

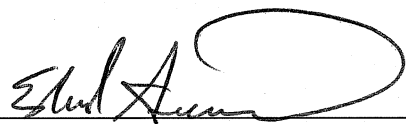
# *Quality Management Office*

## Brookhaven National Laboratory

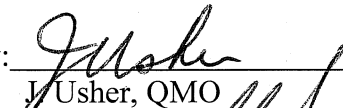
### Quarterly Performance Report

3rd Quarter FY 2007

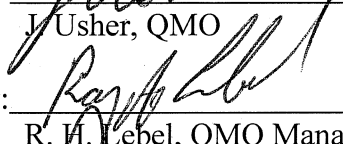
(08/14/07)

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## I. Executive Summary

This report is the fifteenth edition of the Quarterly Performance Report and covers the third 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 third quarter of FY 2007, the Quality Management Office reviewed 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 third quarter of FY 2007 indicates that a recurring occurrence report is not warranted.

### **New Area Requiring 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. Waste Management (WM) program administers a non-reactor nuclear hazard category 3 facility comprised of two buildings, building 865 (Reclamation Building) and building 870 (Mixed Waste Building). In late CY06 the annual review/submittal of the Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR) was provided to the DOE for review and comment. On March 5, 2007, a letter was received from the local area office which stated that they were unable to approve the 2006 revision of the DSA/TSR due to their identification of potentially unanalyzed hazards in the nuclear facility at the Waste Management Facility (WMF).

### **Areas Requiring Continued Attention**

**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. A deficiency involving Safety Evaluation Report (SER) issues at Environmental Restoration Projects was previously reported in ORPS. The issues were believed to have been corrected; however, inadequate configuration control of the High Flux Beam Reactor (HFBR) Authorization Basis Documents (ABD’s) identified that this is an area that requires continued attention.

**Railcar Operation:** Railcar operation is an area that requires continued attention.

## **Areas of Improving Performance**

**Material Handling:** Material handling is an area of improving performance.

## **II. Introduction**

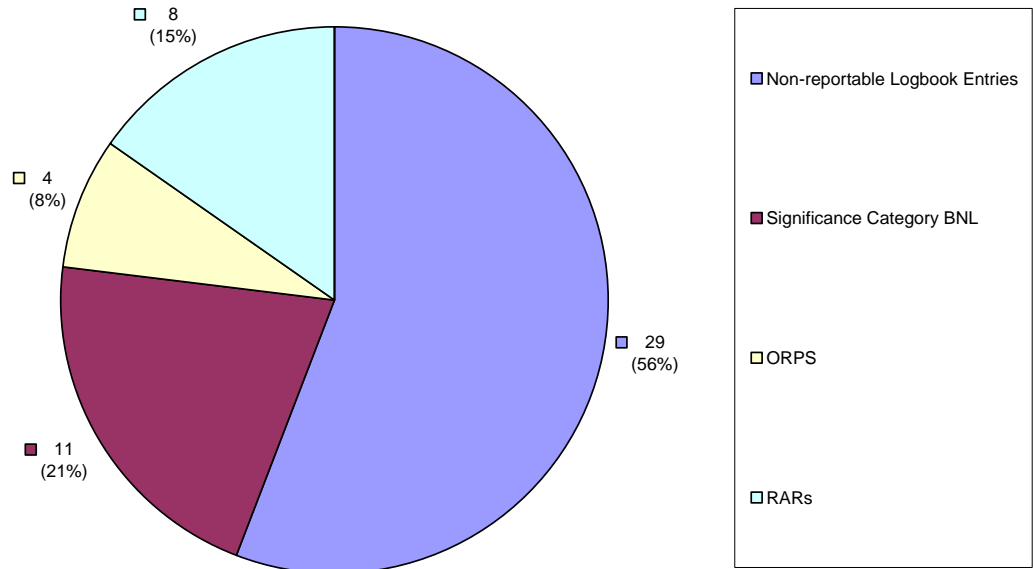
The ORPS Program is intended to: (1) ensure the timely collection, reporting, analysis, and dissemination of information on environmental, safety, and health issues, and (2) ensure the Department of Energy (DOE) and National Nuclear Security Administration (NNSA) are informed of events that could adversely 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 third quarter of FY 2007. Section V summarizes Lessons Learned activities for the third 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 third quarter of FY 2007, including a summary of the documents reviewed and trend analysis.

