



*A subsidiary of Pinnacle West Capital Corporation*

Palo Verde Nuclear  
Generating Station

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102-05607-JML/SAB/JAP/DJS/DCE  
December 08, 2006

Dr. B. S. Mallett  
Regional Administrator, Region IV  
U. S. Nuclear Regulatory Commission  
611 Ryan Plaza Dr., Suite 400  
Arlington, TX 76011-4005

Dear Sir:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Units 1, 2, and 3  
Docket Nos: 50-528, 50-529, 50-530  
Problem Identification and Resolution Cross-cutting Issue Closure  
Plan**

Please find enclosed Arizona Public Service (APS) plans to improve problem identification and resolution at PVNGS. The enclosure provides discussion of the station's actions to close the problem identification and resolution cross-cutting issue and measures to ensure the effectiveness of the actions.

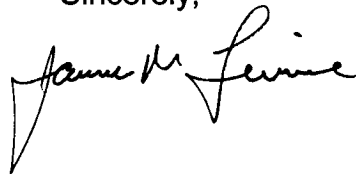
The actions are currently in various stages of implementation and completion, as noted. Once we have implemented these actions and demonstrated progress through the related metrics, we will ask for a follow-up assessment.

The actions described in this letter represent corrective action plans; they are not considered to be regulatory commitments.

U. S. Nuclear Regulatory Commission  
Dr. B. S. Mallett  
Problem Identification and Resolution Cross-cutting Issue Closure Plan  
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Should you have any further questions, please contact Craig Seaman at (623) 393-5421.

Sincerely,

A handwritten signature in black ink, appearing to read "James M. Levine". The signature is fluid and cursive, with a large initial "J" and "L".

JML/SAB/JAP/DJS/DCE/gt

Enclosure:  
Problem Identification and Resolution Cross-cutting Issue Closure Plan

cc: B. S. Mallett           NRC Region IV Regional Administrator  
M. B. Fields            NRC NRR Project Manager  
G. G. Warnick          NRC Senior Resident Inspector for PVNGS

## **ENCLOSURE**

**Problem Identification and Resolution Cross-cutting Issue Closure Plan**

# **Problem Identification and Resolution**

## **Cross-cutting Issue Closure Action Plan**

**Action Item 1:** Improve problem identification and assessment of operational impacts

**Problem Statement:** Station personnel have not consistently reported issues to Operations in a timely manner to ensure that a timely Operability Determination is performed.

**Action Plan Goal:** Potential impacts are identified to Operations in a timely manner. Operations performs timely and adequate evaluations of potential impacts to plant equipment. This process will be improved by instituting a “one form” initiation process.

**Actions Previously Taken:**

- (a) Condition Reports are routed through Operations for its review. The Condition Reporting process no longer relies on the initiator to route a Condition Report through the Control Room. Operations addresses operability on corrective action documents including work mechanisms, Condition Reports and deficiency work orders (DFWOs).
- (b) An Immediate Operability Determination (IOD) is initiated for degraded / non-conforming conditions on technical specification or technical specification-related components.
- (c) An Engineering leader and engineers provide dedicated support for the development of IODs and Prompt Operability Determinations (PODs).

**Current Status:** This action plan has ensured that Condition Reports are sent to Operations for review. Actions outlined above have been implemented within the last 60 days. Additional time and monitoring are required to assure that the expected improvement is realized. Identification will be improved by implementing a “one form” process.

**Actions to be taken:**

- (a) Create and implement a single document for problem identification.

**Metric Intent:** Measures the occurrences of Corrective Action Program (CAP) implementation issues for three areas:

- Failure to initiate the appropriate CAP document in a timely manner.
- Failure to evaluate an apparent cause or significant condition in an adequate and timely manner.
- Failure to properly close a CAP document.

**Metrics:**

1. CAP Implementation

**Effectiveness Review:** Perform an assessment of the effectiveness of the actions taken to assure timely problem identification and assessment of operational impacts.

**Due Date:** Complete actions by 12/30/06.

# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **CAP Implementation**

**Criteria:** This metric measures the number of Condition Reports initiated due to CAP implementation issues for three areas:

