

Jeffrey M. Helsel  
Nuclear Plant Manager

PPL Susquehanna, LLC  
769 Salem Boulevard  
Berwick, PA 18603  
Tel. 570.542.3510 Fax 570.542.1504  
jmhelsel@pplweb.com



April 3, 2013

U. S. Nuclear Regulatory Commission – Region I  
Attn: Regional Administrator  
2100 Renaissance Boulevard – Suite 100  
King of Prussia, PA 19406-2713

**SUSQUEHANNA STEAM ELECTRIC STATION  
RESPONSE TO NRC ANNUAL ASSESSMENT LETTER  
PLA-6989**

Docket Nos. 50-387  
50-388

REC RG 1 04 05 13 AM 11 05

- References:
- 1) Annual Assessment Letter for Susquehanna Steam Electric Station, Units 1 and 2 (Report 05000387/2012001 and 05000388/2012001), dated March 4, 2013.
  - 2) Annual Assessment Letter for Susquehanna Steam Electric Station, Units 1 and 2 (Report 05000387/2010001 and 05000388/2010001), dated March 4, 2011.
  - 3) Mid-Cycle Letter for Susquehanna Steam Electric Station, Units 1 and 2 (Report 05000387/2011006 and 05000388/2011006), dated September 1, 2011.
  - 4) Annual Assessment Letter for Susquehanna Steam Electric Station, Units 1 and 2 (Report 05000387/2011001 and 05000388/2011001), dated March 1, 2012.
  - 5) Susquehanna Steam Electric Station – NRC Problem Identification and Resolution Inspection Report 05000387/2012009 and 05000388/2012009, dated September 21, 2012.
  - 6) Susquehanna Steam Electric Station – NRC Integrated Inspection Report 05000387/2012005 and 05000388/2012005, dated February 13, 2013.

On March 4, 2013, the Nuclear Regulatory Commission (NRC) issued an Annual Assessment Letter to PPL Susquehanna, LLC (PPL) (Reference 1). This letter documented a continuing substantive cross-cutting issue in the Corrective Action Program (CAP) component of the Problem Identification and Resolution cross-cutting area related to P.1(c) – Evaluation of Identified Problems. The letter also requested PPL provide a letter by April 3, 2013 summarizing our corrective actions, trends in progress, and any adjustments made as a result of our internal reviews. The Attachment to this letter provides this requested information.

Should you have any questions regarding this submittal, please contact Mr. John Tripoli, Manager – Nuclear Regulatory Affairs at (570) 542-3100.

This submittal contains no new regulatory commitments.

Sincerely,



J. M. Helsel

Attachment – PPL Response to NRC Annual Assessment Letter

Copy: NRC Document Control Desk  
Mr. P. W. Finney, NRC Sr. Resident Inspector  
Mr. J. A. Whited, NRC Project Manager  
Mr. L. J. Winker, PA DEP/BRP

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**Attachment to PLA-6989**

**PPL Response to NRC Annual Assessment Letter**

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## **PPL Response to NRC Annual Assessment Letter**

### **Introduction:**

The NRC originally identified a P.1(c) theme in the 2010 Annual Assessment Letter (Reference 2) and a Substantive Cross-Cutting Issue (SCCI) in the 2011 Mid-Cycle Assessment Letter (Reference 3). In the Annual Assessment Letter for 2011 which was issued on March 1, 2012 (Reference 4), the NRC sustained this SCCI in part since there were six (6) findings with a PI&R cross-cutting aspect of P.1(c). Although the number of findings with a PI&R cross-cutting aspect of P.1(c) has been reduced and the current four (4) findings with a cross-cutting aspect of P.1(c) include three (3) findings involving pre-2012 corrective action program evaluations, PPL Susquehanna, LLC (PPL) understands this SCCI remaining open means we have gaps that must be closed.

To close the P.1(c) SCCI, we understand the following gaps must be addressed. First, PPL must achieve a notable reduction in the number of findings involving P.1(c) from the six identified in Reference 4. Second, PPL must ensure our monitoring of progress provides reliable metrics to demonstrate sustainable performance improvement. In addition, although not specifically mentioned in the most recent Annual Assessment Letter (Reference 1), we understand our third gap is timeliness. These three gaps are discussed in the next section of this response. This discussion includes actions taken or planned to address the gap, results achieved, and/or measures to demonstrate sustainability.

