NSLS II 2016 EMS/OSH Management Review

Andrew Ackerman
February 07, 2017
Scope

• “Senior Management shall”...Evaluate ESH program
  • Adequacy – does it meet requirements & is it implemented appropriately
  • Suitability- does it “fit” operations & systems
  • Effectiveness- is it achieving the desired results

• Expected Outcome:
  • Provide feedback and direction
  • Identify areas where improvements are needed
Agenda

• ESH Programs
• Changing Circumstances
• ESH Performance
• 2017 Goals
• Summary / Feedback
Agenda

• ESH Programs
  • Changing Circumstances
  • ESH Performance
  • 2017 Goals
  • Summary / Feedback
2016 Work Planning

- **Operations** (includes installation, testing, and maintenance)
  - Worker planned; Prescribed; Permit planned
  - 15 Work Permits
    - New BNL electronic system
      - much improved; reliable; email; easy interface
  - Manager, Deputy & 46 Work Control Coordinators
  - Primary Reviewer (ESH)

- **User Science**
  - Proposal, Allocation, Safety, & Scheduling (PASS II)
  - Safety Approval Forms (268 approved)
    - Commissioning (technical & science)
    - User Science (beamline & laboratory)

- **Science Facility**
  - BNL ESR’s; 41 total
    - Beamlines (7; 7 more in draft)
    - User and other laboratories (25)
    - 2 other (high V cage, robot testing, …)

- **Contractors**
  - JSA/PHA (~25)
  - WCC review/coordinate
  - ESH approve
  - May drive permit
NSLS-II EMS/OHSAS Documents and Links

The Photon Sciences Directorate follows the BNL requirements in the SBMS Program and Subject Areas for EMS and OHSAS. The links below contain information that is specific to the Directorate in these areas.

NSLS-II follows the PS Environmental, Safety, Security and Health Policy derived from the BNL Environmental, Safety, Security and Health (ESSH) Policy.

Planning
► Significant Environmental Aspects Matrix
► QA Procedures
► Management System Guide
► Job Risk Assessments
► Facility Risk (SAD) & Hazard Validation Tool
► ESH Improvement Plan 2015
► ESH Improvement Plan 2016

Implementation and Operation
Each employee has an associated Roles, Responsibilities, Accountability and Authority (R2A2) listing for their position. Control of Documents is governed by the QA Procedures listed above.

► Process Assessments
► Training Program Procedures
► Training Courses
► EMS/OHSAS Group
► Work Planning and Control
► Local Emergency Plans

Checking and Corrective Action
► QA Procedures
► Assessment Tracking System

Management Review
► 2015 Presentation and Minutes
► 2016 Presentation, Attendees, Minutes

EMS / OHSAS

2016 Activity
► EMS/OHSAS/ISM Review group meetings
► Internal Multi-Topic Compliance Audit
► NSF Registration Audit (“22 person day integrated audit …”)

No Audit Items
ESH Communication

• Newsletter\textsuperscript{NEW}
• LSSOC
• Project Reviews
• Advisory Committees
• Daily Installation Planning (plan of the day)
• Weekly meetings
  • Installation Planning
  • Maintenance
  • Operations
  • Various group meetings
• Town Meetings
• BNL Lessons Learned

• \textit{User Information Card (2015 Management Review)}
Agenda

• ESH Programs
• Changing Circumstances
• ESH Performance
• 2017 Goals
• Summary / Feedback
# Changing Circumstances

<table>
<thead>
<tr>
<th>Year</th>
<th>Change</th>
<th>Impact to NSLS II</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Shift to commissioning</td>
<td>• 12 IRR’s completed. Significant effort from: NSLS II and BNL staff.</td>
</tr>
<tr>
<td></td>
<td>Shift to User operations</td>
<td>• 8 beamlines approved for User Ops.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 11 set-up labs approved for User Ops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Safety Approval Forms</td>
</tr>
<tr>
<td>2017</td>
<td>New EMS standard</td>
<td>• NSLS II participating on implementation team</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Effort to certify to new standard</td>
</tr>
<tr>
<td></td>
<td>New OSHA Beryllium PEL</td>
<td>• BNL already working to new limit (0.2 µg/m³)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increased air monitoring</td>
</tr>
<tr>
<td></td>
<td>RCRA updates</td>
<td>• Implement labeling requirements</td>
</tr>
</tbody>
</table>
FY16 IRRs

Beamline
- Oct\(^{(15)}\): LIX
- Mar: FMX/AMX
- Apr: ISS
- Jun: ISR
- Aug: TES \((PEMP^*)\)
- Aug: CMS

Machine
- Oct\(^{(15)}\): Cell 04 (ID&FE)
- Oct\(^{(15)}\): Cell 08 (FE)
- Dec\(^{(15)}\): SCRF cavity

