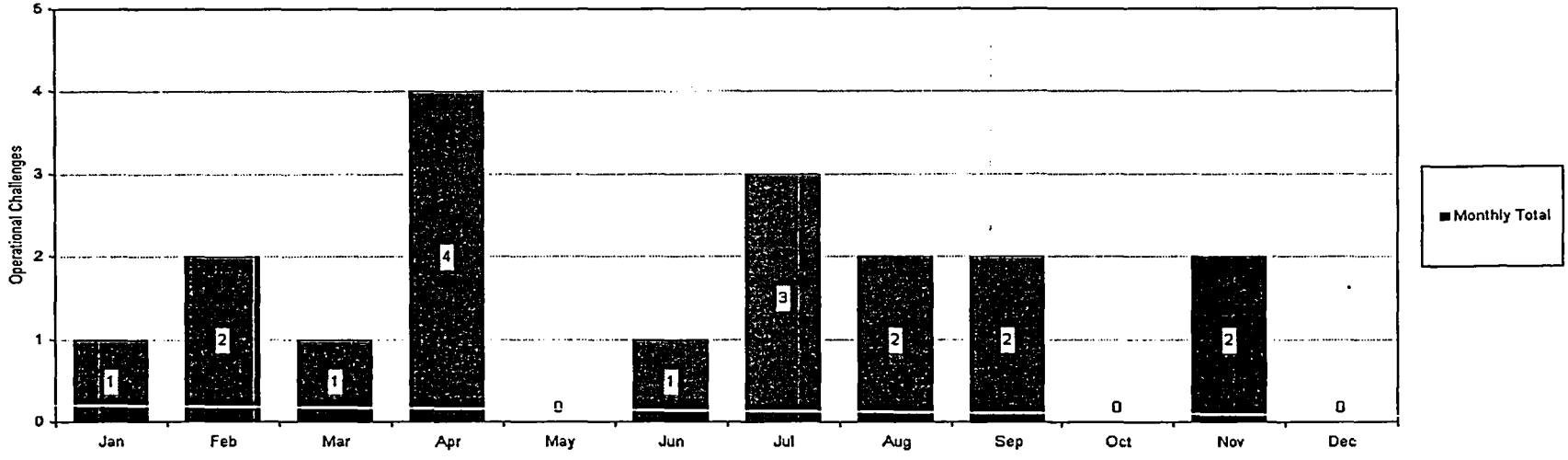
Metric Definition

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 and Actions

Analysis: *No adverse trend has been identified. There were two Operational Challenges initiated in the 4th Quarter.* For the year there were 18 Operational Challenge Responses/Event ResponseTeams for Unit 1 for an average of 1.5 per month compared to an average of two per month for 2004.

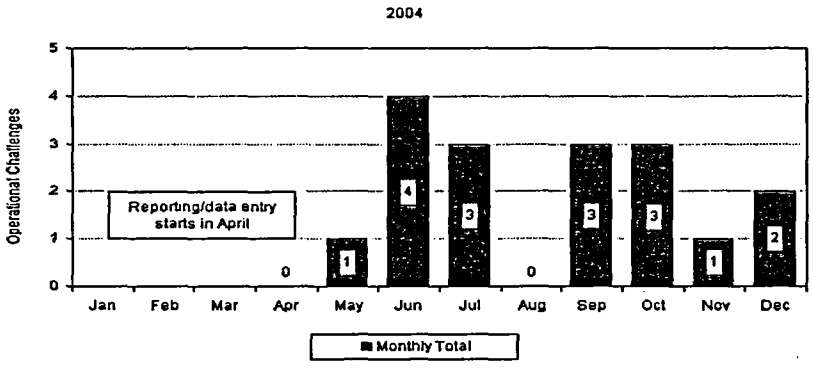
Actions: Maintain focus on equipment reliability improvements to minimize Operational Challenges.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
SALEM UNIT 2 OPERATIONAL CHALLENGES (Includes Unit 2, Unit 3, and Common)	*Updated: Monthly*	G (3Q 2005) G (4Q 2005)	The number of plant operational issues that warrant implementation of the Event Response Team.
Chart Owner			
Salem Plant Manager		**Goal:**	**No Adverse Trend**

History



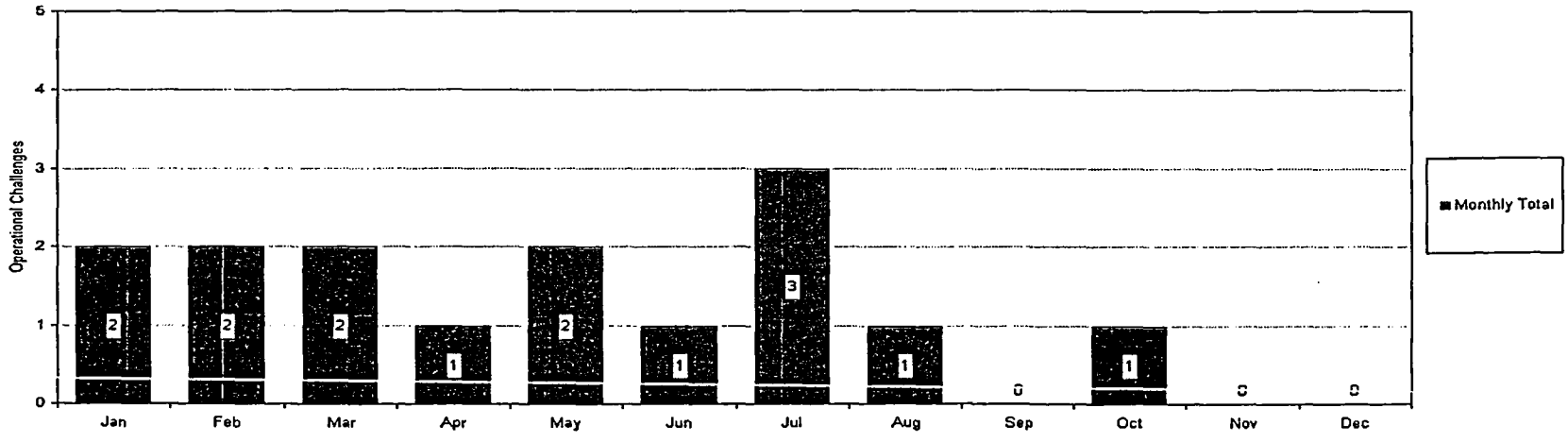
Performance Issues

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 and Actions

Analysis: No adverse trend has been identified. There was one Operational Challenge initiated in the 4th Quarter. For the year there were 15 Operational Challenge Responses/Event Response Teams for Unit 2 for an average of 1.25 per month compared to an average of 1.9 per month for 2004.

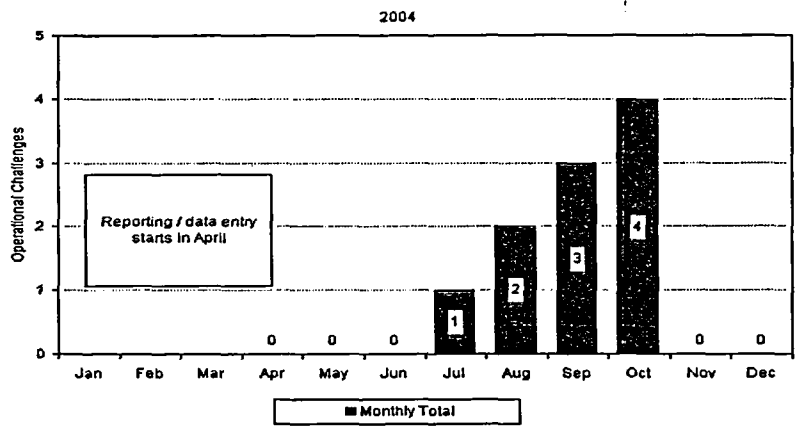
Actions: Maintain focus on equipment reliability improvements to minimize Operational Challenges.



