

Quality Services Division

Oak Ridge National Laboratory Occurrence Reporting & Processing System (ORPS) Quarterly Performance Analysis and Summary

Fourth Quarter, FY 2004

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1.0 SUMMARY

The Occurrence Reporting and Processing System (ORPS) Program is intended to ensure the timely collection, reporting, analysis and dissemination of information concerning environmental, safety and health issues. The purpose is to ensure the Department of Energy (DOE) is informed of events that could adversely affect the health and safety of the public or workers, the environment, the intended purpose of DOE facilities, or the credibility of DOE. This summary report includes the set of occurrence reports filed by ORNL since the implementation of the DOE Occurrence Reporting and Processing System (ORPS) redesign. The redesigned ORPS criteria set was implemented at ORNL on November 1, 2003.

As indicated in Fig. 1, we have seen a continued shift in the types of occurrences submitted to the DOE Occurrence Reporting and Processing System (ORPS) during FY 2004. Occurrences meeting the reporting criteria of Near Misses and Potential Concerns represent 10% of the reported occurrences. These two criteria are most encompassing for lower-level issues that, in many cases, have no actual adverse result, yet present situations where staff discerned a need for additional analysis because of potential impacts. In contrast, the Near Miss/Potential Concerns criteria set represented 31% during FY 2003. Facility Status and Condition issues represent 24% of the reports, Personnel Safety is 10%, Contamination is 34%, and Management Concerns/Issues represent 16% of the reported occurrences. During the eleven-month period, we experienced only one personnel radiation protection occurrence, which is 1% of the reported occurrences.

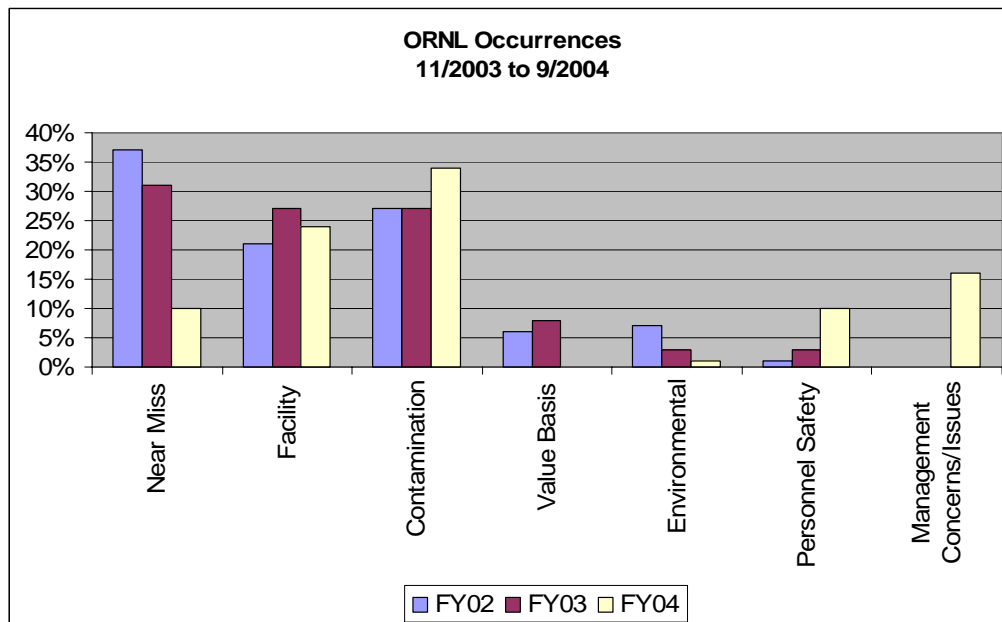


Fig. 1: ORNL Occurrences

The view of our occurrence report set based upon the Occurrence Reporting Categories indicates that during the last eleven months most of our reports were identified at the bottom end of DOE's significance scale. Taken together, the two lowest occurrence categories (3 and 4)

comprise 84% of the total reports for this time period. Category 4 represents 66% of all occurrence reports. This fact, along with other information provided in the balance of this report, indicates that the training and support provided to Laboratory personnel, associated with the occurrence reporting function has been effective in conveying the need to report at the lowest levels of the established ORPS criteria thresholds.

2.0 INTRODUCTION

The Occurrence Reporting and Processing System (ORPS) Program is intended to ensure the timely collection, reporting, analysis, and dissemination of information on environment, safety, and health issues. The purpose is to ensure the Department of Energy (DOE) is informed of events that could adversely affect the health and safety of the public or workers, the environment, the intended purpose of DOE facilities or the credibility of DOE. The ORPS Quarterly Performance Analysis and Summary provides an analysis of issues to identify possible recurring program deficiencies and describes ORPS program activities.

