

Quality Management Office

Brookhaven National Laboratory

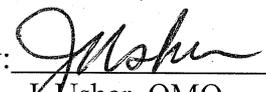
Quarterly Performance Report

4th Quarter FY 2007

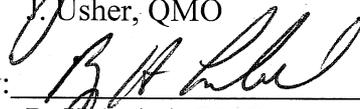
(11/21/07)

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I. Executive Summary

This report is the sixteenth edition of the Quarterly Performance Report and covers the fourth quarter of FY 2007. It is developed and issued by the Brookhaven National Laboratory (BNL) Quality Management Office, as required by Department of Energy (DOE) Order 231.1A, *Environment, Safety and Health Reporting*. The purpose of this report is to ensure that recurring events are identified. Events identified as recurring are processed in a Significance Category “R” recurring occurrence report.

During the fourth quarter of FY 2007, the Quality Management Office reviewed 58 issues and/or potential issues from the following documented sources:

- Occurrence Reports;
- Significance Category BNL events/conditions
- Non-reportable (ORPS) events/conditions;
- Radiological Awareness Reports (RARs).

Analysis of the data for the fourth quarter of FY 2007 indicates no new areas requiring attention, one area requiring continued attention and one area of improving performance. A Significance Category “R” recurring occurrence report was not warranted this quarter.

New Area Requiring Attention

None

Areas Requiring Continued Attention

Waste Management Facility Documented Safety Analysis: On March 9, 2007, Occurrence Report SC--BHSO-BNL-BNL-2007-0006, “PISA and USQ for DOE review of Waste Management Facility Documented Safety Analysis and potentially unanalyzed hazards” was initiated.

Areas of Improving Performance

Safety Evaluation Report (SER) Issues: On December 4, 2006, Occurrence Report EM--BHSO-BNL-HFBR-2006-0002, “Failure to maintain configuration control of DOE-SER specified Authorization Basis Manual documents” was initiated.

II. Introduction

The ORPS Program is intended to: (1) ensure the timely collection, reporting, analysis, and dissemination of information on environmental, safety, and health issues, and (2) ensure the Department of Energy (DOE) and National Nuclear Security Administration (NNSA) are 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 Quarterly Performance Report is performed to identify possible recurring program deficiencies and describe ORPS program activities at the Laboratory. If a recurring program deficiency is identified, it is reported to DOE via a Significance Category “R” recurring occurrence report. Section III of this report includes a summary of

the documents reviewed, performance analysis of the issues/events reviewed and other data. Section IV summarizes the ORPS Program activities for the fourth quarter of FY 2007. Section V summarizes Lessons Learned activities for the fourth quarter of FY 2007. Sections VI, VII, and VIII summarize new areas requiring attention, areas requiring attention, and areas of improving performance respectively.

III. Performance Analysis

The following exhibits provide a summary of the issues reviewed for the fourth quarter of FY 2007, including a summary of the documents reviewed and trend analysis.

