

Quality Management Office

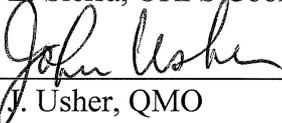
Brookhaven National Laboratory

Quarterly Performance Report

**2nd Quarter FY 2008
(4/17/08)**

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TABLE OF CONTENTS

I.	Executive Summary	1
II.	Introduction.....	1
III.	Performance Analysis	2
IV.	ORPS Activities	7
V.	Lessons Learned Activities.....	10
VI.	New Area Requiring Attention.....	12
VII	Areas of Improving Performance.....	13
VIII	References	13

I. Executive Summary

This report is the eighteenth edition of the Quarterly Performance Report and covers the second quarter of FY 2008. 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 second quarter of FY 2008, the Quality Management Office (QMO) reviewed 40 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 second quarter of FY 2008 indicates one new area requiring attention and no areas of improving performance. A Significance Category “R” recurring occurrence report was not warranted this quarter.

New Area Requiring Attention

- **Overexposure to Static Magnetic Field:** On March 14, 2008, Final Occurrence Report SC--BHSO-BNL-BNL-2007-0019, “Occupational Exposure Exceeds ACGIH Limits for Static Magnetic Fields,” was issued. This condition was discovered by DOE-Brookhaven Site Office (BHSO).

Areas of Improving Performance

- None

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 second quarter of FY 2008. Section V summarizes Lessons Learned activities for the second quarter of FY 2008. Sections VI and VII summarize new areas requiring attention and areas of improving performance, respectively.

III. Performance Analysis

The following exhibits provide a summary of the issues reviewed for the second quarter of FY 2008, including a summary of the documents reviewed and trend analysis.

A. Document Review Summary:

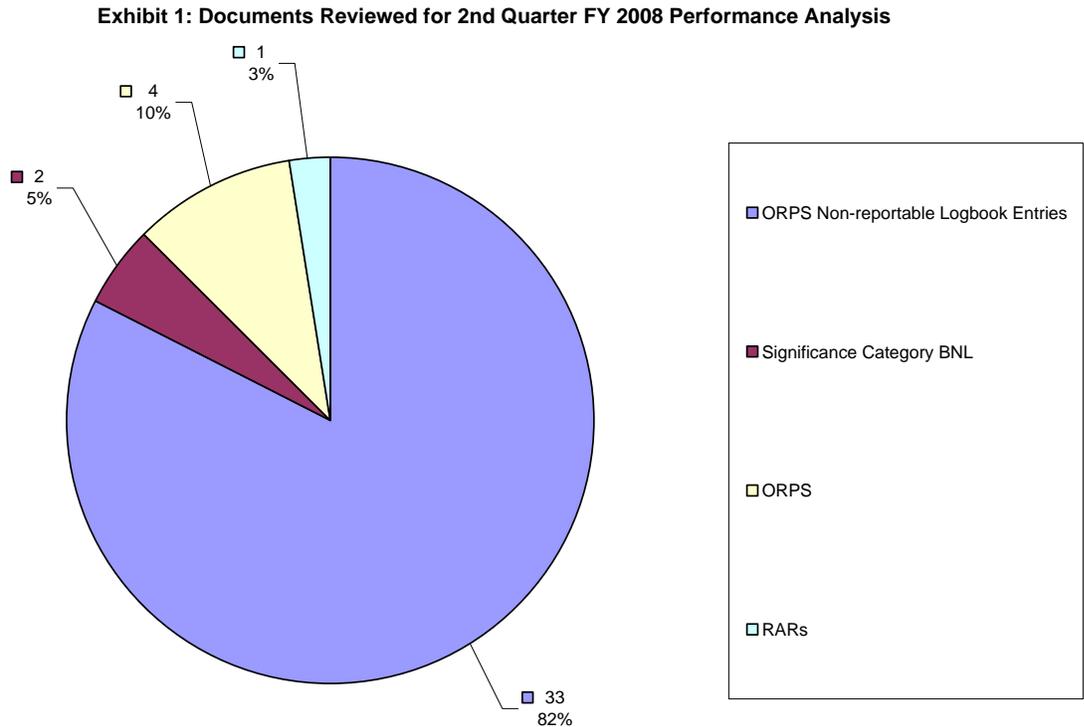


Exhibit 1 indicates 40 issues were reviewed for the second quarter performance analysis. Approximately 83% of the issues reviewed were ORPS nonreportable logbook entries made by the eight BNL on-call Event Categorizers.

