Operating Experience Summary

U.S. Department of Energy
Office of Health, Safety and Security
OE Summary 2006-15
December 20, 2006

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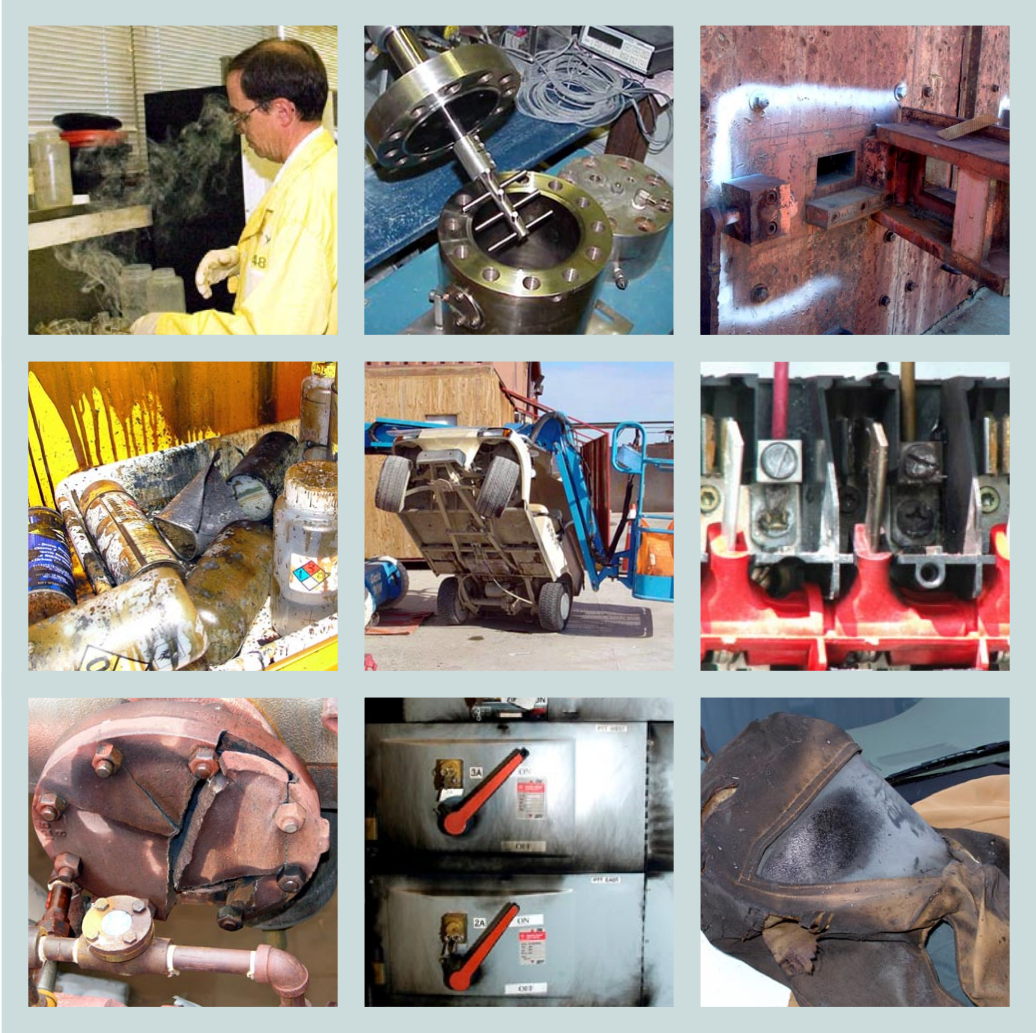


1 Top Ten OSHA Violations for Fiscal Year 2006

Scaffolding and fall protection top OSHA's list of the most frequently violated health and safety standards from October 2005 through September 2006. The following is a list of the 10 most frequently cited standards, ranked by number of violations.

