

Training Workers about DOE's 851 Rule: Understanding the Big Picture on Health and Safety Management

CCCHST 851 Course

NIEHS DOE Trainers' Exchange

May 7, 2012 Knoxville, TN

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The Lippy Group, LLC



LIPPY
GROUP

Greetings from Baltimore!



“Man shot, killed while eating crabs in West Baltimore”

April 14th Balto Sun



**Eat Your Crabs
Law**

At the end of this session, I'd like you to be able to

- Describe the 6 topics covered in the course
- Explain the strategy of giving the course a broader health and safety management structure
- Describe the main components of an excellent health and safety management system
- Suggest ways to improve and deliver the materials

Our major challenge was creating regulatory training that wasn't boring



Another major goal was to help the student to see the similarities among health and safety management systems

- 10 CFR 851
- ISM
- DOE 440.1
- VPP
- ANSI Z10

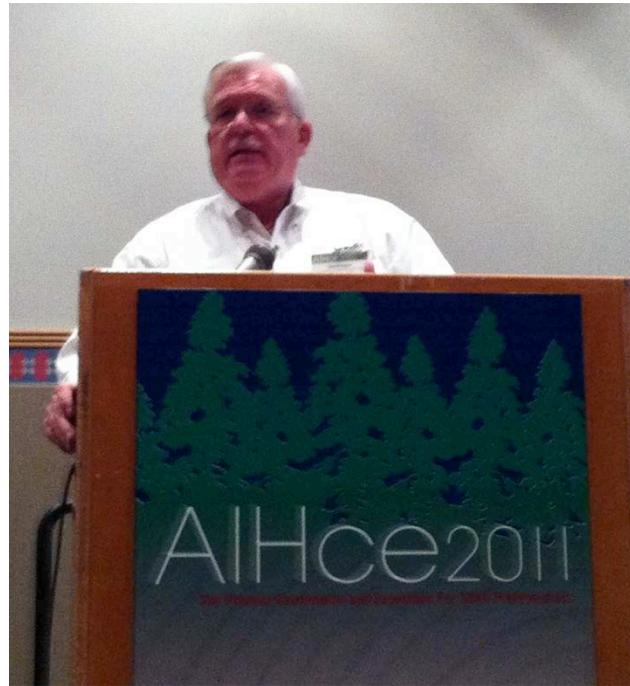


Another goal was to design for group learning



**The curriculum uses statements
from champions to reinforce
points**

**“Employee involvement is
the cornerstone.”**



R. Davis Layne, May 2011

**Executive Director, Voluntary Protection Programs
Participants Association**

There are also statements from DOE workers about their experiences with 851



Scott Klekar, HAMTC
Training Coordinator, Hanford

“Biggest thing for me was the incorporation of the BEIs and TLVs – a feather in the cap for any DOE worker.”

“Lots of safety culture comes from the immediate workforce, not upper management.”

**James
Hardy,
Nuclear
Chemical
Operator,
Hanford**



Workers are more confident to say,
“No! time out! This doesn’t feel safe.”

The major goal in PowerPoint design was to follow the Assertion-Evidence approach

How many have heard of this approach?

The defaults of PowerPoint are not based on research in communication or cognitive psychology

The diagram shows a slide master layout with several labeled areas:

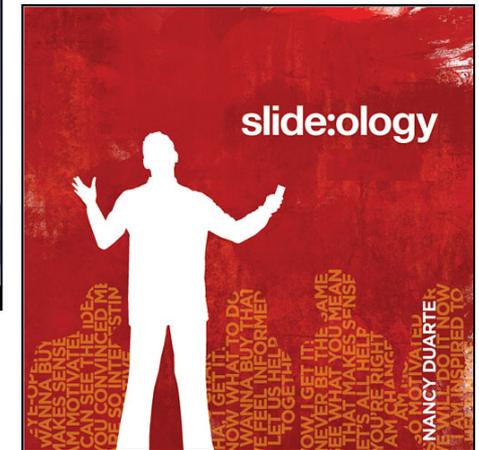
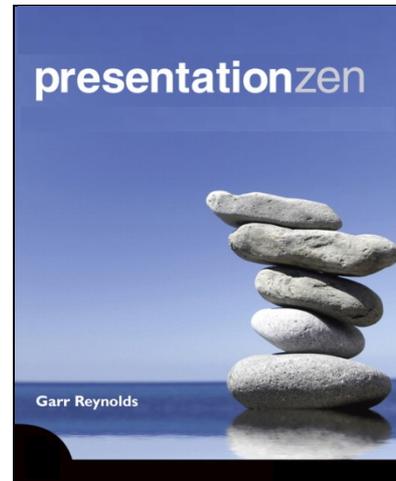
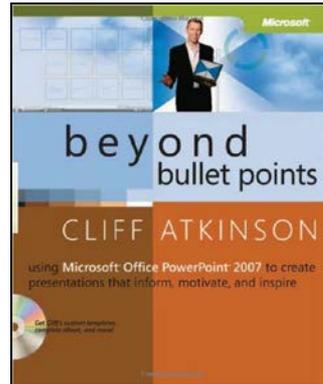
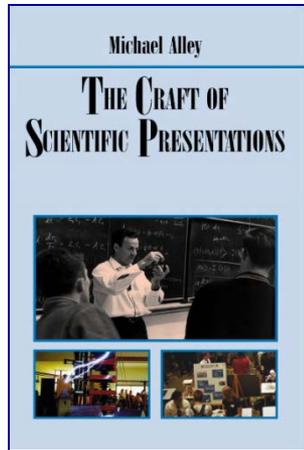
- Title Area for AutoLayouts:** A dashed box at the top containing the text "Click to edit Master title style".
- Object Area for AutoLayouts:** A large dashed box containing the main content area.
- Content:** A bulleted list:
 - Click to edit Master text style
 - Second level
 - Third level
 - Fourth level

- Footer Area:** A dashed box at the bottom containing three sections:
- Date Area:** Labeled with the placeholder <date/time>.
- Footer Area:** Labeled with the placeholder <footer>.
- Number Area:** Labeled with the placeholder <#>.

A large black diagonal callout box with the text "Poor starting place" is overlaid on the content area.

Slides
from Dr.
Michael
Alley,
Penn
State

Alley notes that several recent texts have challenged the defaults of PowerPoint



Slide courtesy Michael Alley

Alley advocates an assertion–evidence slide structure that is grounded in communication research

Xenon headlights illuminate signs better than halogen headlights do

Halogen Headlight



Xenon Headlight



[Sylvania, 2008]



Xenon headlights illuminate signs better than halogen headlights do

Halogen
Headlight



Xenon
Headlight



Here is the Lippy Group team that developed the course:

- **Bruce Lippy, Ph.D., CIH, CSP**
- **Mike Cooper, CIH, CSP, MPH**
- **Bernie Mizula, MS, CIH**
- **Tom Ouimet, MPH, MBA, CIH, CSP**
- **Martha Lippy, M.Ed.**



The curriculum contains

- **6 PowerPoints**
- **Student manual**
- **Instructor manual**
- **21 high definition video clips on module topics featuring**
 - **Dr. Bill McArthur, Head of DOE's 851 program**
 - **Layne Davis, Executive Director VPPPA**
 - **Larry Liberatore, former Head of OSHA's VPP for public sector**
- **Resource disc**

