

ISE 114 Occupational Safety for Engineers

Day 2 – Regulations

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The Occupational Safety and Health Act of 1970

President Richard Nixon signed into law

- Public Law 91-596
- “To assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources.”

- OSH Act took effect April 28, 1971
- Senator Harrison Williams (D – NJ) and Congressman William Steiger (R – WI)
a.k.a. Williams – Steiger Act

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Employer and Employee Duties under the Act

- Each employer** covered by the Act:
 - Has the general duty to furnish each employee with employment and places of employment free from recognized hazards causing or likely to cause death or serious physical harm (a.k.a. **General Duty Clause**)*
 - Has the specific duty of complying with safety and health standards promulgated by the Act.
- Each employee** has the duty to comply with the safety and health standards, and with all rules, regulations, and orders that apply to employee actions and conduct on the job.

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Proponents of a Federal Role in Safety and Health

Predominately organized labor

- Most states failed to meet their obligation.
- Most states had inadequate
 - Standards
 - Enforcement
 - Staff
 - Budget
- The injury, death toll was considered by most to be unacceptably high
 - Late 1960's ~14,300 employees were killed annually
 - 2.2 million injuries each year
- Work injury rates were increasing in the 1960's

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Administration of the OSH Act

There are four major governmental units responsible for carrying out the provisions of the Act.

- OSHA
- Review Commission
- NIOSH
- BLS

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Administration of the OSH Act

1. **OSHA – The Occupational Safety and Health Administration came into effect on April 28, 1971**
 - Created by the US Department of Labor, under the Secretary of Labor
 - Authority of OSHA**
 - Promulgate, modify, and revoke safety and health standards.
 - Conduct inspections, investigations, issue citations
 - Require employers to maintain records
 - Petition courts to restrain imminent danger situations
 - Approve or reject state plans for programs under the Act.
 - Delegation of Duties to the Assistant Secretary of Labor for OSHA**
 - Appointed by the President
 - Consent of the Senate
 - The Assistant Secretary of Labor is the Chief of OSHA.

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Administration of the OSH Act

2. **Occupational Safety and Health Review Commission**

- Members (3) appointed by the President and confirmed by the Senate
- Part of the Executive Branch of US Government, not part of the DOL.
- Purpose is to adjudicate cases against employers by OSHA
- Cases typically heard before an administrative law judge, or Full Commission

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Administration of the OSH Act

3. **NIOSH – National Institute for Occupational Safety and Health**

- NIOSH is located within the DHHS (Department of Health and Human Services)
 - Part of the CDC (Center for Disease Control, Atlanta, Georgia)
- Purpose
 - Develop and establish recommended standards
 - Conduct Research
 - Develop Educational Programs

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Administration of the OSH Act

4. **BLS – Bureau of Labor Statistics**

- Responsible for conducting statistical surveys

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OSH Act Coverage

The act applies to every employer

- Who has one or more employees and
- Who is engaged in a business involving interstate commerce.
- All States, District of Columbia, Puerto Rico and all US Possessions
- Exclusions:**
 - Federal, State, Local Employees
(However, Executive Orders given to require agency heads to have a safety program)
 - Operations under the Atomic Energy Act of 1952
 - Operations under the Department of Transportation (Railroads)
 - Operations under the US Mine Safety Act of 1977

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Employee Rights

Fall into three main categories

- Standards
- Access to information
- Enforcement

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Standards – Employee Rights

- Request OSHA to begin proceedings for creation of new standards, amend or revoke existing standards.
- Submit written comments on proposed standards and may appear at hearings
- File written objections to a proposed federal standard and or appeal then final decision of OSHA
- Must be informed when and employer applies for a variance of a promulgated standard.
- Must be given the opportunity to participate in a variance hearing as an interested party and have the right to appeal OSHA's final decision.