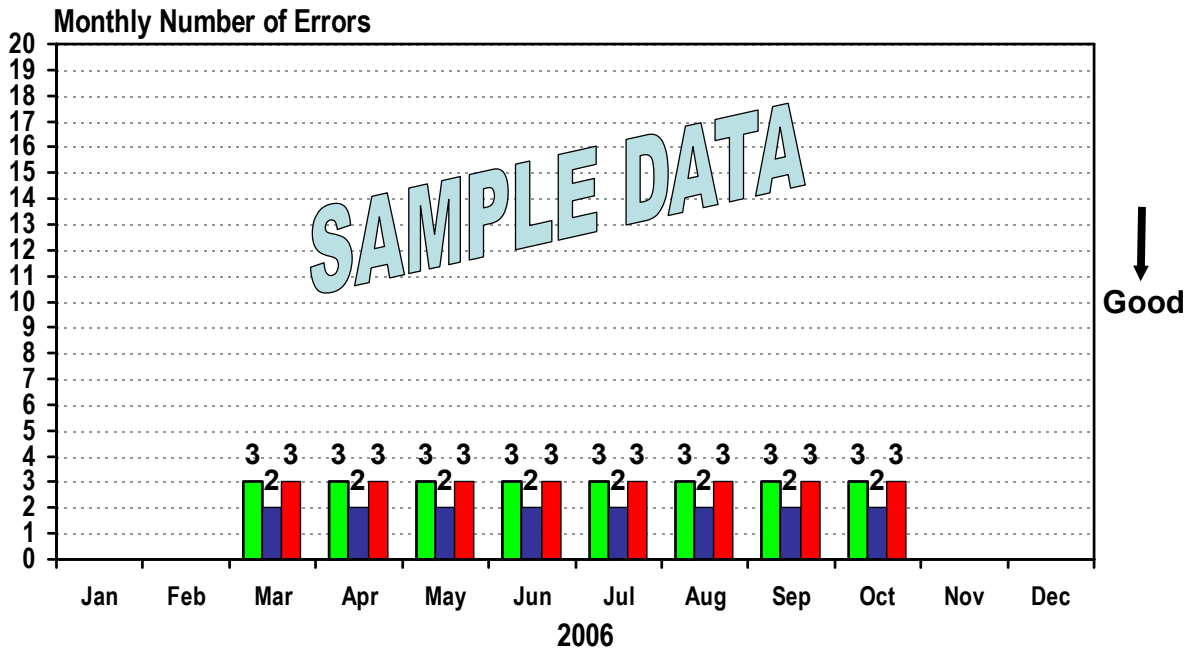
1. Failure to initiate the appropriate CAP document in a timely manner.
2. Failure to evaluate an apparent cause or significant condition in an adequate and timely manner.
3. Failure to properly close a CAP document.

**Data goal:** Metric goal is management directed.

**Data comes from:** Condition Report Trending Database

# Problem Identification and Resolution Cross-cutting Issue Closure Action Plan

## CAP Implementation



1<sup>st</sup> Bar - Failure to initiate the appropriate CAP document in a timely manner.

2<sup>nd</sup> Bar - Failure to evaluate an adverse or significant condition in an adequate and timely manner.

3<sup>rd</sup> Bar - Failure to properly close a CAP document.

# **Problem Identification and Resolution**

## **Cross-cutting Issue Closure Action Plan**

**Action Item 2:** Address timeliness and thoroughness of Condition Report evaluations; ensure effective corrective actions are established.

**Problem Statement:** Untimely and less than thorough evaluations have resulted in a number of self-revealing events. Additionally, ineffective corrective actions have led to a number of repeat problems that could have been prevented.

**Action Plan Goal:** Ensure that evaluations are performed in a timely and thorough manner, and that appropriate corrective actions are identified, including those to prevent recurrence of significant conditions.

**Actions Previously Taken:**

- (a) The Condition Reporting procedure was revised to include:
  - The disposition rather than evaluation of adverse Condition Reports
  - Use of apparent cause Condition Reports to evaluate extent of condition
  - A requirement for interim reports for significant Condition Reports that are not evaluated in 30 days.
- (b) The Condition Reporting procedure requires a charter for significant Condition Reports within three working days and interim actions within five working days.
- (c) The Corrective Action Review Board (CARB) monitors the timeliness and adequacy of the charters and interim actions for significant Condition Reports. The CARB Charter has been revised to incorporate this item.
- (d) The 2004 and 2005 significant Condition Reports were reviewed to assure adequate and effective corrective actions to prevent recurrence were identified.
- (e) CARB reviews and grades significant Condition Report evaluations for thoroughness and adequacy of corrective actions, including those to prevent recurrence. The CARB Charter has been revised to incorporate this item. CARB also reviews selected apparent cause evaluations for thoroughness and adequacy of corrective actions.
- (f) The Trending procedure was revised to require corrective action department staff members and Performance Advocates to analyze Condition Reports and work mechanisms monthly. This trend analysis purpose is to identify areas where a common cause analysis is required to address extent of condition for repetitive adverse conditions.
- (g) Condition Reports from the CAP Implementation metric were analyzed to identify areas where additional corrective actions were needed. This review identified the need to improve Apparent Cause Condition Report evaluations. An action to develop and provide appropriate training was entered into the corrective action program.
- (h) Condition Report evaluations are tracked by owner and due date. A report containing overdue evaluations is routinely reviewed at Senior Management Team meetings, and evaluation owners are required to address status and additional actions to complete the evaluation.