A. Document Review Summary:

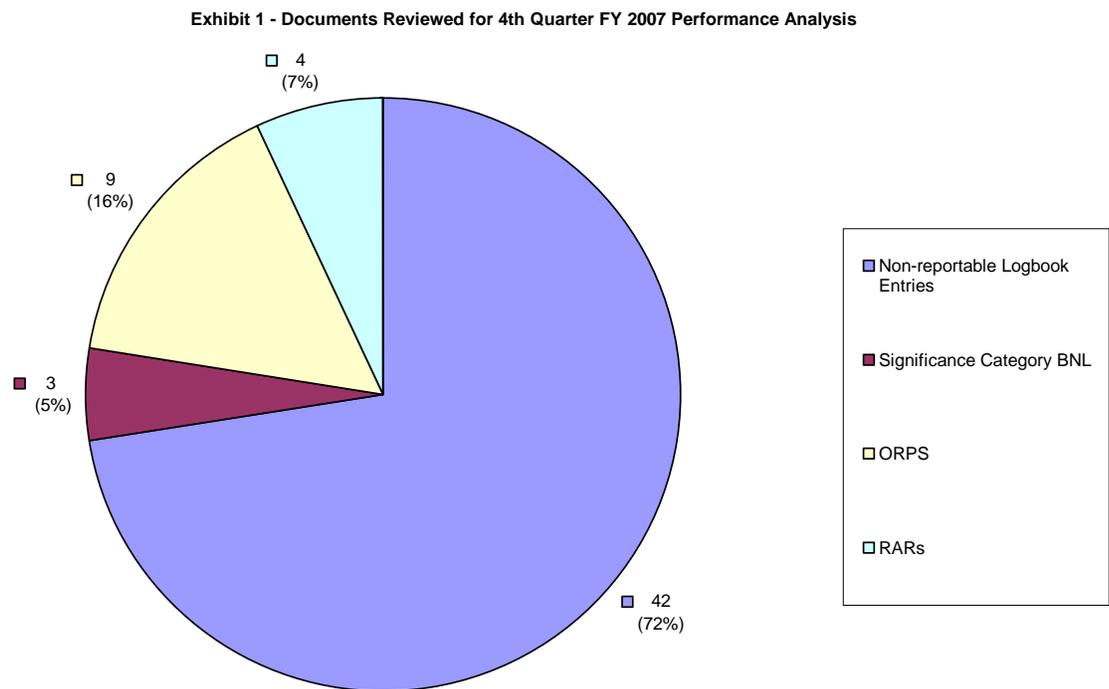


Exhibit 1 indicates 58 issues were reviewed for the fourth quarter performance analysis of FY 2007. Approximately 72% of the issues reviewed were ORPS nonreportable logbook entries made by the eight BNL on-call Event Categorizers.

Note: The eight BNL Event Categorizers are a cadre of volunteer senior personnel who have received significant training on the reporting criteria of DOE Manual 231.1-2, *Event Reporting and Processing of Operations Information*. They are on a rotating schedule and available 24 hours a day, 7 days a week to determine event reportability. Each determination that a categorizer renders is logged with justification. It is important that BNL staff draw upon the categorizer's expertise shortly after event/condition discovery so that a timely, accurate, and consistent determination of ORPS reportability is rendered.

Exhibit 2: Documents Reviewed per Quarter

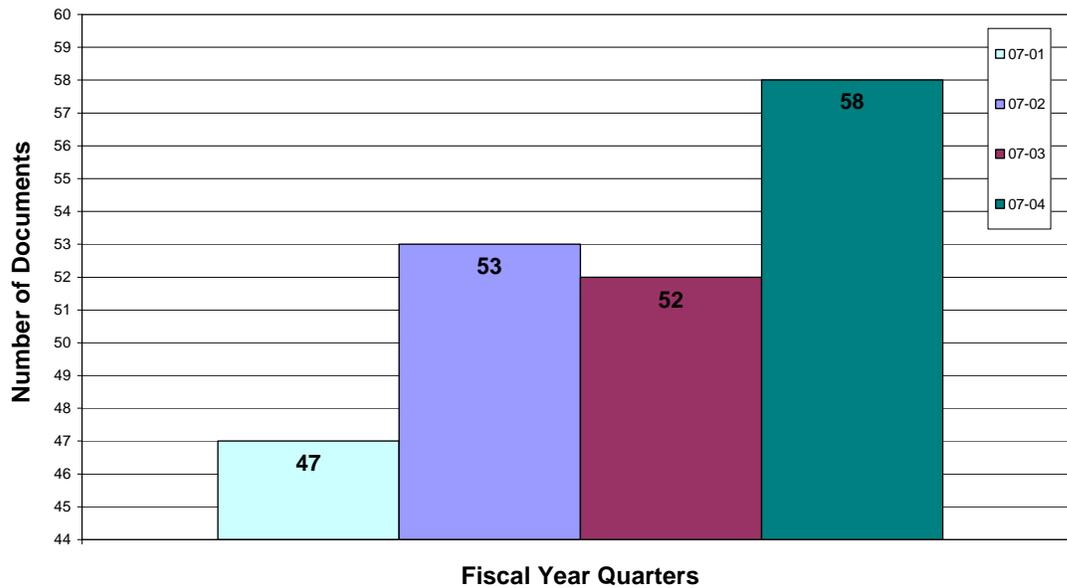


Exhibit 2 depicts the number of issues reviewed per quarter. On average, 53 issues per quarter are reviewed. The number of issues reviewed in the 4th quarter (58) is slightly above average.

