Facility Operations

Targeted Self-Assessment

Quarterly Report on Trends in PNNL Occurrences
and
Performance Analysis of Operations Information
(4th Qtr, FY'04)

November 17, 2004

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Executive Summary:

PNNL reportable occurrence activity for the fourth quarter of FY 2004 was below the historical average of 8.25 occurrences per quarter. There were just 4 occurrences, spread evenly through the quarter, with one extra in September. The average for post re-engineered ORPS is less than 7 per quarter.

The control chart in this report (Figure 1) shows no adverse statistical trends in reportable occurrences from this quarter.

Of the four reports, three were management concerns at SC-3 and one was an SC-4 for a shoe contamination event at RPL.

An apparent cause graph was added for this report. While it does show the various causes assigned to this years 27 occurrences (post "re-engineered" ORPS), the four quarters data does not provide any insights into emerging trends.

As might be expected with the low occurrence report count, the PNNL "occurrences per 200,000 man-hours" chart (Figure 5) shows a below average rate of 0.4 occurrences per 200,000 man-hours (compounded by not only the drop in occurrences, but also by a 5% increase in total man-hours) versus the average of 1.0. When comparing our average occurrence per 200,000 man-hours to the other DOE National Laboratories (Figure 6), PNNL ranks average (see comment on Figure 6).

Final occurrence report submittals met all requirements this quarter with nine final reports submitted to ORPS.

Performance Assessment:

The DOE occurrence reporting manual M 231.1-2 requires assessment of reportable and non-reportable events for recurring trends. This assessment found no trends or issues to elevate for potential categorization as SC-R occurrences (Figure 7).

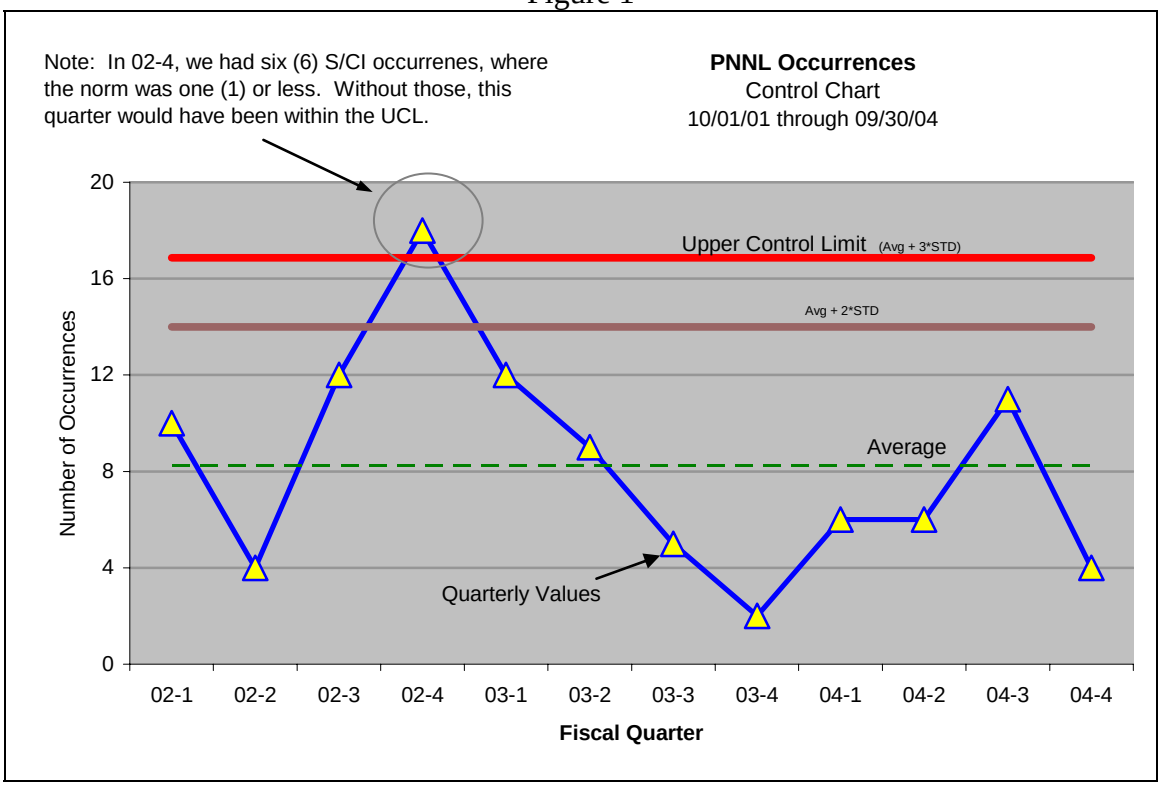
This quarter's review focused on reportable and non-reportable data from ORPS, CAIRS, QPRs, RPRs, and 2400 Reports*.

