

January 31, 2005
LR-N05-0045

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:

Reference: 1) PSEG Letter Dated October 29, 2004; PSEG Metrics for Improving the Work Environment, Salem and Hope Creek Generating Stations, Quarterly Report

2) PSEG Letter Dated January 14, 2005, PSEG Metrics for Improving The Work Environment Salem and Hope Creek Generating Stations, Quarterly Metrics Report - Error Notification

This letter provides a copy of the published PSEG Nuclear quarterly metrics for the fourth quarter 2004. These metrics, previously identified to the NRC, were put in place to objectively measure the effectiveness of the Safety Conscious Work Environment (SCWE) improvements at Salem and Hope Creek Generating Stations. Also included with each metric is an analysis that describes progress to date on the particular metric.

Since our October 29, 2004 submittal (Ref. 1), the following changes/corrections have been made:

1. The goal for Safety System Unavailability metrics has been changed from Industry Median Performance to Industry Top Quartile Performance. This is a more challenging goal than that presented in October 2004 and aligns directly with our internal goals for those systems.

2. Accounting errors were identified in the Executive Review Board (ERB) Action Approvals and Salem and Hope Creek Operational Challenges metrics (Ref. 2). The accounting errors did not affect our overall assessment of any of these metrics. These errors have been captured in our Corrective Action Program.

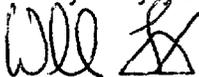
As the new Chief Nuclear Officer of PSEG Nuclear, I plan on further evaluating the overall effort to measure and improve the SCWE at Salem and Hope Creek. I look forward to discussing the SCWE metrics, as well as the results of our upcoming employee survey, in our next public meeting.

On January 17, Exelon began providing operating services for Salem and Hope Creek. More than 20 employees from Exelon are now in various management positions, including Site Vice Presidents at Salem and Hope Creek. To introduce ourselves to the workforce, we had several all hands meetings with the employees at Salem and Hope Creek. Although not an official metric, I was pleased with the candor and response of the workforce. Most employees were receptive to the Exelon presence and very willing to raise their issues.

Prior to January 17, a number of personnel decisions were made that were related to implementation of the Operating Services Contract. The Executive Review Board (ERB) did not review those decisions. In order to ensure that those actions complied with 10 CFR 50.7, we are commissioning an independent review. In addition, the matter has been captured in our Corrective Action Program. Going forward, we will continue to use the ERB until and unless that process is changed in an appropriate manner.

If you have any further questions, please contact Christina Perino, Regulatory Assurance Director, at 856-339-1989.

Very truly yours,



William Levis
Senior VP and CNO
PSEG Nuclear, LLC

Attachments



Mr. Samuel Collins
LR-N05-0045

-3-

January 31, 2005

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

Mr. D. Collins, Project Manager Salem & Hope Creek
U. S. Nuclear Regulatory Commission
One White Flint North
Mail Stop 08C2
11555 Rockville Pike
Rockville, MD 20852

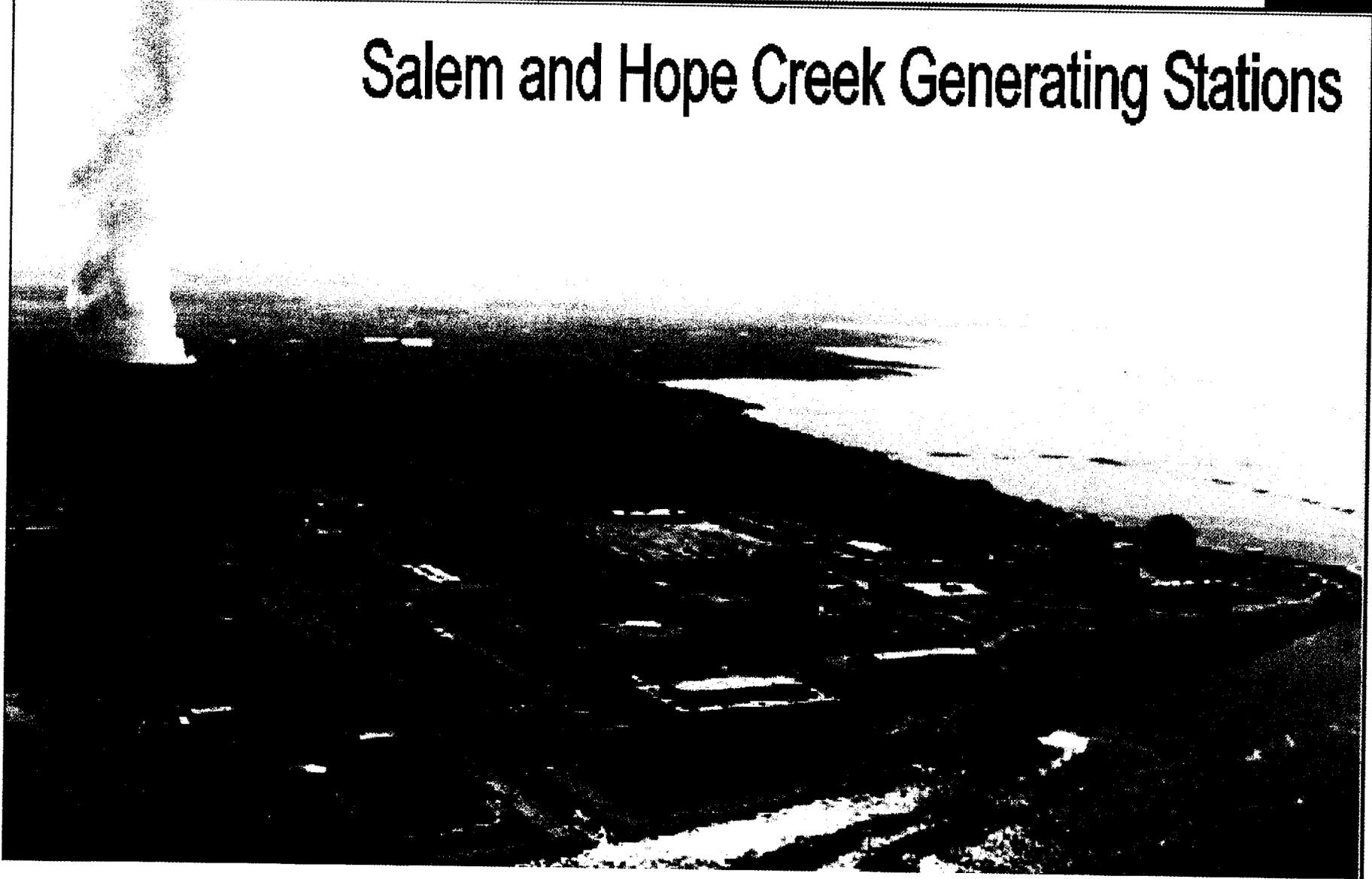
USNRC Senior Resident Inspector - HC (X24)

USNRC Senior Resident Inspector - Salem (X24)

Mr. K. Tosch, Manager IV
Bureau of Nuclear Engineering
PO Box 415
Trenton, NJ 08625



Salem and Hope Creek Generating Stations



Metrics Awaiting Survey Results

Metrics will be published following the first quarter 2005 Employee Survey for:

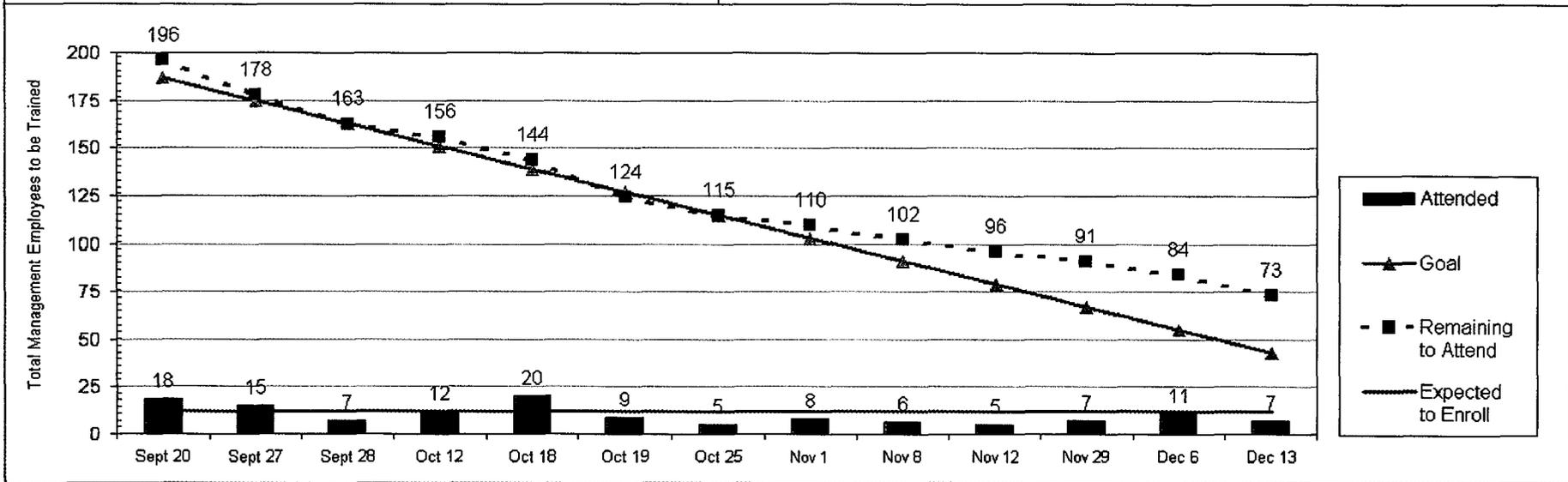
* KNOWLEDGE OF ALTERNATIVE AVENUES

* EMPLOYEE PERCEPTION OF MANAGEMENT COMMITMENT

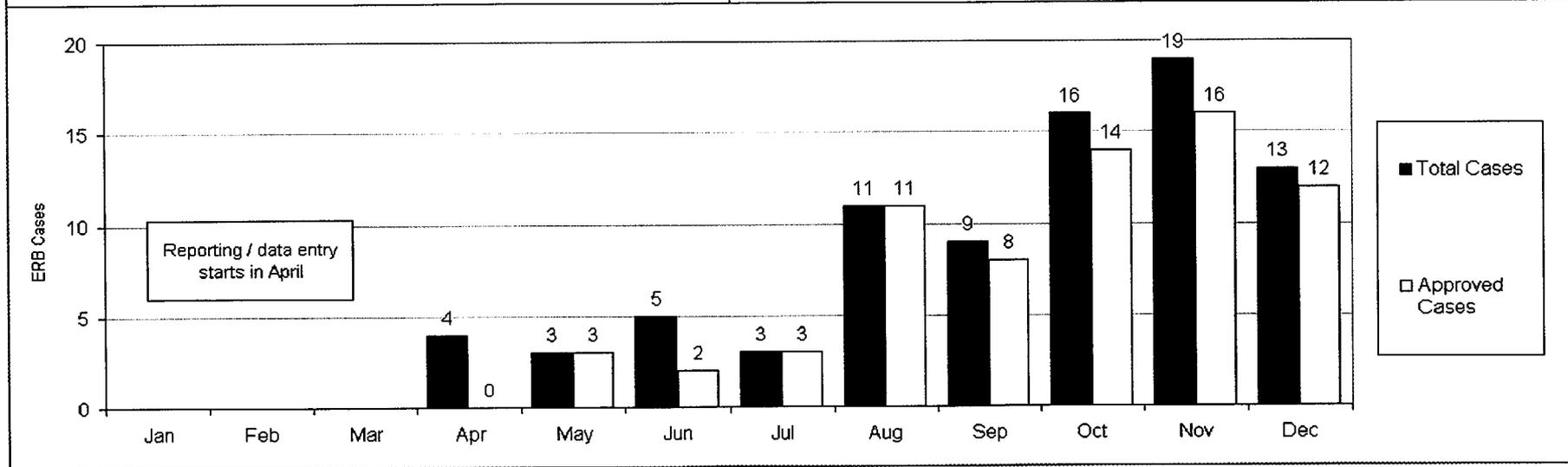
* SUPERVISOR COMMUNICATION EFFECTIVENESS

* TRUST AND RESPECT BETWEEN MANAGEMENT & SITE PERSONNEL

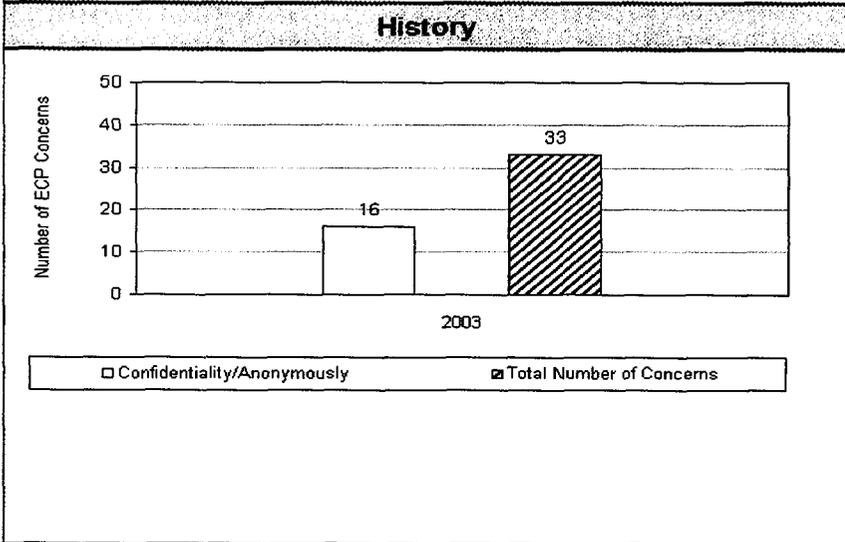
PSEG Nuclear, LLC	December 2004	Status	Definition
SCWE MANAGEMENT TRAINING ATTENDANCE	Updated: Monthly	G 3Q 2004 R 4Q 2004	Attendance for Safety Conscious Work Environment (SCWE) Training - PSEG Nuclear Management. Management is defined as individuals who hold the position of supervisor and above.
Chart Owner		Goal: 43 associates remaining to be trained by year end	
Nuclear Training Manager			
History	Intent of Metric		
New Indicator for 2004	This metric measures the training to enhance management's understanding of key Safety Conscious Work Environment (SCWE) policy attributes and our collective roles and responsibilities for proper implementation.		
	Analysis and Actions		
Training attendance did not meet goal for this quarter due to the impact that the early start and subsequent extension of the Hope Creek refueling outage had on site resources. Remaining personnel have been scheduled.			