Salem • Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
HOPE CREEK OPERATIONAL CHALLENGES	Updated: Monthly	G (3Q 2005) G (4Q 2005)	The number of plant operational issues that warrant implementation of the Event Response Team
Chart Owner			
Hope Creek Plant Manager		Goal:	No Adverse Trend

History



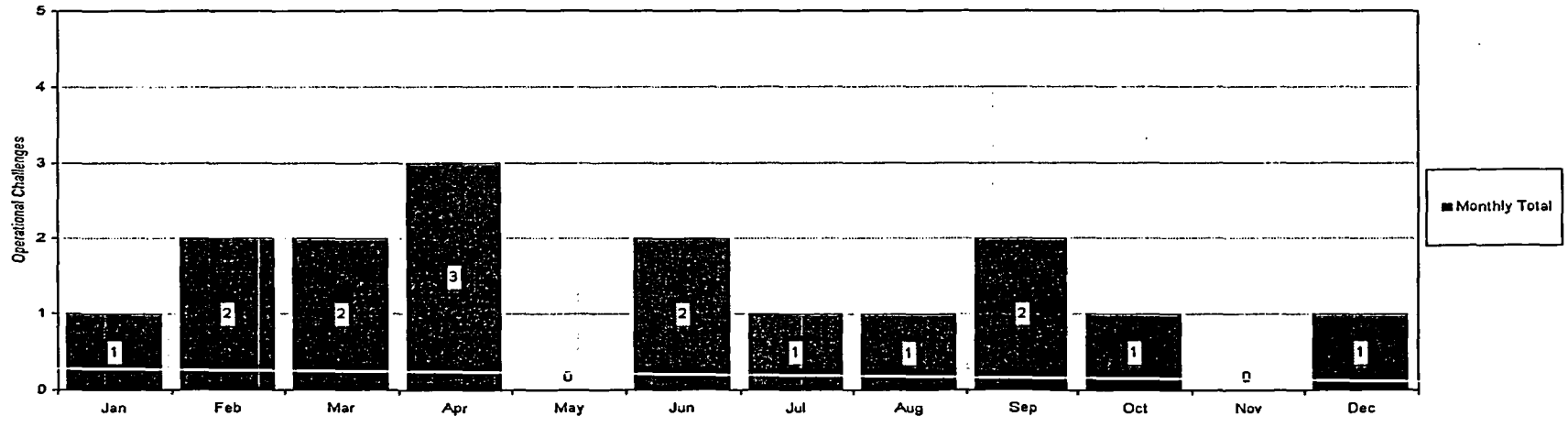
Intent of Metric

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 and Actions

Analysis: *No adverse trend has been observed. There were two operational challenges initiated in the 4th* Quarter. For the year there were 16 Operational Challenge Responses/Event Response Teams for an average of 1.3 per month compared to an average of 1.1 per month in 2004.

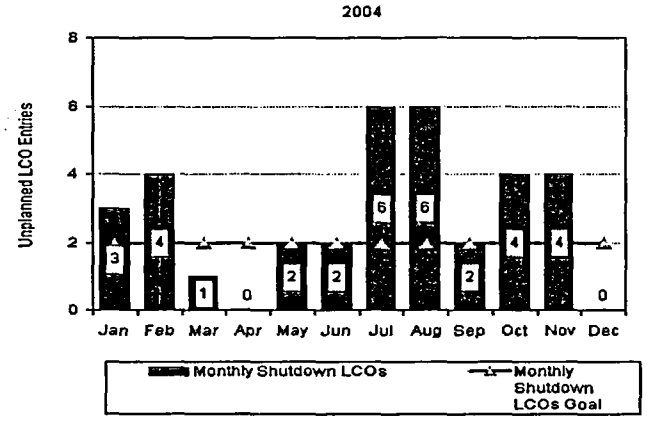
Actions: Maintain focus on equipment reliability improvements to minimize Operational Challenges.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
SALEM UNIT 1 UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	3Q 2005: R 4Q 2005: R	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**

History



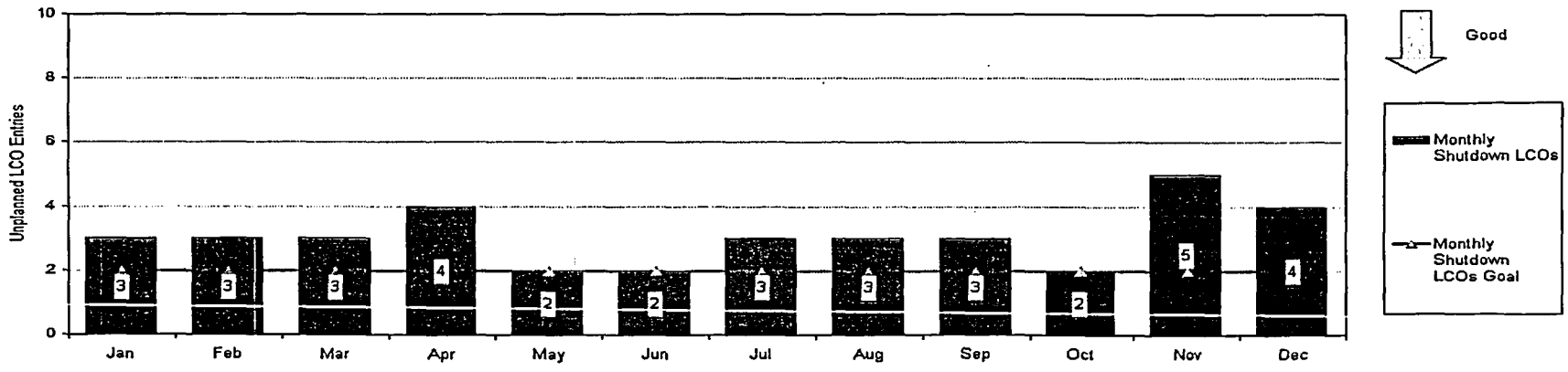
Definition

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 and Actions

Analysis: For the 4th Quarter 2005, there were 11 unplanned shutdown LCOs on Unit 1. The goal of two LCOs per month was not met. Evaluations of the failures were conducted and no trends were identified.

Actions: These issues are being addressed in the Corrective Action and Equipment Reliability Programs.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC | December 2005 | Status | Definition

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

Updated: Monthly

3Q 2005: G | 4Q 2005: G

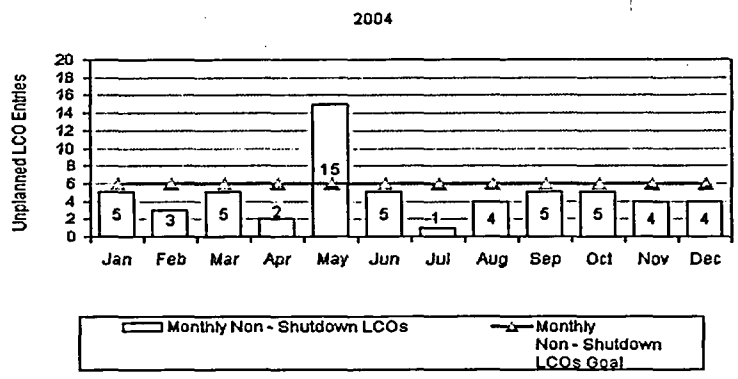
The number of Unplanned Non-Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.

