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Fundamentals of SH&E: Environment 101D



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Key Environmental Issues:

- **Historical Major Environmental Events**
- **Environmental Law & Regulations
Background in the United States**
- **Key EPA Environmental Regulations for Safety Professionals. Know the acronyms.**
- **Current “Hot Button” issues.**



Management of Environmental Programs

- Very broad field. One suggestion is to get to know the general landscape, then build knowledge and expertise as required.
- Know your report deadlines in your state. Register early on the reporting websites (state or federal). (Ex: air emissions, EPCRA, TRI, etc.)
- Good Environmental Management is a key to productivity and sometimes even organizational survival. Examples of well known environmental disasters include:
 - Love Canal Hazardous Waste Dump, New York (1976)
 - Three Mile Island Nuclear Release (1979)
 - Bhopal Methyl Isocyanate gas leak: Union Carbide-India (1984)
 - Exxon Valdez Oil Spill (1989)
 - BP Texas City Refinery Explosion (2005)
 - BP Deepwater Horizon Oil Spill (2010)
 - Fukushima Nuclear Accidents- Japan (2010)



Key Environmental Issues:

Historical Major Environmental Events:

Chemical Releases have been major drivers for increased legal/regulatory oversight:

Bhopal, India (1984). Methyl isocyanate leak, Union Carbide-India. 4,000 deaths, over 500,000 injuries.



Impact: EPA Changes to Clean Air Act-Risk Management Plans, OSHA: Chemical Process Safety



Key Environmental Issues:

Legal & Regulatory Background in the United States:

- New bills are passed by the U.S. Congress, often as a result of a problem or disaster.
- When signed into law by the President, they become incorporated into the U.S. Code. (U.S.C.)
- These new laws give authority to agencies in enacting regulations.
- Laws (Acts) → Regulations → Enforcement

United States Environmental Protection Agency



- The USEPA is the key federal environmental agency in the United States.
- Created by President Nixon's Executive Order in December 1970.
 - Cabinet level.
 - Enforcement authority: civil and criminal charges.
 - Delegates some powers to states.
 - Broad powers in protecting water, land, air, endangered species, radiation exposure, & waste.

Environmental Protection Agency



10 USEPA Regions





Environmental Legislation, Regulations, and Standards:

Overview of Select Environmental Laws

- NEPA-National Environmental Policy Act - 1970
- CAA-Clean Air Act (and Amendments) – 1967/1990.
- CWA-Clean Water Act -1972
- RCRA-Resource Conservation and Recovery Act - 1976
- TSCA-Toxic Substances Control Act - 1976
- CERCLA-Comprehensive Environmental Response, Compensation, and Liabilities Act - 1980 and the Superfund Amendments and Reauthorization Act (SARA) – 1986
- EPCRA-Emergency Planning & Community Right to Know - 1986
- Others Laws EHS professionals deal less frequently with.

The Clean Air Act (CAA)(1967)

42 U.S.C. 7401-7671



- CAA of 1967 - Limited Scope
- CAA of 1970 - More Comprehensive
 - National Ambient Air Quality Standards (NAAQS)
 - State Implementation Plan (SIP)
 - New Source Performance Standards (NSPS)
 - National Emission Standards for Hazardous Air Pollutants (NESHAPS)
- CAA Amendments of 1990





Clean Air Act

- **Amendments of 1990**
 - **CAA status in 1990:**
 - Approximately 100 non-attainment areas for ozone
 - Non-attainment areas with problems including carbon monoxide, particulate matter, and SO₂
 - **CAAA 1990 extensive legislation:**
 - Thousands of pages containing modifications and changes
 - Focused on non-attainment problems with many new requirements



Clean Air Act

- **Amendments of 1990**
 - **Title I: Air Pollution Prevention and Control**
 - **Title II: Emission Standards for Moving Sources**
 - **Title III: Air Toxics**
 - **Title IV: Acid Deposition control**
 - **Title V: Permits**
 - **Title VI: Stratospheric Ozone Protection**
 - **Title VII: Enforcement**



Clean Air Act

- **Amendments of 1990**

- **Title V: Permits**

- Application Process and Conditions for Permitting
- Significant Air Emission Sources
- Permitting Fees

- **Title VII: Enforcement**

- Civil penalties up to \$37,500 per day per violation
- Criminal Enforcement - Felonies, increased fines, longer jail terms
- EPA can issue Emergency Orders to protect the public welfare



National Environmental Policy Act (1970)

NEPA- 42 U.S.C. 4321 *et. seq.*

- **Basic Provisions**
 - **Applicable to Federal Agencies (not the President, Congress, or Federal Courts)**
 - **Establishes National Policy**
 - **Provides means for implementation and enforcement**
 - **Develop methods to evaluate environmental decisions and cost**
 - **Environmental Impact Statements (EIS)**
 - **Develop and prescribe appropriate alternatives to minimize environmental impact**



The Clean Water Act (1972)

CWA-33 U.S.C. 26

- 1972 Amendments to the Federal Water Pollution Control Act (FWPCA) of 1947
- Clean Water Act Amendments of 1977
 - Objective: Assurance of swimmable and fishable waters
 - Water Quality now based on Effluent Limitation Standards
 - National Pollution Discharge Elimination System (NPDES)

