The BSA/BNL Commitment….

Event/Issues Management at Brookhaven National Laboratory

EFCOG - ORPS Task Group
Atlanta, Georgia
May 2, 2007

Quality Management Office
E. Anthony Sierra
(631) 344-4080

Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
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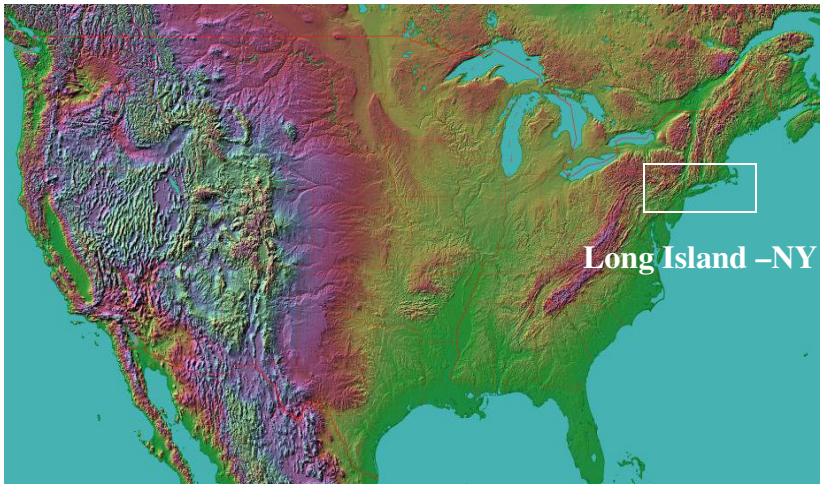
The BSA/BNL Commitment….

Brookhaven National Laboratory (BNL)

- Founded in 1947 by Associated Universities, a coalition of northeastern universities
- Operated today by Brookhaven Science Associates for the U.S. Department of Energy
- Dedicated to building and operating large experimental facilities, conducting basic and applied research, educating future scientist and engineers



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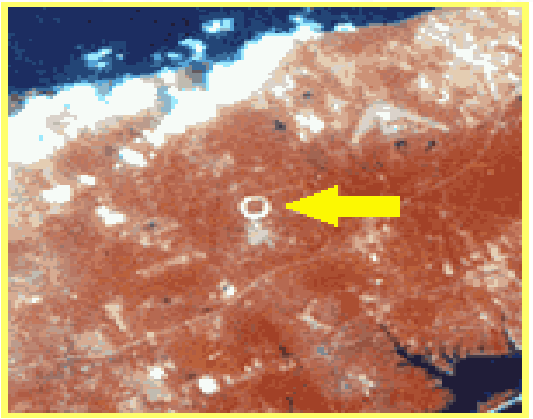
Where is Brookhaven National Laboratory?

Long Island NY



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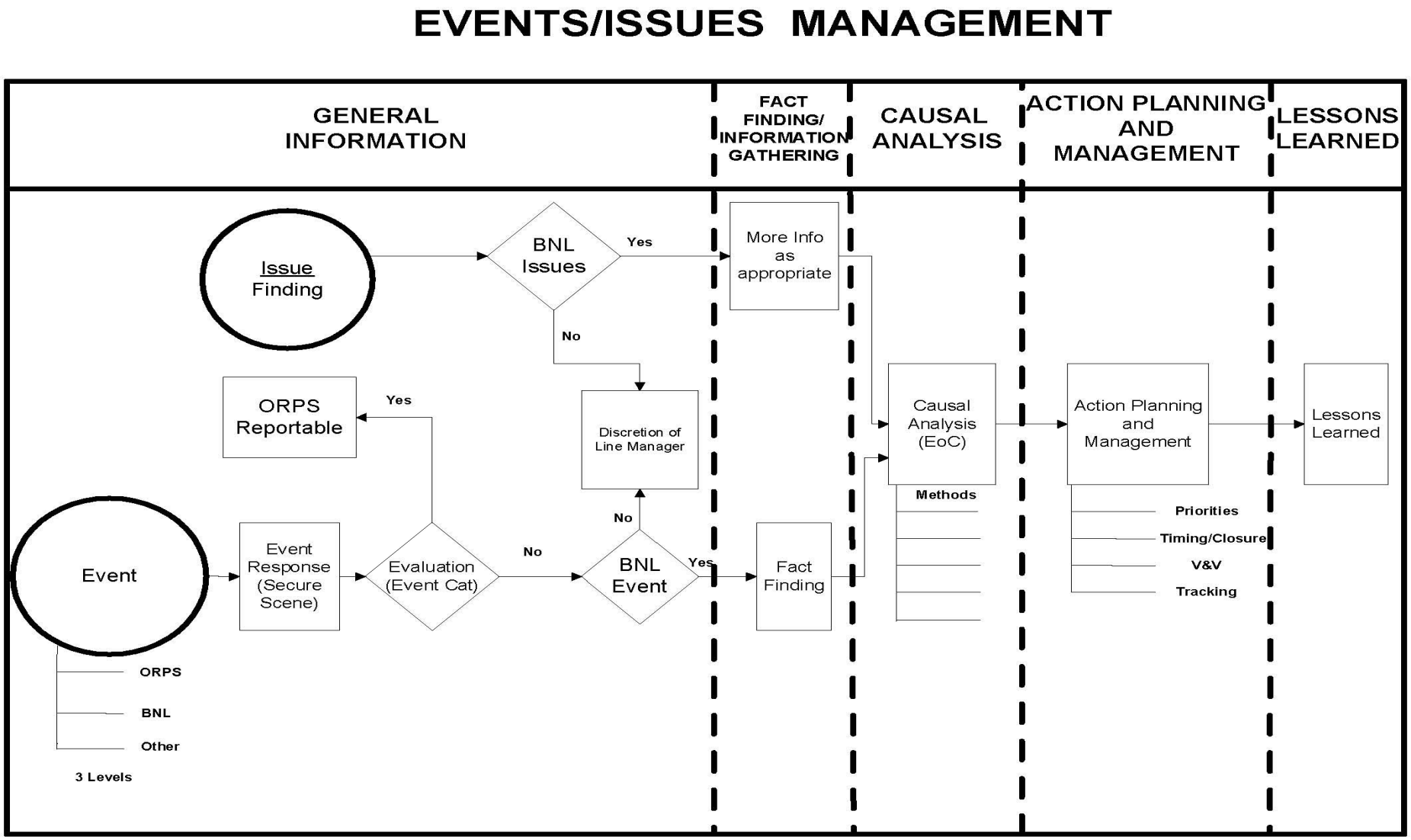
Point to Ponder

