

Overview of Key OSHA/EPA Regulations pertinent to a LEPC

Presented by
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Alliance of Hazardous Materials Professionals

National member organization of hazardous materials professionals who deal with all aspects of hazardous materials management including;

- ▶ Manufacturing
- ▶ Shipping
- ▶ Storage
- ▶ Use
- ▶ Reuse/Repurposing/Recycling
- ▶ Disposal



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National Capital Chapter

- ▶ Affiliated with AHMP
- ▶ Serving the Maryland, DC, and Virginia geography
- ▶ Conducts
 - Regular technical seminars
 - Professional Develop Seminars (all -day)
 - Preparatory course (Certified Hazardous Materials Manager)
 - Facility tours

Cyber Chapter

- ▶ Affiliated with AHMP
- ▶ Serving areas without local chapters worldwide
- ▶ Conducts
 - Regular technical seminars
 - Professional Develop Seminars (all -day)
 - Preparatory course (Certified Hazardous Materials Manager)
- ▶ “Connecting Hazardous Materials Professionals Worldwide”

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These materials were developed by K & A First Aid, Inc. and Bay Associates Environmental, Inc. and are intended to assist employers, workers, and others as they strive to improve workplace health and safety. While we attempt to thoroughly address specific topics, it is not possible to include discussion of everything necessary to ensure a healthy and safe working environment in a presentation of this nature. Thus, this information must be understood as a tool for addressing workplace hazards, rather than an exhaustive statement of an employer's legal obligations, which are defined by statute, regulations, and standards. Likewise, to the extent that this information references practices or procedures that may enhance health or safety, but which are not required by a statute, regulation, or standard, it cannot, and does not, create additional legal obligations. Finally, over time, regulators may modify rules and interpretations in light of new technology, information, or circumstances; to keep apprised of such developments, or to review information on a wide range of occupational safety and health topics, you can visit regulatory web sites such as the Department of Transportation at www.dot.gov or OSHA's website at www.osha.gov.



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Agenda

- ▶ Process Safety Management
 - Planning for releases of large quantities of hazardous materials
- ▶ Safe Drinking Water Act/Clean Water Act
 - What is different
 - What do they cover
- ▶ Waste Management
 - Hazardous Waste Overview
 - Ecowise Program
 - Paper vs. e-Manifests



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Process & Risk Safety Management

OSHA: Process Safety Management

On February 24, 1992, OSHA published the final rule “Process Safety Management of Highly Hazardous Chemicals”. (PSM)

Process safety management (PSM) was developed after the Bhopal accident (1985), to prevent similar accidents. The standard is performance oriented, that is, it sets general requirements for management of hazardous chemicals

Elements of OSHA 1910.119 Process safety management of highly hazardous chemicals

- (a) Application.
- (b) Definitions.
- (c) Employee participation.
- (d) Process safety information.
- (e) Process hazard analysis.
- (f) Operating procedures.
- (g) Training.
- (h) Contractors.
- (i) Pre-startup safety review.
- (j) Mechanical integrity.
- (k) Hot work permit.
- (l) Management of change.
- (m) Incident investigation.
- (n) Compliance Audits.
- (p) Trade secrets.

What Facilities are Covered

- ▶ Those Who Use Chemicals in Appendix A: A List of highly hazardous chemicals, toxics and reactive (Mandatory). Contains a listing of toxic and reactive highly hazardous chemicals which present a potential for a catastrophic event at or above the threshold quantity
 - ▶ Examples
 - Chemical
 - Anhydrous Ammonia
 - Chlorine –
- | | Threshold Quantity (TQ) |
|-------------------|-------------------------|
| Anhydrous Ammonia | 10,000 lbs |
| Chlorine – | 1,000 lbs |

What Facilities are Covered

- ▶ A process which involves a flammable liquid or gas (as defined in 1910.1200(c) of this part) on-site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more



What Types of Industries?

