

RCRA Compliance and Hazardous Waste Management in a Tough Economy

February 19, 2009



RCRA Compliance &
Hazardous Waste Management
Efficiencies in a Tough
Economy

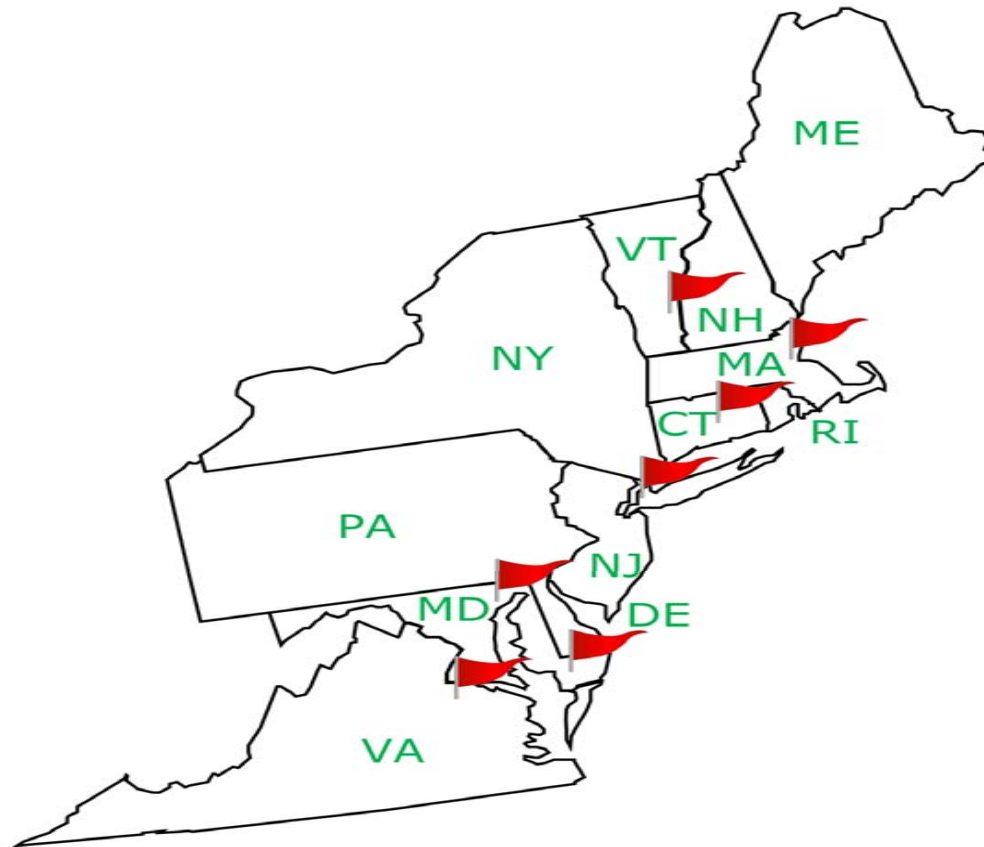
Triumvirate by the Numbers

- Privately owned company created in 1988
- Prior year run-rate exceeded \$ 60 + million in sales
- Full service consulting and service provision across the New England, New York and Mid-Atlantic regions
- Structured by Niche: healthcare, life sciences, higher education and industrial niches
- More than 600 + clients within these niches
- All chemists are college-educated and receive an avg. of 120 training hours annually
- A+ rated insurance



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Our Service Reach



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Our Mission Statement

Build the Most Productive, Long-Term, Customer Intimate
Environmental Services Firm by Wowing each Employee
and Each Customer Every Day



An Innovative Leader with Industry Credentials



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A Trusted Partner



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Delivering on Target & Cost Effective Solutions



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Delivering Unparalleled Service



