APTI Course 452

Principles and Practices of Air Pollution Control

Chapter 11:
The United States Clean Air Act

Chapter Overview

- National Ambient Air Quality Standards
- Air Quality Control Regions
- State Implementation Plans (SIPs)
- New Source Review: Permit Requirements
- Hazardous Air Pollutants
- Federal Enforcement

What does the CAA regulate?

- Section 302 defines "air pollution" as material that is emitted or otherwise enters the ambient air and causes negative health effects; or damages plants, property or animals; or causes an unreasonable interference with the enjoyment of life or property.
- The EPA defines ambient air as "that portion of the atmosphere external to buildings, to which the public has access."
- Accordingly, the CAA regulates only pollution that enters the outside air.

National Ambient Air Quality Standards

- The Six Criteria Pollutants
 - ozone, particulates (PM10 and PM2.5), sulfur oxides, carbon monoxide, nitrogen dioxide and lead.

 Primary NAAQS must protect the most sensitive segments of the population

Secondary NAAQS

Air Quality Control Regions

AQCRs

Attainment, Nonattainment or Unclassifiable

Nonattainment classifications

- Design Values
 - used to designate and classify nonattainment areas

State Implementation Plans (SIPs)

Historical Context

Provisions

Enforceability

SIPs- Historical Context

• 1975

• 1977

• 1990

SIPs- Provisions

- Develop an ambient air quality-monitoring network
- Conduct air quality modeling
- Create a nonattainment timetable for compliance
- Establish a permit system for new source review
- Enforce procedures and policy

SIPs- Enforceability

- EPA Approval
 - If EPA rejects a SIP, it can publish and implement its own Federal Implementation Plan (FIP)
- EPA Sanctions

Federal Weight

New Source Review: Permit Requirements

 The Clean Air Act requires permits to build or add to major stationary sources of air pollution (New Source Review).

Permits

- Prevention of Significant Deterioration (PSD)
 permits are required for new major sources or
 a major source making a major modification
 in areas that meet the National Ambient Air
 Quality Standards;
- Nonattainment NSR permits which are required for new major sources or major sources making a major modification in areas that do not meet one or more of the National Ambient Air Quality Standards; and
- Minor source permits.

Major Source

 Any source having a "potential to emit" emissions of any regulated pollutant greater than 250 tpy or 100 tpy for 28 specified sources.

New Source Performance Standards (NSPS)

- New Source Performance Standards (NSPS)
 - categories of stationary sources, which may contribute significantly to air pollution
 - 65 Source Categories
- Modification
 - Changes that do not effect emissions
 - Changes that effect emissions

Prevention of Significant Deterioration (PSD)

- Major Modifications
 - Any change at a major source which will cause an increase of any regulated pollutant to exceed "significant" quantities.

- Attainment Area
 - -EPA has a duty to prevent significant deterioration in these clean areas.

Requirements For Attainment Pollutants (area has met NAAQs)

- BACT (Best Available Control Technology)
 - Economics a factor

- PSD Classification Areas
 - contribution from the new source will not exceed the "allowable increment."

Increment Consumption

Requirements for Non-attainment Pollutants (area has not met NAAQ)

- Major Sources
- Major Modification
- LAER (Lowest Achievable Emission Rate)
 Economics not a factor
- Common Ownership Compliance
- Emission Offsets

Additional Requirements for Non-attainment Pollutants (cont.)

- Nonattainment Pre-Construction Review
- Complete Compliance
- Emission Offset Requirement

Hazardous Air Pollutants

- Health Based Standards (1970 CAA)
 - NESHAPS
- Technology Based Standards (1990 CAA)
 - "Maximum achievable control technology"
 (MACT), taking into consideration technology and the cost of achieving such emission reduction.
 - Major Sources

- Acid Rain Program
- to reduce acid rain that is formed from sulfur dioxide and nitrogen oxides emissions to the atmosphere by reducing these emissions from fossil fuel-fired steam generating units.

- Sulfur Dioxide Emission Reduction Program
 - imposes a national emission cap
 - establishes a "marketable trading" plan for SO2.