Exhibit 3: ORPS Reportable, SCBNL and Non-reportable Events

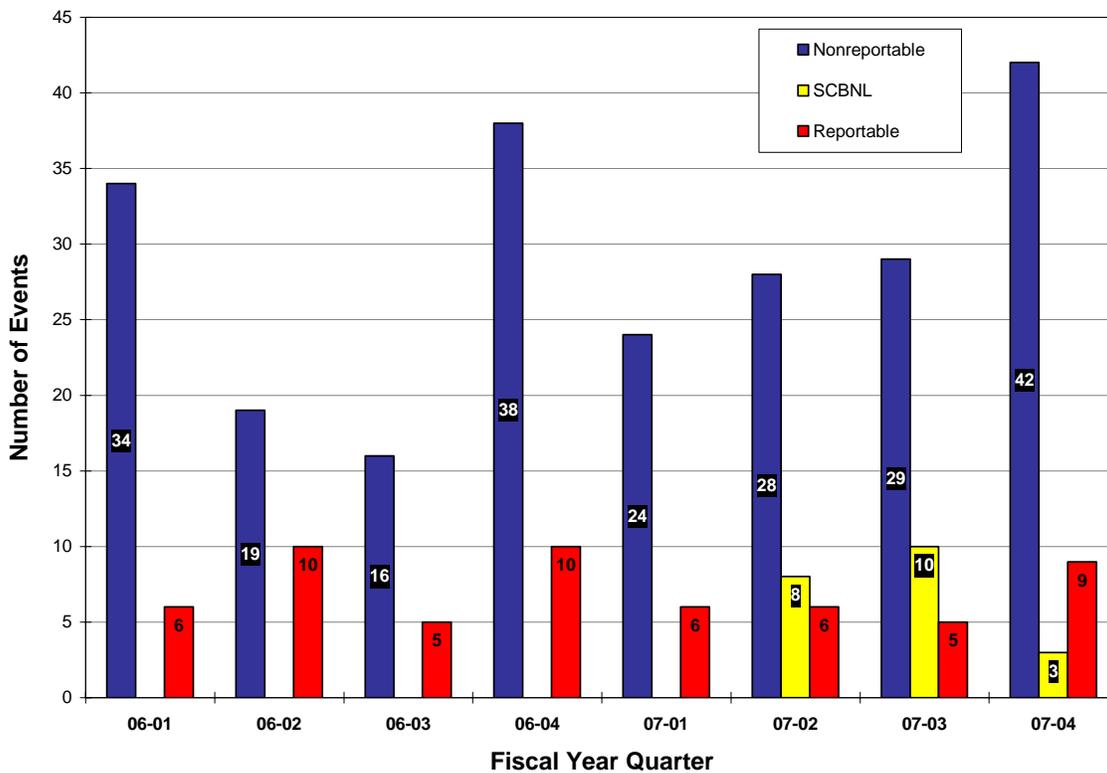


Exhibit 3 shows the number of ORPS reportable events (average 7/qtr.), Significance Category BNL events (average 7/qtr.) and non-reportable events (average 29/qtr.) over the last eight quarters. Increasing numbers of non-reportable events over the last three quarters is indicative of a positive reporting culture at BNL.

Note: Significance Category BNL (SCBNL) events are low impact events/conditions, which are categorized based on BNL developed criteria. A SCBNL event does not initiate a DOE Occurrence Report. SCBNL occurrences are investigated and appropriate action(s) are implemented to minimize the risk of recurrence per the BNL Event/Issues Management subject area.

ORPS Reportable Events/Conditions – 4th Quarter FY 2007

- 1) SC--BHSO-BNL-BNL- Operational Emergency - Severe Weather
2007-0010
- 2) SC--BHSO-BNL-BNL- Cable Fault Causes Power Outage
2007-0011
- 3) SC--BHSO-BNL-BNL- Firefighter's Hand Injured during Patient Transport
2007-0012
- 4) SC--BHSO-BNL-BNL- Bunsen Burner Ignites Disposable Lab Coat
2007-0013
- 5) SC--BHSO-BNL-BNL- Unexpected Discovery of an Uncontrolled Electrical Energy Source in Building 490
2007-0014
- 6) SC--BHSO-BNL-BNL- Simultaneous Degradation of Fire Alarm System and Water Supplies for the Apartment Area
2007-0015
- 7) SC--BHSO-BNL-BNL- Researcher Contamination (Nitrogen -13)
2007-0016
- 8) SC--BHSO-BNL-PE- Tree Fell on Powerlines
2007-0003
- 9) SC--BHSO-BNL-PE- A/C Unit Falls out of Window after being Dislodged by Lawnmower Roll Bar
2007-0004

SCBNL Events/Conditions – 4th Quarter FY 2007

1. 07/17 – Diesel Engine Exhaust Ignites a Small Path of Grass
2. 08/09 – Air Compressor Electrical box smoking
3. 09/28 – Vehicle Motor Pool Worker Injures back while Lifting Forty Pound Starter

