



BNL's ISO14001 Certified Environmental Management System

External Audit Results and Future Changes

May 2016

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BNL's Method For Environmental Management

- ISO Standard Organization <http://www.iso.org/iso/home.htm>
- The ISO 14001 Standard maps out a framework that a company or organization can follow to set up an effective environmental management system (EMS). It can be used by any organization regardless of its activity or sector. It helps organizations:
 - minimize their environmental footprint
 - diminish the risk of pollution incidents
 - provide operational improvements
 - ensure compliance with relevant environmental legislation, and
 - develop their business in a sustainable manner

BNL Certification to the ISO14001 Standard for Environmental Management

- ISO14001 was originally established in 1996.
- BNL was originally certified as conforming to the ISO14001:1996 Standard in July of 2001.
- BNL was then certified to the ISO14001:2004 revised Standard in 2005.



PLAN

ESSH Policy

- **Environmental, Safety, Security, and Health Policy**
 - We protect the environment, conserve resources, and prevent pollution
- **Includes the five key commitments of the Environmental Stewardship**
 - Pollution Prevention, Compliance, Clean-up, Community Involvement, and Continual Improvement
- **Serves as the basis for setting Environmental Objectives and Targets**
- **Communications**
 - Posted at key locations
 - Accessible on the web
 - Part of many training course

Environmental, Safety, Security, and Health Policy

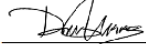


This document is a statement of Brookhaven National Laboratory's (BNL) Environmental, Safety, Security, and Health (ESSH) policy. BNL is a world leader in scientific research and performs this work in an environmentally responsible and safe manner.

I expect every employee, contractor, and guest to take personal responsibility for adhering to the following principles:

- Environment:** We protect the environment, conserve resources, and prevent pollution.
- Safety:** We maintain a safe workplace and we plan our work and perform it safely. We take responsibility for the safety of ourselves, coworkers, and guests.
- Security:** We protect people, property, information, computing systems, and facilities.
- Health:** We protect human health within our boundaries and in the surrounding community.
- Compliance:** We achieve and maintain compliance with applicable ESSH requirements.
- Community:** We maintain open, proactive, and constructive relationships with our employees, neighbors, regulators, DOE, and other stakeholders.
- Continual Improvement:** We continually improve ESSH performance.

In addition to my annual review of BNL's progress on ESSH goals and adherence to this policy, I invite all interested parties to provide me with input on our performance relative to this policy, and the policy itself.

Signed 
Doon Gibbs, Director

April 15, 2013

BROOKHAVEN
NATIONAL LABORATORY



Significant Environmental Aspects

Facility Specific Aspects

- **Historical/Cultural Resources**
- **Threatened and Endangered species/Migratory Birds and Sensitive habitats**
 - Habitat destruction, wetland disturbance, land clearing (5 or more acres)
- **Noise Pollution**
- **Historical Environmental Hazards and Contamination**
- **Soil Activation**
- **Other (odor, biological)**

Laboratory Aspects

- **Waste Generation**
 - regulated industrial
 - hazardous
 - radioactive
 - mixed
 - medical waste
- **Atmospheric Emissions**
 - Radioactive or non-radioactive
- **Liquid Discharges**
 - Radioactive or Non-radioactive
- **Storage/Use Chemicals or Radioactive Materials**
- **Unbound Nanomaterials**
- **Greenhouse Gas Generation**
- **Natural Resource Usage**
 - Water, fuel and energy usage
- **Environmental Preferable Purchasing (EPP)**

PLAN

Objectives & Targets, and Action Plans

- **Organization objectives “Flow down” from Laboratory level**
 - Lab Agenda
 - Lab-level Objectives and Targets (O&T’s)

 - Departments and Directorates establish objectives and targets in support of Lab level and as determined by internal processes
 - Management feedback
 - Results of audits
 - Improvement initiatives (EPP or other sustainability initiatives)

- **Develop action plans to achieve the objectives**
 - Responsibility, resources, and milestones assigned
 - Plans are documented and progressed tracked (Business Plans)