# **Problem Identification and Resolution**

## **Cross-cutting Issue Closure Action Plan**

**Current Status:** Condition Report evaluation timeliness has not met station goals. Additionally, evaluations have not been consistently thorough and effective actions have not been consistently established. Actions outlined above have been implemented within the last 60 days. Additional time and monitoring are required to assure that the expected improvement is realized. The review of 2004 and 2005 significant Condition Reports identified the need to improve the effectiveness of corrective actions to prevent recurrence (CAPR) for significant conditions caused by human performance errors.

**Actions to be taken:**

- (a) Develop criteria for use during significant Condition Report investigations to assure effective CAPRs for human performance-related root causes are established.
- (b) Review 2006 significant Condition Reports to assure adequate and effective corrective actions to prevent recurrence were identified.
- (c) Complete evaluations or develop interim reports for overdue significant Condition Report evaluations (including significant equipment root cause of failure).
- (d) Establish and implement training for apparent cause Condition Report evaluations.

**Metric Intent:** Monitor timeliness and thoroughness of evaluations, and effectiveness of corrective actions.

**Metrics:**

1. Repeat significant events
2. CAP Implementation
3. Significant Condition Report CARB grading
4. Condition Report Evaluation Timeliness 2006 and Pre-2006
5. Apparent Cause Evaluation Timeliness
6. Significant Condition Report Evaluation Timeliness

**Effectiveness Review:** Perform a self-assessment on the effectiveness of CARB and program changes.

**Due Date:** Complete actions by 06/30/07.



# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **Repeat Significant Events**

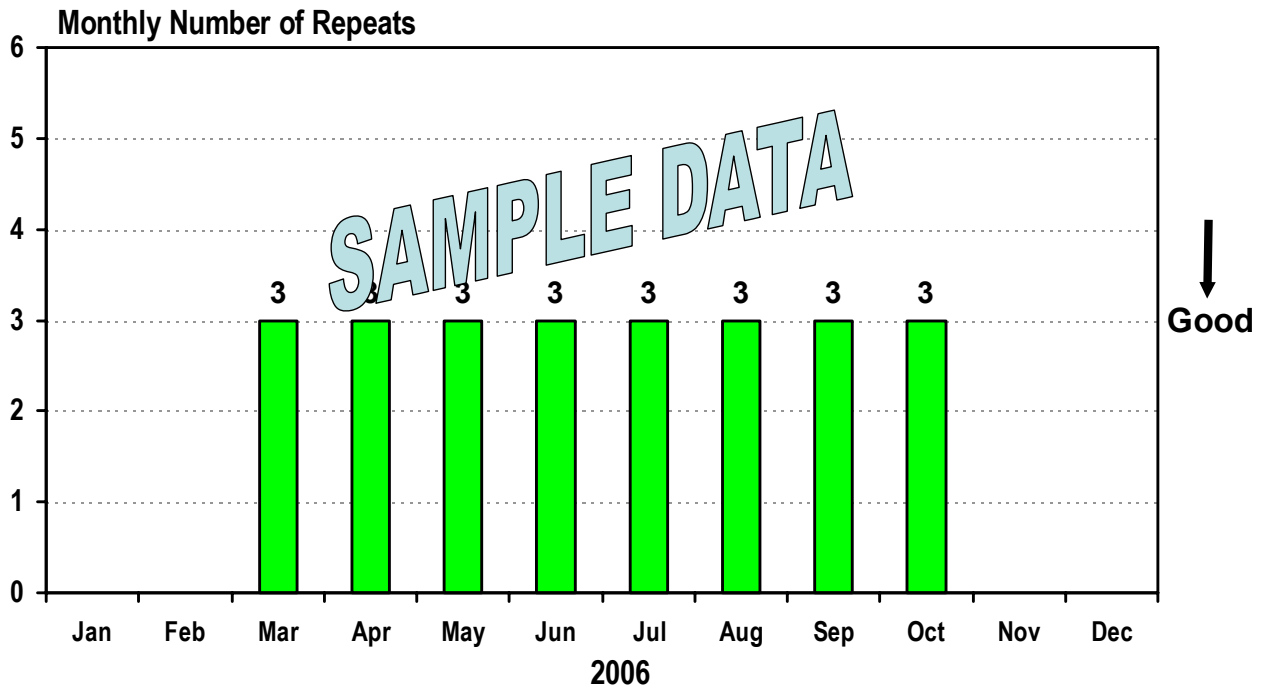
**Criteria:** Measures the number of significant events that repeat due to ineffective or untimely implementation of corrective actions to prevent recurrence, including those resulting from evaluations that were less than thorough.

