

# *Quality Management Office*

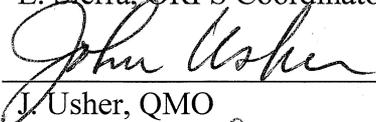
## **Brookhaven National Laboratory**

### **Quarterly Performance Report**

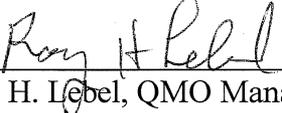
**1st Quarter FY 2008  
(2/14/08)**

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## I. Executive Summary

This report is the seventeenth edition of the Quarterly Performance Report and covers the first 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 first quarter of FY 2008, the Quality Management Office (QMO) reviewed 53 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 first quarter of FY 2008 indicates one new area requiring attention and one area 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 January 29, 2008, Update 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

- **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.

## 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 first quarter of FY 2008. Section V summarizes Lessons Learned activities for the first quarter of FY 2008.

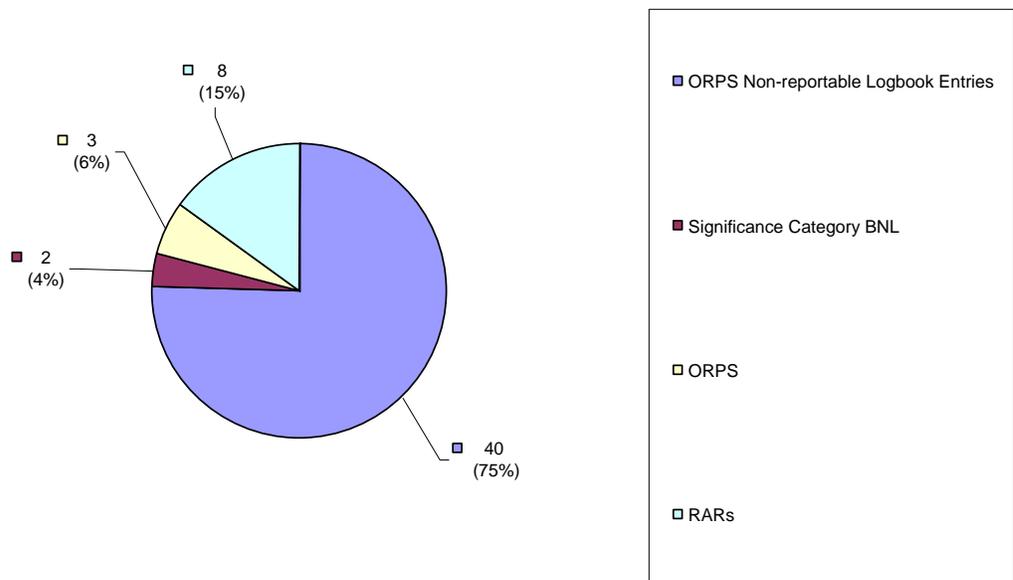
Sections VI, and VII summarizes new areas requiring attention and areas of improving performance respectively.

### III. Performance Analysis

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

#### A. Document Review Summary:

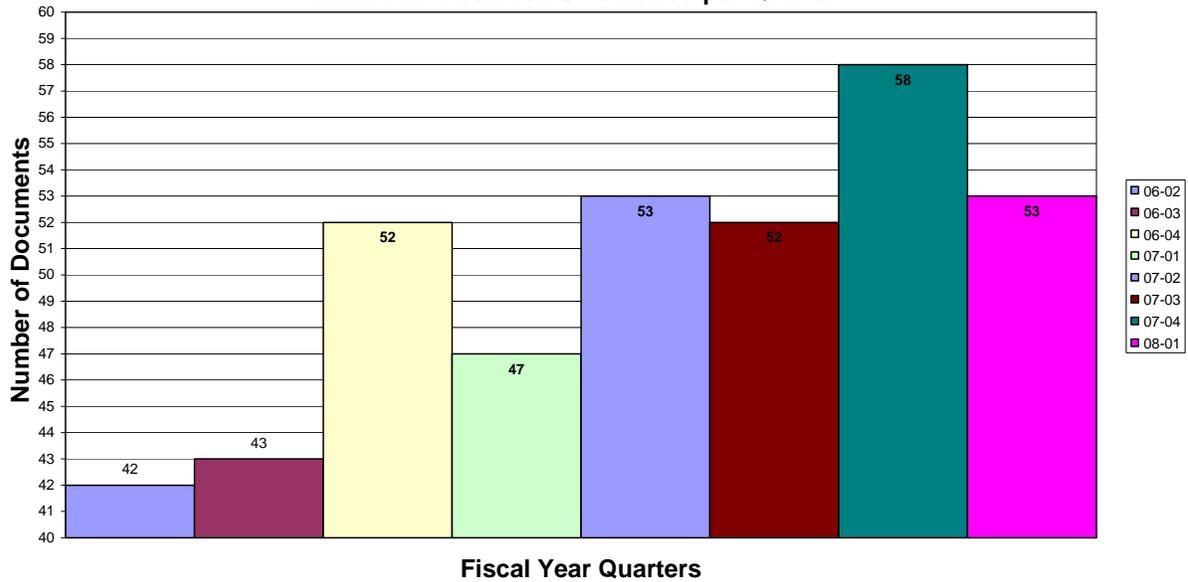
Exhibit 1 - Documents Reviewed for 1st Quarter FY 2008 Performance Analysis