PSEG Nuclear, LLC	December 2004	Status	Definition
EXECUTIVE REVIEW BOARD (ERB) ACTION APPROVALS	Updated: Monthly	 3Q 2004  4Q 2004	Executive Review Board (ERB) reviews proposed personnel actions to ensure no retaliation or chilling effect implications.
Chart Owner		Goal:	No Adverse Trend
Safety Conscious Work Environment Manager			
History	Intent of Metric		
New Indicator for 2004	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		
	No adverse trend in ERB action was present in the 4th quarter. Forty-eight cases [cases can involve more than one person] were reviewed by ERB in the 4th quarter. Of those, 42 cases (88%) were concurred with by ERB. The remaining 6 cases were rejected by ERB due to process inconsistencies (e.g., not following HR processes, inconsistent with past practice). No rejected cases involved instances of potential violation of 10 CFR 50.7.		



PSEG Nuclear, LLC	December 2004	Status	Definition
EMPLOYEE CONCERNS PROGRAM (ECP) - CONCERNS CONFIDENTIALITY / ANONYMITY REQUEST	Updated: Monthly	  3Q 2004 4Q 2004	The number of Employee Concerns Program (ECP) concerns filed anonymously / confidentially versus total number of concerns per month. Chart does not include NRC 30-day requests.
Chart Owner		Goal:	No Adverse Trend
Employee Concerns Program Manager			



Intent of Metric

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

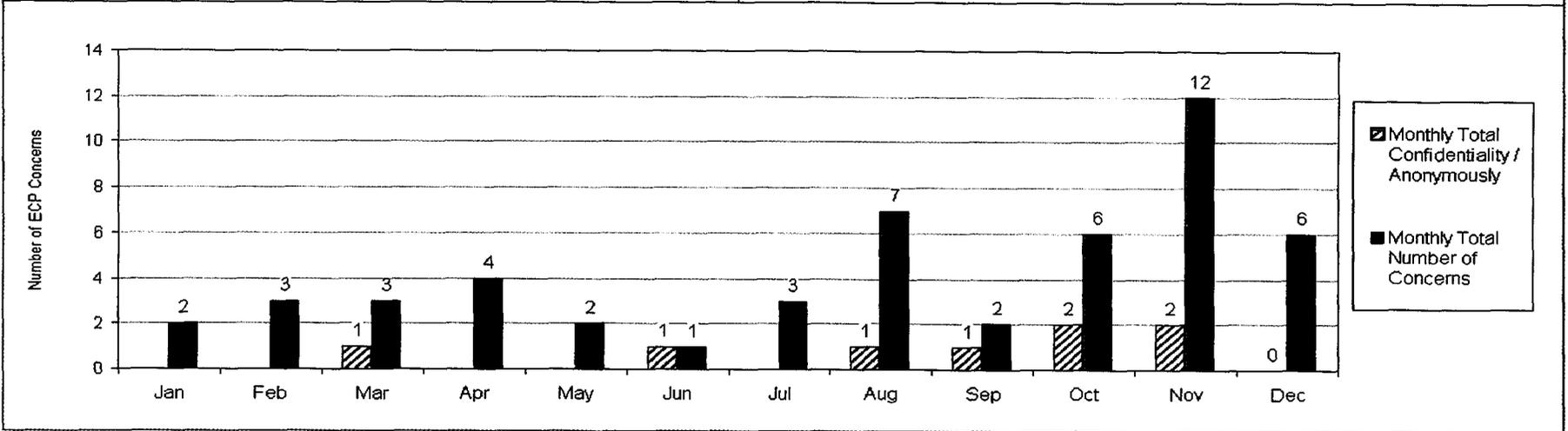
Analysis and Actions

Fifty-one concerns (non-NRC referred) were brought to the attention of the Employee Concerns Program during 2004. There were 18 more issues brought to ECP in 2004 than in 2003. Of those, eight were submitted confidentially or anonymously (16%).

Two of the eight concerns were anonymous. There are no adverse trends.

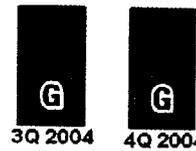
The increased number of concerns brought to Employee Concerns in 2004 may be attributed to management's encouragement to raise issues with ECP.

Actions: Continue working with management to resolve issues at the lowest level. ECP continues to encourage people to raise issues and monitor the results.



TOTAL NOTIFICATIONS GENERATED

Updated: Monthly



Total notifications generated on a monthly basis.

Chart Owner

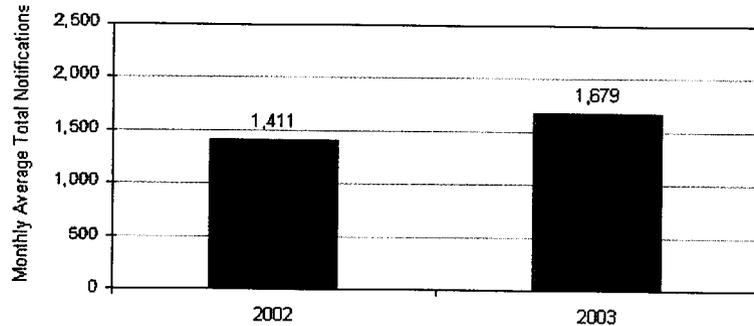
Corrective Action Program Manager

Goal:

No Adverse Trend

History

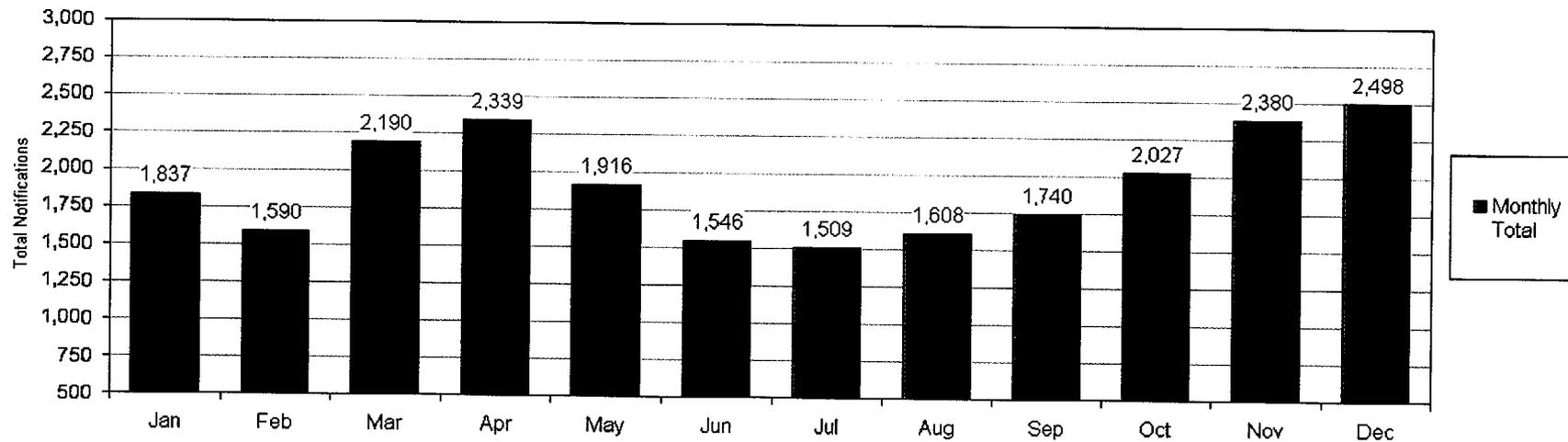
Intent of Metric



Site personnel write a notification in our 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. We are monitoring to ensure the volume of issues is consistent with expected trends, based on our own past performance as well as industry perspective.

Analysis and Actions

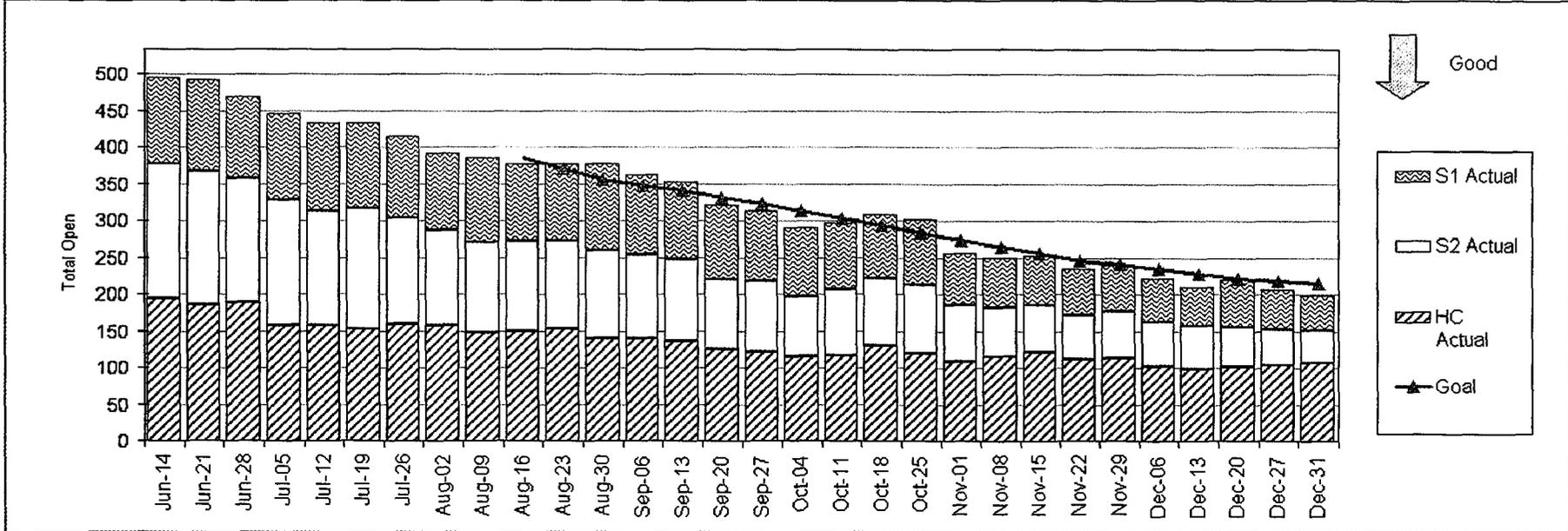
This performance indicator identified a normal increase in notifications generated during the Hope Creek RF12 refueling outage and Salem forced outages. There were no adverse trends identified across the organization.



PSEG Nuclear, LLC	December 2004	Status	Definition
ONLINE CORRECTIVE MAINTENANCE BACKLOG	Updated: Monthly	  3Q 2004 4Q 2004	The number of open online corrective maintenance work items.
Chart Owner			

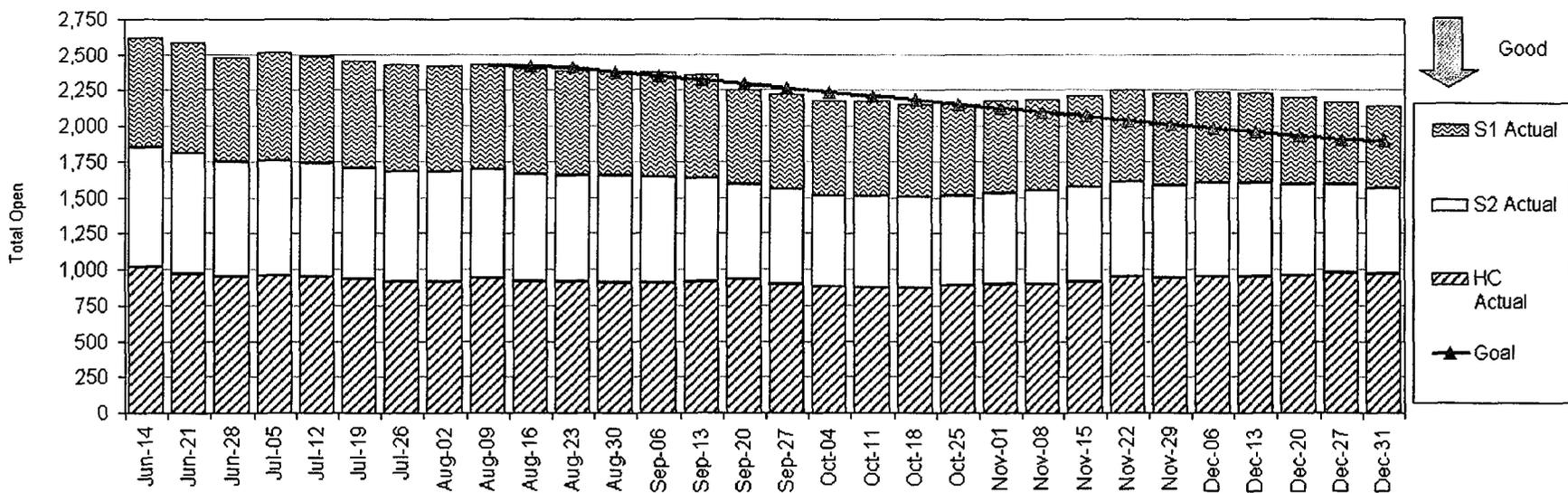
Salem Maintenance Manager and Hope Creek Maintenance Manager	Goal:	215 by year end
---	--------------	------------------------

History	Intent of Metric
Historical Data Not Available	This metric measures our 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 our site. Our goal is to achieve top performance by the end of 2005.
	Analysis and Actions
	Hope Creek: Goal was 115; actual was 107. Met the goal. Salem: Goal was 100; actual ws 91. Met the goal.