Chart Owner

Salem System Engineering Manager

Goal: 6 per Month

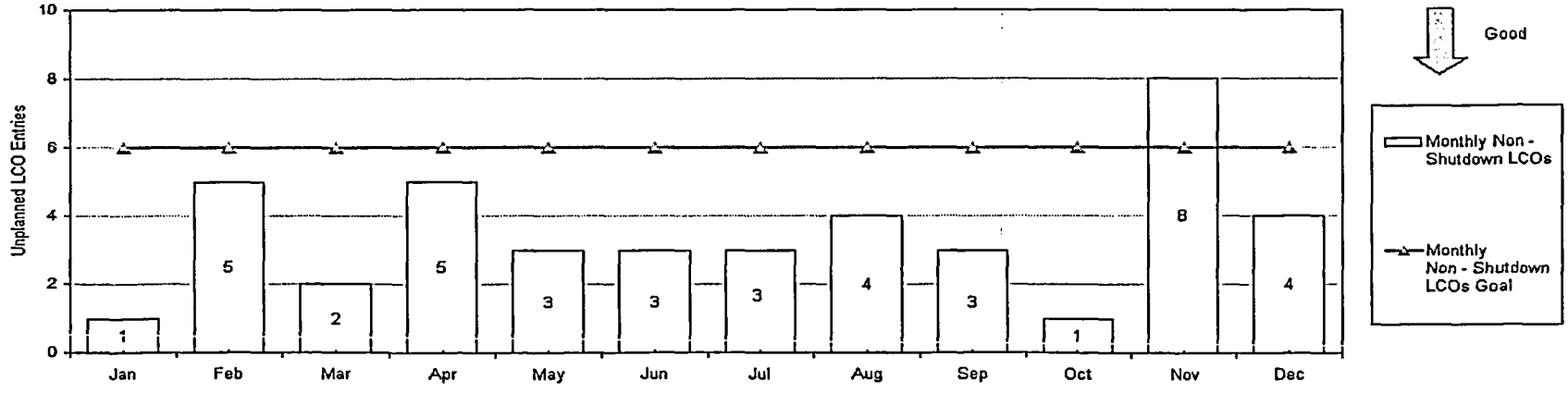
History



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 4th Quarter, there were a total of 13 Unplanned Non-Shutdown LCOs. The monthly goal for the Quarter was met. Evaluations of the failures were conducted and two adverse trends noted were in Waste Gas Analyzer and Radiation Monitor performance.

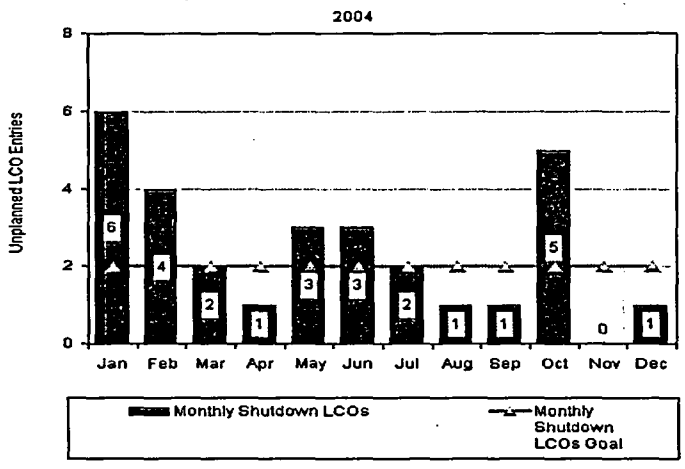
Actions: The Waste Gas Analyzer and Radiation Monitor performance issues are being addressed in the 1st Quarter of 2006. All issues are being addressed in the Corrective Action and Equipment Reliability Programs.



Salem Hope Creek GENERATING STATIONS

PSE&G Nuclear, LLC	December 2005	Status	Definition
SALEM UNIT 2 UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	R (3Q 2005) R (4Q 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**

History



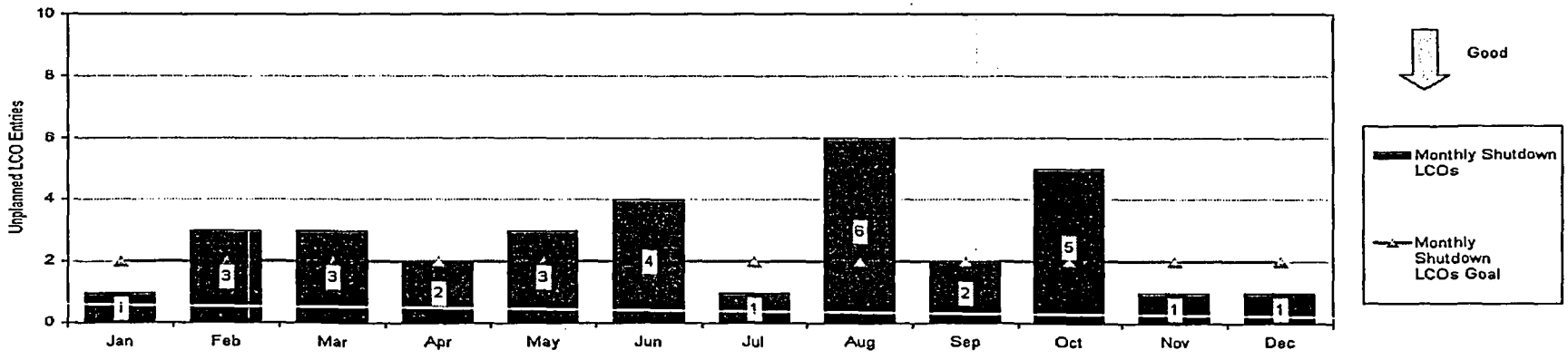
Information Notes

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 and Actions

Analysis: There were seven Unplanned Shutdown LCOs in the 4th Quarter. The goal of two per month was not met. Evaluations of the failures were conducted and no trends were identified.

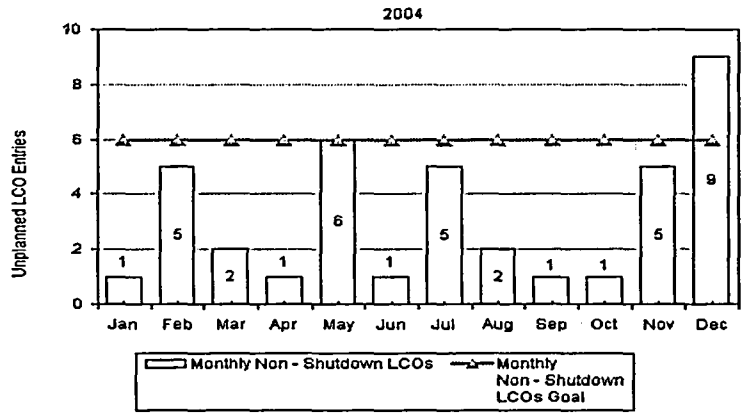
Actions: These issues are being addressed in the Corrective Action and Equipment Reliability Programs.



Salem • Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
SALEM UNIT 2 UNPLANNED NON-SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	3Q 2005: G 4Q 2005: G	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**

History



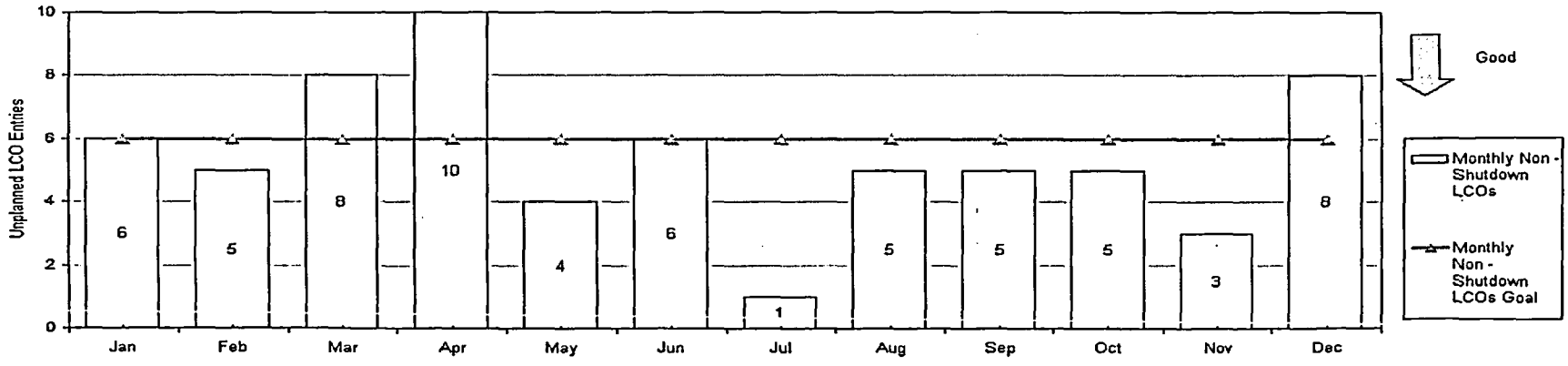
Information

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 and Actions

Analysis: For the 4th Quarter, there were a total of 16 Unplanned Non-Shutdown LCOs. The monthly goal this Quarter was met. In December 2005, the monthly goal was not achieved due to the eight failures incurred. Evaluations of the failures were conducted and one trend was noted in Waste Gas Analyzer performance.