**Exhibit 1** indicates 53 issues were reviewed for the first quarter performance analysis of FY 2008. Approximately 75% of the issues reviewed were ORPS nonreportable logbook entries made by the eight BNL on-call Event Categorizers.

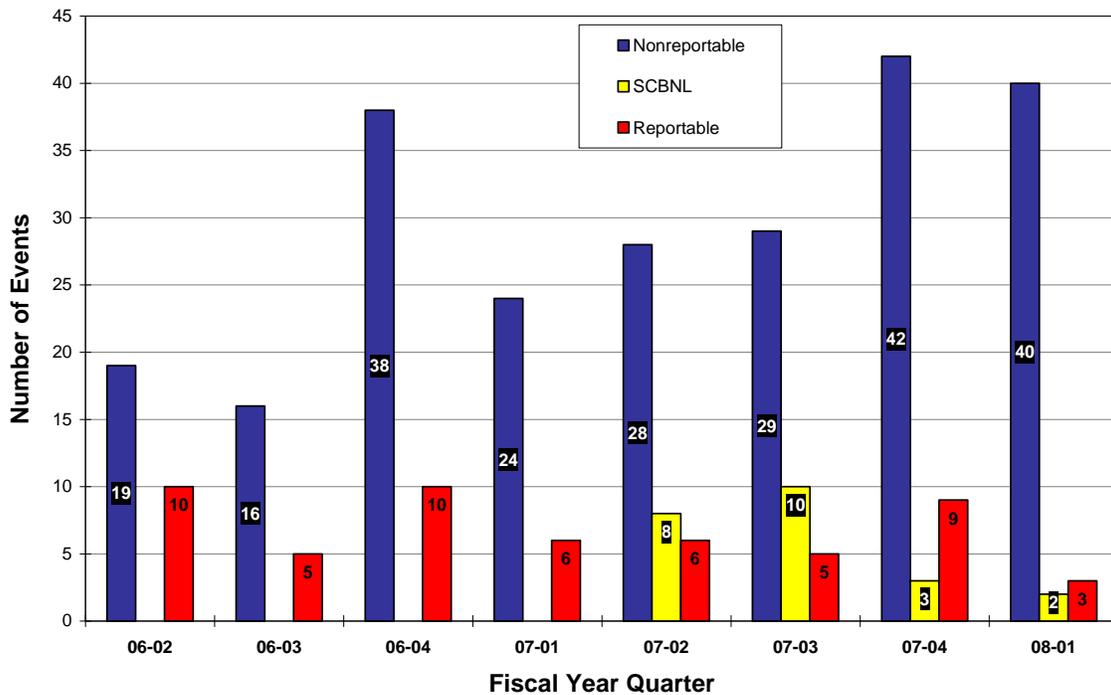
**Note:** The eight BNL Event Categorizers are a cadre of volunteer senior personnel who have received significant training on the reporting criteria of DOE Manual 231.1-2, *Event Reporting and Processing of Operations Information*. They are on a rotating schedule and available 24 hours a day, 7 days 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, 50 issues per quarter are reviewed. The number of issues reviewed in the 1st quarter FY 2008 (53) is slightly above average.

