

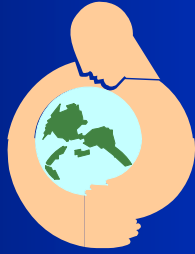


An Overview of the Environment

TSCA

RCRA ?

? NEPA



CAA ?

CERCLA

SARA ?



Environmental Legislation, Regulations, and Standards:

U.S. Environmental Protection Agency (EPA)

- Created by Presidential Executive Order
- Richard M. Nixon, 2 December 1970
 - One of the first times an agency was not created by an "Act"
 - Placed directly in the Executive Branch (i.e. reports to OMB)
 - Assumed activities of the former Environmental Health Service



Environmental Protection Agency

Organizational Structure

- **Administrator**
 - Heads EPA. Appointed by the President with Senate confirmation
- **Three Associate Administrators**
 - Office of Regional Operations and State/Local Relations
 - Serves as link between Federal EPA and regional administrators
 - Office of Communication and Public Affairs
 - Liaison between the public sector and the EPA
 - Office of Congressional and Legislative Affairs
 - Ensures coordination between EPA and Congress



Environmental Protection Agency

Organizational Structure

- **Office of the Inspector General**
 - Audits and investigates EPA, reports deficiencies related to EPA operations to the Administrator and to Congress
- **Office of the General Counsel**
 - Legal advisor to the Administrator and provides legal services
- **Office of the Chief Financial Officer**
 - Manages budget of \$7.76 billion (2005)



Environmental Protection Agency

Organizational Structure

- Nine Operational Offices (headed by Assistant Administrators)
 - Administration and Resources Management
 - Enforcement
 - Environmental Information
 - Research and Development
 - International Activities
 - Pesticides and Toxic Substances
 - Air and Radiation
 - Solid Waste and Emergency Response
 - Water

5



Environmental Protection Agency

USEPA Regions



6



Environmental Protection Agency

Enforcement of Environmental Policy

- Three Basic Levels of Violation
 - Negligent violations
 - *The violator was openly negligent regarding the law*
 - Knowing violations
 - *Occurred with full knowledge and no attempt to prevent it*
 - Knowing endangerment violations
 - *Violations allowed to occur, with full knowledge, that impose a threat of death or serious bodily injury*

7



Environmental Protection Agency

Enforcement of Environmental Policy

- Fines and Penalties
 - Differ, depending on the regulation or Act under violation
 - *Ex: Fines under CWA differ from those under RCRA*
 - Civil fines generally range from a low of \$5500 to \$32,500 per day per violation
 - Maximum fine against individuals can be \$250,000, 15 years in jail
 - *Government can establish criminal liabilities against any employee, regardless of position in company*

8



Environmental Legislation, Regulations, and Standards:

Regulatory Overview

A Brief Look at Major Environmental Regulations

- National Environmental Policy Act of 1970
- Clean Air Act (and Amendments)
- Clean Water Act
- Resource Conservation and Recovery Act of 1976
- Toxic Substances Control Act of 1976
- Comprehensive Environmental Response, Compensation, and Liabilities Act of 1980
- Superfund Amendments and Reauthorization Act of 1986

9



National Environmental Policy Act 1970

NEPA

- **Basic Provisions**
 - Applicable to Federal Agencies and their employees
 - Establishes National Policy
 - Sets obtainable goals
 - Provides means for implementing and enforcing policy
- **Purpose and Objectives**
 - Inject environmental consideration into federal agency decisions
 - Inform public that a federal agency has considered environmental concerns in its decision making

10



National Environmental Policy Act 1970

NEPA

- **Essential Elements of NEPA**
 - Utilize a systematic approach in all planning and decision making
 - Develop methods to evaluate environmental decisions and cost
 - Environmental Impact Statements (EIS)
 - Develop and prescribe appropriate alternatives to minimize environmental impact

11



The Clean Air Act

CAA

- Clean Air Act of 1967 - Limited in Scope
- Clean Air Act of 1970 - Far More Comprehensive
 - National Ambient Air Quality Standards (NAAQS)
 - *PM10, sulfur oxides; nitrogen dioxide; lead; carbon monoxide, hydrocarbons, ozone*
 - Primary NAAQS
 - *Focus on protection of public health*
 - Secondary NAAQS
 - *Focus on protection of environmental values*