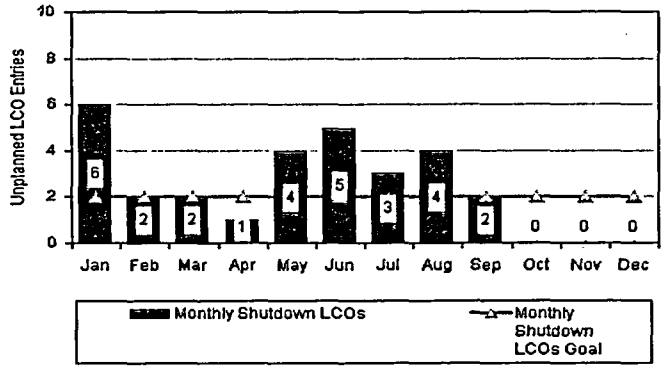
Actions: The Waste Gas Analyzer performance issues are being addressed in the 1st Quarter of 2006. All issues are being addressed in the Corrective Action and Equipment Reliability Programs.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
HOPE CREEK UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	R (3Q 2005) R (4Q 2005)	The number of Unplanned Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.
Chart Owner			
Hope Creek Site Engineering Director		**Goal:**	**2 per Month**

Trend



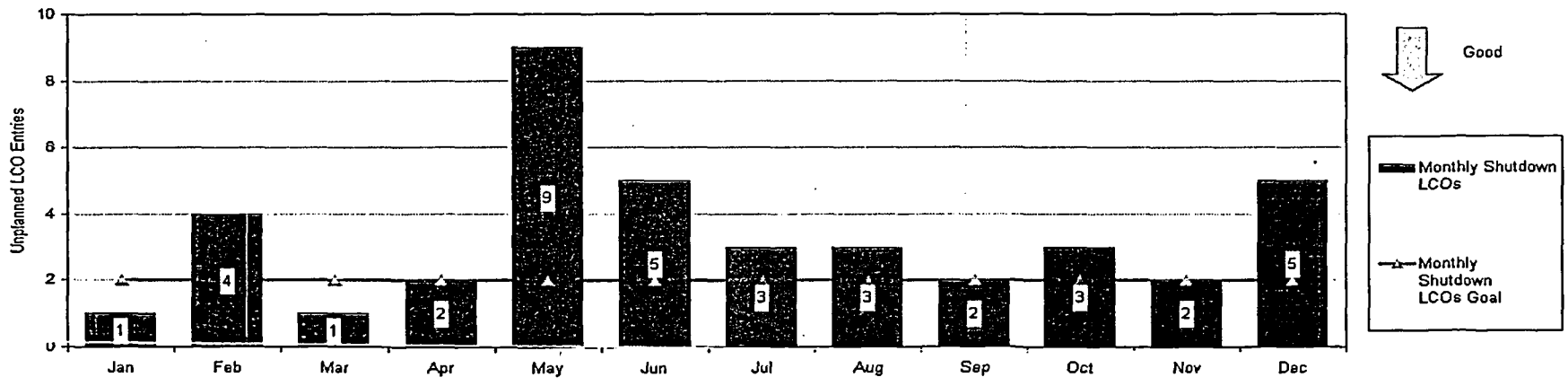
Trend Information

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 and Actions

Analysis: There were a total of 10 Unplanned Shutdown LCOs in the 4th Quarter. The goal of two per month was not met. Three of the failures were attributable to a single intermittent electronic failure associated with the Drywell Leak Detection Noble Gas Radiation Monitor that is now corrected.

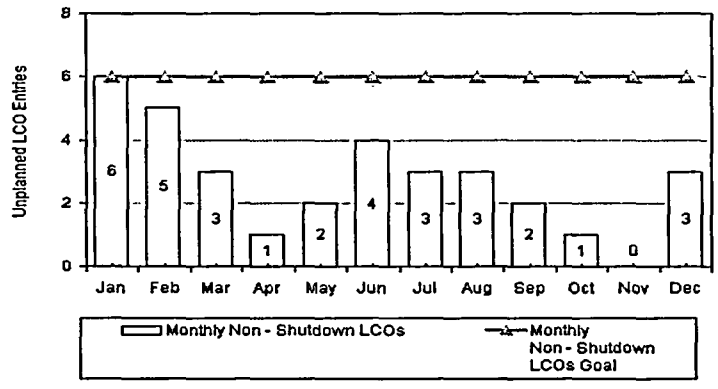
Actions: These issues are being addressed in the Corrective Action and Equipment Reliability Programs.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
HOPE CREEK UNPLANNED NON-SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	3Q 2005: G 4Q 2005: G	*The number of Unplanned Non-Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.*
Chart Owner			
Hope Creek Site Engineering Director		**Goal:**	***6 per Month***

History



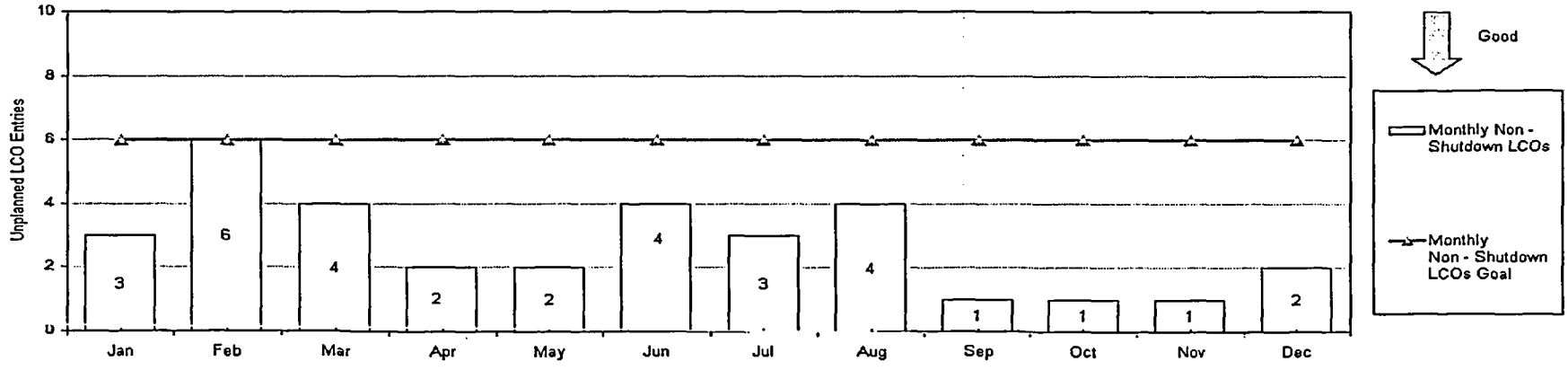
Performance Criteria

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 and Actions

Analysis: There were a total of four Unplanned Non-Shutdown LCOs for the 4th Quarter. The goal of six *per month* was met.