PLAN

Objectives & Targets and Action Plans – *Flow Down*

Upper-management

Expressed concern regarding the number of spills occurring at the Lab

ESH Directorate

Sets objectives to reduce spills

Environmental Protection Division

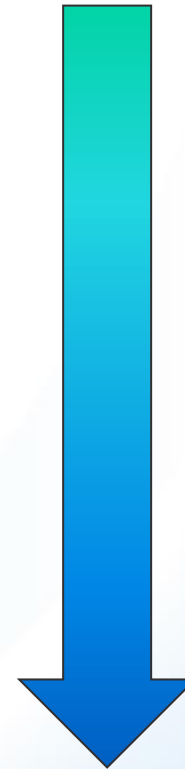
Develop Specific Solutions

- Analyze causes
- Develop fixes
- Communicate and train

Line Orgs

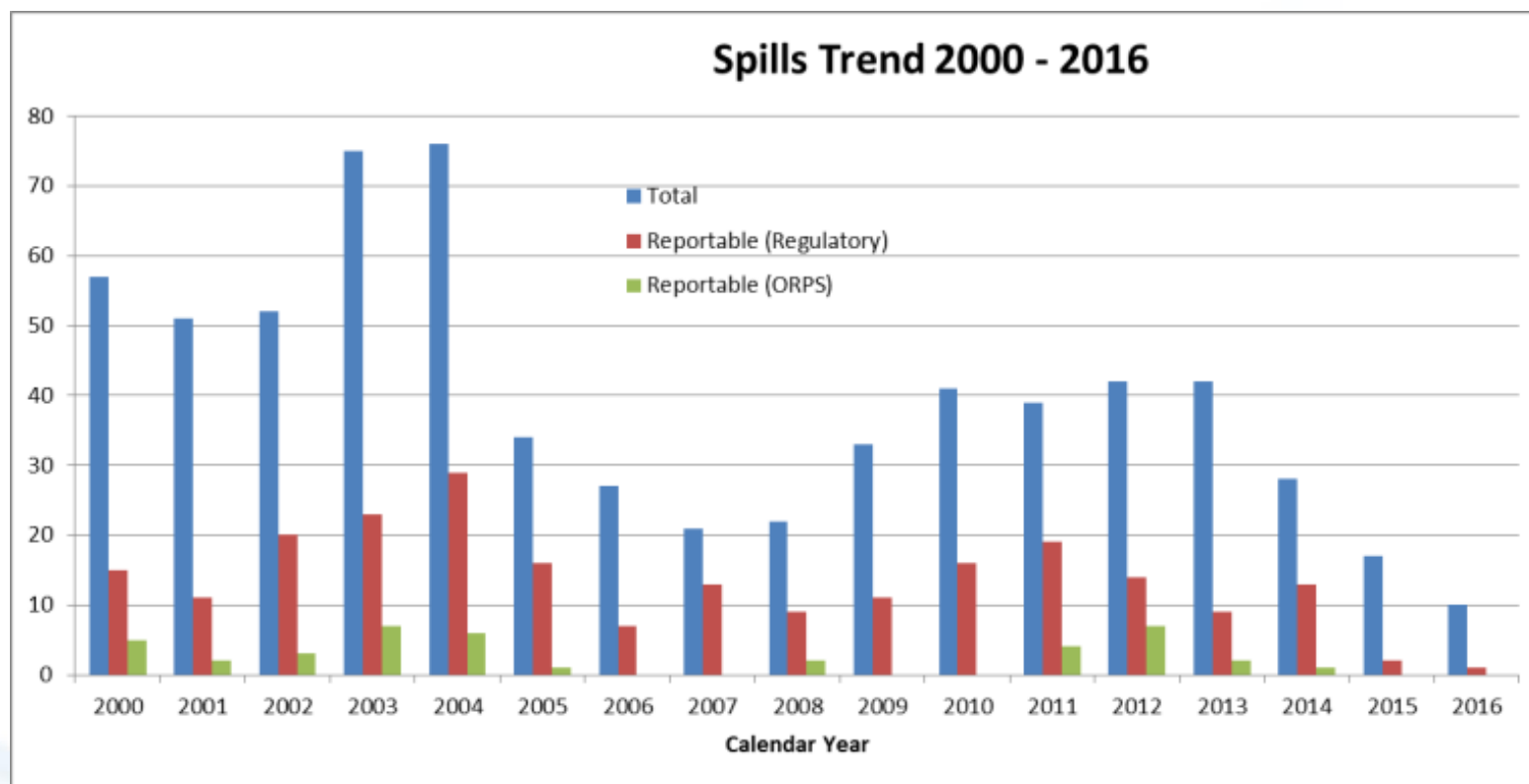
Implement Solutions

- Have proper spill response materials available
- Don't top off fuel tanks
- Replace rubber hydraulic hoses with stainless-steel braided hoses.
- Move to vegetable-based hydraulic oils in place of petroleum oils.