12



The Clean Air Act

CAA

- **Clean Air Act of 1970 (continued)**
 - **State Implementation Plan (SIP)**
 - Describes how each State will comply with NAAQS requirements
 - **New Source Performance Standards (NSPS)**
 - Details national emission standards for all new sources of air pollution
 - **National Emission Standards for Hazardous Air Pollutants (NESHAPS)**
 - A listing of each air pollutant considered extremely hazardous
 - Asbestos; Benzene; Beryllium; Inorganic arsenic; Mercury, Radionuclides; and Vinyl chloride

13



The Clean Air Act

CAA

- **Clean Air Act of 1970 (continued)**
 - Added new NAAQS compliance dates and enforcement strategies
 - **Prevention of Significant deterioration (PSD)**
 - Keep those areas already above NAAQS at that level
 - **Non-attainment Program**
 - Identify those areas below NAAQS
 - Determine methods to be employed to achieve NAAQS

14



The Clean Air Act

CAA

- **Clean Air Act Amendments of 1990**
 - National Commission on Air Quality completed study in 1981
 - Congress deliberated through several sessions, resulting in CAAA 1990
 - CAAA 1990 most extensive piece of legislation in recent history
 - Thousands of pages containing modifications and changes
 - **The status of “clean air” by 1990**
 - Approximately 100 Non-attainment areas for ozone
 - Still problems with carbon monoxide, particulate matter, and SO₂
 - **CAAA 1990**
 - Focused on Non-attainment problems with many new requirements

15



The Clean Air Act

CAA

- **Clean Air Act Amendments of 1990**
 - **Focus on Non-attainment problems with many new requirements**
 - New and tighter requirements for mobile sources
 - Many new requirements implemented through revised SIPs
 - Many new statutes and additional regulations

16



The Clean Air Act

CAA

- **Clean Air Act Amendments of 1990**
 - **Title I: Air Pollution Prevention and Control**
 - Air Quality Control Regions
 - Air Quality Control Techniques
 - NAAQS, SIPs, PSD, and Non-attainment
 - **Title II: Emission Standards for Moving Sources**
 - Motor Vehicle Emission and Fuel Standards
 - Aircraft Emission Standards
 - Clean Fuel Vehicles

17



The Clean Air Act

CAA

- **Clean Air Act Amendments of 1990**
 - **Title III: Air Toxics**
 - Source Definitions and Source Categories
 - Identifies 189 pollutants to be regulated
 - Maximum Achievable Control technologies (MACT)
 - Broadens scope of coverage for major stationary sources
 - **Title IV: Acid Deposition Control**
 - Requirements for sulfur dioxide and nitrogen oxide
 - Allowance Program - Emission credits
 - New requirements on coal-fired power plants

18



The Clean Air Act

CAA

- **Clean Air Act Amendments of 1990**
 - **Title V: Permits**
 - Application Process and Conditions for Permitting
 - Significant Air Emission Sources
 - Permitting Fees
 - **Title VI: Stratospheric Ozone Protection**
 - List of substances that threaten ozone layer
 - Phase-out requirements for ozone depleting substances
 - National Recycling and Emission reduction Program
 - Servicing of Motor Vehicle Air Conditioners
 - Safe Alternative Policy
 - Restriction of Chlorofluorocarbon (CFC) emissions

19



The Clean Air Act

CAA

- **Clean Air Act Amendments of 1990**
 - **Title VII: Enforcement**
 - New guidelines for civil and criminal penalties
 - Greatly increased enforcement authority
 - Administrative Enforcement - Civil actions
 - Civil penalties up to \$32,500 per day per violation
 - Field Citation Program - On the spot: \$6500 per day per violation
 - Criminal Enforcement - Felonies, increased fines, longer jail terms
 - Now provision for Record-keeping Fines
 - Continue with the Negligent Endangerment and Knowing Endangerment
 - EPA can issue Emergency Orders to protect the public welfare

20



The Clean Water Act

CWA

- **1972 Amendments to the Federal Water Pollution Control Act (FWPCA)**
 - First attempt to take control of water pollution to the Federal level
 - Prior responsibility rested with each individual State
 - Enforcement was inconsistent from State to State

21



The Clean Water Act

CWA

- **Clean Water Act Amendments of 1977**
 - Objective: Assurance of swimmable and fishable waters
 - Water Quality now based on *Effluent Limitation Standards*
 - Applied at point of discharge (i.e., "end of pipe")
 - Excluded Publicly Owned Treatment Works (POTW)
 - Best Practicable Control Technology (BPT) available in 1977
 - Best Available Technology (BAT) achievable by 1983
 - POTWs adopt secondary treatment methods by 1983
 - New sources must meet 1983 BAT requirements
 - National Pollution Discharge Elimination System (NPDES)

