



# ***DOE Corporate Operating Experience Program***

**DOE O 210.2** of June 12, 2006

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Office of Corporate Safety Analysis  
Office of Health, Safety and Security**

**October 19, 2006**



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- **DOE O 210.2 Overview**
  - **Overview of Corporate Safety Performance Monitoring Process**
  - **Overview of Operating Experience (OPEX) Review Process**
- **Lead Office Role and Functions**
- **Headquarters Program Office Role and Functions**
- **Field Element Roles and Functions**
- **Role of the Operating Experience Coordinator**



# *Contents*



- **Specific Expectations for Contractor Implementation  
– The Contractors Requirements Document**
- **Expectations on Performance Monitoring/Measurement**
- **Operating Experience Software and Web Resources**



# *Order Objectives*



- **To institute a Department of Energy (DOE) wide program for the management of operating experience to prevent adverse operating incidents and to expand the sharing of good work practices among DOE sites**
- **To provide the systematic review, identification, collection, screening, evaluation, and dissemination of operating experience from U.S. and foreign government agencies and industry, professional societies, trade associations, national academies, universities, and DOE and its contractors**
- **To reinforce the core functions and guiding principles of DOE's Integrated Safety Management System (ISMS) to enhance mission safety and reliability**



# *Order Objectives*



- **To provide mutual integration with the lessons learned requirements in other DOE Directives**
  - (1) lessons learned requirements defined in DOE O 151.1C, Comprehensive Emergency Management, dated 11-02-05,**
  - (2) DOE O 225.1A, Accident Investigations, dated 11-26-97,**
  - (3) DOE O 226.1, Implementation of Department of Energy Oversight Policy, dated 9 15 05, and**
  - (4) DOE O 414.1C, Quality Assurance, dated 6-17-05**



# *Order Objectives*



- **Summary: Combine the disparate OPEX elements into one program that includes requirements for event reporting, safety related statistics and lessons learned.**



# *Definitions*



## ■ *Operating Experience:*

- Information that relates to the methods in which work is planned and conducted and an organization's missions are performed.
- Provides the basis for knowledge and understanding that fosters development of lessons learned and improvement of operational performance

## ■ *Lessons Learned from Operating Experience:*

- A good work practice or innovative approach that is captured and shared to promote repeat applications of effective work practices
- An adverse work practice or experience that is captured and shared to avoid a recurrence of a negative event



## Other Reasons Why DOE Evaluates Operating Experience



- **Safety** of our workers
- Improve Operations
- Criticism from Defense Nuclear Facilities Safety Board (DNFSB)
- Price Anderson Amendments Act (PAAA) Implications
- Feedback and Improvement – Core Function of Integrated Safety Management System (ISMS)
- Saving \$\$\$\$
- Required by a Number of DOE Directives – New DOE O 210.2, *DOE Corporate Operating Experience Program*



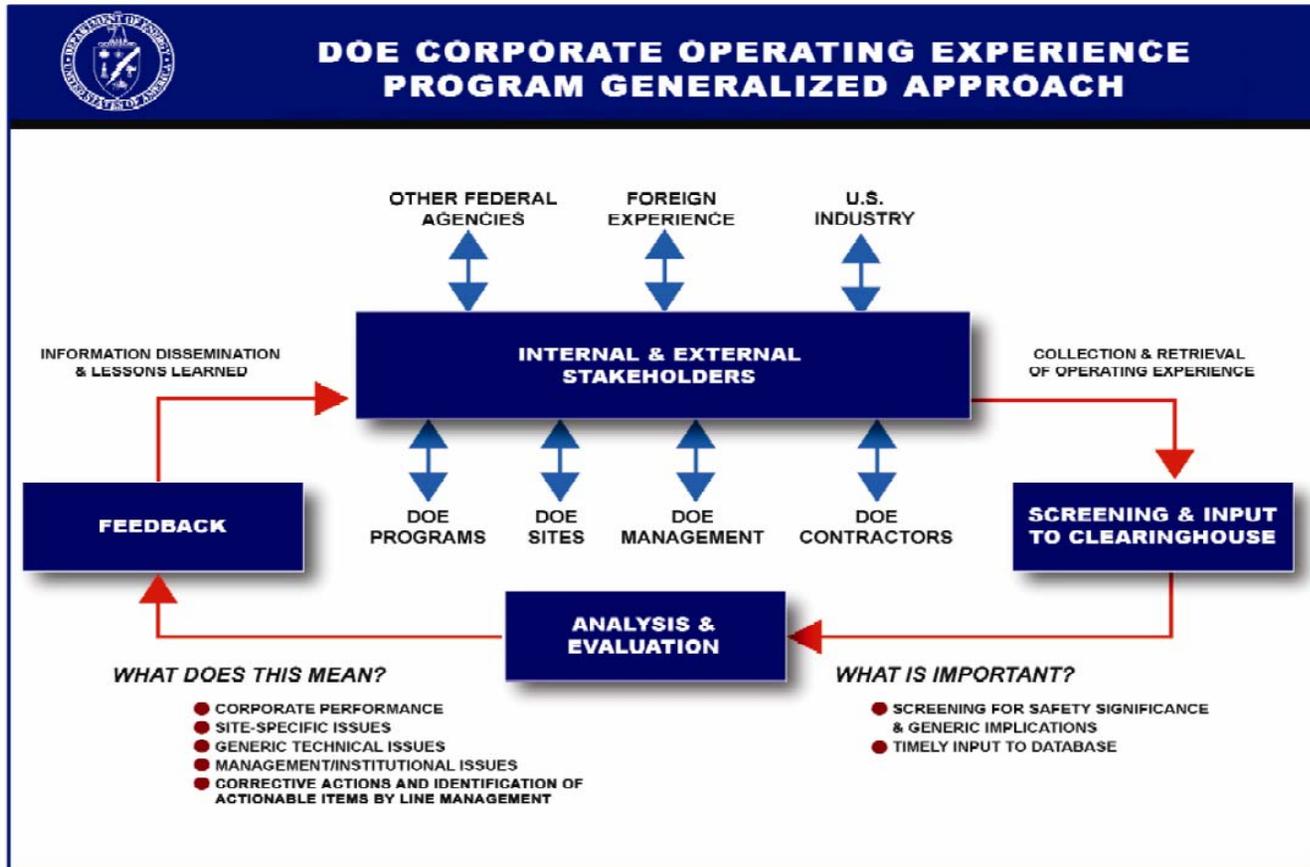
## Drivers for Change to an OPEX Oriented Paradigm



- Executive Criticism
  - Lack of Corporate and Federal Involvement
  - Lack of Management Awareness/Support
  - Single Event Focus vs. Operational Event Trending
- INPO SEE-IN Program Benchmarking
- DNFSB Recommendation 2004-1
  - Recommended that DOE also look at events external to DOE
  - Commitment 18: Develop Comprehensive DOE Operating Experience Program
- DOE Lessons Learned from Columbia – Davis-Besse Action Plan