Exhibit 4: Distribution of ORPS Reports by Reporting Criteria

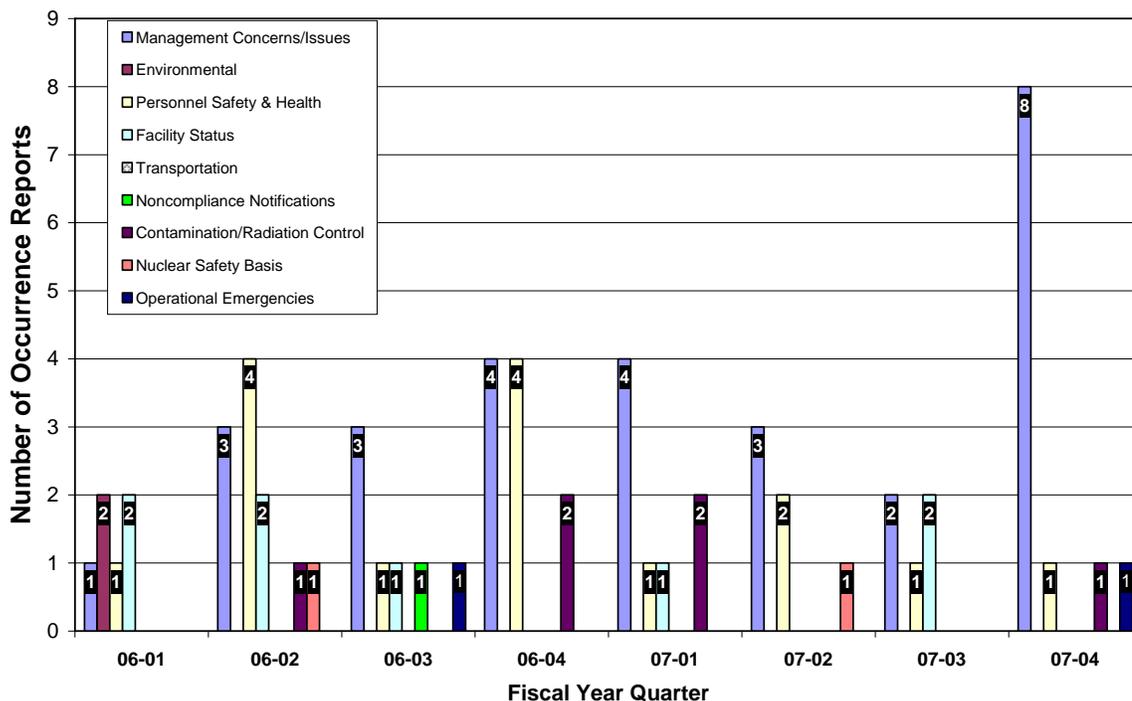


Exhibit 4 shows the number of BNL ORPS reports coded by ORPS reporting criteria, for each of the last eight quarters. Six reports were coded with the management concern criteria. Two of those reports were also coded with near miss criteria. Reporting to ORPS under the management concerning criteria (“An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern to other facilities or activities in the DOE complex.”) is indicative of a positive reporting culture/trend at BNL.

Exhibit 5: Analysis of Issues by Major Category

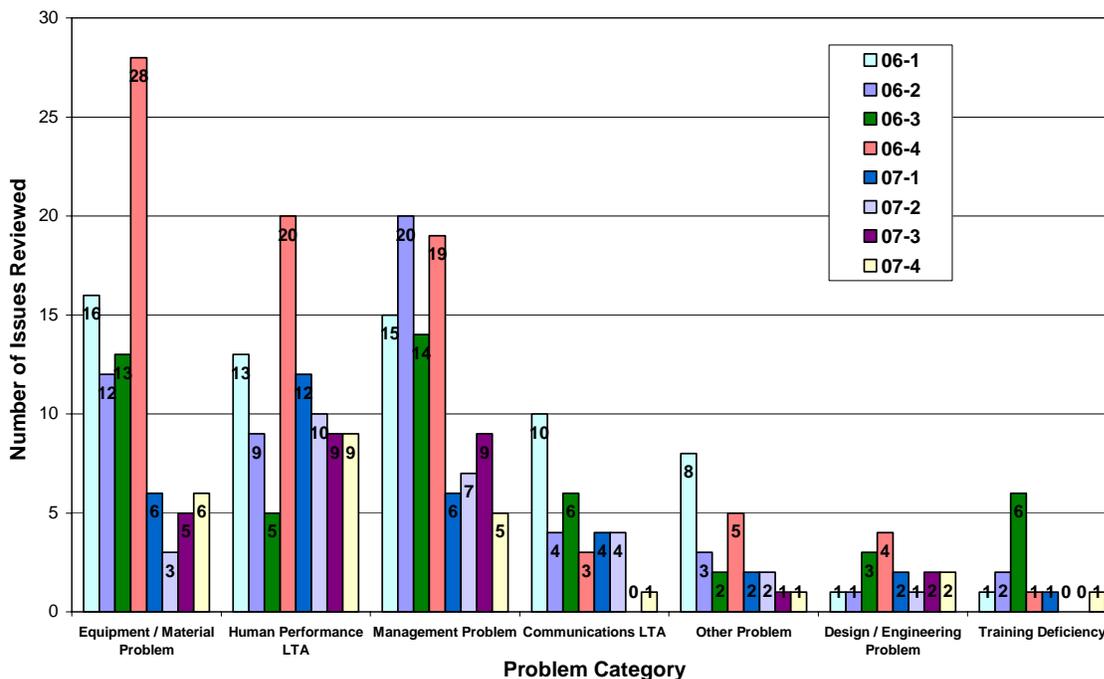


Exhibit 5 is a trend of ORPS cause codes per quarter during last eight quarters. The associated issues were reviewed and apparent cause codes were assigned from the ORPS Causal Analysis Tree in DOE Guide 231.1-2, *Occurrence Reporting Causal Analysis Guide*. Some issues were assigned more than one cause. No adverse trend is noted.