1. **Scaffolding – General Requirements**, with 7,895 violations (1926.451)
2. **Fall Protection**, with 5,746 violations (1926.501)
3. **Hazard Communication**, with 5,586 violations (1910.1200)
4. **Respiratory Protection**, with 3,410 violations (1910.134)
5. **Lockout/Tagout**, with 3,068 violations (1910.147)
6. **Powered Industrial Trucks**, with 2,582 violations (1910.178)
7. **Electrical – Wiring Methods, Components, and Equipment for General Use**, with 2,396 violations (1910.305)
8. **Machine Guarding – General Requirements**, with 2,296 violations (1910.212)
9. **Ladders**, with 2,115 violations (1926.1053)
10. **Electrical – General Requirements**, with 1,791 violations (1910.303)

A search of the ORPS database for events in categories similar to those in the OSHA list during the same timeframe (i.e., October 2005 through September 2006) provided some interesting results. Electrical safety and hazardous energy control (lockout/tagout) were at the top of the list; fall protection, ladders, and scaffolding were at the bottom. Note that the ORPS reports include events involving DOE, contractor, and subcontractor personnel, whereas the OSHA citations involved all industries and Standard Industrial Classifications for workers and employers.

Figure 1-1 shows a comparison between OSHA violations cited in industry and DOE events reported to ORPS. Two steps were taken to facilitate a comparison between the databases. First,

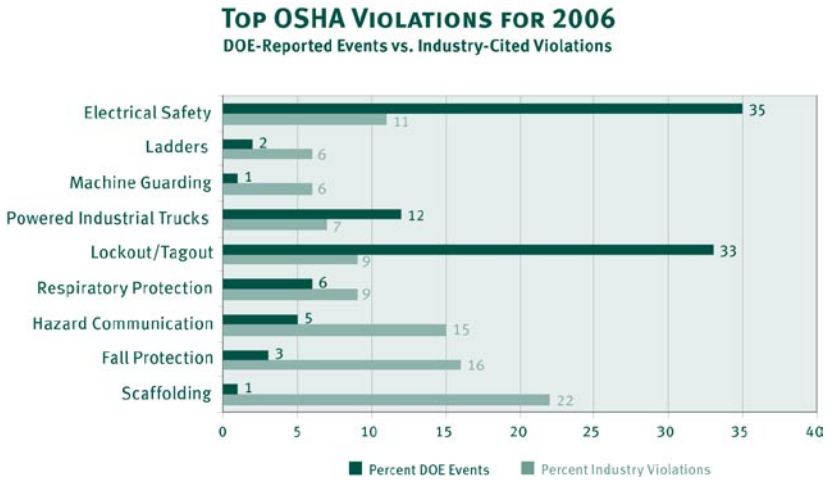


Figure 1-1. Comparison between industry data and DOE events

the two OSHA citations for violating electrical standards were combined as "electrical safety," which is a major area of concern for DOE. Second, rather than comparing the actual numbers, the percentage of OSHA violations, as a percentage of the total number violations (36,885), was compared to the percentage of DOE events. This step was performed because OSHA's numbers were very large in comparison with those reported to ORPS by DOE facilities (225). For example, OSHA reported 3,068 industry lockout/tagout violations; DOE reported 75 lockout/tagout events for the same period.

Overall, DOE continues to exhibit weaknesses in issues concerning conduct of operations, primarily in the areas of hazardous energy control and electrical safety. Another area in need of improvement is material handling, which involves the use of powered industrial trucks, such as forklifts and fork trucks. How do your site or facility issues compare with OSHA's list of citations? Where are your weaknesses and what areas need safety improvement?

KEYWORDS: *OSHA, citations, violations, scaffold, fall protection, hazard communication, respiratory protection, lockout/tagout, powered industrial trucks, electrical safety, machine guarding*

ISM CORE FUNCTIONS: *Define the Scope of Work, Analyze the Hazards, Develop and Implement Hazard Controls, Perform Work within Controls*

Holiday Fire Prevention: A Wet Tree is a Safe Tree

2

Christmas trees account for approximately 400 fires annually — holiday fires that result in 10 deaths, 80 injuries, and more than $15 million in property loss — according to the National Institute of Standards and Technology (NIST). Typically, these fires are caused by short circuits in electrical lights or by open flames from candles, lighters, or matches. However, a well-watered tree does not carry the risk of fire that a dry, neglected tree can hold.