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Turnkey Services

1. **EH&S Compliance** - plan writing, program and technical support, engineering, industrial hygiene
2. **Training** - OSHA, RCRA, DOT, and IATA
3. **Onsite support services** - weekly EH&S program support and waste inventory “ADVISE”
4. **Hazardous Waste Management** - disposal and transportation
5. **Field services** - remediation, tank cleaning, and emergency response
6. **Laboratory services** -chemical and laboratory moves, chemical inventory, pharmaceutical programs, and decontaminations



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Disposal and Lab Services

- Drums
- Lab Packs
- Radiation Transportation
- Universal Waste
- Bulk Solids Hazardous and Non Hazardous
- Tanker loads Hazardous and Non Hazardous
- Non Tradition Biological wastes
- High Hazard chemical management
- Cylinders
- Select agents
- Unknowns
- Emergency Response
- DEA Drugs
- Pharmaceutical wastes



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Field Services

↘ Site Remediation Services

Contaminated Soil Removal – Excavation and High Vacuum
Transportation & Disposal of RCRA Hazardous & Non-Hazardous Soil
In-Situ & Ex-Situ Soil Treatment – Chemical Oxidation & Soil Solidification
Brownfield Redevelopment Services

Dewatering & Treatment - Excavation / Construction
PCB Management & Disposal – Transformers & Building Materials
Installation of Treatment Systems – Soil/Groundwater/Soil Gas

↘ Facility Decontamination & Maintenance

Fume Hood/Biological – Lab Relocations
Facility Closures - Heavy Metals/Chemicals
Plating Line Closures
Demolition Services

Acid Neutralization Tank Cleaning/Maintenance
AST and UST Tank Cleanings –Chemicals /WWT/Containments
PCBS & Petroleum Based Products
Emergency Response Services – Petroleum/Chemical

↘ Petroleum Management Services

UST & AST Cleaning – Management & Disposal of Petroleum Material
UST & AST Removals and Remediation
Installation & Upgrading of Fueling Facilities

Large Terminal Tank Cleaning – Gasoline/Heavy Oils
Service Station Decommissioning
Vacuum Tanker & Super Vacuum Tanker Related Projects

↘ Environmental Construction

Oil/Water Separator Installations & Removals
Landfill Capping

Catch Basin Cleanings
Complete Site Restoration – Wetland and Bank Stabilization

↘ 24 Hour Emergency Response

On staff ER Coordinator
Oil spills
Spill training and OSRO Exercises

OPA-contract, OSRO and AMPD coverage
Chemical Spills
Mercury spill clean up and remediation



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Onsite Support Services

- Waste pick up and transfer
- Waste inventory
- Universal waste management
- Bulking / Lab Pack of wastes
- Classroom training RCRA and DOT
- MAA / SAA management and inspections
- Stock Chemical Inventory
- Waste determination and audits
- Customized programs that fit each clients needs

Compliance Services

- Onsite EH&S Management/Oversight
- Multimedia Compliance Audits
- Oil SPCC Plans
- Hazardous Waste Contingency Plans Integrated Contingency Plans
- Environmental Management Systems
- Radiation Safety Programs- RSO-qualified, lab decontamination and decommissioning, and licensing
- OSHA Programs- lockout/tagout, respiratory protection, HazWoper, bloodborne pathogens, PPE,
- HazCom, contractor safety
- DOT Hazardous Material Security Plans
- Compliance Reporting biennial, hazardous waste reports, Tier II chemical inventory reports, air emissions, wastewater, stormwater, and TURA
- Licensing, Permitting & Registrations- air, wastewater, stormwater, hazardous waste- EPA & DOT, flammables storage, radioactive materials, and
- Clean Air Act-permits
- Training- RCRA, DOT, IATA, OSHA
(customized onsite and public)

Engineering Services

- Environmental Consulting
- Environmental Remediation
- Real Estate Assessments
- Licensed Site Professional Services
- MCP Compliance
- Emergency Response
- Regulatory Compliance & Environmental Management
- Third Party Environmental Oversight & Review
- Soil, Groundwater, & Indoor Air Quality Assessment
- Insurance Claim Management
- Risk Assessment
- Expert Witness Testimony