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.

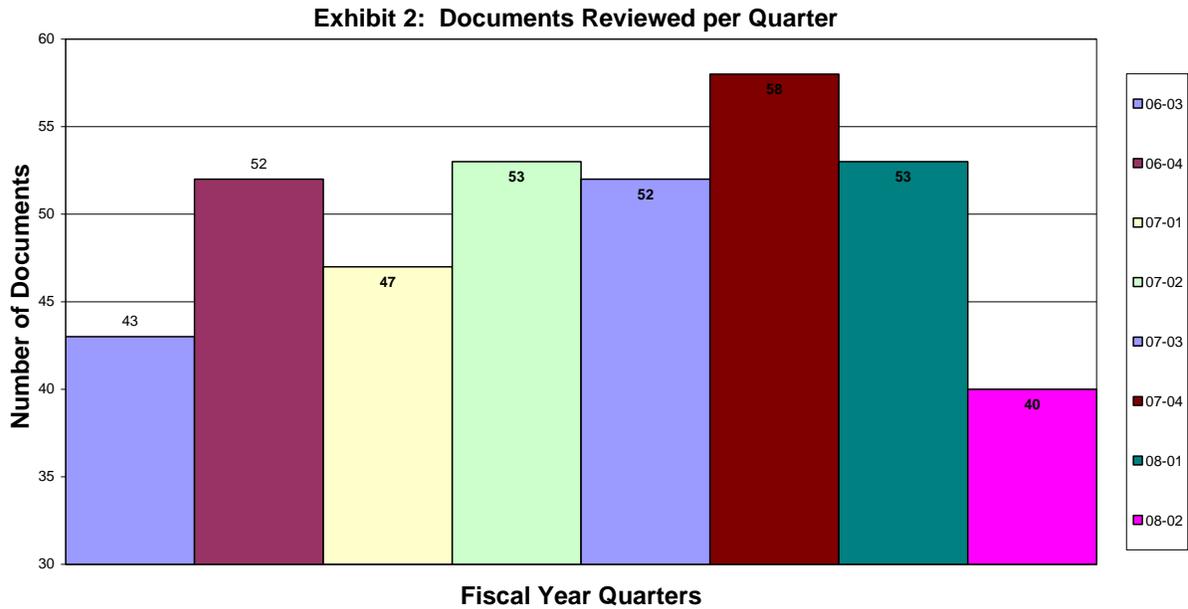


Exhibit 2 depicts the number of issues reviewed per quarter. On average, 50 issues per quarter are reviewed. The number of issues reviewed in the 2nd quarter FY 2008 (40) is below average.

