



The Auditing Roundtable

15111 N. Hayden Road,
Suite 180355
Scottsdale, AZ 85260

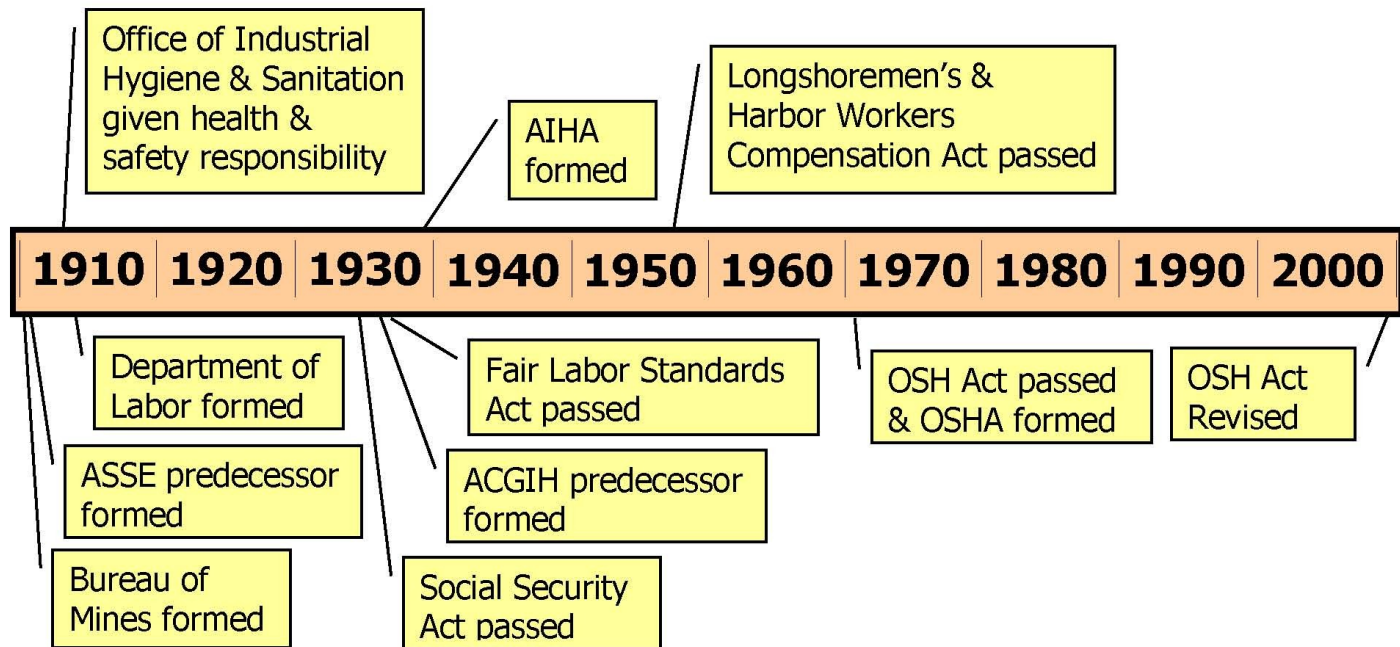
Health and Safety Auditing

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Continuity Program Coordinator
LG&E and KU Energy Company

Objectives

- Background on OSHA and Health & Safety
- Hazards and Risk
- Things to look for and questions to ask
- Typical findings
- Auditing Roundtable and Health & Safety Auditing Certification

Health and Safety History



Occupational Health & Safety Act

- To assure safe and healthful working conditions for working men and women
 - by authorizing enforcement of the standards developed under the Act
 - by assisting and encouraging the States in their efforts to assure safe and healthful working conditions
 - by providing for research, information, education, and training in the field of occupational safety and health
 - and for other purposes.
 - Injuries, Illnesses, and Fatalities