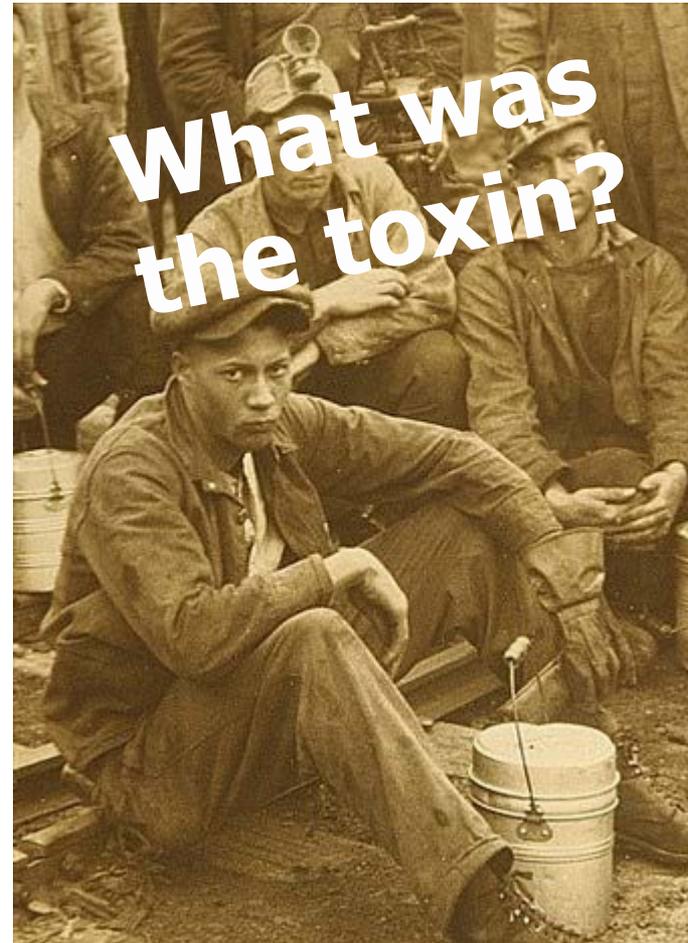
The six modules

- 1. Introduction**
- 2. Access to Information**
- 3. Reporting Events and Hazards**
- 4. Risk Identification and Assessment**
- 5. Worker Exposure Assessment**
- 6. Communications**

Module 1

Introduction

Started in 1927, the Hawk's Nest tunnel in WV killed 476 workers

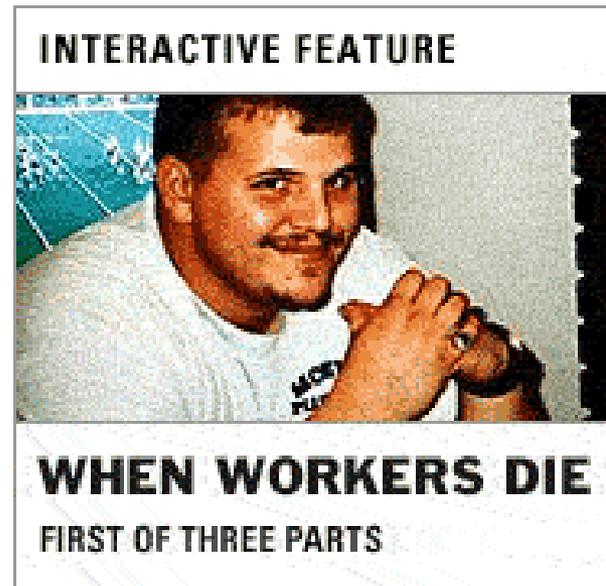


Photos courtesy
Suburban Emergency
Management Project
(SEMP)

Since passage of OSH Act:

- **341,000 workplace fatalities**
- **68 criminal prosecutions**
- **Total jail time – 42 months**

This is Patrick Walters who died at the age of 22 in a trench collapse



The 851 Rule applies to contractors. How are they defined?

anyone under contract with DOE,
including subcontractors at *any* tier



Preventing erosion,
Photo courtesy DOE and Wikimedia

What are the conditions for refusing work?