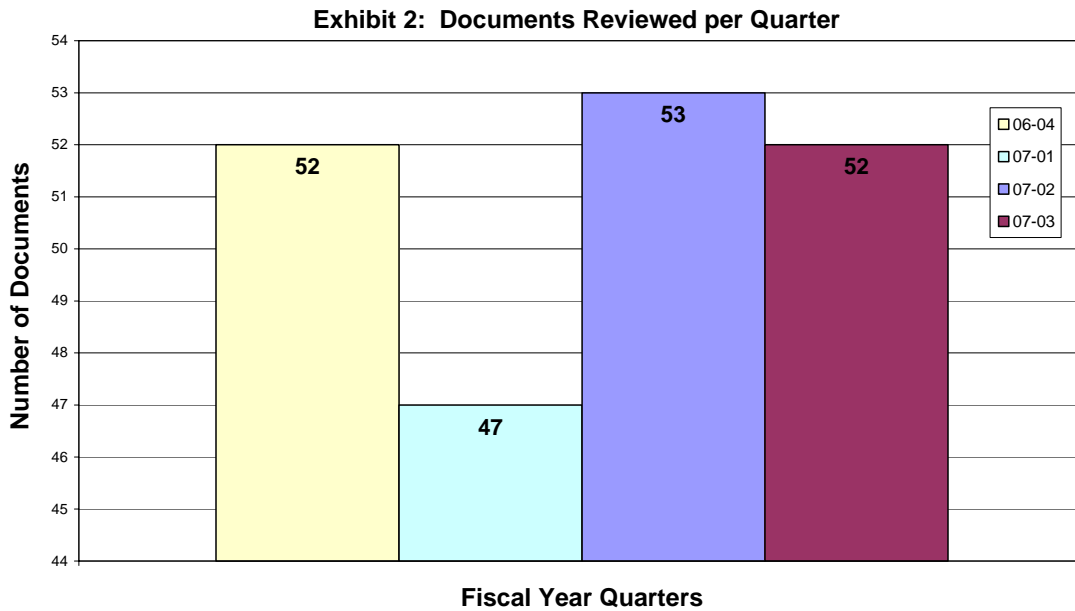
**A. Document Review Summary:**

Exhibit 1: Documents Reviewed for 3rd Quarter FY 2007 Performance Analysis

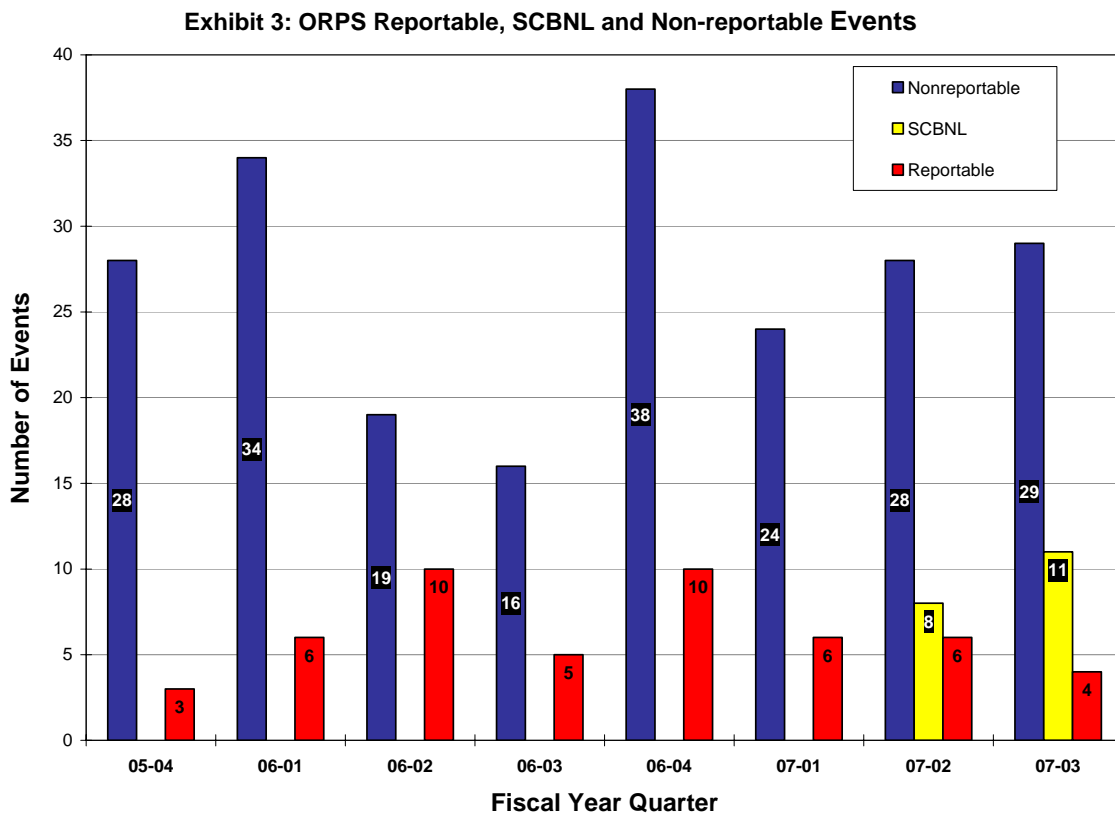


**Exhibit 1** indicates 52 documents were reviewed for the third quarter performance analysis of FY 2007. Approximately 56% of the documents reviewed were ORPS nonreportable logbook entries made by the eight BNL on-call Event Categorizers.

**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 documents reviewed per quarter. On average, 51 documents per quarter were reviewed.



**Exhibit 3** shows the number of ORPS reportable events, Significance Category BNL events and non-reportable events over the last eight quarters.