- Nitrogen Oxides Emission Reduction Program
- Operating Permit Program (Title V)

- Stratospheric Ozone Program
- Visibility Protection Program

Title V Operating Permits

- Legally enforceable documents designed to improve compliance by incorporating state and federal requirements into one document
- Issued to all major sources and a limited number of minor sources
- Primarily issued by State and Local Agencies
- Small number issued by Federal Government
- Does not replace PSD or NSR permits but includes the basic requirements from these permits
- Requires source to pay fees based on tons of emissions (designed to cover the cost of the program)

Mobile Sources

- CAA authorizes EPA to establish motor vehicle emission standards and to test vehicles for compliance (or require manufacturers to perform such testing).
- CAA authorizes EPA to regulate the composition of automobile fuels

Federal Enforcement

- Civil Action
- Administrative Penalties

Federal Enforcement

- Criminal Action
- Citizen Suits
- EPA Emergency Powers

Other Strategies

Interstate Air Pollution

Leak Detection and Repair (LDAR)

Greenhouse Gas Emissions

Chapter Summary

- National Ambient Air Quality Standards
- Air Quality Control Regions
- State Implementation Plans (SIPs)
- New Source Review: Permit Requirements
- Hazardous Air Pollutants
- Federal Enforcement

Review Questions

APTI Course 452

Principles and Practices of Air Pollution Control

Chapter 12
Pollution Prevention

Chapter Overview

- Introduction to Pollution Prevention
 - And Waste Minimization

- Legislative History
- Pollution Prevention/Waste Minimization Strategies

Legislative History

 Resource Conservation and Recovery Act (1984)

Pollution Prevention Act (1990)

What is Pollution Prevention? What is Waste Minimization?

 Source Reduction and/or environmentally sound Recycling methods prior to energy recovery, treatment, or disposal of wastes.

Treatment is not part of P2 or Waste Min

P2/Waste Minimization

- Does not include waste treatment, i.e., any process designed to change the physical, chemical, or biological composition of wastestreams.
- For example, compacting, neutralizing, diluting, and incineration are not typically considered waste minimization practices.

Strategy

- Determine what wastes are generated
- Characterize each waste stream
- Identify waste prevention measures
- Identify potential production changes that would improve efficiency
- Investigate opportunities for new products or ingredients
- Set priorities and goals



Check out the FY
20/21 National Emphasis
Areas (NEAs)

Learn more about P2 Week



Subscribe to our email updates

Learn About P2

- Why P2 is important
- P2 law and policies
- What EPA is doing
- P2 calendar of events

Grant Programs for P2

- Pollution Prevention Grants
- Source Reduction
 Assistance Grants
- Tools and calculators to

 measure grant results

What You Can Do

- P2 resources for business
- Internships in P2

- - 1

 EPA regional and state program information

Additional P2 Resources

- P2 Hub Helpline
- Publications
- A-Z subject index
- Greener Products and

Recommended Standards and Ecolabels



P2 National Emphasis Areas (NEAs) – 5 areas

- NEA #1: Food and Beverage Manufacturing and Processing
- NEA #2: Chemical Manufacturing, Processing and Formulation
- NEA #3: Automotive Manufacturing and Maintenance
- NEA #4: Aerospace Product and Parts Manufacturing and Maintenance
- NEA #5: Metal Manufacturing and Fabrication

P2 Grants

 PA is seeking grant applications from states and tribes to promote pollution prevention (P2) in businesses. The application deadline is March 31, 2020.

Quick facts for P2 Grants

- **Eligibility**: State governments, colleges and universities (recognized as instrumentalities of the state), federally-recognized tribes and intertribal consortia.
- Match requirement: 50 percent match; for tribal governments that place P2 grant activities into a performance partnership grant (PPG) agreement, the match for the tribe gets reduced to 5 percent.
- **Review of applications**: Along with other requirements that are noted in the RFA, applications must address one of the following statutory/regulatory criteria to merit further review.
 - Provide technical assistance and/or training to businesses/facilities about source reduction.
 - Identify, develop, document and share P2 best management practices and innovations.
- Range of awards: Individual grant awards may potentially be in the range of \$40,000-\$500,000 for the two-year funding period (between \$20,000 - \$250,000 incrementally funded per year).
- Average number of grants issued: 40



Pollution prevention (P2) is any practice that reduces, eliminates, or prevents pollution at its source, also known as "source reduction."

- Source reduction is fundamentally different and more desirable than recycling, treatment and disposal.
- There are significant opportunities for industry to reduce or prevent pollution at the source through cost-effective changes in production, operation, and raw materials use.
- The opportunities for source reduction are often not realized because existing regulations focus upon treatment and disposal.

