

Lecture #5

Environmentally Responsible Design and Manufacturing

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Lecture Outline

- ❖ Define law as it applies to environmental protection
- ❖ Highlight the important aspects of various environmental legislation
- ❖ Content based on
 - Neil Hutzler's notes
 - Walt Olson's text on environmental law

What is a “Law”?

- ❖ **A rule or a set of rules of conduct that are enacted by a formal body given authority to make rules for the members of its community**
- ❖ ***Ignorantia legis neminem excusat* (Ignorance of the law excuses nobody)**

Motivation

- ❖ **Most designs are regulated by laws and standards**
- ❖ **We are concerned with those laws that are designed to protect human health and the environment**

Types of Law

- ❖ **Common Law**
 - ❖ **Constitutional Law**
 - ❖ **Legislative Acts**
 - ❖ **Administrative Regulations**
 - ❖ **Judicial Law**
 - ❖ **Treaties**
 - ❖ **State Law**
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- ❖ **Over 50 Federal Laws & 5000 court decisions related to the environment**

Environmental Laws – A recent event?

- ❖ **The Public Trust Doctrine states that all the roaming animals and natural cycles of the world belong to the commonwealth of society. Any use of the natural cycles by business or human enterprises is a subsidy from the commonwealth of society. Therefore, we all must benefit and be equally engaged in the decision-making process. Roman Emperor Justinian – 530 A.D.**
- ❖ **Forest Reserve Act of 1881 (U.S.)**

Models in U.S Environmental Law

- ❖ **Best-technology regulation**
- ❖ **Risk-based legislation**
- ❖ **Environmental impact assessment**
- ❖ **Strict, joint, several, and retroactive liability**
- ❖ **Integrated pollution control**
- ❖ **Economic and other incentives**

Classifications

- ❖ **Constitutional vs. Common Law**
- ❖ **Substantive vs. Procedural Law**
- ❖ **Criminal (treason, felony, misdemeanor) vs. Civil (personal or economic rights of individuals) Law**

Purpose of the Laws

- ❖ **Protect ecological resources**
- ❖ **Prevent unacceptable risks to human health**
- ❖ **Minimize the effect of hazards**
- ❖ **To control transportation of hazardous substances**
- ❖ **Prevent or limit pollution releases**
- ❖ **To provide mean to clean up or remediate pollutant releases**
- ❖ **Notify appropriate authorities and the public of pollutant releases**
- ❖ **To provide compensation for damages from pollutant releases**

Major Environmental Legislation

- ❖ **National Environmental Policy Act (NEPA)**
- ❖ **Endangered Species Act 1973 (ESA)**
- ❖ **Resource Conservation and Recovery Act (RCRA)**
- ❖ **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)**
- ❖ **Clean Water Act (CWA)**
- ❖ **Safe Drinking Water Act (SDWA)**
- ❖ **Energy Policy Act**

Major Environmental Legislation

- ❖ **Clean Air Act (CAA)**
- ❖ **Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)**
- ❖ **Toxic Substances Control Act (TSCA)**
- ❖ **Occupational Safety and Health Act (OSHA)**
- ❖ **Noise Act of 1970**
- ❖ **Emergency Planning and Community Right-to-know Act (EPCRA)**
- ❖ **Pollution Prevention Act (PPA)**

RCRA

- ❖ **Resource Conservation and Recovery Act**
- ❖ **Replaced the Solid Waste Disposal Act**
- ❖ **Requires the management of hazardous wastes from generation to final disposal (cradle to grave)**
- ❖ **Essentially defined everything as solid waste unless it is an air or water pollutant (waste definitions, lists)**
- ❖ **Provides for criminal lawsuits**
- ❖ **Risk-based, strict liability**

Clean Water Act (CWA)

- ❖ Long, historical background rooted in common law and judicial law
- ❖ Amended several times
- ❖ Water quality standards mandated
- ❖ Created pollutant discharge permit system (National Pollutant Discharge Elimination System - NPDES)
- ❖ Incorporates most models of legislation (incentives, risk-based, best-technology, etc.)

Clean Air Act (CAA)

- ❖ **Like the Clean Water Act, the CAA has long history based in common (especially nuisance) and judicial law**
- ❖ **Mandates air quality standards**
- ❖ **emission standards for automobiles and for stationary sources**
- ❖ **Best technology, risk-based, incentives, integrated pollution control**

Pollution Prevention Act

- ❖ One of the most recent pieces of environmental legislation
- ❖ Establishes a pollution prevention hierarchy -- source reduction, recycling, and treatment as last resort
- ❖ best technology, incentives

EPCRA

- ❖ **Emergency Planning and Community Right-to-Know Act**
- ❖ **Producers and users of hazardous materials must report activities to local authorities**
- ❖ **Local governments have to develop emergency plans**
- ❖ **Created use of Material Safety Data Sheets (MSDSs)**

Regulations

- ❖ From the many pieces of environmental legislation (states have corresponding laws and cities have ordinances), come thousands or tens of thousands of regulations developed by federal, state, and local agencies
- ❖ It is difficult if not impossible to keep up with all these regulations
- ❖ Build relationship with regulators

ISO 14000

- ❖ **International environmental standards**
- ❖ **Similar in principle to ISO 9000**
- ❖ **Voluntary, but may be required for international trade**
- ❖ **Company is required to develop environmental policy, plans, and procedures**
- ❖ **Environmental Management Standards (ISO 14001) have been developed**

- ❖ **More on this later...**

Summary

- ❖ **There is a vast amount of environmental law based on common law, statutes, regulations, judicial rulings, treaties, and executive orders.**
- ❖ **Environmental law is always changing**
- ❖ **Therefore, it is important to retain experts to keep abreast of the changes**

- ❖ **“Ultimately, a regulation is a signal of design failure.” – McDonough and Braungart, 2002**