Note: The following are the definitions of the cause codes as defined by the DOE Guide 231.1-2, *Occurrence Reporting Causal Analysis Guide*:

- An equipment/material problem is defined as an event or condition resulting from the failure, malfunction, or deterioration of equipment or parts, including instruments or material.
- Human performance less than adequate refers to an event or condition resulting from the failure, malfunction, or deterioration of the human performance associated with the process. This category is intended for individual actions or lack thereof.
- Management problem refers to an event or condition that could be directly traced to managerial actions or methodology (or lack thereof). A “management” problem can be attributed to management methods (directions, monitoring, assessment, accountability, and corrective action), inadequate resource allocation, work organization and planning, supervisory methods, and/or change management practices.

- Other problems include problems caused by factors beyond the control of the organization (i.e., legacy radiological or hazardous material).
- Communications less than adequate refers to inadequate presentation or exchange of information.
- A design/engineering problem is an event or condition that can be traced to a defect in design or other factors related to configuration, engineering, layout, tolerances, or calculations.
- Training deficiency refers to an event or condition that could be traced to a lack of training or insufficient training to enable a person to perform a desired task adequately.

IV. ORPS Activities

Exhibit 6: BNL ORPS Report (End of Month) Trend

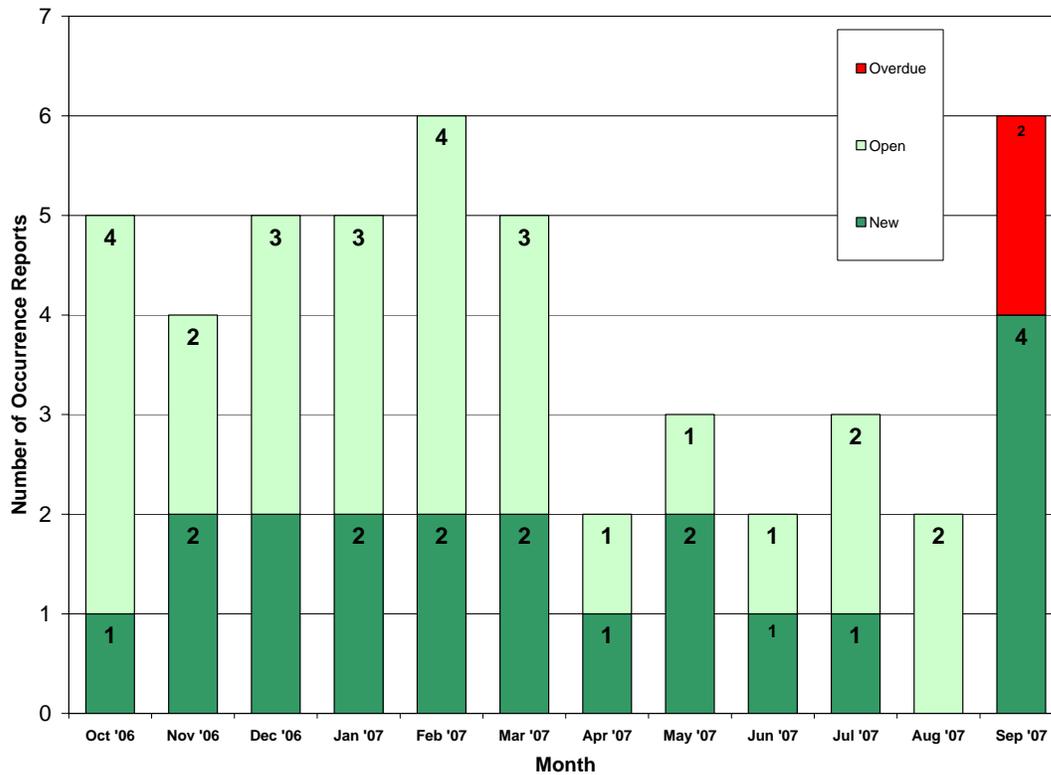


Exhibit 6 depicts the ORPS Report trend for the last 12 months. Reports are shown in various states to include: in progress (open), new report issued and Final Report overdue to DOE. Two reports that were overdue have been submitted. No adverse trend is noted. The following four reports (dating back to 1999) are still awaiting approval by DOE Program Managers:

- SO-CH-BH-BNL-BNL-1999-0021, “Liquid Nitrogen Dewar Overpressure”
- NE-CH-BH-BNL-BNL-2001-0030, “Misclassification of Radioactive Material Shipped Offsite”
- NE-CH-BH-BNL-BNL-2003-0003, “Receipt of Radioactive Material Shipment exceeds 49 CFR 173.443 Package Contamination Limits”
- SC--BHSO-BNL-AGS-2006-0002, “400 Amp Electrical Switch Failure Resulting in Arc Flash”