A NIST video clip (Figure 2-1) shows just how quickly fire envelops a dried-out Christmas tree and ignites an entire room. Within 3 seconds of ignition, the tree is completely ablaze. At 5 seconds, the fire extends up the tree, and black smoke streaks across the ceiling. As fresh air near the floor feeds the fire, furniture erupts in flames, even though there has not yet been actual flame contact. Within 40 seconds, flashover occurs and the entire room is on fire, oxygen is depleted, and dense (and deadly) toxic smoke engulfs the scene. A dry tree can mean the end of holiday festivities and the beginning of life and death challenges.

To compare the fire danger, fire safety engineers at NIST tried to ignite a Scotch-pine tree that had been watered on a daily basis and had been placed in a tree stand with a 7.6-liter water capacity. They could not ignite the tree with a match. When an electric current ignited an entire book of matches, the tree still did not ignite. Finally, they used the open flame from a propane torch to try to ignite the tree. The branches ignited briefly, but self-extinguished when the engineers removed the torch from the branches.

Figure 2-1. Click the image above to see the video.
Visit http://www.usfa.dhs.gov/safety/tips/treefir.shtm for more fire-safety videos

Lesson learned: **A Wet Tree is a Safe Tree**.

All of us wish each of you a safe and happy holiday season. And, please don't forget — **Water the Tree**.

INDEX OF OPERATING EXPERIENCE SUMMARY ARTICLES PUBLISHED IN 2006

(Click on the thumbnails to download the individual issues)

OE SUMMARY 2006-14 (Published 12/08/06)

Title	OR Number
Wearing Arc Flash Clothing Can Save Your Life	N/A
Verify Part Numbers, Especially for Safety-Significant Systems	N/A
Winter Safety	N/A

OE SUMMARY 2006-13 (Published 11/17/06)

Title	OR Number
Failure to Wear Proper Personal Protective Equipment Results in Arc Flash Injury	SC--BHSO-BNL-AGS-2006-0002
Pipefitter Burned When Soldering Torch Fails	NA--LASO-LANL-TA55-2006-0012
Before You Drill — Check the Other Side of the Wall	NE-ID--BEA-CFA-2006-0006
Lack of Work Activity Coordination Sank U.S. Submarine In Shipyard	N/A

OE SUMMARY 2006-12 (Published 11/13/06)

Title	OR Number
Refinery Operator Fatality Caused by Improper Manlift Use	DOE Lessons Learned identifier 2006-RL-HNF-0041

OE SUMMARY 2006-11 (Published 10/06/06)

Title	OR Number
Inadequate Work Package Results in Water Hammer in Steam System	NA--LASO-LANL-PHYSTECH-2005-0010
Life-Threatening Illness Due to Heat Stress	SO---CTAW-CTA-2006-0001
Explosions and Fire at UK Oil Storage Facility Caused by Overfilled Tank	N/A

OE SUMMARY 2006-10 (Published 8/25/06)

Title	OR Number
Equipment Labeling Error and Inadequate Zero-Energy Check Result in Electrical Arc Flash	SC--PNSO-PNNL-PNNLBOPER-2006-0007
Failure to Follow Procedures Results in Potential Overexposure During Radiography	WSRC Lessons Learned 2006-LL-0039
What Are Metal Whiskers and Why Are They Important?	N/A

OE SUMMARY 2006-09 (Published 7/15/06)

Title	OR Number
Uncontrolled Release of Hazardous Energy Results In Near Miss	EM-RP--BNRP-RPPWTP-2006-0010
Near Miss to Serious Injury when Crane Outrigger Float Falls and Hits Worker	EM-RP--CHG-TANKFARM-2006-0026
Work Planning Requires a Thorough Analysis of Respiratory Hazards	N/A

OE SUMMARY 2006-08 (Published 6/30/06)

Title	OR Number
Safety Quiz and Answer Key	N/A

OE SUMMARY 2006-07 (Published 5/31/06)

Title	OR Number
Risk-Taking and Shortcuts Result in Welder Fatality at BP Pipeline	N/A
Comprehensive Chemical Lifecycle Management Program	SC-ORO--ORNL-X10EAST-2006-0002
Inadequate Job Planning Results in Sulfuric Acid Spill	EM-RL--PHMC-200LWP-2006-0001