22



The Clean Water Act

CWA

- **National Pollution Discharge Elimination System (NPDES)**
 - A "license to pollute"
 - Applies to discharges from point sources into navigable waters
 - **Effluent Limitations Standards**
 - Restrict quantities, rates, concentrations of pollutant discharges
 - Establish compliance schedules for achieving required restrictions
 - **Categories of pollutants under NPDES:**
 - Toxic pollutants - Can cause death or serious harm to persons
 - Conventional pollutants - Well known to the scientific community
 - Non-conventional pollutants - Not well known, considered dangerous

23



The Clean Water Act

CWA

- **Enforcement of NPDES Permits**
 - **Class I penalties**
 - EPA provides written notice
 - Violator can have informal conference within 30 days
 - Maximum \$11,000 per violation, maximum penalty of \$32,500
 - **Class II penalties**
 - \$11,000 per day for each day of the violation, maximum of \$157,500
 - Violator must have opportunity to attend formal record hearing
 - Notification to the public and right to attend hearing

24



The Clean Water Act

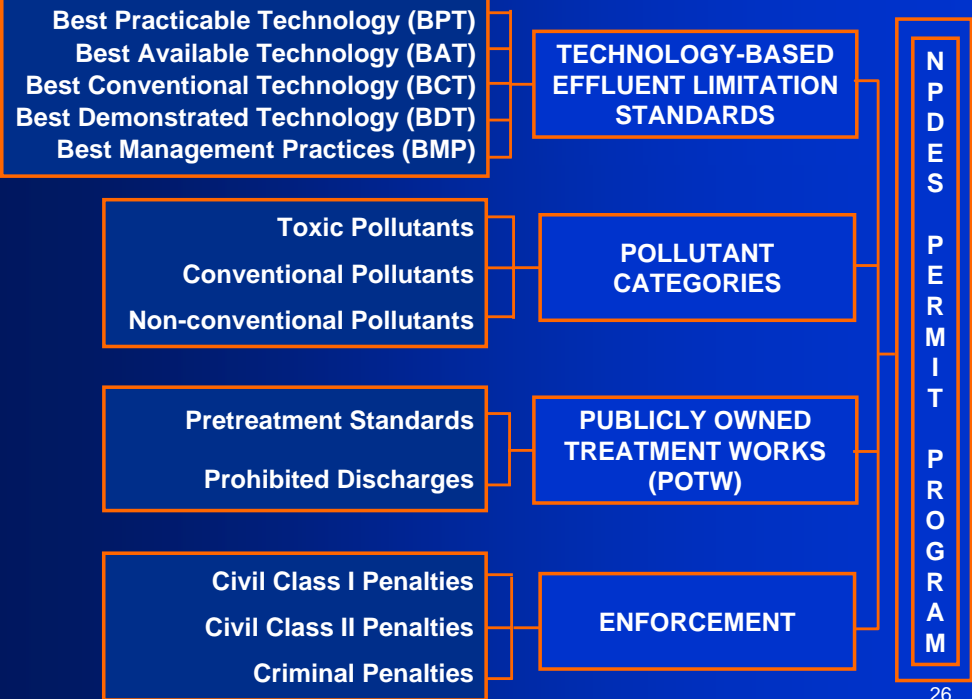
CWA

• Enforcement of NPDES Permits

• Criminal Penalties

- Negligent violations with fines between \$2500 and \$25,000 per day of violation, up to one year in jail, or both
- Penalties up to \$50,000 per day per violation, jail for two years, or both, for second offenders
- Intentional violators: \$5000-\$50,000 per day of violation, up to three years in prison, or both. Second offenders: \$100,000 and six years
- Knowing endangerment: \$250,000, jail for 15 years, or both. Corporations: \$1 million. penalties doubled for second offenders
- Making false statements: \$10,000 & two years, doubled for second offense

25



26



The Clean Water Act

CWA

• Water Quality Control Act of 1987

• Changed focused of NPDES

- From: A tool used to implement various technology-based controls
- To: More focused on achieving and maintaining State-established water quality standards
- EPA established minimum criteria for 137 specific pollutants