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



CWA

- **Water Quality Control Act of 1987**
 - **Changed focus of NPDES**
 - **Required State Actions**
 - **Included Regulation of Storm-water and Combined Sewer Overflows**
 - **Regulated Sewer Sludge Disposal**

Resource Conservation & Recovery Act (RCRA) (1976)

42 U.S.C. 6901 *et. seq.*



- Major solid/hazardous waste disposal law.
- Amended the Solid Waste Disposal Act of 1965
- Hazardous Waste Determination-

Definition: A waste is hazardous if it is a solid waste that is either: Listed by EPA as hazardous, or Ignitable, corrosive, reactive, or toxic

- Waste generator has “cradle to grave” responsibility.



RCRA

- **Classification of Generators**
 - **Small Quantity Generator (SQG)**
 - 100 to 1,000 kg/month of hazardous waste or 1 kg/mo of extremely hazardous waste
 - **Large Quantity Generator (LQG)**
 - Over 1,000 kg/month of hazardous waste
 - **Conditionally Exempt Small Quantity Generator (CESQG)**
 - Less than 100 kg/month



Uniform Hazardous Waste Manifest-

- Multiple copies for generator, transporter, and Treatment, Storage, & Disposal (TSD) facility
- Original copy is returned to generator.
- Generator has responsibility for their hazardous waste, even when in TSD facility.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved, OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number				
5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)							
Generator's Phone:									
6. Transporter 1 Company Name		U.S. EPA ID Number							
7. Transporter 2 Company Name		U.S. EPA ID Number							
8. Designated Facility Name and Site Address		U.S. EPA ID Number							
Facility's Phone:									
GENERATOR	9a. HWI	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
	1.								
	2.								
	3.								
	4.								
14. Special Handling Instructions and Additional information									
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged,									



RCRA

- **Emergency Requirements**
 - **Written Contingency Plan**
- **Training Requirements**
 - **Employees must be trained**
 - **Employers must retain records of training**



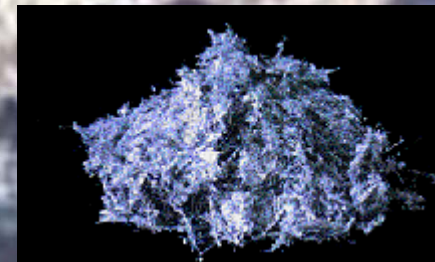
Toxic Substances Control Act (1976)

TSCA 15 U.S.C. 2601-2692

- Title I: Control of Toxic Substances



- Title II: Asbestos Hazardous Emergency Response (AHERA, 2641)





TSCA

Title I: Control of Toxic Substances

- **Basic Requirements**
 - TSCA Chemical Inventory of approximately 75,000 chemicals (updated every six months)
 - Reporting
 - Importing and Exporting
- **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



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

CERCLA - 42 U.S.C. 103

- **Background**
 - One of the results of New York's "Love Canal"
 - Amended in 1986
- **Basic Requirements**
 - Potentially Responsible Parties (PRP)
 - National Priority List (NPL)
 - Hazardous Substance Response Trust Fund



CERCLA



- **Basic Requirements**

- **National Contingency Plan (NCP)**

- **Remedial Investigation/Feasibility Study (RI/FS)**



CERCLA



- **Enforcement**
 - **Civil Penalties**
 - \$37,500 per violation against each Principally Resp. Party.
 - \$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
- **SARA-Superfund Amendments & Reauthorization Act (1986)-funding increased.**

Emergency Planning and Community Right to Know Act (1986) (EPCRA) 42 U.S.C. 116



- **SARA Title III - Subtitle A**
 - **Section 302: Substances & Facilities Covered & Notification Requirements**
 - **Section 303: Comprehensive Emergency Response Plans Required**
 - **Section 304: Emergency Notification Requirements for chemical releases above threshold levels**
 - **Section 311-312: Material Safety Data Sheets, Emergency and Hazardous Chemical Forms**
 - **Section 312: Toxic Release Inventory by facilities.**

EPA



Enforcement

- Civil and Criminal Charges Possible
- Numerous criminal prosecutions
- <http://www.epa.gov/compliance/index-e.html>
- \$ 773M, Settlement Agreement, 2010
- \$ 1.8M RCRA & CAA 12/2011
- \$ 90M, Oil spill, 2012





State Level Issues:

- EPA has delegated many programs to states.
- Many states have additional environmental programs and requirements.
- Many states have voluntary environmental programs.
- State level training and small business guidance documents can be good tools.
- Self auditing programs.



Key Environmental Issues:

- **Current “Hot Button” issues**
 - Sustainability
 - Green Energy
 - 2012 Greenhouse Gas Emissions Regulations
 - Environmental Justice program in the EPA
 - State level programs
 - Voluntary programs in each state



Questions?

Resources for EPA programs and regulations:

- www.epa.gov
- State environmental program websites.
- American Society of Safety Engineers, Environmental Practice Specialty
- ASSE Body of Knowledge website:
www.safetybok.org
- Specific presentation questions:
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