Exhibit 7: ORPS Reports - Event and Assessment Driven

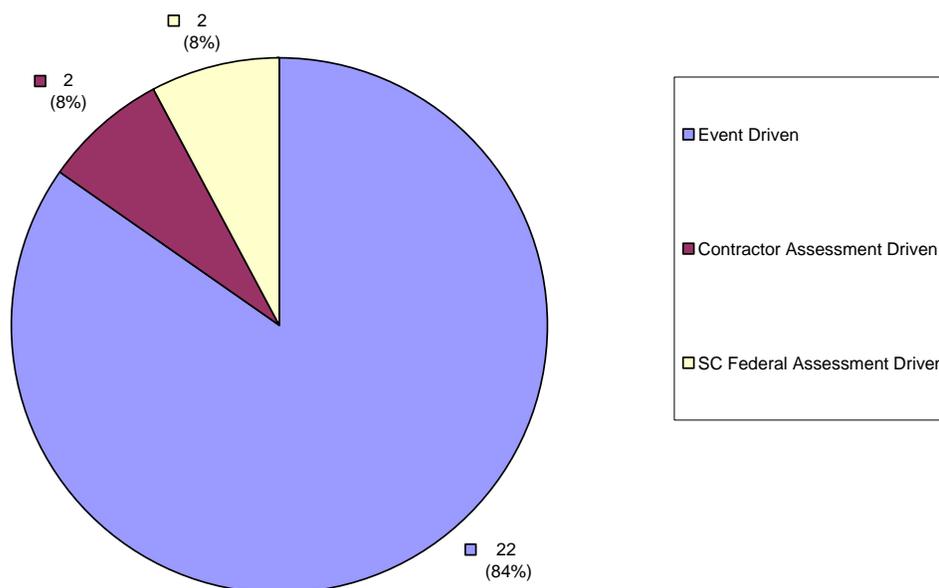


Exhibit 7 indicates that during FY 2007; 22 ORPS reports were Event Driven, two reports were Contractor Assessment Driven and two reports were SC Federal Assessment Driven.

The following is a list of 26 ORPS Reports that were issued during FY 2007. The reports are identified as Event Driven, Contractor Assessment Driven, or SC Federal Assessment Driven.

Report Number Report Title

- 1) EM--BHSO-BNL-HFBR-2006-0002 Failure to maintain configuration control of DOE-SER specified Authorization Basis Manual documents (**SC Federal Assessment Driven**)
- 2) SC--BHSO-BNL-AGS-2007-0001 Coffee-Room Microwave Oven Fire Causes Building Evacuation (**Event Driven**)

- 3) SC--BHSO-BNL- Silica Exposure During Concrete Crushing Machine Operation (**Event Driven**)
BNL-2006-0017
- 4) SC--BHSO-BNL- Failure of Chemtronic Heat Detectors (**Event Driven**)
BNL-2006-0018
- 5) SC--BHSO-BNL- Personnel Contamination during PET Imaging Study (**Event Driven**)
BNL-2006-0019
- 6) SC--BHSO-BNL- Work Near Energized Equipment by Vendor (**Event Driven**)
BNL-2006-0020
- 7) SC--BHSO-BNL- Discovery of Legacy Contamination (**Event Driven**)
BNL-2006-0021
- 8) SC--BHSO-BNL- Security Patrol Officer Injures Knee (**Event Driven**)
BNL-2007-0001
- 9) SC--BHSO-BNL- Copper Sheets Pin Worker Against Work Bench (**Event Driven**)
BNL-2007-0003
- 10) SC--BHSO-BNL- Irritant in Air from Cleaning Floor Tile - Bldg 400 Lobby (**Event Driven**)
BNL-2007-0004
- 11) SC--BHSO-BNL- Employee Grazed by Truck (**Event Driven**)
BNL-2007-0005
- 12) SC--BHSO-BNL- PISA and USQ for DOE review of Waste Management Facility Documented Safety Analysis and potentially unanalyzed hazards (**SC Federal Assessment Driven**)
BNL-2007-0006
- 13) SC--BHSO-BNL- Firefighter drops exercise weight plate on left foot causing fracture (**Event Driven**)
BNL-2007-0007
- 14) SC--BHSO-BNL- Ungrounded Neutral Discovered in wye connected output of 13.8kV/208V Dry Type Transformer (**Contractor Assessment Driven**)
BNL-2007-0008
- 15) SC--BHSO-BNL- Laser Status Indicators at the Accelerator Test Facility (ATF) Not Functioning Properly (**Contractor Assessment Driven**)
BNL-2007-0009
- 16) SC--BHSO-BNL- Operational Emergency - Severe Weather (**Event Driven**)
BNL-2007-0010
- 17) SC--BHSO-BNL- Cable Fault Causes Power Outage (**Event Driven**)
BNL-2007-0011
- 18) SC--BHSO-BNL- Firefighter's Hand Injured during Patient Transport (**Event Driven**)
BNL-2007-0012
- 19) SC--BHSO-BNL- Bunsen Burner Ignites Disposable Lab Coat (**Event Driven**)
BNL-2007-0013
- 20) SC--BHSO-BNL- Unexpected Discovery of an Uncontrolled Electrical Energy Source in Building 490 (**Event Driven**)
BNL-2007-0014
- 21) SC--BHSO-BNL- Simultaneous Degradation of Fire Alarm System and Water Supplies for the Apartment Area (**Event Driven**)
BNL-2007-0015
- 22) SC--BHSO-BNL- Researcher Contamination (Nitrogen -13) (**Event Driven**)
BNL-2007-0016
- 23) SC--BHSO-BNL- Employee Fractures Rib During Pick-up Truck Lift Gate Operation