• State Actions Required

- Review and evaluate their own standards at least every three years
- Must evaluate toxic pollutants
- Identify bodies of water where existing quality cannot achieve attainment standards

27



The Clean Water Act

CWA

• Water Quality Control Act of 1987

• Regulation of Stormwater and Combined Sewer Overflows

- Industrial and municipal discharges of stormwater
- Permits are required
- States must establish specific stormwater management programs
- Prohibit non-stormwater discharges from entering storm drains

• Regulation of Sewer Sludge Disposal

- EPA must identify toxic pollutants found in sewer sludge
- Primary focus is on POTW operations

28



Resource Conservation & Recovery Act

RCRA

- RCRA: Amendments to the Solid Waste Disposal Act
 - Develop comprehensive and integrated legislation to protect the environment from mismanagement
 - Establish the necessary framework to manage hazardous wastes
 - Cradle-to grave approach to hazardous waste management
 - Regulates the generation, storage, transportation, treatment, and disposal of hazardous wastes

29



Resource Conservation & Recovery Act

RCRA

- RCRA: Amendments to the Solid Waste Disposal Act
 - Three basic goals
 - Description of the wastes to be managed and identification of responsible persons
 - System for positively tracking the location of all hazardous wastes
 - Promote proper waste management practices to protect human health and the environment

30



Resource Conservation & Recovery Act

RCRA

- Hazardous & Solid Waste Act (HSWA) Amendments of 1984
 - Seventy-two major provisions!
 - Instituted hammer provisions
 - If EPA does not meet a regulatory deadline, Congress takes over
 - Leaking underground storage tanks (LUSTs)
 - Improve the management of wastes from Small Quantity Generators
 - Phase-out of land disposal of untreated hazardous waste (land-ban)
 - Requirements for waste minimization

31



Resource Conservation & Recovery Act

RCRA

- Hazardous Waste Determination
 - A waste is hazardous if it is a solid waste that is either:
 - Listed by EPA as hazardous, or
 - Ignitable, corrosive, reactive, or toxic, note that
 - Solid waste includes solid, liquid, and even contained gases
 - Leaking underground storage tanks (LUSTs)
 - Improve the management of wastes from Small Quantity Generators
 - Phase-out of land disposal of untreated hazardous waste (land-ban)
 - Requirements for waste minimization

32



Resource Conservation & Recovery Act

RCRA

- **Ignitable**
 - Liquid, non-liquid, compressed gas, oxidizing substance
 - Flash point below 60 C (140 F) = ignitable
- **Corrosive**
 - Aqueous or non-aqueous
 - Aqueous wastes with pH of 2.0 or less or 12.5 or greater = corrosive
 - Aqueous or non-aqueous wastes that corrode steel at a rate of 1/4 inch per year = corrosive

33



Resource Conservation & Recovery Act

RCRA

- **Reactive**
 - Normally unstable, readily undergo violent change without detonation
 - Reacts violently, forms explosive mixtures, emits toxic fumes in water
 - Contains cyanide or sulfide which, in acids or bases, emits toxic fumes
 - Capable of detonation or will react explosively when initiated
 - Detonation or explosive decomposition at standard temperature and pressure
 - Meets criteria of Class A, Class B, or forbidden explosive under DOT (49 CFR 173)

34



Resource Conservation & Recovery Act

RCRA

- **Toxic**
 - Toxic Characteristic Leaching Procedure (TCLP)
 - Tests for the presence of specific metals, organic, inorganic chemicals
 - Determine if chemicals can leak or leach out of an unlined container
 - Concern is for groundwater contamination
 - Regulated as "D Listed Wastes"
 - Mixture Rule: Mix a listed with a non-listed waste = hazardous waste

35



Resource Conservation & Recovery Act

RCRA

- **Classification of Generators**
 - **Generators**
 - Waste determination
 - Obtain EPA Identification Number
 - Establish a 90-day hazardous waste storage site
 - Containers must be labeled properly
 - Can establish satellite sites
 - Must file reports on the activities during the previous year

36



Resource Conservation & Recovery Act

RCRA

- **Classification of Generators**
 - **Small Quantity Generators (SQG)**
 - Companies generating between 100 and 1000 kgs/month (up to five 55 gallon drums) of hazardous waste
 - Companies generating a total of 1 kg/month of acute hazardous waste
 - Generating less than 100 kgs of hazardous waste and 1 kg of acute hazardous waste per month
 - **Conditionally Exempt SQG**
 - Generate less than 100 kgs during any month
 - Comply with Basic requirements for generation and disposal