"No one *wants* to learn by mistakes, but we cannot learn enough from success to go beyond the state of the art ….Such is the nature not only of science and engineering, but of all human endeavors."

Michael Faraday (1791-1867)

Overview


EVENTS/ISSUES MANAGEMENT
GENERAL INFORMATION
FACT FINDING/ INFORMATION GATHERING
CAUSAL ANALYSIS
ACTION PLANNING AND MANAGEMENT
LESSONS LEARNED
Issue Finding
BNL Issues
Yes
No
More Info as appropriate
ORPS Reportable
Yes
Discretion of Line Manager
Causal Analysis (EoC)
Action Planning and Management
Lessons Learned
Methods
Priorities
Timing/Closure
V&V
Tracking
Event
Event Response (Secure Scene)
Evaluation (Event Cat)
No
No
BNL Event
Yes
Fact Finding
ORPS
BNL
Other
3 Levels

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Why?

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DOE Recognizes BNL as Outstanding Science Site During Transition to ORPS Redesign

Event Significance Categories

ORPS:

Operational Emergency
Significance Category 1 (SC1)
Recurring (SCR)
SC2
SC3
SC4

BNL Internal Reporting:

Significance Category BNL (SCBNL)

Event Reportability Criteria

1. Operational Emergencies
2. Personnel Safety (SCBNL added)
3. Nuclear Safety Basis
4. Facility Status (SCBNL added)
5. Environmental
6. Cont/Rad Control (SCBNL added)
7. Nuclear Explosive Safety
8. Transportation
9. Noncompliance Notifications
10. Management Concerns/Issues

SCBNL Criteria

Group 2 - Personnel Safety and Health

- An occupational injury that:
  - Requires hospitalization
  - Results in simple fractures of fingers, toes, or nose, or a minor chipped tooth
  - Causes damage to nerves, muscles, tendons, and/or ligaments as determined by a physician
  - Causes third-degree burns
  - Causes second degree burns with the exception of burns to extremities
- Any fire on the BNL site

SCBNL Criteria

Group 4 - Facility Status

- Any evacuation not due to false alarm or part of drill/exercise
- Any Stop Work issued for confirmed imminent danger

Group 6 - Contamination/Radiation Control

- Loss of radioactive material which exceeds **50%** of the quantities specified in 10 CFR Part 835, Appendix E, or loss of accountability of such material for more than 24 hours.
- Identification of onsite radioactive contamination greater than **5 times** the total contamination values in 10 CFR 835 Appendix D
- Identification of onsite legacy radioactive contamination greater than **5 times** the total contamination values in 10 CFR 835 Appendix D

SCBNL Criteria

Group 6 - Contamination/Radiation Control

- Any single occupational exposure that exceeds an expected exposure or dosimetry result by: (1) **250 mrem** Committed Effective Dose Equivalent (CEDE), or (2) the greater of **5% or 50-mrem** effective dose equivalent due to external exposure.

- Determination of an estimated annual dose that exceeds **5 mrem** Total Effective Dose Equivalent (TEDE) for offsite exposures to a member of the public from air pathways only.

- Any onsite contamination of personnel or clothing (excluding site-provided protective clothing) that exceeds **5 times** the values for total contamination identified in 10 CFR Part 835, Appendix D. The contamination level must be based on direct measurement and not averaged over any area. This criterion does not apply to tritium contamination.

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Categorizers (CAT) Team Workshop #2007-01

April 11, 2007
9:30 - 11:00
902C

E. Anthony Sierra
ORPS Program Manager
Quality Management Office

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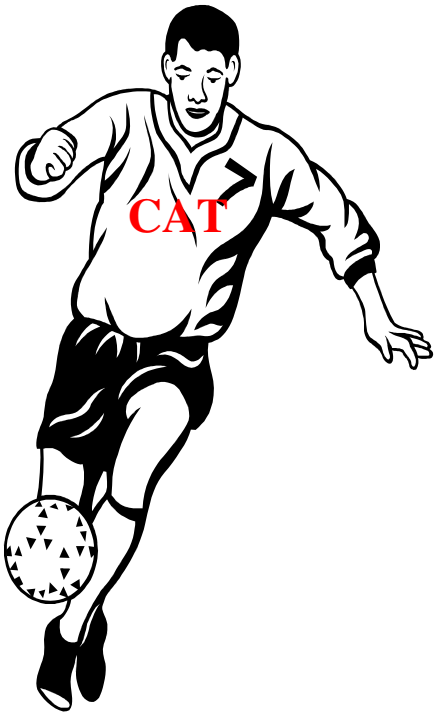
CAT Team Workshop



Workshop Goals:

To **EVALUATE** and **CONTINUOSLY IMPROVE** the BNL Occurrence Reporting Program.

To **MAINTAIN** a baseline categorization process such that reportability decisions are both **VALID** and **CONSISTENT**.