Recording and Reporting Occupational Injuries and Illness

- 29 CFR 1904
- Purpose - to require employers to record and report work-related fatalities, injuries and illnesses
- Applies to all employers, except
 - Employers with 10 or fewer employees
 - Specific low hazard industries

General Industry Standards

- 29 CFR 1910
- Purpose - to assure safe and healthful working conditions for working men and women
- Applicable to all workplaces, except
 - non-Federal government employers and
 - specific industries which have separate standards

General Industry Standard Subparts

- D. Walking-Working Surfaces
- E. Exit Routes, Emergency Action Plans, and Fire Prevention Plans
- F. Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms
- G. Occupational Health and Environment Control
- H. Hazardous Materials
- I. Personal Protective Equipment
- J. General Environmental Controls
- K. Medical and First Aid
- L. Fire Protection
- M. Compressed Gas and Compressed Air Equipment
- N. Materials Handling and Storage
- O. Machinery and Machine Guarding
- P. Hand and Portable Powered Tools and Other Hand-Held Equipment
- Q. Welding, Cutting, and Brazing Subpart
- R. Special Industries
- S. Electrical
- T. Commercial Diving Operations
- Z. Toxic and Hazardous Substances

Specific Industry Standards

- Shipyards (29 CFR 1915)
- Marine Terminals (29 CFR 1917)
- Longshoring (29 CFR 1918)
- Workshops and Rehabilitation Facilities (29 CFR 1924)
- Federal Service Contractors (29 CFR 1925)
- Construction (29 CFR 1926)
- Agriculture (29 CFR 1928)
- Federal Employees (29 CFR 1960)

Construction Standards

Differences from the General Industry Standards:

- E. Personal Protective and Life Saving
- G. Signs, Signals, and Barricades
- L. Scaffolds
- M. Fall Protection
- N. Cranes, Derricks, Hoists, Elevators, and Conveyors
- O. Motor Vehicles, Mechanized Equipment, and Marine Operations
- P. Excavations
- Q. Concrete and Masonry Construction
- R. Steel Erection
- S. Underground Construction, Caissons, Cofferdams, and Compressed Air
- T. Demolition
- U. Blasting and Use of Explosives
- W. Rollover Protective Structures for material handling equipment