PE-2007-0001 **(Event Driven)**

24) SC--BHSO-BNL- Site Wide Fire Alarm Communications Malfunction **(Event Driven)**
PE-2007-0002

25) SC--BHSO-BNL- Tree Fell on Powerlines **(Event Driven)**
PE-2007-0003

26) SC--BHSO-BNL- A/C Unit Falls out of Window after being Dislodged by Lawnmower
PE-2007-0004 Roll Bar **(Event Driven)**

The following is a summary of the BNL ORPS Coordinator's significant activities during the fourth quarter of FY 2007:

- Participated in ORPS Task Group Conference Call (7/25/07)
- Issued Quarterly Performance Report, 3rd Quarter FY 2007 (08/14/07)
 - Waste Management Facility Documented Safety Analysis was noted as a new area requiring attention while Safety Evaluation Report (SER) Issues and Railcar Operations were identified as areas needing continued attention. Material Handling was noted as an area showing improved performance.
- Facilitated Categorizer's Workshop, #2007-02 (8/23/07). The goals of the workshop are:
 - To evaluate and continuously improve the BNL Occurrence Reporting Program.
 - To maintain a baseline categorization process such that reportability decisions are both valid and consistent.
 - To review/evaluate data to determine if repeat events should be identified as potentially recurring occurrences.
 - To prompt (via accurate categorization) deep and lasting value-added change, which results in new ways of thinking and acting.

V. Lessons Learned Activities

Two Lessons Learned (LL) Communications received from the DOE LL subscription service were posted on the BNL LL web site during the fourth quarter of FY 2007.

- Incomplete Hazard Analysis Results in Particle in Eye, 2007-ID-AMWTP-012 (07/16/07)
- Caution: Using Energy Drinks On The Job - Some May Contain Alcohol, 2007-SR-WSRC-0018 (07/27/07)

Two BNL generated Lessons Learned Communications were submitted to the BNL subscription service for distribution and placed on the BNL LL web site.

- Don't Let Your Guard Down When Preparing Facilities for Decommissioning and Decontamination, ERP-2007-0001 (6/04/07). In addition, this lesson was sent to the DOE LL system on 8/22/07.
- Are Your Pressure Gages Calibrated?, 2007-CH-BNL-EWMS-001 (08/23/07)

Distributed “THE NEAR MISS Taking Advantage of Your 'Free Shot' to Fix a Safety Problem” http://www.safetyxchange.org/article.php?id=363&cha_id=3 (9/05/07)

Exhibit 8: Lessons Learned Feedback

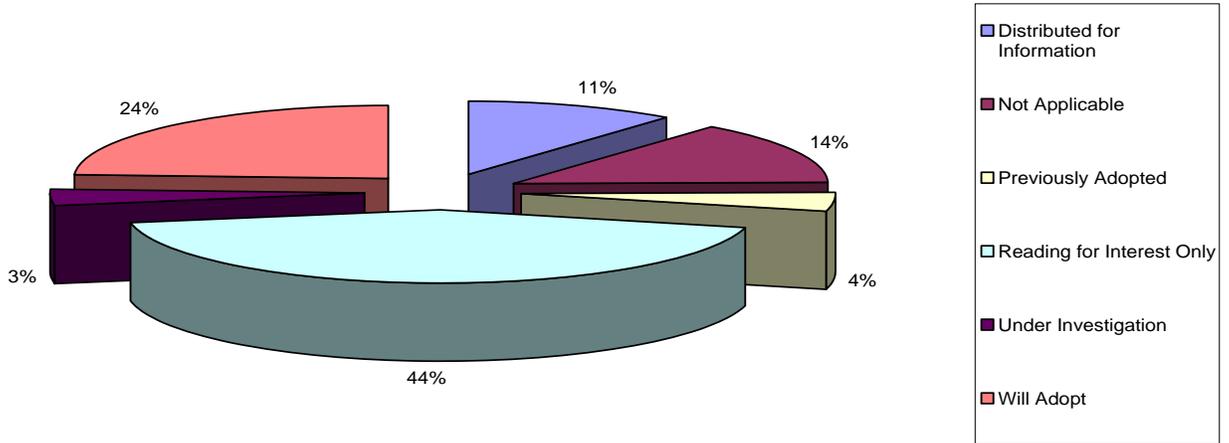


Exhibit 8 is a display of BNL staff feedback received concerning four lessons published during the fourth quarter of FY 2007. 24% of the feedback indicates that a lesson will be adopted.