**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.

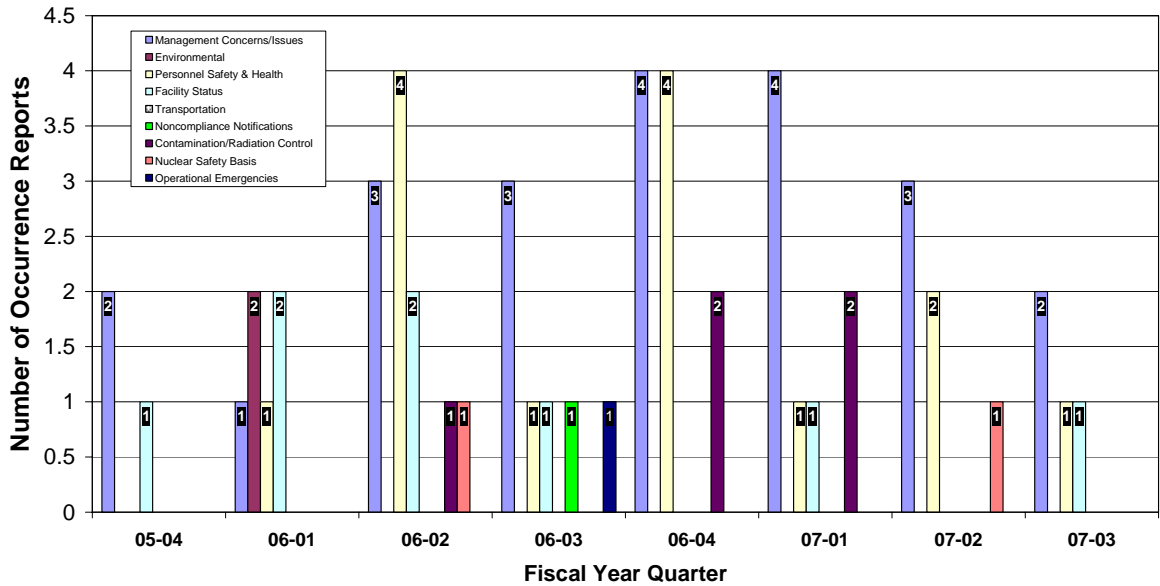
**ORPS Reportable Events/Conditions – 3rd Quarter FY 2007**

1. SC--BHSO-BNL-BNL-2007-0007, Firefighter drops exercise weight plate on left foot causing fracture
2. SC--BHSO-BNL-BNL-2007-0008, Ungrounded Neutral Discovered in wye connected output of 13.8kV/208V Dry Type Transformer
3. SC--BHSO-BNL-BNL-2007-0009, Improper Status provided by Laser/Shutter Indicators at the Accelerator Test Facility (ATF)
4. SC--BHSO-BNL-PE-2007-0002, Site Wide Fire Alarm Communications Malfunction

**SCBNL Events/Conditions – 3rd Quarter FY 2007**

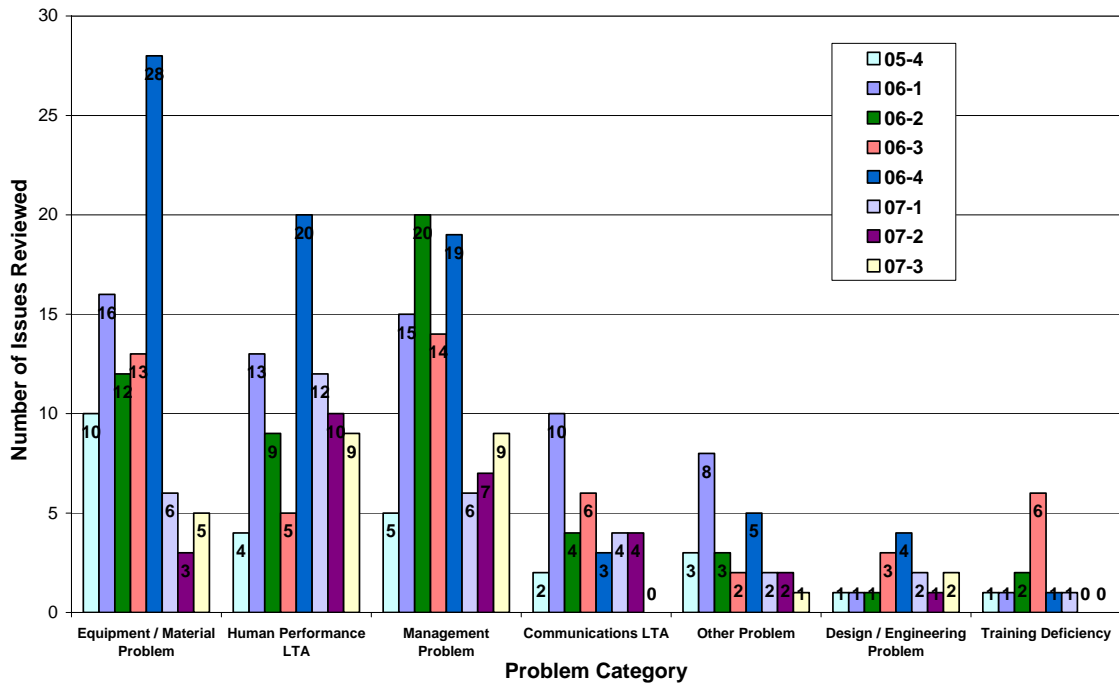
- 05/01 – Contamination in High Flux Beam Reactor fuel vault
- 05/02 – Minor brush fire in front of building 911
- 05/03 – Minor fire in ventilation system at National Synchrotron Light Source
- 05/05 – Cigarette butt results in smoldering mulch bed near building 735
- 05/15 – Microwave fire in building 1005
- 05/15 – Fire in building 120 butt stop
- 05/24 – Brush fire at remote location in the SE corner of site
- 05/31 – Fire in portable generator during preventive maintenance
- 06/18 – Fractured finger tip
- 06/27 – Electrical fire inside the cab of a rescue vehicle
- 06/28 – Butt can fire outside building 153