3.0 PERFORMANCE ANALYSIS

The following analysis provides a summary of the issues reviewed for the fourth quarter of FY 2004 (10/2003 to 09/2004), including a summary of the documents reviewed and a trend analysis. The summary report includes the set of occurrence reports filed by ORNL since the implementation of the DOE Occurrence Reporting and Processing System (ORPS) redesign. The redesigned ORPS criteria set was implemented at ORNL on November 1, 2003.

3.1 TOTAL ORNL REPORTED OCCURRENCES

A number of factors have coalesced to demonstrate the strong emphasis and endorsement by UT-Battelle management for an open problem-reporting environment. Positive results have included a strengthening of Laboratory-wide self-assessment efforts, increased participation by staff at all levels in the problem identification and causal analysis processes, a reduction in the number of issues discovered through self-disclosed events, and a commensurate increase in those found through assessment activities. Through the dedication of safety awareness programs, we have observed a slight reduction in occurrences as demonstrated in Fig. 1. The chart in Fig. 2 shows the total number of occurrences since January 2002, which displays a negative trend. The significant increase of occurrences in June 2004 was due to legacy contamination and Notice of Violations. The significant increase of occurrences in August 2004 was due to legacy contamination and determination of a positive unreviewed safety question (USO).

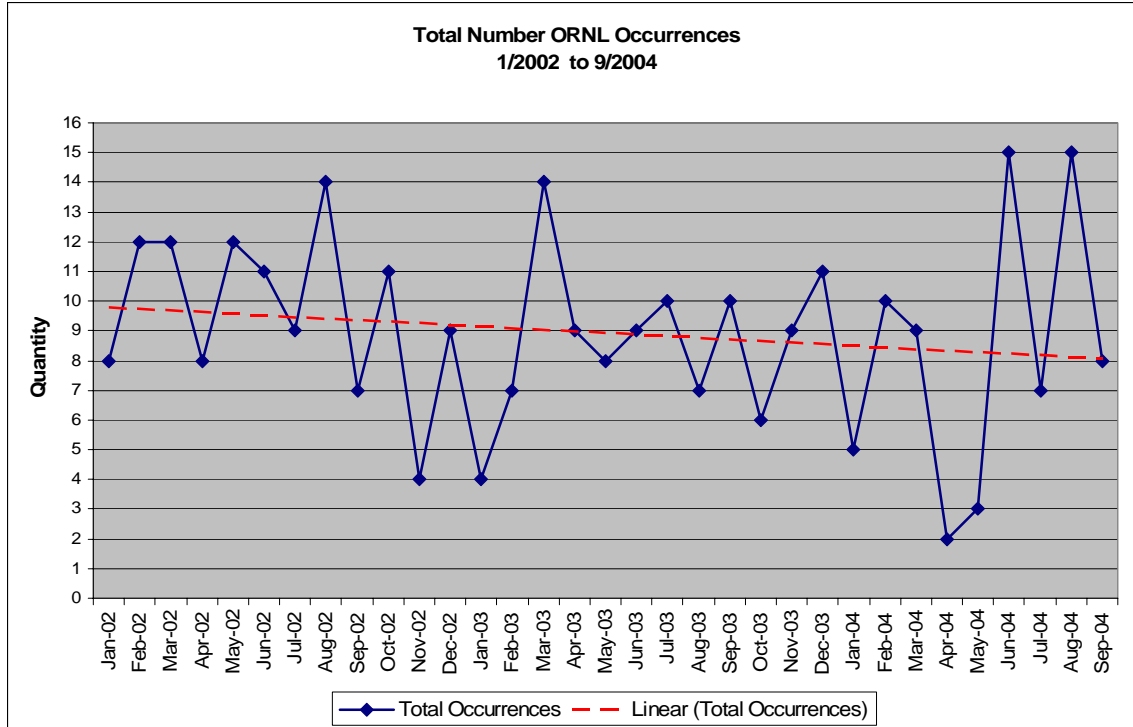


Fig. 2: Total Number of ORNL Occurrences

3.2 ORPS OCCURRENCE SIGNIFICANCE CATEGORIES

The categorization information is pertinent because it indicates that the overwhelming majority of ORNL’s occurrences during the last eleven months were identified at the bottom end of DOE’s significance scale. Taken together, the two lowest occurrence categories (3 and 4) comprise 84% of the total reports for this time period. Category 4 represents 66% of all occurrence reports as displayed in Table 1. This indicates that the training and support provided to Laboratory personnel associated with the occurrence reporting function has been effective in conveying the need to report at the lowest levels of the established ORPS criteria thresholds. Fig. 3 displays the significance criteria by month where the majority of reportable issues or events (categories 3 and 4) occurred during June 2004, December 2003, August 2004 and February 2004.