37



Resource Conservation & Recovery Act

RCRA

- **Emergency Requirements**
 - **Written Contingency Plan**
 - Fires, explosions, spills, unplanned discharges of wastes
 - Type and location of emergency equipment
 - Name, address, phone of each emergency coordinator
 - Advance arrangements with local response agencies
 - Evacuation procedures (if applicable)
 - File report within 15 days of emergency response

38



Resource Conservation & Recovery Act

RCRA

- **Training Requirements**
 - **Employees must be trained to:**
 - Perform their duties in compliance with applicable regulations
 - Be familiar with emergency response actions
 - **Employers must:**
 - Document their training compliance
 - Maintain records of training activities
 - Maintain Job Title for each position that requires hazardous waste management functions (with written job description)

39



Resource Conservation & Recovery Act

RCRA

- **Training Requirements**
 - **Record retention:**
 - Existing employees: As long as the facility remains in operation
 - Former employees: For three years from employee's last day
 - Transferred employees: Records must be transferred with them

40



Resource Conservation & Recovery Act

RCRA

- **Enforcement**
 - **Administrative Order**
 - Suspected waste violations
 - Requires employers to do certain things
 - Recipient must respond within 30 days to EPA
 - Penalties up to \$6500 each day for failure to comply
 - **Compliance Order**
 - Specifies exact nature of violations
 - Respond or challenge within 30 days
 - Can revoke or suspend permits by Compliance Order
 - Penalties up to \$32,500 each day of non-compliance

41



Resource Conservation & Recovery Act

RCRA

- **Enforcement**
 - **Civil Actions**
 - Seek appropriate relief when violations occur
 - Judicial enforcement of applicable RCRA requirements
 - Temporary or permanent injunctions
 - Monetary penalties
 - **Criminal Suits**
 - Against any person who knowingly violates RCRA
 - Transport of hazardous waste to a non-permitted facility
 - TSD without a permit
 - Omission or falsification of any RCRA-required records

42



Resource Conservation & Recovery Act

RCRA

- **Enforcement**
 - **Criminal Suits (continued)**
 - Transporting hazardous waste without a manifest
 - Knowingly violating a permit
 - Export of hazardous waste without permission of receiving country
 - Up to \$50,000 for each day of the violation, doubled for second
 - Imprisonment for 2 to 5 years, doubled for second
 - Knowingly placing a person in imminent danger:
 - \$250,000 and/or 15 years in jail (Companies: \$1 million)

43



Toxic Substances Control Act

TSCA

- **Title I: Control of Toxic Substances**
 - Broad in Scope
 - Thirty Sections that contain much of the regulations that affect industry
- **Title II: Asbestos Hazardous Emergency Response**
 - Narrow in Scope
 - Deals primarily with asbestos in schools

44



Toxic Substances Control Act

TSCA of 1976

- Title I: Control of Toxic Substances
 - Major Objective
 - Ensure EPA obtains detailed information on the production and use of chemical substances or mixtures
 - Gather data on health and environmental effects
 - Other Provisions
 - Regulates the manufacture, processing, distribution (in commerce), use, and disposal of chemical substances or mixtures
 - EPA must consider economic and social impacts of regulations

45



Toxic Substances Control Act

TSCA of 1976

- Title I: Control of Toxic Substances
 - Basic Requirements
 - TSCA Chemical Inventory of approximately 75,000 chemicals (updated every six months)
 - Pre-manufacture Notice required for “new” chemicals (90 days)
 - Interagency Testing Committee for new substances
 - TSCA Regulation of existing chemicals
 - PCBs, asbestos, fully halogenated chlorofluoroalkanes
 - Information Reporting Requirements
 - TSCA 8(c) allegations

46



Toxic Substances Control Act

TSCA of 1976

- Title I: Control of Toxic Substances
 - The Section 8(c) Allegation
 - Employer must record “new” health effects, as alleged
 - Employer need not record “known” health effects
 - Report goes to file. No need to give to EPA unless asked
 - Purpose is to gather data on new symptoms of exposure
 - Substantial Risk Information
 - Must inform EPA that a substance presents a substantial risk
 - Report must be made within 15 days

47



Toxic Substances Control Act

TSCA of 1976

- Title I: Control of Toxic Substances
 - Export and Import Notification
 - Must notify EPA of their intentions
 - Enforcement
 - Civil Penalties: \$25,000 per day
 - Criminal Penalties: \$25,000 per day plus 1 year in jail

Consider the fact that very few employers are even aware of TSCA requirements, penalties could be substantial!