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

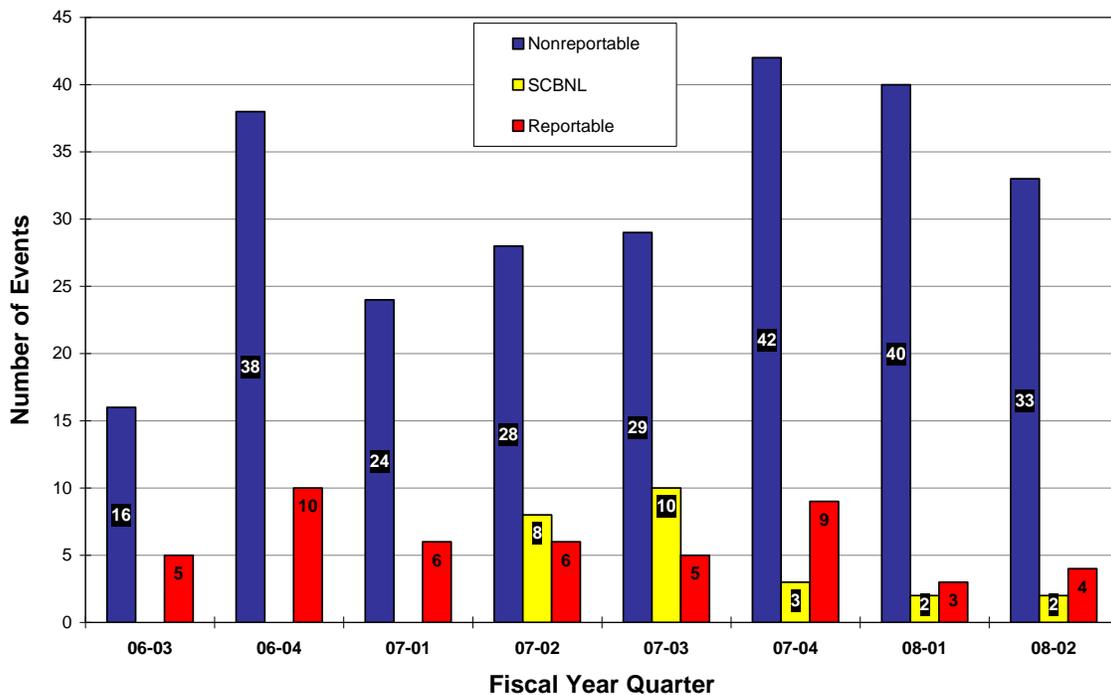


Exhibit 3 shows the number of ORPS reportable events (average 6/qr.), Significance Category BNL events (average 5/qr.) and non-reportable events (average 31/qr.) over the

last eight quarters. Continuing high numbers of evaluated events/conditions is indicative of an open 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 – 2nd Quarter FY 2008

1. SC--BHSO-BNL-BNL-2008 Off-site Transport of Radioactive Material Less Than
-0001 Adequate
2. SC--BHSO-BNL-AGS-2008 Counterfeit Metal Oxide Field-effect Transistors
-0001
3. SC--BHSO-BNL-BNL-2008 On-site Transport of Radioactive Material Less Than
-0002 Adequate
4. SC--BHSO-BNL-BNL-2008 Suspect Anchor Pin Shackles and Turnbuckles
-0003

SCBNL Events/Conditions – 2nd Quarter FY 2008

1. 02/19/08 – Contractor Fractures Finger While Using Drill
2. 03/06/08 – Small Fire in Outdoor Waste Receptacle at B-400