Table 1: ORPS Significance Categories

Significance Category	Total Quantity	Percentage
OE, Operational Emergency	4	4%
SC-1, Significant Impact on Safety, Facility Operations	1	1%
SC-2, Moderate Impact on Safety, Facility Operations	10	11%
SC-3, Minor Impact on Safety, Facility Operations	17	18%
SC-4, Some Impact on Safety, Facility operations	62	66%

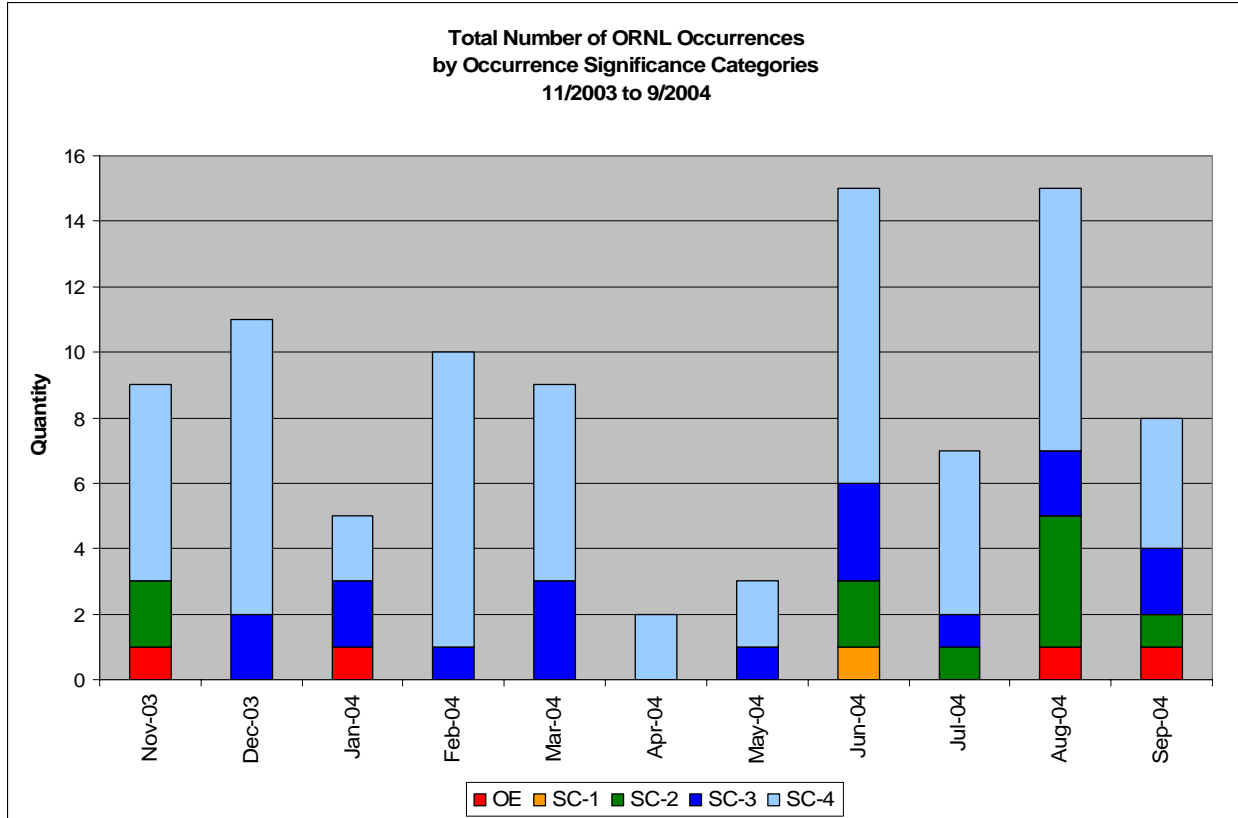


Fig. 3: ORPS Significance Categories by Month

3.3 OCCURRENCE REPORTING CRITERIA

Contamination/Radiation Control (legacy contamination) issues comprise 32% of the total occurrences during the eleven-month period as displayed in Fig. 4. This figure appears to be a function of three main factors: progressively aging facilities, efforts to clean out and/or decommission older facilities and a strong focus on facility-based self-assessment activities. As we continue our effort to dispose of older facilities, we are identifying legacy issues that are, in some cases, decades old. This fact, coupled with the progressive improvement in the depth and quality our self-assessment efforts, has led to an increase in the identification of contamination and radiation control issues, especially those associated with legacy conditions. Information provided later in this report highlights that the majority of our occurrences are now found through our self-assessment/self-identification processes.