Litigation Support
Asbestos Inspections
Soil Excavation and Recycling/Disposal
Bioremediation
Chemical Oxidation
Air Sparging and Soil Vapor Extraction
Carbon Stripping
Monitored Natural Attenuation
Groundwater Recovery
Site-Specific Risk Characterization
Innovative Technologies



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Agenda

➤Registration and breakfast	30 minutes	8:30 – 9am
➤Remarks (Bob Shuman)	20 minutes	9-9:20am
➤Triumvirate Baltimore (Mike Williams)	15 minutes	9:20 – 9:35
➤Steve Todisco	45 minutes	9:35 – 10:20
➤Break and networking	10 minutes	10:20 – 10:30
➤Steve Todisco / Mike Williams	45 minutes	10:30 – 11:15
➤Discussion and questions	15 minutes	11:15 – 11:30

Definitions

- Lets start with a few quick definitions!
- MAA (Main Accumulation Area)
- SAA (Satellite Accumulation Area)
- RCRA (Resource Conservation and Recovery Act)
- DOT (Department of Transportation)
- EPCRA (Tier II) Emergency Planning and Community Right to Know
- SPCC (Spill Prevention Control and Countermeasures)
- HSWA (Hazardous and Solid Waste Amendments)

RCRA The Resource Conservation and Recovery Act of 1976

Originally conceived as a law addressing municipal trash disposal, Subtitle C of RCRA was included to give the U.S. Environmental Protection Agency (EPA) the authority to regulate hazardous waste. This includes the generation, transportation, treatment, storage, and disposal of hazardous waste.



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HSWA The Hazardous and Solid Waste Amendments of 1984

HSWA continued where RCRA, Subtitle C left off, including: adding mandates for the regulation of small quantity generators, restrictions on land disposal of hazardous waste, regulation of underground storage tanks (USTs), and corrective action provisions to prevent RCRA facilities from becoming Superfund sites.

What Regulations Came Out of RCRA?

Federal Hazardous Waste Regulations promulgated by the US Environmental Protection Agency (EPA) under 40 CFR



..... and

Additional Hazardous Waste Regulations Imposed by your State



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Who's Regulated under State & Federal RCRA Regulations?

➤ **Generators**

➤ **Transporters**

➤ **Treatment, Storage and Disposal Facilities (TSDFs)**

Environmental Regulations



A hazardous waste is defined as a waste that is considered by USEPA to:

- 1) *Cause or contribute to an increase in mortality or an increase in irreversible or incapacitating reversible illness; or*
- 2) *Pose a threat to human health or the environment when improperly treated, stored, transported, disposed of or otherwise mismanaged.*

Proper Waste Determination

These materials could be considered hazardous waste for several reasons, including. . .

They are ignitable (e.g., ethanol)

They are a specifically-listed compound (e.g., nicotine, warfarin)

They are reactive (e.g., nitroglycerine)

They contain heavy metals (e.g., selenium, mercury, silver, barium)



Proper Waste Determination- Waste Codes Overview

All hazardous wastes are identified in the regulations by EPA waste code. Each waste code has a specific definition. It is required that the generator of a waste review these waste codes and determine if his waste meets the definition of one or more of the codes.



Proper Waste Determination- Waste Code Examples



D001 Ignitability

Flammable liquids, e.g., ethanol

Flammable gases, e.g., flammable aerosol

Oxidizers, e.g., silver nitrate swabs



Proper Waste Determination- Waste Code Examples



D002 Corrosivity

Acids and Bases

e.g., **glacial acetic acid**



Characteristic Wastes (D-List)

D003 Reactivity



Includes:

**Unstable Compounds Capable of Violent Chemical Change,
Dangerous When Wet Materials, Explosives, and Certain Cyanide
or Sulfide-Bearing Wastes Capable of Liberating Toxic Gases
When Subject to High or Low pH Conditions**

Proper Waste Determination- Waste Code Examples



D004-D043

Environmentally Toxic

40 specific contaminants known to be toxic to aquifers supplying drinking water. These contaminants are considered hazardous waste when they leach concentrations above a particular concentration threshold.