* ORPS = DOE's Occurrence Reporting & Processing System
CAIRS = DOE's Computerized Accident/Incident Reporting System
QPR = Quality Problem Report
RPR = Radiological Problem Report
2400 Reports = Notifications to PNNL Single Point of Contact

Scope:

The Event Reporting Program Description establishes the minimum scope for this assessment, requiring that "the data include quarterly trends relative to category, nature of occurrence, and root cause." This assessment provides these conclusions through (Figure 1) a quarterly Control Chart of total reportable occurrences tabulated by quarter, (Figure 2) Significance Category, (Figure 3) Criteria Group totals, (Figure 4) Apparent Causes assigned, (Figure 5) PNNL Occurrences normalized to 200,000 man-hours, and (Figure 6) a CY comparison against seven other DOE National Laboratories.

Figure 1



The performance analysis portion of this report looks at a larger cross section of facility, safety and environmental issues by combining CAIRS, QPR, RPR and 2400 Report data for analysis. A control chart summarizing the results from this analysis is presented in Figure 7. There were no trends or "recurring" issues warranting reporting as a Significance Category R (SC-R) occurrence.

Assessment Category:

Event Reporting

Performance Objectives:

Identify and analyze trends in selected occurrence data and provide results to appropriate organizations and management, including the Price-Anderson Working Group.

Results:

Figure 1 is a control chart of total occurrences by quarter that is used to determine if a "statistically significant" trend has developed that requires management's attention. In Figure 1, the number of occurrences in the third quarter of FY 2004 was above the average (8.64) with 11 total occurrences. The Figure 1 control chart does not identify any statistically significant trend (e.g., above the Upper Control Limit) for the quarter.

Occurrences during the fourth quarter (7/1/04 - 9/30/04):

- BOPER-2004-0012 Non-Energized 480 Volt, 3 Phase Circuit in PVC Conduit was Encountered During Excavation Activities (EMSL)
- BOPER-2004-0013 Worker Severs De-energized Electrical Conduit (Sequim)
- BOPER-2004-0014 Management Concern Identified Regarding Installation and Commissioning of Compressed Gas Systems (PSL)
- NUCL-2004-0007 Shoe Contamination at the Radiochemical Processing Laboratory (RPL)

Figure 2, provides a representation of occurrences relative to significance categories.