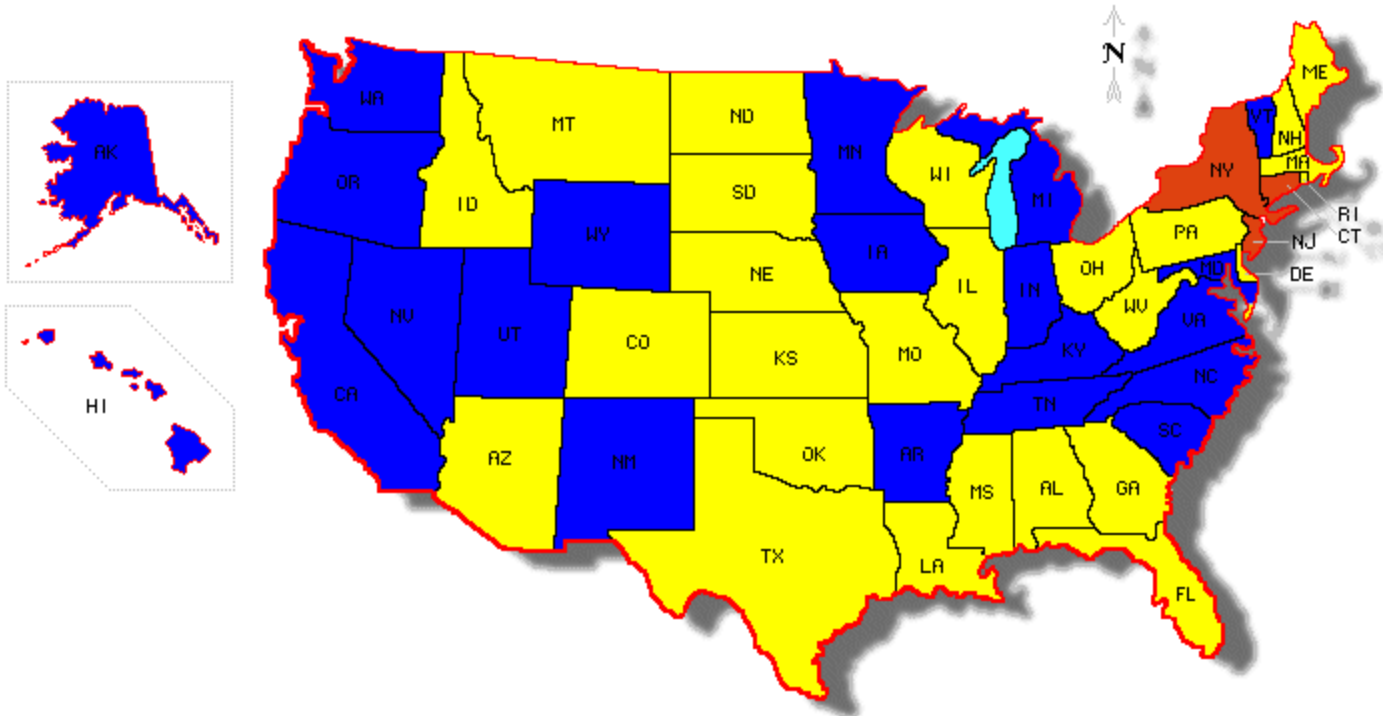
Federal OSHA and State Plans

- Regulations are promulgated and enforced by either Federal OSHA or approved State OSHA agencies.
- “State OSHA Plans” must be at least as effective as Federal OSHA regulations
- Federal OSHA reviews the performance of state OSHA plans

State OSHA Plans

State OSHA Plans

- - All Industries
- - Public Sector Only
- - No State OSHA Plan



General Duty Clause

Employers shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.

(OSHA Act, Section 5(a))

Standard Applicability

- Vertical Standards apply solely to
 - one industry or
 - one specific hazardous substance
- Horizontal standards apply to a wide variety of industries.
- Most OSHA standards are horizontal



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Health & Safety Hazards and Risk

Types of Job Hazards

Weather

Chemical

Noise

Falls

Fire

Struck By

Explosion

Radiation

Biological

Visibility

Struck Against

Mechanical

Ergonomic

Electrical

Temperature

Excavation

Workplace Hazard Identification

- Pre-audit questionnaires
- Industry standards
- Job hazard analyses
- Chemical inventories and published chemical information

Chemical Fire Hazards



Credit: State of Washington, Department of Labor and Industries

Explosive Hazards



Credit: Firehouse.com

Reactive Chemicals



Photo Source: <http://www.freilassung.de/div/texte/sprenge/oppau.htm>.