- ▶ Industries that Process Chemicals Such As:
 - Industrial Organics & Inorganics
 - Paints
 - Pharmaceuticals
 - Adhesives
 - Sealants and Fibers
 - Petrochemical facilities
 - Paper Mills
 - Food Processing with Anhydrous Ammonia over the TQ

There are Exclusions

- ▶ An employer is exempt from the requirements of PSM when:
- ▶ A threshold quantity of flammable liquids is stored in atmospheric tanks or transferred without the benefit of chilling or refrigeration
- ▶ Hydrocarbon fuels used solely for workplace consumption as a fuel (e.g., propane used for comfort heating, gasoline for vehicle refueling),
 - If such fuels are not a part of a process containing another highly hazardous chemical covered by this standard

There are Exclusions

- ▶ Retail facilities;
- ▶ Oil or gas well drilling or servicing operations; or,
- ▶ Normally unoccupied remote facilities.



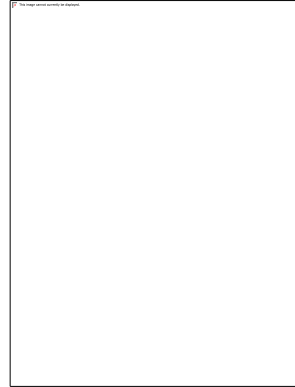
Process Hazard Evaluation

- Methods used to determine and evaluate hazards:
- What If
- Checklist
- What If/Checklist
- HAZOP (Hazard & Operability Study)
- FMEA (Failure Mode & Effects Analysis)
- Fault Tree Analysis
- An Appropriate Equivalent Methodology

Clean Water Act

Clean Water Act (CWA) – Overview

- ▶ Legislative history
- ▶ Sections of the CWA
- ▶ **NPDES** Permit Program
- ▶ Pretreatment programs for industry



CWA Legislative History

1948	Federal Water Pollution Control Act
1972	Federal Water Pollution Control Act Amendments
1977	<i>Clean Water Act of 1977</i>
1981	Municipal Wastewater Treatment Construction Grants Amendments
1987	Water Quality Act of 1987
1990	Oil Pollution Act (OPA)
1991	Stormwater Regulations

Federal Water Pollution Control Act Amendments

Established the CWA framework, including:

- ▶ NPDES permit program
- ▶ Water quality standards
- ▶ Provisions for oil and oil spills and toxic substances
- ▶ POTW construction grants program
- ▶ Industry-specific effluent standards
- ▶ Technology-based effluent limits for conventional pollutants



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CWA Provisions

- ▶ Technology-based effluent limits for 126 pollutants
- ▶ Best management practices (BMPs) for hazardous and toxic substances
- ▶ Publically Owned Treatment Works (POTW) construction grants (aka WSSC)



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Water Quality Act of 1987

- ▶ Amended Section 304 of CWA
- ▶ Emphasized:
 - Toxic pollutants
 - Non-conventional pollutants*
- ▶ Other water quality aspects:
 - Stormwater
 - Biomonitoring



Pollutants that are conventional (COD, BOD*, TSS*, fecal coliform, oil & grease, and pH).

***Chemical Oxygen Demand, Biological Oxygen Demand, Total Suspended Solids**

Oil Pollution Act of 1990

- ▶ Addressed oil spill impacts
- ▶ Amended limits of liability
- ▶ Set amounts for compensation made to injured parties

Stormwater Regulations

- ▶ Implemented in 1991
- ▶ Included in NPDES program
 - Stormwater discharge associated with industrial activity
- ▶ Part I Group Application



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CWA Objective and Goals

- ▶ Objective
 - To restore and maintain the integrity of the nation's waters
- ▶ Minimum Goals
 - "Fishable and Swimmable"
- ▶ Eliminate the discharge of pollutants



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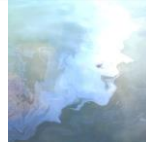
Water Quality Criteria and Standards

- ▶ EPA must develop:
 - Water quality criteria
 - 126 pollutants including metals and organics
 - Water quality standards
- ▶ States must classify each water body
 - Antidegradation statement
 - Implementation and enforcement