1. A reasonable belief that the task poses an imminent risk of death or serious physical harm; and
2. A reasonable belief that there is insufficient time to seek effective redress through normal hazard reporting and abatement procedures

**Who can put that
into English?**



Employees should participate in daily worksite inspections



Source: DOE 851 Implementation Guide
(DOE G 440.1-8 12-27-06)

“Ensure effective participation by employees at all levels, *including those working closest to the hazard.*”



Group question: How can we do this?

For worksite inspections to be effective, employees should:

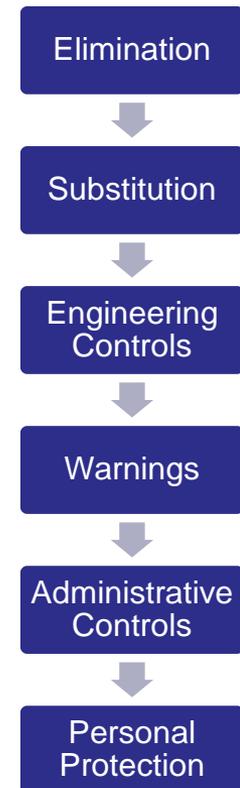
- Be trained in hazard recognition, analysis and control
- Have access to worker protection professionals
- Have access to reference sources
- Be able to suggest abatement methods
- Be able to track corrective actions

How many of these can you check?

Source: DOE 851 Implementation Guide
(DOE G 440.1-8 12-27-06)

Group Exercise: Decide on the level of controls that have been applied

| # | Description | Control level |
|---|---|---------------|
| 1 | Placing cones around broken floor tiles | |
| 2 | Using water-based hand cleaner rather than cleaning up with turpentine | |
| 3 | Placing of damping material in metal bins to reduce noise of metal parts dropping from the line | |
| 4 | Training workers how to safely operate a punch press | |
| 5 | Wearing a full-face respirator | |
| 6 | Building a sound-proof booth for operators at cinder block plant | |
| 7 | Picking up radioactively-contaminated waste with robot | |



Part 851 is based on DOE's Voluntary Protection Program

**DOE based their VPP program
on the OSHA model**

**DOE VPP has lots of creative ideas.
Anyone familiar with any of these.**

- 1. Hanford's Union Safety Representatives**
- 2. Savannah River's SAFE-T Construction Safety Program**
- 3. Idaho's Safety Observations Achieve Results (SOAR)**
- 4. Idaho's Passports**
- 5. WIPP's "The Porcelain Press"**

[http://www.hss.doe.gov/HealthSafety/wsha/vpp/tools/
tools.html](http://www.hss.doe.gov/HealthSafety/wsha/vpp/tools/tools.html)

Module 2

Access to Information

Occurrence Reporting and Processing System (ORPS) reports are available to the public

By Organization By Keyword



U.S. DEPARTMENT OF ENERGY Occurrence Reporting and Processing System

Final Report Data Published as of: 6/2/2011 8:47:01 AM

[Tutorial](#)