PPL has made adjustments and improvements since the SCCI was first identified. The NRC recognized these improvements during a comprehensive PI&R inspection in July 2012 (Reference 5) and a PI&R sample inspection in December of 2012 (Reference 6). We are not satisfied with our current performance and we understand that any improvements we make must be sustainable. We will continue improving corrective action program (CAP) evaluations using industry best practices gained through external and internal operating experience in conjunction with our corrective action process itself. We are confident this use of operating experience and our continued use of CAP to find, analyze, & implement sustainable improvements will close the remaining gaps. PPL is committed across the organization to closing this SCCI during the current assessment period.

**Discussion of Key Gaps to CAP Excellence:**

**Key Gap #1: No Notable Drop in the Number of Findings with a P.1(c) Cross-Cutting Aspect**

The most recent Annual Assessment letter indicates there were four P.1(c) findings at the end of cycle (Reference 1). Of those four findings, only one was associated with an evaluation performed in 2012. Two of the evaluations associated with the findings were performed in 2011 and one was performed 2010. These older evaluations provide some indication that P.1(c) cross cuts are not indicative of current licensee performance. However, as the most recent findings indicate, we can improve in equipment apparent cause evaluations (ACE) being performed by Station Engineering. Although these evaluations were not reviewed by the Corrective Action Review Board (CARB), we agree that they did not meet our expectations for CAP quality. We recognized this vulnerability in a Common Cause Evaluation performed by station personnel. Interim actions were put into place to improve apparent cause evaluations in the Station Engineering group and an industry proven equipment apparent cause technique will be in place in April 2013.

**Actions Taken/Planned to address the Key Gap:**

- As part of the interim actions for engineering apparent cause evaluations, we provided immediate coaching to the Engineering Managers that chair Department Corrective Action Review Boards (DCARBs) to ensure a consistent understanding between a corrective action to prevent recurrence (CAPR) and an action designed to reduce the likelihood of recurrence or the consequence of recurrence.
- Gap training was provided to ACE qualified personnel to ensure a consistent understanding between a corrective action to prevent recurrence, and an action designed to reduce the likelihood of recurrence or the consequence of recurrence and to ensure proper use of the analysis techniques. Training materials have been updated with the additional information.
- An equipment specific ACE technique has been drafted from an industry best practice procedure we identified through industry benchmarking. The technique is scheduled to be implemented in April 2013. The technique is more structured to ensure a sufficient depth to the analysis, but also easier to use thus reducing administrative burden and time to perform the analysis.
- On an interim basis, Equipment ACEs will have a CARB review to verify the new technique is being used correctly and the evaluation is of high quality.

**Results Achieved:**

- Station Level Indicator SL 52 which tracks the quality of CARB reviewed CR evaluations, has been White for the past 12 months with a 6 month rolling average of 89.4% for February 2013. In December of 2012 our rolling average was 88.5%.
- New USA Indicator for CAP RCE Quality approval rate for RCAs over the past 12 months has been calculated to be 100%. 14 RCAs were graded in that time period. This percentage is significant since the average number of RCAs in the industry is 7.
- New CARB USA Indicator for CAP ACE Quality approval rate for ACEs is measured in a three month rolling average. The 4<sup>th</sup> quarter 2012 approval rate was 64%. While in December, January, and February, the approval rate was 78%.
- We have not experienced a repeat event of a prevent recurrence action since October 2010. This is monitored through Station Level Indicator SL 90 (Repeat of Significant Events).
- Performance Indicator General Work Environment (GWE) 40 tracks effectiveness review results presented to CARB and as of February 2013 reports a 6 month rolling average of 87%. This is an improvement from our end of 4<sup>th</sup> quarter 2012 results which were at 83%.