# New Paradigm OPEX Generalized Flow





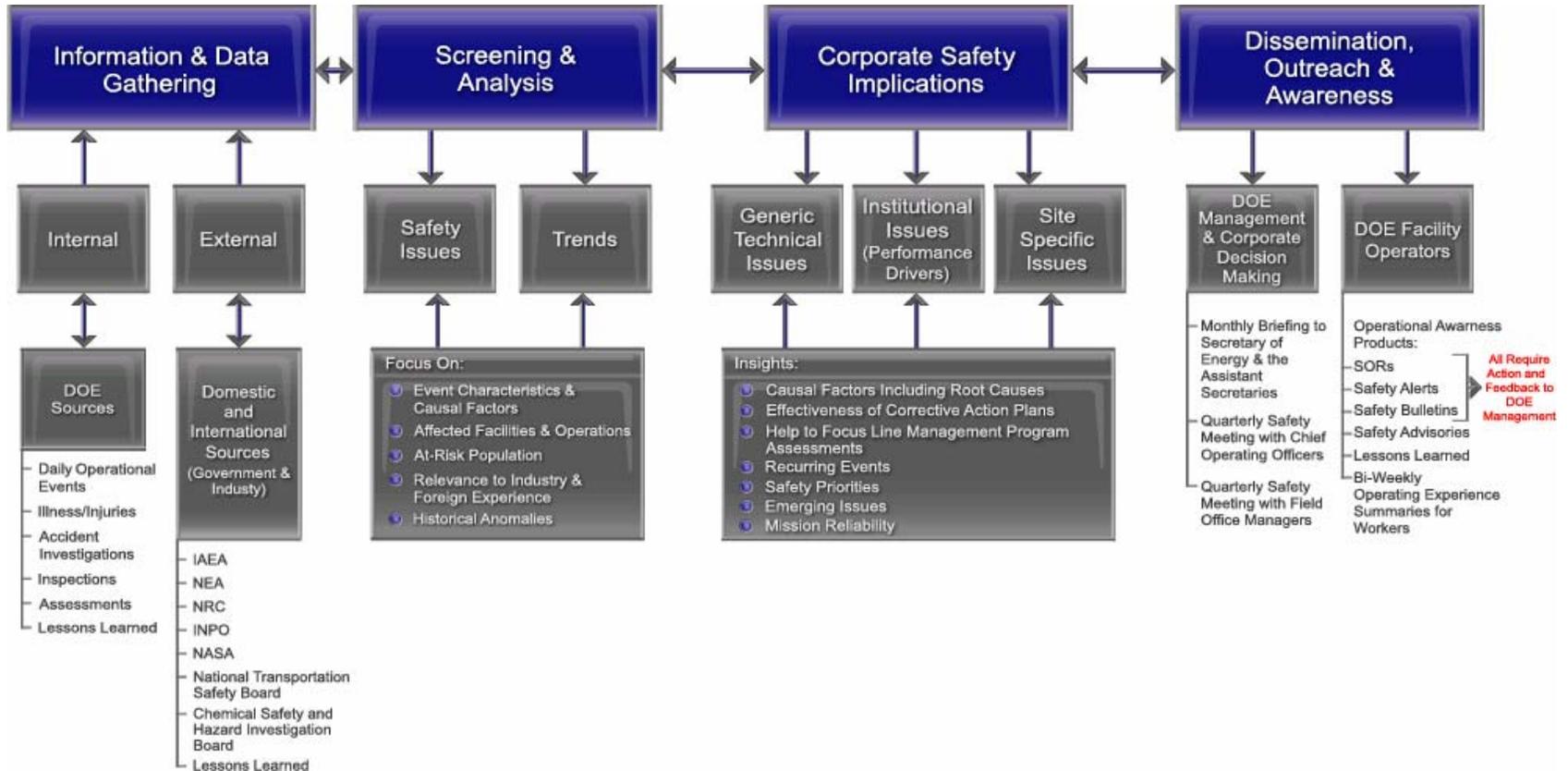
## *DOE O 210.2 Requirements*



- Prescribes a Formal Process that:
  - Evaluates **DOE Internal and External Operating Experiences (OPEX)** to **assess trends and safety issues** and **Promotes sharing of Good Work Practices** that may affect safety and success of DOE missions
  - **OPEX Clearing House Function**: collection, storage, retrieval
  - **OPEX Screened for Significance** – by all stakeholders
  - **Timely Communication** of Screening Results and Insights
  - DOE Corporate Communication – thru **Actionable** or **Informational** Products
  - Effectiveness Evaluated – Periodic Safety Meetings and Metrics



# DOE Operating Experience Program





## DOE Operating Experience Program

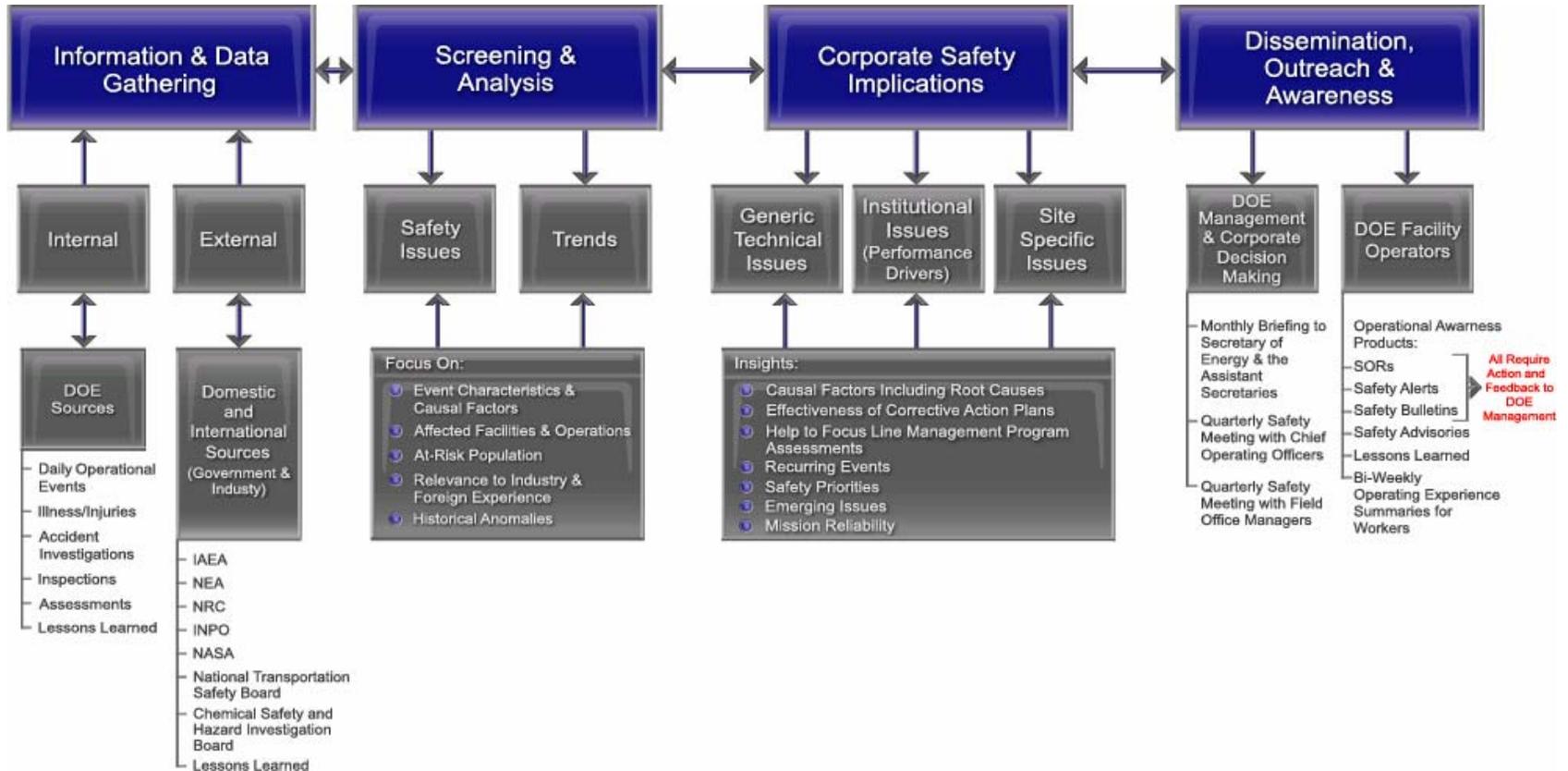


**Organizational Roles & Responsibilities are defined for:**

- DOE Corporate Operating Experience Program Lead Office
- Headquarters Program Secretarial Officers/NNSA Deputy Administrators
- DOE Field Elements including GOGOs
- DOE Contractors and Subcontractors



# Information & Data Gathering





## DOE Operating Experience Program



# Primary Sources of OPEX Information

- **DOE Internal Sources – Databases and Reports**
- **External Sources – Other Government Agencies, Industry, and Foreign Sources**

**URL:** <http://www.eh.doe.gov/ll/links.html>

- Interagency Sharing Agreements formal or informal



## DOE Operating Experience Program Internal OPEX Sources



- **Occurrence Reporting and Processing System (ORPS)** – Daily Event Reporting
- **Type A and B Accident Investigations**
- **Computerized Accident Injury/Illness Reporting System (CAIRS)** – OSHA Reportable statistics
- **Radiation Exposure Monitoring System (REMS)** – Rad Dose Information
- **Corrective Action Tracking System (CATS)**
- **Non-Compliance Tracking System (NTS)** – PAAA info
- **DOE Lessons Learned Database**