**Data goal:** No more than 1 in a 2 year period. Metric goal is management directed.

**Data comes from:** Significant Condition Reports.

**Problem Identification and Resolution  
Cross-cutting Issue Closure Action Plan**

# Repeat Significant Events



# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

**Metric Description  
CAP Implementation**

**Refer to Action Item 1**

# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **Significant Condition Report CARB Grading**

**Criteria:** CARB's collective review of significant Condition Reports against grading criteria. This criteria includes:

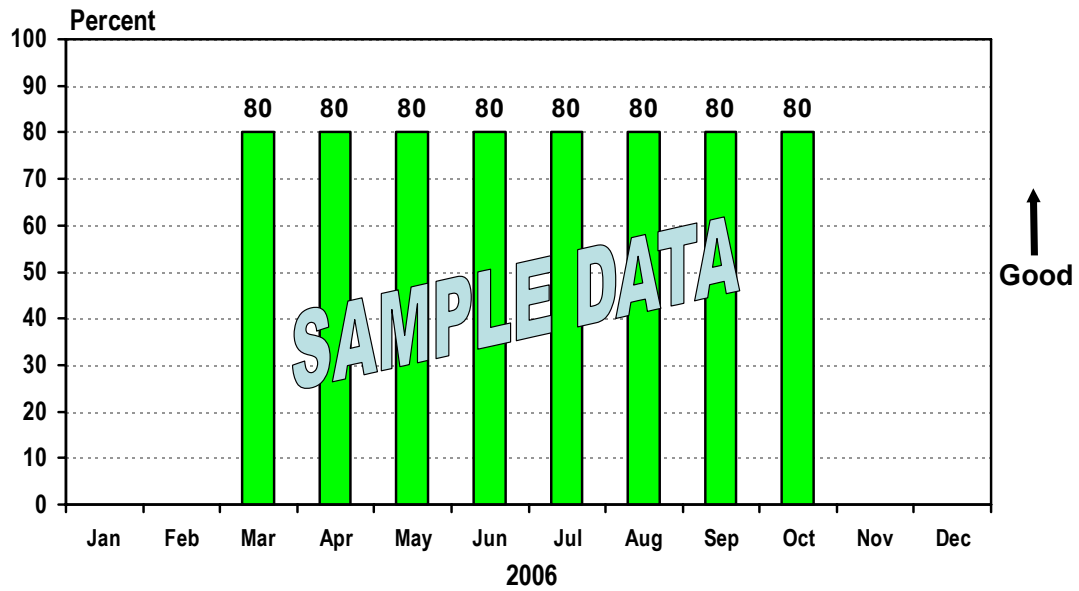
- Report – Clarity, Methodology, Timeliness
- Assessment Results – Breadth and Depth, Operating Experience Review, Interim Actions, and Timeliness
- Corrective Actions – Accuracy, Practicality, Ownership, Timeliness

**Data goal:** Significant Condition Report evaluations must receive a passing score prior to CARB approval. Metric tracks average score for the month. Metric goal is management directed.

**Data comes from:** Cumulative CARB review results

**Problem Identification and Resolution  
Cross-cutting Issue Closure Action Plan**

**Significant Condition Report  
CARB Grading**



# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **Condition Report Evaluation Timeliness**

#### **Pre-2006 and 2006 Condition Reports**

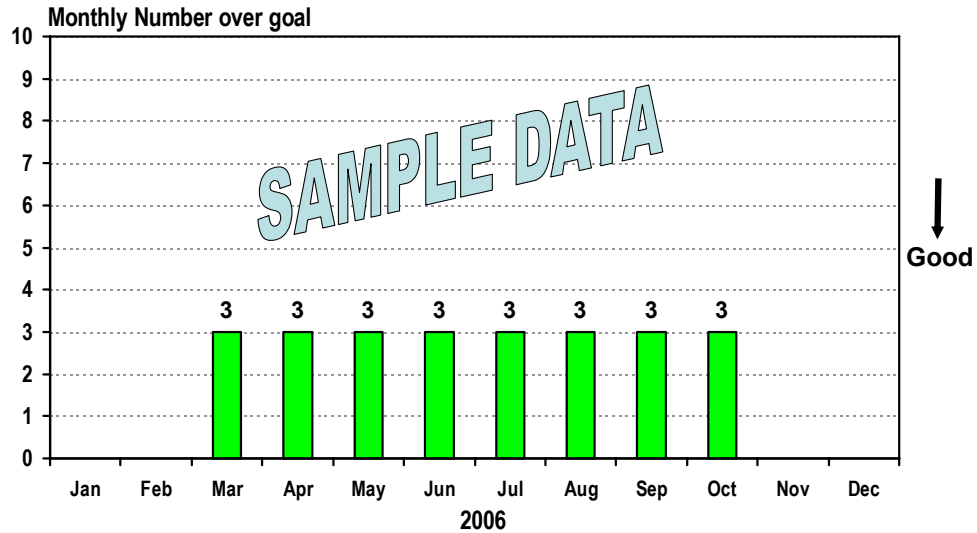
**Criteria:** Measures the number of Condition Report evaluations that exceed the established goal.