Fire/Explosion Prevention

Fuel

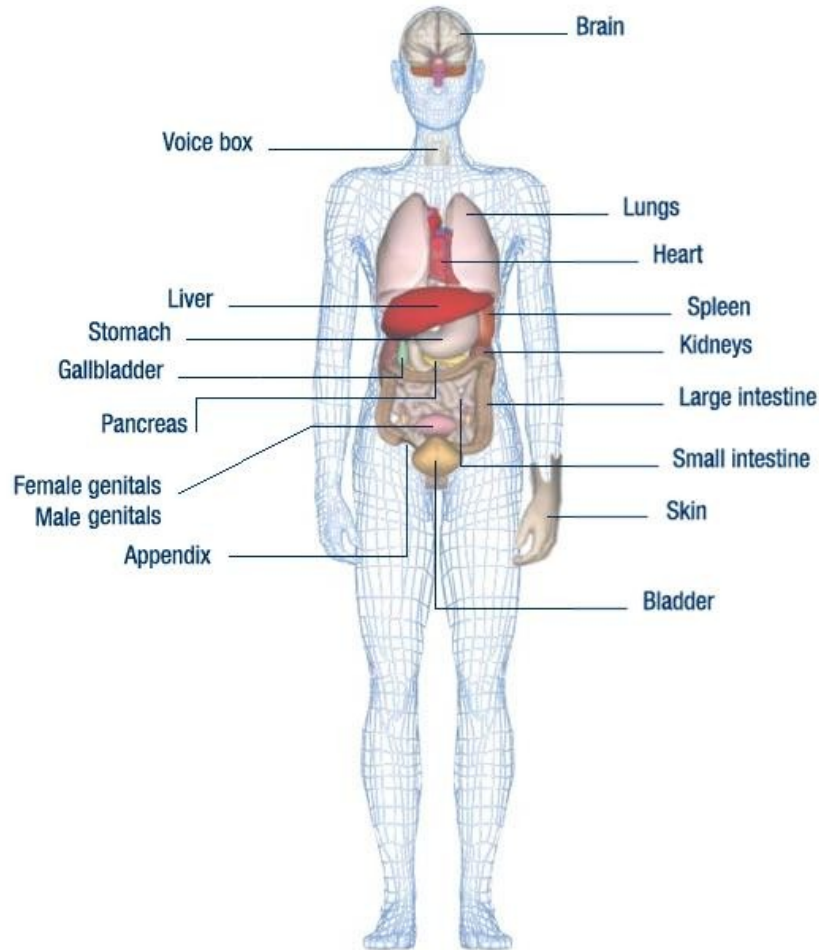


Ignition

Oxygen

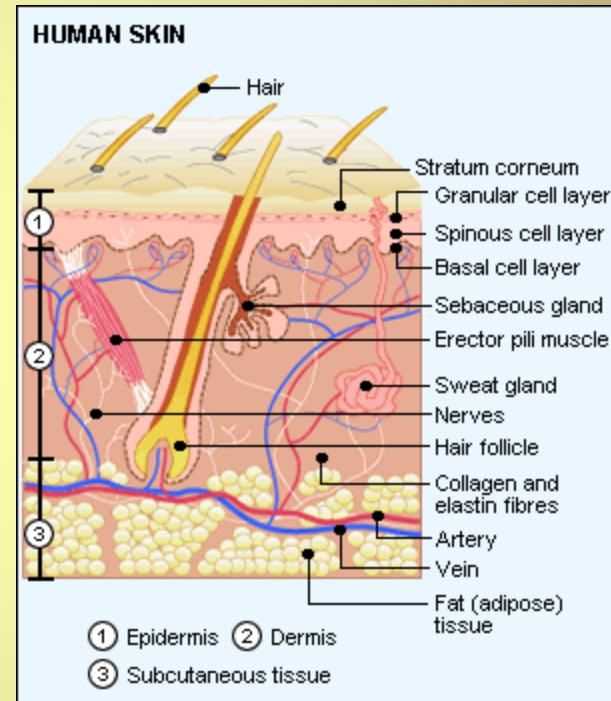
Health Hazards

- Carcinogen
- Toxic
- Irritant
- Corrosive
- Sensitizer



Credit:: BBC

Health Hazards



Credit: National Eye Institute, National Institutes of Health
Credit: Skin Diseases and Leishmaniasis Research Center