**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**



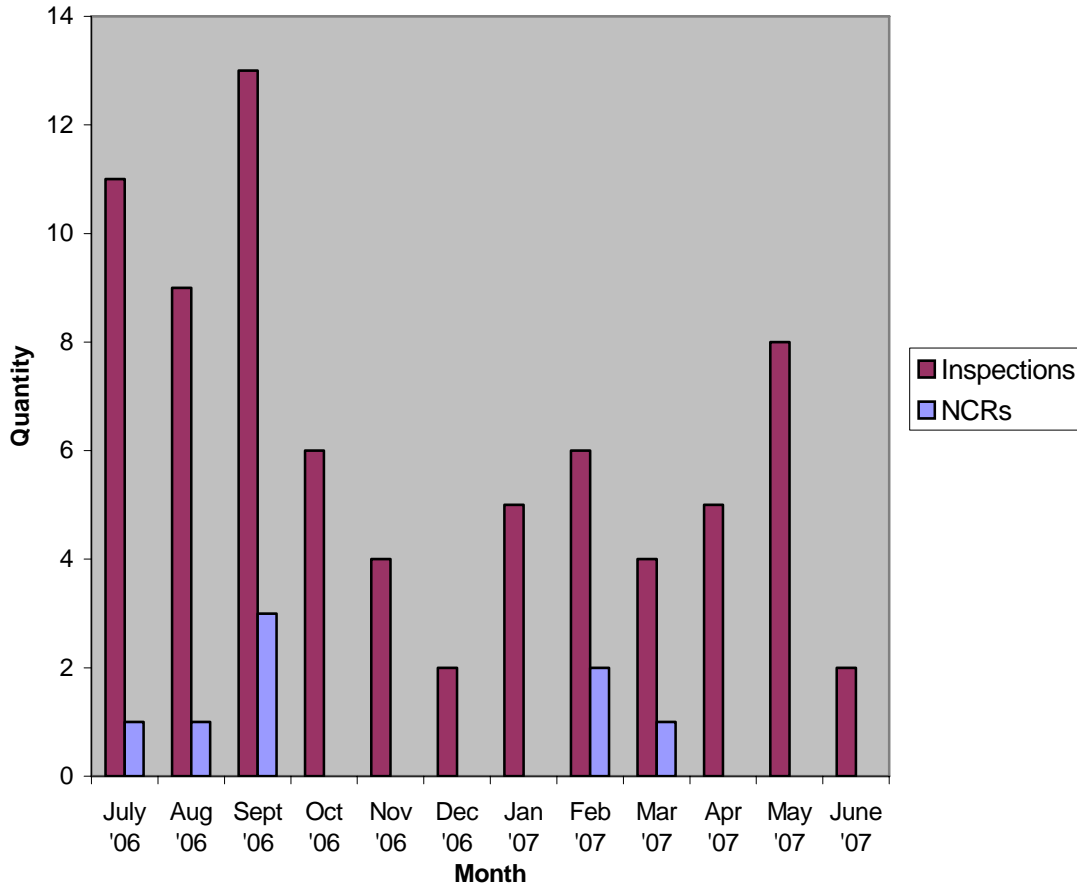
**Exhibit 5** is a trend of ORPS cause codes per quarter during last eight quarters. The associated issues were reviewed and apparent cause codes were assigned from the ORPS Causal Analysis Tree in DOE Guide 231.1-2, *Occurrence Reporting Causal Analysis Guide*. Some issues were assigned more than one 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.