**Metrics Used to Demonstrate Sustainability:**

- USA indicator for CAP RCE Quality
- USA indicator for CAP ACE Quality
- Station Level Indicator SL 90 - Repeat of Significant Events
- Station Level Indicator SL 52 - Quality of CARB Reviewed CR Evaluations
- General Work Environment (GWE) 40 - Effectiveness Review Results
- Work Group PIs (Engineering)
  - CAP 8 - Average Evaluation Score/Grade for DCARB L2 and L3 Cause CRs
  - CAP 13 - Average Evaluation Score for CARB

**Key Gap #2: PPL's Monitoring of its Progress did not Provide Reliable Information that would Demonstrate Sustainable Performance Improvement**

We recognize the uncertainty that was raised when we found we had not been properly including all of the data for two of our key performance indicators (Station Level Indicator 52 and GWE 40). We appreciate the need for the indicators to be the best indicators possible to measure our performance and that

those indicators must be accurate. We carefully reviewed the corrected data and overall the indicators still reflected a steady improvement in the quality of evaluations.

Our benchmarking indicated that we were not measuring CR evaluation quality in the same manner as the rest of the industry. We were focusing on CARB scores while the industry generally uses CARB Rejection Rate to measure CR evaluation quality. While we were tracking the rejection rate, we did not focus on that particular indication.

We are implementing a revised set of performance indicators in May 2013, commencing with April 2013 data. These indicators are consistent with the industry and were derived after performing industry benchmarking. These indicators are used by the Utility Service Alliance (USA) and have been referred to earlier in this letter as USA indicators.

While effectiveness review results can be used to help check for the quality of CR evaluations, the USA indicators for RCA and ACE quality along with the USA indicator for repeat events are better indicators for CR evaluation quality. As noted, often a CR is ineffective for reasons other than a poor evaluation. We have used the results of our effectiveness reviews to apply increased attention on performing actions as written, and we have seen better action item closeouts as a result of that effort. While not a USA indicator, we will still use CARB scores and DCARB scores as other indicators of evaluation quality. These indicators are also effective to identify which work groups may be having quality issues.

We will be monitoring all work groups. However, we will be paying particular attention to the quality of the evaluation products coming out of Station Engineering since the two most recent findings came from that work group. In addition, we are in the process of developing a CAP Dashboard that will more easily identify work groups that are not meeting standards

**Actions Taken/Planned to Address the Gap:**

- Data inaccuracies associated with the performance indicators noted in the end of cycle letter have been corrected. In addition changes have been made to the performance indicator updating to ensure no delays are experienced in accurately updating the indicators.
- CAP Performance Indicators are reviewed as part of a weekly Leadership led CAP Health review. Work groups are assigned one week out of the month to report out on their indicators. Once a month the station indicators are reviewed.
- We will be establishing a comprehensive set of performance indicators modeled on industry best practices to continue to monitor station progress and adjust our leadership attention where necessary in order to continue to

improve CAP quality and timeliness. These USA indicators will be implemented in May 2013.

- A CAP Dashboard Indicator is being developed to more easily identify which work groups are not meeting standards. This will be implemented in May 2013.

**Results Achieved:**

After it was discovered that two of our station level indicators (Station Level Indicator SL 52 and GWE 40) were not calculated correctly, we revised our data and found that our overall effective review performance indicator (GWE 40) was lower than expected. However, our SL 52 indicator for quality of CARB reviewed CR evaluations remained approximately the same.

**Metrics Used to Demonstrate Sustainability:**

See Key Gap #1 and #3.

**Key Gap #3: The Timeliness of CR Evaluations, particularly Cause Analysis Evaluations, Continues to Lag Program and Industry Standards.**

Our emphasis on improving the quality of the evaluations has resulted in an unintended consequence of lengthening the evaluation times. The station implemented cross functional Department Corrective Action Review Boards (DCARBs). These DCARBs have helped to further improve the quality of the evaluations. They have also been a valuable tool to help establish a more consistent understanding of what constitutes a high quality evaluation.

Also a factor in timeliness is our large volume of low risk evaluations. Benchmark information indicates that Susquehanna performs significantly more evaluations than other stations. One reason for the extra evaluations is the lack of information available when the Condition Report goes through the risk screening process. The Screening Team tends to default in the conservative direction and require a Level 3 evaluation in the absence of the needed information. With more immediate investigation when the issue first arises, there can be a better understanding of the real risk and what needs to be done to address the situation. Actions are underway to obtain additional information from the initiator or supervisor reviewing the condition report.