\* Performance Evaluation Management Plan
Support Laboratories

- 11 labs User Ready (one left)
- Access/ESH in PASS
- Lab specific training for Users
- JTAs for CSMs & Resident Users
- Equipped (tools, glovebox, hood)
- Staffing challenge
The Doc / Records Center

NSLS-II Documents and Records Center

Welcome to the NSLS-II Documents and Records Center
The NSLS-II Documents and Records Center is a repository for documents and records required for managing, performing and assessing work, as well as recording results, within the Department. The Process Description that governs NSLS-II documents and records can be found here:
NSLS-II-REO-112-001

NSLS-II Management

- Management
- Project management

Accelerator

- Accelerator Coordination
- Control Room
- RF
- Mechanical Utilities
- Vacuum
- Insertion Devices
- Instrumentation
- Mechanical Engineering
- Electrical Engineering
- Accelerator Physics

Photon Science

- Soft X-Ray Scattering & Spectroscopy
- Complex Scattering
- Hard X-Ray Spectroscopy
- Diffraction & In-Situ Scattering
- Imaging & Microscopy
- Structural Biology
- Experiment Development
- Controls
- User Program

Support Functions

- Human Resources
- Facility Operations
- Business
- ESS&H

- Quality
- Training
- Readiness/Operations Authorization
- Work Planning & Control
- Engineering Design & Configuration Management

If you have any questions or feedback regarding this site, please e-mail NSLS2Docs@bnl.gov

• Usable
• Intuitive

• Safety critical docs defined & highlighted
• New, varied document types & templates
• Engineering, procurement, & project files organized
• Keywords developed
• Old docs archived
Agenda

- ESH Programs
- Changing Circumstances
- ESH Performance
- 2017 Goals
- Summary / Feedback
ESH Performance

- Audits
- Injuries
- Events
- Tier I
- Radiation exposure
- Hazardous waste generation
- Progress on ESH Goals
ESH Audits / Assessments

- Facility Risk Assessment (FRAs)
- FRA Effectiveness
- Nanomaterials
- Non-Ionizing Radiation
- Fixed Ladders
- Confined Space
- EMS Gap Analysis
- Credited controls
- Annual LOTO

- EMS/OHSAS Multi-Topic Internal
  - Chemical Safety
  - Fire Safety
  - Interlocks
  - EMS/OHSAS items:
    - Policy; Aspects; Legal; Objectives; R2A2

- EMS/OHSAS External Registration (NSF)
  - Tier I
  - 12 IRRs

- Findings tracked (few)
- Value
  - Preparation
  - Bringing in additional expertise
ESH Performance

- Audits
- Injuries
- Events
- Tier I
- Radiation exposure
- Hazardous waste generation
- Progress on ESH Goals
Celebration

1.5 million hours with No Recordable Injuries
Injuries
FY 16

First Aid
Minor treatment

Recordable
More than just first aid

DART
Days Away, Restricted, or Transferred

NSLS II
No Recordable/DART

3 First Aid
- Finger muscle strain
- Minor cut; head
- Pinched thumb

Fiscal Year 2016 Injury Cases

<table>
<thead>
<tr>
<th>Month</th>
<th>First Aid</th>
<th>Recordable</th>
<th>DART</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct 15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov 15</td>
<td></td>
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<td></td>
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<tr>
<td>Dec 15</td>
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<td></td>
<td></td>
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<tr>
<td>Jan 16</td>
<td></td>
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<tr>
<td>Feb 16</td>
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<tr>
<td>Mar 16</td>
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<tr>
<td>Apr 16</td>
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<tr>
<td>May 16</td>
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<tr>
<td>Jun 16</td>
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<tr>
<td>Jul 16</td>
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<tr>
<td>Aug 16</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sep 16</td>
<td></td>
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</tbody>
</table>

YTD Cases       | Rates
DART:           | 17   | 0.64 |
Recordable:     | 33   | 1.24 |
First Aid:      | 42   | N/A  |
Total Injuries: | 75   |      |
ESH Performance

• Audits
• Injuries
• Events
• Tier I
• Radiation exposure
• Hazardous waste generation
• Progress on ESH Goals
### NSLS II Events *(No Injuries)*; 9 total

**FY 16**

- Unlocked PPS cabinet  
  - Location: SCLS  
  - Date: Oct ‘15

- Suspect counterfeit items *(plumbing; lifting)*  
  - Location: NR; QA  
  - Date: Nov ‘15

- Unsecured labyrinth  
  - Location: SC4  
  - Date: Jan

- HV cable energized  
  - Location: SC3  
  - Date: Jan

- LOTO error  
  - Location: SC4  
  - Date: Feb

- Forklift strikes wall  
  - Location: NR  
  - Date: Apr

- Broken Be window  
  - Location: SCLS  
  - Date: Jul

- ODH Alarms  
  - Location: SCLS  
  - Date: Aug

- Light fixture shock*  
  - Location: SC2  
  - Date: Sep

*Intertek public notice
- Unsecured labyrinth*
- HV cable energized
- LOTO error

* ASE violation

- Leadership concern
- Investigated
- Low level (no injury or exposure)
- Important
- Learning opportunity
ESH Performance