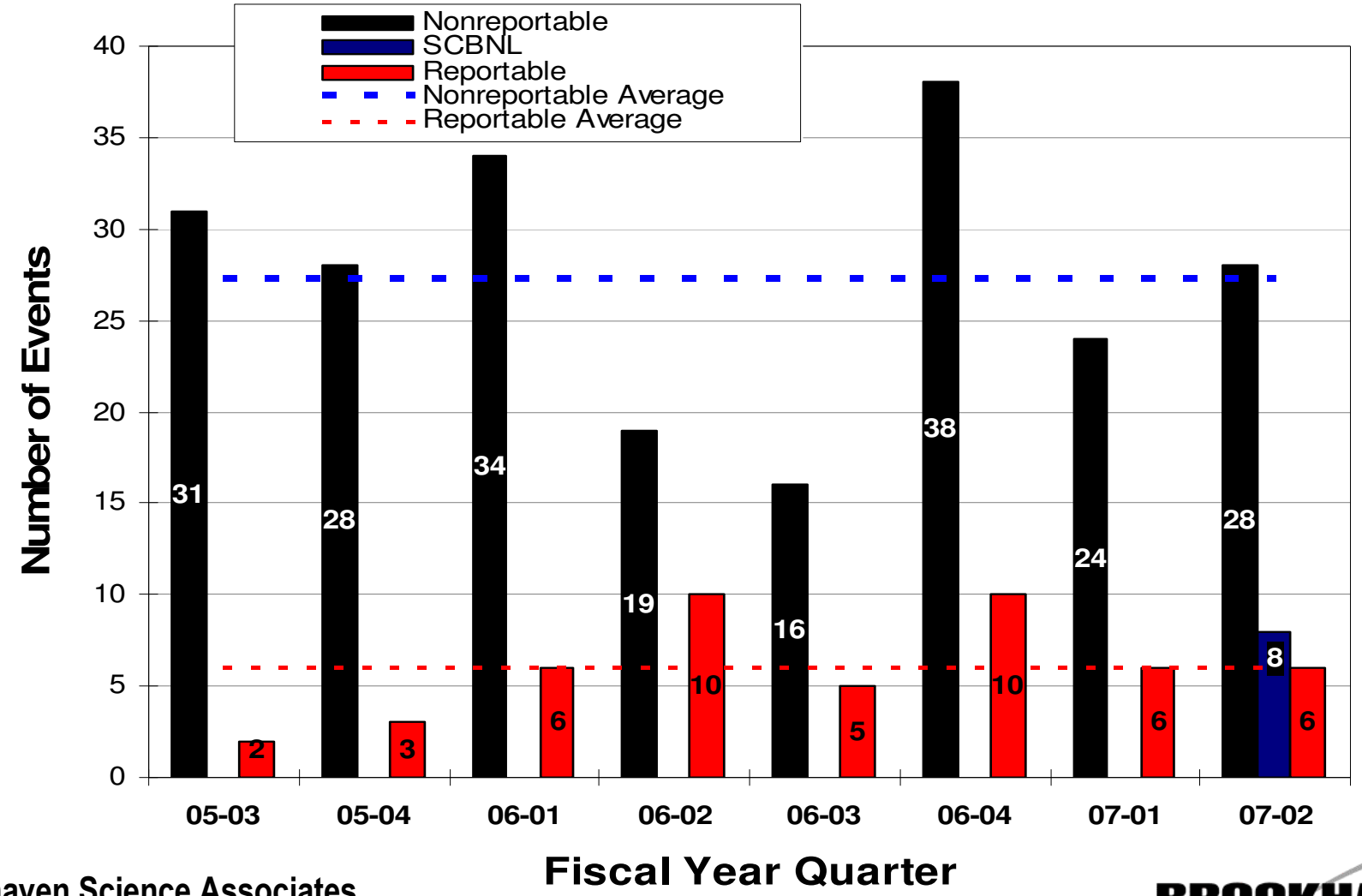
To **REVIEW/ EVALUATE** data to determine if repeat events should be identified as potentially **RECURRING** occurrences.

To **PROMPT** (via accurate categorization) **DEEP** and **LASTING** value-added **CHANGE,** which results in new ways of **THINKING** and **ACTING**.

CAT Electronic Entries

03/01 – RK, Truck lift-gate fractures employee rib, SC3
03/02 – RK, 1 gal oil release in B902
03/05 – KS, B-801 Ventilation System and associated Alarm Failure
03/05 – KS, Small brush fire, SCBNL
03/06 – KS, PISA & USQ for Safety Analysis and potentially unanalyzed hazards, SC2
03/06 – KS, Minor injury while handling dry ice in outdoor windy conditions
03/07 – KS, Employee receives minor eye injury from tree branch
03/13 – SM, Smoldering debris near Cooling Tower #4 by B912A, SCBNL
03/14 – SM, Right index finger injury at Production Services
03/15 – SM, Violation of BGRR RAD Admin Control
03/15 – SM, Plumber Injures Tooth, SCBNL
03/19 – MD, B-197 evacuation due to fire alarm, SCBNL
03/21 – MD, Unidentified substance at Chemistry Building determined to be harmless
03/22 – MD, Fire Alarm (false alarm) at Building 479 Central Fabrication Services
03/22 – MD, Minor finger laceration at Central Fabrication
03/28 – AL, Radiological Continuous Air Monitor alarm triggered by a cell phone
03/30 – AL, Leak test of receipted source reveals its integrity has been compromised
04/03 – KS, Water Leak at NSLS Causes Shorts and Sparking in Electrical Equipment
04/09 – PB, Excess Plant Watering Causes Limited Electrical Outage