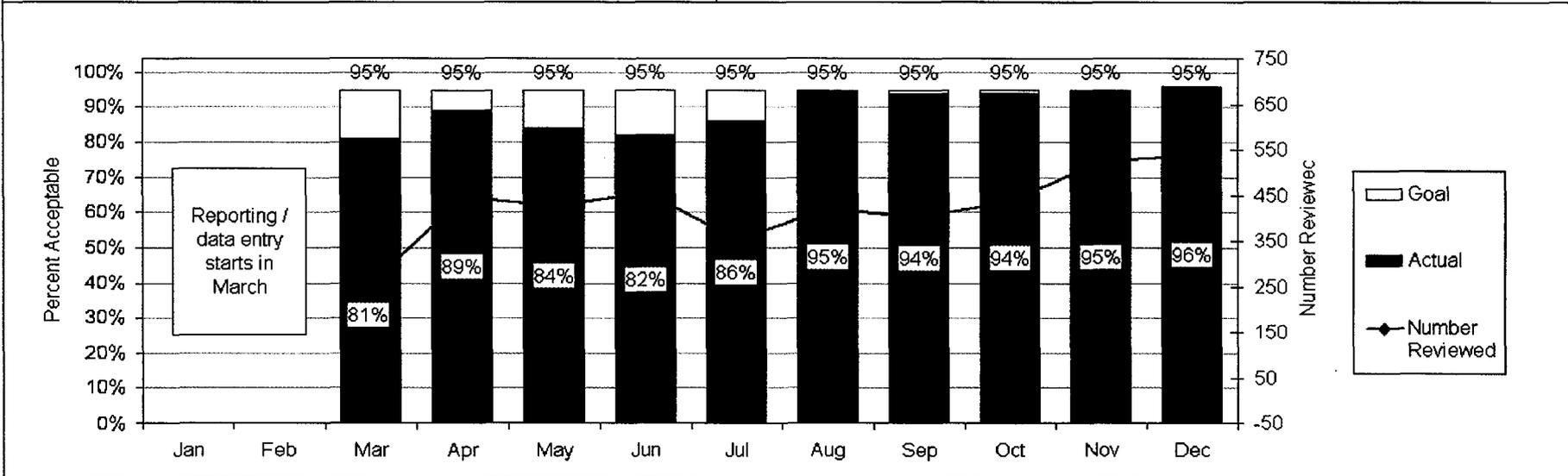


PSEG Nuclear, LLC	December 2004	Status	Definition
ONLINE ELECTIVE MAINTENANCE BACKLOG	Updated: Monthly	  3Q 2004 4Q 2004	The number of open online elective maintenance work items.
Chart Owner		Goal:	1,900 by year end
Salem Maintenance Manager and Hope Creek Maintenance Manager			

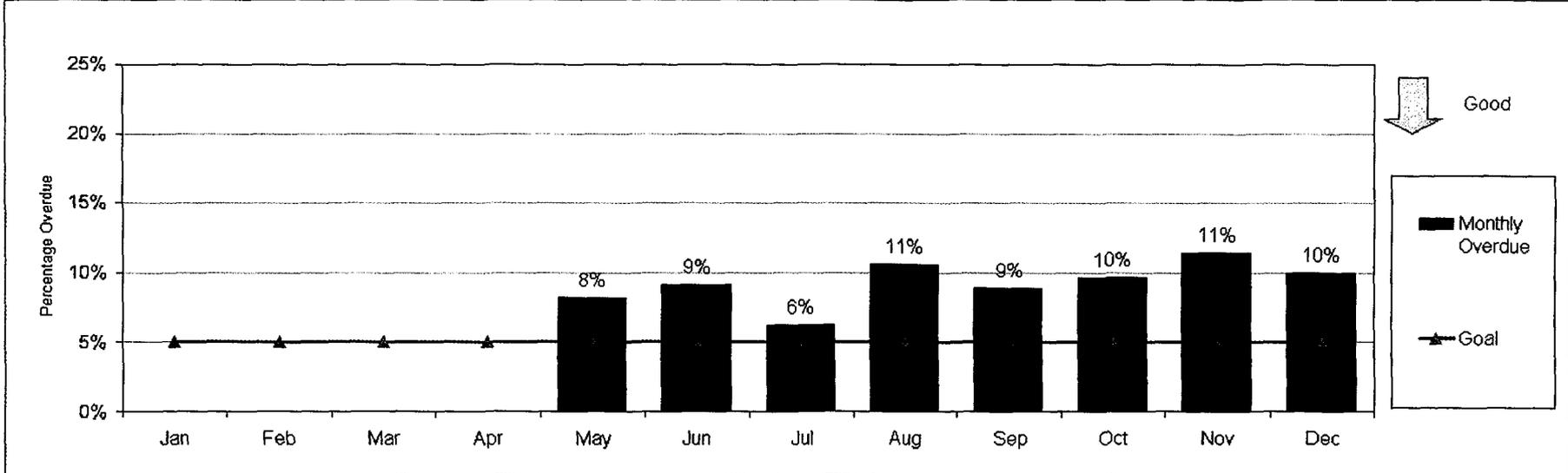
History	Intent of Metric
Historical Data Not Available	<p>This metric measures our total backlog of on-line elective maintenance. These are items that do NOT have an impact on plant operations and can be fixed while the unit is in service. Benchmarking indicates the industry median at 1450, with top performance at 1200 for our site. Our goal is to achieve top performance by the end of 2005.</p>
	Analysis and Actions
	<p>Hope Creek: Hope Creek actual was 966, which did not meet the goal of 700. This was due to refueling outage extending into 2005, which did not allow for post maintenance testing and closure of the on-line elective maintenance activities due to plant conditions. On-line work was added to the outage to improve plant reliability.</p> <p>Salem: Goal was 1,200; actual was 1,171. Met the goal.</p>



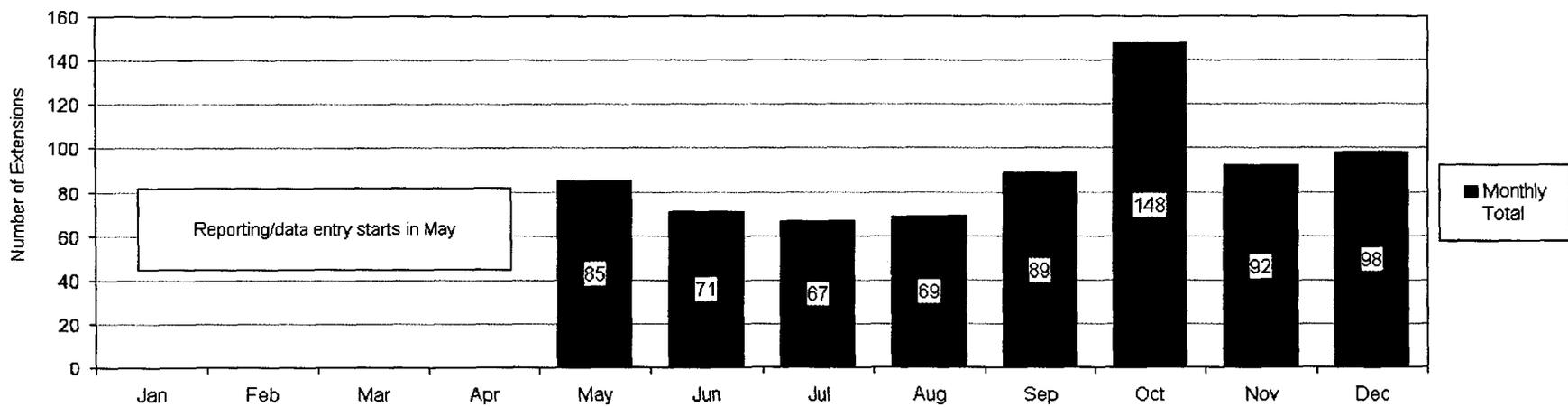
PSEG Nuclear, LLC	December 2004	Status	Definition
CORRECTIVE ACTION PROBLEM RESOLUTION	Updated: Monthly	R 3Q 2004	G 4Q 2004 The percent of corrective action closures determined to be acceptable by Corrective Action Closure Board review, based on the problem resolution criteria. The performance indicator is a monthly value.
Chart Owner			
Corrective Action Program Manager		Goal:	95%
History	Intent of Metric		
New Indicator for 2004	Site personnel write a notification in our 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 95% 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		
The goal was met.			



PSEG Nuclear, LLC	December 2004	Status	Definition
NUCLEAR CONDITION REPORT ACTIVITIES OVERDUE	Updated: Monthly	R 3Q 2004 R 4Q 2004	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		Goal:	5%
Corrective Action Program Manager			
History	Intent of Metric		
New Indicator for 2004	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		
The number of nuclear condition report activities overdue has not improved. This was because we chose to concentrate on CAP quality first, which has improved, and we will now begin focusing on CAP timeliness as part of a methodical process improvement strategy.			

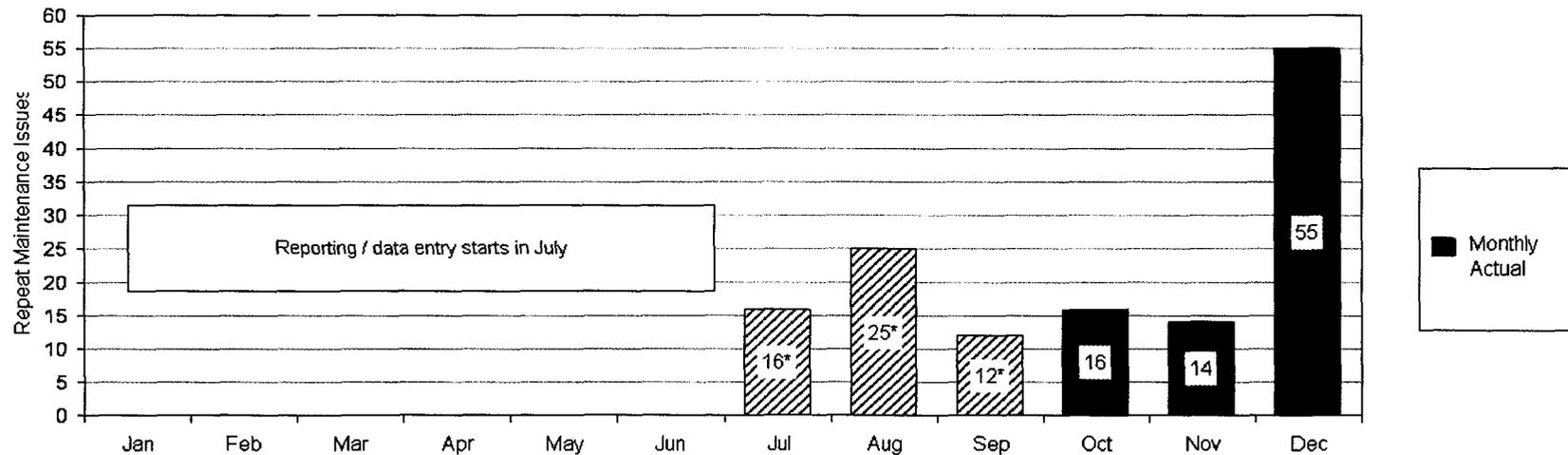


PSEG Nuclear, LLC	December 2004	Status	Definition
OPEN NUCLEAR CONDITION REPORT EVALUATIONS WITH DUE DATE EXTENSIONS	Updated: Monthly	  3Q 2004 4Q 2004	The number of due date extensions approved for open Nuclear Condition Report evaluations.
Chart Owner		Goal:	No Adverse Trend
Corrective Action Program Manager			
History	Intent of Metric		
New Indicator for 2004	Site personnel write a notification in our Corrective Action Program (CAP) to identify an issue that needs attention. This metric looks at the timeliness of our review and corrective actions by tracking the number that have a due date extension, which is allowed by our process. By tracking those that are extended, we expect to see an improvement trend in overall timeliness.		
	Analysis and Actions		
The trend for this indicator has not improved due to an increased number of extensions resulting from the Hope Creek refueling and Salem forced outages. Increased management attention will ensure that activities are scheduled and implemented as planned. In addition, our governing procedure for this process will be updated in the 1st quarter 2005 to include escalation of extension requests through senior management.			