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



**Exhibit 3** shows the number of ORPS reportable events (average 7/qr.), Significance Category BNL events (average 6/qr.) and non-reportable events (average 30/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.

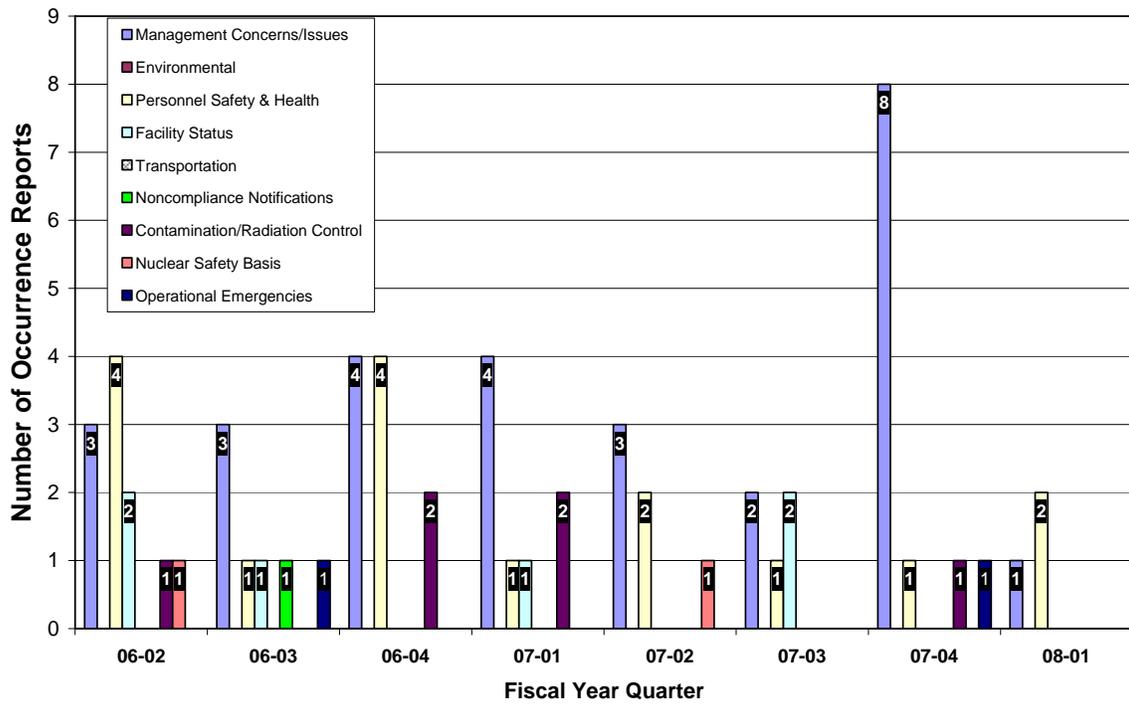
**ORPS Reportable Events/Conditions – 1st Quarter FY 2008**

1. SC--BHSO-BNL-BNL- Employee Trips and Fractures Left Foot  
2007-0017
2. SC--BHSO-BNL-BNL- Electrical Shock from Broken Wall Clock  
2007-0018
3. SC--BHSO-BNL-BNL- Occupational Exposure Exceeds ACGIH Limits for Static  
2007-0019 Magnetic Fields