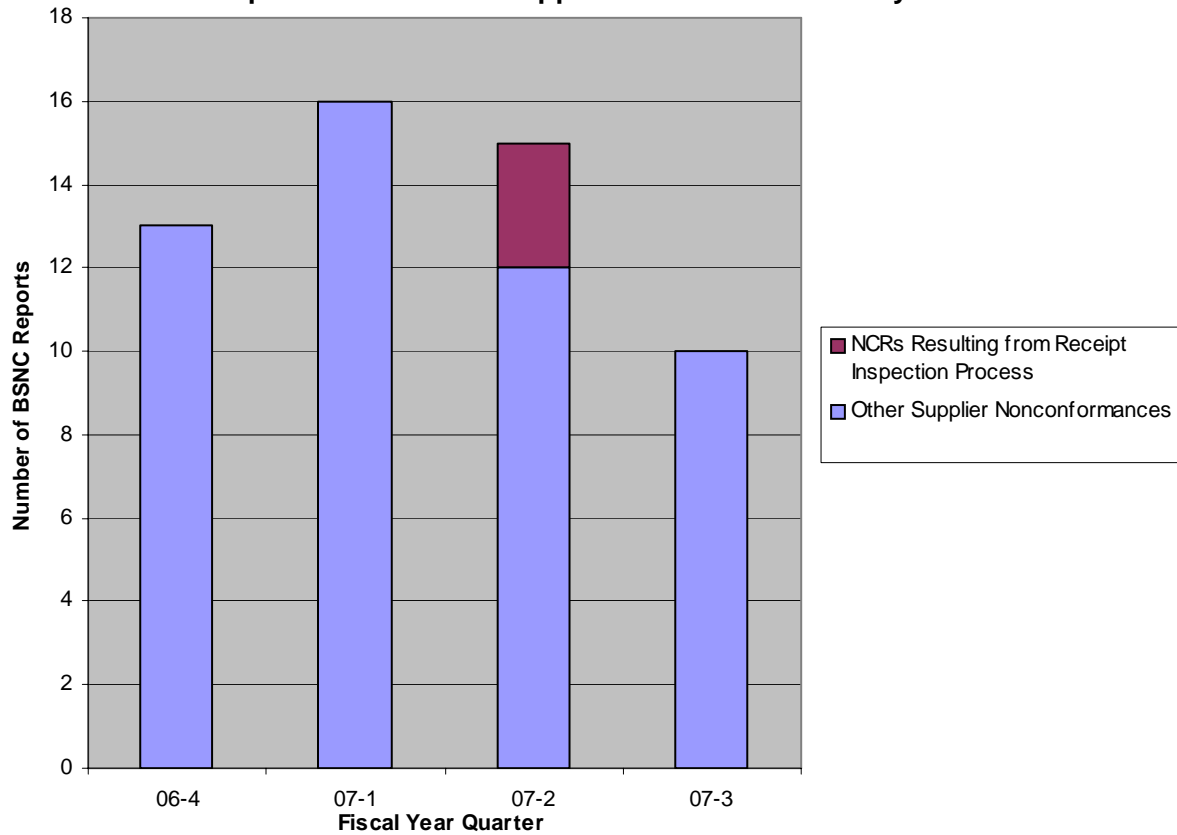
**B. Procurement Quality:**

**Exhibit 6: Receiving Inspection Activity  
For All A1/A2 or >\$100K Procurements**



**Exhibit 6** shows the results of receipt inspections over the past year. Ten percent of the inspections performed have identified a nonconformance. No adverse trend is noted.

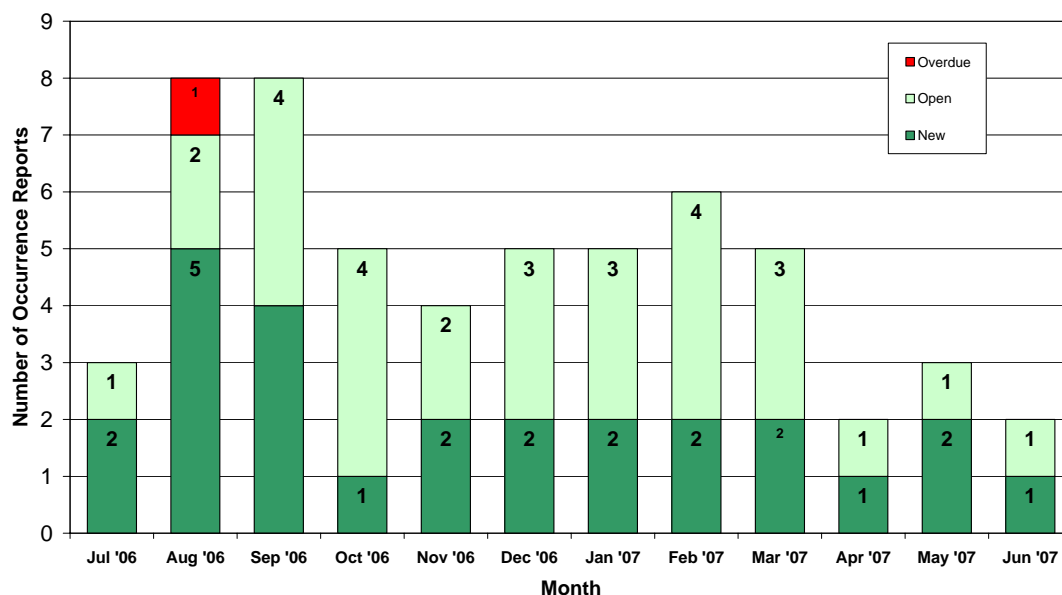
**Exhibit 7: Supplier-Related Nonconformances  
Reported in the BNL Supplier Nonconformance System**



**Exhibit 7** shows the web-based BNL Supplier Nonconformance Reporting and Tracking System activity over the last four quarters. No adverse trend is noted.

#### IV. ORPS Activities

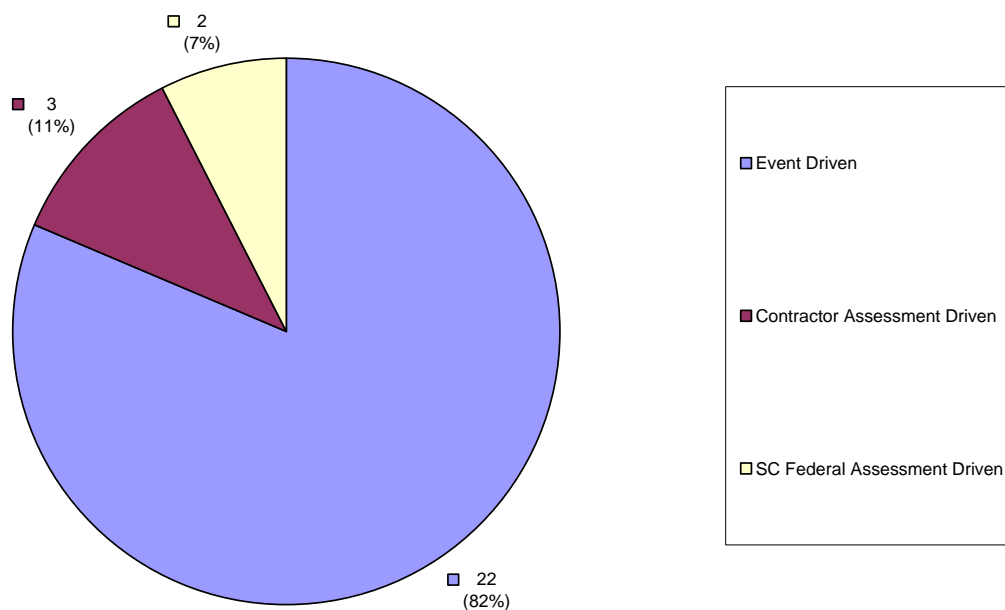
Exhibit 8: BNL ORPS Report (End of Month) Trend