## DOE Operating Experience Program Principle External OPEX Sources

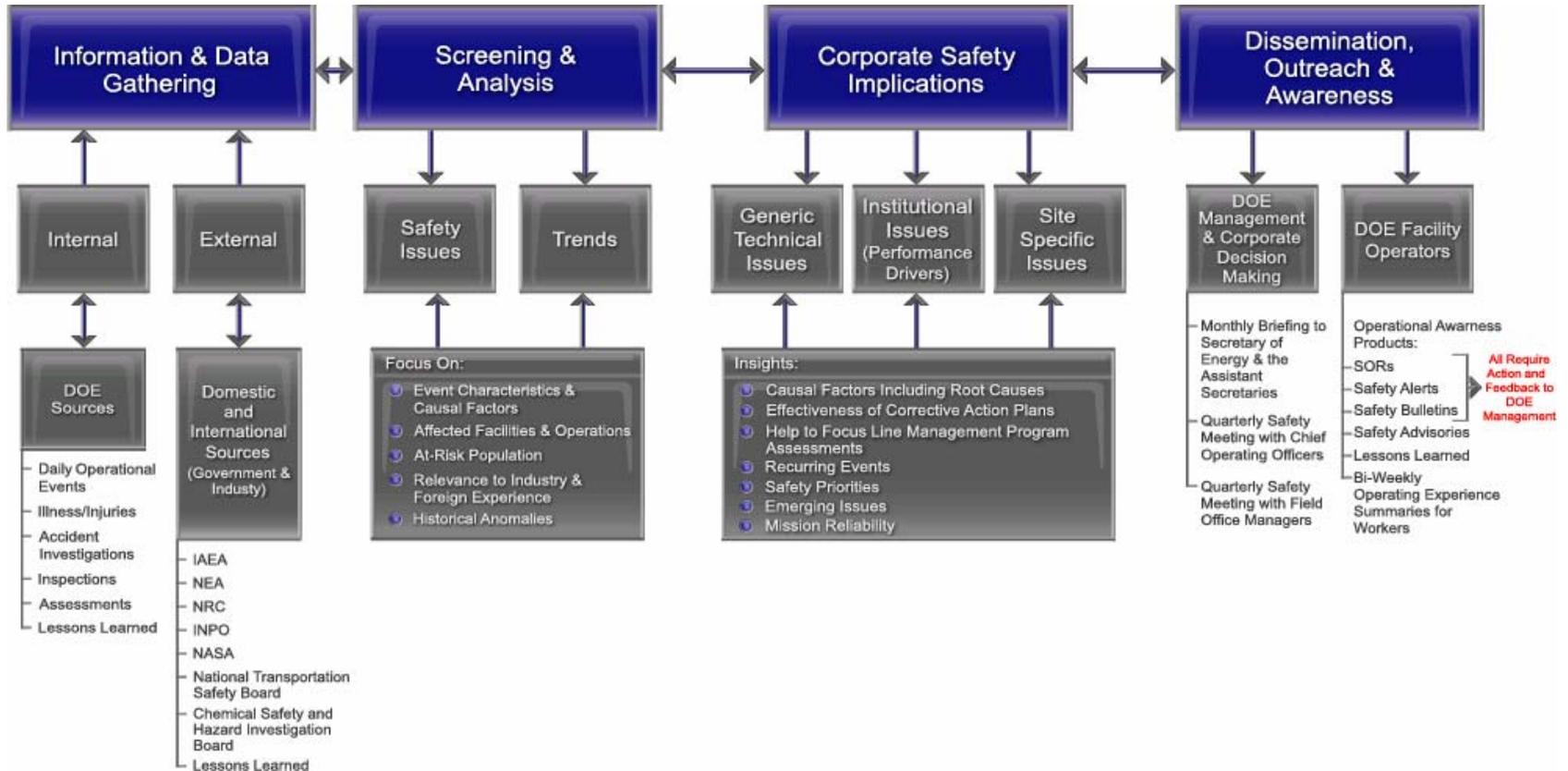


- **Institute of Nuclear Power Operations (INPO)**
- **Nuclear Regulatory Commission (NRC)**
- **U.S. Chemical Safety and Hazards Investigation Board (CSB)**
- **Occupational Safety and Health Administration (OSHA)**
- **Government Industry Data Exchange Program (GIDEP)**
- **National Aeronautics and Space Administration (NASA)**
- **Department of Defense**

**Etc.**



# Screening and Analysis





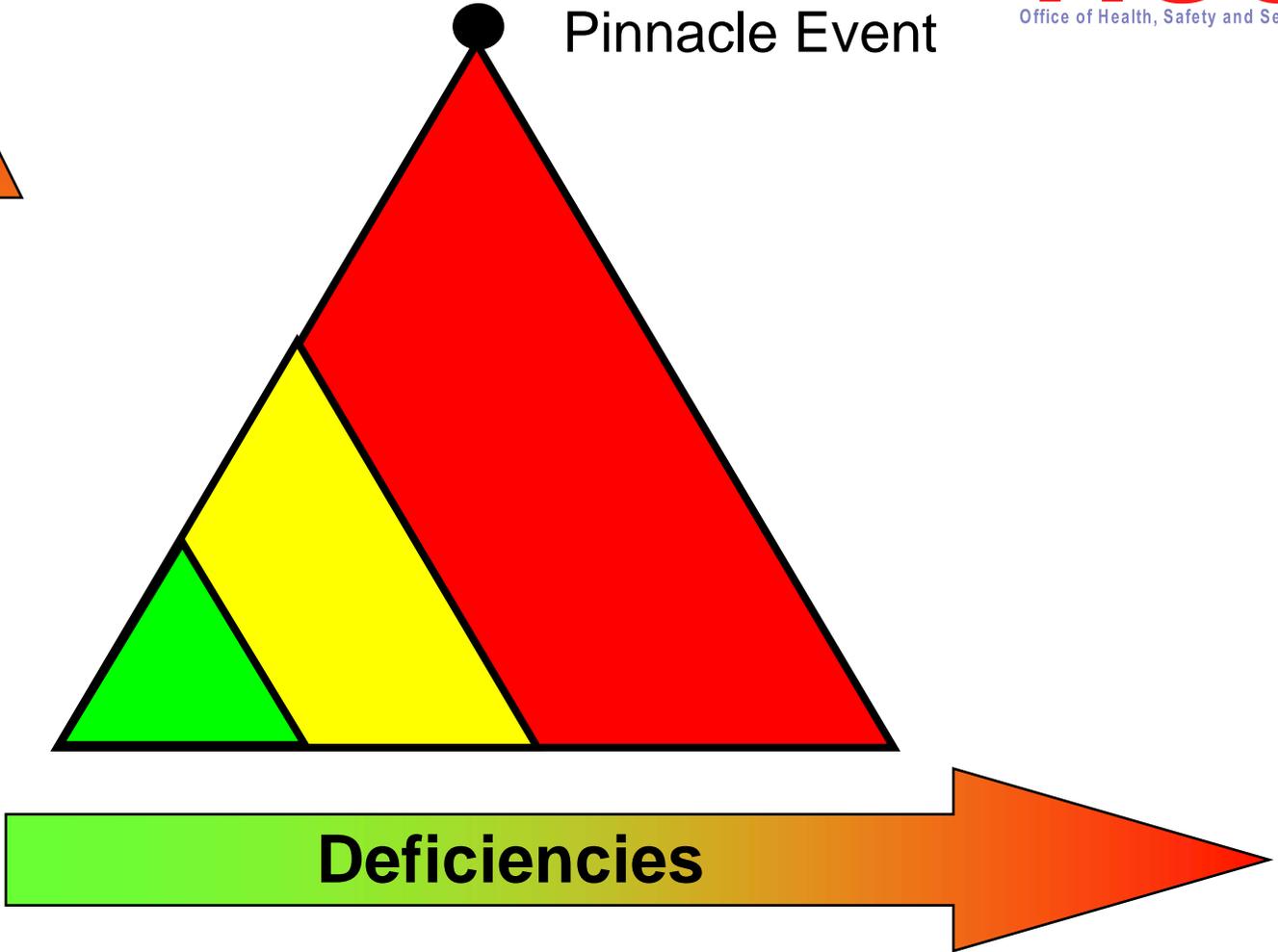
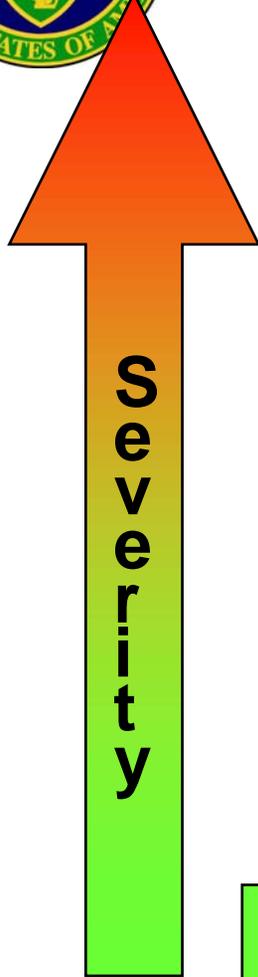
## Screening OPEX Information