48



Comprehensive Environmental Response, Compensation, and Liabilities Act of 1980 (Superfund)

CERCLA

- **Background**
 - One of the results of New York's "Love Canal"
 - Provide for stiff regulatory requirements to address the release of hazardous substances from waste sites
 - Amended in 1986 to further "beef up" the power of CERCLA
 - Superfund Amendments and Reauthorization Act (SARA)
 - \$8.5 billion

49



Comprehensive Environmental Response, Compensation, and Liabilities Act

CERCLA

- **Basic Requirements**
 - Potentially Responsible Parties (PRP)
 - National Priority List (NPL)
 - Sites that have caused or may cause damage to the environment
 - Hazardous Substance Response Trust Fund
 - Provides reimbursements of cleanup costs ("Superfund")
 - Under SARA, the Fund has four primary funding sources:
 - Taxes on petroleum
 - Taxes on 42 listed chemicals and substances derived from them
 - \$1.25 billion from general tax revenues
 - Broad-based corporate income tax

50



Comprehensive Environmental Response, Compensation, and Liabilities Act

CERCLA

- **Basic Requirements**
 - National Contingency Plan (NCP)
 - Site Identification and Hazard Ranking System
 - Site Listing based on score (high scores go on NPL)
 - Site Cleanup performed by prescribed procedures and methods
 - Remedial Investigation/Feasibility Study (RI/FS)
 - Performed when Site Cleanup cannot be immediate
 - RI evaluates soil, groundwater, surface water for contamination
 - FS evaluates the appropriate remedial actions to be taken
 - Results are documented in Record of Decision (ROD)

51



Comprehensive Environmental Response, Compensation, and Liabilities Act

CERCLA

- **Enforcement**
 - Civil Penalties
 - \$32,500 per violation against each PRP
 - \$32,500 per violation against PRP who violates settlement agreement
 - Relief for the "innocent purchaser"
 - Actions to recover costs of removal must be brought within three years
 - Actions to recover costs of remedial action must be brought within six years

52



Emergency Planning and Community Right to Know Act of 1986

EPCRA

- SARA Title III - Subtitle A
 - Section 301: State Commissions, Planning Districts, and Local Committees
 - Based on principles of OSHA's Hazard Communication Standard
 - Federal "Community Right to Know" requirements
 - Gives communities the same rights as employees to access information
 - State Emergency Response Commission (SERC)
 - Local Emergency Planning Committee (LEPC)

53



Emergency Planning and Community Right to Know Act

EPCRA (SARA TITLE III)

- SARA Title III - Subtitle A
 - Section 302: Substances & Facilities Covered & Notification Requirements
 - List of "extremely hazardous materials"
 - Established "threshold planning quantities" (TPQ)
 - Notification (within 60 days) to SERC and LEPC
 - Section 303: Comprehensive Emergency Response Plans
 - LEPC must draft a plan for their districts to cover emergencies
 - Facilities must provide name of each designated representative to LEPC

54



Emergency Planning and Community Right to Know Act

EPCRA (SARA TITLE III)

- SARA Title III - Subtitle A
 - Section 304: Emergency Notification Requirements
 - Releases of Reportable Quantities (RQs)
 - Immediate notification to SERC and LEPC
 - Owner or operator must submit written follow-up report
 - Notification (within 60 days) to SERC and LEPC
 - Civil Penalties
 - \$32,500 per violation per day of violation
 - \$97,500 per violation per day for second offense

55



Emergency Planning and Community Right to Know Act

EPCRA (SARA TITLE III)

- SARA Title III - Subtitle B
 - Section 311: Material Safety Data Sheets
 - If OSHA requires it, so does EPCRA
 - Violators must pay \$10,000 per violation per day
 - Section 312: Emergency and Hazardous Chemical Forms
 - Tier I Form: Annual Inventory to SERC, LEPC, local fire department
 - Tier II Form: Provides information on storage of hazardous chemicals
 - Section 313: Toxic Chemical Release Forms
 - Form R; submitted when release of "specifically listed toxic substances" has occurred during previous year (due on July 1st)

56



Emergency Planning and Community Right to Know Act

EPCRA (SARA TITLE III)