Pollution Prevention Strategies: Source Reduction

Materials Substitution

Source Control

Pollution Prevention Strategies: Recycling

 Recycling can be thought of as the collection and reprocessing of a resource so it can be used again, though not necessarily for its original purpose

Pollution Prevention Strategies:

• Examples Include?

Pollution Prevention Information Clearinghouse

http://www.epa.gov/p2/pollution-prevention-resources#ppic

Pollution Prevention Technical Assistance - EPA Region 3

- Delaware
- <u>District of Columbia</u>
- Maryland
- Pennsylvania
- <u>Virginia</u>
- West Virginia

REGIONAL PROGRAMS

EPA Region 3, Pollution Prevention Program

Services: Regional Sustainability Partnership Programs initiative, outreach and recognition support.

US EPA Region 3

1650 Arch Street (3LC33)

Philadelphia, PA 19103

Contact: Peter Piergiovanni

Related Information

More information about Region 3







Pollution Prevention (P2)

Pollution Prevention Home

Learn about P2

Pollution Prevention Law

Grants

Measuring P2

Resources for Businesses

Tools and Calculators

What You Can Do

Case Studies

Additional P2 Resources

Pollution Prevention Subject Index

<u>ABCDEFGHIJKLMNOPQRSTUVW</u>XYZ

Α

<u>Air Pollution Prevention and Control (APPCD)</u>: Conducts research, develops and demonstrates air pollution prevention and control technologies for key industries, electric power plants, incinerators, indoor environments and sources of greenhouse gases.

<u>Auto Refinishing Finishing Partnership</u>: The DfE Program has worked with the automotive repair industry and individual shops to increase awareness of the health and environmental concerns associated with refinishing activities and to identify and encourage the use of safer, cleaner, more efficient practices and technologies.

BEES 3.0: Building for Environmental and Economic Sustainability web site brings to your fingertips a powerful technique for selecting cost-effective, environmentally preferable building products.

Chapter Summary

Introduction to Pollution Prevention

Legislative History

Pollution Prevention Strategies

Review Questions

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Principles and Practices of Air Pollution Control

Chapter 13: Laws and Regulations

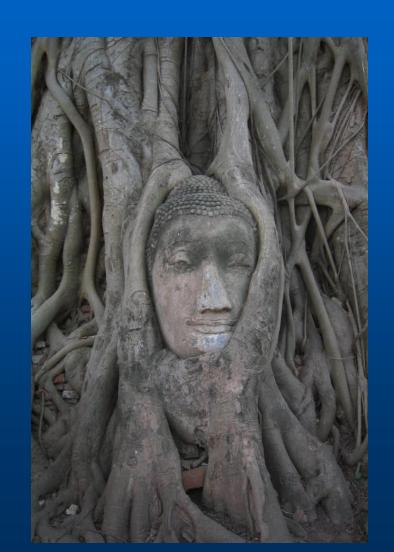
Chapter Overview

- Common Law
- Statutory Law
- Administrative Law
- Constitutional Law
- Sources of Federal Statutes
- Sources of Federal Regulations



Roots of Our Legal System

Common Law: The 13 colonies adopted a legal system similar to that in England.



Common Law

 A legislative body did not create it as statutory law is constructed today; rather, common law evolved out of customs and traditions.



Common Law: Nuisance

 A claim of nuisance implied that an individual had caused an unreasonable interference with another person's use of his own property.

 A private nuisance harms only the plaintiff. A public nuisance harms the community

Common Law: Trespass

- Trespass was said to have occurred when a landowner was denied exclusive use of his property.
- Many argued that particulate-laden smoke that drifted onto a piece of property and caused harm was trespass.





Source of Power

Federal: U.S. Constitution

enumerated powers

States: Anything else

State Police Power:

Health, Safety, &

Welfare

Local From the state

Conflict of Law

SUPREMACY CLAUSE

 Feb 20, 1809: Supreme Court ruled in US vs Peters that power of the Federal government is greater than that of any individual state

Statutory Law

- Created by Legislative bodies
 - Congress
 - State Legislatures
 - Tribal Councils
 - City and County Councils/Boards
 - Some regional and local districts

3 Branches of Gov't

- Legislative branch creates statutes
- The judicial branch interprets statutory law
- The administrative (executive) branch implements statutes

Administrative Law

 Administrative agencies have no inherent or residual authority, but can act (pass regulation, etc.) only from authority that is "delegated" to them from state or federal statute.