**SCBNL Events/Conditions – 1st Quarter FY 2008**

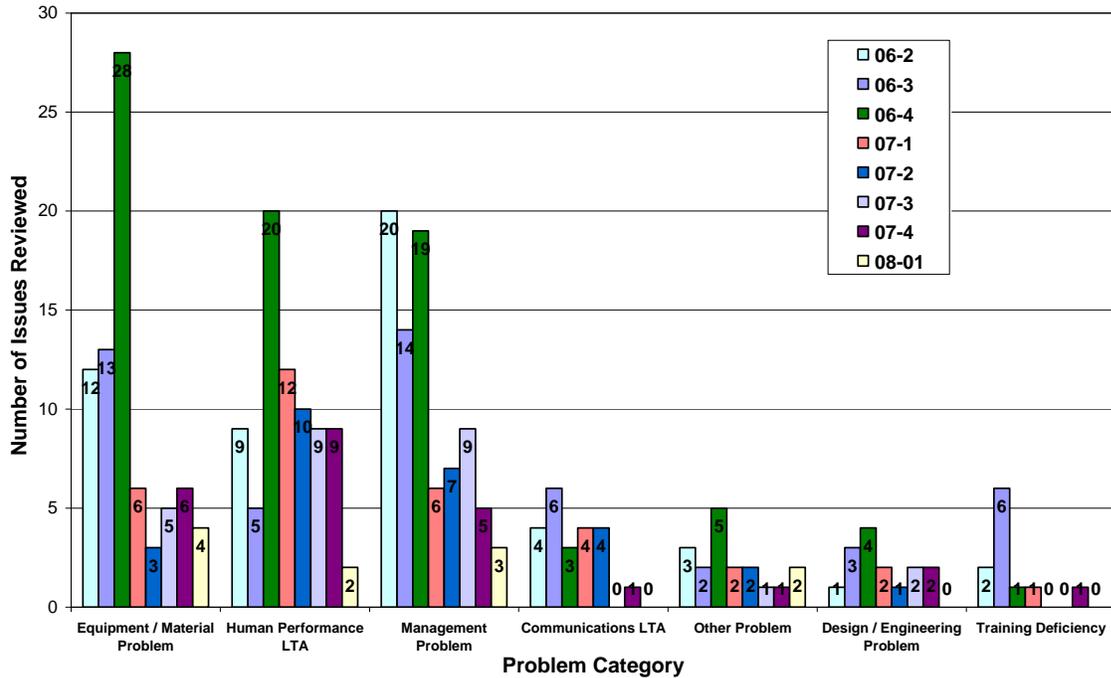
1. 10/08 – Brush Fire at Deer Leap Road (dirt road) at North side of RHIC Ring
2. 11/14 – Condensate Tank Motor Fire at B-555

**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.

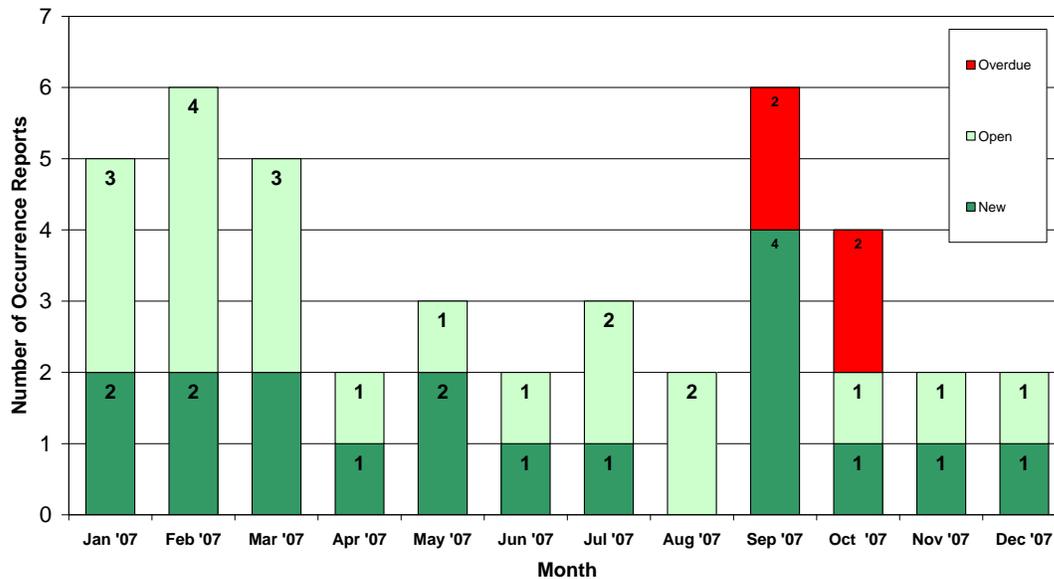
**Note:** The following are the definitions of the cause codes as defined by the DOE Guide 231.1-2, *Occurrence Reporting Causal Analysis Guide*:

- 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.