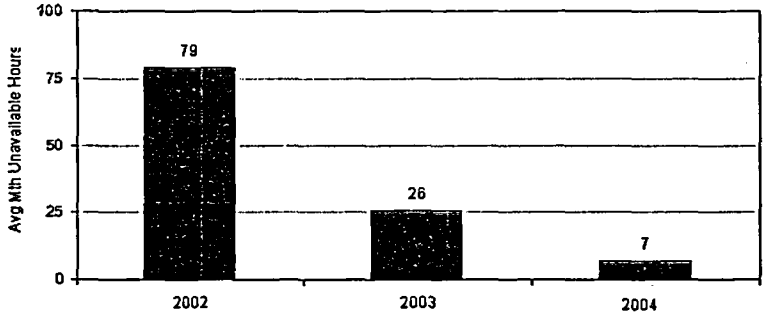
Actions: Sustain performance at or below goal.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
SALEM UNIT 1 EMERGENCY DIESEL GENERATOR UNAVAILABILITY	Updated: Monthly	3Q 2005: R 4Q 2005: G	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)

History



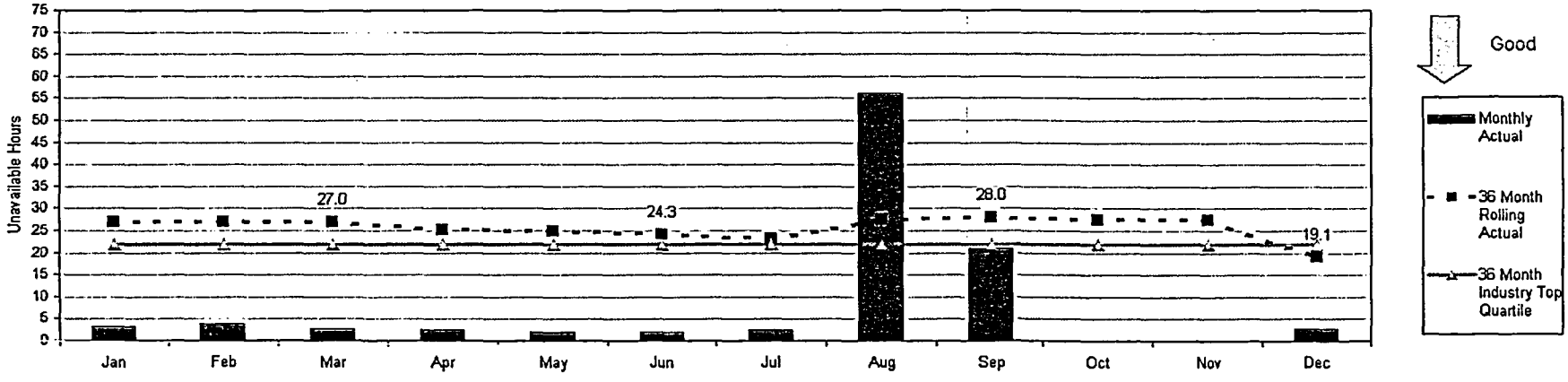
Why is this important?

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 and Actions

Analysis: Salem Unit 1 Emergency Diesel Generator unavailability was 19.1 hours versus a goal of 21.9 hours on a 36-month rolling average. The goal was met in December 2005 as projected.

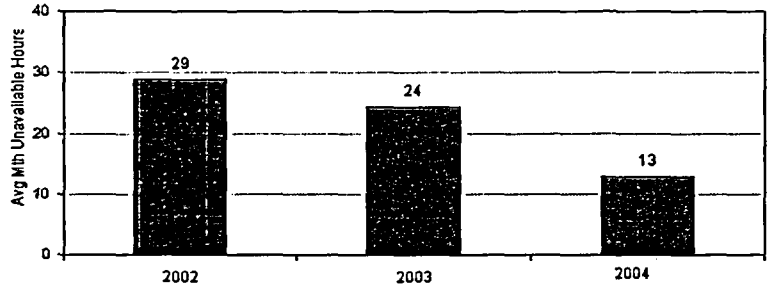
Actions: Sustain performance at or below goal.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
SALEM UNIT 2 EMERGENCY DIESEL GENERATOR UNAVAILABILITY	Updated: Monthly	3Q 2005: G 4Q 2005: G	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)

History



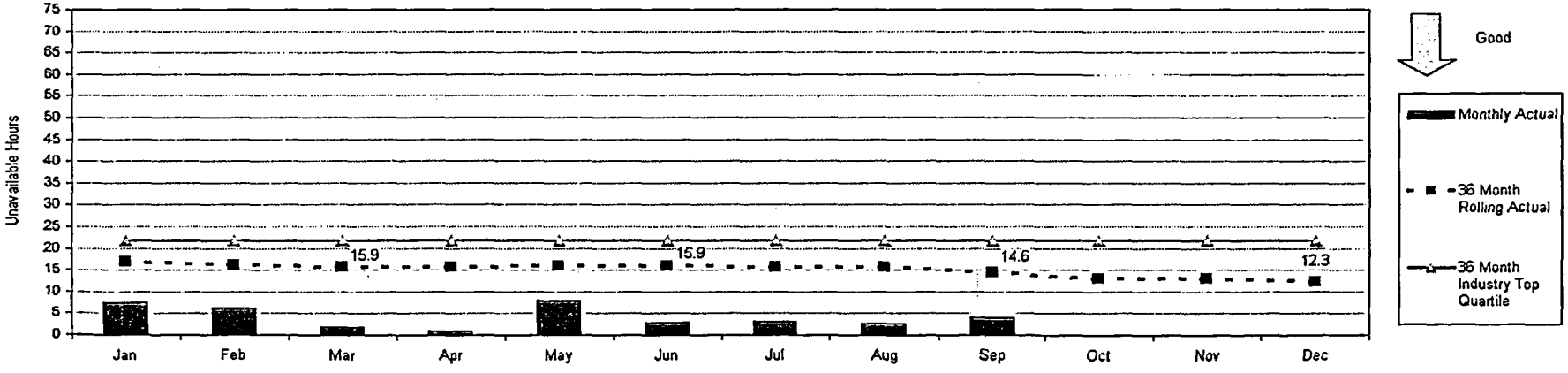
Driver Description

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 and Actions

Analysis: Salem Unit 2 Emergency Diesel Generator unavailability was 12.3 hours versus a goal of 21.9 hours on a 36-month rolling average. The goal was met.

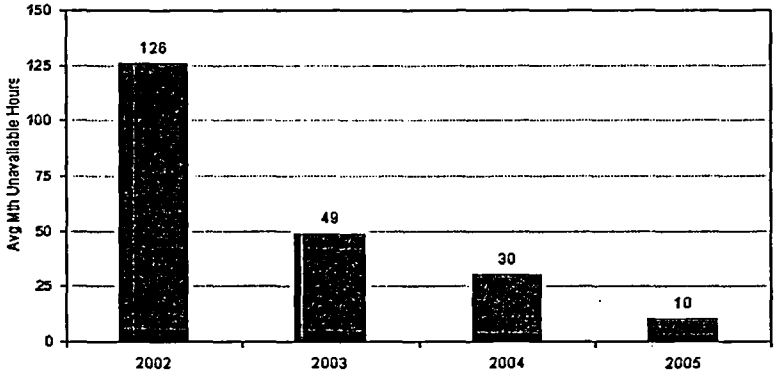
Actions: Sustain performance at or below goal.



Salem • Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
HOPE CREEK EMERGENCY DIESEL GENERATOR UNAVAILABILITY	Updated: Monthly	R (3Q 2005) R (4Q 2005)	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)

History



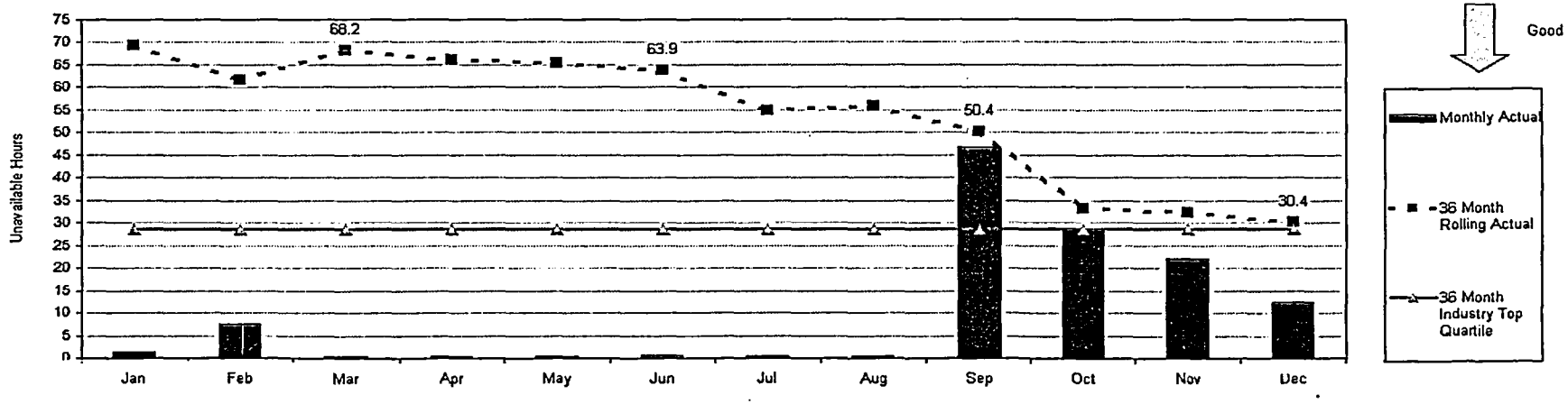
Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Emergency Diesels are out of service, compared against industry top quartile. The total represents the sum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

Analysis and Actions

Analysis: Hope Creek Emergency Diesel Generator unavailability was 30.4 hours versus a goal of 29.2 hours on a 36-month rolling average. The goal was not met for the 36-month rolling average due to the impact of the previous performance in 2002 & 2003. In the 4th Quarter 2004, extensive actions were completed to improve diesel generator reliability. Based on current level of performance and good reliability, the goal will be met by June 2006.