We also continue to see a remarkable trend toward the near-elimination of personnel radiation protection issues reported through ORPS. During the eleven-month period, we experienced only one occurrence in the personnel contamination category, which is 1% of the reported occurrences. This low level of incidence highlights the Laboratory-wide improvements in the consistency and pervasiveness of our radiological controls at the institutional level. The reporting criteria of Near Misses and Potential Concerns represent 10%, of the reported occurrences. These two criteria are most encompassing for lower-level issues that, in many

cases, have no actual adverse result, yet present situations where staff discerned a need for additional analysis because of potential impacts. Facility status represents 24%, Personnel Safety is 10% and Management Concerns/Issues is 16% of the total reported occurrences.

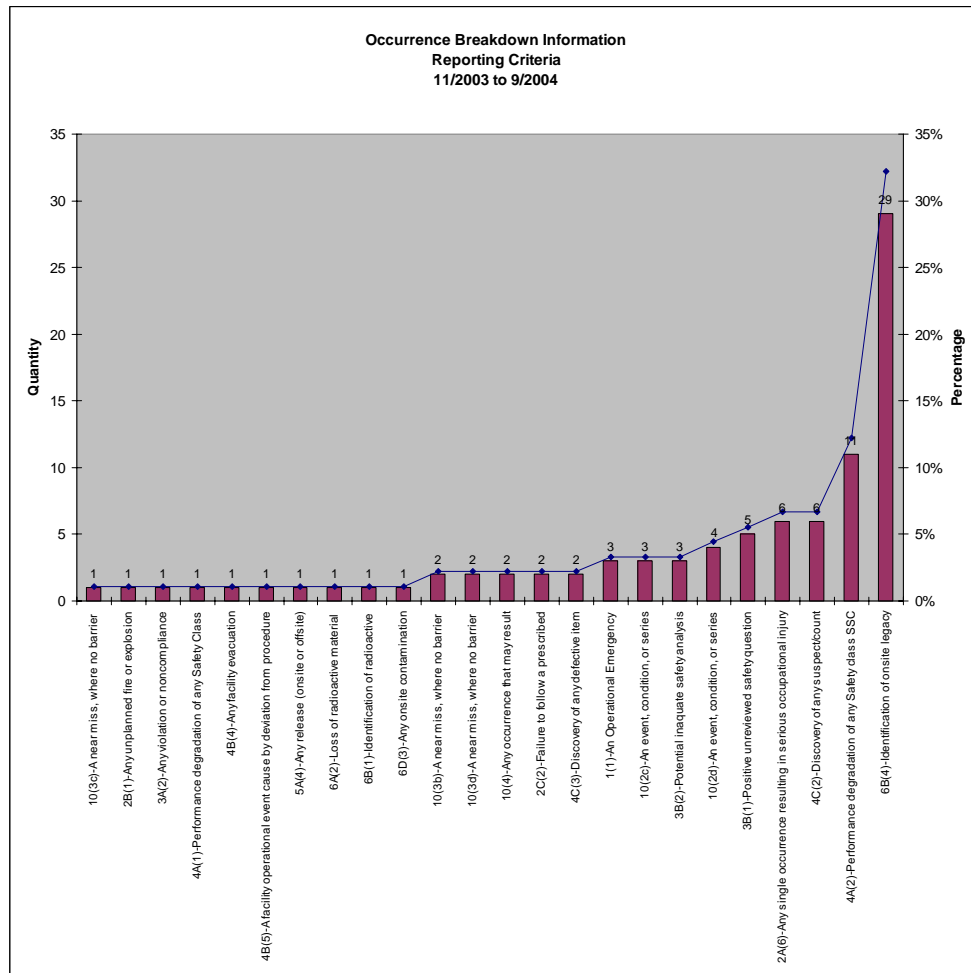


Fig. 4: Breakdown of Reporting Criteria

3.4 SELF-ASSESSMENT AND SELF-DISCLOSED OCCURRENCES

We continue to see a positive bias toward identification of occurrence reports through our self-assessment/identification processes as shown in Fig. 6, as opposed to self-disclosed, event-driven origins. For FY 2002, 39% of occurrences were found through self-assessment. For FY 2003, this figure was 46% and the last eleven months show that 60% have been found through this proactive approach to problem identification. This appears to indicate that our self-assessment activities have the clear potential to allow us to identify problems before they rise to thresholds requiring occurrence reporting. There were eight months where the numbers of self-assessment occurrences were greater than the self-disclosed occurrences as displayed in Fig. 7.