**Data goal:** Condition Report evaluation goal is 30 days.

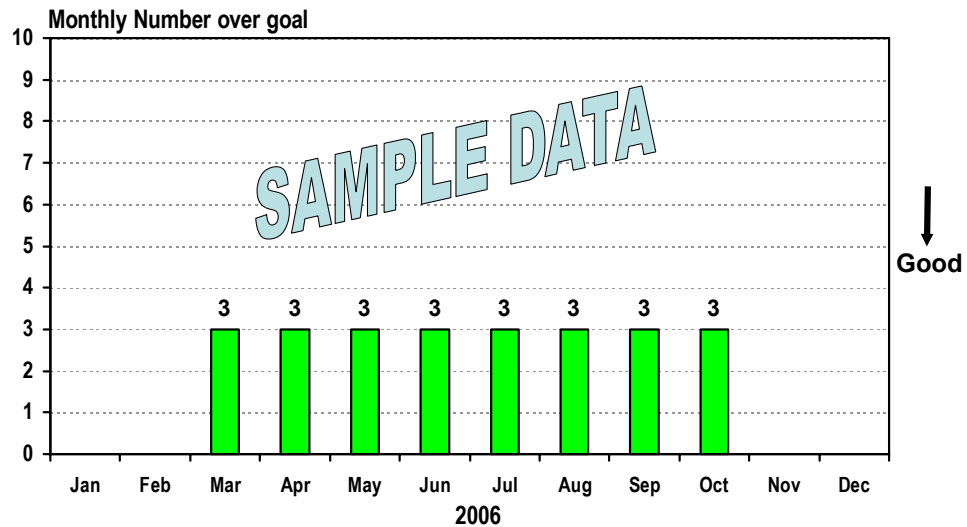
**Data comes from:** Condition Report database.

# Problem Identification and Resolution Cross-cutting Issue Closure Action Plan

## Condition Report Evaluation Timeliness Pre-2006 CRDRs



## Condition Report Evaluation Timeliness 2006 CRDRs



# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **Apparent Cause Evaluation Timeliness**

**Criteria:** Measures the average age of apparent cause Condition Report evaluations.

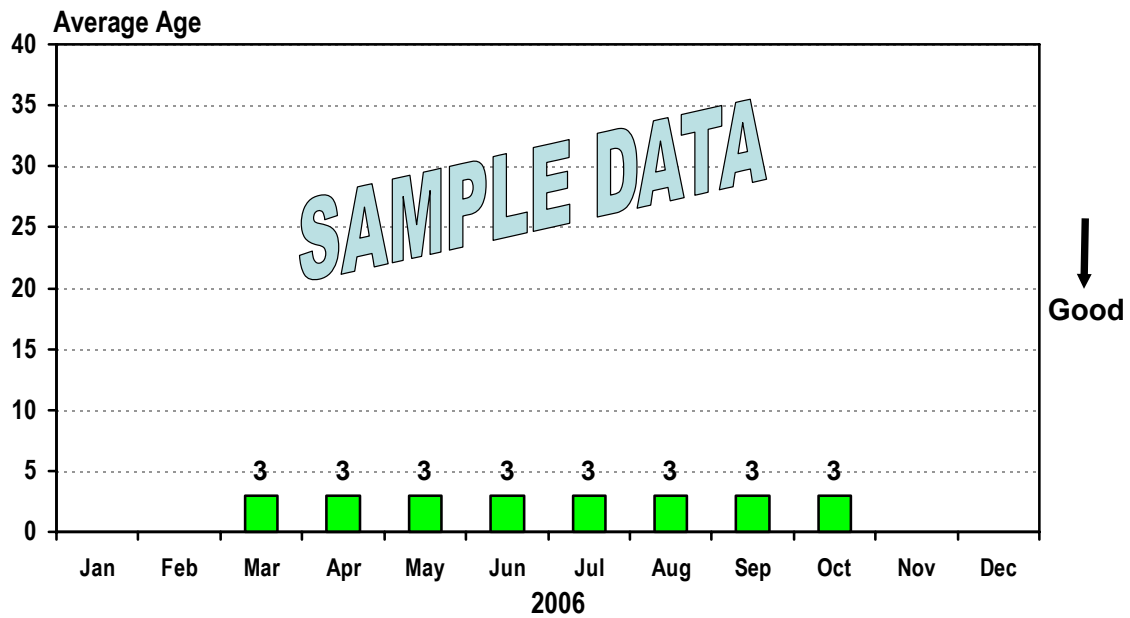
**Data goal:** Condition Report evaluation goal is 30 days.