Classification of Court Litigation

Civil

- Cases are brought by the government and by private parties
- Relief is fines and/or injunctions

Criminal

- Cases are brought by the gov't only
- Penalties and/or loss of liberty



Burden of Proof in Court Cases

- Civil Law: Preponderance of the evidence (over 50%)
- Criminal Law: Beyond a reasonable doubt



Court Remedies

Civil cases

Fines (\$) and/or injunction

(TRO, Temporary and Permanent)

Criminal cases
 Fines and/or Imprisonment

Constitutional Law

Several amendments to the U.S.
 Constitution need to be considered by inspectors in the discharge of their duties because they place limitations on governmental activity.

Constitutional Law: The Fourth Amendment

Citizens (including corporations) will be free from unreasonable search and seizure.

"Reasonable" searches as decided by the courts

- Entry into public areas
- Entry with consent
- Observation without entry
- Entry into open fields
- Search of abandoned things
- Entry in emergencies
- Entry with a warrant
- **Your inspection must fit into one of these categories

An "Open Field" may not be really open or really a field

The Fourth Amendment protects "persons, houses, papers, and effects."

Even if... fences, closed or locked gates, "No Trespassing" signs and/or an objecting owner, its still an "open field" Oliver v. United States, 466 U.S. 170, 183 (1984)

A fenced 2,000 acre industrial complex is an "open field" Dow Chemical Co. v. US 476 US 227 (1986); Air Pollution Variance Bd. of Colorado v. Western Alfalfa Corp. 416 U.S. 861 (1974)

FAA Drone Rules

- Part 107
- Applies to UAS (unmanned aircraft)
- From 0.55 55 #
- Must keep drone within unaided sight
- 30 min. before sunrise 30 min. after sunset
- Minimum visibility: 3 miles
- Max altitude: 400 ft above ground
- Max speed: 100 mph

FAA Drone Rules (cont'd)

- Must register drone
- Must have remote pilot certificate
- Minimum age of operator: 16 years old
- Waivers available for restrictions
- Rules are for safety, NOT privacy
- Federal preemption applies

source: www.faa.gov

Constitutional Law: The Fifth Amendment

Persons cannot be required to give testimony against themselves in government inquiry, investigation or prosecution. But you can revoke their permit if they will not give you the needed information.

This does not apply to corporations.

Constitutional Law: Due Process: The Fourteenth Amendment

Due process of law and equal protection are guaranteed for all citizens.

Governmental action shall not deprive a person of life, liberty, and property without due process.

Constitutional Law: Equal Protection: The Fourteenth Amendment

The enactment of laws that establish arbitrary systems of classification or that permits discrimination between persons of the same classification is prohibited.

Helpful

 https://www.epa.gov/clean-air-act-ove rview/clean-air-act-text

 Has a table that that gives corresponding section numbers in the Clean Air Act (CAA) and the U.S. Code (USC).

Federal Regulations

 Federal Register has notices of federal agency actions, like rulemakings

 The Federal Register will usually be cited as: Volume FR Page (Date).



Federal Regulations

- Once final, federal regulations go into the Code of Federal Regulations (CFR)
- Cited as follows: Title
 CFR Part. Section
- EPA regs are in Title40

CODE OF FEDERAL REGULATIONS



CFR

40

Protection of Environment

Parts 300 to 399

Revised as of July 1, 2014

OFFICE OF THE FEDERAL REGISTER

Chapter Summary

- Common Law
- Statutory Law
- Administrative Law
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- Sources of Federal Statutes
- Sources of Federal Regulations

Review Questions

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Principles and Practices of Air Pollution Control