The unavailability hours in the 4th Quarter were due to scheduled maintenance.

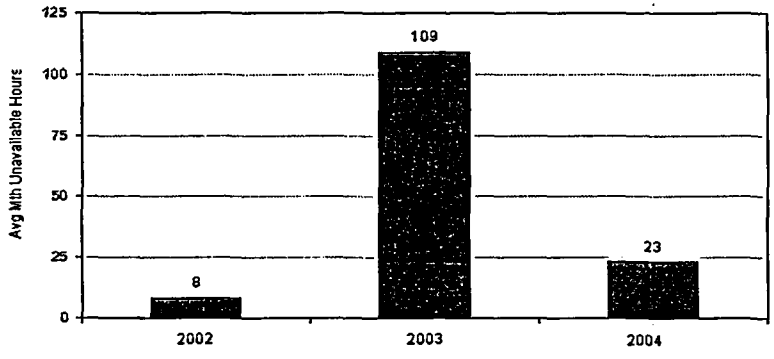
Actions: Continue to maintain a high level of availability.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
SALEM UNIT 1 AUXILIARY FEEDWATER SYSTEM UNAVAILABILITY	Updated: Monthly	3Q 2005: R 4Q 2005: R	*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)

Trend



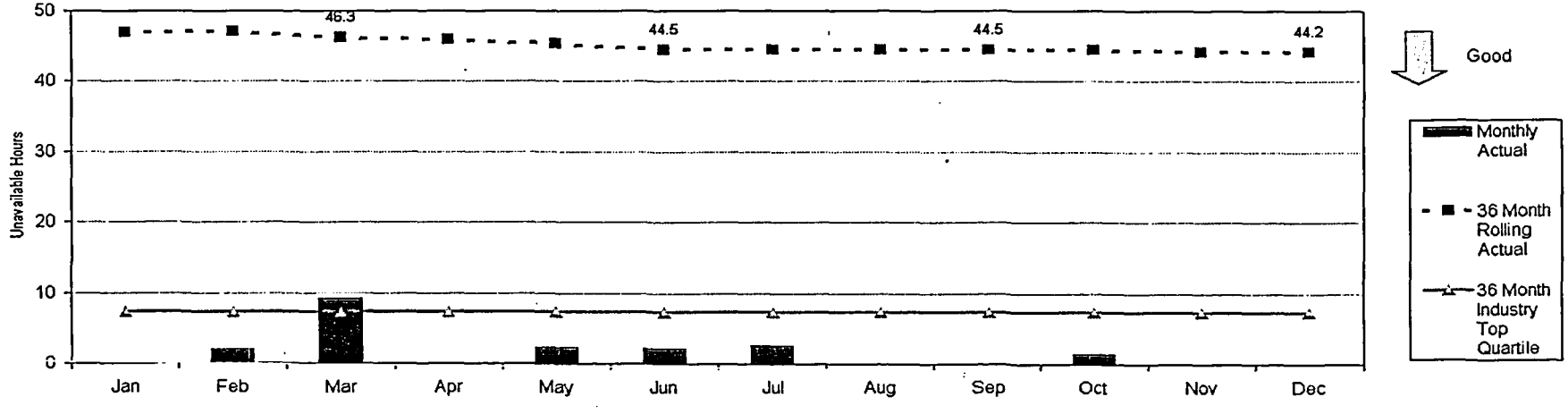
Important Info

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 and Actions

Analysis: Salem Unit 1 Auxiliary Feedwater unavailability was 44.2 hours versus a goal of 7.4 hours on a 36-month rolling average. The goal was not met this Quarter due to the impact of previous system performance. The goal was met on an annual basis and sustaining this level of performance will allow top quartile to be achieved by January 2007.

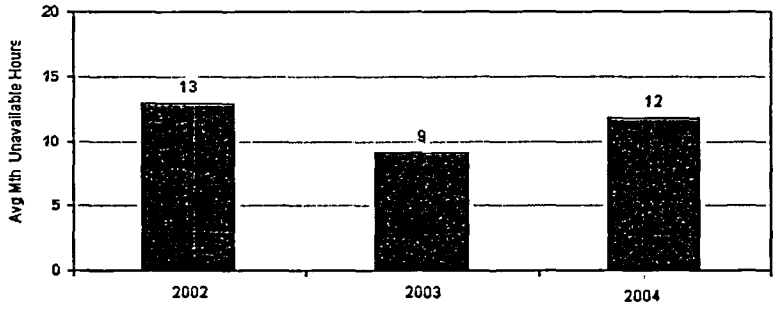
Actions: Corrective actions implemented relative to scheduling maintenance during refueling outages will continue to improve system availability.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
SALEM UNIT 2 AUXILIARY FEEDWATER SYSTEM UNAVAILABILITY	Updated: Monthly	R (3Q 2005) R (4Q 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)

History



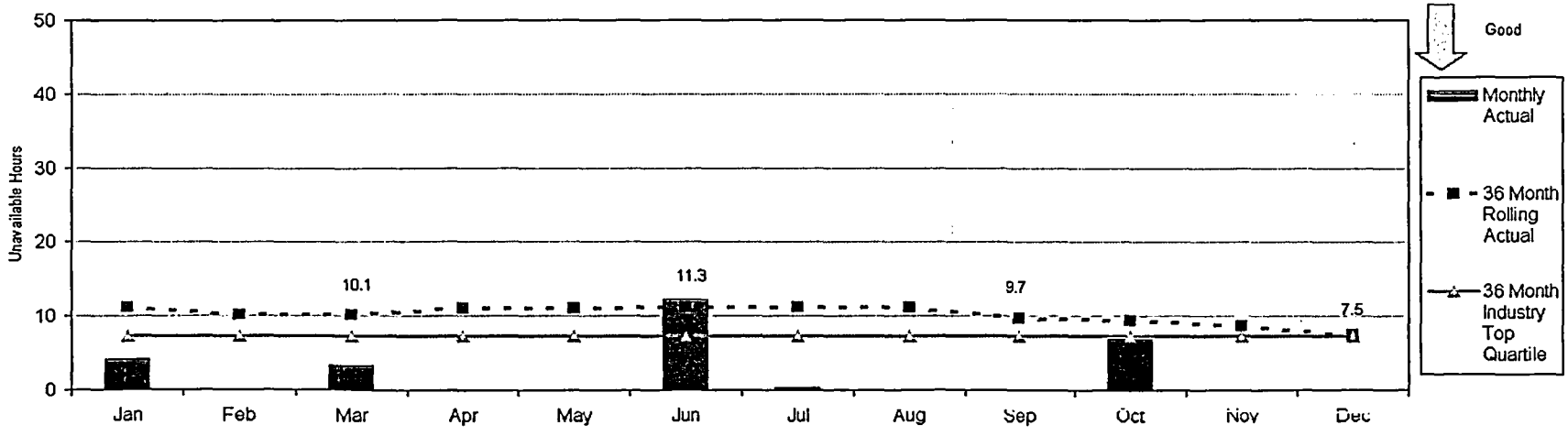
Impact of Metric

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 and Actions

Analysis: Salem Unit 2 Auxiliary Feedwater unavailability was 7.5 hours versus a goal of 7.4 hours on a 36-month rolling average. The goal was not met this Quarter due to the impact of previous performance. The goal was met on an annual basis and sustaining this performance will allow top quartile to be achieved by February 2006.