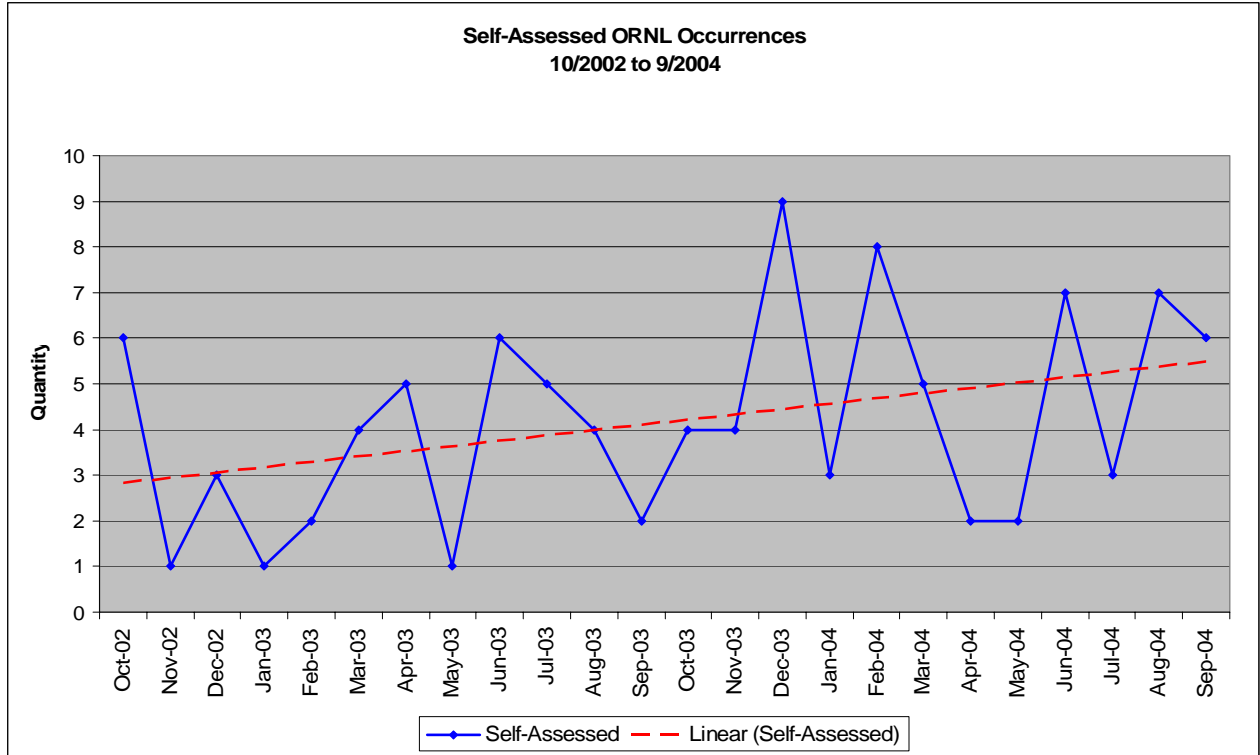


Fig. 6: Self-Assessment/Identification

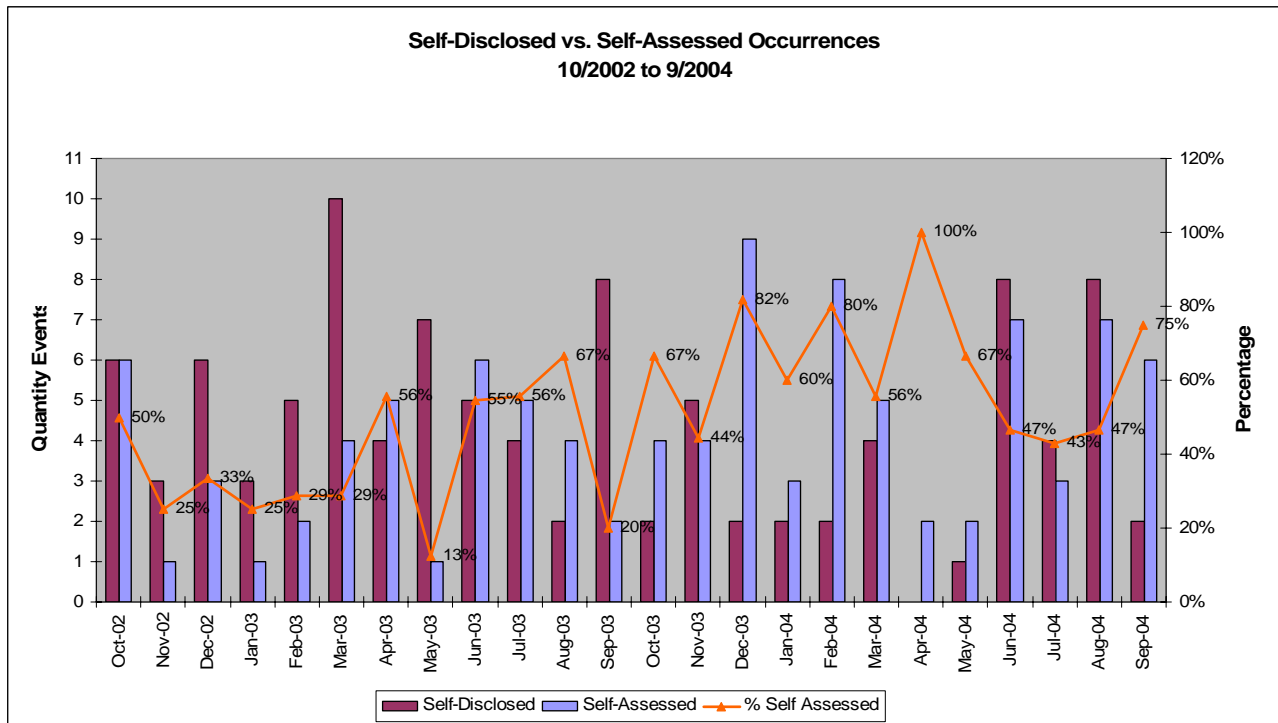


Fig. 7: Self-Assessed vs. Self-Disclosed

3.5 ORPS OCCURRENCE CAUSE CODES

Issues were reviewed, and apparent cause codes were identified, where some were assigned more than one cause from the ORPS Causal Analysis Tree in the DOE G231.1-2, Occurrence Reporting System Causal Analysis Guide. The Causal Analysis Tree is a structure designed to describe apparent causes for problems within operating facilities.

Figure 8 shows the quantity of reported occurrence cause code categories. The majority of the problems fell into “Skill Based Errors”, “Work Organization & Planning LTA” and “Material Control LTA”.