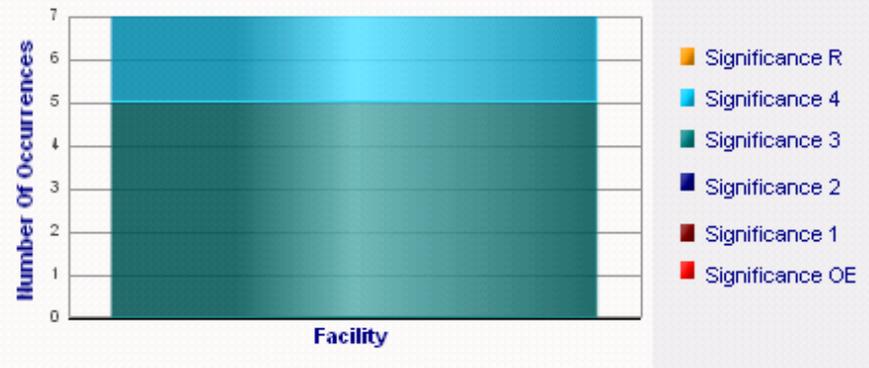
Select Year: 2010

Program Office: All

Year: 2010

EE: National Renewable Energy Laboratory

| Site | Occurrences |
|--|-------------|
| EE: National Renewable Energy Laboratory | 7 |
| EM: Argonne National Laboratory East | 3 |
| EM: Brookhaven National Laboratory | 3 |
| EM: Carlsbad Field Office | 7 |
| EM: East Tennessee Technology Park | 9 |
| EM: Hanford Site | 211 |
| EM: Idaho National Laboratory | 58 |
| EM: MOAB | 2 |
| EM: Mound Plant | 2 |
| EM: Nevada Test Site | 9 |



Click on the Site Name to select and view Facility Chart to the right

Select a Facility to see Occurrence Reports in the table below

Note: Problem with Y-Axis for values 4 and less to be corrected

Exercise: Use the ORPS database to find information on an incident at a DOE site

- What was the incident?
- What were the adverse effects?
- What were the causes?
- What corrective actions were taken?
- Any corrective actions that should have been taken but weren't?
- Could a similar incident occur at another site?

Module 3

Reporting Events and Hazards

Final Activity in this module involves a successful near-miss system

IAFF's System

NATIONAL FIRE FIGHTER NEAR-MISS REPORTING SYSTEM
Revised 5/2008 Page 1 of 2

SECTION 3: EVENT DESCRIPTION
Describe the event, location, circumstances, equipment, personnel, weather, etc. Report the following types of information...

SECTION 1: REPORTER INFORMATION
Collect only one.

Department type: (Required)
 Volunteer
 Paid, Mixed Unit
 Paid, Industrial
 Combination, Mixed paid
 Wildland/Industry

Department shift:
 24 hours - 24 hours off
 24 hours - 48 hours off
 16 hours - 72 hours off
 16 hours - 14 hour shifts (2-2-4)
 12 hours - 12 hour shifts (2-2-2)
 24 hours - 36 hours off
 24 hours (8 hours)

Service Area
 State
 Suburban
 Rural

Job rank: (Required)
 Assistant Chief
 Battalion Chief
 Captain
 Deputy Chief
 Driver/Engineer
 Fire Chief
 Fire fighter
 Lieutenant
 Steward
 Subsector Chief
 Training Officer
 Safety Officer
 ALS Provider
 EMS Provider
 Other

Age at time of event
 18-24
 25-33
 34-41
 42-50

Experience at time of event (in years)
 0-3
 4-6
 7-10
 11-15
 16-25
 26-30
 31-40
 41+

State
 AL
 AK
 AR
 AZ
 CA
 CO
 CT
 DC
 DE
 FL
 GA
 HI
 IA
 IL
 IN
 KS
 KY
 LA
 MA
 MD
 ME
 MI
 MN
 MO
 MS
 MT
 NC
 ND
 NE
 NH
 NJ
 NM
 NV
 NY
 OH
 OK
 OR
 PA
 RI
 SC
 SD
 TN
 TX
 UT
 VA
 VT
 WA
 WI
 WV
 WY

FEMA Region

SECTION 2: EVENT INFORMATION
Collect only one.

Event type: (Required)
 Fire emergency: structural fire, wildland fire, etc.
 Non-fire emergency: auto accident, truck collision, emergency medical aid, power call, etc.
 On-duty activity: apparatus and station maintenance, meetings, drills, etc.
 Holiday activity: annual training, drills, in-station drills, multi-company drills, etc.
 Work-related: responding to, working from station during, etc.
 Other

What was your event participation? (Required)
 Involved
 Witnessed event but not directly involved in the event
 Witnessed event but neither involved nor witnessed event
 Not involved and identified by Safety Officer