OE SUMMARY 2006-06 (Published 5/11/06)

Title	OR Number
Failure to Install Guard on Table Saw Results in Loss of Finger	NE-ID--BEA-INLLABS-2006-0001
Stop Work and Re-Evaluate Hazards When Conditions are Uncertain	NA--SS-SNL-NMSITE-2006-0001
Lessons Learned on Electrical Near Miss Lead to Improved Procedures	EM-RL--PHMC-SOLIDWASTE-2005-0010

OE SUMMARY 2006-05 (Published 4/21/06)

Title	OR Number
Preliminary Findings on Fatal Explosion at Texas Refinery	N/A

OE SUMMARY 2006-04 (Published 3/31/06)

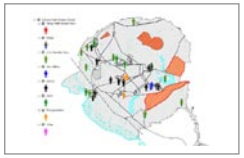
Title	OR Number
Verizon and DOE Meet to Share Operating Experience on Utility Damage Prevention	N/A

OE SUMMARY 2006-03 (Published 4/06/06)

Title	OR Number
Flash Fire Warrants Type B Accident Investigation	EM-SR--WSRC-LTA-2006-0002
Challenging a Locking Device Inadvertently Energizes a 480-Volt Line	EM-RL--PHMC-SNF-2006-0007
Poor Housekeeping Poses Fire Hazard	ID--BBWI-AMWTF-2005-0016

OE SUMMARY 2006-02 (Published 3/14/06)

Title	OR Number
Inadequate Independent Verification Results in Lockout/Tagout Error	EM-RL--PHMC-SNF-2006-0003
Noise Overexposures Result in Short-Term Hearing Loss	NA--LASO-LANL-RADIOCHEM-2005-0007
Working Safely with Acids	NA--LASO-LANLRADIOCHEM-2005-0005
Unrevealed Health Issues Result in Injuries and Fatalities	EM-ORO--BJC-K25ENVRES-2005-0012



OE SUMMARY 2006-01 (Published 1/20/06)

Title	OR Number
Office of Science Drives Safety Performance Improvements	N/A
Pegasus: Site Management/Information Sharing Systems	N/A
Good Practice: Integrating Site Remote Worker Programs	N/A

The Office of Health, Safety and Security (HSS), Office of Analysis publishes the Operating Experience Summary to promote safety throughout the Department of Energy complex by encouraging the exchange of lessons-learned information among DOE facilities.

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Commonly Used Acronyms and Initialisms

Agencies/Organizations	
ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
CPSC	Consumer Product Safety Commission
DOE	Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
INPO	Institute for Nuclear Power Operations
NIOSH	National Institute for Occupational Safety and Health
NNSA	National Nuclear Security Administration
NRC	Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
SELLS	Society for Effective Lessons Learned

Units of Measure	
AC	alternating current
DC	direct current
mg	milligram (1/1000th of a gram)
kg	kilogram (1000 grams)
psi (a)(d)(g)	pounds per square inch (absolute) (differential) (gauge)
RAD	Radiation Absorbed Dose
REM	Roentgen Equivalent Man
TWA	Time Weighted Average
v/kv	volt/kilovolt

Job Titles/Positions	
RCT	Radiological Control Technician

Authorization Basis/Documents	
JHA	Job Hazards Analysis
JSA	Job Safety Analysis
NOV	Notice of Violation
SAR	Safety Analysis Report
TSR	Technical Safety Requirement
USQ	Unreviewed Safety Question

Regulations/Acts	
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
D&D	Decontamination and Decommissioning
DD&D	Decontamination, Decommissioning, and Dismantlement
RCRA	Resource Conservation and Recovery Act
TSCA	Toxic Substances Control Act

Miscellaneous	
ALARA	As low as reasonably achievable
HEPA	High Efficiency Particulate Air
HVAC	Heating, Ventilation, and Air Conditioning
ISM	Integrated Safety Management
MSDS	Material Safety Data Sheet
ORPS	Occurrence Reporting and Processing System
PPE	Personal Protective Equipment
QA/QC	Quality Assurance/Quality Control
SME	Subject Matter Expert