- Screen for Significance, consider
  - relevancy,
  - susceptibility,
  - vulnerabilitybased on site work and hazards

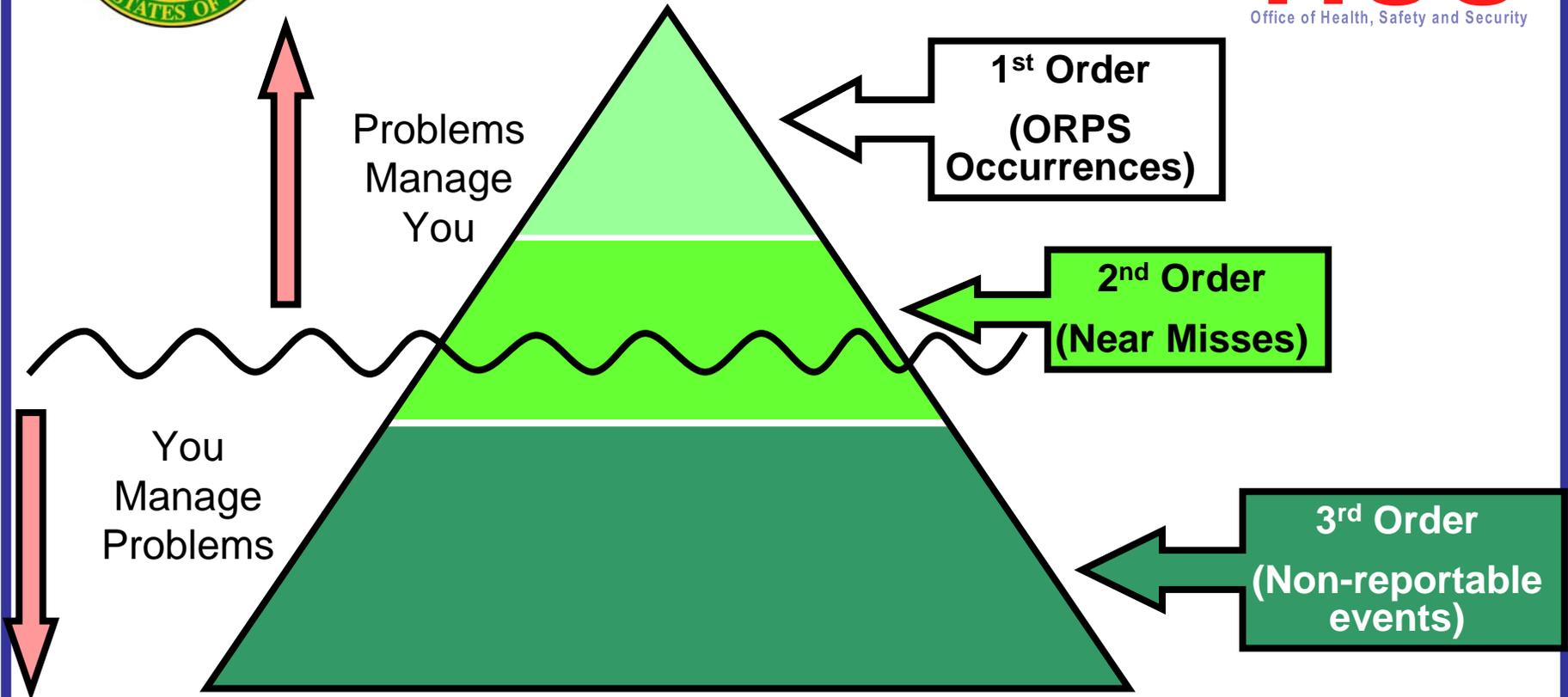


# Analyzing Problems and Trends





# The Prevention Triangle



**PREVENT BIG PROBLEMS BY WORKING HARD ON THE SMALL ONES**



## Trending and Analysis



- Occurrence Reporting and Processing System (ORPS) Information
  - Use HQ Keywords
  - Use of ORPS Reporting Criteria
  - Consider Occurrence Significance
- Trending
  - Don't JUST COUNT Occurrences
  - Don't Penalize Sites for Reporting



## Trending and Analysis



- Analysis
  - Again Don't JUST COUNT Occurrences – that is only a starting point
  - Reporting is Critical to Identify Operating Trends
  - Use Tools – Electrical Safety Severity Analysis Tool
  - ORPS Quarterly Review of Events (ORPS Manual DOE M 231.1-2) – Review events from the 12 months (rolling) for recurring trends – including non-reportable events.
  - Repeatable Events
  - Causal Analysis (ORPS Hierarchy of cause type: Root, and Apparent) – Any methodology acceptable
  - Consider Human Performance Improvement Elements – look for error likely situations and systemic problems



# Accident Investigations

## DOE O 225.1



### Type A Criteria

Hospitalization	3 people, 48 hours or more
Single Radiation Exposure	>25 rem
Environmental Release	5 times 40 CFR 302 limits resulting in serious damage
Property Loss or Damage	\$2.5 million or greater

### Type B Criteria

Hospitalization	1 person, 5 days or more
Single Radiation Exposure	>10 rem
Environmental Release	2–5 times 40 CFR 302 limits
Property Loss or Damage	\$1 million to \$2.5 million