The largest contributor to the untimely Cause Evaluations has been associated with Equipment Apparent Cause Evaluations (ACE). Adopting an industry best analysis technique should result in obtaining high quality evaluations in much less time.

Through a review of our performance indicators, we identified a degrading trend in the timeliness of evaluations being performed by Operations. This has been due to the large increase in the number of CR evaluations they have had to perform over the last several months. Performance Improvement has loaned their RCA analyst to help out Operations on a temporary basis. Nuclear Regulatory Affairs has also loaned an individual to help Operations out with completing evaluations.

As a result of our station performance indicator going Red (SL 97 - RSL 1 Condition Report Average Age) in mid-2012, our corrective action department evaluated the underlying causes leading to longer than desired time to complete RCAs. We realized there was a significant amount of time lost during the process to staff RCA teams. Through this evaluation, it was decided to establish a designated group of people to be team leads and team analysts. These individuals have been identified, trained and qualified. The first root cause under the new process was conducted in November 2012.

We will also be instituting weekly indicators on an interim basis to measure some key areas that require timely feedback to help focus our efforts. The weekly indicators will also provide more opportunity for the indicator results to be challenged by senior management. This will better enable us to more quickly draw attention to areas needing increased accountability and coaching.

**Actions Taken/Planned to Address the Key Gap:**

- A dedicated group of individuals were trained and qualified to be available to serve as Team Leads and Team Analysts to enable quicker team assignments and more proficient personnel. Our goal is to complete the RCA evaluations within 30 days of assignment from MRC.
- A CAP Stand Down was held on March 27, 2013 for all Susquehanna personnel. This Stand down emphasized the importance of identifying issues at low levels and entering those issues in CAP. It also emphasized the need to provide as much information as possible to support the operability determinations and risk level screenings. Coaching, reinforcement and the use of Observation Way will be emphasized to help ensure we get the desired results. Our goal is to have sufficient information to properly screen the CR the first time screening reviews it. We will monitor CR Holds and CR's amended back to determine how well we are doing.
- We will be developing a set of weekly PIs to ensure we can identify adverse performance trends earlier. These weekly indicators are listed below and will be developed in April 2013. The indicators will remain in effect until we meet our program and industry standards.

**Results Achieved:**

The Six Month Average Age of RCA evaluations decreased from 106 days in November 2012 to 51 days by February 2013.

**Metrics Used to Demonstrate Sustainability:**

- Station Level Indicator SL 97 – RSL 1 Condition Report Average Age
- Station Level Indicator SL 50 – RSL 2 & 3 Condition Report Average Age

The above indicators will be replaced in May 2013 by the following USA Indicators:

- Upper Level CAP Evaluation Timeliness
- Upper Level Action Timeliness
- Next Level Action Timeliness

**Interim Weekly Indicators:**

- Number of RSL1, 2, 3, and 4 Correct CR's generated for the week.
- RSL1, 2, 3, and 4 Open Action Items
- Number of Open CR Evaluations - By Station and by Work Group
- Number of Open CR Evaluations that have been extended - By Station and by Work Group

**Summary:**

PPL has made adjustments and improvements since the substantive cross-cutting issue (SCCI) was first identified in 2010. The NRC recognized the improvement during the biennial Problem Identification and Resolution (PI&R) inspection in July 2012 and a PI&R sample inspection in December of 2012. Our own results indicate that our RCA quality has significantly improved.

However, we understand gaps remain and these must be closed. The key gap for a notable reduction in the number of findings is centered on improving equipment apparent cause evaluations. Implementation of an industry best technique for performing such evaluations will close this gap.

To sustain improvement, we agree that we must have performance indicators with reliable information. We are committed to sustaining the Corrective Action Program evaluation improvements using performance monitoring consistent with the industry standards. Ensuring our performance indicator data is reliable and augmenting our performance indicators with the USA indicators will close this gap.

We believe in continuous improvement and we will continue improving CAP evaluations by factoring in our experience as well as input derived from NRC and industry interactions. High standards are important and we will continue rigorous reviews in DCARB and CARB.

This SCCI has been open for four consecutive assessment periods. Our performance has not been acceptable and particularly in an area we believe to be a valued core business. We have redoubled our efforts and PPL is committed across the organization to closing this SCCI during the current assessment period.