Exhibit 4: Distribution of ORPS Reports by Reporting Criteria

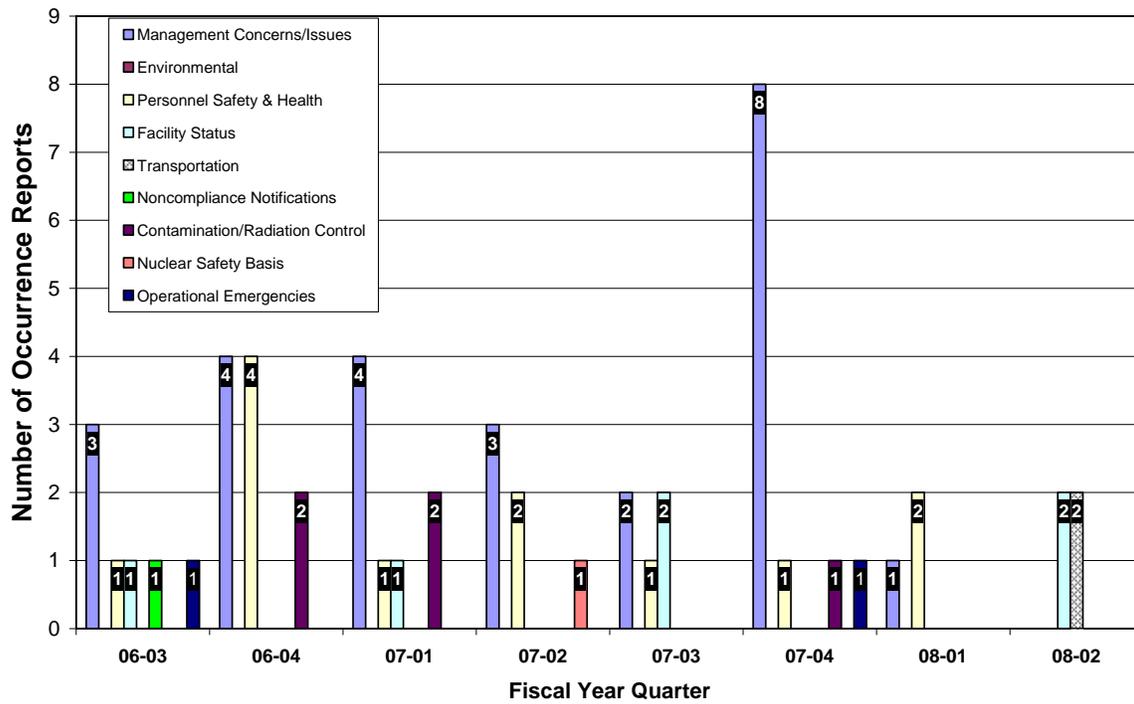


Exhibit 4 shows the number of BNL ORPS reports coded by ORPS reporting criteria, for each of the last eight quarters. No adverse trend is noted.

Exhibit 5: Analysis of Issues by Major Category

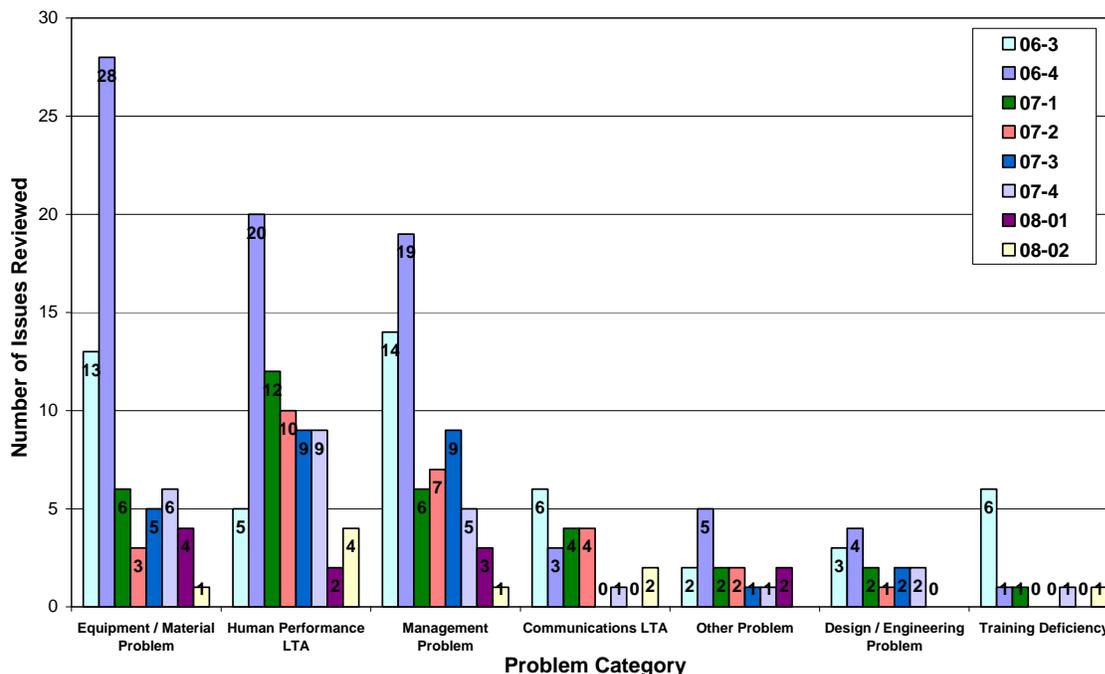


Exhibit 5 is a trend of ORPS cause codes per quarter during last eight quarters. The associated issues were reviewed and apparent cause codes were assigned from the ORPS Causal Analysis Tree in DOE Guide 231.1-2, *Occurrence Reporting Causal Analysis Guide*. Some issues were assigned more than one cause. No adverse trend is noted. There are discernible downward (improving) trends noted for Equipment/Material Problems and Human Performance inadequacies. Management Problems are also improving although not as significantly as the first two cause code categories.