Contributing factors
 Accessibility
 Command
 Communication
 Decision making
 Equipment
 Fatigue
 Hazardous
 Human Error
 Individual Action
 Procedure
 Protocol
 Resources/Inexperience
 Size of incident
 Situation
 Training/Drills
 Training/Drills
 Training/Drills
 Training/Drills
 Weather
 Other

Event date and time: (Required)
 Date: _____
 Time: _____

How many hours into the shift were you when the event happened? (Collect only one.)
 0-4
 5-8
 9-12
 13-16
 17-20
 21-24
 24+
 Unknown

Weather at time of Event
 Clear and dry
 Clear with wet surface
 Clear with heavy surface
 Cloudy and dry
 Cloudy and rain
 Cloudy and snow
 Cloudy and ice
 Cloudy and blowing rain
 Fog with reduced visibility
 High winds with visibility
 Not reported

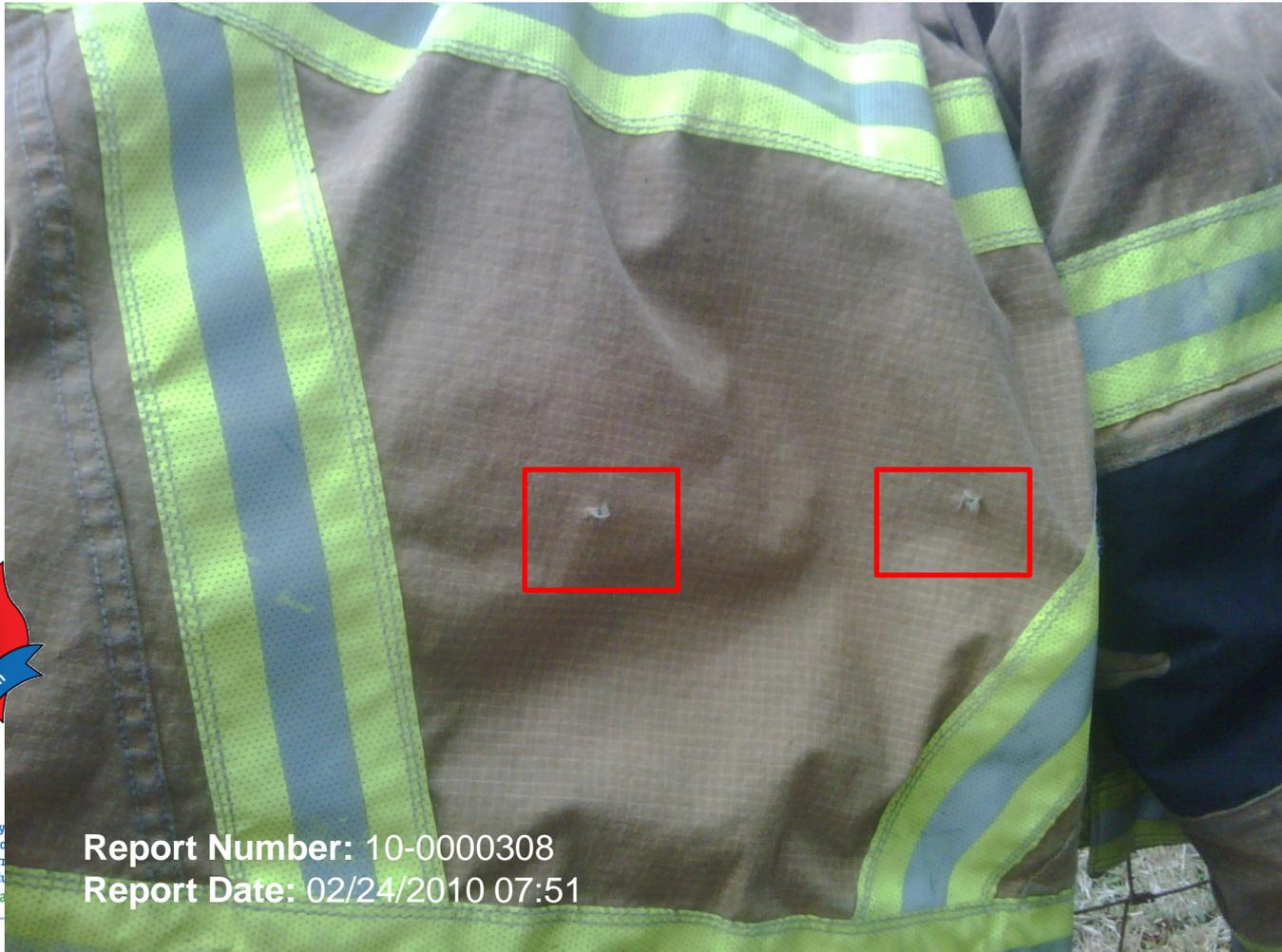
Loss Potential (Collect only one.)
 Uninjured
 No missing/injury
 Minor injury
 Property damage
 Unknown
 Other