Electrical Hazards



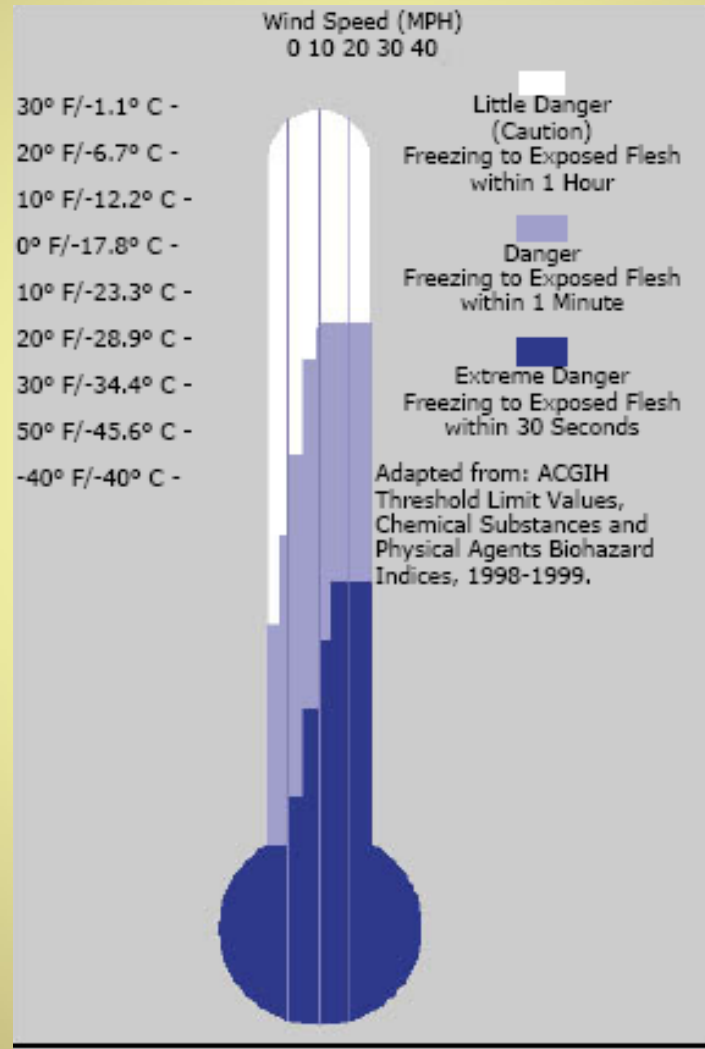
Credit: MSHA

Heat Exposure Limits

	----- Work Load* -----		
Work/rest regimen	Light	Moderate	Heavy
Continuous work	31.0°C (87.8°F)	28.0°C (82.4°F)	- - -
75% Work, 25% rest, each hour	31.0°C (87.8°F)	29.0°C (84.2°F)	27.5°C (81.5°F)
50% Work, 50% rest, each hour	32.0°C (89.6°F)	30.0°C (86°F)	29.0°C (84.2°F)
25% Work, 75% rest, each hour	32.5°C (90°F)	31.5°C (88.7°F)	30.5°C (86.9°F)
*Values are in °C and °F, WBGT.			

Credit: ACGIH

Cold Stress



Credit: OSHA

Noise

Comparison of Duration Per Day in Hours to Allowable Sound Level in dBA (Slow-Response SPL)		
Duration per day (hours)	Sound level (dBA, slow response)	PEL = 90 dBA (TWA), or 100% Dose
8	90	
6	92	
4	95	
2	100	
1	105	
½	110	
0.25	115	

Credit: OSHA

Physical Hazards

- Falls
- Slips
- Lifting
- Strains
- Burns
- Cuts
- Confined spaces
- Engulfment
- Pressure
- Pinch points
- Crushing
- Hazardous energy

Compliance Requirements

- Training/Drills
- Inspections
- Written Programs
- Record Keeping
- Reporting
- Medical Surveillance
- Notification
- Labeling
- Monitoring
- Calibration
- PPE
- Installation Specifications
- Storage Requirements

Exposure Pathway



nd Disease Re

Exposure Control Methods



Exposure Prevention



Credit: Department of Energy



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General Workplace Hazards Walking – Working Surfaces

Objective Evidence

Records

- Lists
- Design specifications
- Floor plans
- Instructions/procedures
- Training records

Interviews

- Portable ladder users
- Scaffold competent persons
- Scaffold users

Observations

- Aisles
- Mezzanines
- Platform ladder-way openings
- Portable ladders

Interviews

- Portable ladder users
- Selected scaffold users
- Maintenance personnel
- Operators
- Supervisors

