

American Society of Safety Engineers

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Session 101G

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

Environmental Protection Agency

USEPA Regions



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*

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 \$37,500 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*

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

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

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

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*

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**

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

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

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

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

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

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

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 \$37,500 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

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

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)

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

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 \$37,500

- **Class II penalties**

- \$11,000 per day for each day of the violation, maximum of \$177,500
- Violator must have opportunity to attend formal record hearing
- Notification to the public and right to attend hearing

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

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

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

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

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

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

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

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)

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

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

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

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

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)

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

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 \$37,500 each day of non-compliance

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

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)**

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

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

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

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

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: \$27,500 per day**
 - **Criminal Penalties: \$37,500 per day plus 1 year in jail**

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

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

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

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)

Comprehensive Environmental Response, Compensation, and Liabilities Act



CERCLA

- **Enforcement**
 - **Civil Penalties**
 - \$37,500 per violation against each PRP
 - \$37,500 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

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)

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

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**
 - \$37,500 per violation per day of violation
 - \$107,500 per violation per day for second offense

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 \$11,000 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)

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