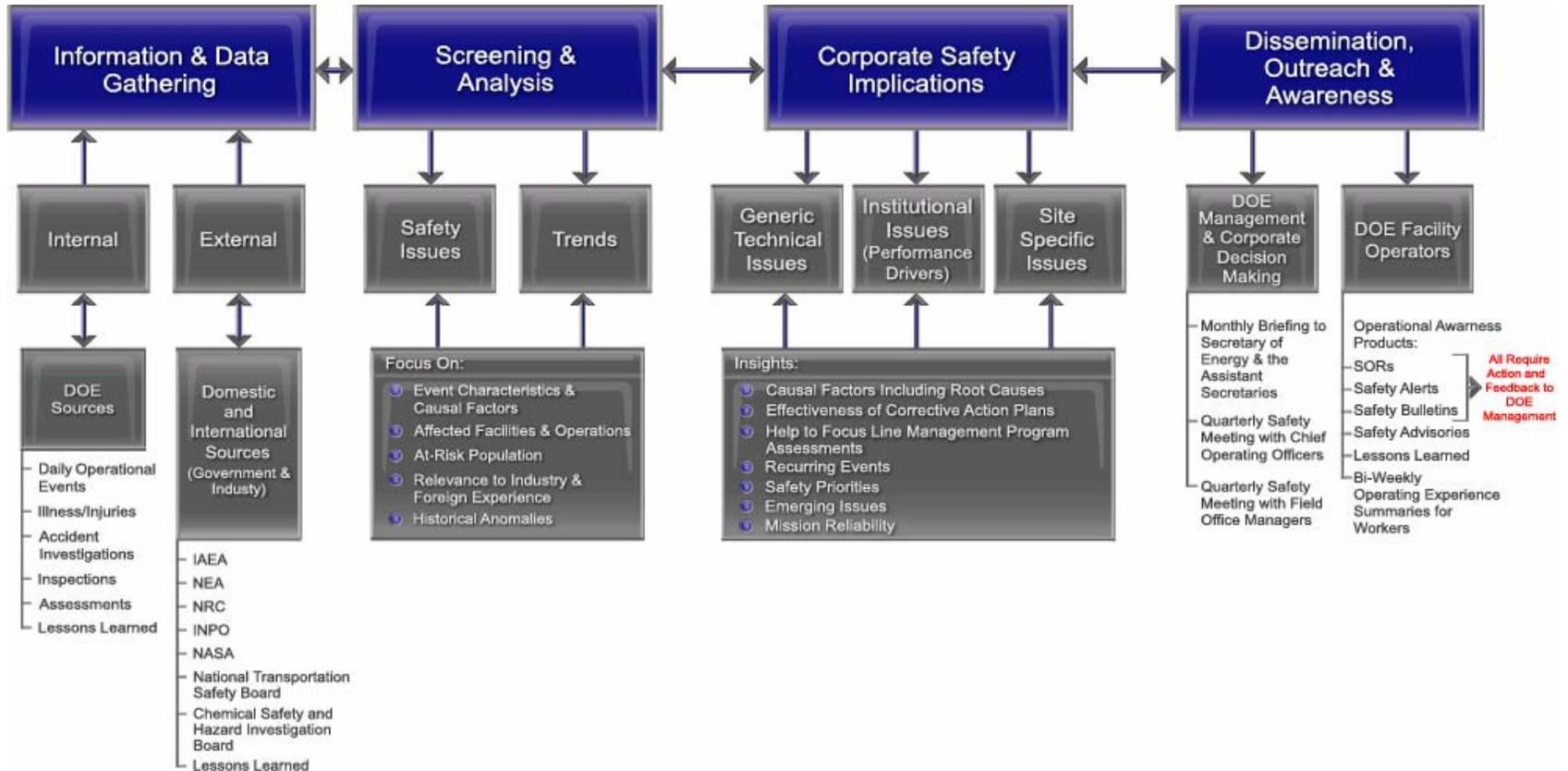
## Trending and Analysis



- For Type A and B Accidents and Type B-Like Accidents, consider
  - relevancy,
  - susceptibility,
  - vulnerability
  - Look Beyond the Specific Cause and Findings to see if similar type systemic problems can occur at your site



# Corporate Safety Implications





## Corporate Safety Implications



### **Operating Experience Performance Information should be evaluated by:**

- DOE Wide,
  - PSO (Program) wide,
  - Field Element Wide,
  - Site Wide,
  - Facility/contractor wide
- Identify systemic problems – cross cutting safety issues, e.g., Electrical Safety, Hoisting and Rigging,



# Performance Information – shared with management

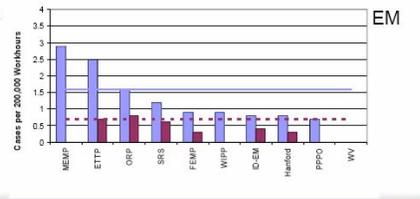
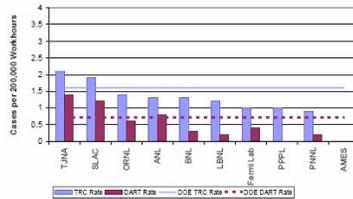
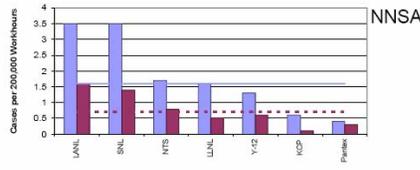
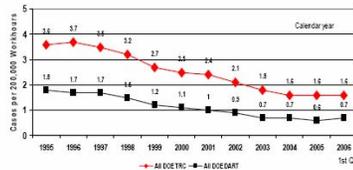


## Monthly Deputy Secretary Briefing



### TRC and DART Rates

Total Recordable Case and Days Away/Restricted Time by PSO based on 1<sup>st</sup> Q CY06



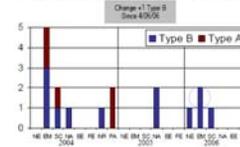
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Helping the field succeed with safe and reliable operations.

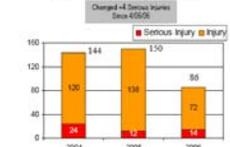


### Safety Across the DOE Complex (Through June 30, 2006)

#### Type A and B Accident Investigations



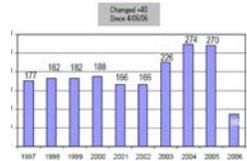
#### Injuries and Serious Injuries



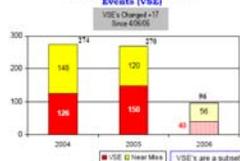
**Recent Type B Investigation:**  
 BNL - On April 14, 2006, the site declined an Operational Emergency (OE) and evacuated Building 1005 due to a small fire in a breaker panel caused by an electrical arc fault when an employee closed a 400-ampere switch. The fire was extinguished by Emergency Services and the OE was terminated. The employee received first degree burns on his face/hair and a second degree burn on one forearm. The injured employee was transported to a local hospital, where he was treated and later released. The investigation is ongoing, but preliminary indications are that the event was due to a defective 400-ampere switch.

**LANL -** On June 28, 2006, two workers were seriously injured during the construction activities of a staircase in T-440. One worker received multiple fractures to a leg and pelvic region, the other worker sustained a simple fracture of a leg.  
**CTA -** On June 15, 2006, a security officer was participating in a Security Protection Officer (SPO) training competition at the DOE National Training Center Live Fire Range, and suffered a head-injury. The injured officer was treated by onsite paramedics, and later transported to a local hospital. The SPO suffered head evulsion and was released from the hospital on June 24, 2006. He will require some additional skin grafting on his scalp and is expected to make a full recovery.  
**LLNL -** On April 28, 2006, a hydraulic jack used in trenching/grouting unexpectedly slid off a wall at the T50321 yard and struck an employee in the head, causing a cervical (neck vertebrae) fracture and head laceration. The injured employee went to the site medical facility where first aid was administered, and the employee was released without restriction.  
**BNL -** An employee was injured in the April 14, 2006, Type B event.

#### Near Misses



#### Near Miss and Very Serious Events



In late April 2006, ESI amended the definition of a Near Miss event. This change was intended to more accurately reflect the actual outcome of an event. This will most likely reduce the number of events reported as near misses in the future.

**New definition:**  
 An event that does not meet any other CRPS reporting criterion where something physically happened that wasn't supposed to and significant consequences were avoided only by luck (i.e., no control or protective equipment were in place to prevent a worse case scenario), or the control or protective equipment were ineffective.  
 For example, previously, if an event resulted in an injury BUT the injury could have been much worse, the event was categorized as a near miss. Under the new definition, the event would now be categorized by its actual outcome (i.e., an injury) and not what could have been.

**KCP -** On May 15, 2006, a plant employee was struck and pinned on the left shoulder after a 470-pound iron fixture slipped off a skid and pinned the employee against an exhaust gas. The pinned employee was freed after other employees off the fixture, and he was taken to the site medical facility for evaluation and released without restriction.  
**BNL -** On May 17, 2006, during removal operations of boxes from the waste stack on Pad F within the Transuranic Storage Area Retrieval Enclosure at AMATF, an employee was removing a box from the fourth level of the stack when a 200-pound steel pipe support bracket steel approximately nine feet long behind the box shifted and fell, striking a second employee located in a nearby vent stack on the shoulder. The employee went to the site medical facility for evaluation, and was released without restriction.  
**SLAC -** On May 4, 2006, while a Staffed Linear Accelerator Center technician was on his way to perform a Local Control (LC) of the Alpha Drive system, the project manager from the subcontractor ordered his electrical job to cut the F10200V AC interlocked electrical lines in the tunnel. There was no restriction reported.  
**ORNL -** On April 11, 2006, a near miss occurred near the T5-13 Decommissionation Facility at FEMP when a parked Caterpillar water truck rolled down an eight degree slope, striking an enclosed pulsed track. The water truck came to rest about 100 feet from the bottom of the slope near several decommissionation crew employees.

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## “Unacceptable Outcomes”



- Those events that must be avoided.
- DOE Corporate safety performance is defined in terms of the DOE’s ability to avoid such outcomes.
- Poor performance in preventing these outcomes would likely indicate serious systemic failures and impact the Department’s success.