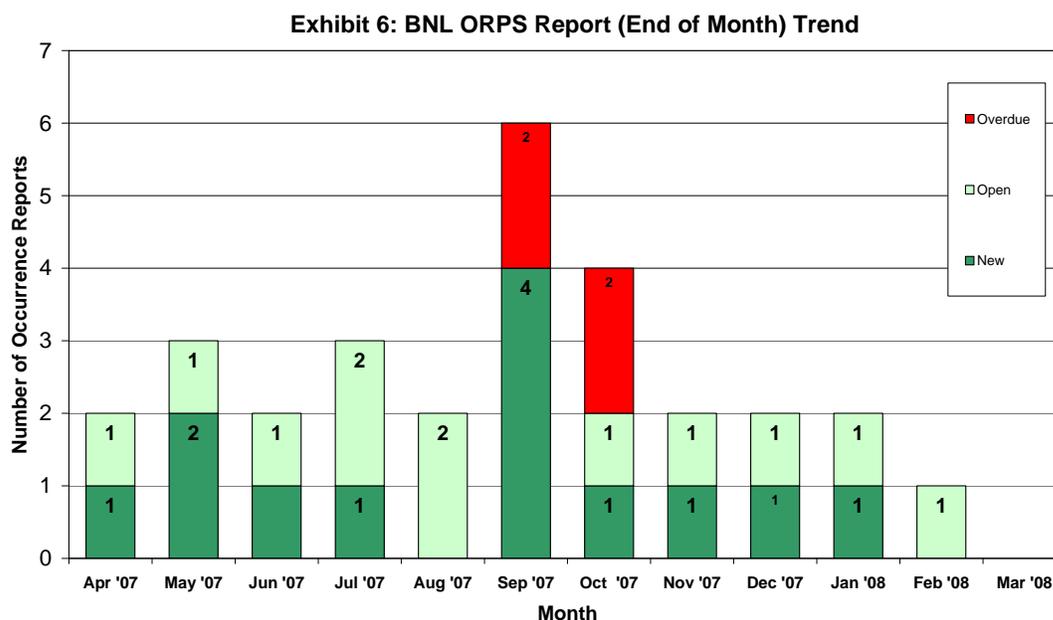
Note: The following are the definitions of the cause codes as defined by the DOE Guide 231.1-2, *Occurrence Reporting Causal Analysis Guide*:

- 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** 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. No adverse trend is noted.

Exhibit 7: ORPS Reports - Event and Assessment Driven

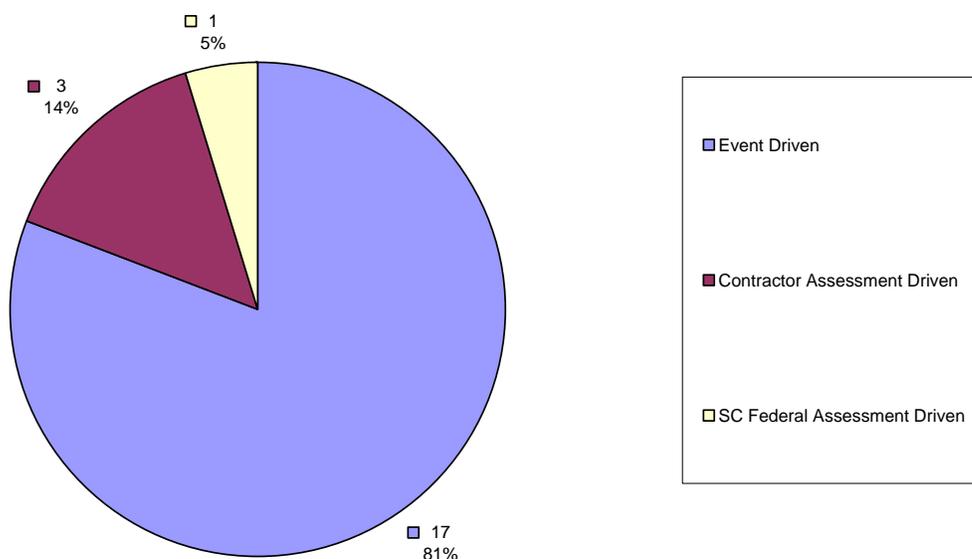


Exhibit 7 indicates that in the last 12 months; 17 ORPS reports were Event Driven, three reports were Contractor Assessment Driven and one report was SC Federal Assessment Driven.

The following is a list of 21 ORPS Reports that were issued in the last 12 months. The reports are identified as Event Driven, Contractor Assessment Driven, or SC Federal Assessment Driven.