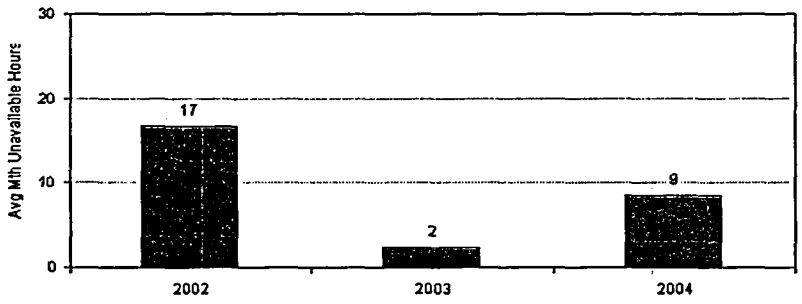
Actions: Corrective actions implemented relative to scheduling maintenance during outages will increase system availability.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
HOPE CREEK RESIDUAL HEAT REMOVAL SYSTEM UNAVAILABILITY	Updated: Monthly	3Q 2005: G 4Q 2005: G	The sum of the planned and unplanned hours that the Residual Heat Removal Systems were not available.
Chart Owner			
Hope Creek Site Engineering Director		**Goal:**	**9.2 hours per month** (36-month rolling average)

Trend



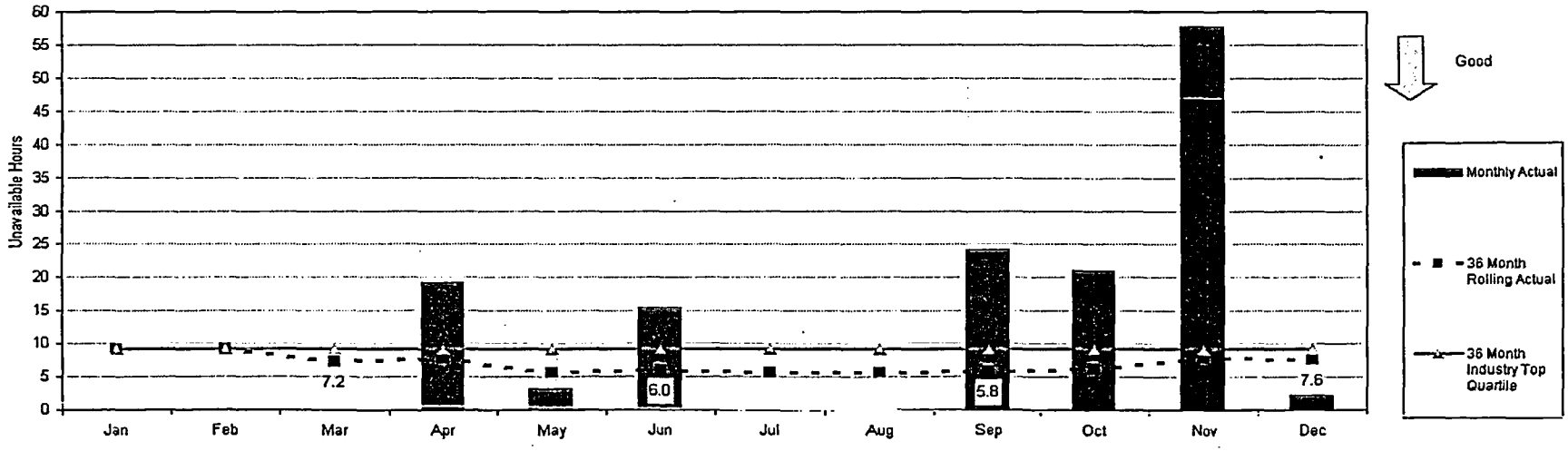
Impact on Trains

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 and Actions

Analysis: RHR System unavailability is meeting its goal. There were 80 hours of unavailability during the 4th Quarter. Six percent (6%) was unplanned due to a breaker failure which was repaired. The remaining time was due to surveillance testing and planned maintenance during the RHR System window. Performance in November was a result of the planned system window maintenance.

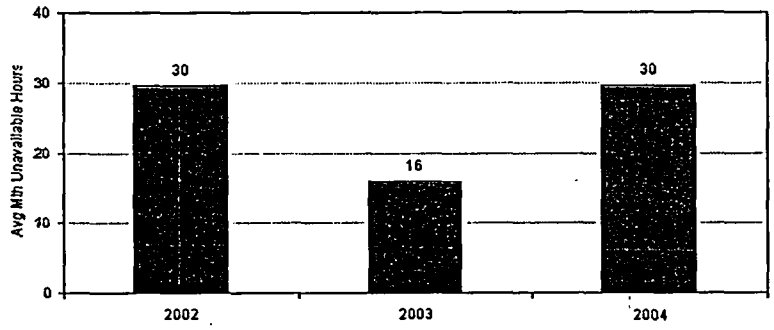
Actions: Continue to maintain a high level of availability.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear LLC	December 2005	Status	Definition
SALEM UNIT 1 CHEMICAL VOLUME CONTROL AND SAFETY INJECTION SYSTEM UNAVAILABILITY	Updated: Monthly	R (3Q 2005) R (4Q 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)

History



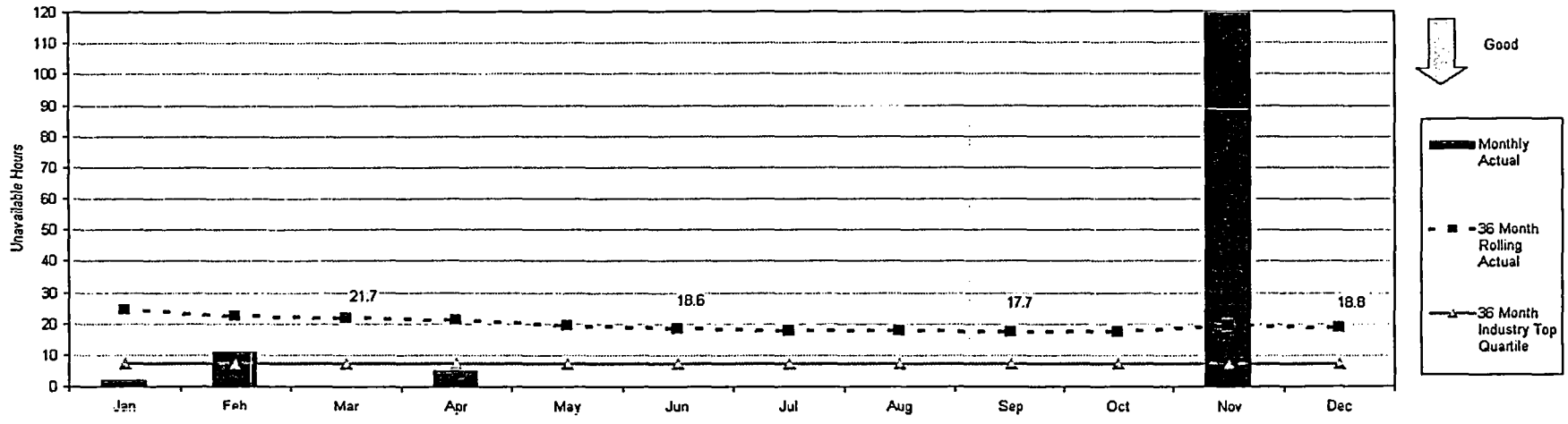
Why is it Critical?

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 and Actions

Analysis: The goal was not met this Quarter due to the 11 SI pump discharge valve being found in the incorrect position (closed). A total of 113.5 unavailability hours were attributed to this event.