Effluent Limits Requirements

- ▶ Sections 301, 306, and 307 establish requirements of effluent limits for point sources except for POTWs
- ▶ Section 304 addresses effluent limits for POTWs
 - Biological Treatment Minimum
- ▶ Section 306 established specific limits for categories of industrial operations
- ▶ Technology-based and subject to future review and revisions as advances in technology are developed

Spills and Releases



CWA Section 311: Precursor to Superfund

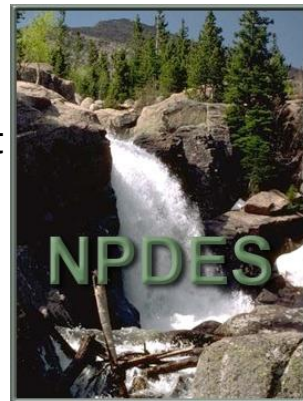
- ▶ Prevention of spills and releases to surface waters
 - Oil (May require SPCC plans)
 - Hazardous substances
- ▶ Reportable quantities (RQs)
 - Dischargers must notify the National Response Center (NRC)
 - Liability and fines
- ▶ Provides a spill cleanup fund
- ▶ Requires a National Contingency Plan



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National Pollutant Discharge Elimination System (NPDES) Permit Program

- ▶ Requires NPDES permits for point sources
 - Includes stormwater discharges
- ▶ Part I -- Identifies the pollutant limits
- ▶ Part II -- Administrative requirements
- ▶ Part III -- Instream monitoring programs



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Combined Sewer and Sanitary Sewer Overflows*

- ▶ Overflows regulated by CWA
- ▶ Caused by:
 - Rainfall induced discharges
 - Wet weather events
- ▶ Assimilative capacity of water body
- ▶ Developing regulatory area

*Stormwater systems that also accept sanitary discharges.



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Why Control Stormwater Point Source Discharges?

- ▶ Stormwater discharges from both point and non-point sources affect water quality.
- ▶ **Point** sources of stormwater include:
 - Industrial sites (heavy metals)
 - Construction sites
- ▶ **Non-point** sources of stormwater include:
 - Agriculture (sediments, nitrates, pesticides)
 - Forested lands (sediments)
 - Management of stormwater **point** sources is part of the NPDES program.



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Stormwater Program Objectives

- ▶ **Eliminate** illegal discharges
- ▶ **Eliminate** illegal dumping
- ▶ **Reduce** pollutant discharge from stormwater runoff
- ▶ **Control** industrial pollutants using
 - Best available technology (BAT)
 - Best conventional pollutant control technology



Stormwater Pollutants

- ▶ Pollutants include oils, metals, pesticides, fecal matter, leaves, and roots
- ▶ Measures of pollution include:
 - ▶ Total suspended solids (TSS)
 - ▶ Biological oxygen demand (BOD)
 - ▶ Chemical oxygen demand (COD)
 - ▶ Sediment*

*some states include sediment



Other Potentially Harmful Substances and TSS

- ▶ Include heavy metals, polycyclic aromatic hydrocarbons (PAHs) and organic matter
- ▶ Absorb onto TSS
- ▶ Settle on sediment

Stormwater Discharge Regulations

- ▶ Require businesses and industry to
 - Obtain a permit for discharge
 - Sample and characterize storm water runoff
- ▶ Allow three discharge permit options
 - Individual permit
 - General permit
 - Group permit
- ▶ Do not apply to
 - Facilities with effluent limitations
 - Facilities discharging to Combined Sewer Overflows (CSOs)

Applicability

An NPDES stormwater permit is required for:

- Industrial activities
- Construction activities
- Municipal separate storm sewer systems (MS4s)



Safe Drinking Water Act

Safe Drinking Water Act

Objectives

- ▶ To ensure safe public drinking water supplies
- ▶ To protect groundwater from contamination
- ▶ To protect drinking water quality by:
 - Established standards of purity
 - Required compliance with health-based standards
 - Encourage attainment of nuisance-related standards