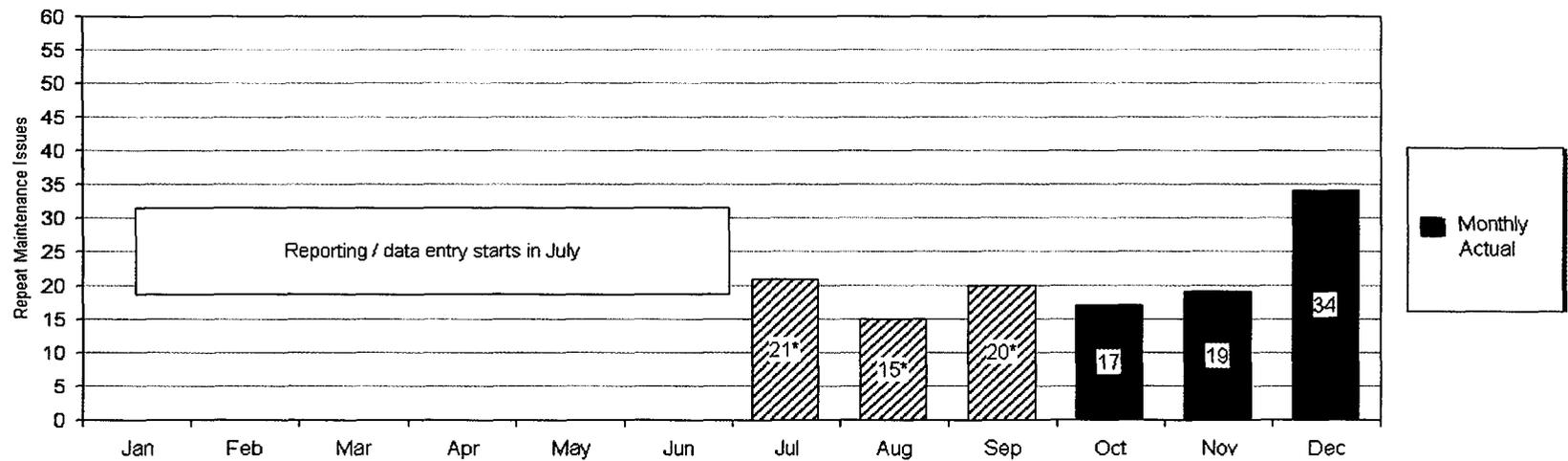


PSEG Nuclear, LLC	December 2004	Status	Definition
SALEM UNIT 1 REPEAT MAINTENANCE ISSUES	Updated: Monthly	  3Q 2004 4Q 2004	The number of repeat maintenance issues identified on safety-related equipment.
Chart Owner		Goal:	No Adverse Trend
Salem Maintenance Manager			

History	Intent of Metric
New Indicator for 2004	This metric monitors the number of issues that were not fixed correctly the first time on safety-related equipment. We track items that have been fixed and need to be reworked within twelve months. This is a new metric to ensure we see a reduction as our corrective action program improves.
	Analysis and Actions Initial analysis of Repeat Maintenance issues indicates the major contributors are valves (AOVs and manual valves) and main control room recorders for service water and primary systems. Engineering has initiated two common cause analyses, due in February 2005, for valves and main control room recorders. These analyses will look for common causes in relation to both systems and components. There was a trend noted in December with 55 repeat items making the indicator "Red." Over half of these were due to minor packing leaks on manual valves. These will be a part of the common cause analyses * - Based on feedback from our corrective action process, our understanding of how we apply the definition of repeat maintenance has evolved. This learning was applied to the data collected in the 4th quarter. Over the next quarter, the 2004 third quarter data will be reevaluated to determine if any changes in the data or analysis and actions are warranted.

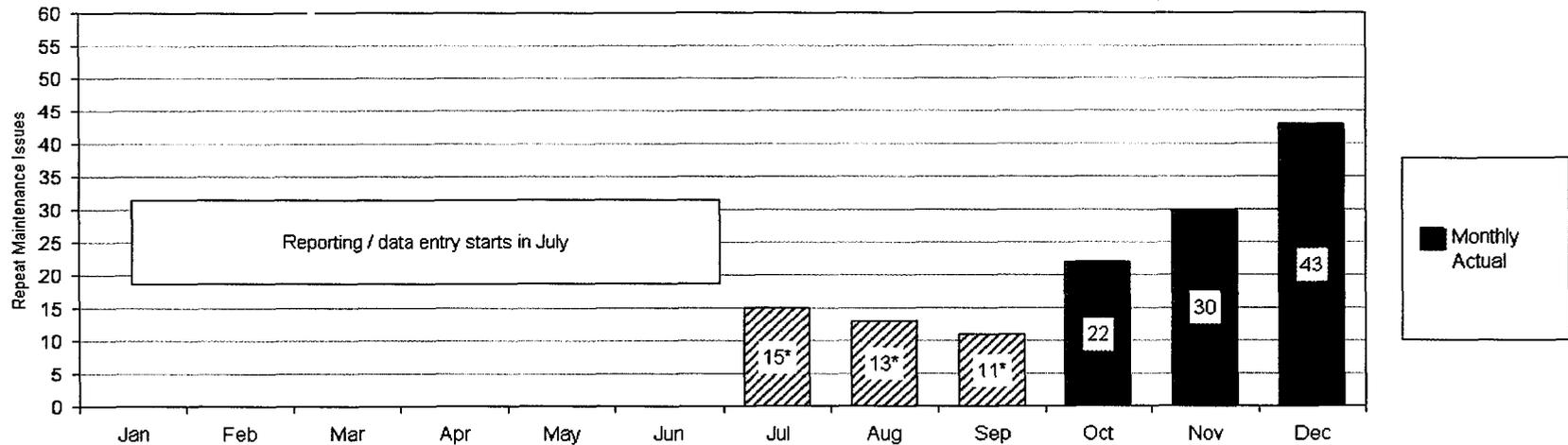


PSEG Nuclear, LLC		December 2004	Status	Definition
SALEM UNIT 2 REPEAT MAINTENANCE ISSUES		Updated: Monthly	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">G 3Q 2004</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">R 4Q 2004</div> </div>	The number of repeat maintenance issues identified on safety-related equipment.
Chart Owner			Goal:	No Adverse Trend
Salem Maintenance Manager				
History		Intent of Metric		
New Indicator for 2004		This metric monitors the number of issues that were not fixed correctly the first time on safety-related equipment. We track items that have been fixed and need to be reworked within twelve months. This is a new metric to ensure we see a reduction as our corrective action program improves.		
		Analysis and Actions		
		Initial analysis indicates the major contributors are valves (AOVs and manual valves) and main control room recorders for service water and primary systems. Engineering has initiated two common cause analyses, due in February 2005, for valves and Main Control Room Recorders. These analyses will look for common causes in relation to both systems and components. There was a trend noted in December with 34 repeat items making the indicator "Red." Over half of these were due to minor packing leaks on manual valves. These will be a part of the common cause analyses		
* - Based on feedback from our corrective action process, our understanding of how we apply the definition of repeat maintenance has evolved. This learning was applied to the data collected in the 4th quarter. Over the next quarter, the 2004 third quarter data will be reevaluated to determine if any changes in the data or analysis and actions are warranted.				

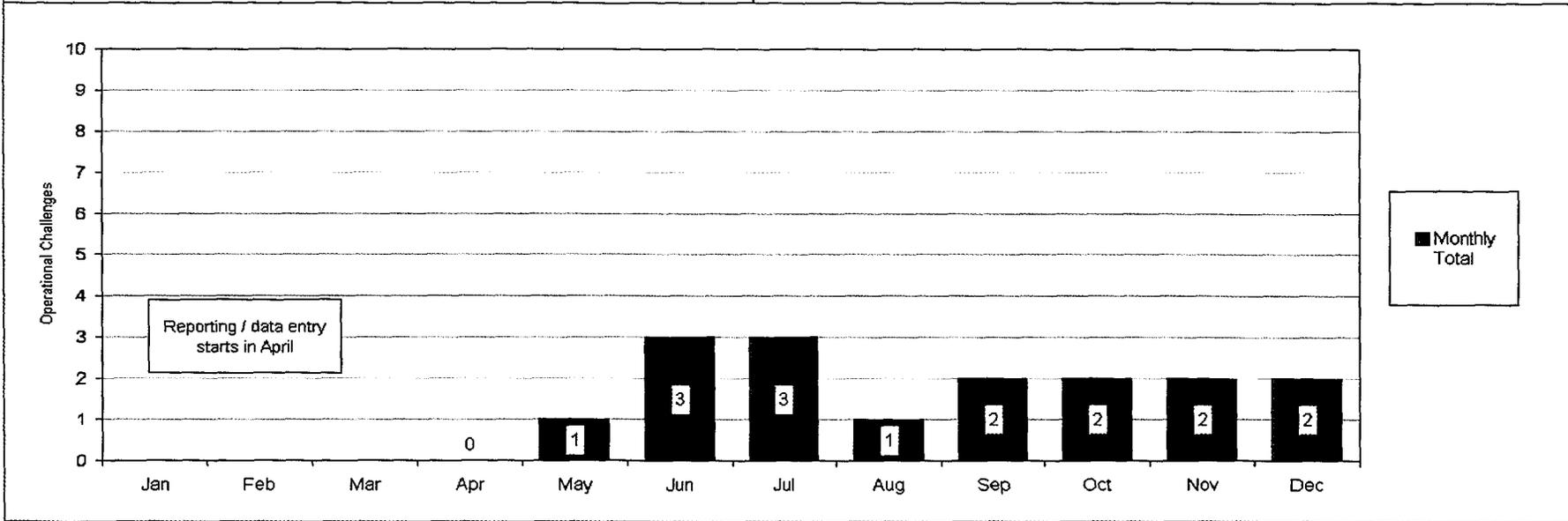


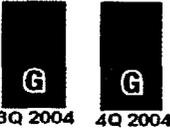
PSEG Nuclear, LLC	December 2004	Status	Definition
HOPE CREEK REPEAT MAINTENANCE ISSUES	Updated: Monthly	  3Q 2004 4Q 2004	The number of repeat maintenance issues identified on safety-related equipment.
Chart Owner		Goal:	No Adverse Trend
Hope Creek Maintenance Manager			

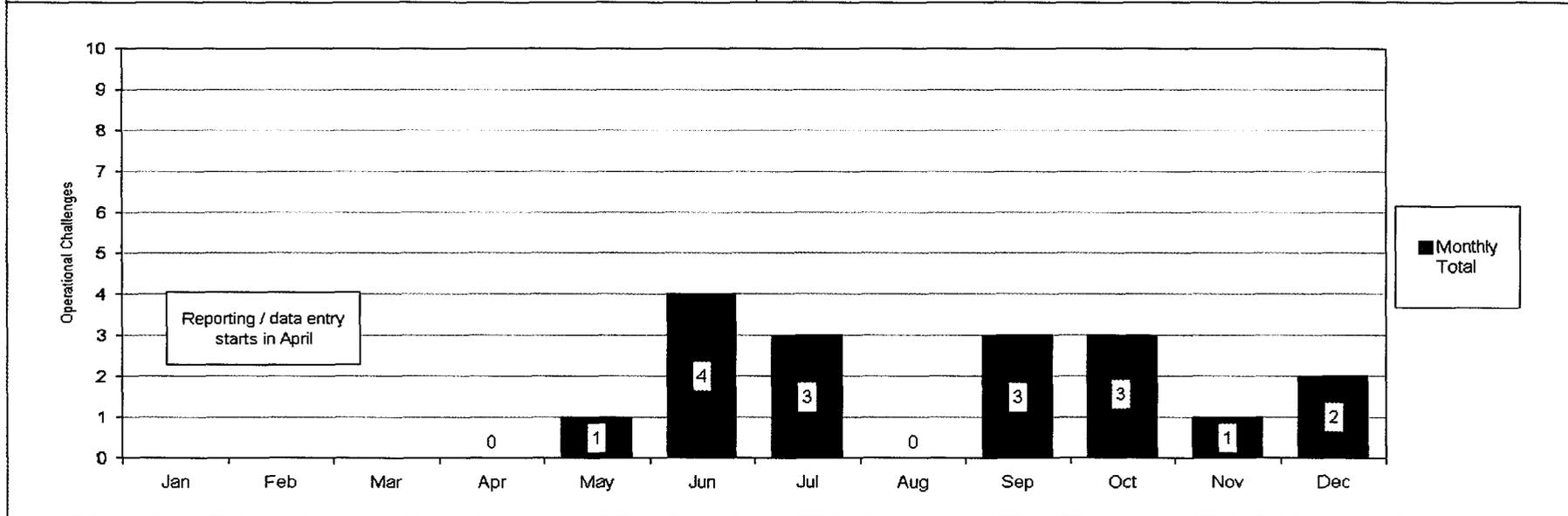
History	Intent of Metric
New Indicator for 2004	This metric monitors the number of issues that were not fixed correctly the first time on safety-related equipment. We track items that have been fixed and need to be reworked within twelve months. This is a new metric to ensure we see a reduction as our corrective action program improves.
	Analysis and Actions Review of the data for the past quarter indicates an adverse trend. Analysis of the specific component challenges reported as repeat maintenance indicates that pumps, heat exchangers, generators, valve operators, signal conditioners, switches, and panels are the largest contributors. A common cause analysis, due March 2005, has been initiated to determine targeted actions necessary to improve reliability and reduce repeat maintenance on these components. * - Based on feedback from our corrective action process, our understanding of how we apply the definition of repeat maintenance has evolved. This learning was applied to the data collected in the 4th quarter. Over the next quarter, the 2004 third quarter's data will be re-evaluated to determine if any changes in the data or analysis and actions are warranted.



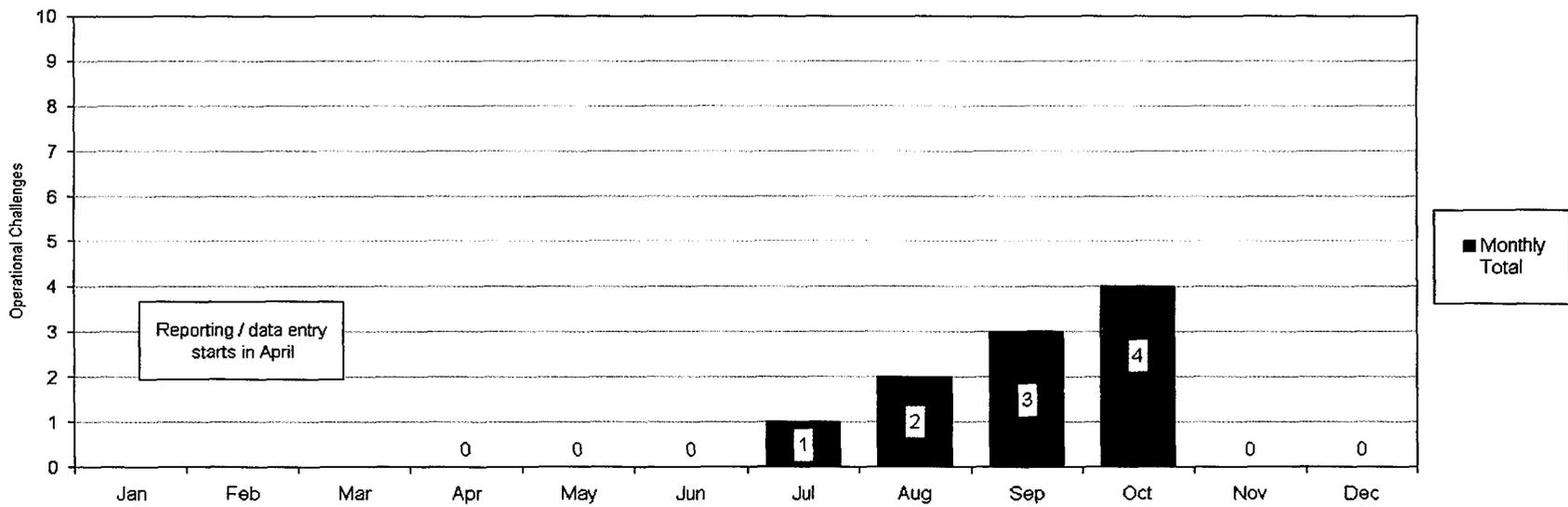
PSEG Nuclear, LLC	December 2004	Status	Definition
SALEM UNIT 1 OPERATIONAL CHALLENGES	Updated: Monthly	  3Q 2004 4Q 2004	The number of plant operational issues that warrant implementation of the Operational Challenges Response Team.
Chart Owner		Goal:	No Adverse Trend
Salem Plant Manager			
History	Intent of Metric		
New Indicator for 2004	We established a procedure to allow our operating crews to request additional assistance to address emergent issues. These are called "Operational Challenges." This metric measures the number of times each month our operators engage this assistance. Our goal is to minimize the challenges to our operating crews. By tracking and reviewing the challenges, we can investigate common causes and potential trends.		
	Analysis and Actions		
	There were six issues that warranted initiation of an OCR during the last quarter of 2004. Two OCRs were associated with human performance and four were associated with equipment reliability. A common cause assessment of the equipment reliability will be performed to identify any common elements or changes required in our system health plans.		
An oil spill that occurred in December was an external event common to all units. Consistent with our site reporting practices, that event is captured under the Salem Unit 2 indicator.			