**Exhibit 8** 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. 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 9 ORPS Reports: Event and Assessment Driven**



**Exhibit 9** indicates that over the last 12 months 22 ORPS reports were Event Driven, three reports were Contractor Assessment Driven and two reports were SC Federal Assessment Driven.

The Following is a list of 27 ORPS Reports issued over the last 12 months. The reports are identified as Event Driven, Contractor Assessment Driven, or SC Federal Assessment Driven.

- 1) EM--BHSO- HFBR Dumpster alarms BNL Radiation Truck Monitor (Event Driven)  
BNL-BNL-2006-0012
- 2) EM--BHSO- HFBR Air Conditioning Water Pump Seal Leak (Event Driven)  
BNL-HFBR-2006-0001
- 3) EM--BHSO- Failure to maintain configuration control of DOE-SER specified  
BNL-HFBR- Authorization Basis Manual documents (SC Federal Assessment  
2006-0002 Driven)
- 4) SC--BHSO-BNL- Unsafe Protection Scheme for Electrical Hazard (Contractor  
AGS-2006-0003 Assessment Driven)
- 5) SC--BHSO-BNL- Coffee-Room Microwave Oven Fire Causes Building Evacuation  
AGS-2007-0001 (Event Driven)

- 6) SC--BHSO-BNL- Employee slips while descending ladder resulting in broken bones in  
BNL-2006-0013 left hand (Event Driven)
- 7) SC--BHSO-BNL- Painter's spackling knife contacts abandoned live electrical wiring  
BNL-2006-0014 (Event Driven)
- 8) SC--BHSO-BNL- Employee Fractures Rib (Event Driven)  
BNL-2006-0015
- 9) SC--BHSO-BNL- Contamination Found Outside the BGRR Radiologically Controlled  
BNL-2006-0016 Area (RCA) (Event Driven)
- 10) SC--BHSO-BNL- Silica Exposure During Concrete Crushing Machine Operation (Event  
BNL-2006-0017 Driven)
- 11) SC--BHSO-BNL- Failure of Chemtronic Heat Detectors (Event Driven)  
BNL-2006-0018
- 12) SC--BHSO-BNL- Personnel Contamination during PET Imaging Study (Event Driven)  
BNL-2006-0019
- 13) SC--BHSO-BNL- Work Near Energized Equipment by Vendor (Event Driven)  
BNL-2006-0020
- 14) SC--BHSO-BNL- Discovery of Legacy Contamination (Event Driven)  
BNL-2006-0021
- 15) SC--BHSO-BNL- Security Patrol Officer Injures Knee (Event Driven)  
BNL-2007-0001
- 16) SC--BHSO-BNL- Copper Sheets Pin Worker Against Work Bench (Event Driven)  
BNL-2007-0003
- 17) SC--BHSO-BNL- Irritant in Air from Cleaning Floor Tile - Bldg 400 Lobby (Event  
BNL-2007-0004 Driven)
- 18) SC--BHSO-BNL- Employee Grazed by Truck (Event Driven)  
BNL-2007-0005
- 19) SC--BHSO-BNL- PISA and USQ for DOE review of Waste Management Facility  
BNL-2007-0006 Documented Safety Analysis and potentially unanalyzed hazards (SC  
Federal Assessment Driven)
- 20) SC--BHSO-BNL- Firefighter drops exercise weight plate on left foot causing fracture  
BNL-2007-0007 (Event Driven)
- 21) SC--BHSO-BNL- Ungrounded Neutral Discovered in wye connected output of  
BNL-2007-0008 13.8kV/208V Dry Type Transformer (Contractor Assessment Driven)
- 22) SC--BHSO-BNL- Improper Status provided by Laser/Shutter Indicators at the  
BNL-2007-0009 Accelerator Test Facility (Contractor Assessment Driven)
- 23) SC--BHSO-BNL- Chemical Spill in Wet Chemistry Laboratory (Event Driven)  
NSLS-2006-0001
- 24) SC--BHSO-BNL- Unexpected Energized Cord Cut (Event Driven)  
NSLS-2006-0002
- 25) SC--BHSO-BNL- Forklift drops secured aerial lift (Event Driven)  
PE-2006-0004
- 26) SC--BHSO-BNL- Employee Fractures Rib During Pick-up Truck Lift Gate Operation  
PE-2007-0001 (Event Driven)

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

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

- Facilitated BNL Lessons Learned Workshop on 04/02/07 and 05/15/07.
  - Workshop goal: To prompt feedback, evaluate, and improve BNL's Lessons Learned Program
- Facilitated Categorizer's Workshop, #2007-01 (4/11/07). 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.
- Gave a presentation entitled "Event and Issues Management at Brookhaven National Laboratory" at the EFCOG meeting in Atlanta (05/02/07)
- Issued Quarterly Performance Report, 2nd Quarter FY 2007 (05/22/07)
  - Safety Evaluation Report (SER) Issues was a new area requiring while Material Handling Program and Railcar Operations were identified as areas needing continuing attention.
- Facilitated causal analysis and the development of corrective action plan concerning Cigarette Butt Fires. Issued report on 06/21/07.