Event Categorizer Electronic Entries



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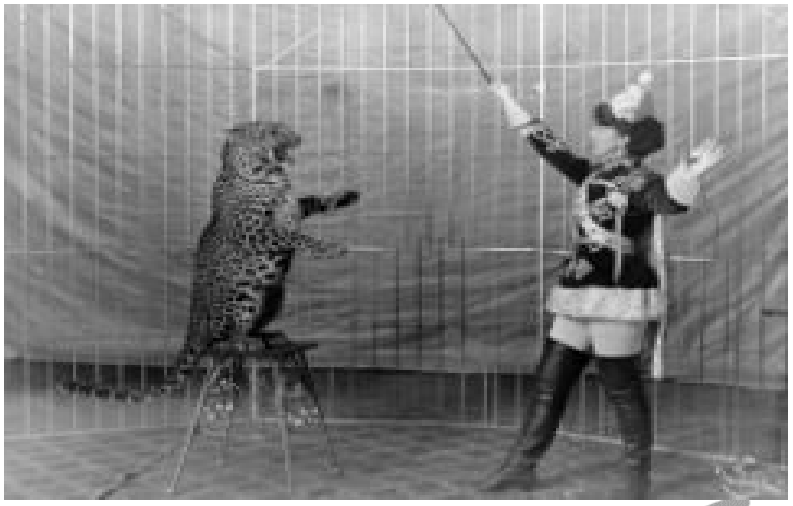
CRITIQUE = CIRCUS ACT



Training

- Effectively Facilitating Fact-Finding Meetings
  - Josh Gordesky, 212-252-5856

Exec|Comm

- Barrier Analysis & Five Whys
  - Bob Crowley & Bob McCallum

HSS
Office of Health, Safety and Security

- Events and Causal Factor Analysis & Human Performance Improvement
  - Bob Crowley & Bob McCallum

McT

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Causal Analysis Methodologies "Recipes for Effective Corrective Actions"

Low Complexity Level

- Brainstorming
- Expert Judgment
- What-if Analysis
- Five Whys

Moderate Complexity Level

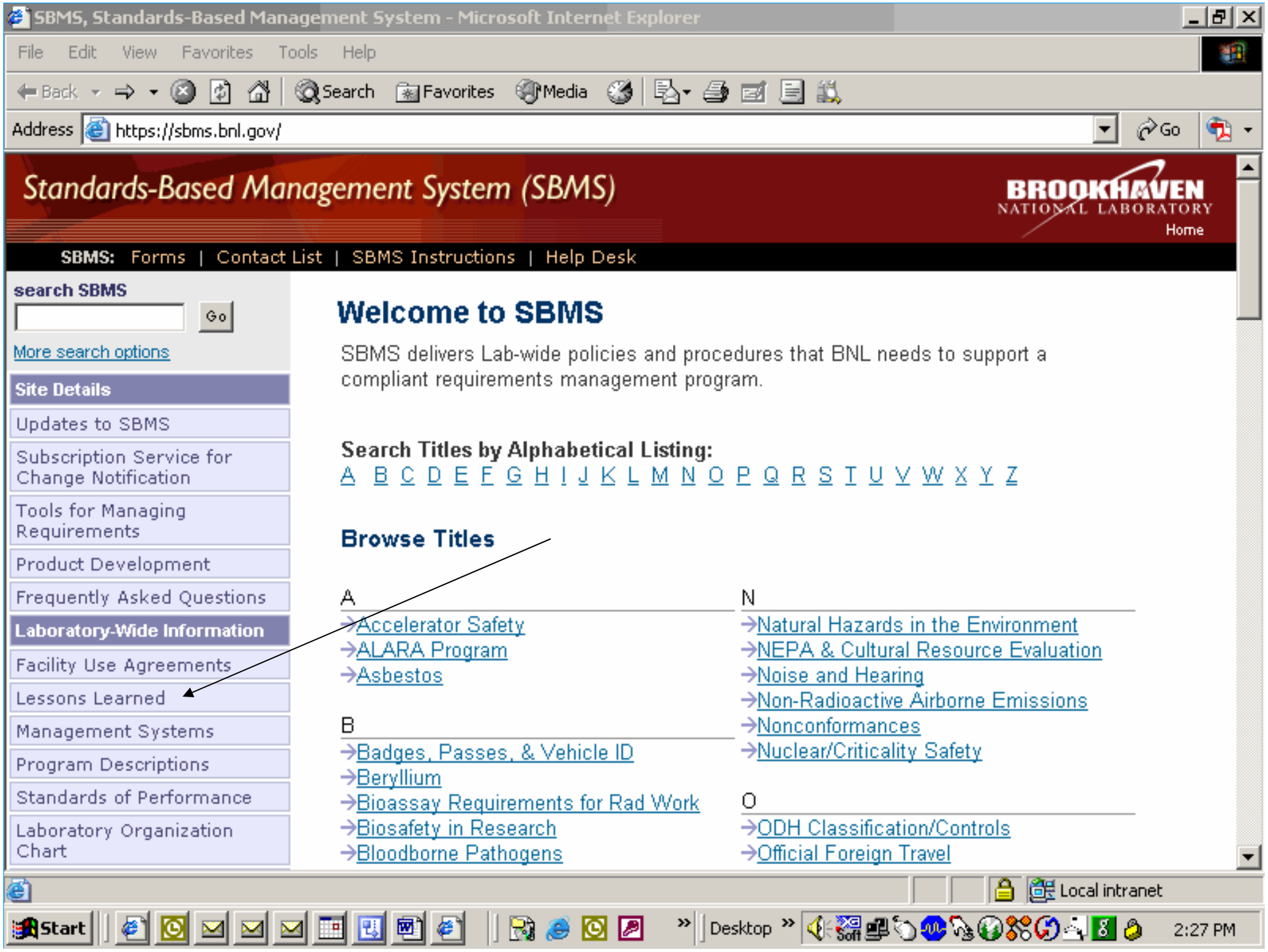
- Barrier Analysis
- Change Analysis
- Events & Causal Factors Analysis

High Complexity Level

- TapRooT®
- Fault Tree Analysis
- Management Oversight and Risk Tree Analysis

Action Types

- **Corrective** - actions taken to resolve events or problems ("stop the bleeding") prior to formal causal analysis.
- **Preventive** - actions carefully designed to eliminate or reduce the likelihood of recurrence of events or issues. Action results from formal causal analysis.
- **Improvement** - Adjunct issues