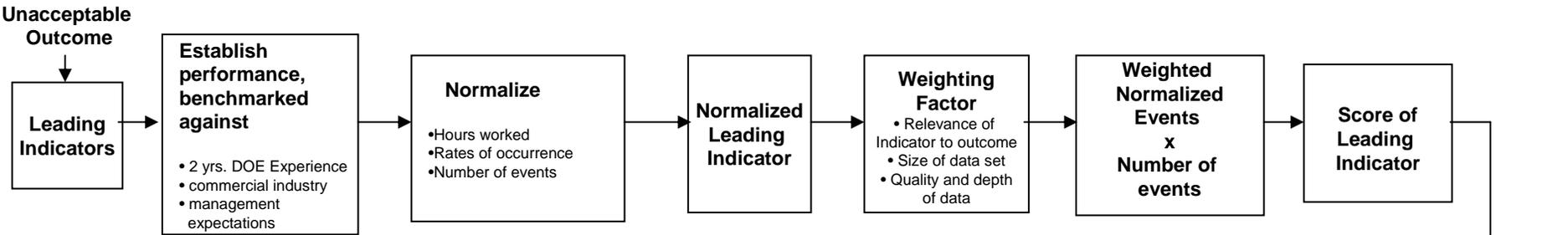
# Corporate Performance Indicators - Proposed “Unacceptable Outcomes”



- Significant Offsite Loss of Control of Radiological or Contaminated Material
- Significant Offsite Environmental or Public Impact (non-radiological)
- Inadvertent Criticality
- Deaths/Serious Injuries
- Serious Radiation or IH Exposure to Workers
- Serious Unplanned Fire or Explosion
  
- *Loss of Control of SNM*
- *Loss of Control of Critical/Sensitive Information*
- *Mission Failures*



# Proposed New Corporate Performance Indicator Process



**Legend:**

↑ Acceptable Trend

↓ Unfavorable Trend

Requires Immediate Attention

		Unacceptable Outcomes					
		Significant Offsite Loss of Cont. of Rad	Significant Offsite Env. Or Public Imp.	Inadvertent Criticality	Deaths and Serious Injuries	Serious Rad or IH Exposure To Workers	Others
Sites	Site A	Y ↑	G	G	Y	G ↓	G
	Site B	G	G	G	G	Y	Y ↑
	Site C	G	G	G	Y	G	G
	Site D	G	Y ↑	G ↓	G	R ↑	G
	Site E	Y	R	G	G ↓	Y	G
	Others	G	Y	G	Y	G	Y ↓

**Sum of all scored Leading Indicators**

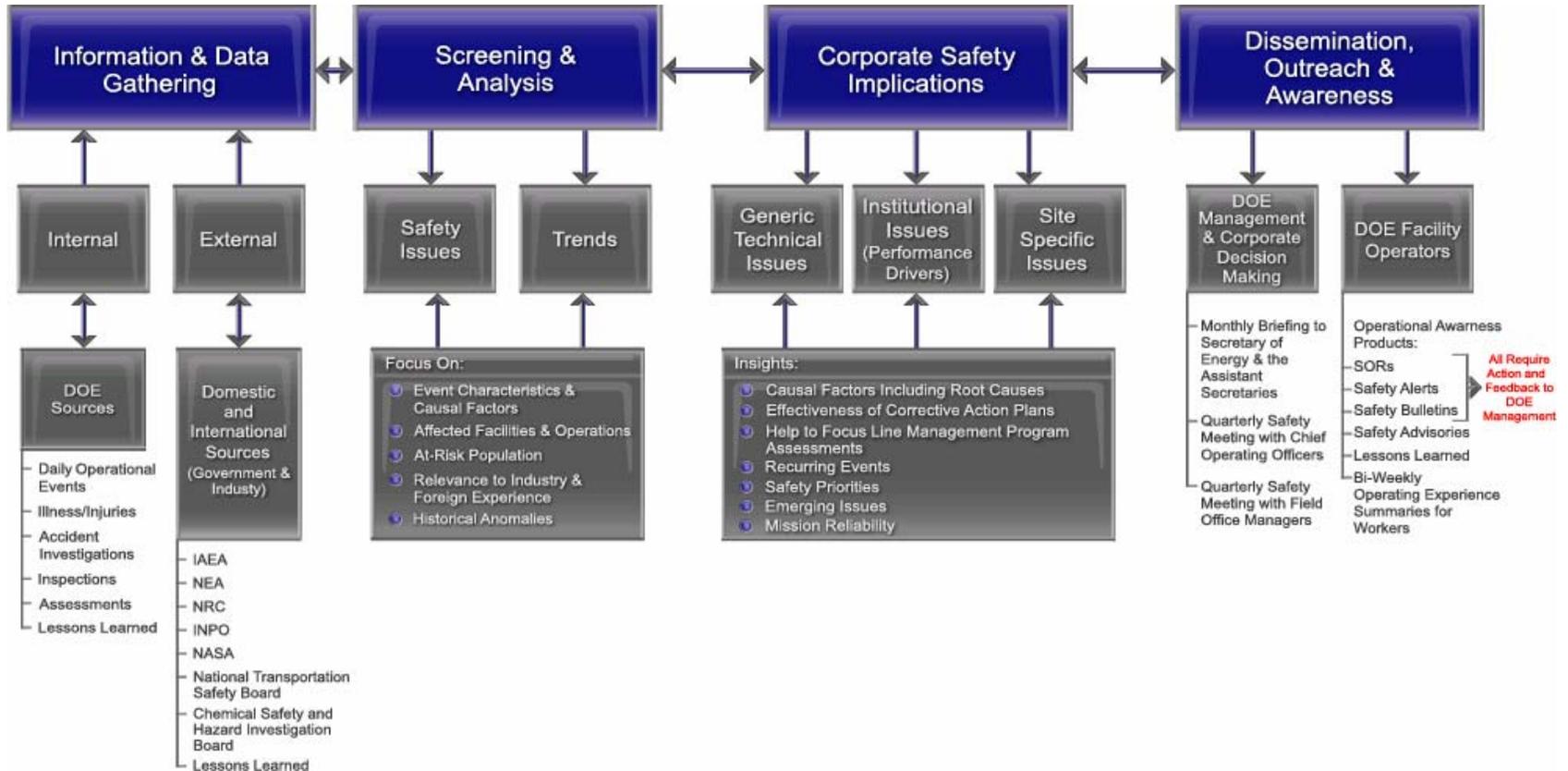
**Total Result**

**Dashboard**





# Dissemination, Outreach & Awareness





# *DOE Corporate Operating Experience Program*



## **TWO TYPES OF PRODUCTS**

- Operating Experience **Performance Information** Shared with Management
- **Lessons Learned** Focused Reports and Communications Mechanisms

*URL: <http://www.eh.doe.gov/II/>*



## *DOE Corporate Operating Experience Program*



- **DOE Corporate Operating Experience Web Page** (<http://www.eh.doe.gov/ll>) web based resource tool to:
  - DOE Site Performance Information
  - DOE Corporate Lessons Learned Collection
  - **SELLS** – Society for Effective Lessons Learned Sharing
  - **EFCOG** – Energy Facilities Contractors Group
  - Links to Other Lessons Learned Resources (Websites)



## Performance Information – shared with management



- **Daily Event Summary** – summarizes and communicates all daily occurrences
- **Under Secretary Weekly Report** - Summarizes most significant occurrences and trends  
*URL: <http://www.eh.doe.gov/ll/occurrences.html>*
- **Monthly Deputy Secretary Briefing**
- **Quarterly Site Performance Reviews** – Developing new Corporate Performance Indicators
  - **ESE and SC Under Secretary with Direct Reports**
  - **NNSA Administrator/Under Secretary**



## Corporate Lessons Learned – *communications mechanism*



- **DOE Corporate Lessons Learned Collection**  
(<http://www.eh.doe.gov/ll/oellproducts.html> ) web based resource tool to:
  - **DOE Lessons Learned Database**
    - internet Push-email
    - 2,390 Registered Users (as of 6/8/2006)
  - **DOE Corporate Operating Experience Documents web pages**
    - **Actionable Documents – SORs, SAs, SBs**
    - **Informational Documents – SAdS, OE Summary, J-I-Ts**
    - **Suspect/Counterfeit and Defectives Items websites (registry required)**
- **Actionable Documents** – are formally transmitted thru the line PSOs/NNSA Deputy Secretaries to the Contractor



## Corporate Lessons Learned – *communications mechanism*



### ■ **Management Level Documents**

- Special Operations Reports (SOR's) – Action Required
- ES&H Alert (SA) – Action Required
- ES&H Bulletin (SB) – Action May be Required
- ES&H Advisories (SAd) – Informational
- Lessons Learned Issued by NNSA Deputy Administrators /  
PSOs – Action May be Required

### ■ **Supervisory / Worker Level Documents**

- Operating Experience Summary
- Push Mail Lessons Learned (Database)
- Just-In-Time Reports
- Data Collection Sheets (SCDI)