Figure 2

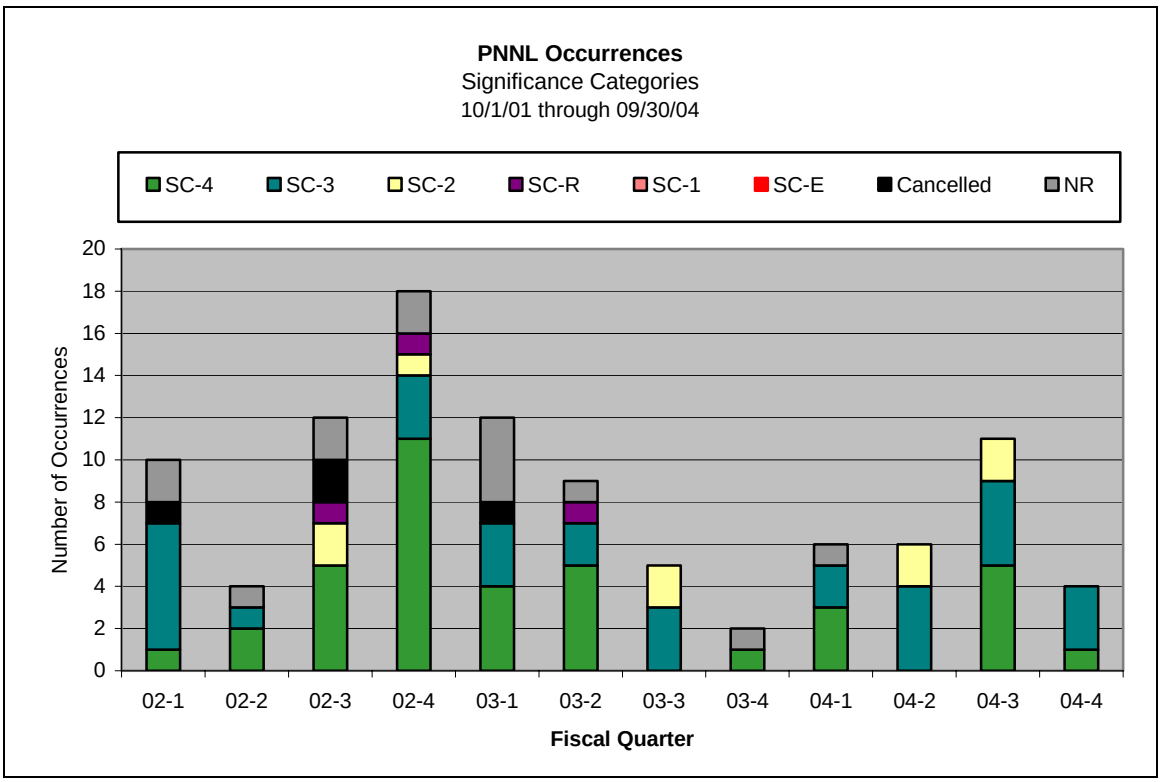


Figure 2 shows the breakdown of significance categories by quarter. The leading category is now SC-3 level events; at 48% of the reportable FY 2004 occurrences. Figure 2 also includes past occurrences (before 11/3/03) which were backfit to the new criteria and significance categories. NR defines occurrences that would have been categorized as Not Reportable after November 3, 2003. As a percent of total, the various significance categories rank as follows for just FY 2004: SC-4 = 33%, SC-3 = 48%, SC-2 = 15%, SC-1 = 0% and NR = 4%. This percent of total isn't too far off from what DOE predicted for the average contractor when performing back-fit analysis last year. They predicted SC-4 = 45%, SC-3 = 36%, SC-2 = 16% and SC-1 = 3%.

In Figure 3 the occurrences are graphed according to their criteria groups. The NR's noted above are included as an element of the bar chart to show the total reporting for past quarters, and as a yellow background area to show their quarterly values separately and distinctly.