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Access to Information – Employee Rights

- Right to information from the employer regarding employee protection and obligations under the Act and to review appropriate OSHA standards, rules, regulations, and requirements, which the employer should have available at the workplace.
- Right to information from the employer regarding the toxic effects, conditions of exposure, and precautions for safe use of all hazardous materials in the establishment. The information can be provided through labeling or other means where such warnings are prescribed by a standard
- The employer must inform employees if employees are exposed to harmful materials in excess of levels set by the standards. Employer must also tell them what corrective action is being taken.
- If an OSHA compliance officer determines that an alleged imminent danger exists, the officer must inform the affected employees of the danger and recommend that relief be sought by court action if the employer does not eliminate the danger.
- Employees must be given access to records of their history of exposure to toxic materials or harmful physical agents that must be monitored or measured and recorded. Material safety Data Sheets must be available to employees' onsite or within reasonable time upon request.
- Employees must be given the opportunity to observe the monitoring of hazardous materials.
- Employees have the right of access to List of Toxic materials published by NIOSH, criteria developed by NIOSH describing the effects of toxic materials or harmful physical agents, and industry-wide studies conducted by NIOSH regarding the effects of chronic, low-level exposure to hazardous materials
- Employees have the right to obtain the determination of whether a substance found or used in the establishment is harmful
- Employees have the right to review the OSHA Log 300 of Injuries

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Enforcement – Employee Rights

- Employees have the right to confer in private with the OSHA Compliance Officer and to respond to questions from the officer during an inspection
- An authorized employee representative must be given an opportunity to accompany the compliance officer during an inspection to aid in such inspection. Also, an authorized employee representative has the right to participate in the opening and closing conferences during the inspection.
- Employee has the right to make a written request to OSHA for a special inspection if the employee believes a violation of a standard threatens physical harm; the employee has the right to request that OSHA keep his or her identity confidential.
- Employee has the right to notify OSHA of alleged violations
- If OSHA denies a request for inspection, OSHA must explain in writing why the request was not valid. The employee has the right to appeal the decision.
- If OSHA fails to cite the employer, OSHA must explain why a citation was not given.
- Employees have the right to view citations, which must be posted near the cite of the violation.
- Employees have the right to appear as an interested party or as a witness in contested enforcement matters before the OSHRC.
- If OSHA arbitrarily or capriciously fails to seek relief to counteract an imminent danger and an employee is injured as a result, that employee has the right to bring action against OSHA for relief as may be appropriate.
- Employee has the right to file a complaint to OSHA if the employee believes he or she has been discriminated against as a result of asserting employee rights under the Act.
- Employee has the right to contest the abatement period fixed in the citation issued to the employer.

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Federal OSHA Violations – Four Types

Imminent danger

- Reasonable certainty that within a short time, such conditions or practices could result in death or serious physical harm.

Serious Violation

- Involves hazardous conditions that could cause death or serious physical harm conditions that employer knew or should have known existed.

Other than serious

- Probably not result in death or serious physical harm.

Willful

- A willful violation exists where the evidence shows either an intentional violation or plain indifference.
Repeat violations

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Federal – State Relationships

- OSH Act encourages states to administer own program.
- Basic Criterion for State Plan Approval:
- “at least as effective as” federal plan**
- OSHA has right and obligation to withdraw approval of state plan.

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Significant OSHA Regulations of the 1980s

- Medical Access
- Hazard Communication – Right to Know
- California Injury and Illness Prevention Program

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Medical Access Standard

- Employers must maintain records on the exposure employees have had to dangerous substances
- Records, together with medical records, must be available to the employee or designee upon request.
- Records must be kept for term of employment plus 30 years.

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Hazard Communication Standard a.k.a. "Right-to-Know"

Covers workers who may be exposed to hazardous materials under normal conditions or in a foreseeable emergency.

- Uniform requirements to make sure that the hazards of chemicals produced, imported, or used within the United States are evaluated.
- This information must be transmitted to affected employers and employees.

Key Elements of the Standard

- Hazard Evaluation
- Employee Training
- Container Labeling
- MSDS
- A written hazard communications program

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California Injury and Illness Prevention Program – CCR T8 § 3203

8 Key Elements

- Responsibility
- Compliance, Enforcement of the Rules
- Communication
- Hazard Assessment
- Accident/Exposure Investigation
- Hazard Correction
- Training and Instruction
- Recordkeeping

<http://www.dir.ca.gov/Title8/3203.html>

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California Injury and Illness Prevention Program – CCR T8 § 3203

- (1) Identify the person or persons with authority and responsibility for implementing the Program.