***URL: <http://www.eh.doe.gov/ll/oellproducts.html>***



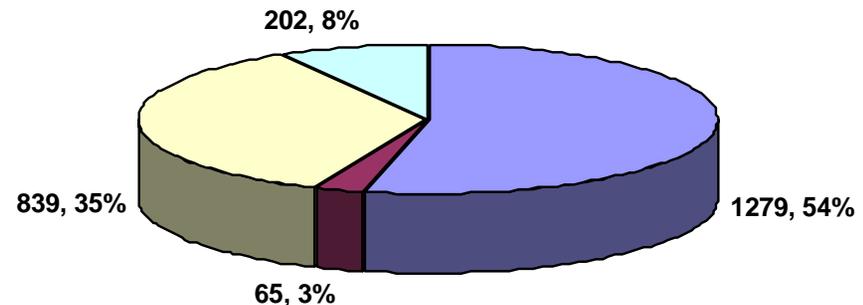
## DOE Lessons Learned Database



### KEY:

- Red = Urgent
- Yellow = Caution
- Blue = Informational
- Green = Good Work Practice

DOE Lessons Learned Issued by Type  
(1994 - Present)



Includes both DOE Corporate and Field Generated Lessons Learned

**URL:** <http://www.eh.doe.gov/DOELL/index.asp>



# Special Operations Reports (SOR)



- Most significant safety concerns
- Issued by the Deputy Secretary of Energy
- Sets performance expectations
- Requires action and feedback
- Issued:
  - 1 in 2005 - *Laser Safety, SOR 2005-1, Feb 2005,*
  - 1 in 2006 - *Electrical Safety, SOR 2006-1, Aug 2006*



## Electrical Safety

DOE/EH-0703

2006-01

August 2006

**Special Operations Reports** are issued to initiate management actions in response to events whose subject matter represents significant Departmental safety concerns.

**Environment, Safety and Health Alerts** are issued to initiate immediate action on potentially significant safety issues.

**Environment, Safety and Health Bulletins** are issued to share information and recommend actions on potential safety issues.

**Environment, Safety and Health Safety Advisories** are issued to provide information to the DOE Complex on potentially significant safety or health issues.

### PURPOSE

The Department of Energy (DOE) has issued this Special Operations Report (SOR) to inform DOE and contractor line management that there continues to be a significant concern regarding the safe performance of electrical work across the DOE complex.

### BACKGROUND

The Department experienced an increased number of electrical safety events in 2004 that continued through 2005 and 2006. In response to this adverse trend, the Department took several actions in 2005. One of these was the Secretary's directive to DOE and contractor line management to demonstrate that performance expectations were adequate and that site managers were being held accountable for improved electrical safety performance.

More electrical safety events occurred in 2005 than 2004. What is most disturbing is the significant increase in the number of electrical lockout/tagout events and electrical shocks. More than a year after the October 2004 arc-flash event at the Stanford Linear Accelerator Center, which resulted in a Type A Accident Investigation, the Department experienced two arc-flash events during the month of December 2005 alone.

In order to achieve consistent improvement in electrical safety across the Complex and to ensure ownership for improvement, all electrical safety improvement activities are being integrated under the umbrella of the Energy Facility Contractors Group (EFCOG). In January 2006, DOE and EFCOG developed and approved an Electrical Safety Improvement Project Plan. All of the actions associated with this plan are expected to be completed by the end of calendar year 2006.

### ANALYSIS

The risk of serious injury is always present when working with electrical systems. Electricity exists everywhere in the workplace and presents a hazard not only to electrical workers, but to anyone who could potentially come in contact with it. The amount of electrical current needed to cause a fatality is extremely small, and yet the energy released during an arc flash or arc blast can be tremendously large. Consequently, workers must possess an adequate knowledge of electricity's potential hazards in order to work smartly and safely.

As mentioned above, in the month of December 2005, two events occurred involving an electrical arc flash that could have had serious consequences.

- On December 10, at the Pantex Plant, electricians had removed ground sets from an automatic transfer switch in support of a short-circuit study and were re-installing fuses when an arc flash occurred. At the moment one of the electricians placed a fuse into a 480-volt fuse holder, a large arc flash occurred. The electrician, who was knocked to the ground, was wearing appropriately rated electrical personal protective equipment (PPE) and did not require medical attention. (ORPS Report NA-PS-BNXXR-PANTEX-2005-0137)

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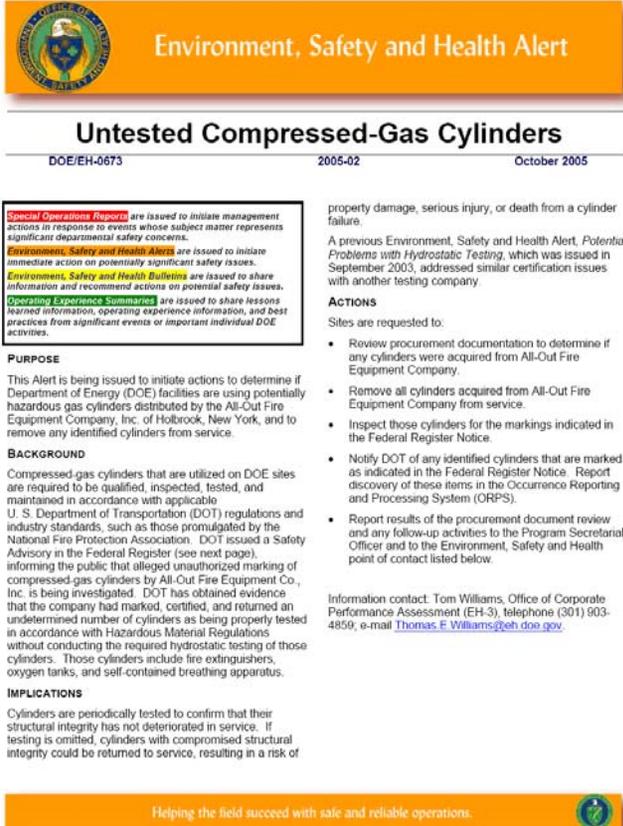
URL: [http://www.eh.doe.gov/paa/specialops\\_reports.html](http://www.eh.doe.gov/paa/specialops_reports.html)



## ES&H Alert (SA)



- Issued to advise DOE and contractors
- of potentially significant ES&H issues
- that require immediate attention
- Actions are Required
  - Requires positive & negative responses
  - Field/PSO verification
- Implementation feedback required to PSOs and HS-1
- Issued 2 in 2005, 2 in 2004, 2 in 2003



**Environment, Safety and Health Alert**

### Untested Compressed-Gas Cylinders

DOE/EH-0673      2005-02      October 2005

**Special Operations Reports** are issued to initiate management actions in response to events whose subject matter represents significant departmental safety concerns.

**Environment, Safety and Health Alerts** are issued to initiate immediate action on potentially significant safety issues.

**Environment, Safety and Health Bulletins** are issued to share information and recommend actions on potential safety issues.

**Operating Experience Summaries** are issued to share lessons learned information, operating experience information, and best practices from significant events or important individual DOE activities.

**PURPOSE**

This Alert is being issued to initiate actions to determine if Department of Energy (DOE) facilities are using potentially hazardous gas cylinders distributed by the All-Out Fire Equipment Company, Inc. of Holbrook, New York, and to remove any identified cylinders from service.

**BACKGROUND**

Compressed-gas cylinders that are utilized on DOE sites are required to be qualified, inspected, tested, and maintained in accordance with applicable U. S. Department of Transportation (DOT) regulations and industry standards, such as those promulgated by the National Fire Protection Association. DOT issued a Safety Advisory in the Federal Register (see next page), informing the public that alleged unauthorized marking of compressed-gas cylinders by All-Out Fire Equipment Co., Inc. is being investigated. DOT has obtained evidence that the company had marked, certified, and returned an undetermined number of cylinders as being properly tested in accordance with Hazardous Material Regulations without conducting the required hydrostatic testing of those cylinders. Those cylinders include fire extinguishers, oxygen tanks, and self-contained breathing apparatus.

**IMPLICATIONS**

Cylinders are periodically tested to confirm that their structural integrity has not deteriorated in service. If testing is omitted, cylinders with compromised structural integrity could be returned to service, resulting in a risk of property damage, serious injury, or death from a cylinder failure.

A previous Environment, Safety and Health Alert, *Potential Problems with Hydrostatic Testing*, which was issued in September 2003, addressed similar certification issues with another testing company.

**ACTIONS**

Sites are requested to:

- Review procurement documentation to determine if any cylinders were acquired from All-Out Fire Equipment Company.
- Remove all cylinders acquired from All-Out Fire Equipment Company from service.
- Inspect those cylinders for the markings indicated in the Federal Register Notice.
- Notify DOT of any identified cylinders that are marked as indicated in the Federal Register Notice. Report discovery of these items in the Occurrence Reporting and Processing System (ORPS).
- Report results of the procurement document review and any follow-up activities to the Program Secretarial Officer and to the Environment, Safety and Health point of contact listed below.