Tricks of the Trade

- Review training documentation
- Look at equipment specifications
- Review inspection reports
- Interview operators and supervisors
- Observe floors, mezzanines, stairs and ladders



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Occupational Health and Environmental Control

Objective Evidence

Records

- Air flow measurement
- Reports

Interviews

- Industrial hygienist
- EHS manager
- Employees involved in regulated operations

Observations

- Ventilation system
- Manometers
- PPE
- Hearing protection
- Signs

Interviews

- Industrial hygienists
- EHS Manager
- Maintenance personnel
- Operators

Typical Findings

- Accumulation of dust
- Deferred repairs
- Equipment not inspected
- Improperly placed/designed hoods
- Intrinsically safe equipment not provided
- Low airflow velocity

Tricks of the Trade

- Review design documents
- Review maintenance and inspection data
- Interview operators
- Observe operations



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Electrical

Objective Evidence

Records

- Qualified personnel
- Training records
- Electrical programs
- LOTO program
- PPE testing certifications
- Manufacturer's specifications

Interviews

- Unqualified persons
- Qualified persons
- Maintenance personnel

Observations

- Flexible cords
- Electrical disconnects
- Electrical enclosures
- Hazardous atmospheres
- PPE
- LOTO devices

Record Review

- Training records
- Written programs
- Test records
- Procedures

Interviews

- Unqualified persons
- Qualified persons
- Maintenance personnel

Typical Findings

- Substitutes for fixed wiring
- Unmarked electrical disconnect equipment
- Poor housekeeping blocking electrical equipment
- Exposed energized conductors
- Improper lockout/tagout
- Inadequate training

Tricks of the Trade

- Review training documentation and PPE
- Interview qualified and unqualified employees
- Observe equipment markings
- Check rated equipment approved for class
- Test GFCIs for proper functioning
- Check extension cord use



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Ergonomics

Ergonomics

Definition

- The science of fitting workplace conditions and job demands to the capabilities of the working population.

Practical Application

- Assessing those work-related factors that may pose a risk of musculoskeletal disorders and recommendations to alleviate them.

Objective Evidence

Records

- OSHA 300 Log
- Records
- Assessments
- Compliance documentation
- Programs or procedures

Interviews

- Recordkeeper
- Managers
- Persons performing ergonomic assessments
- Employees

Observations

- Workstations
- Equipment
- Job rotations

Symptoms of WMSD Issues

- OSHA Log
- Worker complaints
- Incident reports
- Job tasks
- Literature references
- Industry cases
- Proposed productivity-based modifications

Ergonomic Risk Factors

- Manual Material Handling
- Physical Energy Demands
- Other Musculoskeletal Demands
- Computer Workstation
- Environment
- General Workplace
- Tools
- PPE
- Administration

Interviews

- OSHA Recordkeeper
- EHS Manager
- Ergonomic Assessors
- Employees



Photo Credit:
Safety Links Inc.