Do you think this will happen again?
 No
 Yes

CONTC
 (Continued on next page)
 Name: _____
 Title: _____

Please submit report and any attachments to: **NATIONAL FIRE FIGHTER NEAR-MISS REPORTING SYSTEM**
 4025 Fair Ridge Dr.
 Fairfax, VA 22032-2868
 Phone: 571-236-8287
 Fax: 703-273-9968

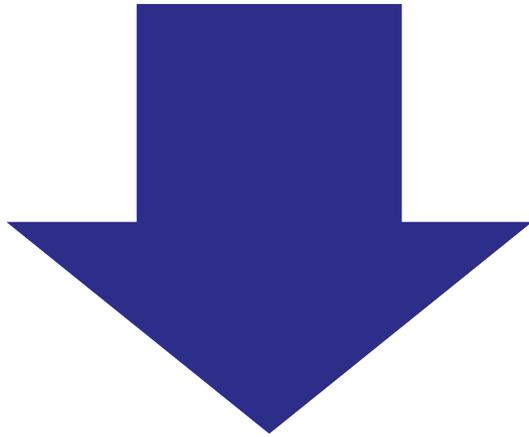
Example Report: Exploding ammo hits firefighters (10-308)



Module 4

Risk Identification and Assessment

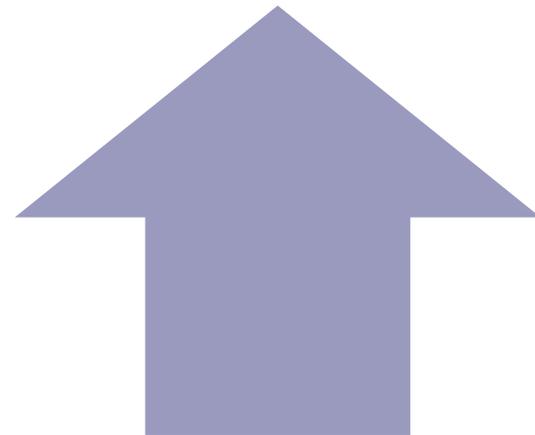
Risk is a function of



**Severity of
possible
harm**



**Probability of
the occurrence
of that harm**



This is the most basic risk matrix

Probability

| | | | | |
|-------------|-----|---------------|----------------|------|
| High | A | M | U | U |
| Med to High | A | M | U | U |
| Low to Med | A | A | M | U |
| Low | A | A | M | M |
| | Low | Low to Medium | Medium to High | High |

A = acceptable

M = marginal

U = Unacceptable

Severity

Group Activity: Apply the matrix to this operation



Confirmed
as real by
NASA

The course teaches hazard assessment tools beyond JHAs.
Let's do a What-if Analysis together



Record the results in this format

| What-If? | Result | Controls - in place or needed |
|----------|--------|-------------------------------|
| | | |
| | | |
| | | |