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California Injury and Illness Prevention Program – CCR T8 § 3203

- (2) Include a system for ensuring that employees comply with safe and healthy work practices.
 - Substantial compliance with this provision includes recognition of employees who follow safe and healthful work practices, training and retraining programs, disciplinary actions, or any other such means that ensures employee compliance with safe and healthful work practices.

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California Injury and Illness Prevention Program – CCR T8 § 3203

- (3) Include a system for communicating with employees in a form readily understandable by all affected employees on matters relating to occupational safety and health, including provisions designed to encourage employees to inform the employer of hazards at the worksite without fear of reprisal.
- Substantial compliance with this provision includes meetings, training programs, posting, written communications, a system of anonymous notification by employees about hazards, labor/management safety and health committees, or any other means that ensures communication with employees.

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California Injury and Illness Prevention Program – CCR T8 § 3203

- (4) Include procedures for identifying and evaluating work place hazards including scheduled periodic inspections to identify unsafe conditions and work practices.

Inspections shall be made to identify and evaluate hazards.

- (A) When the Program is first established;
- (B) Whenever new substances, processes, procedures, or equipment are introduced to the workplace that represent a new occupational safety and health hazard; and
- (C) Whenever the employer is made aware of a new or previously unrecognized hazard.

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California Injury and Illness Prevention Program – CCR T8 § 3203

- (5) Include a procedure to investigate occupational injury or occupational illness.

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California Injury and Illness Prevention Program – CCR T8 § 3203

- (6) Include methods and/or procedures for correcting unsafe or unhealthy conditions, work practices and work procedures in a timely manner based on the severity of the hazard:

(A) When observed or discovered; and,

(B) When an imminent hazard exists which cannot be immediately abated without endangering employee(s) and/or property, remove all exposed personnel from the area except those necessary to correct the existing condition. Employees necessary to correct the hazardous condition shall be provided the necessary safeguards.

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California Injury and Illness Prevention Program – CCR T8 § 3203

- (7) Provide training and instruction:
 - (A) When the program is first established;
 - (B) To all new employees;
 - (C) To all employees given new job assignments for which training has not previously been received;
 - (D) Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;
 - (E) Whenever the employer is made aware of a new or previously unrecognized hazard; and,
 - (F) For supervisors to familiarize themselves with the safety and health hazards to which employees under their immediate direction and control may be exposed.
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California Injury and Illness Prevention Program – CCR T8 § 3203

- (b) Records of the steps taken to implement and maintain the Program shall include:
 - (1) **Records of scheduled and periodic inspections** to identify unsafe conditions and work practices, including person(s) conducting the inspection, the unsafe conditions and work practices that have been identified and action taken to correct the identified unsafe conditions and work practices. These records shall be maintained for at least one (1) year; and
 - (2) **Documentation of safety and health training for each employee**, including employee name or other identifier, training dates, type(s) of training, and training providers. This documentation shall be maintained for at least one (1) year.
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California Injury and Illness Prevention Program – CCR T8 § 3203

- (c) **Employers who elect to use a labor/management safety and health committee to comply with the communication requirements** of subsection (a)(3) of this section shall be presumed to be in substantial compliance with subsection (a)(3) if the committee:
- (1) Meets regularly, but not less than quarterly;
 - (2) Prepares and makes available to the affected employees, written records of the safety and health issues discussed at the committee meetings and, maintained for review by the Division upon request. The committee meeting records shall be maintained for at least one (1) year;
 - (3) Reviews results of the periodic, scheduled worksite inspections;
 - (4) Reviews investigations of occupational accidents and causes of incidents resulting in occupational injury, occupational illness, or exposure to hazardous substances and, where appropriate, submits suggestions to management for the prevention of future incidents;
 - (5) Reviews investigations of alleged hazardous conditions brought to the attention of any committee member. When determined necessary by the committee, the committee may conduct its own inspection and investigation to assist in remedial solutions;
 - (6) Submits recommendations to assist in the evaluation of employee safety suggestions; and
 - (7) Upon request from the Division, verifies abatement action taken by the employer to abate citations issued by the Division.