Figure 3

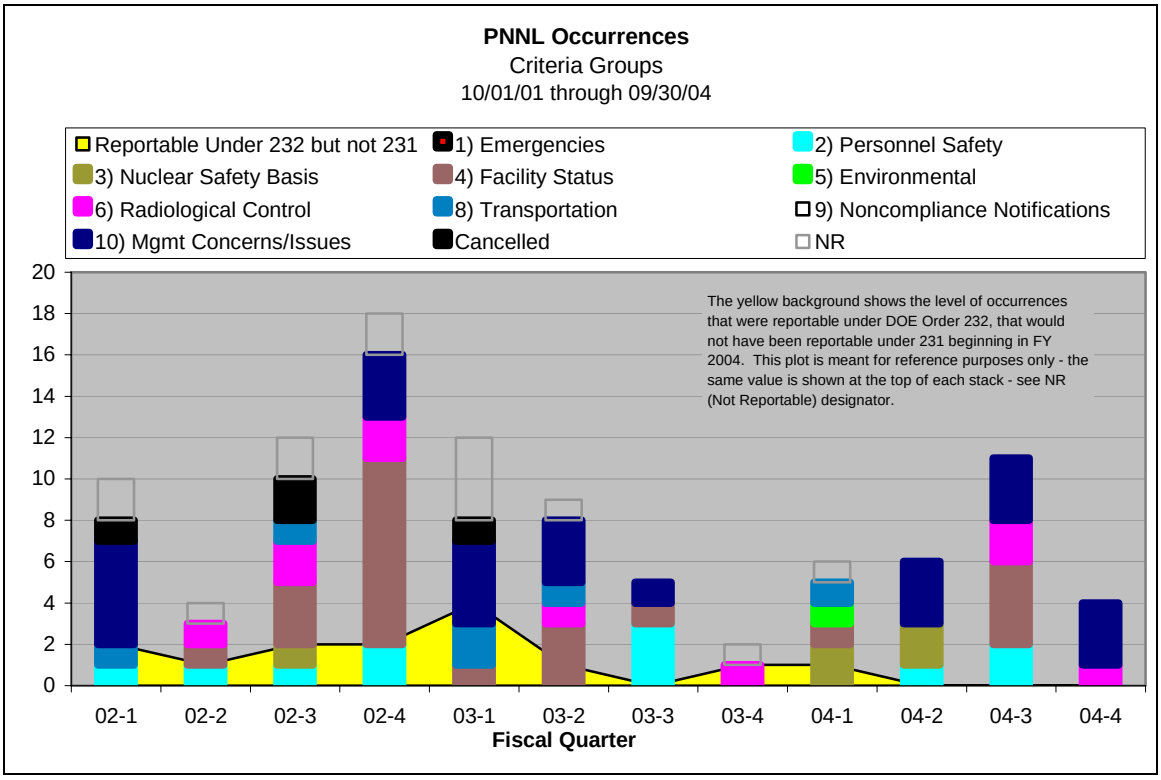
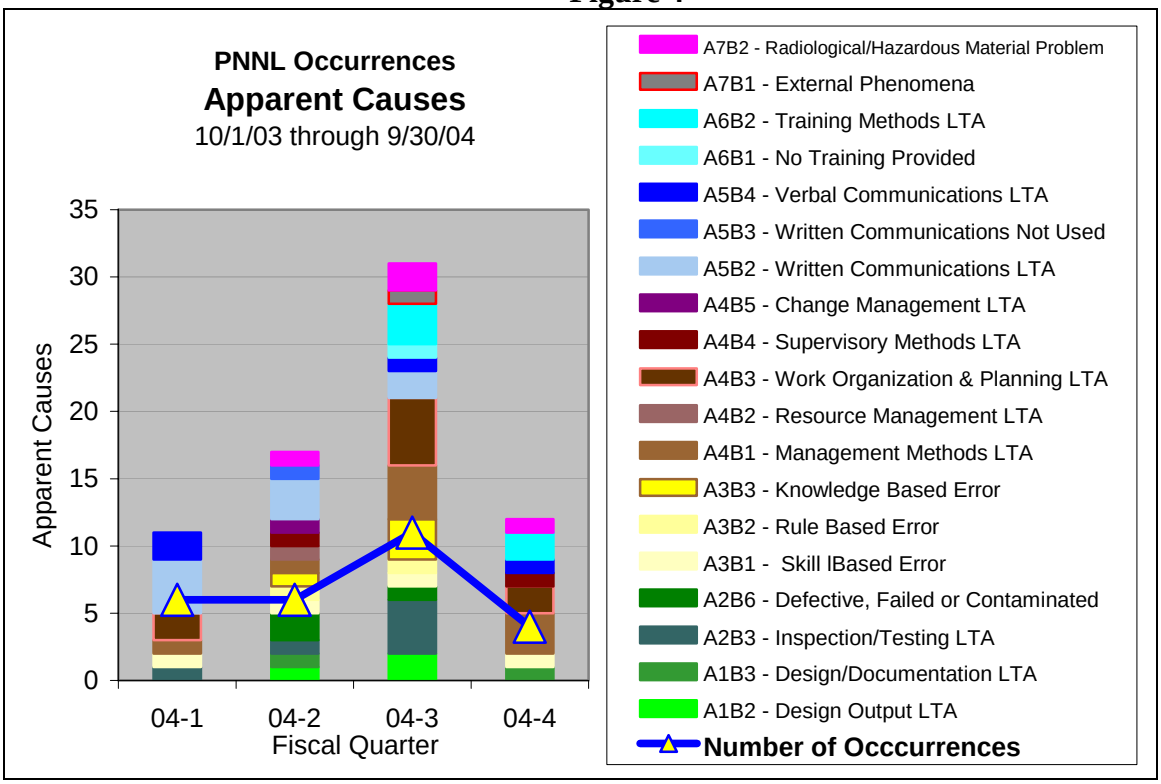


Figure 4 represents the total PNNL occurrences by apparent cause code.