Observations/Things to Look for

- Tasks that warrant assessments
- Ergonomic-related equipment
- Job rotations

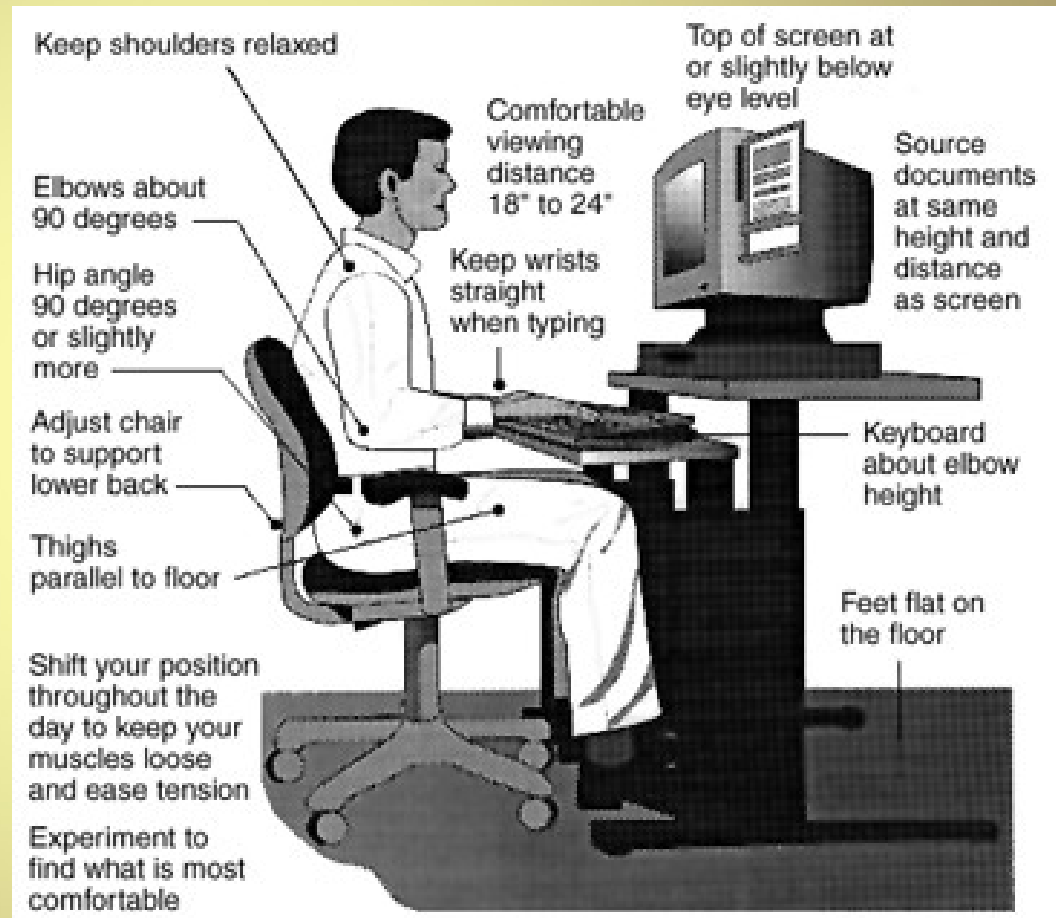


Photo Credit: University of New Mexico

Typical Findings

- Not addressing problems
- Not conducting assessments
- Not implementing controls
- Not meeting requirements (CA)

Tricks of the Trade

- Identify discomfort from job activities
- Ask about employer notification
- Review records
- Evaluate corrective measures



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The Auditing Roundtable is a professional organization dedicated to the development and professional practice of environmental, health, and safety (EHS) auditing.

The Auditing Roundtable, Inc.



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What Is The “Auditing Roundtable”?

- **The original professional organization dedicated to furthering the development and professional practice of environmental, health, and safety auditing.**
- **Founded in January 1982, when 10 Fortune 50 multinational companies met to discuss their auditing programs and practices.**
- **Currently about 600 members**