Objectives & Targets and Action Plans – *Monitoring Performance*

Track Performance



Work Planning and Operational Controls



DO

- **Worker training and qualifications:**
 - Ensure employees understand their roles and responsibilities.
 - Ensure you have qualified employees in the right roles.
 - Ensure employees are trained to understand the need to protect the environment and the consequences of not doing so.

- **Establish controls to protect the environment and prevent pollution (work planning)**
 - The controls are based on the significant aspects (spills)
 - Work is conducted within these controls (Maintenance equipment - don't top-off fuel tanks, use stainless steel braided hydraulic hoses)

- **Plan for Emergencies**
 - Spill response procedures, training, drills
 - Spill response equipment/clean-up materials

Communications

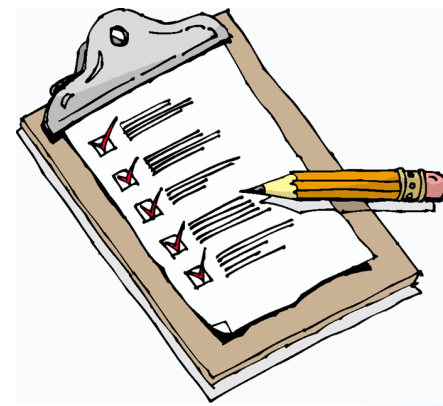
DO

- **Internal communications**
 - Internal BNL Community - Monday memo articles, broadcast emails, Weekly ESH Messages, All Hands meetings, web pages, etc...
 - EMS messages specific to workers – “Tool Box” talks with maintenance workers directly involved with equipment.
- **Communications & Stakeholder Involvement is an important piece of ISO14001 Standard conformance!**
 - The CAC is one of BNL’s most important venue’s for community participation and feedback.



CHECK

Inspections and Oversight



Internal & External Compliance Assessment Programs (Regulatory)

- Routine Surveillances
 - Organizations internal staff routinely walk through work areas, document compliance issues and track to closure.
- Internal Compliance Assessments
 - Site-wide, formal, in-depth assessments of specific topic areas such as waste management, bulk-chemical storage.
- External Assessments
 - BHSO Assessment Program
 - External Regulators (NYSDEC, EPA, Suffolk County)





CHECK

Inspections and Oversight

- **Conformance – Do we follow the requirements of the ISO14001 Standard?**
 - Annual, Site-wide Internal EMS Assessment
 - Annual, Site-wide External Third Party Registration Audit



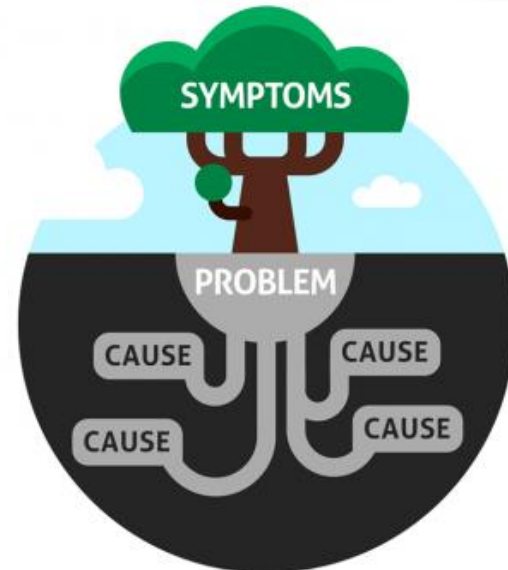
ACT

Corrective and Preventive Action (CAPA)

- **Nonconformance Program – Method for addressing issues when they occur.**
 - Assessment/Audit Findings
 - Events/Accidents/Spills (something happens)