- SARA Title III - Subtitle C
 - Section 321: Relationship to Other Laws
 - SARA Title III will not preempt any State laws of the same nature
 - Section 322: Trade Secrets
 - Protection of confidential information
 - Section 325: Enforcement
 - Administrative Orders can be issued
 - Section 26: Civil Actions
 - Citizen suits against facility owners

57



OSHA Program

Hazardous Waste Operations and Emergency Response (HAZWOPER)

58



HAZWOPER

Overview 29 CFR 1910.120

- Effective Dates
 - Published in 54 FR 9317 on 6 March 1989
 - Became effective on 6 March 1990
- Purpose of HAZWOPER
 - To protect hazardous waster workers who are:
 - Private employees
 - Federal employees
 - State & local government employees (in States with OSHA program)

59



HAZWOPER

Overview

- Scope of HAZWOPER
 - Workers at cleanup sites
 - Workers at treatment, storage, and disposal facilities (TSDF)
 - Workers involved in emergency response operations involving hazardous substances
- Limited Scope and Applicability
 - Generators who store hazardous wastes for less than 90 days
 - Small quantity generators with Emergency Response Team

60



HAZWOPER

Standards Applicable to Cleanup Sites

- **Summary of Regulatory Requirements**
 - Applies to mandatory cleanup operations at uncontrolled sites
 - NPL sites, RCRA corrective action sites
 - Voluntary cleanup operations at uncontrolled sites
 - Emergency response operations without regard to location

61



HAZWOPER

Standards Applicable to Cleanup Sites

- **Safety and Health Program**
 - Employers must have a written safety and health program
 - An organized structure
 - A comprehensive work plan
 - A site-specific S & H plan (including an Emergency Response Plan)
 - A medical surveillance program
 - SOPs for safety and health
 - Coordination of safety & health program and site-specific activities
 - Contractors and subcontractors
 - Must be informed regarding all hazards on site
 - Written plan must be made available to contractors

62



HAZWOPER

Standards Applicable to Cleanup Sites

- **Site Characterization and Analysis**
 - Identify specific hazards at cleanup sites
 - Determine safety and health control measures to protect employees
 - Process begins with “preliminary evaluation”
 - Qualified person determines initial levels of personal protection
 - Detailed evaluation
 - Site’s specific hazards are evaluated
 - Physical, chemical, biological, and toxicological data
 - Monitoring of radiation and air quality
 - Risk identification associated with the identified hazards
 - Communicated to all employees involved in the project

63



HAZWOPER

Standards Applicable to Cleanup Sites

- **Site Control**
 - Controlled “work zones” established
 - Use of “buddy system” enforced
 - Onsite communications in place
 - Standard Operating Procedures (SOPs) activated
 - Nearest location of medical assistance identified
 - Continuous or periodic air quality monitoring is performed
 - Detect changes that may have occurred since initial entry
 - Site map to communicate current and new information about site

64



HAZWOPER

Standards Applicable to Cleanup Sites

- **Employee Training**
 - All employees working onsite must receive training on:
 - Names or personnel responsible for site safety and health
 - Safety, health, and other hazards onsite
 - Use of personal protective equipment
 - Work practices to minimize risks from hazards
 - Safe use of engineering controls and equipment onsite
 - Medical surveillance
 - Contents of the site safety and health plan

65



HAZWOPER

Standards Applicable to Cleanup Sites

- **Medical Surveillance**
 - Required if employers have employees engaged in hazardous waste activities who
 - Are or may be exposed above PELs, without regard to the use of respirators, for more than 30 days
 - Wear a respirator for 30 days or more per year
 - Are injured due to overexposure from an emergency incident involving hazardous substances or health hazards
 - Are members of HAZMAT teams

66



HAZWOPER

Standards Applicable to Cleanup Sites

- **Engineering Controls**
 - Eliminate hazard through design
 - Prevent, contain, isolate, remove the hazard
 - Enhanced ventilation, remotely operated devices, use of control booths
- **Administrative Controls (aka: Work Practices)**
 - Control exposures through enforced procedures and policies
 - Clear area of non-essential personnel
 - Schedule operations to take advantage of cooler temperatures
 - Wetting-down dusty conditions
 - Locating employees upwind of airborne hazards