**Data comes from:** Condition Report database.



# Problem Identification and Resolution Cross-cutting Issue Closure Action Plan

## Apparent Cause Evaluation Timeliness



# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **Significant Condition Report Evaluation Timeliness**

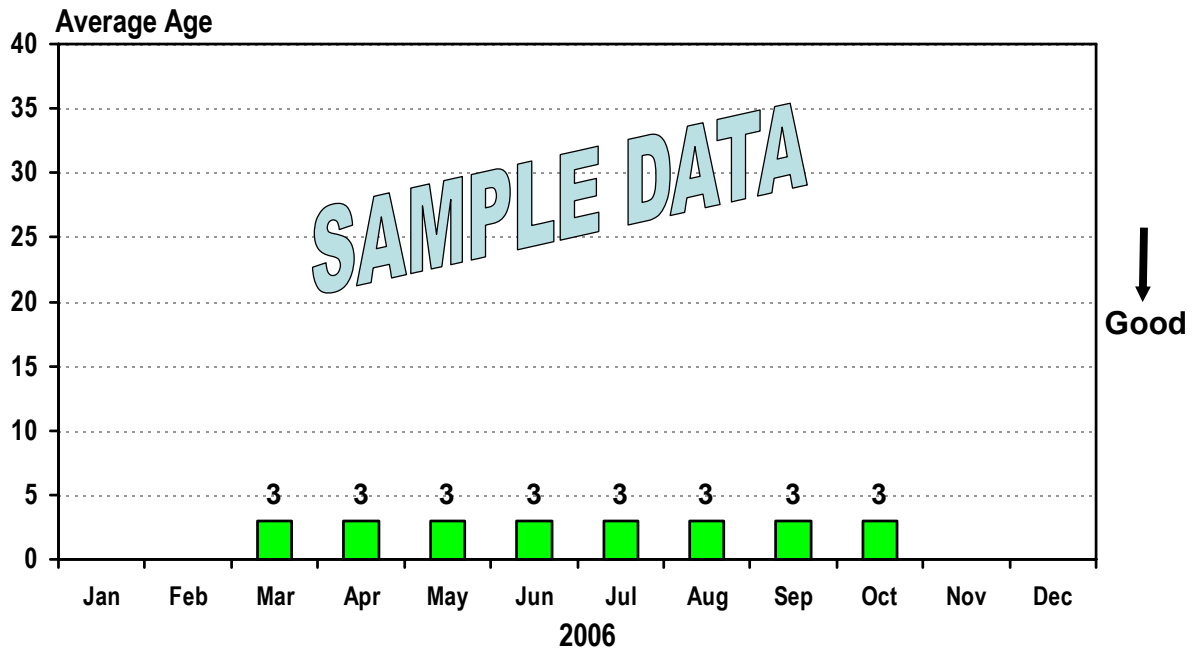
**Criteria:** Measures the average age of significant Condition Report evaluations.

**Data goal:** Condition Report evaluation goal is 30 days.

**Data comes from:** Condition Report database.

**Problem Identification and Resolution  
Cross-cutting Issue Closure Action Plan**

**Significant Condition Report  
Evaluation Timeliness**



# **Problem Identification and Resolution**

## **Cross-cutting Issue Closure Action Plan**

**Action Item 3:** Improve timeliness and quality of corrective action implementation

**Problem Statement:** Site goals for timely corrective action implementation have not been met. Corrective actions have not always effectively resolved adverse conditions.

**Action Plan Goal:** Establish leadership accountability for working to due dates and assuring that adverse conditions are adequately resolved.

**Actions Previously Taken:**

- (a) Developed a checklist to provide guidance and measure of standards in implementing the Condition Report process – initiation, evaluation, corrective actions, and closures.
- (b) Leaders were trained on the Condition Report quality standards.
- (c) A quality review is performed on a sample of closed Condition Reports.
- (d) The CARB provides feedback to leaders that inappropriately close Condition Reports without correcting the adverse condition.
- (e) Condition Report Action Items (CRAIs) are tracked by owner and due date. A report containing overdue CRAIs is routinely reviewed at Senior Management Team meetings, and CRAI owners are required to address status and additional actions to complete the CRAI.