PSEG Nuclear, LLC	December 2004	Status	Definition
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		3Q 2004	4Q 2004
Salem Plant Manager		Goal:	No Adverse Trend
History		Intent of Metric	
New Indicator for 2004		We established a procedure to allow our operating crews to request additional assistance to address emergent issues. These are called "Operational Challenges." This metric measures the number of times each month our operators engage this assistance. Our goal is to minimize the challenges to our operating crews. By tracking and reviewing the challenges, we can investigate common causes and potential trends.	
		Analysis and Actions	
		There were six OCRs initiated for Unit 2 during the last quarter of 2004. One was associated with human performance, three with equipment reliability, and two as a result of external events (oil spill). A common cause assessment of the equipment reliability will be performed to identify any common elements or changes required in our system health plans.	
		An oil spill that occurred in December was an external event common to all units. Consistent with our site reporting practices, that event is captured under the Salem Unit 2 indicator.	

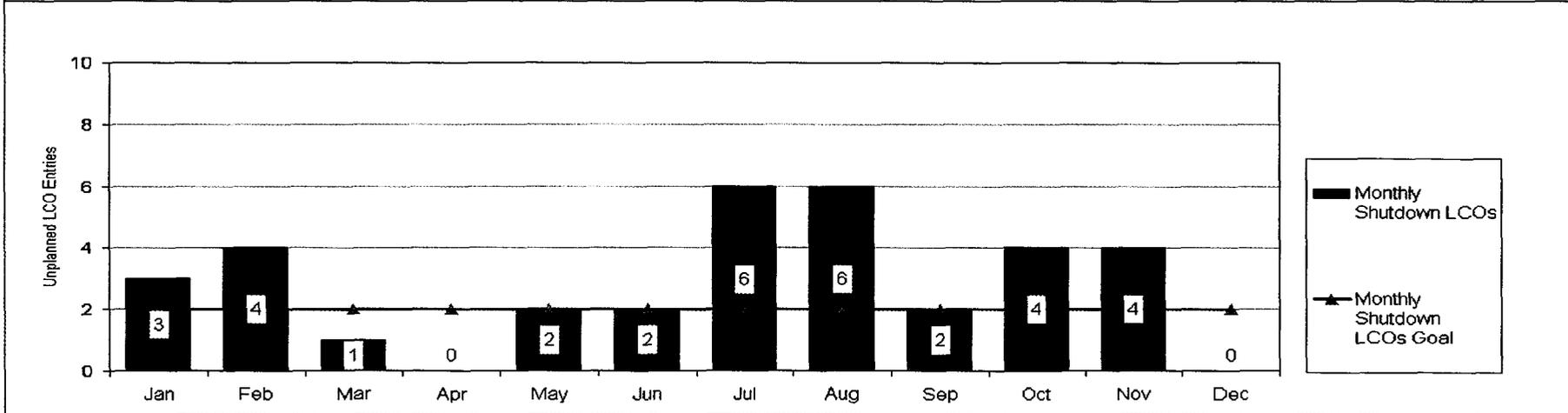


PSEG Nuclear, LLC	December 2004	Status	Definition
HOPE CREEK OPERATIONAL CHALLENGES	Updated: Monthly	R R 3Q 2004 4Q 2004	The number of plant operational issues that warrant implementation of the Operational Challenges Response Team.
Chart Owner		Goal:	No Adverse Trend
Hope Creek Plant Manager			
History	Intent of Metric		
New Indicator for 2004	We established a procedure to allow our operating crews to request additional assistance to address emergent issues. These are called "Operational Challenges." This metric measures the number of times each month our operators engage this assistance. Our goal is to minimize the challenges to our operating crews. By tracking and reviewing the challenges, we can investigate common causes and potential trends.		
	Analysis and Actions		
	Ten operational challenges were experienced in 2004, four occurring in the 4th quarter. Formal OCRs were implemented for a Notification of Unusual Event because of a freon leak in the Security Center, a manual scram from a steam leak due to a failed 8" drain line on a moisture separator, trip of 4kV vital bus during transfer from alternate to normal feeds, and a fire in the HC substation that resulted in loss of various station loads. Overall performance remains high for the period. Corrective maintenance and modifications are addressing equipment deficiencies.		



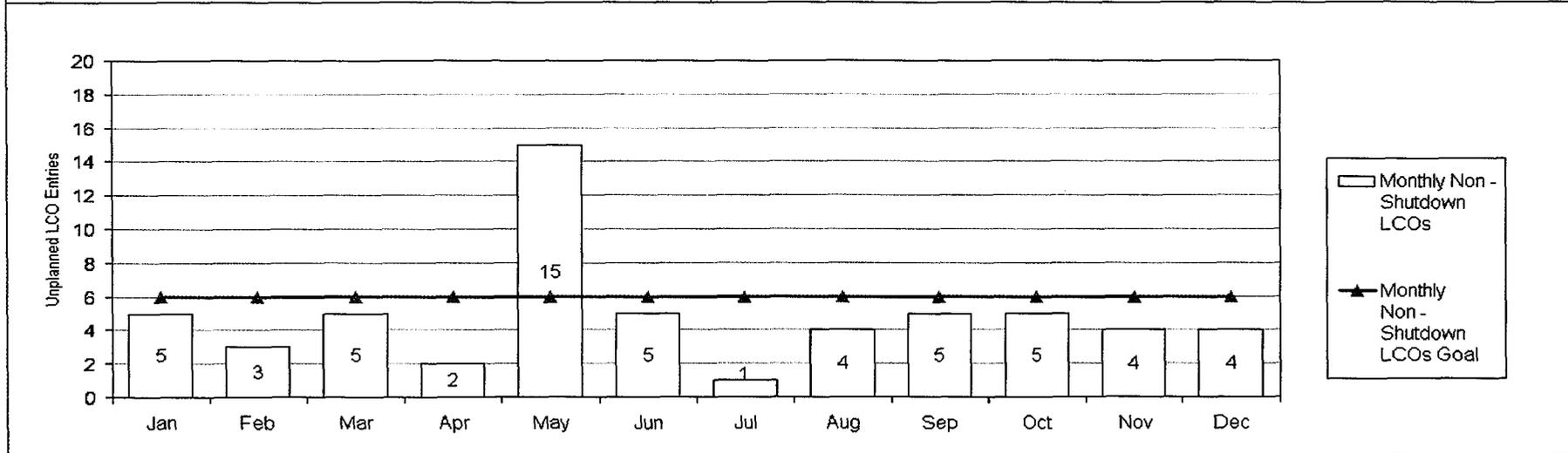
PSEG Nuclear, LLC	December 2004	Status	Definition
SALEM UNIT 1 UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	 3Q 2004 4Q 2004	The number of Unplanned Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.
Chart Owner		Goal:	2 per Month
Salem System Engineering Manager			

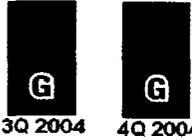
History	Intent of Metric
Historical Data Not Available	Nuclear plants are operated under a fundamental set of rules from the Nuclear Regulatory Commission (NRC) called Technical Specifications. Certain rules require operators to enter a shutdown LCO, meaning the equipment must be fixed in a defined period 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
	<p>There were a total of 34 Unplanned Shutdown LCOs in 2004, 8 of which occurred in the 4th quarter. The 4th quarter monthly average is 2.67. The goal was NOT met.</p> <p>In 2004, several components such as containment fan coil units (CFCU), chillers, waste gas analyzers (WGA) and radiation monitors experienced multiple failures.</p> <p>Several interim measures to improve CFCU short-term reliability have been initiated and implemented. The long-term fix is a system modification that installs a new cooling system. With respect to the chillers, a study has been initiated to develop solutions for ensuring reliability of the chillers until the end of plant life. For the WGA, the failures have been evaluated, resulting in procedure changes to ensure accurate calibration of WGA instruments. To improve radiation monitor reliability, over 120 channels will be upgraded, modified, replaced, and/or deleted.</p>

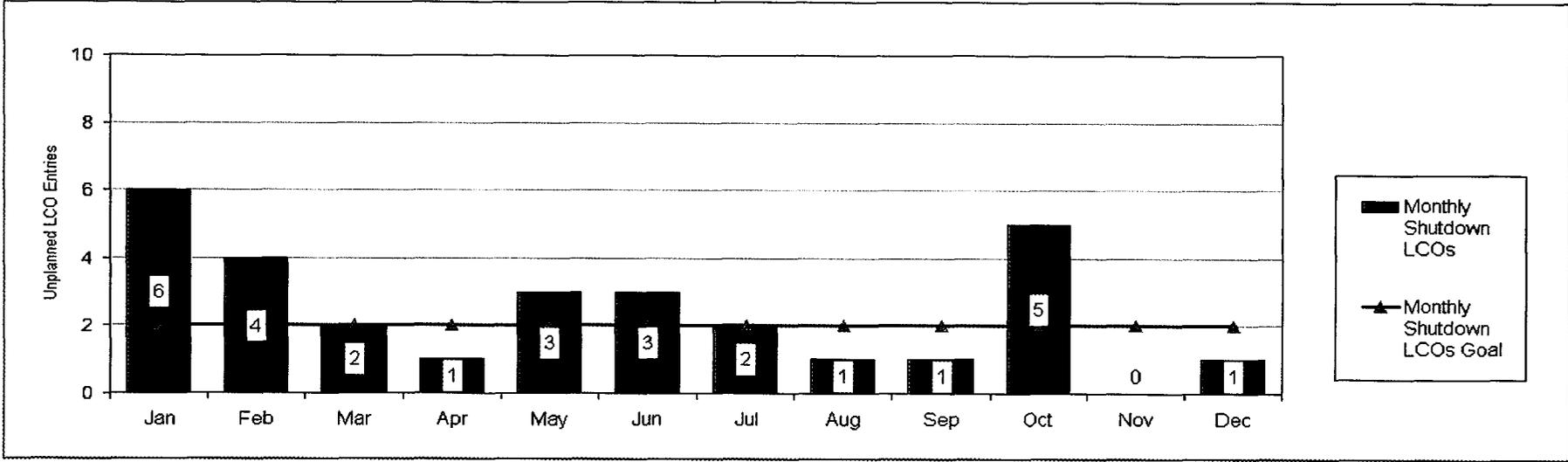


PSEG Nuclear, LLC	December 2004	Status	Definition
SALEM UNIT 1 UNPLANNED NON-SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	 3Q 2004 4Q 2004	The number of Unplanned Non-Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.
Chart Owner		Goal:	6 per Month
Salem System Engineering Manager			

History	Intent of Metric
Historical Data Not Available	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 and Actions
	There were a total of 58 Unplanned Non-Shutdown LCOs in 2004, 13 of which occurred in the 4th quarter. The 4th quarter monthly average is 4.3. The goal was met.

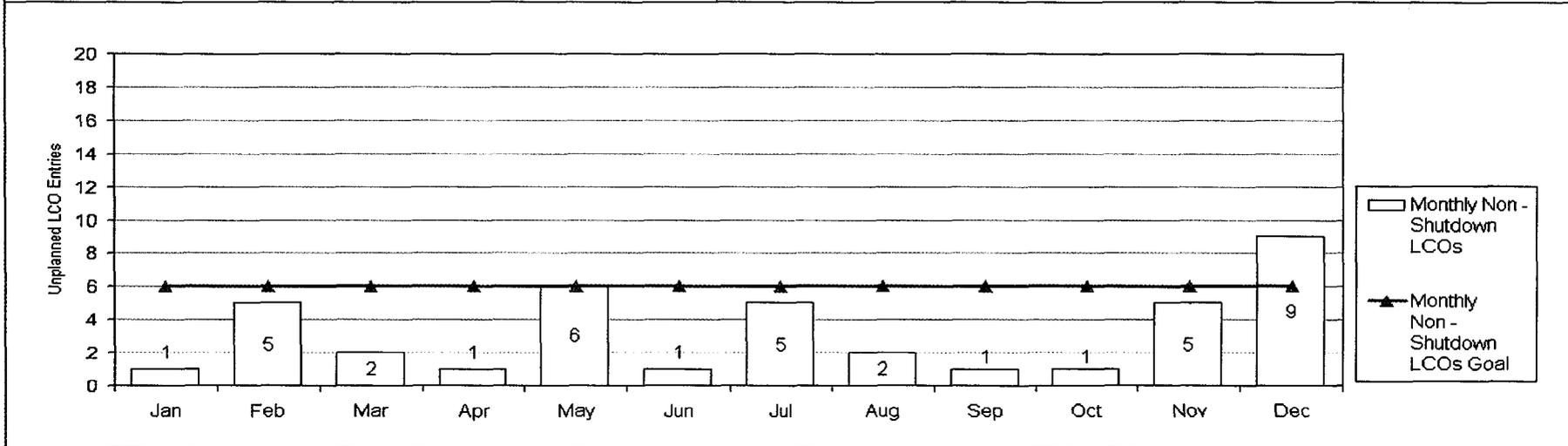


PSEG Nuclear, LLC	December 2004	Status	Definition
SALEM UNIT 2 UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly		The number of Unplanned Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.
Chart Owner		Goal:	2 per Month
Salem System Engineering Manager			
History	Intent of Metric		
Historical Data Not Available	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		
	There were 29 Unplanned Shutdown LCOs in 2004, six of which occurred in the 4th quarter. The 4th quarter monthly average was two per month which met the goal.		