67



HAZWOPER

Standards Applicable to Cleanup Sites

- **Personal Protective Equipment (PPE)**
 - Selection based on evaluation of potential hazard exposure
 - Totally encapsulating chemical protective suit
 - Self-contained breathing apparatus
 - Lower levels (respirator, face shield, gloves, etc.)
 - **PPE Training Requirements**
 - Level A: Totally encapsulated suit with SCBA
 - Level B: SCBA and chemical resistant clothing
 - Level C: Air-purifying respirator and chemical resistant clothing

68



HAZWOPER

Standards Applicable to Cleanup Sites

- **Monitoring**
 - Initial and periodic air quality monitoring
 - Used to identify any IDLH conditions (initial)
 - Used when employee exposure is in question (initial and periodic)
 - Data used to assure proper selection of control measures
 - Engineering Controls
 - Administrative (Work Practice) Controls
 - Personal Protective Equipment
 - Individual high-risk employees are monitored during actual cleanup
 - When soil, surface water, or containers are moved or disturbed

69



HAZWOPER

Standards Applicable to Cleanup Sites

- **Information Programs**
 - Employees, contractors, and subcontractors must be informed
 - Nature, level, and degree of exposure
- **Handling Drums and Containers**
 - Must meet U.S. DOT, OSHA, and EPA regulations for the wastes contained
 - Must be inspected and integrity assured prior to moving
 - Leaking or damaged drums must be overpacked or contents transferred
 - Containers must be properly labeled
 - Containers with radioactive waste cannot be handled until evaluated
 - Exhuming buried drums must be done with caution
 - Spill containment provisions and emergency handling provisions

70



HAZWOPER

Standards Applicable to Cleanup Sites

- **Decontamination**
 - Procedures must be developed and communicated to employees
 - Procedures must be implemented before employees enter controlled zones
 - Must be a decontamination corridor to allow transition into/out of zones
 - Employees leaving zone must be decontaminated, clothing and all
 - Site safety and health officer must monitor decontamination procedure
 - Shower and change rooms must be provided
 - Solvents used in decontamination must be compatible with clothing
 - Solvents must be managed as hazardous waste until proved otherwise

71



HAZWOPER

Standards Applicable to Cleanup Sites

- **Emergency Response by Employees at Uncontrolled Hazardous Waste Sites**
 - Develop and implement an Emergency Response Plan
 - Separate section of the Site Safety and Health Plan
 - Must be in writing and available for inspection and copying
 - Minimum requirements for an Emergency Response Plan
 - Pre-emergency planning
 - Personnel roles, lines of authority, and communication
 - Emergency recognition and prevention
 - Safe distances and places of refuge
 - Site security and control

72



HAZWOPER

Standards Applicable to Cleanup Sites

- Emergency Response by Employees at Uncontrolled Hazardous Waste Sites
 - Minimum requirements (continued)
 - Evacuation routes and procedures
 - Decontamination procedures (not covered by Site S & H Plan)
 - Emergency medical treatment and first aid
 - Emergency alerting and response procedures
 - Critique of response and follow-up
 - PPE and emergency equipment

73



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Standards Applicable to Cleanup Sites

- Emergency Response by Employees at Uncontrolled Hazardous Waste Sites
 - Additional requirements
 - Site topography
 - Site layout
 - Prevailing weather conditions
 - Procedures for notifying local, state, and federal authorities
 - Plan must be compatible and integrated with other plans
 - Regular rehearsals, reviews, and changed as necessary

74



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Standards Applicable to Cleanup Sites

- Illumination
 - Adequate lighting must be provided at hazardous waste sites
 - 3-ft candles at excavation and waster areas
 - 30-ft candles for first aid stations
- Sanitation at Temporary Workplaces
 - Certain provisions must be made, including
 - Potable water and non-potable water systems
 - Containers, food handling, sleeping quarters
 - Drinking cups
 - Toilet facilities, washing facilities, showers, change rooms

75



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Standards Applicable to Cleanup Sites

- New Technology Programs
 - Employers must stay abreast of new technologies and equipment
 - Provide new procedures for the introduction of new technologies
 - Implement new technologies and procedures, when necessary

76



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Standards Applicable to Treatment, Storage, and Disposal Facilities

- **Certain Operation Conducted Under the RCRA**
 - Must comply with many of the same requirements for cleanup sites
 - TSDF employees must have 24 hours initial and 8 hours annual refresher training
 - The trainer must have proper credentials
 - Completed a “train-the-trainer” course
 - Equivalent academic credentials
 - Instructional experience