## V. Lessons Learned Activities

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

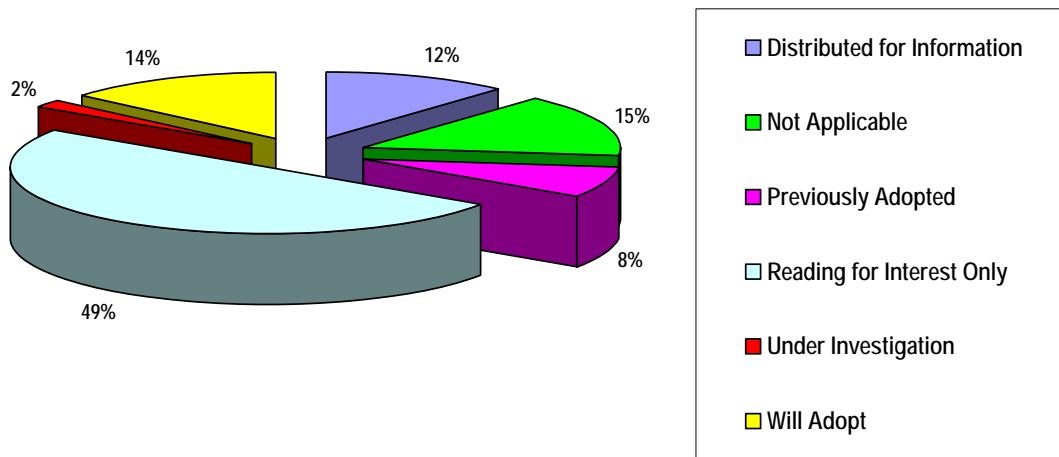
- Railcar Axle Rigging Discrepancy - Requirements for Pre-Use Inspection - And A Good Example Of Using A Time Out (SRS), 2007-SR-WSRC-0007 (4/12/07)
- Rigging, Lifting, Material Handling Events at Commercial Nuclear Stations, CH2M HILL Lessons Learned Bulletin SB-06-014 (4/12/07)
- Employee Fatality In Motorcycle Accident, 2007-SSO-SNL-8517-01 (5/31/07)
- Respirator Cartridge Dislodges from Facepiece due to Improper Alignment, 2007-X10UTB-0007B (5/31/07)
- Adjustable Ladder Collapses Resulting in Injury, PNNL-ID-1182 (6/05/07)
- Failure to Peer Check Calculations Results in Positive Unreviewed Safety Question, 2007-RL-HNF-0017 (6/05/07)
- Hazardous Waste Container Overpressurizes Following Addition of Nitric Acid Solution, 2007-X10UTB-0009 (6/08/07)
- Importance of Good Communication Habits, 2007-RL-HNF-0022 (6/11/07)

- Communication is a Critical Element in Effective ISMS Implementation at the Activity Level, 2007-SSO-SNL-10000-01 (6/11/07)

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

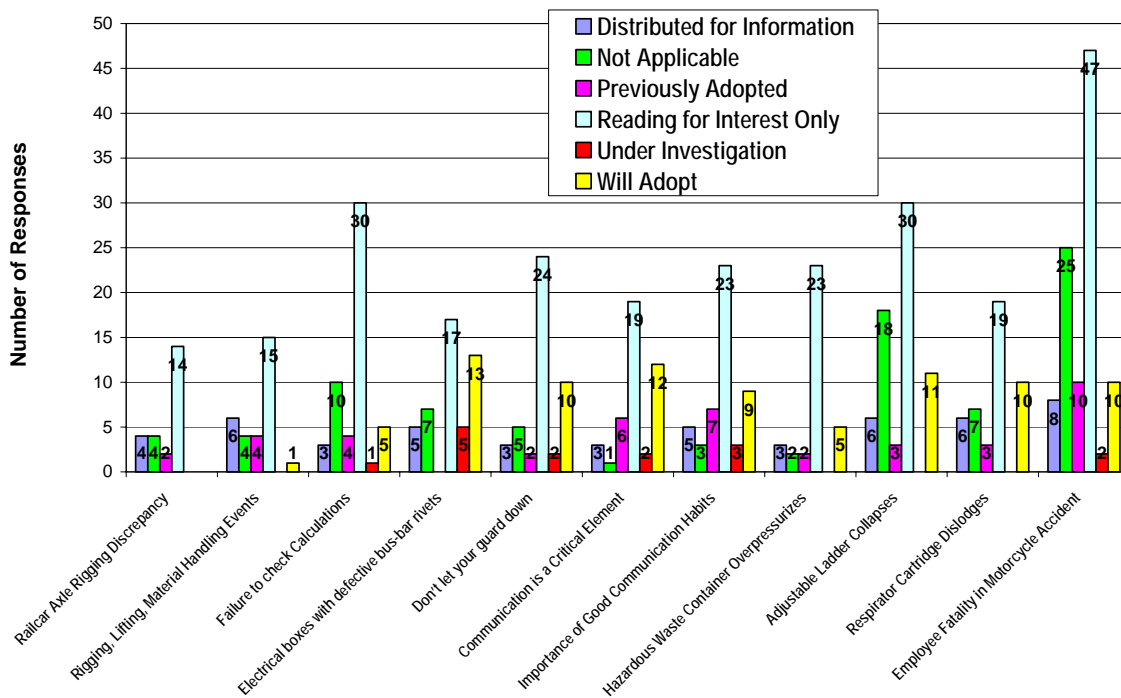
- Don't Let Your Guard Down When Preparing Facilities for Decommissioning and Decontamination, ERP-2007-0001 (6/04/07)
- Electrical Multi-Tap Power Boxes found with Defective Bus-bar Rivets and Loose Bus-bar Screws, 2007-BNL-DA-0001 (6/18/07)