Investigate, determine cause, establish corrective/preventive actions



ACT

Review Performance

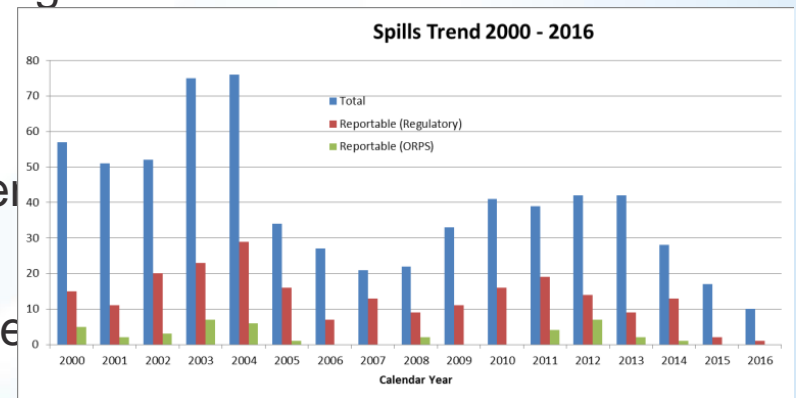


■ Management Review

- Method by which the performance of the system is reported back to upper management, and by which they provide feedback and use the information to plan for the future.

■ Elements of the Management Review

- Performance against objectives and targets
- Events, accidents
- Results of audits
- Status of corrective actions and incidents
- Changing circumstances
- Communications from interested parties
- Recommendations for improvement



The entire ISO14001 EMS Standard has the concept of continual improvement woven into the process.





Upcoming Changes to the ISO14001 Standard

Changes in the Revised ISO14001 Standard:2015



- Increased senior leadership involvement
- Further integration of the planning phase into the organization's overall business strategy

- Increased overall focus on sustainable operations
- Performance over system documentation



- Previous version focused primarily on current activities
- New version adds risk assessment and life-cycle considerations



Results of 2016 External Assessment

External Registrar Auditing BNL's EMS

- BNL's Third Party Registrar – NSF International
 - NSF International is accredited by the Occupational Safety and Health Administration (osha.gov), the Standards Council of Canada (SCC) (scc.ca), the American National Standards Institute (ANSI) (ansi.org) and the International Accreditation Service (iasonline.org).
 - http://www.nsf.org/newsroom_pdf/NSF_Accreditations.pdf
- Five auditors were on site from April 11 – 15th.
- The audit covered all organizations with BNL and all areas of the standard.

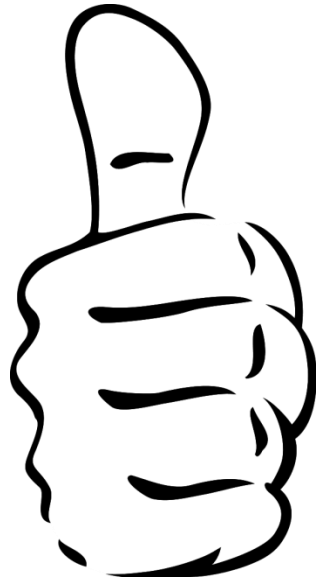
Results of 2016 External EMS Assessment

- Summary of Results:
 - 15 Positive Practices identified, such as
 - Successful NSLSI Hazard Removal Project.
 - Excellent communications internally to staff as well as to and from management.

 - 2 Opportunities for Improvement
 - Pertained to improving ease of access to documents/records as well as training changes related to the requirements in the new standard.

 - No Nonconformances Related to the EMS

A successful audit: NSF has recommended BNL be recertified to the ISO14001 Standard.



	NSF International Strategic Registrations 789 North Dixie Road, Ann Arbor, Michigan 48106 (888) NSF-9000 www.nsf-iso.org
<i>Certificate of Registration</i>	
This certifies that the Environmental Management System of	
Brookhaven National Laboratory	
Building 902c PO Box 5000 Upton L.I., New York, 11973-5000, United States	
has been assessed by NSF-ISR and found to be in conformance to the following standard(s):	
ISO 14001:2004	
Scope of Registration: Facilities, experiments, and operations managed by Brookhaven Science Associates at Brookhaven National Laboratory in accordance with the Environmental Management System.	
 	Certificate Number: 69528-EM3 Certificate Issue Date: 30-MAY-2013 Registration Date: 02-JUN-2013 Expiration Date *: 01-JUN-2016
	 William Niedzwiecki, President & General Manager, NSF-ISR, Ltd.
<small>Authorized Registration and/or Accreditation Marks. This certificate is property of NSF-ISR and must be returned upon request. *Company is audited for conformance at regular intervals. To verify registrations call (888) NSF-9000 or visit our web site at www.nsf-iso.org</small>	