Proper Waste Determination- Waste Code Examples



D004-D043

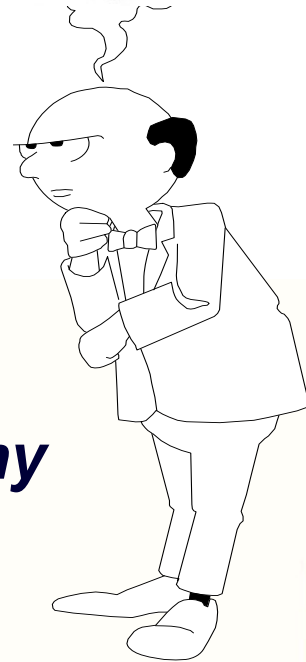
Environmentally Toxic

Examples:

Barium > 100 ppm: **D005** e.g., *lower GI radiography*

Mercury > 0.2 ppm: **D009** e.g., *thimerosol*

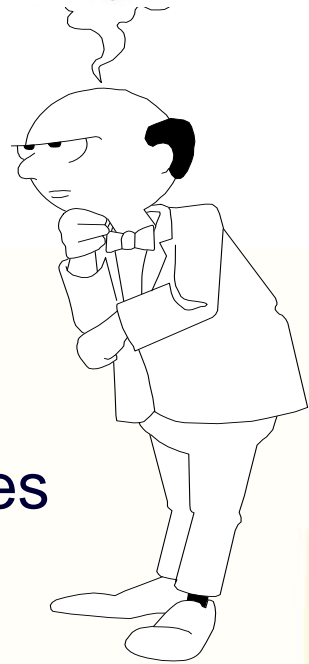
Silver > 5.0 ppm: **D011** e.g., *silver nitrate swabs*



Proper Waste Determination- Waste Code Examples



Unused Chemicals U001- U411



A long list of individual unused chemicals, which if discarded are considered hazardous waste. Includes many common industrial chemicals that are either ignitable, corrosive, reactive, or toxic properties.

Proper Waste Determination- Waste Code Examples



Highly Hazardous Unused Chemicals (Acute Hazardous Wastes) **P023-P205**

A long list of individual unused chemicals, which if discarded are considered hazardous waste. The P- listed chemicals are particularly hazardous, many of which are highly poisonous or reactive. P-wastes are referred to as “acute hazardous wastes”.



How to increase RCRA compliance and employee awareness

➤ At the point of generation / At the SAA (satellite accumulation area)

➤ At the MAA (Main Accumulation Area)

➤ Training

Majority training

Point of generation training

How to increase RCRA compliance and employee awareness

➤ At the point of generation / At the SAA (satellite accumulation area)

Right Sizing of the waste container

Point of generation consolidation

Proper hazardous waste determinations

Training

How to increase RCRA compliance and employee awareness

- At the MAA (Main Accumulation Area)
- Think of this as an opportunity to start fresh
- Assess the current rooms status.
- What needs to be done before I bring new material in?
- Is location acceptable for local fire department?

Do I need to...

- Seal the floor...
- Paint the walls...
- Update/test ventilation system...
- Do I have proper lighting installed...
- Is my electrical intrinsically safe/explosion proof...
- Bonding and Grounding?
- Where will my eyewash/safety shower be located...
- How will my limited access work...
- Who needs access...
- Rubber matting and secondary containment pallets...

Next...

- The next thing to do is to develop a layout and a master plan on how to implement these ideas.
- Get the needed input from those who will be in direct access to the Main Accumulation area.

Include finalized copies in your...