SBMS, Standards-Based Management System - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address https://sbms.bnl.gov/
Go
Standards-Based Management System (SBMS)
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SBMS: Forms | Contact List | SBMS Instructions | Help Desk
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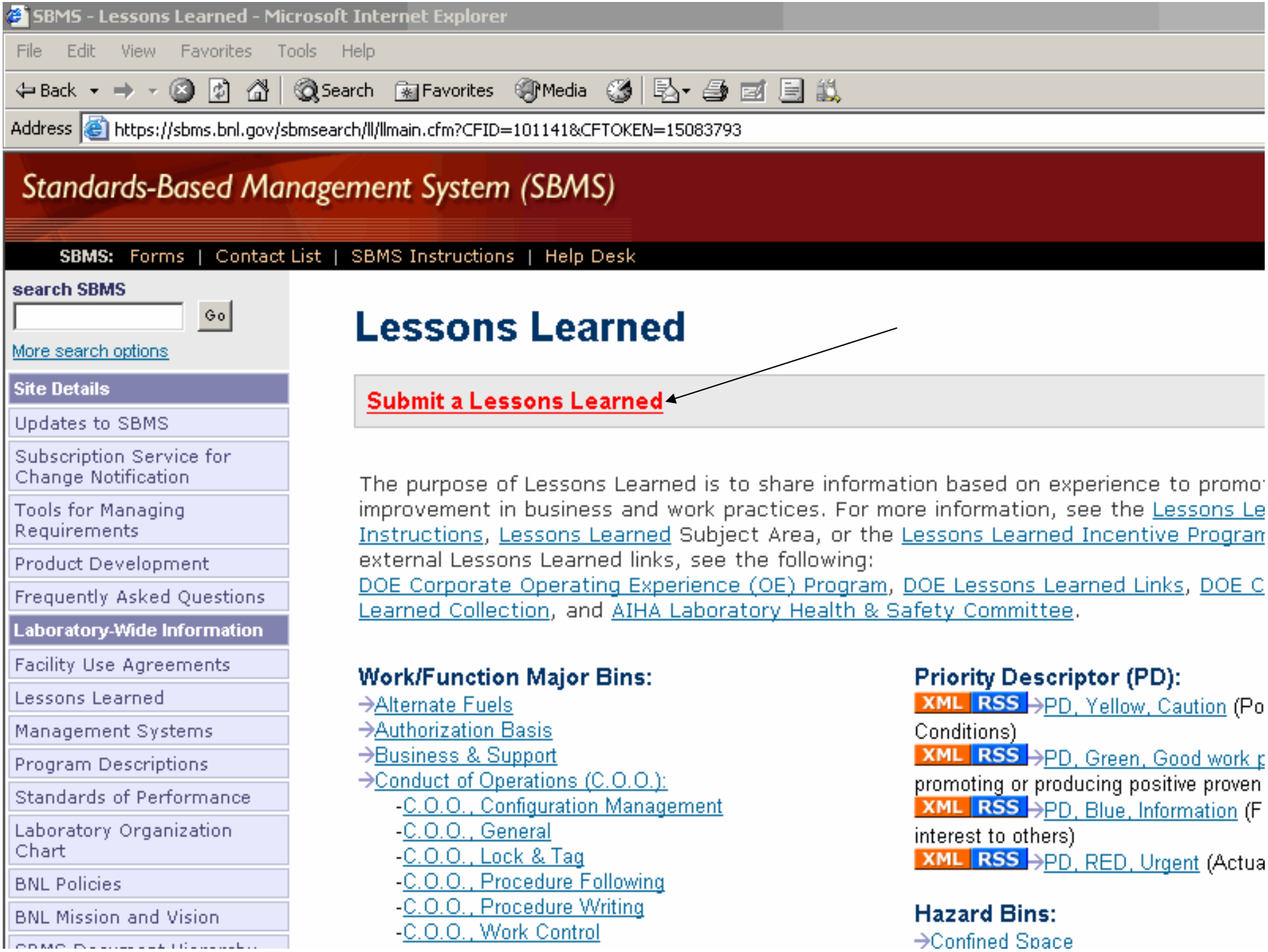
More search options
Site Details
Updates to SBMS
Subscription Service for Change Notification
Tools for Managing Requirements
Product Development
Frequently Asked Questions
Laboratory-Wide Information
Facility Use Agreements
Lessons Learned
Management Systems
Program Descriptions
Standards of Performance
Laboratory Organization Chart
Welcome to SBMS
SBMS delivers Lab-wide policies and procedures that BNL needs to support a compliant requirements management program.
Search Titles by Alphabetical Listing:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Browse Titles
A
Accelerator Safety
ALARA Program
Asbestos
B
Badges, Passes, & Vehicle ID
Beryllium
Bioassay Requirements for Rad Work
Biosafety in Research
Bloodborne Pathogens
N
Natural Hazards in the Environment
NEPA & Cultural Resource Evaluation
Noise and Hearing
Non-Radioactive Airborne Emissions
Nonconformances
Nuclear/Criticality Safety
O
ODH Classification/Controls
Official Foreign Travel
Local intranet
Start
Desktop
2:27 PM