Chapter 14: Compliance and Enforcement

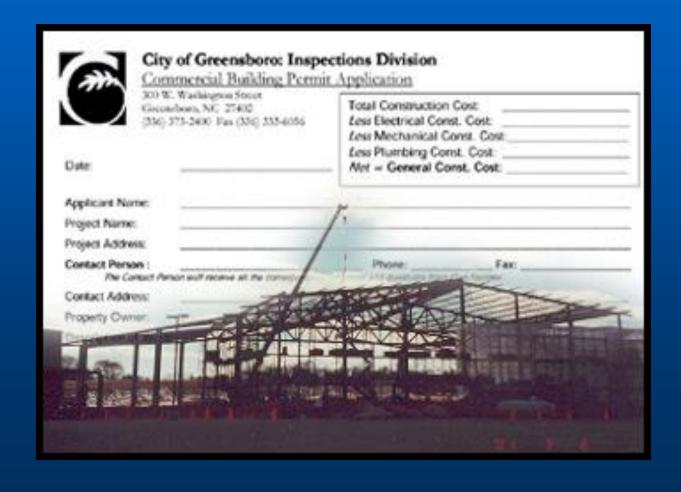
Chapter Overview

- Enforcement Systems
- Penalty Assessment Criteria

Enforcement Systems

- Permits to Construct and Operate
- Compliance Monitoring
- Compliance Plan Enforcement
- Surveillance and Complaint Response
- Initiation of an Enforcement Action

Permits to Construct and Operate



Permits to Construct

Purpose



Permits to Construct

- Provide for engineering review prior to construction
- Insures required emission monitors will be installed
- May deny permit if the source cannot comply
- Gives notice of change when adding, modifying or deleting sources
- Keeps the emission inventory up to date

Permits to Operate

- standard application with specific criteria for approval;
- regular monitoring and reporting requirements;
- payment of an annual renewal fee;
- minimum training requirements for site staff;
- establishes authority to issue permits and assure compliance.

Permits to Operate

- subjects sources to periodic review
- allows the denial of an operating permit, making operation of a source a violation
- provides update regarding ownership change, process change, materials change, etc.
- updates emission inventories
- Provides a systematic check of compliance status

Compliance Monitoring and Inspections

- Introduction to Compliance Monitoring
- Compliance Monitoring Strategy
- Compliance Monitoring Categories

Compliance Plan Enforcement

Compliance Monitoring: Introduction

- Continuous, Self-Monitoring
- Compliance Inspections

Compliance Monitoring

- Compliance Incentives
- Innovations
- Auditing
- Environmental Management Systems
- Pollution Prevention
- Small Business
- Small Community

Compliance Monitoring: Inspections

To evaluate the compliance status of an

operational facility

Routine,

- Emergency response,
- Complaint



Inspections: Objectives

- Observe and Identify Problems
- Provide Facts About Compliance Status
- Collect and Preserve Evidence

Act as Deterrent

Enforcement and Compliance History Online (ECHO)

http://echo.epa.gov

 provides public access to compliance and enforcement information for approximately 800,000 EPA-regulated facilities. **Environmental Topics**