- Emergency action plan
- Use to post for Evacuation routes
- Contingency Plan

Internal communication

- A phone system within the MAA will serve as an internal communication system.
- Don't forget to post any needed phone numbers for emergency numbers and contact information. (Inside / outside)
- Example: 9-911

Safety

➤ This is also a great place to mount your evacuation routes including, all exits, fire extinguishers, eyewashes, and safety showers.



Internal MAA Safety

- Eyewash/Showers...need to be in a centralized area with extremely easy unobstructed access (10 second standard)
- Fire extinguishers...unobstructed locations.
- Fire suppression system- CO2 (signage).
- Adequate water supply.
- Clear exit markings.
- Make sure drums are grounded to line.

Separation of consolidated and lab pack wastes.

- ✚*Signage extremely important.
- ✚Show visual or physical separation for lab pack wastes V.S consolidated wastes.
- ✚Rubber matting or secondary spill decks for drums.
- ✚Shelving/bins for lab pack waste
 - Shelving not too high
 - Corrosives below eye level
 - Non hazardous material on top

How to increase RCRA compliance and employee awareness

➤ Training

Majority training

Point of generation training

➤ This is where a lot of unnecessary fines come from

Keep your training records!

Waste management efficiencies

➤ Believe it or not bulking up to larger containers saves \$\$.



Or



Waste management efficiencies

➤ If I ship 20 x 5 gallon containers yearly, can I instead ship 2 or 3 (55 gallon containers), and if so what is the cost:

➤ 5 gal Cost = $\$125.00 \times 20 = \$2,500.00$, or

➤ 55 gal cost = $\$175.00 \times 3 = \525.00

Waste Management Efficiencies

➤ Maintenance

Develop a routine compliance calendar

➤ Monitoring

Develop a routine compliance calendar

➤ Inspections

Develop a routine compliance calendar

Waste Management Efficiencies

- Laboratory
- Facilities
- Buildings and Grounds
- Research
- Clinical
- Manufacturing

Creative recycling options

- Solvents Recycling, or Fuels Blending
- Non – Hazardous Material
- Cylinders
- Acid / Base Neutralization
- Universal Waste
 - Keeping things out of the hazardous waste stream
- Virgin Product Resale

Point of generation V.S. consolidation practices

➤ Complete an SAA Assessment

What am I really generating here?

Can it be combined?

Is it safe to do so?

Does everyone in my lab generate similar waste streams?

Is it more cost effective to bulk or lab pack this material?

Understanding disposal options

- Incineration
- Wastewater Treatment
- Recycling / Reclamation
- Landfill

Streamlining hazardous waste shipments

➤ Maximize storage opportunities whether you are a small or a large quantity generator.

Ask yourself the questions – Can my room store waste for 90 or 180 days?

Can I store this material in a more efficient manner?

Can I have less frequent lab packs and maybe more frequent drum pickups?

- ◆ Sometimes driver time is included in the pick up or transportation fee, and lab pack chemist or Technician time is not

Correct Contact information

Mutual agreement on a routine pickup date and time

Developing meaningful metrics

➤ Is the juice really worth the squeeze?

Excel?

Access?

Palm Pilots?

Something Custom?

◆ Advise

What is it your looking for in this data?

Above all it has to provide you
with the information you need

Summary
[Messages](#)
[Tasks](#)
[Inventory](#)
[Inspections](#)
[Packing-Slips](#)
[Manifests](#)
[Reports](#)
[Profiles](#)
[Contacts](#)
[Buildings](#)
[Admin](#)
A. Foley (Triumvirate Hospital - Admin)
November 01, 2007 3:18:49 PM
[<](#) **November 2007** [>](#)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Search for ...

Key word:

Compliance Summary
► Last Access
▼ Tasks

You have 6 active tasks.