Information contact: Tom Williams, Office of Corporate Performance Assessment (EH-3), telephone (301) 903-4850; e-mail [Thomas.F.Williams@eh.doe.gov](mailto:Thomas.F.Williams@eh.doe.gov).

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**URL: <http://www.eh.doe.gov/paa/alerts.html>**



# ES&H Bulletin (SB)



- Issued to advise DOE and contractors of a potentially significant ES&H issue that:
  - Requires management awareness and/or
  - Has longer term impacts
- Actions are Recommended
- Implementation/applicability feedback required to PSOs and HS-1
- Issued: 5 in 2006, 15 in 2005

Environment, Safety and Health Bulletin

Gas Buildup in Drums

DOE/EH-0697 2006-04 July 2006

**Level of Concern:** **Medium** are issued to initiate management action or request for more action. **High** level represents significant Departmental safety concerns.

**Recommended Safety and Health Action:** are issued to initiate immediate action on potentially significant safety issues.

**Environment, Safety and Health (ES&H) Bulletin** are issued to share information and recommend actions on potential safety issues.

**Safety Alerts** are issued to provide information to the DOE community on potentially significant safety or health issues.

**PURPOSE:**  
This Bulletin provides information on a safety concern that may impact operations at Department of Energy (DOE) facilities. Specifically, the concern is the safe handling, storing, venting, and opening of drums that may be pressurized or may contain flammable vapors.

**BACKGROUND:**  
Potential causes of drum overpressurization include:

- Radiolysis of water or organic materials.
- Chemical reactions such as oxidation of organic material or reaction of metals with water and acids.
- Decomposition of waste by anaerobic bacteria.
- Change in altitude or temperature.
- Exposure of volatile liquids to sun or heat.

DOE records show that there have been 36 safety incidents involving gas buildup in drums over the past 5 years. In one-third of these incidents, the lid ruptured or the drum ruptured, releasing some of the contents. The remaining incidents resulted from an accumulation of flammable hydrogen or methane gas in the drum headspace or overpressurization from inverted or inadequately vented containers.

**WHAT ARE THE RISKS?**  
An unexpected lid ejection could strike a worker, resulting in serious injury. Workers could be exposed to the released drum contents, or flammable or explosive vapors could ignite. Subjective tests for drum safety, such as looking for the absence of deformation and bulging or using the two-hand flex test, where a worker presses both hands on a drum and concludes the drum pressure to be safe if the lid flexes downward, are not reliable indicators of safe pressurization.

**CONTROLLING THE HAZARDS**

- Know the materials or wastes that are being stored.
- Do not mix incompatible materials or wastes.
- Consult Material Safety Data Sheets or Waste Profile Forms.
- Ensure that stored materials are compatible with the containers.
- Avoid situations (e.g., temperature changes) that can promote pressurization and generation of flammable vapors.

**ADDITIONAL SOURCES OF INFORMATION**

- Your Safety and Health Office information on the Web on related operating experience, lessons learned, and DOE directives.  
<http://www.esh.doe.gov/paa/analysis.html>  
<http://www.directives.doe.gov/directives/learned/learned.html#number>

**SUMMARY**  
Prevent drums and containers from becoming pressurized whenever possible. If pressurized drums or containers are found, take the necessary steps to handle them safely.

If you have any questions, please contact Dr. Bill McArthur by telephone at 301-903-9674 or by e-mail at [bill.mcarthur@eh.doe.gov](mailto:bill.mcarthur@eh.doe.gov).

*C. Russell H. Shearer*  
C. Russell H. Shearer  
Acting Assistant Secretary  
for Environment, Safety and Health

Helping the field succeed with safe and reliable operations.

URL: <http://www.esh.doe.gov/paa/bulletins.html>



# ES&H Advisory (SAd)



- Issued to advise DOE and contractors of a potentially significant ES&H issue that:
  - Requires management awareness
- Informational only
- Issued: 5 in 2006, 3 in 2005, e.g. Revised OSHA Assigned Protection Factors, Sep 2006

The thumbnail shows the cover of the advisory document. It features the DOE logo and the title 'Environment, Safety and Health Advisory' in a blue box. Below that, the title 'Revised OSHA Assigned Protection Factors' is prominently displayed. The document ID 'DOE-EH/0699' and the date 'September 2006' are also visible. The main body of the document is divided into sections: 'DEFINITIONS', 'PURPOSE', 'BACKGROUND', and 'DOE IMPACT'. A table titled 'AFF EXAMPLES FOR FULL FACEPIECE RESPIRATOR TYPES' is included, listing various respirator types and their corresponding Assigned Protection Factors (APFs).

Respirator Type	APF
Air-purifying respirator (APR)	50
Powered air-purifying respirator (PAPR)	1,000
Supplied-air respirator (SAR)/airline respirator (pressure demand)	1,000
Self-contained breathing apparatus (pressure demand)	10,000

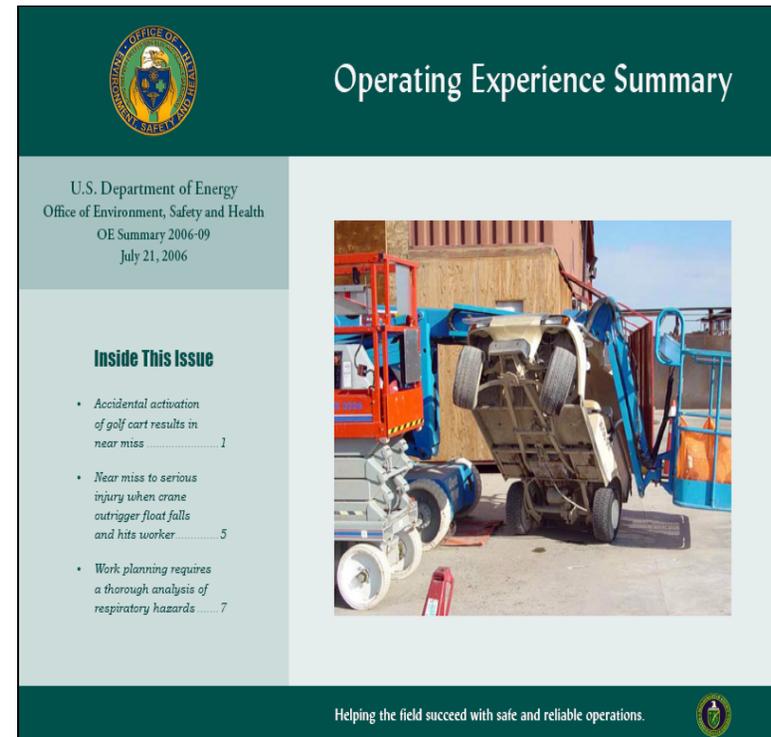
URL: [http://www.eh.doe.gov/paa/safety\\_advisory.html](http://www.eh.doe.gov/paa/safety_advisory.html)



# Operating Experience Summary



- Reviews of selected occurrences for workers and first line supervisors – convey operating errors and best practices
- Intended for use at safety meetings, e.g., tail gate meetings
- OE Summary issued by-weekly to monthly



**URL: <http://www.eh.doe.gov/paa/oesummary/index.html>**



## *Other Informational Products*



### **Just-In-Times/ Data Collection Sheets**

- Informational OE products issued to improve awareness of OE issues
- Can include:
  - Notification of events at other sites (inside or outside of DOE)
  - Suspect/Counterfeit or Defective Items Identification
- No specific action or feedback is required beyond internal dissemination
- **“Contractor Just-In-Time Submittals Are Encouraged”**
- *URL: <http://www.eh.doe.gov/sci/>*
- *URL: <http://www.eh.doe.gov/paa/jit.html>*



# ***DOE Lessons Learned Format***



- **Title:**
- **Date:**
- **Identifier:**
- **Lessons Learned Summary: \***
- **Discussion of Activities: \***
- **Analysis: \***
- **Recommended Actions:\***
- **Estimated Savings/Cost Avoidance:**
- **Priority Descriptor:**
- **Work / Function:**
- **Hazard:**
- **ISM Core Function:**
- **Originator:**
- **Contact:**
- **Authorized Derivative Classifier:**
- **Reviewing Official:**
- **Keywords:**
- **References:**

**\*Key fields**



# *DOE Corporate Operating Experience Program*



# QUESTIONS?