- Audits
- Injuries
- Events
- Tier I
- Radiation exposure
- Hazardous waste generation
- Progress on ESH Goals
Tier I Highlights

<table>
<thead>
<tr>
<th></th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
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<tbody>
<tr>
<td>Findings</td>
<td>558</td>
<td>355</td>
<td>513</td>
</tr>
<tr>
<td>Inspections</td>
<td>68</td>
<td>54</td>
<td>63</td>
</tr>
</tbody>
</table>

Top 5 findings:

1. **EEI Required (2nd year)** (Trend is good – 2013: 89; 2014: 66; 2015: 48; 2016: 46)
2. Missing safety postings (caution tape tags; machine shop guard stickers, etc.)
3. Cascaded extension cords
4. Missing CMS static inventory posting
5. Housekeeping

Continued vigilance
ESH Performance

- Audits
- Injuries
- Events
- Tier I
- Radiation exposure
- Hazardous waste generation
- Progress on ESH Goals
Personnel Dosimetry
CY 16

- Collective Dose Goal = 200 Person-mrem/yr
- Individual Dose Goal = 100 mrem/yr

2016 Collective Dose = 27 person–mrem

4 individual exposures measured (5, 5, 8, & 9 mrem)

- 2015: 39 person mrem
- 2014: 32 person-mrem

~ 600 TLD’s issued each month

Personnel dosimeters on all
Area Radiation Monitoring
CY 16

- Radiation Control Technician radiation surveys
  - 28 Front End (Phase I, II & III)
  - 19 Beamline comprehensive surveys
  - 2-ID, 4-ID, 5-ID, 8-ID, 8-BM, 10-ID, 11-ID, 11-BM, 12-ID, 16-ID, 17-ID, 17-BM, 19-ID, 21-ID

- Normal Ops: All measured values at background
- Existing monitoring and shielding adequate to meet PS shielding policy

Area TLDs
- 122 locations
- Passive

ARMs
- 67 locations
- Trip gun (>5 mrem)
ESH Performance

- Audits
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- Radiation exposure
- Hazardous waste generation
- Progress on ESH Goals
NSLS II Waste Totals

~2,000 lbs from 729 cleanout

Industrial
Hazardous

- FY 14: 1,202, 384
- FY 15: 1,757, 373
- FY 16: 3,637, 372

U.S. DEPARTMENT OF ENERGY

BROOKHAVEN NATIONAL LABORATORY
ESH Performance

• Audits
• Injuries
• Events
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• Radiation exposure
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• Progress on ESH Goals
ESH Improvement Plan
FY16 Goals

• Implement rf ID tags for CMS tracking.
  Complete. (The BNL CMS team completed a ‘wall to wall’ inventory and applied the needed RF tags.)

• Complete 20 ESH surveillance cards. Emphasize ‘laceration’ and ‘walking and working surfaces’.
  Complete. (ESH staff has been completing the cards. Surveillances have been added to the Tier I inspections.)

• Complete trip simulator training for 75% of NSLS II staff.
  Complete. (~85% staff trained)
**ESH Improvement Plan**

**FY16 Goals**

- Implement Environmentally Preferable Purchasing (EPP) guidelines.  
  *Ongoing (Following BNL implementation)*

- Implement Electronic Product Environmental Assessment Tool (EPEAT) purchasing requirements for computer purchases.  
  *Ongoing (Following BNL implementation)*
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2017 EMS/OHSAS Goals

- Implement SAF types to improve ESH review of beamline commissioning and User science throughout the facility.

- Develop a User information summary card.

- ES&H staff to complete solutions oriented service training

- Implement new EMS standard requirements

Continue:

- Implement Environmentally Preferable Purchasing (EPP) guidelines

- Implement Electronic Product Environmental Assessment Tool (EPEAT) purchasing requirements for computer purchases
Improved Monitoring ~45 items

NSLS II Measures & Metrics

Mission Performance
Photon Division Director: Paul Zschack

Environmental Stewardship
ESH Manager: Bob Lee

Operational Performance
Deputy for Operations: Mike Bebon

Security & Asset Stewardship
ESH Manager: Bob Lee

Accelerator Performance
Accelerator Division Director: Ferdinand Willeke

Human Resources
Human Resource Manager: Joann Williams

Business Performance
Business Services Manager: Chris Madonia

Safety
ESH Manager: Bob Lee
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• Expected Outcome:
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Presentation and Minutes will be posted at:


Questions / Comments

Please sign the attendance sheet