<u>Report Number</u>	<u>Report Title</u>
1) SC--BHSO-BNL-AGS-2007-0001	Coffee-Room Microwave Oven Fire Causes Building Evacuation (Event Driven)
2) SC--BHSO-BNL-AGS-2008-0001	Counterfeit Metal Oxide Field-effect Transistors (Event Driven)
3) SC--BHSO-BNL-BNL-2007-0007	Firefighter drops exercise weight plate on left foot causing fracture (Event Driven)
4) SC--BHSO-BNL-BNL-2007-0008	Ungrounded Neutral Discovered in wye connected output of 13.8kV/208V Dry Type Transformer (Contractor Assessment Driven)
5) SC--BHSO-BNL-BNL-2007-0009	Laser Status Indicators at the Accelerator Test Facility (ATF) Not Functioning Properly (Contractor Assessment Driven)
6) SC--BHSO-BNL-BNL-2007-0010	Operational Emergency - Severe Weather (Event Driven)

- 7) SC--BHSO-BNL- BNL-2007-0011 Cable Fault Causes Power Outage (**Event Driven**)
- 8) SC--BHSO-BNL- BNL-2007-0012 Firefighter's Hand Injured during Patient Transport (**Event Driven**)
- 9) SC--BHSO-BNL- BNL-2007-0013 Bunsen Burner Ignites Disposable Lab Coat (**Event Driven**)
- 10) SC--BHSO-BNL- BNL-2007-0014 Unexpected Discovery of an Uncontrolled Electrical Energy Source in Building 490 (**Event Driven**)
- 11) SC--BHSO-BNL- BNL-2007-0015 Simultaneous Degradation of Fire Alarm System and Water Supplies for the Apartment Area (**Event Driven**)
- 12) SC--BHSO-BNL- BNL-2007-0016 Researcher Contamination (Nitrogen -13) (**Event Driven**)
- 13) SC--BHSO-BNL- BNL-2007-0017 Employee Trips and Fractures Left Foot (**Event Driven**)
- 14) SC--BHSO-BNL- BNL-2007-0018 Electrical Shock from Broken Wall Clock (**Event Driven**)
- 15) SC--BHSO-BNL- BNL-2007-0019 Occupational Exposure Exceeds ACGIH Limits for Static Magnetic Fields (**SC Federal Assessment Driven**)
- 16) SC--BHSO-BNL- BNL-2008-0001 Off-site Transport of Radioactive Material Less Than Adequate (**Event Driven**)
- 17) SC--BHSO-BNL- BNL-2008-0002 On-site Transport of Radioactive Material Less Than Adequate (**Event Driven**)
- 18) SC--BHSO-BNL- BNL-2008-0003 Suspect Anchor Pin Shackles and Turnbuckles (**Contractor Assessment Driven**)
- 19) SC--BHSO-BNL- PE-2007-0002 Site Wide Fire Alarm Communications Malfunction (**Event Driven**)
- 20) SC--BHSO-BNL- PE-2007-0003 Tree Fell on Power lines (**Event Driven**)
- 21) SC--BHSO-BNL- PE-2007-0004 A/C Unit Falls out of Window after being Dislodged by Lawnmower Roll Bar (**Event Driven**)

The following is a summary of the BNL LL/ORPS Coordinator's significant activities during the second quarter of FY 2008:

- Completed The American Society of Safety Engineers training course "Incident Investigation & Root Cause Analysis" (1/3-4/08)
- Facilitated Causal Analysis & Corrective Action Development for Occurrence Report No: SC--BHSO-BNL-BNL-2007-0019, "Occupational Exposure Exceeds ACGIH Limits for Static Magnetic Fields" (January/February 2008)
- Contributed to the ORPS conference call (1/23/08)
- Contributed to the Operating Experience conference call (02/12/08)
- Issued Quarterly Performance Report, 1st Quarter FY 2008 (02/15/08)
 - Overexposure to Static Magnetic Field (Occurrence Report No: SC--BHSO-BNL-BNL-2007-0019) was noted as a new area requiring attention.

Waste Management Facility Documented Safety Analysis (Occurrence Report No: SC--BHSO-BNL-BNL-2007-0006) was noted as an area showing improved performance.