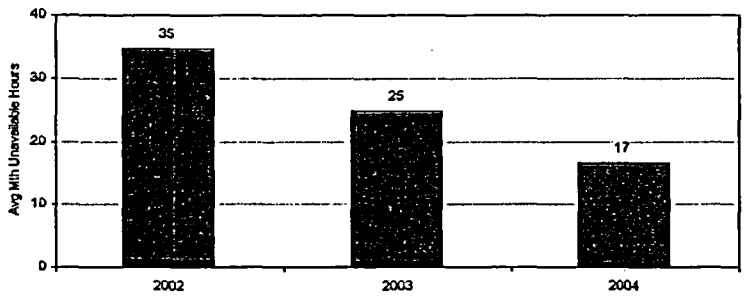
Actions: A human performance improvement plan has been implemented in response to the November event. Limiting planned maintenance activities to refueling outage windows has resulted in improved CVC/SI system unavailability in 2005. The non-ECCS charging pump was also returned to service, decreasing the reliance on the ECCS pumps, and therefore minimizing pump unavailability for pump lube oil biofouling/cleaning. Continuing at the current level of performance, the goal will be met by August 2007.



Salem Hope Creek GENERATING STATIONS

PSEG Nuclear, LLC	December 2005	Status	Definition
SALEM UNIT 2 CHEMICAL VOLUME CONTROL AND SAFETY INJECTION SYSTEM UNAVAILABILITY	Updated: Monthly	3Q 2005: R 4Q 2005: R	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)

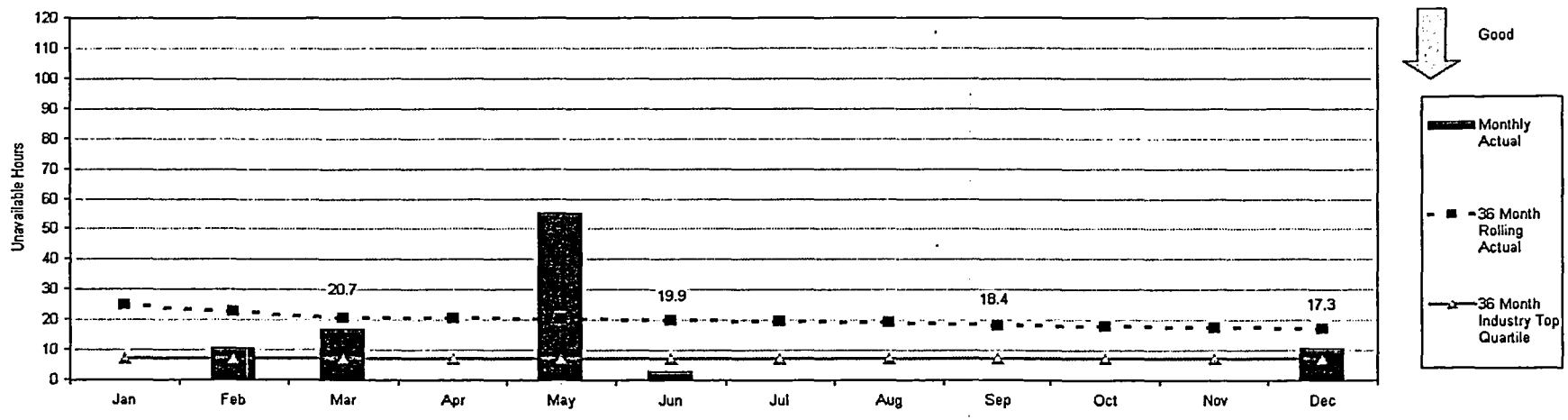
History



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.

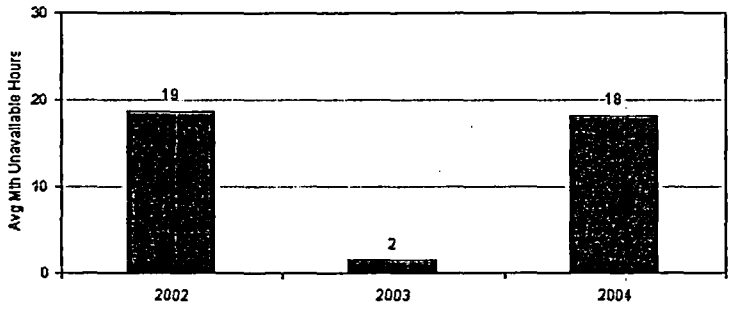
Analysis: The goal was not met. Salem Unit 2 Chemical Volume Control and Safety Injection System unavailability was 17.3 hours at the end of the 4th Quarter versus a goal of 7.3 hours on a 36-month rolling average. In December, gear box cooler cleaning due to biofouling was required for the 21 charging pump.

Actions: Minimizing unavailability by limiting on-line maintenance work has resulted in improved system availability in 2005. In addition, operation of the 23 PDP has minimized unavailability of the centrifugal charging pumps by limiting the frequency of biofouling cleaning associated with the pumps' lube oil and gear box coolers. Continuing at the current level of performance, the goal will be met by January 2007.



Salem • Hope Creek GENERATING STATIONS

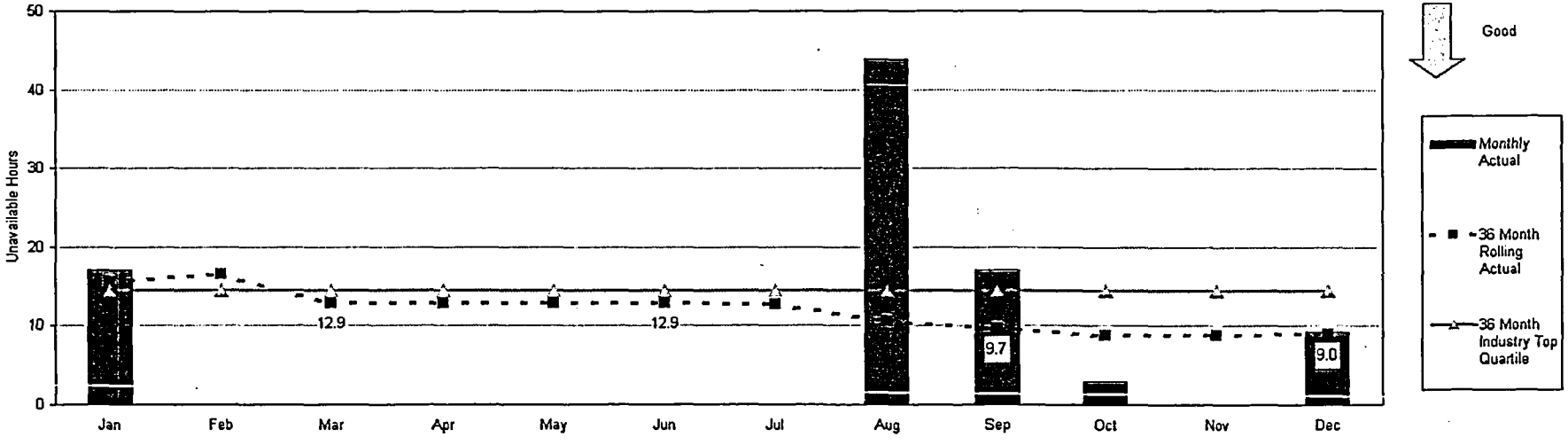
PSEG Nuclear LLC	December 2005	Status	Definition
HOPE CREEK HIGH PRESSURE INJECTION AND REACTOR CORE ISOLATION COOLING SYSTEM UNAVAILABILITY	Updated: Monthly	3Q 2005: G 4Q 2005: G	The sum of the planned and unplanned hours that the *High Pressure Injection and Reactor Core Isolation Cooling Systems* were not available.
Chart Owner			
Hope Creek Site Engineering Director		**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: Hope Creek High Pressure Injection and Reactor Core Isolation Cooling System unavailability was 9.0 hours versus a goal of 14.6 hours on a 36-month rolling average. The goal was met. All unavailability hours incurred in the 4th Quarter were associated with planned maintenance activities.

Actions: Continue to maintain a high level of availability.



Salem Hope Creek GENERATING STATIONS