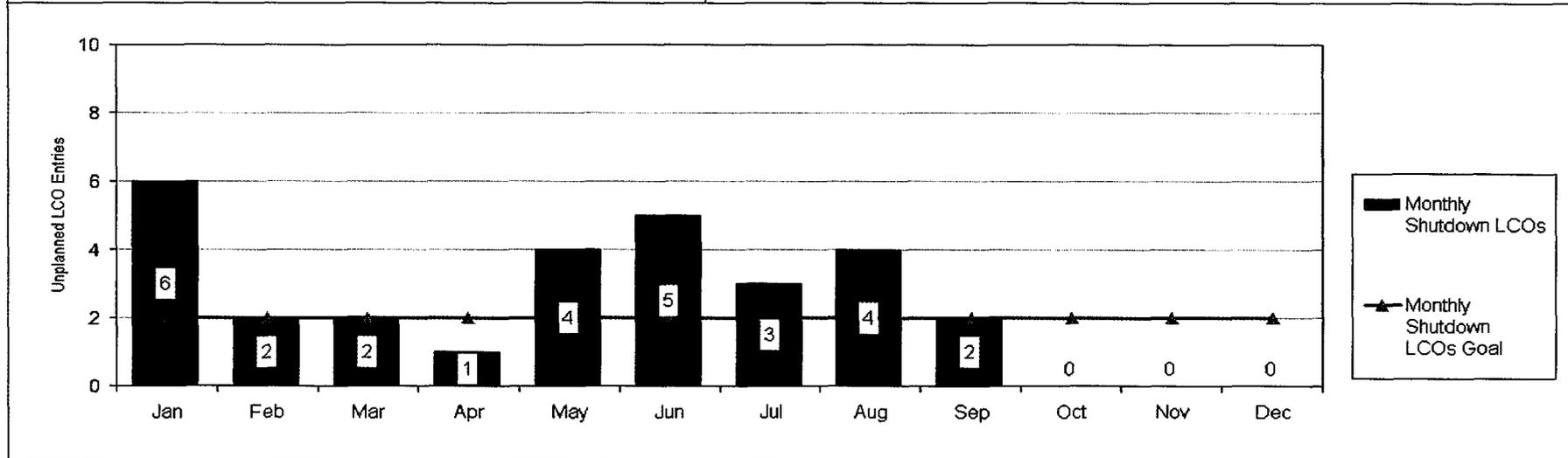


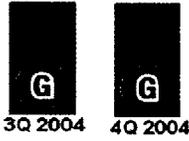
PSEG Nuclear, LLC	December 2004	Status	Definition
SALEM UNIT 2 UNPLANNED NON-SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	  3Q 2004 4Q 2004	The number of Unplanned Non-Shutdown Technical Specification Limiting Conditions of Operation (LCOs) entered during the month.
Chart Owner		Goal:	6 per Month
Salem System Engineering Manager			

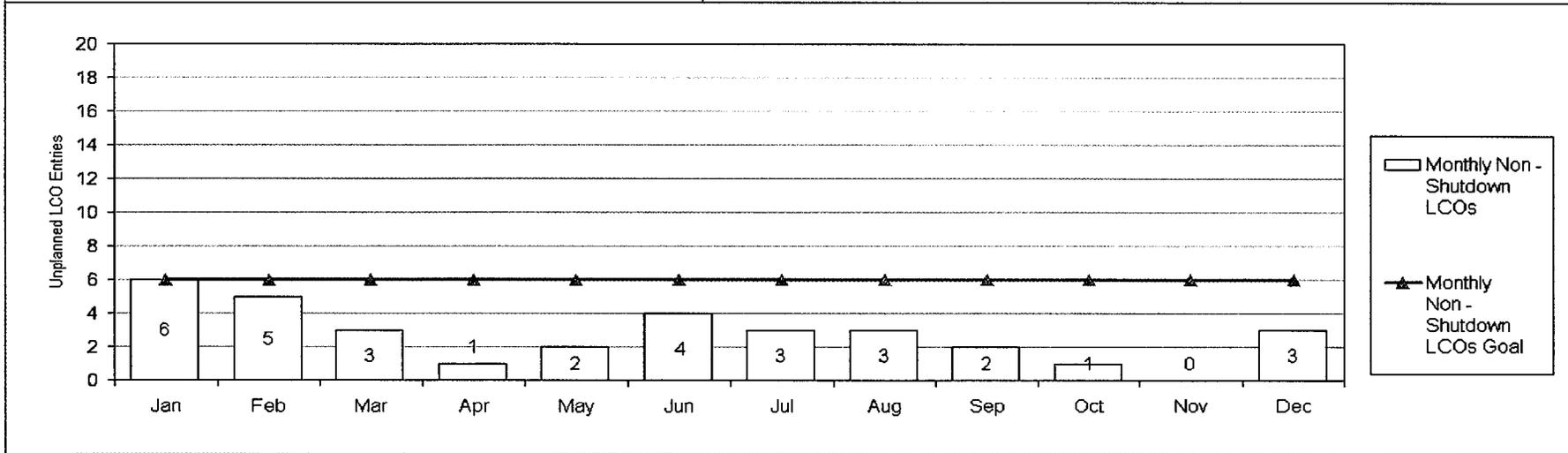
History	Intent of Metric
Historical Data Not Available	Nuclear plants are operated under a fundamental set of rules from the Nuclear Regulatory Commission (NRC) called Technical Specifications. Certain rules require operators to enter a non-shutdown LCO, meaning the equipment must be fixed in a defined 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).
	<p>Analysis and Actions</p> <p>There were a total of 39 Unplanned Non-Shutdown LCOs in 2004, 15 of which occurred in the 4th quarter. The 4th quarter monthly average is 5. The goal was met.</p> <p>A negative trend, however, continues with respect to various station radiation monitors. To improve radiation monitor reliability, over 120 channels will be upgraded, modified, replaced, and/or deleted. To date, 39 channels for Unit 2 have been completed.</p>



PSEG Nuclear, LLC	December 2004	Status	Definition
HOPE CREEK UNPLANNED SHUTDOWN LIMITING CONDITION OF OPERATION (LCO) ENTRIES	Updated: Monthly	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">R 3Q 2004</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">G 4Q 2004</div> </div>	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
History	Intent of Metric		
Historical Data Not Available	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		
	The goal was met. NOTE: Hope Creek Station was in an extended refueling outage for most of the 4th quarter.		



PSEG Nuclear, LLC	December 2004	Status	Definition
HOPE CREEK 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		Goal:	6 per Month
Hope Creek System Engineering Manager			
History	Intent of Metric		
Historical Data Not Available	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		
	The goal was met. NOTE: Hope Creek Station was in an extended refueling outage for most of the 4th quarter.		



SALEM UNIT 1 EMERGENCY DIESEL GENERATOR UNAVAILABILITY

Updated: Monthly



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

3Q 2004

4Q 2004

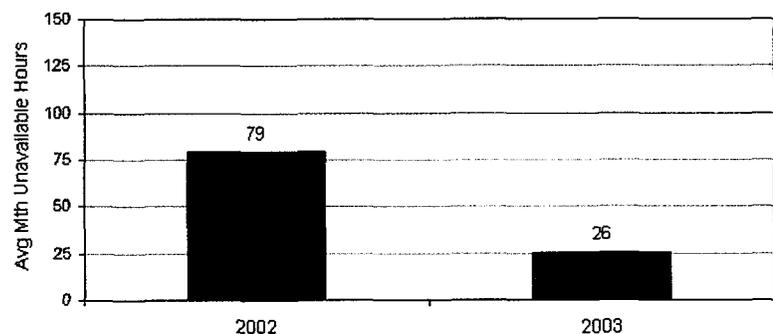
Chart Owner

Salem System Engineering Manager

Goal:

21.9 hours per month
(36-month rolling average)

History



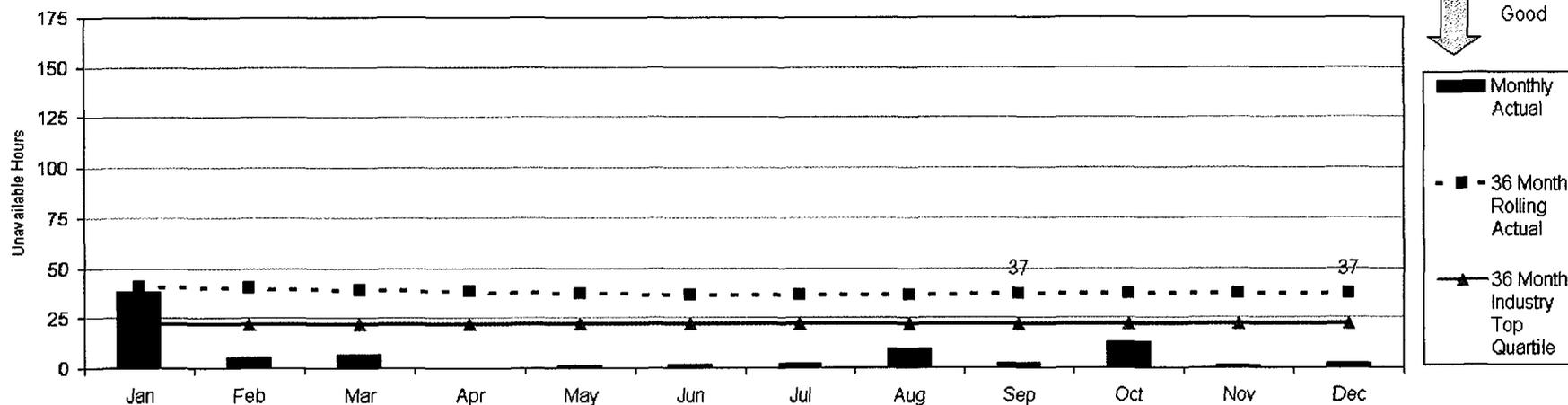
Intent of Metric

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 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.

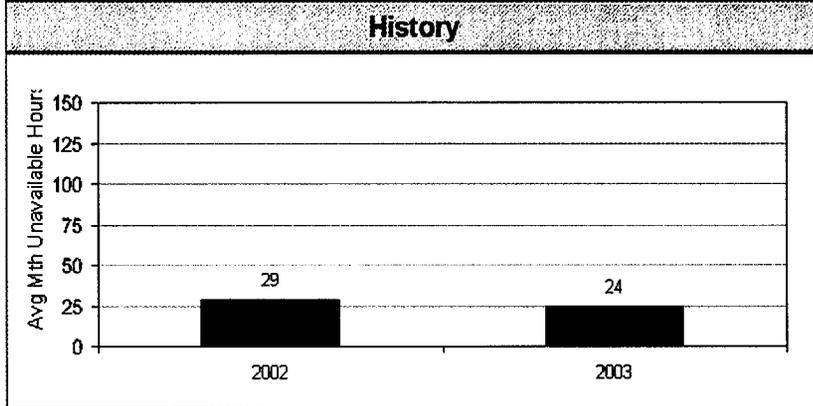
Analysis and Actions

Salem 1 Emergency Diesel Generator unavailability is 37 hours versus a goal of 21.9 hours on a 36-month rolling average. The goal was not met for the 36-month rolling average; however, for the calendar year, Salem Unit 1 met the top quartile goal.

Improvements have been made to the reliability of the air start system.