As has been discussed in the past, there are 166 "apparent cause" codes in DOE G 232.1-2; as compared to just 34 in the old occurrence reporting order. Consequently, it is impractical to try and convert (back-fit) a couple years worth of data against which some analysis of like codes could be performed; therefore, we have elected to simply start reporting the raw numbers beginning with this fiscal year and comment on them as they accumulate and reveal any notable trends. For now, the most remarkable piece of information is that each report appears to be average two to three cause codes a piece; but even that's a little deceiving since a third of our reports are SC-4 events that limited causal analysis performed (as reported in the critique minutes).

Figure 4



Next, in Figure 5, the number of occurrences per 200,000 man-hours worked are shown.

The number of occurrences remains low, averaging just 1.0 occurrence per quarter (for the past 3 years) and only 0.4 for the last quarter.

Figure 5

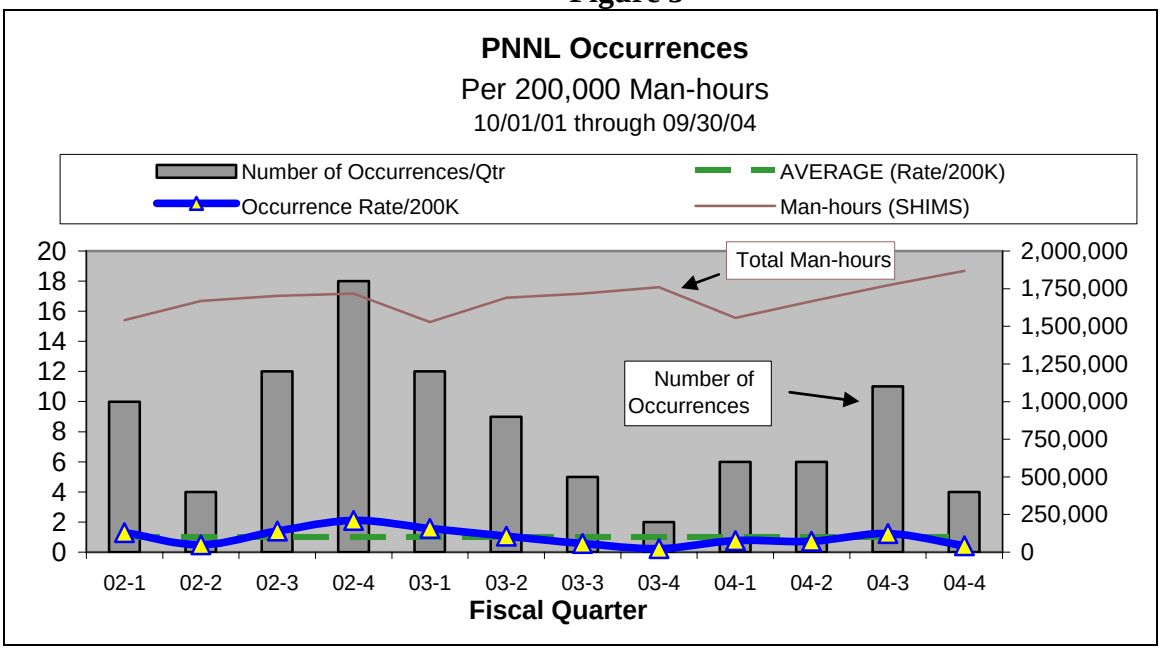
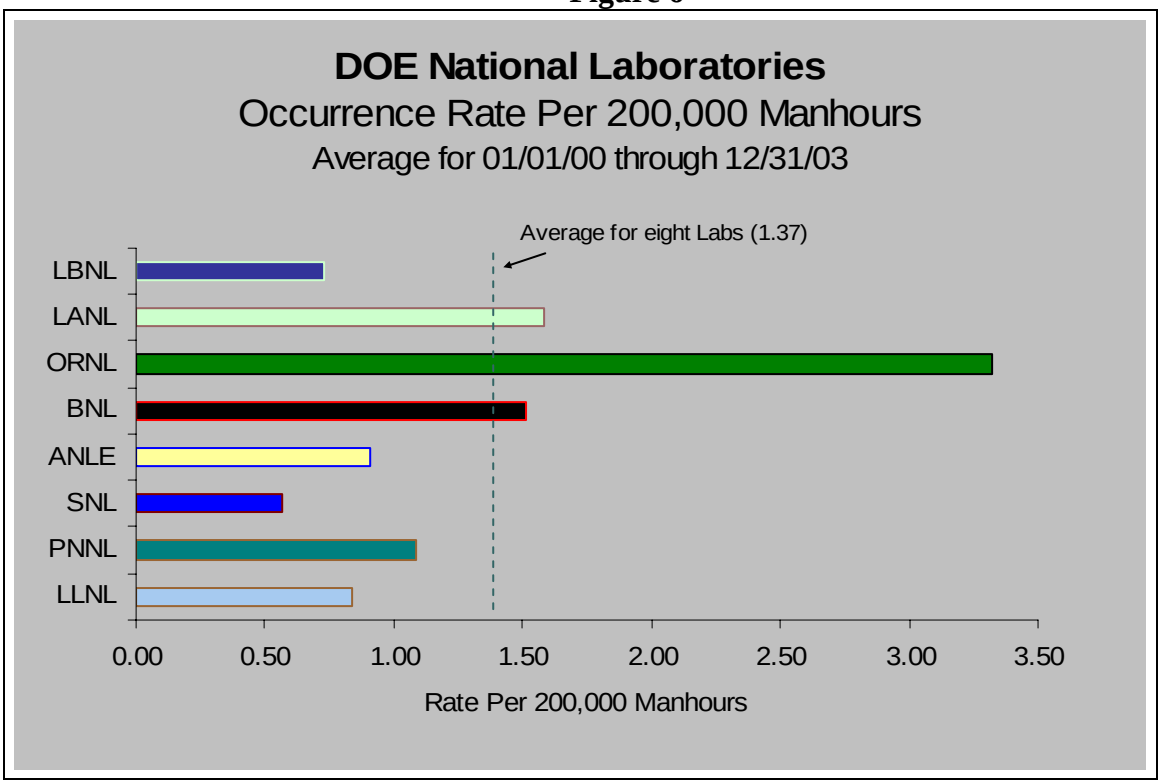