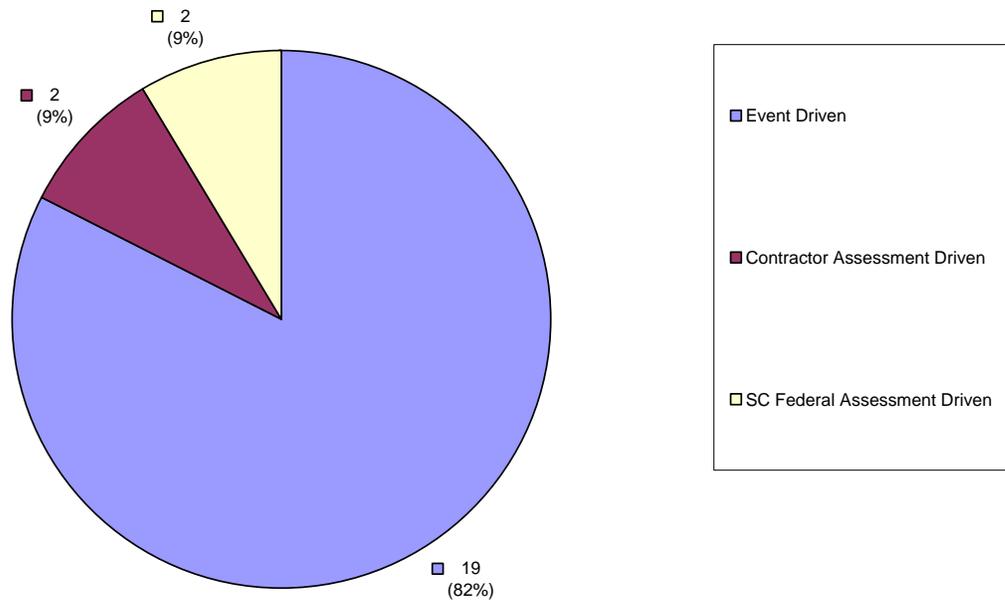
#### IV. ORPS Activities

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. No adverse trend is noted.

**Exhibit 7: ORPS Reports - Event and Assessment Driven**



**Exhibit 7** indicates that during CY 2007; 19 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 23 ORPS Reports that were issued during CY 2007. 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 ( <b>Event Driven</b> )
2) SC--BHSO-BNL-BNL-2007-0001	Security Patrol Officer Injures Knee ( <b>Event Driven</b> )
3) SC--BHSO-BNL-BNL-2007-0003	Copper Sheets Pin Worker Against Work Bench ( <b>Event Driven</b> )
4) SC--BHSO-BNL-BNL-2007-0004	Irritant in Air from Cleaning Floor Tile - Bldg 400 Lobby ( <b>Event Driven</b> )

- 5) SC--BHSO-BNL- BNL-2007-0005 Employee Grazed by Truck (**Event Driven**)
- 6) SC--BHSO-BNL- BNL-2007-0006 PISA and USQ for DOE review of Waste Management Facility Documented Safety Analysis and potentially unanalyzed hazards (**SC Federal Assessment Driven**)
- 7) SC--BHSO-BNL- BNL-2007-0007 Firefighter drops exercise weight plate on left foot causing fracture (**Event Driven**)
- 8) SC--BHSO-BNL- BNL-2007-0008 Ungrounded Neutral Discovered in wye connected output of 13.8kV/208V Dry Type Transformer (**Contractor Assessment Driven**)
- 9) SC--BHSO-BNL- BNL-2007-0009 Laser Status Indicators at the Accelerator Test Facility (ATF) Not Functioning Properly (**Contractor Assessment Driven**)
- 10) SC--BHSO-BNL- BNL-2007-0010 Operational Emergency - Severe Weather (**Event Driven**)
- 11) SC--BHSO-BNL- BNL-2007-0011 Cable Fault Causes Power Outage (**Event Driven**)
- 12) SC--BHSO-BNL- BNL-2007-0012 Firefighter's Hand Injured during Patient Transport (**Event Driven**)
- 13) SC--BHSO-BNL- BNL-2007-0013 Bunsen Burner Ignites Disposable Lab Coat (**Event Driven**)
- 14) SC--BHSO-BNL- BNL-2007-0014 Unexpected Discovery of an Uncontrolled Electrical Energy Source in Building 490 (**Event Driven**)
- 15) SC--BHSO-BNL- BNL-2007-0015 Simultaneous Degradation of Fire Alarm System and Water Supplies for the Apartment Area (**Event Driven**)
- 16) SC--BHSO-BNL- BNL-2007-0016 Researcher Contamination (Nitrogen -13) (**Event Driven**)
- 17) SC--BHSO-BNL- BNL-2007-0017 Employee Trips and Fractures Left Foot (**Event Driven**)
- 18) SC--BHSO-BNL- BNL-2007-0018 Electrical Shock from Broken Wall Clock (**Event Driven**)
- 19) SC--BHSO-BNL- BNL-2007-0019 Occupational Exposure Exceeds ACGIH Limits for Static Magnetic Fields (**SC Federal Assessment Driven**)
- 20) SC--BHSO-BNL- PE-2007-0001 Employee Fractures Rib During Pick-up Truck Lift Gate Operation (**Event Driven**)
- 21) SC--BHSO-BNL- PE-2007-0002 Site Wide Fire Alarm Communications Malfunction (**Event Driven**)
- 22) SC--BHSO-BNL- PE-2007-0003 Tree Fell on Power lines (**Event Driven**)
- 23) 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 first quarter of FY 2008:

- Contributed to the Operating Experience Committee general membership conference call (10/09/07)
- Initiated/facilitated the first meeting of the QMO Professional Development series; presented a video of a talk given by Dr. Atul Gawande based on his new book titled: "Better: A Surgeon's Notes on Performance" (10/09/07)
- Contributed to the Lessons Learned Metrics Committee conference call (10/16/07)
- Contributed to the ORPS conference call (10/17/07)
- Presented "Brookhaven National Laboratory (BNL) Events & Issues Management: Audit Results" at both the EFCOG - ORPS Task Group & QA Training Sessions, Las Vegas (10/24/07)
- Consulted in the drafting of a Significance/Complexity Causal Analysis Matrix for BNL Radiological Controls Division (10/29/07)
- Issued Quarterly Performance Report, 4th Quarter FY 2007 (11/21/07)
  - Waste Management Facility Documented Safety Analysis was noted as an area requiring continued attention. Safety Evaluation Report Issues was noted as an area showing improved performance.
- Attended "First Operating Experience Committee Meeting," at ISM Champions Workshop, BNL (11/27/07)
- Participated/Presented in "Panel Discussion on Contractor and Federal Operating Experience Programs" at ISM Champions Workshop, BNL (11/29/07)
- Presented: "Operating Experience: Feedback from the Complex" and "Lessons Learned: It's all About Change" at ISM Champions Workshop, BNL (11/29/07)
- Facilitated Categorizer's Workshop, #2007-03 (12/06/07). 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**

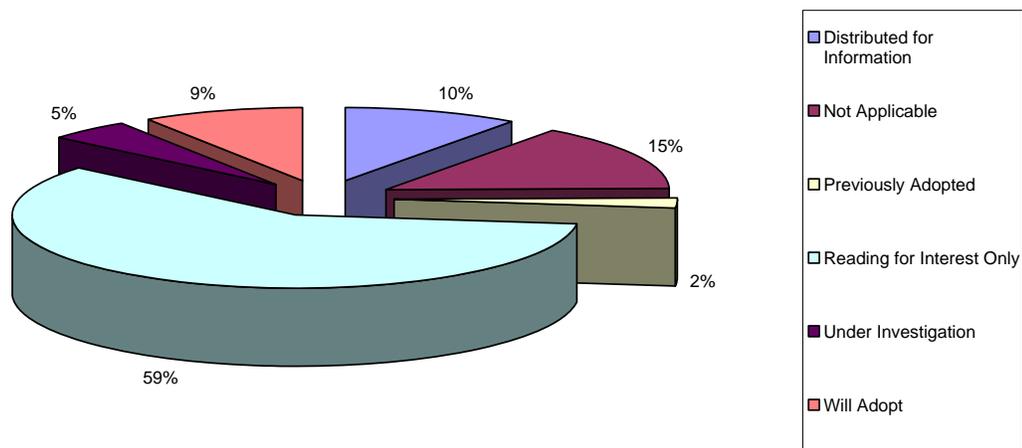
Two Lessons Learned (LL) Communications received from the DOE LL subscription service were posted on the BNL LL web site during the fourth quarter of FY 2007.