PSEG Nuclear, LLC	December 2004	Status	Definition
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		Goal:	21.9 hours per month (36-month rolling average)
Salem System Engineering Manager			

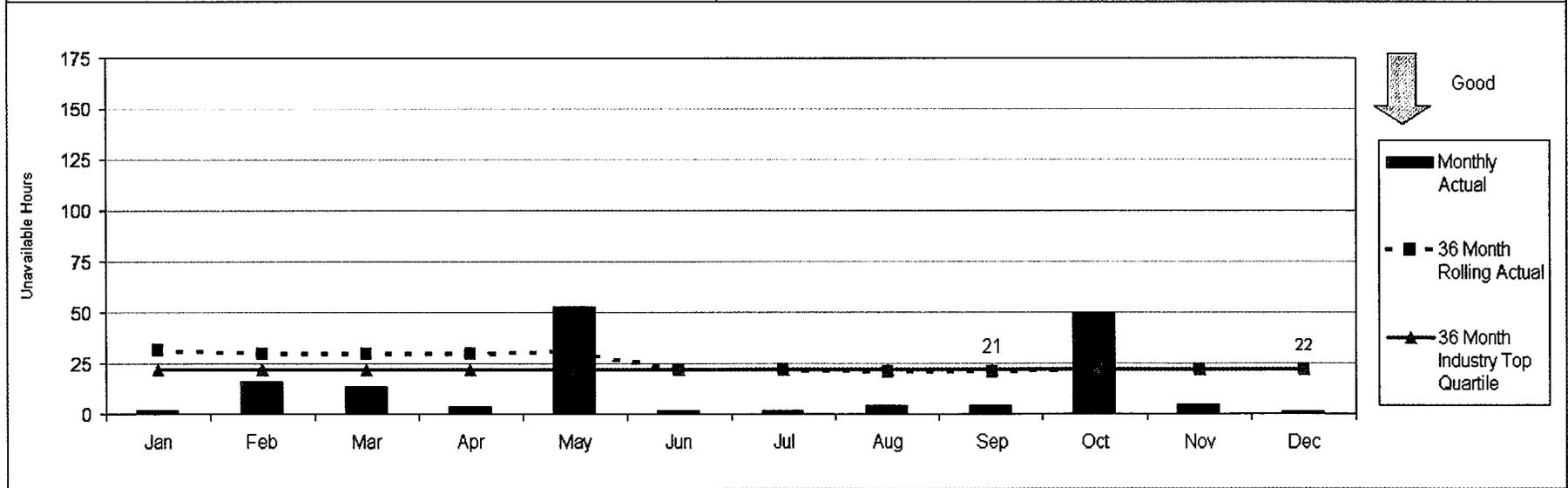


Intent of Metric

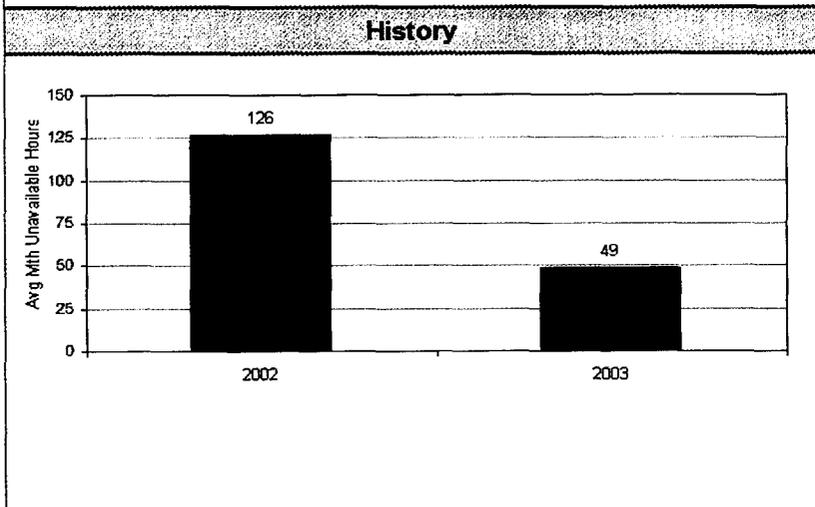
Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Emergency Diesels are out of service, compared against industry top quartile. The total represents the sum 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

Salem 2 Emergency Diesel Generator unavailability is 22 hours versus a goal of 21.9 hours on a 36-month rolling average. The goal was not met for the 36-month rolling average; however, for the calendar year, Salem Unit 2 met the top quartile goal.



PSEG Nuclear, LLC	December 2004	Status	Definition
HOPE CREEK EMERGENCY DIESEL GENERATOR UNAVAILABILITY	Updated: Monthly	 3Q 2004 4Q 2004	The sum of the planned and unplanned hours that the Emergency Diesel Generators were not available.
Chart Owner		Goal:	29.2 hours per month (36-month rolling average)
Hope Creek System Engineering Manager			



Intent of Metric

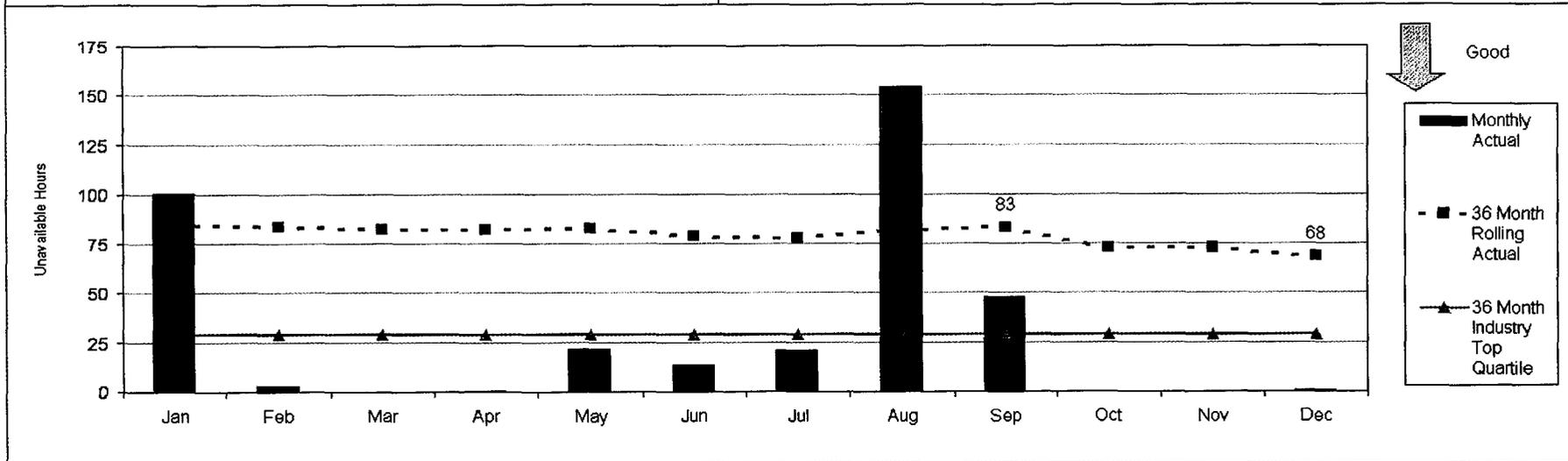
Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Emergency Diesels are out of service, compared against industry top quartile. The total represents the sum 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

Hope Creek Emergency Diesel Generator unavailability is 68 hours versus a goal of 29.2 hours on a 36-month rolling average. The goal was not met.

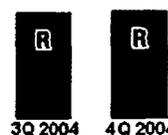
In 2004, all maintenance performed (363 hours) with the exception of 61 hours, was planned maintenance designed to improve system reliability of the Hope Creek Emergency Diesel Generators (EDGs). System unavailability was further managed by performing 241 EDG preventative and corrective maintenance work orders in refueling outage RF12. This outage work scope significantly reduced future planned online maintenance unavailability hours.

Actions in 2005 will include continuing to minimize unavailability hours of the online work windows by optimizing EDG schedules and performing work in parallel.



SALEM UNIT 1 AUXILIARY FEEDWATER SYSTEM UNAVAILABILITY

Updated: Monthly



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

Chart Owner

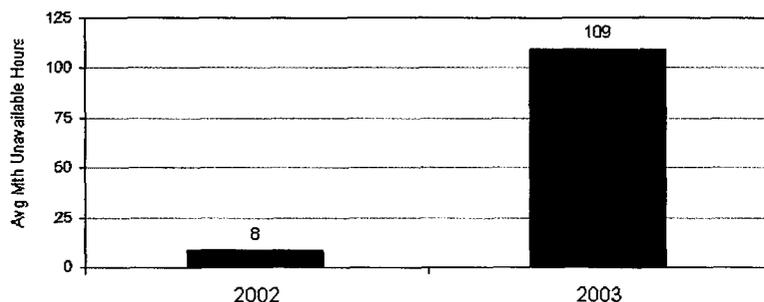
Salem System Engineering Manager

Goal:

7.4 hours per month
(36-month rolling average)

History

Intent of Metric

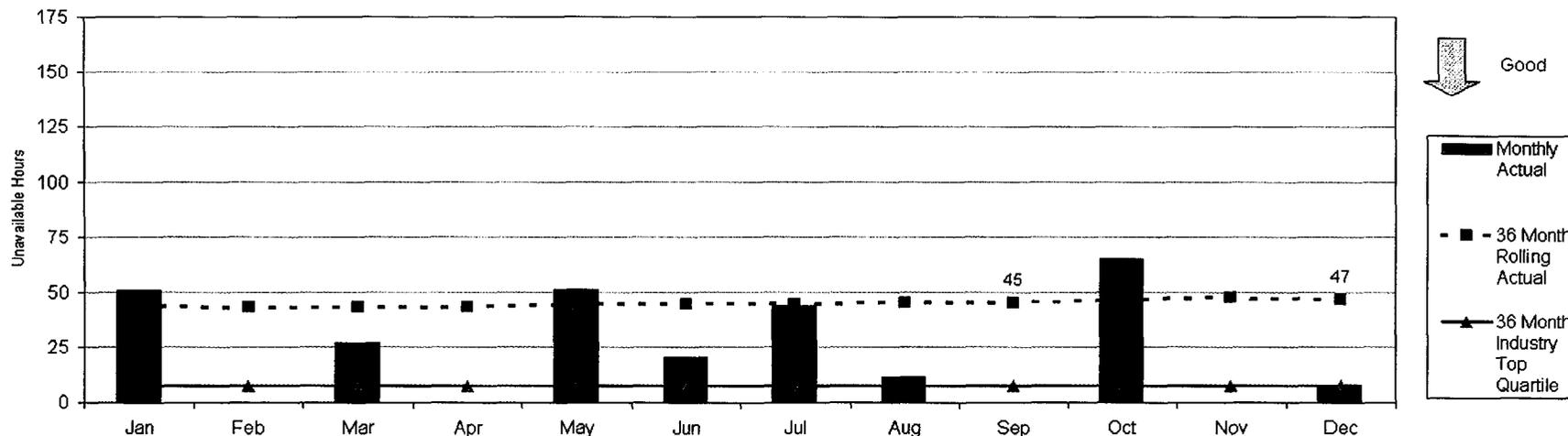


Nuclear plants are designed with a series of redundant safety systems and equipment. This allows equipment to be removed from service for maintenance. This metric monitors the amount of time the Salem Unit 1 Auxiliary Feedwater System is out of service compared against industry top quartile. The total 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

Salem Unit 1 Auxiliary Feedwater Unavailability is 47 hours versus a goal of 7.4 hours on a 36-month rolling average. The goal was not met.

In 2004, Salem Unit 1 auxiliary feedwater availability was challenged by repeat failures of a valve that admits steam into a turbine that drives the 13 aux feed pump and failure of the overspeed trip latch mechanism. For the steam admission valve, repeated efforts to correct the condition resulted in unavailability. The cause of the condition is now well understood and has been corrected. The overspeed latch mechanism failure was due to a worn latch. The condition has been corrected and inspection procedures have been improved. To further improve this trend, all corrective and preventative maintenance work will be optimized with respect to online and outage windows to ensure system unavailability is minimized.



SALEM UNIT 2 AUXILIARY FEEDWATER SYSTEM UNAVAILABILITY

Updated: Monthly



3Q 2004

4Q 2004

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

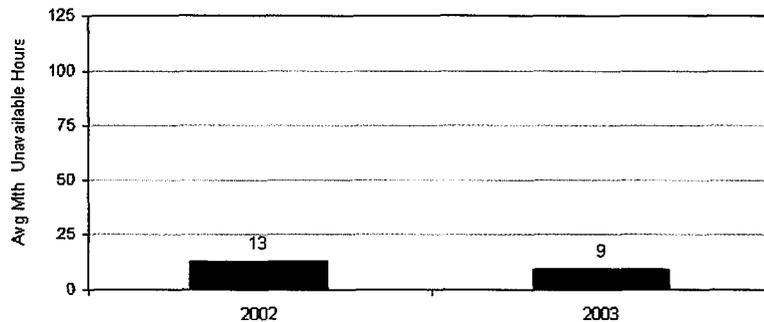
Chart Owner

Salem System Engineering Manager

Goal:

7.4 hours per month
(36-month rolling average)

History



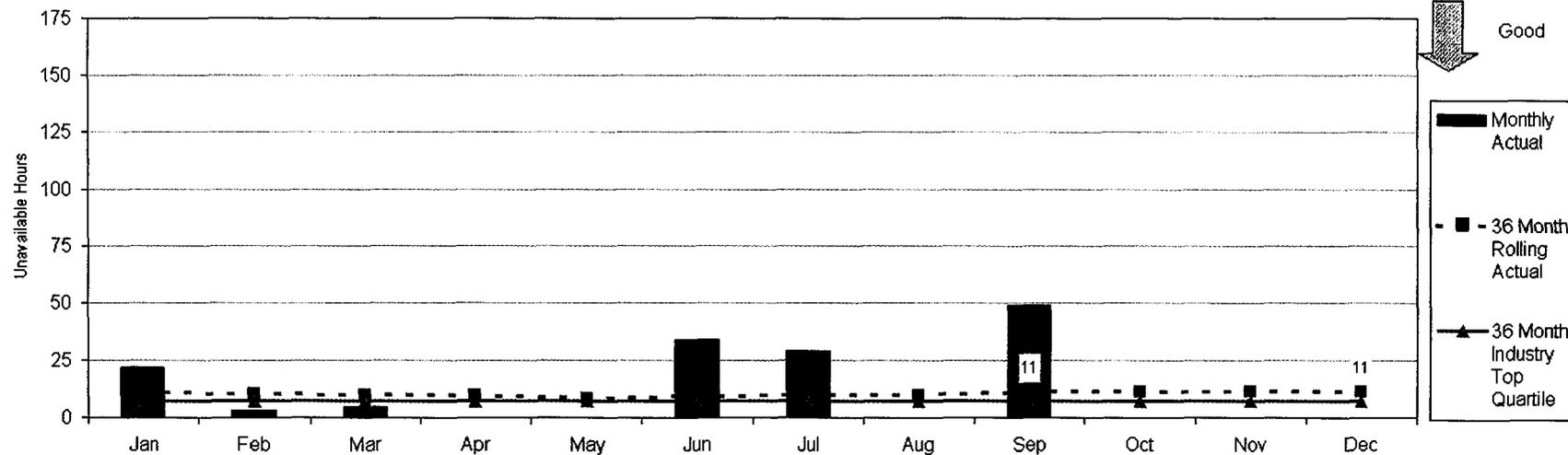
Intent of Metric

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.