Laws & Regulations

About EPA

Search EPA.gov

Q



Enforcement and Compliance History Online

ECHO Gov Login Contact Us



Quick Search



Search Options



Analyze Trends

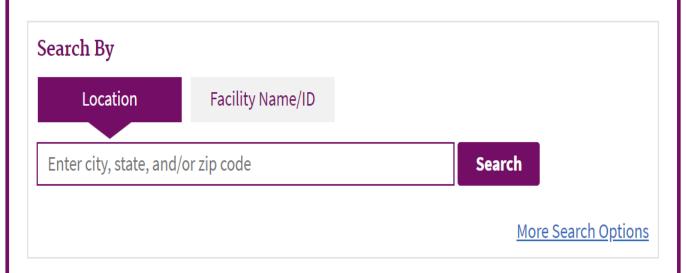


Find EPA Cases



Data Services

Quick Search



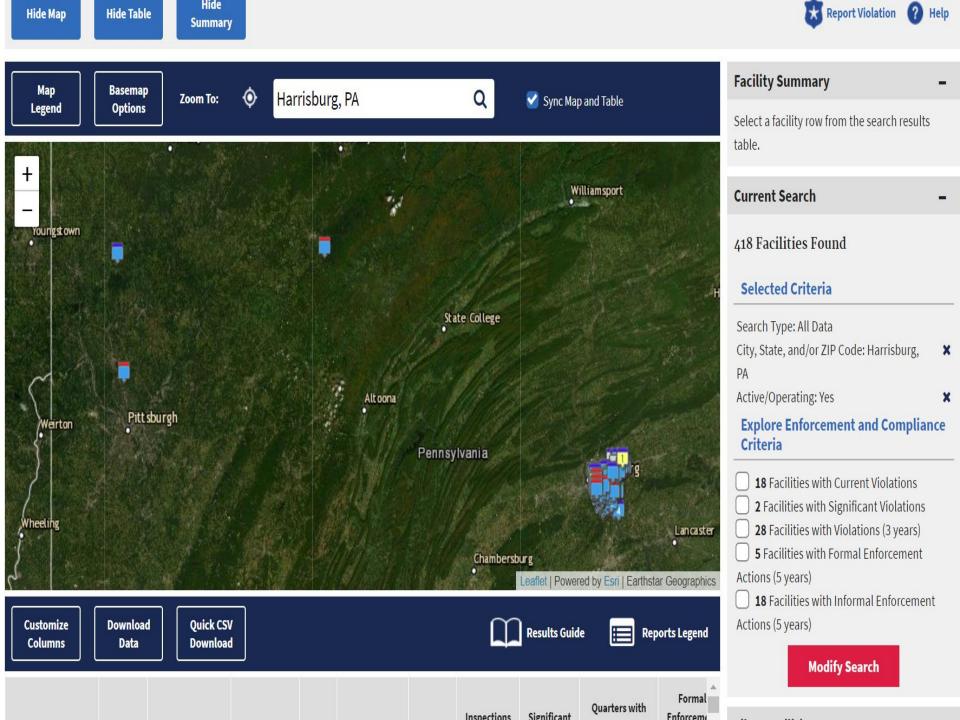
Use EPA's Enforcement and Compliance History Online website to search for facilities in your community to assess their compliance with environmental regulations. You can use ECHO to:

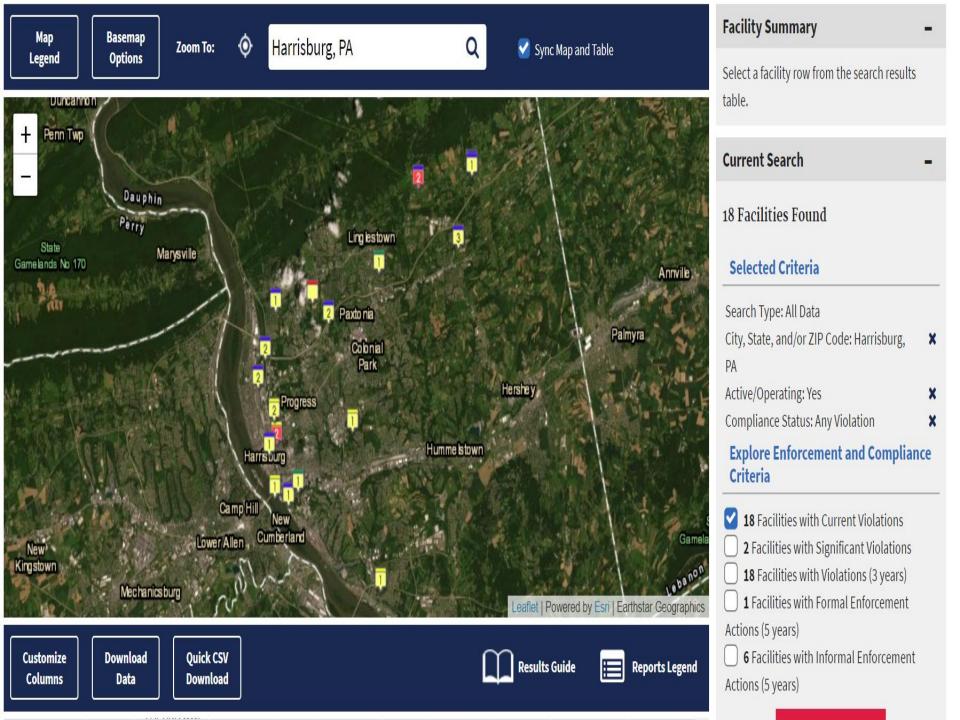
- Search for Facilities
- Investigate Pollution Sources











Inspections: Conducting an Inspection

- Review Rules and Source Records
- Prepare an Inspection Plan
- Enter the Facility and Hold Opening Conference
- Conduct Inspection, Obtain Samples, and Hold Closing Conference
- Prepare Report