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California AB 1127 a.k.a. Cal/OSHA Reform Bill

- This law was signed by Governor Davis on October 6, 1999, and it became effective January 1, 2000.
- Increase Cal/OSHA enforcement effectiveness

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California AB 1127

- Increase penalty for a serious violation from \$7,000 to \$25,000.
 - Prior to AB1127, the DOSH had the burden of proof.
- Increase penalty for a failure-to-abate violation from \$7,000 to \$15,000 per day
- Increase the initial base penalty from \$5,000 to \$18,000
- Deletes statutory exemption for government entities from imposition of Cal/OSHA civil penalties, including failure-to-abate penalties.

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California AB 1127

- Employees who believed they have been discriminated against for reporting health and safety concerns now will have 6 months, rather than 30 days, to file a complaint.
- Criminal liability for health and safety managers, supervisors and other management employees.

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Putting the OSH Act together

Success in providing a safe and healthful work environment will depend on the willingness and cooperation of all concerned.

- Employees and Organized Labor
- Business and Industry
- Government
- The Act has
 - Given employees a significant role to play
 - Raised safety issues to higher priority and value in management
 - New Status for Professionals in the field
 - Research
 - Training
 - Product Safety
 - Environmental Safety
- The Act has NOT in of itself created a safe and healthful environment.
 - Enforcement does not create safety.
 - Complete safety program is needed.
 - Establish work procedures to limit risk
 - Supervisory Training and Management Commitment
 - Job Instruction for Employees
 - Job Safety and Analysis
 - Human Factor Considerations

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Voluntary and Consensus Standards

Non-governmental organizations

- Professional Societies
- Trade Associations
- Private Laboratories
- Committees to create – update standards
- Members from sponsoring organizations
- **Compliance with voluntary and consensus standards is required WHEN adopted by local, state or federal governments.**

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ASTM and ANSI

- American Society for Testing and Materials
- American National Standards Institute:
 - ANSI represents the United States to ISO (International Organization for Standardization)

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Associations

- NFPA: National Fire Protection Association –
 - National Fire Code
 - Life Safety Code
 - Electrical Code
- ACGIH: American Conference of Governmental Industrial Hygienists
 - TLV Threshold Limit Values
 - Ventilation Guide for Air Contaminant Control

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Private Laboratories

- UL: Underwriters Laboratory Incorporated, serve the insurance industry
- FM: Factory Mutual System, serve the insurance industry, fire and building safety

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Company Rules and Standards

OSHA Standards are intended to be minimum requirements

- **Specification Standards**
 - EX: PPE and Respiratory Protection, Fall Protection, Trenching
- **Performance Standards**
 - EX: IIPP and General Duty to Provide a Safe work environment

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Company Rules and Standards

- **Companies may create their own that reflect the management's values or special conditions within the company.**
 - EX: Reduce noise below 85 dBA or a plant located in another country with few or no standards will adopt US standards.
- **Implementation of OSHA Standards leads to creation of Policies and Procedure Documents.** Typically outlines roles and responsibilities of the responsible parties.
 - IIPP
 - Hearing Conservation Program
 - Hazard Communication Program
- **Shop Rules and Enforcement with Employees**
 - Progressive discipline and due process of rules enforcement.

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Independent Acts of Employees Defense:

- Distribute Handout

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Independent Acts of Employees Defense:

- ❑ **Mercury Services, Inc. Case:**
[10/16/80] Docket No. 77-R4D1-1133
 - ❑ **Serious Violation**
 - ❑ Mechanic failed to block a mobile conveyor during repair so as to prevent inadvertent movement, which could cause injury.
 - ❑ Mechanic had several years of experience, still in training.
 - ❑ Mechanic was not given specific work instructions to use the blocks, but was expected to pick up the practice by word of mouth.
 - ❑ The employer produced no specific repair procedure.
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Employer must show all of the 5 elements to prove independent employee acts:

1. The employee was experienced in the job being performed.
 2. The employer has a well-devised safety program that includes training employees in matters of safety respective to their particular job assignments.
 3. Employer effectively enforces the safety program.
 4. Employer has a policy, which it enforces, of sanctions against employees who violate the safety program, and
 5. The employee caused a safety infraction that he or she knew was contra to the Employer's safety requirement.
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Independent Employee Acts

- ❑ Lesson of Independent Acts Defense is that each of these elements should be a part of a good health and safety program.