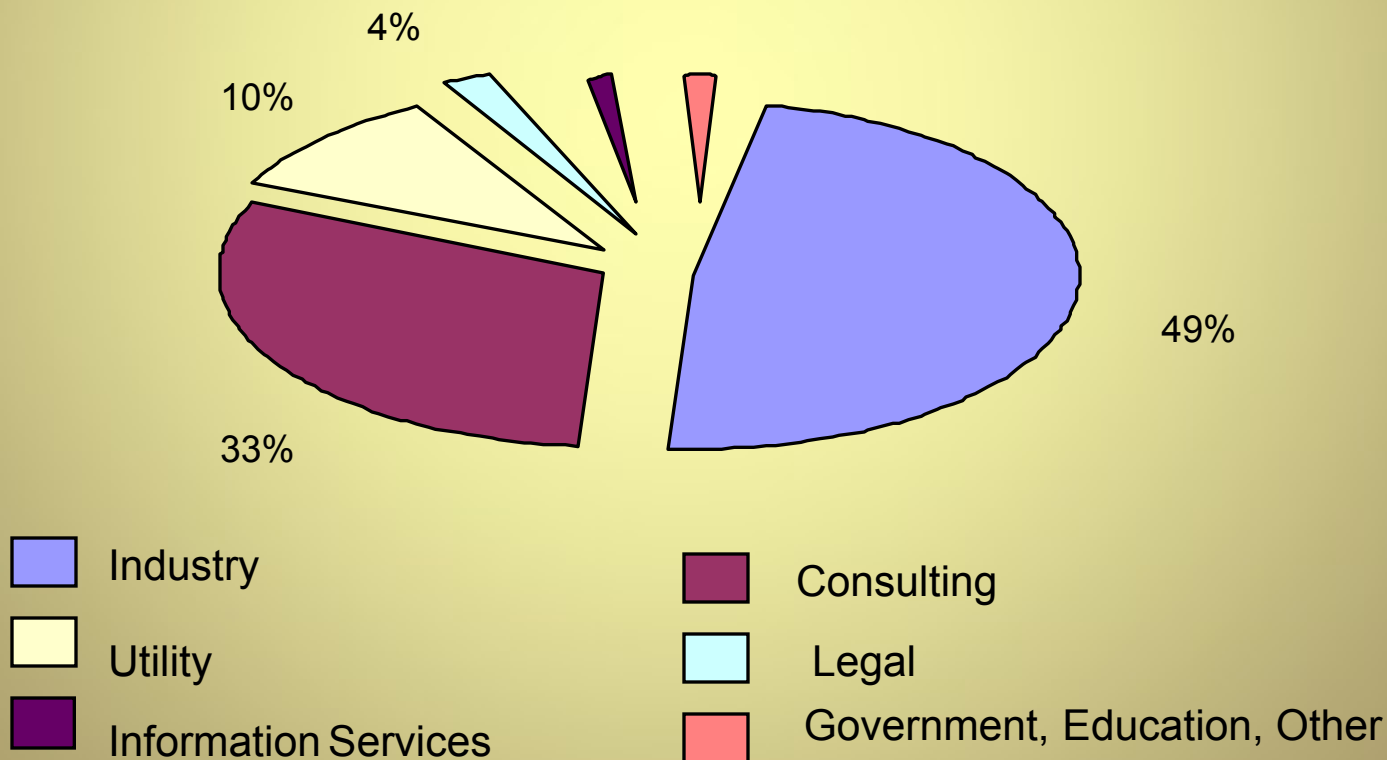
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Who Belongs to the Auditing Roundtable?

- **EHS Auditing Specialists representing:**





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Overview

- Promote best practices in EHS Compliance and Management Systems Auditing domestically and Internationally
- Establish Auditing Standards
- Participate in agency policy setting efforts
- Develop and offer certification programs through the Board of Environmental Auditor Certification (BEAC)



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Auditing Standards

- Published in 1994
- Recognized basis for the evaluation of audit programs and resources
 - Standard for the Design and Implementation of an Environmental, Health and Safety Audit Programs
 - Standards for the Performance of Environmental, Health and Safety Audits



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Certification Programs

- Through the Board of Environmental Auditor Certification (BEAC)
- JV with the Institute of Internal Auditors
- Certification recognized by
 - American Industrial Hygiene Association
 - American Society of Safety Engineers
 - American Chemistry Council
 - Texas Commission on Environmental Quality



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Certification Programs

- Certification Offered for:
 - Environmental Management Systems
 - Responsible Care
 - Environmental Compliance Auditing
 - Health & Safety Compliance Auditing



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For More Information about The Auditing Roundtable

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Questions?