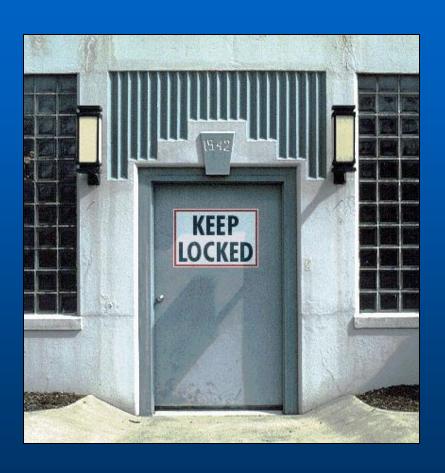
- Unannounced or Scheduled?
- Proper Entry Procedures
- Denied Access Procedures
- Signing Entry Forms



- Document the basis for entry
- Most common is consent
- Consensual entry



- Warrant less entry
 - Emergencies
 - "Open fields" and "in plain view"



If denied entry

- Be tactful, be safe
- Use reason and logic
- Record observations
- Contact supervisor
- policy is TYPICALLY to obtain an inspection warrant

- Inspection Warrants
 - When facility has denied access
 - If full consent is withdrawn during inspection
 - May be done in advance of inspection
 - Inspector & attorneys work as team

- Proper site entry procedures
 - Drive-by and off-site observations
 - Look for obvious concerns
 - Familiarize yourself with layout
 - Normal working hours





Use main gate or entry

Contact person in charge

 Plant manager, environmental manager, owner, etc.

Identify yourself with your credentials
Identify company representatives







- Purpose
- Establish Inspection Objectives
- Scope of inspection
- Establish Inspection Order
- Everything you might need to do
- Estimated time to complete

Opening Conference

Explain:

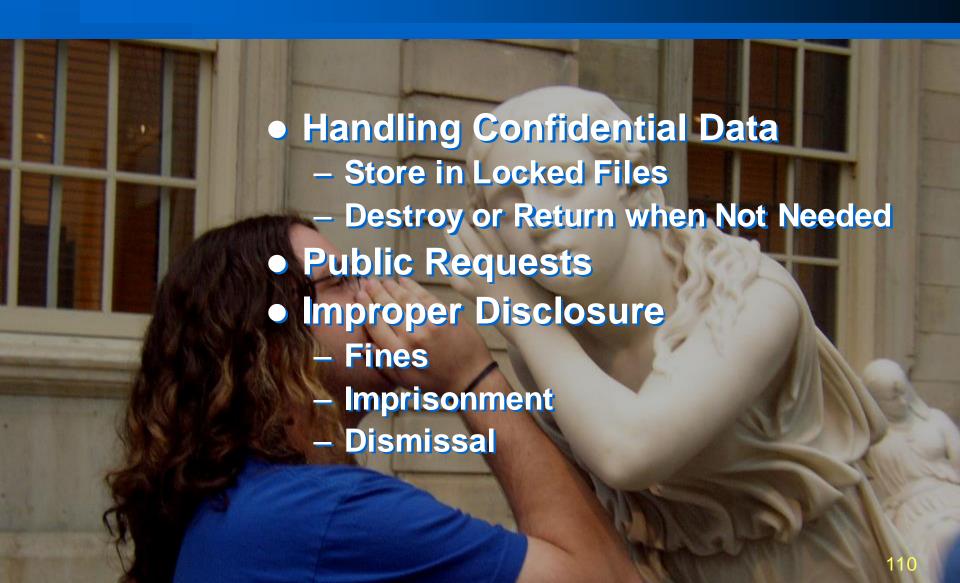
- Documentation methods
 - Notes
 - Procedures recommended
 - Copies
 - Photographs
 - Audio recordings
 - Samples, etc.



Opening Conference

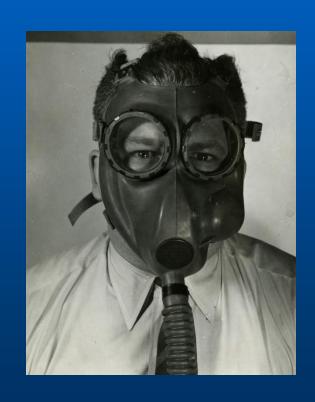
- Discuss Confidential Business Information (CBI)
 - Their right to claim CBI
 - Provide paperwork
- Identify special safety concerns
 - May be denied access W/O proper PPE
 - PPE (hard hat, safety glasses etc)
 - DO NOT SIGN LIABILITY WAIVER