**Current Status:** The CAP Metrics listed below indicate that this area needs improvement. Some actions have been implemented within the last 60 days. Additional time and monitoring are required to assure that the actions taken will have a long-lasting positive effect on CAP performance.

**Actions to be taken:**

- (a) Establish corrective action timeliness goals for 2007

**Metric Intent:** Measure timeliness and quality of corrective action implementation.

**Metrics:**

1. Condition Report Quality
2. Average age of corrective actions to prevent recurrence
3. Average age of corrective actions
4. CAP Implementation

**Effectiveness Review:** Perform a self-assessment on the effectiveness of Condition Report quality reviews and leadership accountability for due dates.

**Due Date:** Complete actions by 01/30/07

# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **Condition Report Quality**

**Criteria:** CAP Department reviews Condition Report closures for adequacy against established criteria. This criteria includes:

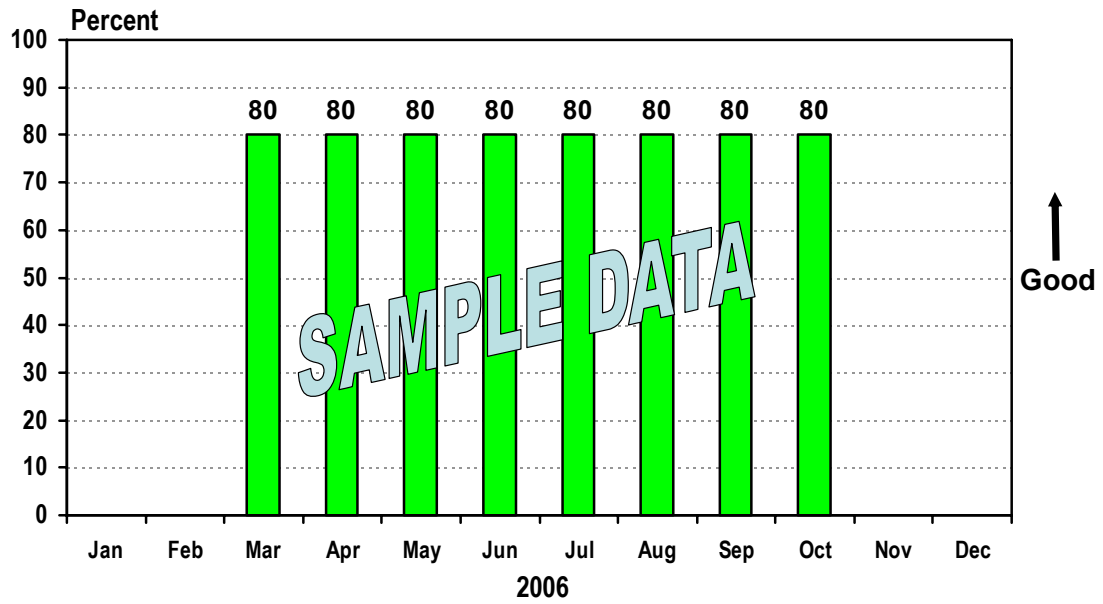
- Identification – Description accuracy and completeness
- Evaluation – Thoroughness, extent of condition, cause determination
- Corrective Actions – Clearly defined and address the condition, correct priority, appropriate closure documentation
- Timeliness – Notifications, Evaluation, Leader review

**Data goal:** Condition Reports must meet established quality criteria. Metric goal is management directed.

**Data comes from:** CAP Department Quality Reviews

**Problem Identification and Resolution  
Cross-cutting Issue Closure Action Plan**

**Condition Report Quality**



# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **Average Age of Corrective Actions to Prevent Recurrence**