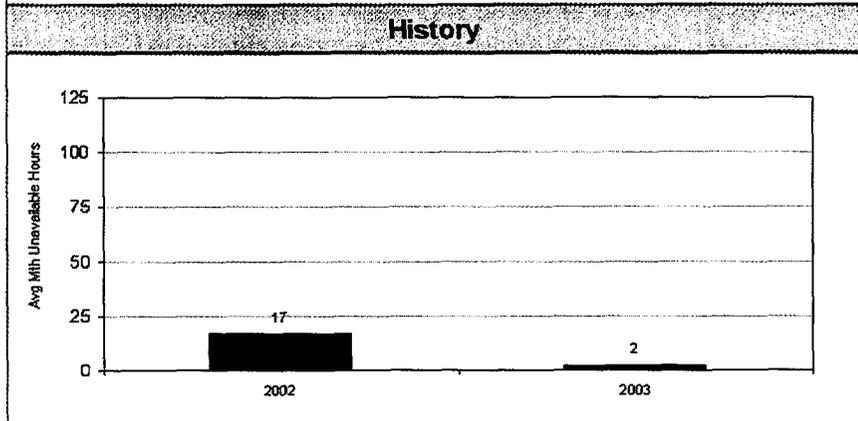
Analysis and Actions

Salem Unit 2 Auxiliary Feedwater Unavailability is 11 hours versus a goal of 7.4 hours on a 36-month rolling average. The goal was not met.

In 2004, Salem Unit 2 auxiliary feedwater unavailability was caused by scheduled preventative and corrective maintenance to improve system condition. Lessons learned from the Salem Unit 1 turbine-driven pump failures are being incorporated into the Unit 2 equipment procedures.



PSEG Nuclear, LLC	December 2004	Status	Definition
HOPE CREEK RESIDUAL HEAT REMOVAL SYSTEM UNAVAILABILITY		Updated: Monthly	The sum of the planned and unplanned hours that the Residual Heat Removal Systems were not available.
Chart Owner		  3Q 2004 4Q 2004	
Hope Creek System Engineering Manager		Goal:	9.2 hours per month (36-month rolling average)

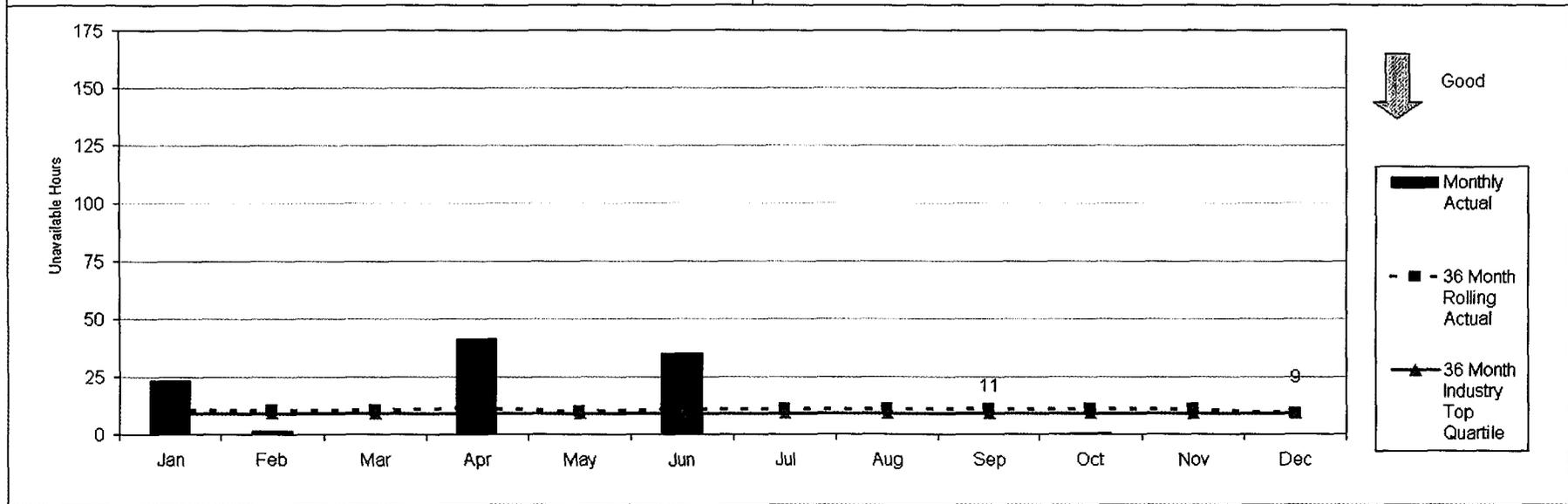


Intent of Metric

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 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.

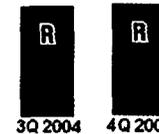
Analysis and Actions

Hope Creek Residual Heat Removal System Unavailability is 9.0 hours versus a goal of 9.2 hours. The goal was met.



SALEM UNIT 1 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.

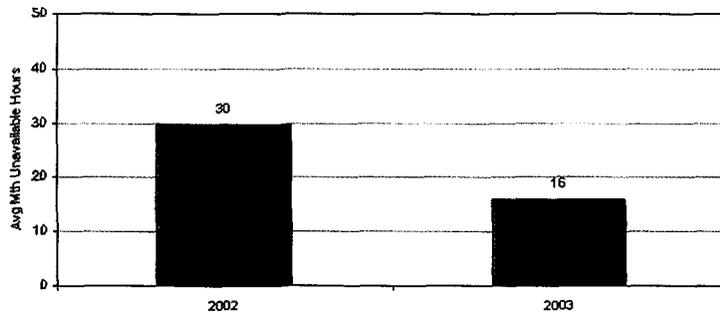
Chart Owner

Salem System Engineering Manager

Goal:

7.3 hours per month
(36-month rolling average)

History



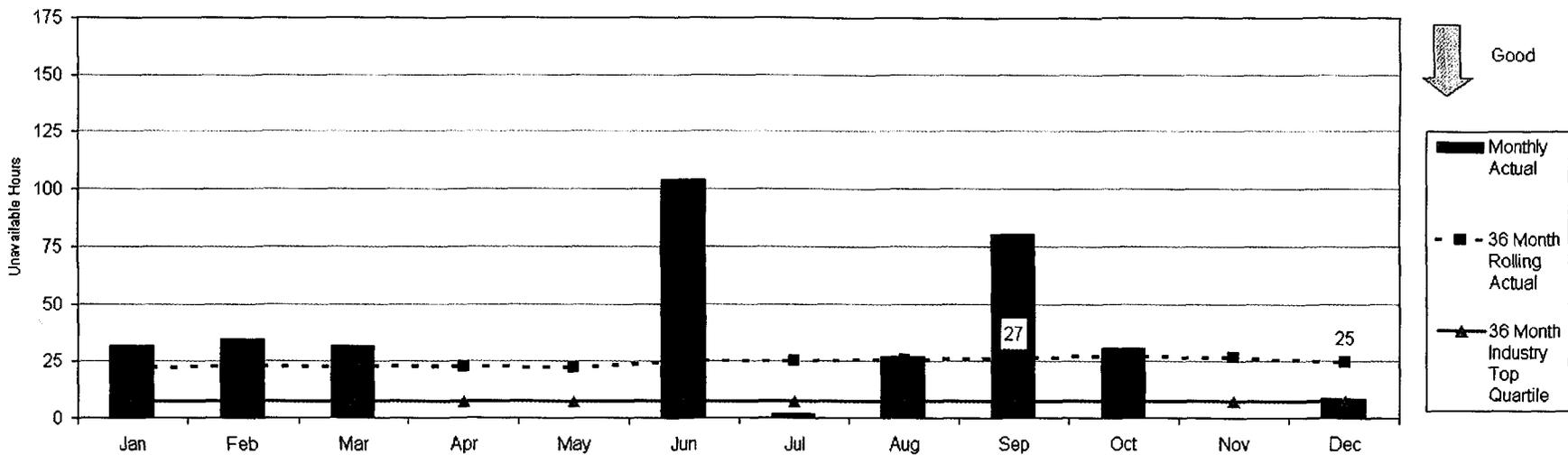
Intent of Metric

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 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

Salem Unit 1 Chemical Volume Control and Safety Injection System Unavailability is 25 hours versus a goal of 7.3 hours on a 36-month rolling average. The goal was not met.

In 2004, availability was adversely impacted by 1) the failure of a charging pump discharge check valve and 2) a charging pump speed increaser which was replaced due to vibrations trending up. Performance problems with the non-ECCS 13 charging pump caused additional reliance on the 11 and 12 pumps, which resulted in increased maintenance activities to maintain coolers in a clean condition. Actions are in progress to restore the 13 charging pump to service.

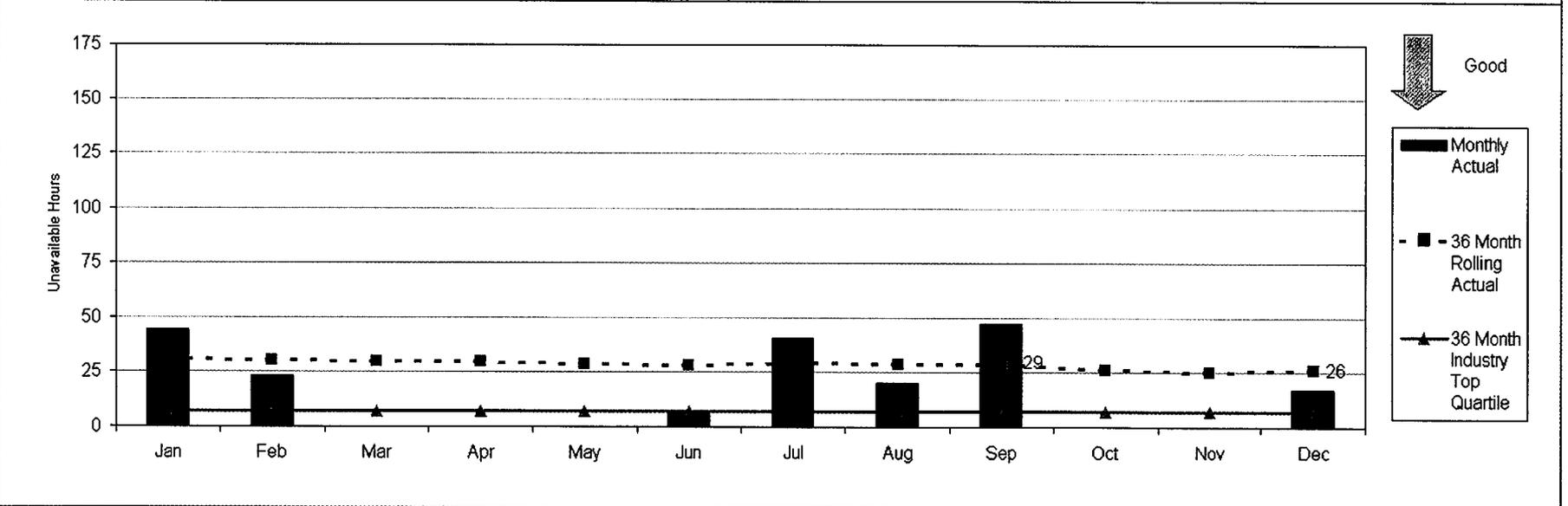


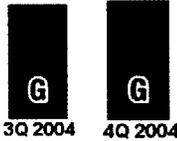
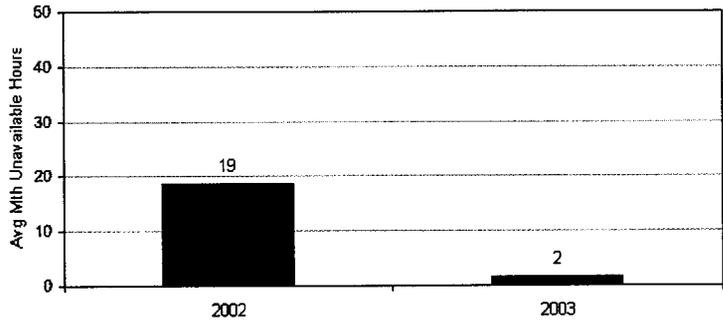
↓ Good

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

PSEG Nuclear, LLC	December 2004	Status	Definition
SALEM UNIT 2 CHEMICAL VOLUME CONTROL AND SAFETY INJECTION SYSTEM UNAVAILABILITY	Updated: Monthly	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">R 3Q 2004</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">R 4Q 2004</div> </div>	The sum of the planned and unplanned hours that the Chemical Volume Control and Safety Injection Systems were not available.
Chart Owner		Goal:	7.3 hours per month (36-month rolling average)
Salem System Engineering Manager			

History	Intent of Metric						
<table border="1" style="margin-top: 10px;"> <caption>History Data</caption> <thead> <tr> <th>Year</th> <th>Avg Mth Unavailable Hours</th> </tr> </thead> <tbody> <tr> <td>2002</td> <td>35</td> </tr> <tr> <td>2003</td> <td>25</td> </tr> </tbody> </table>	Year	Avg Mth Unavailable Hours	2002	35	2003	25	<p>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.</p>
Year	Avg Mth Unavailable Hours						
2002	35						
2003	25						
Analysis and Actions							
<p>Salem Unit 2 Chemical Volume Control and Safety Injection System Unavailability is 26 hours versus a goal of 7.3 hours on a 36-month rolling average. The goal was not met.</p> <p>Unavailability of the safety-related charging pumps had been improving since the non-ECCS positive displacement pump (23 Charging Pump) was restored to normal service.</p>							



PSEG Hudson, LLC	December 2004	Status	Definition
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		Goal: 14.6 hours per month (36-month rolling average)	
Hope Creek System Engineering Manager			
History	Intent of Metric		
	<p>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.</p>		
Analysis and Actions			
The 36-month rolling average is 13 hours versus a goal of 14.6 hours. The goal was met.			