Figure 6 compares our occurrence incident rate per 200,000 man-hours to other DOE National Laboratories.

PNNL rates below “average" in this data comparison (note that it covers a different 3 year period than the previous chart). Three of the Labs have higher occurrence rates (BNL, ORNL and LANL) and four have lower (ANL-E, LBNL, LLNL and SNL). PNNL’s average for this 3 year period was 1.09.

Figure 6



In addition to the above, the workbook used to generate these graphs also includes worksheets depicting occurrence rates per Directorate and by Core facilities. Facilities & Operations and the Environmental Technology Directorates are the leading organizations, and most occurrences are reported in our one nuclear facility (RPL) and other Government Core facilities, followed by the Private and User facilities.

Performance Analysis:

DOE M 231.1-2, paragraph 5.8, Performance Analysis and Identification of Recurring Occurrences, states, "Each contractor...must perform ongoing, but as a minimum quarterly, analyses of events during a 12-month period to look for trends. This periodic performance analysis must evaluate occurrences of all significance categories plus contractor-/operator-determined non-reportable events in order to prevent serious events from occurring. Quarterly performance analysis results must be reported to contractor and DOE line management in order to achieve improvements."

This analysis and trending evaluated incidents categorized as reportable through ORPS and non-reportable incidents such as calls to the PNNL single point of contact (375-2400), CAIRS reports, QPRs and RPRs. An Excel database has been developed to assist in the analysis. The Workbook is available to the reader at \\Pnl20\public_access\ONE\04-4 Perf Analysis.xls. The file contains a control chart (reproduced below), and various worksheets and charts included under tabs titles: Criteria, Criteria_Subgroups, Bldg-Criteria, Criteria-Bldg, Report_Type (which includes control charts for each of the report types), Bldg-Report_Type, Report_Type-Bldg. The purpose of the permutations is to afford the reviewer with looks at the report types summarized by building or the buildings summarized by report types, and so on. The control charts are included to show that the data is statistically measured for significance.