Exhibit 9: Lessons Learned Feedback

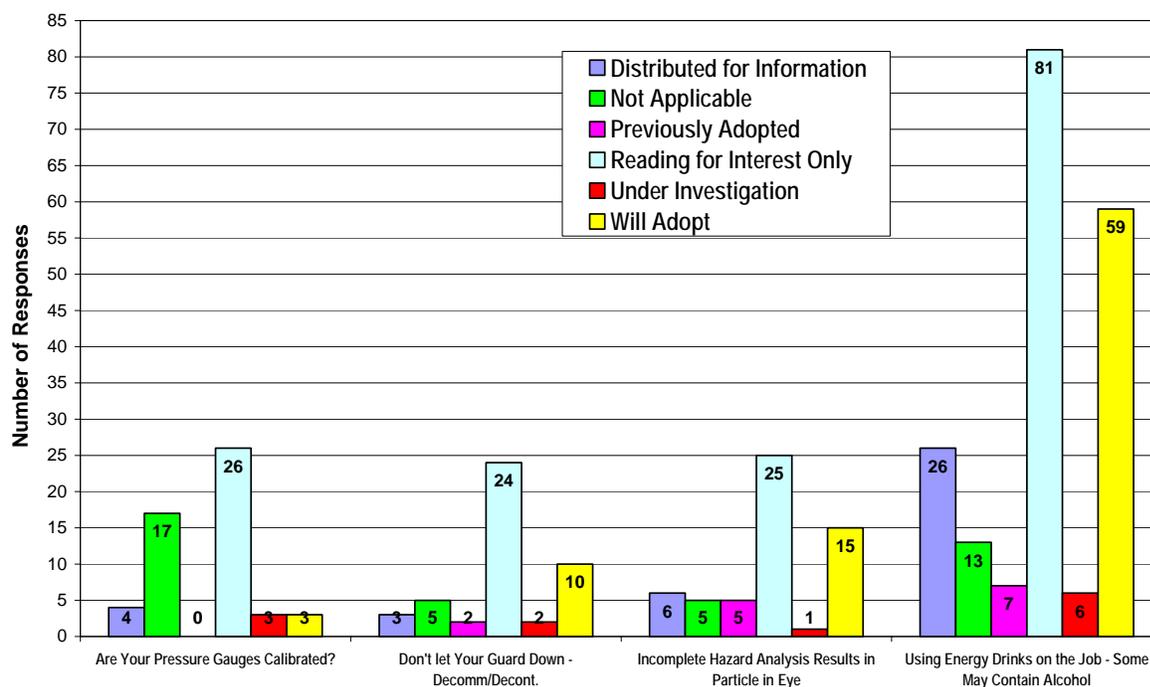


Exhibit 9 displays the feedback received for the four lessons published to the BNL LL web site during the fourth quarter of FY 2007.

VI. New Area Requiring Attention

None

VII. Area Requiring Continued Attention

Waste Management Facility Documented Safety Analysis:

On March 9, 2007, Occurrence Report SC--BHSO-BNL-BNL-2007-0006, “PISA and USQ for DOE review of Waste Management Facility (WMF) Documented Safety Analysis and potentially unanalyzed hazards” was initiated. A decision has been made to downgrade the WMF to less than a Hazard Category 3 Nuclear Facility. Continued management attention is necessary to assure that restrictions to limit nuclear inventory below Hazard Category 3 thresholds at the WMF remain in place and are effectively implemented.

VIII. Areas of Improving Performance

Safety Evaluation Report (SER) Issues: On December 4, 2006, Occurrence Report EM--BHSO-BNL-HFBR-2006-0002, “Failure to maintain configuration control of DOE-SER specified Authorization Basis Manual documents” was initiated. At completion of this quarter 11 corrective actions have been completed. The one remaining open action will address action effectiveness.

IV. References

DOE Guide 231.1-2, *Occurrence Reporting Causal Analysis Guide*, August 2003.

DOE Order 231.1A, *Environment, Safety and Health Reporting*, August 2003.

Occurrence Report Number: EM--BHSO-BNL-HFBR-2006-0002, “Failure to maintain configuration control of DOE-SER specified Authorization Basis Manual documents”

Occurrence Report Number: SC--BHSO-BNL-BNL-2007-0006, “PISA and USQ for DOE review of Waste Management Facility Documented Safety Analysis and potentially unanalyzed hazards”

Quarterly Performance Report, 3rd Quarter FY 2007, dated 08/14/07.