Confidential Information



Proper Attire

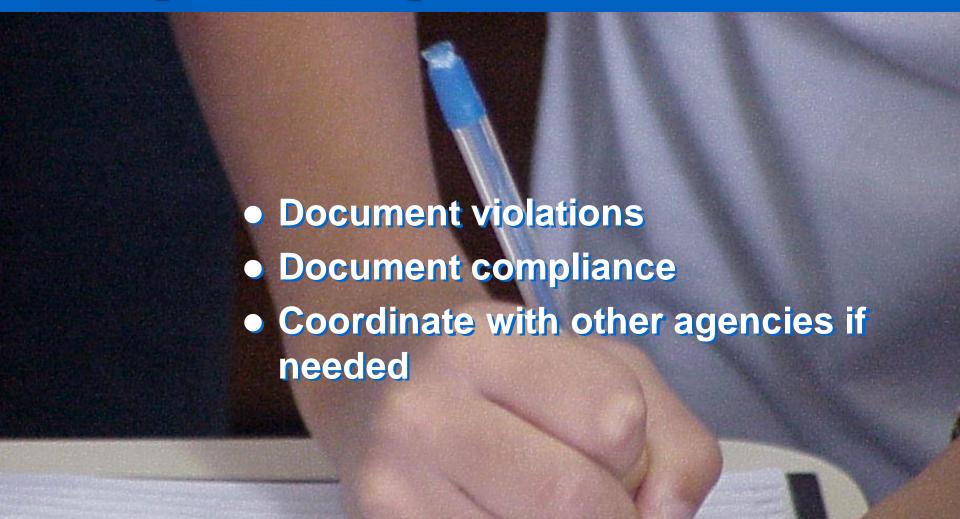
- Wear what's appropriate
 - -Industrial site?
 - -Office visit?
- Wear what's safe
 - -Proper PPE



PERSONAL PROTECTIVE EQUIPMENT

- Hard Hat
- Foot Protection (more than one pair)
- Vision and Hearing Protection
- Respirators
- First Aid Kit
- Protective Clothing
- Gloves

Inspection Report



Professionalism



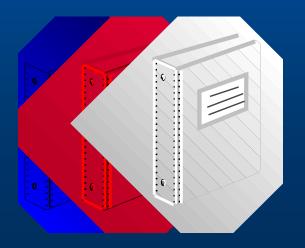
Closing Conference



- Format varies
- Preliminary (tentative) discussion of findings
- Resolve outstanding issues
- Complete paperwork –
- Follow your agency's policy in regard to providing notice of violations

Inspector Liability

- Being at appropriate locations
- Doing your assigned job
- Following your SOP's



A bad inspection is a great defense!

Surveillance and Complaint Response

Surveillance

Complaint Response



Common types of complaints



- Odors
- Dust
- Point sources
- General air quality, "bad air"

Complaint Priority

- Inspectors are not emergency response personnel, but,
- Complaints are an inspector's 2nd highest priority.
- Complaints are usually received by support staff
 Dispatched to field staff
 - Usually respond within 24 hours

Initiation of an Enforcement Action

Goals

Alternative Enforcement Procedures

Steps in an Enforcement Action

Enforcement Action: Goals

- Correct Violation
- Deter Future Violations
- Maintain Consistency and Fairness
- Seek Criminal Sanctions
- Make Effective Use of Enforcement Resources

Enforcement Action: Alternative Enforcement Procedures

- Notice of Violation
- Informal
- Formal Abatement Order/Consent Degree
- Citations
- Administrative Fine
- Civil or Criminal Punishment
- Court-Ordered Injunction
- Revocation of Operating Permit

For help on criminal investigations

 Contact your EPA Region's Criminal Investigation Divsion

Enforcement Action: Steps in an Enforcement Action

- Violation is Found and Documented
- Level and Type of Enforcement Action is Decided
- Enforcement Documents Drafted and Filed
- Settlement Negotiations Entered
- Hearing or Trial Conducted

Penalty Assessment Criteria: Penalty Factors (CAA § 113))

- Size of Business
- Economic Effect of Penalty
- Company Compliance History
- Duration of Violation
- Previous Penalties for Same Offense
- Economic Benefit for Noncompliance
- Seriousness of Violation



Penalty Assessment Criteria: Enforcement Responsibility

Federal

State

Local



Any Credible Evidence Rule

 Congress gave the EPA authority to use (in lieu of applicable test methods) "any credible evidence" to prove a violation.

Chapter Summary

- Enforcement Systems
- Penalty Assessment Criteria

Review Questions

POST – TEST