SBMS - Lessons Learned - Microsoft Internet Explorer
File Edit View Favorites Tools Help
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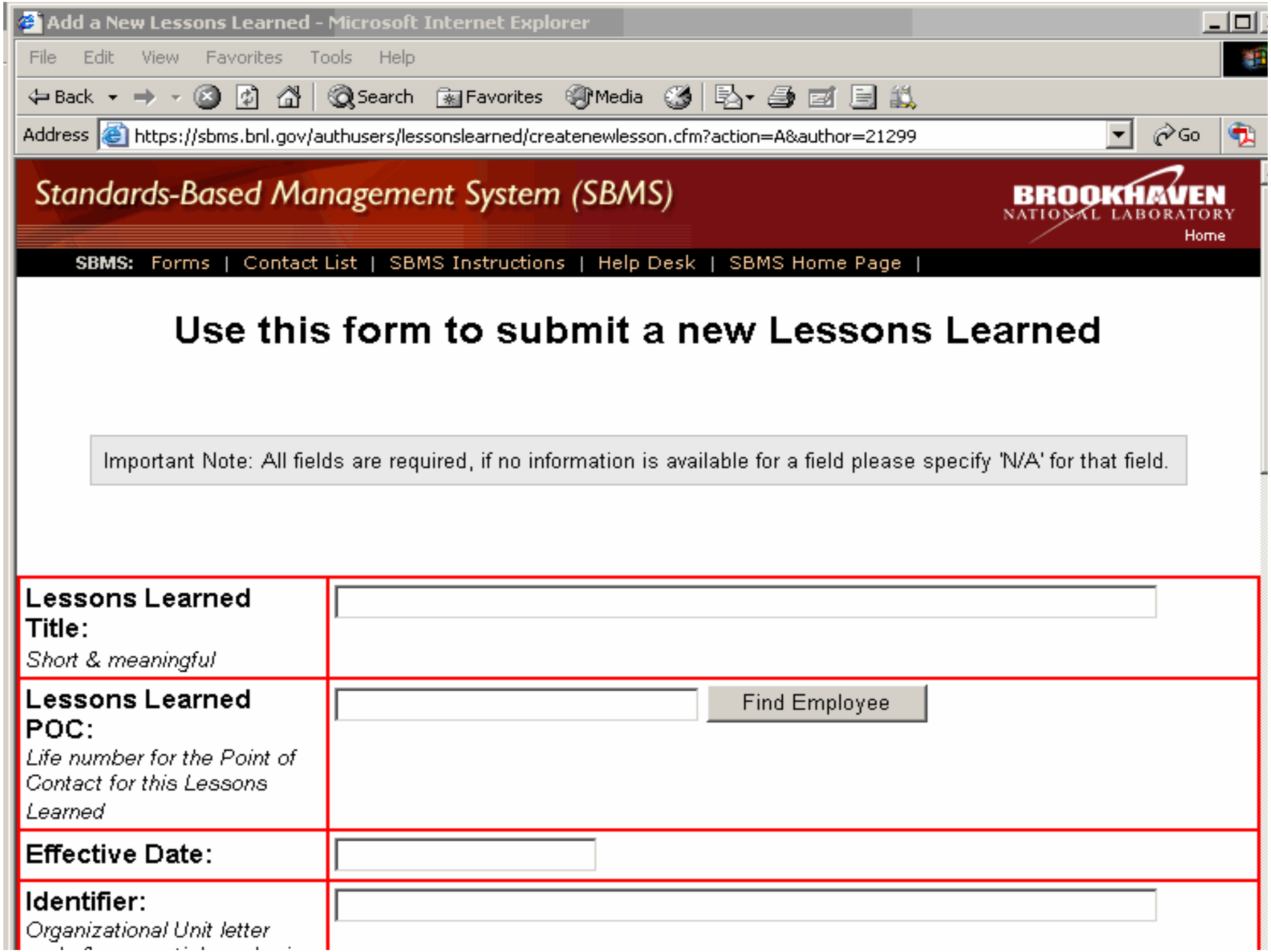
Address https://sbms.bnl.gov/sbmsearch/ll/llmain.cfm?CFID=101141&CFTOKEN=15083793
Standards-Based Management System (SBMS)
SBMS: Forms | Contact List | SBMS Instructions | Help Desk
search SBMS
Go
More search options
Site Details
Updates to SBMS
Subscription Service for Change Notification
Tools for Managing Requirements
Product Development
Frequently Asked Questions
Laboratory-Wide Information
Facility Use Agreements
Lessons Learned
Management Systems
Program Descriptions
Standards of Performance
Laboratory Organization Chart
BNL Policies
BNL Mission and Vision
Lessons Learned
Submit a Lessons Learned
The purpose of Lessons Learned is to share information based on experience to promo
improvement in business and work practices. For more information, see the Lessons Le
Instructions, Lessons Learned Subject Area, or the Lessons Learned Incentive Program
external Lessons Learned links, see the following:
DOE Corporate Operating Experience (OE) Program, DOE Lessons Learned Links, DOE C
Learned Collection, and AIHA Laboratory Health & Safety Committee.
Work/Function Major Bins:
→Alternate Fuels
→Authorization Basis
→Business & Support
→Conduct of Operations (C.O.O.):
-C.O.O., Configuration Management
-C.O.O., General
-C.O.O., Lock & Tag
-C.O.O., Procedure Following
-C.O.O., Procedure Writing
-C.O.O., Work Control
Priority Descriptor (PD):
XML RSS →PD, Yellow, Caution (Po
Conditions)
XML RSS →PD, Green, Good work p
promoting or producing positive proven
XML RSS →PD, Blue, Information (F
interest to others)
XML RSS →PD, RED, Urgent (Actua
Hazard Bins:
→Confined Space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Address https://sbms.bnl.gov/authusers/lessonslearned/createnewlesson.cfm?action=A&author=21299
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SBMS: Forms | Contact List | SBMS Instructions | Help Desk | SBMS Home Page |
Use this form to submit a new Lessons Learned
Important Note: All fields are required, if no information is available for a field please specify 'N/A' for that field.
Lessons Learned Title:
Short & meaningful
Lessons Learned POC:
Life number for the Point of Contact for this Lessons Learned
Find Employee
Effective Date:
Identifier:
Organizational Unit letter

Welcome to the Lessons Learned Submission section

Submit a Lessons Learned | Manage Comments

	Pending: Lesson Learned has not been submitted to Coordinator.
	Draft: Lesson Learned has been submitted to Coordinator, but has not been locked.
	Locked: Lesson Learned has been accepted by Coordinator, and is locked.
	Published: Lesson Learned has been published, and is live on SBMS.