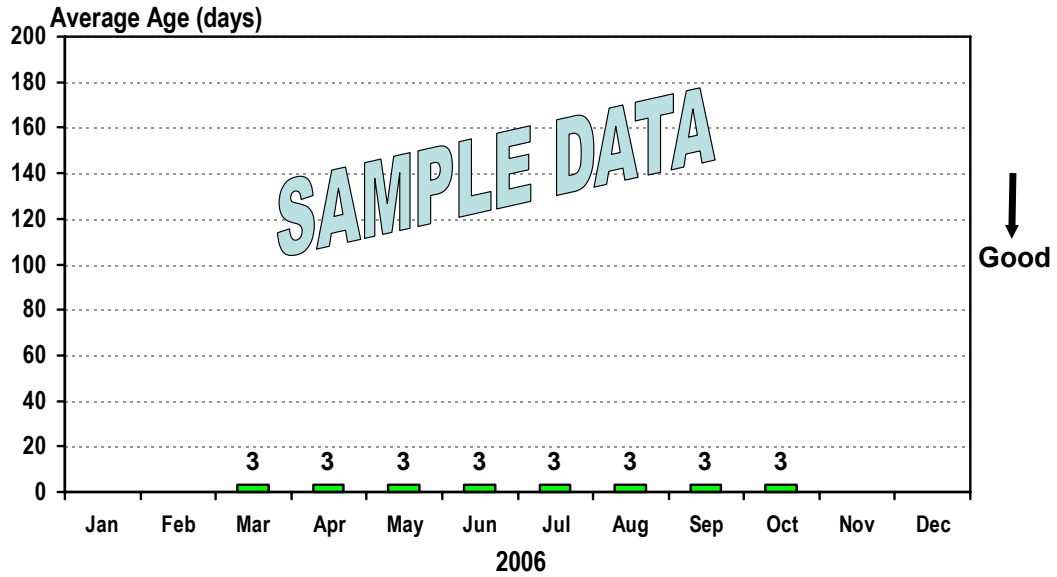
**Criteria:** Measures the average age of open corrective actions to prevent recurrence (excludes outage modifications).

**Data goal:** Average age less than 180 days.

**Data comes from:** Condition Report database.

# Problem Identification and Resolution Cross-cutting Issue Closure Action Plan

## Average Age of Corrective Actions to Prevent Recurrence





# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **Metric Description**

### **Average Age of Corrective Actions**

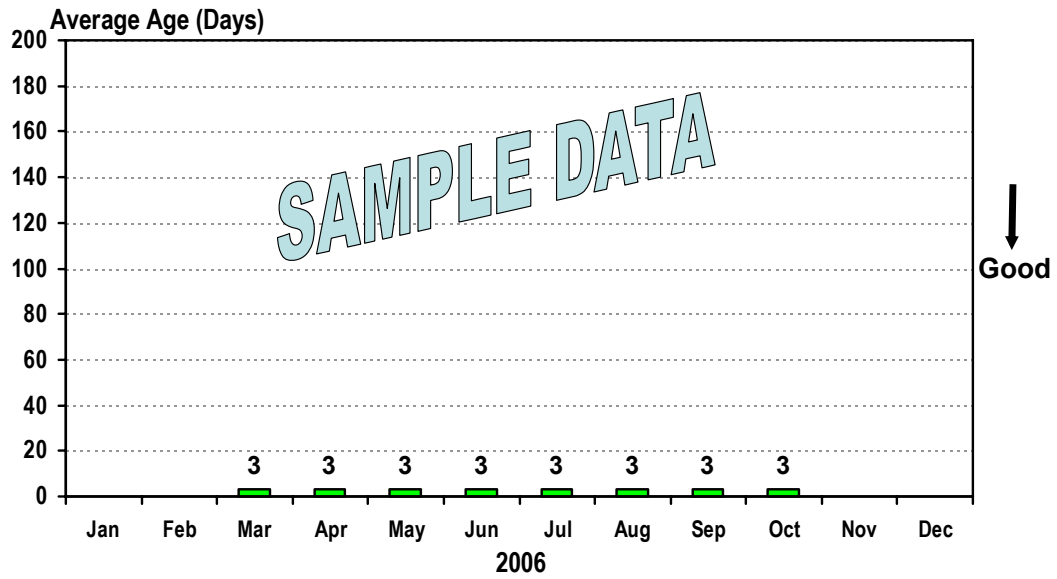
**Criteria:** Measures average age of open corrective actions (excludes outage modifications).

**Data goal:** Average age less than 180 days.

**Data comes from:** Condition Report database.

# Problem Identification and Resolution Cross-cutting Issue Closure Action Plan

## Average Age of Corrective Actions



# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

**Metric Description  
CAP Implementation**

**Refer to Action Item 1**

# **Problem Identification and Resolution Cross-cutting Issue Closure Action Plan**

## **PI&R Cross-cutting Issue Inspection Readiness Review**

Evaluate the readiness for a PI&R inspection. The criteria are:

- (a) Actions above are completed or progressing satisfactorily,
- (b) Metrics and data streams that supply them have been independently verified to accurately portray actual performance.
- (c) Metrics are either satisfactory or improving. Monitor and adjust actions will be taken for performance that is declining or not improving.

## **Actions to be Taken**

- (a) Develop effectiveness and inspection readiness plan.
- (b) Assemble a team to conduct a readiness review, which should include two industry peers.
- (c) Evaluate completed readiness review results and determine if additional actions are required.

**Metrics/Measures:** Closure of PI&R Cross-cutting Issue

**Due Date:** To be determined based on metric results.