- Presented “Awareness Level Training of ORPS Causal Code Tree” to Radiological Controls Division (02/04/08)
- Facilitated Causal Analysis & Corrective Action Development for Occurrence Report Number: SC--BHSO-BNL-BNL-2008-0002, “On-site Transport of Radioactive Material Less Than Adequate” (2/21/08)
- Attended Human Performance Improvement (HPI) Training for BNL HPI Advocates – HPAs (3/17-20/08)
- Presented “DOE Recurring Type ORPS Reports (2003-2007): A Narrative Study” at EFCOG Meeting to ORPS & Feedback and Improvement Subgroups on 3/25 & 3/27/08 respectively

V. Lessons Learned Activities

Seven Lessons Learned (LL) Communications received from the DOE LL subscription service were posted on the BNL LL web site during the second quarter of FY 2008.

- Electrical Arc Results in a Near Miss at the Molten Salt Reactor Experiment Facility, Y-2008-OR-BJCMSRE-0101 (1/23/08)
- Inadequate Hazard Reevaluation and Recognition Causes Electrical Shock, 2007-RL-HNF-0044 (1/25/08)
- Exploding Battery Incident, 2008-UTB-ORNL-0010 (2/12/08)
- Radioactive Sealed Source Events, 2007-LL-PNNLBOPER-0006 (2/13/08)
- Inappropriate Sample Shipment to Offsite Lab - Emphasizes Coordination Between Facilities and Laboratories For Sample Shipments, 2008-SR-WSRC-0003 (02/20/08)
- Be on the Lookout for Potential Electrical Hazards, HP-2008-0001, (3/12/08)
- Activation of Emergency Operations Center During Severe Weather Conditions, 2008-BNL-DF-0001, (3/24/08)

One BNL generated Lessons Learned Communication was submitted to the BNL subscription service for distribution and placed on the BNL LL web site.

- Activation of Emergency Operations Center During Severe Weather Conditions, 2008-BNL-DF-0001, (3/25/08)

Exhibit 8: Lessons Learned Feedback

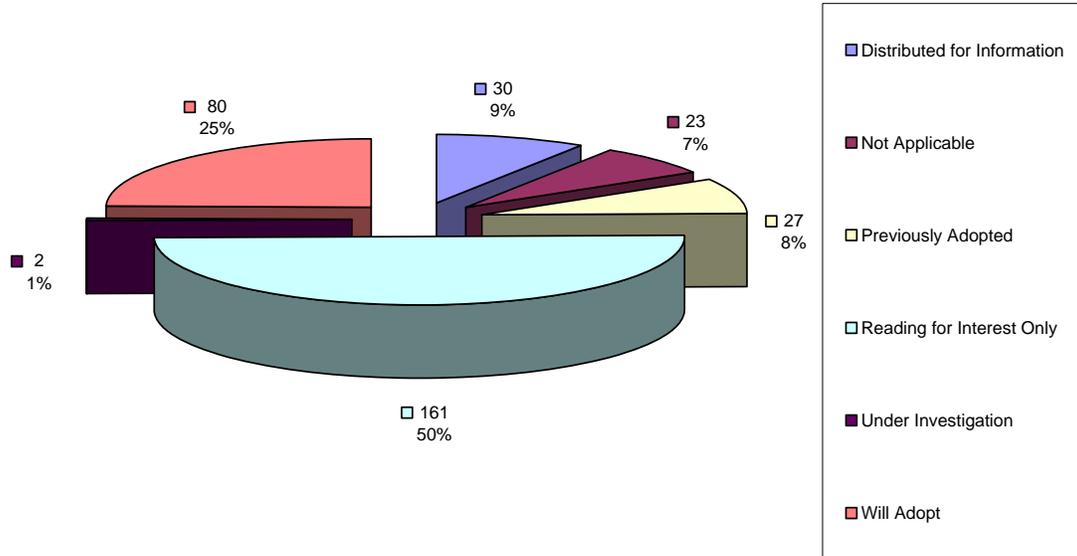


Exhibit 8 is a display of BNL staff feedback received concerning seven lessons published during the second quarter of FY 2008. 25% of the feedback indicates that a lesson will be adopted.