Title	Status	Action
Loose Inner Electrical Panel Cover Results in Sparking When Outer Door Opened	published	View |edit | delete
Potential Failure of Certain High Pressure Gas Cylinder Valves - Type CGA 580	published	View |edit | delete
"Defense in Depth" Provides Successful Fire Safety at High		

Color blocks help identify work flow status

Aging Facility Issues	published	View |edit | delete
ALARA Good Work Practices	published	View |edit | delete
Excessive Noise	pending	View |edit | delete
Back Injury Sustained Due to Lanyard Breakaway Feature Failure	published	View |edit | delete
Battery Compartment Ribbon Cable Insulation Wear Results in Siemens Alkaline Battery Powered Mark 2.2 Electronic Dosimeter Failures	published	View |edit | delete
Response of Electrochemical Air Monitors		

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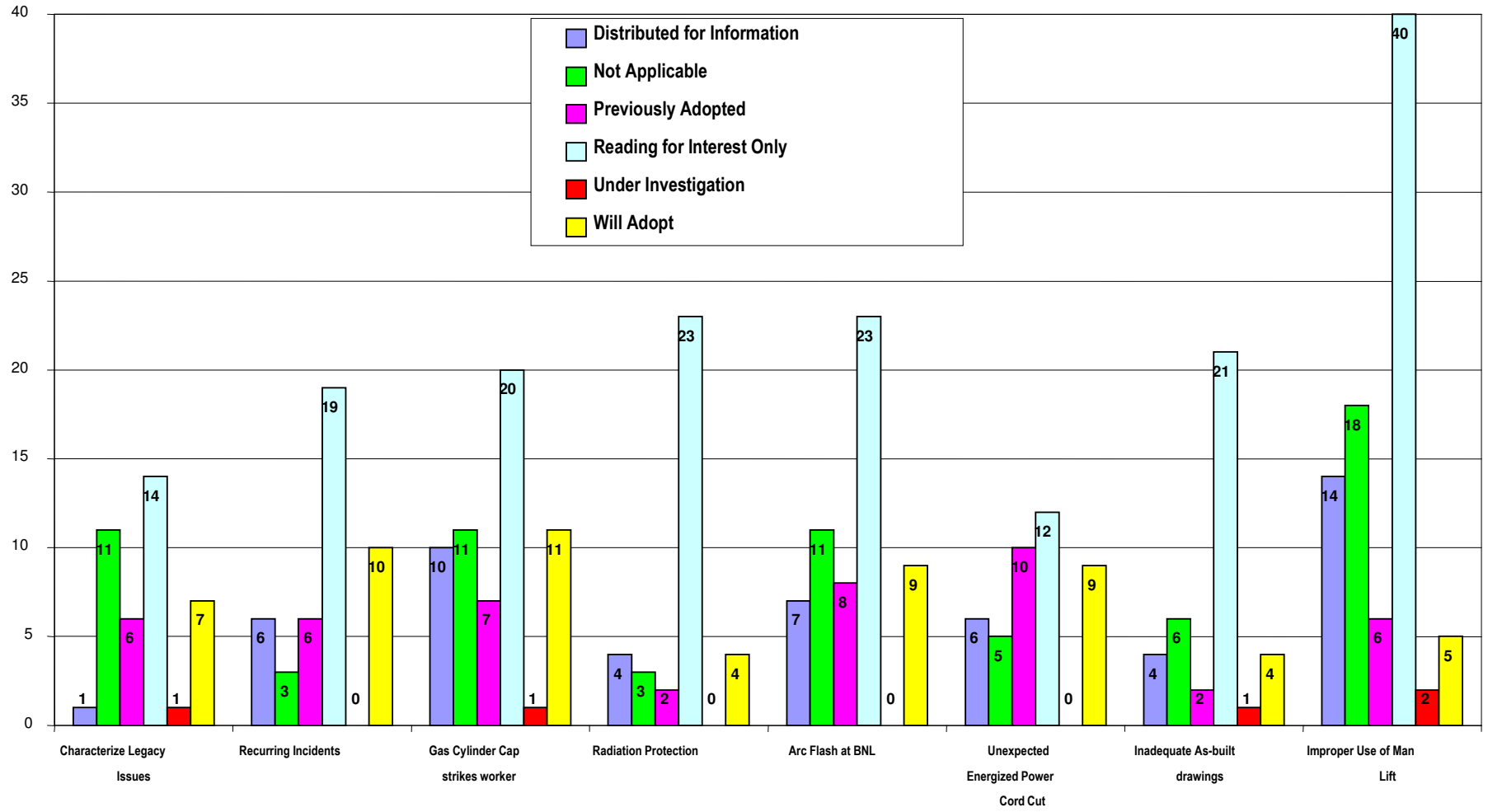
1st Qtr FY 07 LL Feedback



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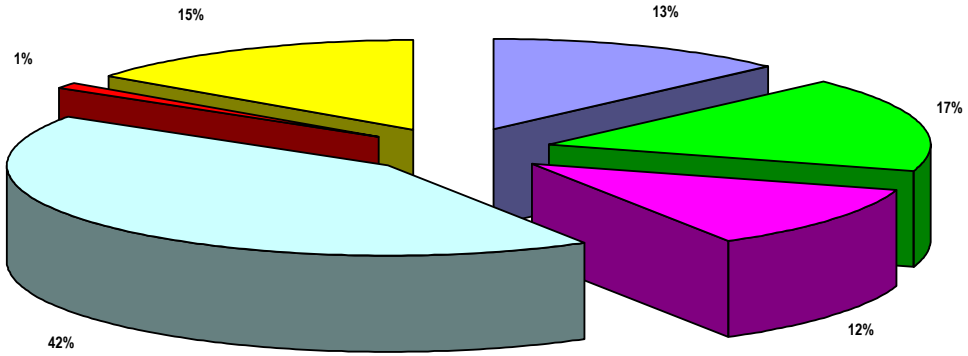
1st Qtr FY 07 LL Feedback