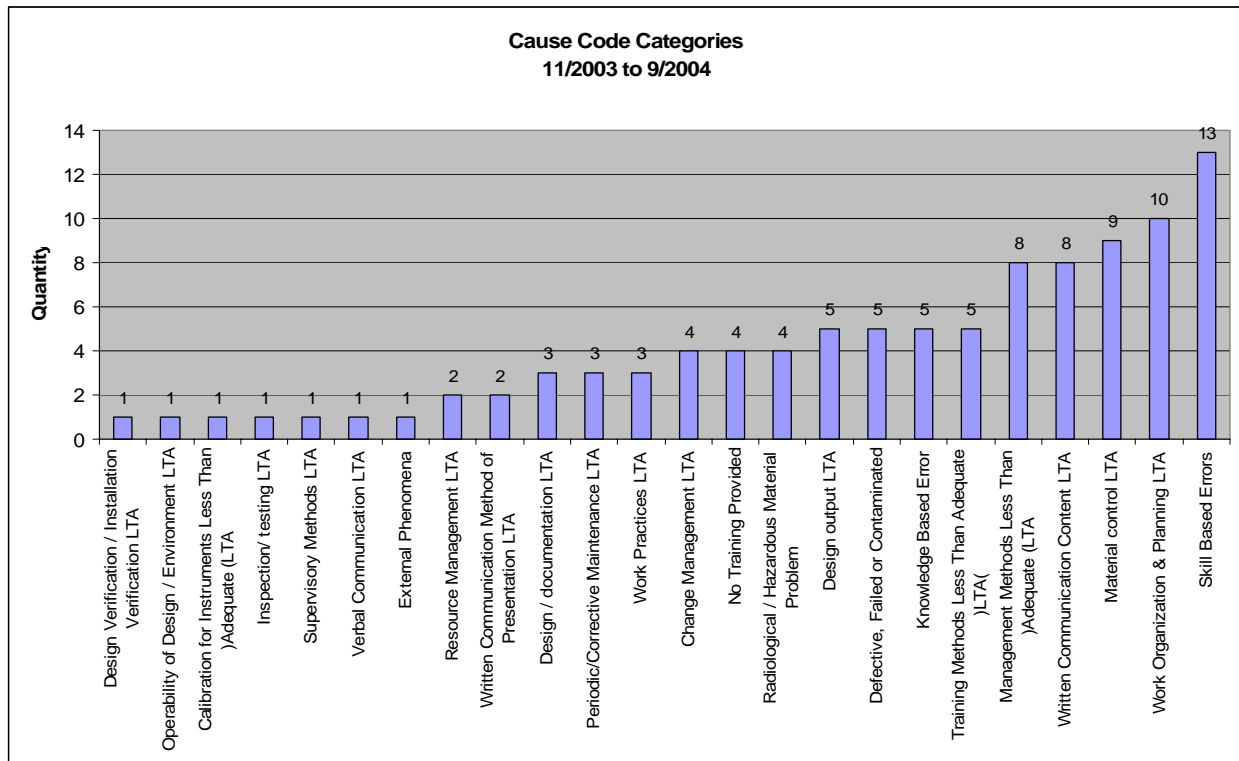


Fig. 8: ORPS Occurrence Cause Codes

The following are definitions of the top five categories as defined by the DOE G231.1-2, Occurrence Reporting System Causal Analysis Guide:

1. Skill Based Errors – Inattention or over attention to performance of work affected the event.
2. Work Organization & Planning LTA – Events in how the work to be performed was organized. This would include work scope, planning, assignment and scheduling of a task to be performed.

3. Material Control LTA – The event was due to the inadequate handling, storage, packing or shipping of material or equipment. The shelf life for material was exceeded. An unauthorized material or equipment substitution was made.
4. Written Communication Content LTA – Any written document used to perform work such as procedures, work orders, memos, standing orders, manuals, surveillance, etc.
5. Management Methods LTA – The processes used to control or direct work-related plant activities, including how manpower and material was allocated for a particular object.

Table 2 shows the top two occurrence cause code categories by division and month. During the last eleven months “Skill Based Errors” was 13% and “Work Organization & Planning LTA” was 10% of the reported cause code categories. The nature of the occurrence events is different across the divisions but the analysis indicates they have the same apparent cause code categories. The majority of these occurrences were significance category 3.

Table 2: Occurrence Apparent Cause Code Categories by Division

Cause Code Category	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04
A3B1-Skill Based Errors		NNFD		M&CD, RRD					(2)-ESD, CSMD	(4)-NNFD, (2)-FDD	FDD	
A4B3-Work Organization & Planning LTA		NNFD, Fusion Energy	RRD, (2)-FDD			Physics	SNS		(2)-NNFD, RRD			

Table 3 shows the top three apparent cause codes by division and month. During the last eleven months “Job scoping did not identify special circumstance and/or conditions” was 7%, “Incomplete/situation not covered” was 6% and “Incorrect performance due to mental lapse were 5% of the reported cause codes. The nature of the occurrence events is different across the divisions but the analysis indicates they have the same apparent cause code. This suggests the prevalence of systemic issues across divisions involving work planning and performance considerations. The majority of these occurrences were significance category 3. Additional analysis will be conducted to evaluate extent of condition.

Table 3: Apparent Cause codes by Division and Month

Cause Code	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04
A4B3C08-Job scoping did not identify special circumstances and/or conditions		NNFD, Fusion Energy	RRD, FDD			Physics			(2)-NNFD			
A5B2C08-Incomplete / situation not covered				M&CD	ESTD				ESD, (2)-NNFD		FDD	
A3B1C03-Incorrect performance due to mental lapse		NNFD							ESD	NNFD, FDD	FDD	

3.6 ORNL NON-REPORTABLE ISSUES

The ten discreet groups that comprise the occurrence reporting criteria set were used to categorize 106 additional issues that were logged by the Laboratory Shift Superintendent's office during the eleven-month period covered by this summary report. During this time period, each issue was analyzed at the time of discovery against the applicable criteria and was found to be below reporting thresholds, as shown in Fig. 9.