- Exemplary Safe Work Practices Deployed During SNS Project Construction, 2008-UTB-ORNL-0001 (12/11/07)
- Five Things to Help You Recognize a Changed Condition, G-2007-OR-BJCECP-1201 (12/12/07)

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

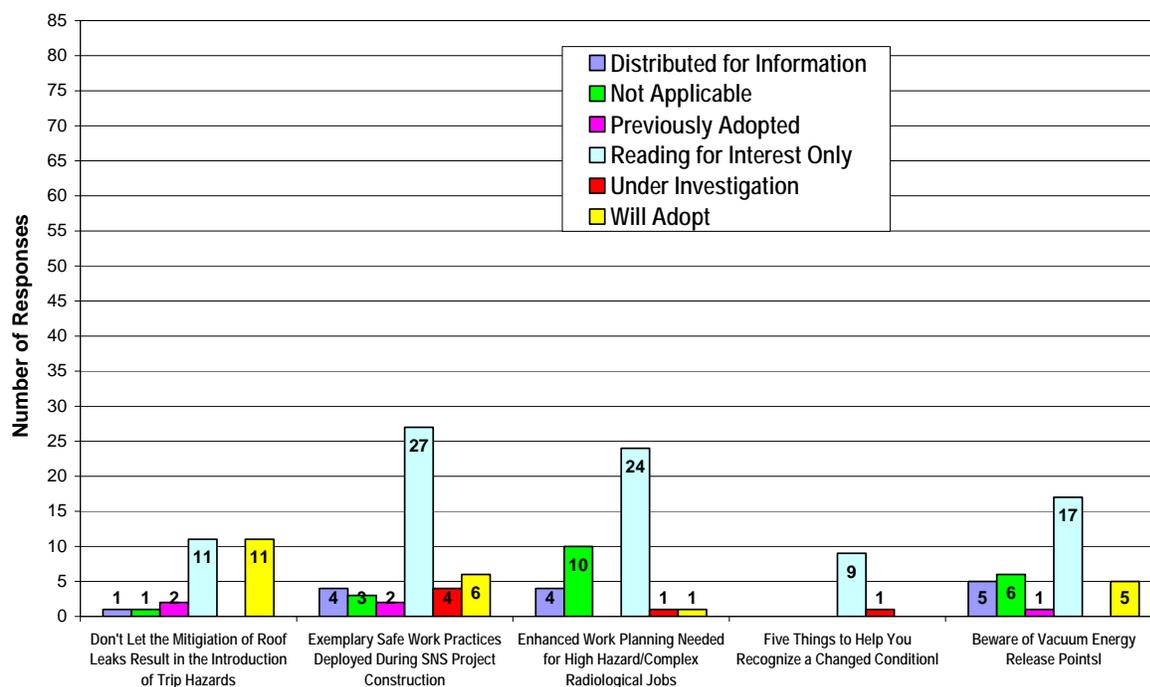
- Enhanced Work Planning Needed for High Hazard/Complex Radiological Jobs, 2007-CH-BNL-RP-0001 (10/04/07)
- Beware of Unsecured Vacuum Energy Release Points, 2007-CH-BNL-NSLS-0001 (10/04/07)
- Don't Let the Mitigation of Roof Leaks Result in the Introduction of Trip Hazards, 2007-BNL-DA-0002 (12/12/07)

**Exhibit 8: Lessons Learned Feedback**



**Exhibit 8** is a display of BNL staff feedback received concerning five lessons published during the fourth quarter of FY 2007. 9% of the feedback indicates that a lesson will be adopted.

### Exhibit 9: Lessons Learned Feedback



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

### VI. New Area Requiring Attention

#### Overexposure to Static Magnetic Field:

On January 29, 2008, Update 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 4Tesla 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 12/2006. Management attention is needed to assure that BNL completes a timely and thorough causal analysis and corrective action plan. Further details regarding the ORPS report will be provided in the next quarterly report.

### VII. Areas of Improving Performance

#### 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. Four ORPS actions have been completed and four remain open but not overdue.

### **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.

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

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, 4th Quarter FY 2007, dated 11/21/07.