A Sampling of BNL LL Feedback

- This is the first lessons learned notice I received. If you were involved in adding me to the distribution list, I appreciate it. This will prove to be helpful. Thanks!
- This appears to be an excellent use of web media to convey/inform employees of pertinent safety information.
- Will adopt at Magnet Division and revise subject area.
- I have incorporated this Lesson Learned into a Work Instruction for removing combustible materials from building 750.
- I try to get the big picture from lessons learned and incorporate any ideas, knowledge, and improvements into my work/life.
- Finally someone stood up and said stop, before there was an accident. I hope more Positive Lessons Learned like this one will be forthcoming.
- I'm trapped here. Every time I launch my web browser I get this feedback page.

Key Process Improvements

- **Defined "lower level issue" (SCBNL)**
- **Fact finding with trained facilitators**
- **Institutionalized electronic reporting**
- **Analysis of Events/Issues**
  - **Causal analysis training by recognized experts**
- **Defined Corrective action management**
  - **Not all Corrective actions are equal**
    - **Prioritization of actions**

Summary

- **The BNL initiative is a Lab-wide performance expectation**

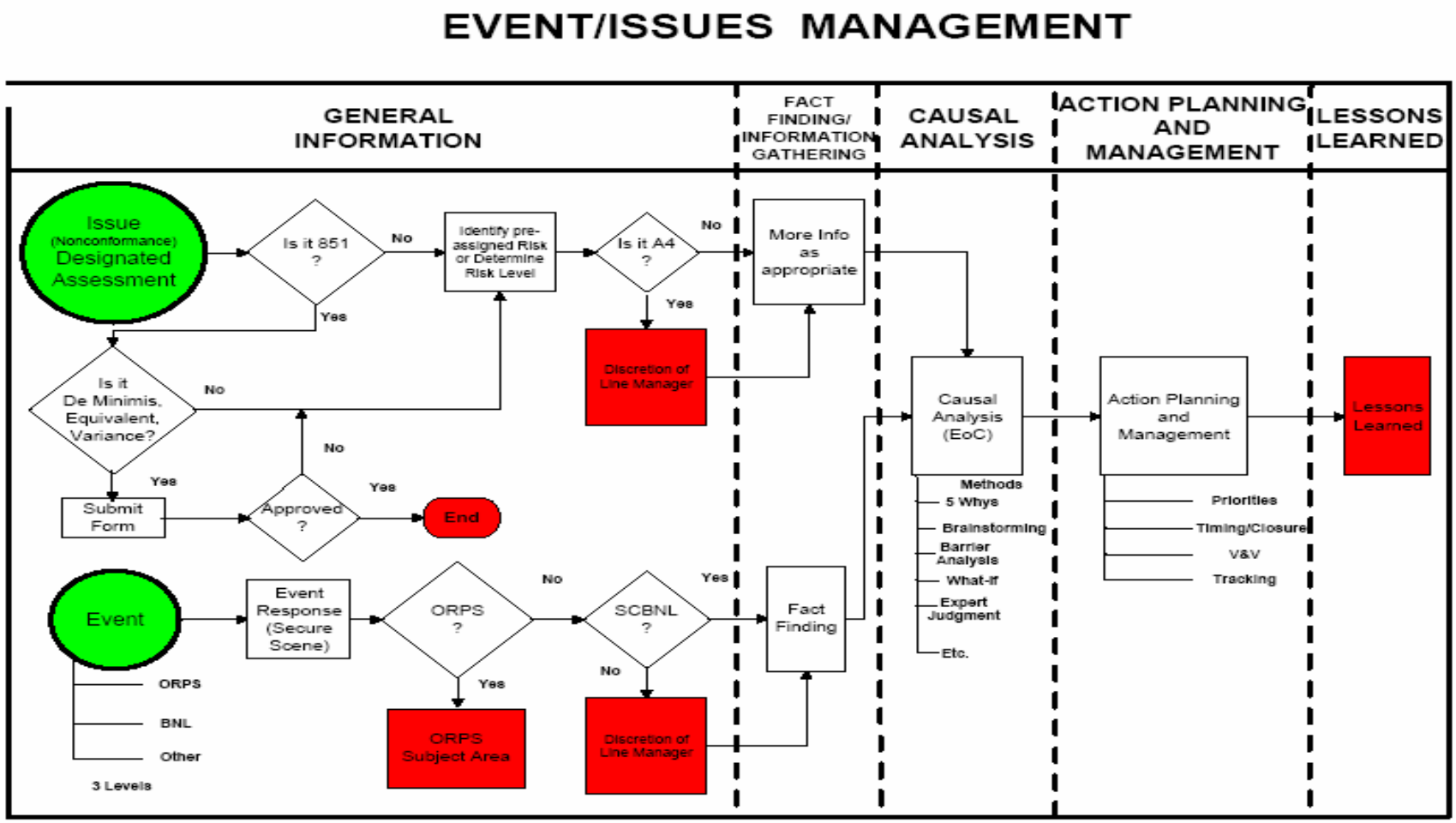
- **Events/issues do not speak for themselves**

    - Analysis is essential
    - Fixing the causes of low level events/issues reduces the likelihood of future significant events/issues

- **Organizational response is essential**

    - Encourage open and honest reporting

Path Forward



Myth Buster!

Myth: You can't make significant changes until you get buy-in from everybody.

In fact, the wait for buy-in can be interminable because leaders fail to acknowledge the truth that behavior precedes belief. In other words, the cycle of organizational improvement is not "vision, buy-in, and action" but rather "vision, action, buy-in, and more action." The buy-in does not occur until employees first see the results of their actions.

- Dr. Douglas B. Reeves
"The Learning Leader" 2006