Environmental issues lead the non-reportable data set, with 36% of the total. These issues were primarily concerned with limited spills involving materials such as oil, hydraulic fluids, and mercury that did not have any environmental impact because of the limited amount of material involved.

Facility status situations were the second highest non-reportable group of issues at 17%. The majority of these issues were related to non-safety class structures, systems, or components that were found to have malfunctioned or were found to be unexpectedly inoperable. A number were found as the result of repeated false alarm conditions. Examples include secondary air monitoring systems in radiological areas and pressure-sensing devices in non-critical applications.

Facility related non-reportable issues are closely followed by contamination and radiation control issues at 15%. Many of these are related to legacies that fell lower than occurrence reporting levels and were found during surveying activities associated with building clean up and decommissioning. Each situation was discovered where the condition could be expected based upon past or current activities within the facilities where they were identified.

Personnel safety and health issues were also found to be 15% of the total non-reportable issues. These were comprised primarily of minor injuries falling below all thresholds in Group 2 of the ORPS criteria.

Management concerns and issues round out the significant data set of non-reportable issues at 12%. This category was used for the purpose of identifying a wide range of issues that fall into the criteria dealing with an event, condition, or series of events that do not meet any of the other reporting criteria, but would have been of interest had the issue been of a higher significance. These included such events as the theft of government-furnished computer equipment while Laboratory personnel were traveling and minor automobile accidents involving government-furnished vehicles, both on and off-site.

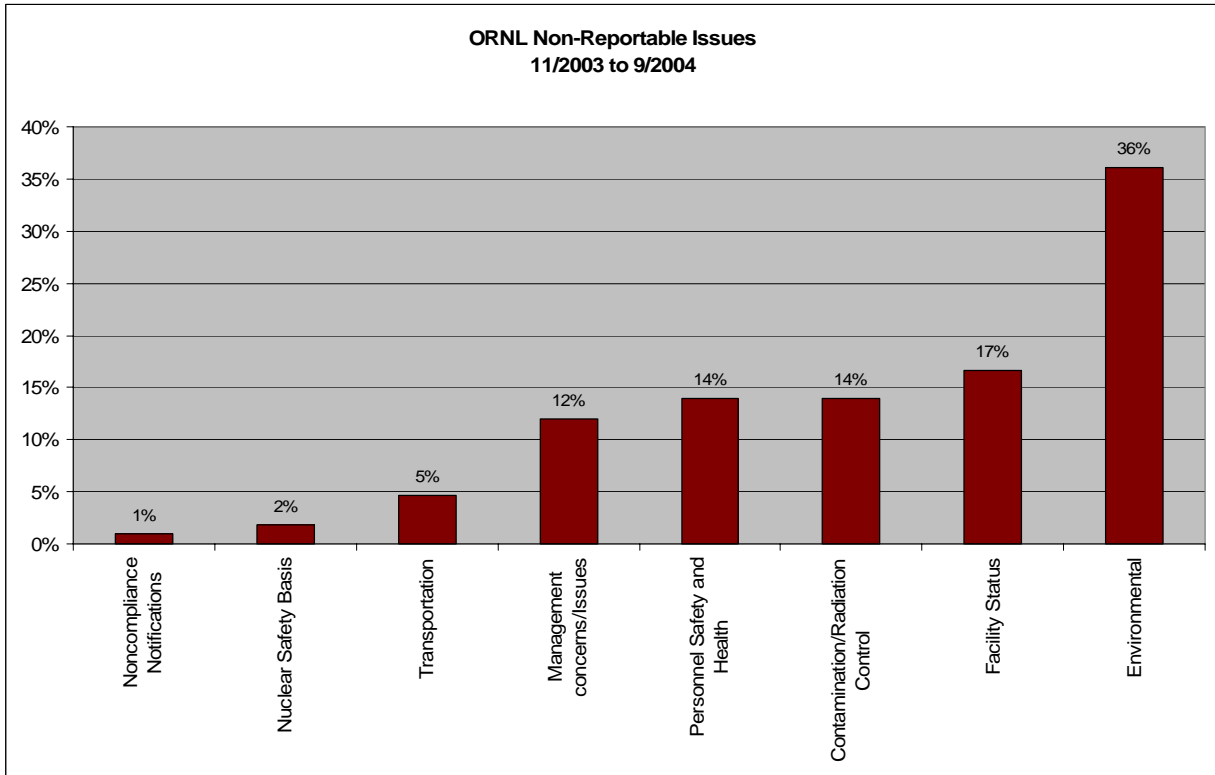


Fig. 9: Non-Reportable Issues