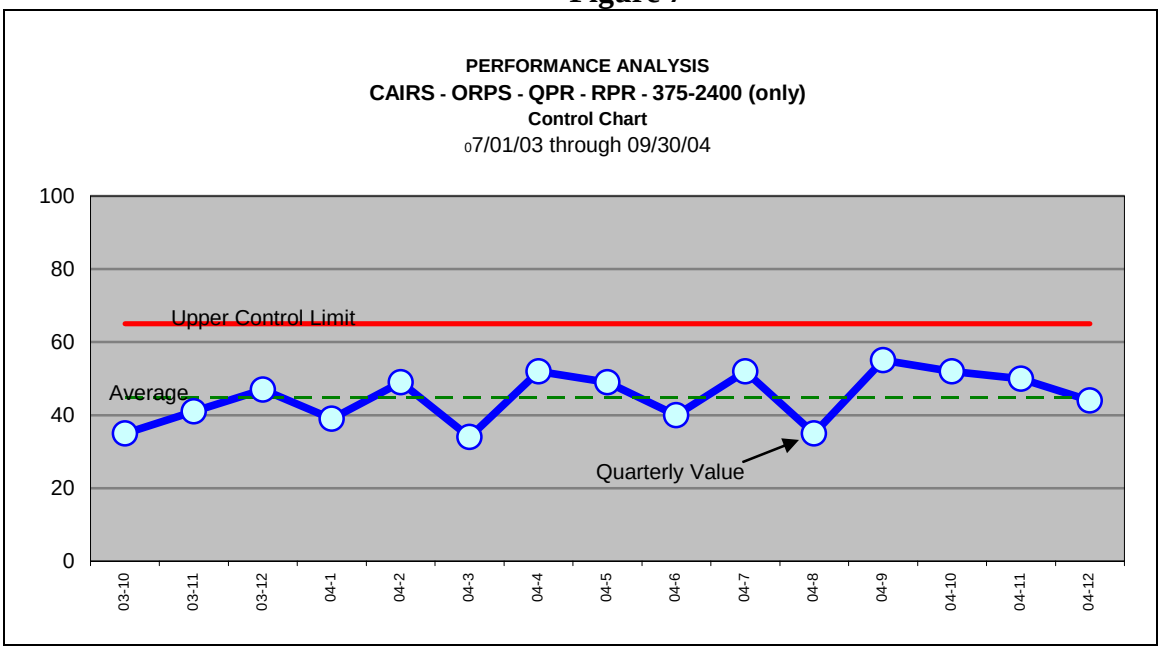
During the past 15 months there have been 28 ORPS reports (occurrences), 52 CAIRS reports, 67 QPRs, 133 RPRs, and 394 other calls that did not merit reporting through one of those four reporting systems. ORPS reports included 7 RPRs, 6 QPRs, and 3 CAIRS reports.

Note: The Trend report analyzes reportable occurrence data from 10/01/01 through 09/30/04. The Performance Analysis; however, covers all reportable and non-reportable events for just the prior 15 month period ending 09/30/04.

Figure 7 represents the Performance Analysis and Trending Report Control Chart.

This control chart indicates that there are no statistically significant or noteworthy trends in these data streams suggesting further management consideration for SC-R categorization. As noted above, the analysis included review of each subgroup (ORPS, CAIRS, QPR, RPR and 2400 Reports), to see if any of the report_types individually or collectively produced any trends of concern and none were found.

Figure 7



Conditions: None

Assessment Rating:

Select	Rating Criteria	Rating
X	Performance in the assessment category generally meets or exceeds requirements and performance expectations. May have deficiencies.	**Green**
	Serious deficiencies (compliance and performance) exist.	**Yellow**
	Significant improvement is required.	**Yellow**
	Immediate action is required to mitigate hazards and/or to protect the environment and safety and health.	**Red**
	Significant programmatic breakdowns exist.	**Red**