**Exhibit 10: Lessons Learned Feedback**



**Exhibit 10** is a display of BNL staff feedback received concerning the lessons published during the third quarter of FY 2007.

**Exhibit 11: Lessons Learned Feedback**



**Exhibit 11** displays the feedback received for the eleven lessons published to the BNL LL web site during the third quarter of FY 2007.

**VI. New Area Requiring 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. Waste Management (WM) program administers a non-reactor nuclear hazard category 3 facility comprised of two buildings, building 865 (Reclamation Building) and building 870 (Mixed Waste Building). In late CY06 the annual review/submittal of the Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR) was provided to the DOE for review and comment. On March 5, 2007, a letter was received from the local site office which stated that they were unable to approve the 2006 revision of the DSA/TSR due to their identification of potentially unanalyzed hazards in the nuclear facility at the Waste Management Facility (WMF).

As of July 19, 2007, new limits have been proceduralized and WM staff has been trained. The DOE-Brookhaven Site Office was notified by letter that the WMF intended to downgrade to less than a Haz Cat 3 Nuclear Facility, and they requested that a cost/benefit analysis be performed of three options for the WMF, and that the Laboratory consider any change of status strategically. Re-writing the DSA and continuing as a Haz Cat 3 Nuclear Facility was

one option reviewed, shipping enough material to disposal to allow a downgrade to a < Haz Cat 3 facility was a second, and an intermediate position involving operating under a Haz Cat 3 DSA with limited controls while maintaining inventory below Haz Cat 3 levels was a third. The analysis has been performed, and the Laboratory Policy Council must review and decide on the course of action. WMF was on the agenda for the July 17 Policy Council meeting, which was cancelled. The WMF will be on the next Policy Council meeting, which will be sometime before the end of August. Therefore, it is anticipated that the Final Occurrence Report will be issued by September 10, 2007. This extension will allow the decision on the ultimate course of action to be documented in the Final Occurrence Report.

## **VII. Area Requiring Continued Attention**

**Safety Evaluation Report (SER) Issues:** EM--BHSO-BNL-HFBR-2005-0001, “Violation of High Flux Beam Reactor Safety Evaluation Report” was issued on December 4, 2005. This report identified a weakness in management/administrative controls to assure that SER conditions are clearly communicated, understood and implemented in day-to-day operations. The report includes a total of 11 corrective actions. At completion of this quarter, all corrective actions have been closed. However, a new issue has since been identified and constitutes a new violation of the HFBR SER involving inadequate configuration control of HFBR ABD’s. This condition was identified by DOE-BHSO and indicates that previous corrective actions were not fully effective in preventing SER violations. Continued management attention is needed to assure that all corrective actions are tracked to completion as scheduled in the Institutional ATS and are effective in resolving the noted concerns. A Final ORPS report (EM--BHSO-BNL-HFBR-2006-0002), which addresses this condition, was issued on April 27, 2007. At completion of this quarter, eight actions have been closed and four remain open. Continued monitoring is needed to assure that all corrective actions are tracked to completion as scheduled in the Institutional ATS and are effective in resolving the noted concerns.

**Railcar Events:** On September 29, 2005, a meeting was facilitated by the Laboratory Occurrence Reporting Coordinator to review/discuss the recent history of railcar events at BNL and the path forward concerning occurrence reporting. At this meeting a decision was made by the Environmental Restoration Projects Director (based on frequency and potential consequence) to re-categorize occurrence report EM-BH-BNL-BNL-2005-0009 to an "R" Recurring occurrence report titled “Recurring Railcar Events.” The Final occurrence report was issued on January 27, 2006. At completion of this quarter, nine actions have been closed and four remain open, one of which is past due. Continued monitoring is needed to assure that all corrective actions are tracked to completion as scheduled in the Institutional ATS and are effective in resolving the noted concerns.

## **VIII. Areas of Improving Performance**

**Material Handling:** Recurring material handling problems were reported in the second quarter of FY 2004 in ORPS “R” Report CH-BH-BNL-BNL-2004-0005, “Recurring Material Handling Problems.” As of June 26, 2007, 51 corrective actions have been completed to include an assessment of the effectiveness of corrective actions that were related to the root

causes of material handling problems. Material handling is an area of improving performance.

#### **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: SC-CH-BH-BNL-BNL-2004-0005, “Recurring Material Handling Problems.”

Occurrence Report Number: EM-BH-BNL-BNL-2005-0009, “Recurring Railcar Events”

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: EM--BHSO-BNL-HFBR-2005-0001, “Violation of High Flux Beam Reactor Safety Evaluation Report”

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, 2nd Quarter FY 2007, dated 05/18/07.