Rules for each group:

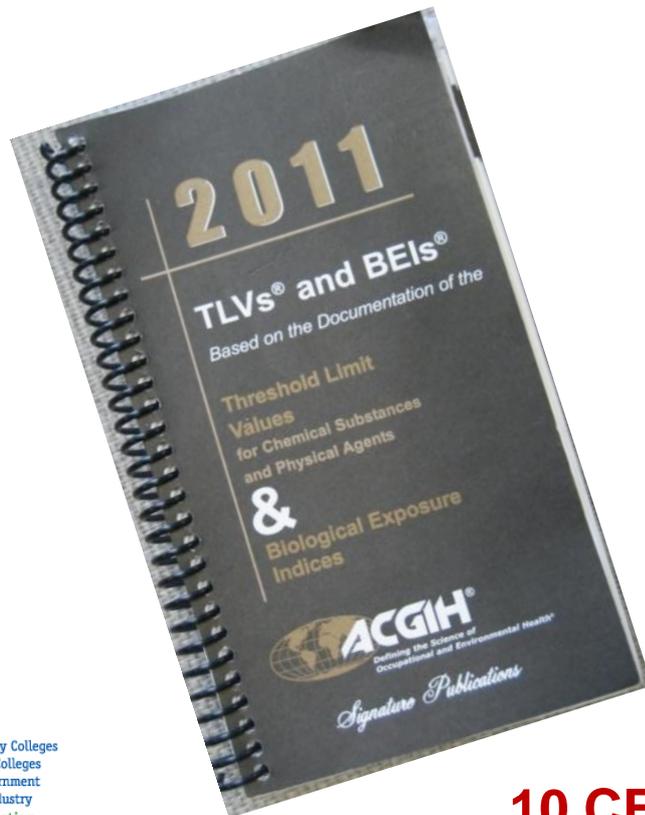
1. Start *each* question with “What if...?”
2. Everyone in the group should pitch an idea
3. Do not criticize the question, just work it
4. Identify 1 or 2 of the greatest risks not covered

Be prepared to report these to the larger group

Module 5

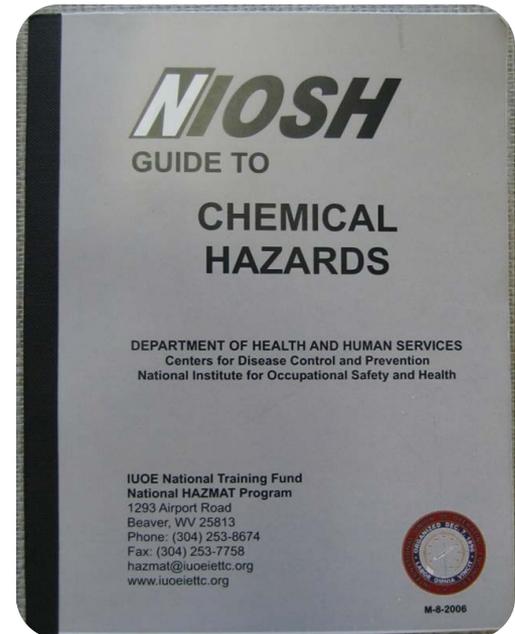
Worker Exposure Assessment

10 CFR 851 requires that contractors comply with the ACGIH TLVs when they are more protective than the OSHA PELs



Group Exercise with NIOSH Pocket Guide

- Results from the lab: 1.2 mg/m^3 benzene
 - Molecular weight of benzene: _____
 - Benzene TLV-TWA: _____
-
- Convert the results to ppm and determine if the exposure was above the TLV-TWA



Module 6

Communications

Workers have the right to “express concerns related to worker safety and health.”

851.20(b)(7)



Employers must promptly resolve issues resulting from an employee-raised Stop Work 10 CFR 851.20



Safety inspectors investigating incident

Comments?

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