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Serious Injury Reporting Requirements:

Fed OSHA

- ❑ Report within 48 hours
- ❑ Fatality
- ❑ Serious Injury
Injury
- ❑ 5 or more
or more
Hospitalization
Hospitalization

- Unconsciousness

Cal/OSHA

- 8 hours
- Fatality
- Serious

- 1 employee

- Amputation

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Why Keep Records?

- Learn from past events – Reactive Approach**
- Protect the legal rights of employers and employees
- Measuring Safety Performance
- Use data to identify hazards
- Used to assign legal culpability
- Legal requirements

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Record Keeping Requirements

- OSHA Log Form 300
- OSHA Supplement Form 101
[California Dr.'s First Report of Injury]
- Annual Summary of OSHA Log Form 300
[Post by February 1]

- [Recording Keeping Exemption:
Companies with less that 10 employees]

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OSHA Recordable Injuries and Log 300

Recordable cases include every

- occupational death, every
- occupational illness and every
- occupational injury
- involving loss of consciousness,
- restriction of work or motion,
- transfer to another job or
- medical treatment.

- (Medical treatment does not include first aid for minor injury, even when provided by a physician.)

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Illnesses

All illnesses are Recordable regardless of medical treatment or work limitations or lost workdays

- Recognized occupational illnesses
- Occupational **Skin Diseases**
- Dust Diseases** of the Lungs – **Pneumoconiosis** [Asbestos, Silicosis]
- Respiratory Conditions Due to Toxic Agents** [pulmonary irritants, chemicals]
- Poisoning** – Systemic Effect of Toxic Materials
- Disorders Due to Physical Agents** Other than Toxic Materials [Radiation, Heat]
- Disorders Associated with Repeated Trauma** [Noise, Repetitive Motion, Vibration]
- All Other Occupational Illness** [infectious diseases, cancer]

Illnesses

<input type="checkbox"/> Tuberculosis tuberculosis	Medical Personnel	Mycobacterium
<input type="checkbox"/> Plague	Farmers, geologists	Yersinia pestis
<input type="checkbox"/> Brucellosis	Farmers, cattle	Brucella abortus
<input type="checkbox"/> Raynaud's	Lumberjacks, grinders	Poor blood circ, cold
<input type="checkbox"/> Infertility	Chemical Workers	Pesticides, DBCP
<input type="checkbox"/> Unwanted Facial Hair in Women Mfg.		Drugs, Hormone
<input type="checkbox"/> Unwanted Breast in Men Mfg.		Drugs, Hormone
<input type="checkbox"/> Cancer	Chemical Workers	Benzene, Pesticides
<input type="checkbox"/> Siderosis	Welders	Iron Oxides
<input type="checkbox"/> Byssinosis	Textile, cotton	Cotton bract

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Injury and First Aid

- All back injuries are considered injuries
- Use of over-the-counter drugs is considered First Aid
- Single dose of prescription drug for pain on first visit is First Aid
- Negative x-rays is First Aid
- Application of Heat – Ice on first visit is First Aid
- Steri Strips is Medical Treatment
- Prescription Drugs [Motrin vs. Advil]

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OSHA Incidence Rate Calculations

Safety Performance is Relative.

Meaningful evaluation can be obtained when

- Compared to own past experience
- Compared to its industry
- Variables must be controlled between companies or groups.
 - Number of employees, which type cases to count
 - Cannot make simple comparison of the number of injuries.
- BLS – Bureau of Labor Statistics maintains records by Industry
- SIC Code System – Standard Industrial Classification Code System

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OSHA Total Incident Rate:

Rate = Number of Injuries and Illnesses for every 100 employees

$$\text{Rate} = \frac{\# \text{ Cases X } 200,000}{\text{Total Hours Worked}}$$

- **Case Rate of 5.1 means that ~ 5.1% of the workforce had an injury**

Other Rates

- Lost Time Case Rate = Number of Lost Time Cases per 100 employees
- Days Lost Rate = Number of Days Lost per 100 employees
- Ergonomic Case Rate =
- Eye Injury Case Rate =

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End

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