Exhibit 9: Lessons Learned Feedback

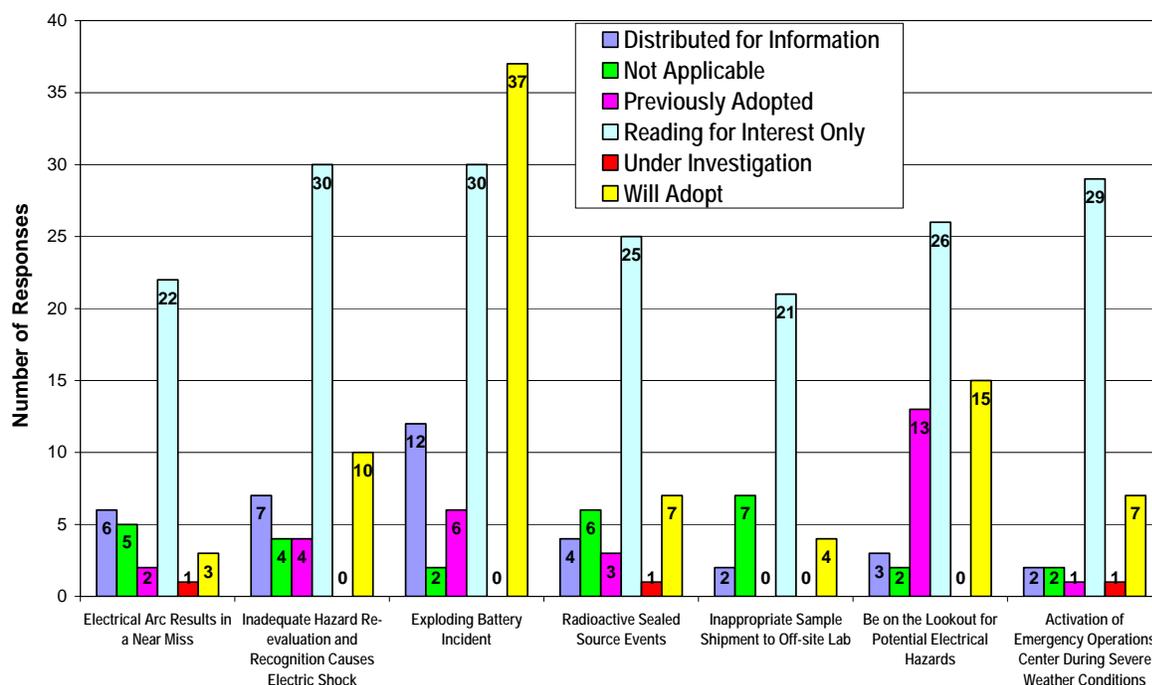


Exhibit 9 displays the feedback received for the nine lessons published to the BNL LL web site during the second quarter of FY 2008.

VI. New Area Requiring Attention

Overexposure to Static Magnetic Field:

On March 14, 2008, Final Occurrence Report SC--BHSO-BNL-BNL-2007-0019, “Occupational Exposure Exceeds ACGIH Limits for Static Magnetic Fields,” was issued to report several entries in September 2007 into the 4 Tesla static magnetic field of the BNL Magnetic Resonance Imaging (MRI) facility in violation of ACGIH limits of 2 Tesla ceiling limit and 60mT 8-hour Time Weighted Average (TWA). This condition was discovered by BHSO during a periodic review of personnel exposures occurring since December 2006.

The Occurrence Report was supported by “Occupational Exposure Exceeds ACGIH Limits for Static Magnetic Fields Causal Analysis & Corrective Actions,” which was issued at BNL on March 14, 2008. The causal analysis effort used TapRoot and The Five Whys methodologies. In addition, "The Seven Deadly Sins of Quality Management," Quality Progress, September 2003, by Dr. J. Dew was referenced during the analysis.

At completion of this quarter, one action has been closed and twelve remain open, none of which are past due. Continued monitoring is needed to assure that all corrective actions are tracked to completion as scheduled in the Institutional Assessment Tracking System and are effective in resolving the noted concerns.

VII. Areas of Improving Performance
None

VIII. References

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

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

J. Dew, "The Seven Deadly Sins of Quality Management," *Quality Progress*, September 2003.

Occurrence Report Number: SC--BHSO-BNL-BNL-2007-0019, "Occupational Exposure Exceeds ACGIH Limits for Static Magnetic Fields"

Quarterly Performance Report, 1st Quarter FY 2008, dated 02/14/08.