SDWA -- History

1944: Public Health Service Act

1974: Safe Drinking Water Act

1986: Major Amendments

1988: Lead Contamination Control Act

1996: Major Amendments

SDWA of 1974

- ▶ Emphasis on preventive measures
- ▶ Establishes health-related standards
 - Primary Maximum Contaminant Levels (MCLs)
- ▶ State delegation
 - Enforcement
 - Variances and exemptions
- ▶ Protection of groundwater sources
 - UIC Program

1986 Amendments

- ▶ Established schedule to issue standards
- ▶ Required public notification of violations
- ▶ Increased civil enforcement penalties
- ▶ Mandated establishment of wellhead protection areas
- ▶ Banned lead-containing pipes and solder
- ▶ Required development of filtration and disinfection standards

1988 Lead Contamination Act

Added new Part F to SDWA

- ▶ Prohibited lead in new water coolers
- ▶ Provided recall of all water coolers with lead-lined tanks
- ▶ Provided grants (i.e., schools) to change out plumbing, water fountains, etc.
- ▶ Requires public access to lead results
- ▶ Set mandatory public notice requirements

1991 Lead & Copper Rule

- ▶ Abolished Maximum Contaminant Level (MCL) for Lead & Copper
- ▶ Established action level for lead
 - 0.015 ppm
- ▶ Established action level for Copper
 - 1.3 ppm

1996 Amendments

Key Elements

- ▶ Source Water Assessment Program
- ▶ Consumer Confidence Reports
- ▶ Operator Certification
- ▶ Cost Benefit Analyses
- ▶ Microbial contaminants & disinfection by-products
- ▶ Public information & consultation
- ▶ Minor revisions to the Lead & Copper Rule



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Public Water Systems (PWS)

- ▶ ***Community*** water systems:
 - At least 15 connections
 - At least 25 residents daily
 - At least 60 days/year
- ▶ ***Non-community*** water systems:
 - At least 15 connections
 - At least 25 or more individuals *other than* year-round residents daily
 - At least 60 days/year



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Public Water Systems (PWS)

- ▶ ***Non-transient non-community*** systems (highly regulated):
 - Serves the same 25 people
 - More than 6 months/year
- ▶ ***Transient non-community*** systems (minimally regulated):
- ▶ Includes all other water systems



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Maximum Contaminant Level Goals

- ▶ **Non-enforceable public health goals:**
 - Within maximum permissible level of contaminant
 - With no known or anticipated adverse health effects
 - With an adequate margin of safety
- ▶ **Always less than or equal to the MCL**
 - In many cases, the MCLG is zero
- ▶ **MCLGs and MCLs:**
 - Are used under RCRA and CERCLA
 - Set goals for the Groundwater Protection Strategy (GPS)



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Maximum Contaminant Levels

MCLs are established for both primary and secondary standards.

Contaminants, monitoring frequency, and compliance varies depending on the:

- Type of system
- Classification and population
- Statistical average



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National Primary Drinking Water (NPDW) Standards

Primary standards (health-related):

- ▶ Protect drinking water quality by limiting the levels of specific contaminants (organic chemicals, inorganic chemicals, radionuclides & microorganisms) that:
 - Can adversely affect human health
 - Are known or anticipated to occur in PWSs
- ▶ Include chemical, microbiological, and radiological parameters

Primary MCLs:

- ▶ Designate legally enforceable maximum permissible levels:
 - For specific contaminants in water
- ▶ Delivered to any PWS user



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National Secondary Drinking Water Standards

Secondary standards (aesthetic):

- ▶ Are used as guidelines for the states:
 - Not federally enforceable
 - SDWA recommends that they be monitored

Secondary MCLs:

- ▶ Pertain to:
 - Aesthetic quality
 - Possible health implications at high concentrations
- ▶ Include contaminants that may cause:
 - Cosmetic effects
- ▶ Aesthetic effects



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Examples of cosmetic and aesthetic contaminants

Aluminum	Manganese
Chloride	Odor
Color	pH
Copper	Silver
Corrosives	Sulfate
Fluoride	Total dissolved solids
Foaming agents	Zinc
Iron	



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