Priority	Task	Due
	speak to Dr. Humphrey	October 30, 2007 4:00 PM
	run inspection reports	October 30, 2007 5:00 PM
	schedule tank cleaning	October 31, 2007 5:00 PM
	meet with chemist	November 5, 2007 5:00 PM
	call TSR to schedule drum pickup	November 7, 2007 2:00 PM
	set up SAA's in new research building	November 29, 2007 5:00 PM

▼ Message Center

You have 1 new message.

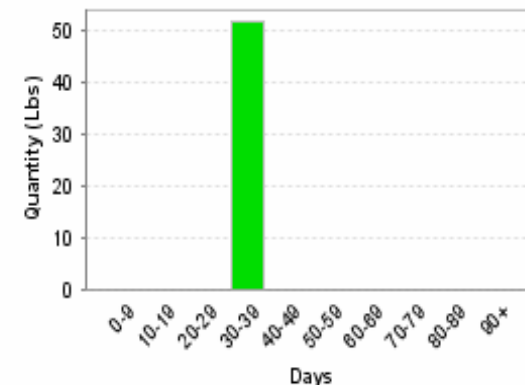
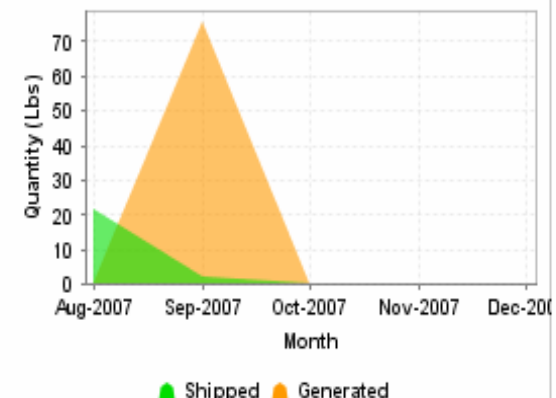
Building	Subject	Num
Pavilion	pick up 4 liter bottle of chemical waste	1

► Inventory Manager
▼ Inspection Manager

The following storage areas have inspection warnings and alerts.

Status	Storage Area	Building
--------	--------------	----------

Summaries

 Summarize for:
Inventory Aging

Waste Quantity Managed By Month


Questions????

↘ Any Questions????

Steve Todisco, HEM, CHMM
Senior Healthcare Account
Manager

stodisco@triumvirate.com

339-226-0524

Let's take a short 10 Minute break



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Hot Topics

Lab Pack in Progress



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Lab Pack in Progress

➤ Have you ever heard of this?

➤ Do you have onsite support help that is familiar with the “lab packing” of waste?

➤ What is a lab pack?

What is a Lab Pack?

- 1. Categorizing small containers of chemicals, solvents, industrial supplies, etc.
- 2. Repackaging and packing them into drums with compatible absorbent.
- 3. Labeling and preparing the drums to be shipped for disposal.
- It's how inner containers leave your site.

Lab Pack in Progress

- Similar to storing drums in bulk fashion
- Less Containers to inspect, and less liability
- Saves shelf Space



Lab Pack in Progress

- ✚ Follows the same regulations as a “bottle” of hazardous waste
- ✚ Allows for full 90 or 180 day accumulation

Lab Pack in Progress

➤ Remember to inspect these containers just like you would inspect any other container.

Leaking

Secondary Containment

Labeling

Proper Drum Markings

Attach a packing list for all applicable constituents



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Lab Pack in Progress

➤ Some quick Cons

- Space Issues

- Not just everyone can lab pack

- Requires proper training

➤ Some quick Pro's

- Saves Money

- Ship Less full containers over time

- Less onsite time for waste contractors

- Less potential compliance issues

Hot Topic

Pharmaceutical Waste Management



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EPA Press Release March 3, 2005

➤ Pharmaceutical Waste Management violations

➤ EPA seeks \$171,050 from local healthcare organization for Hazardous Waste Violations. Some of the violations were:

Failure to make proper hazardous waste determination

Improper storage & labeling of hazardous waste

Failure to inspect hazardous waste



Pharmaceutical Waste Collection Management

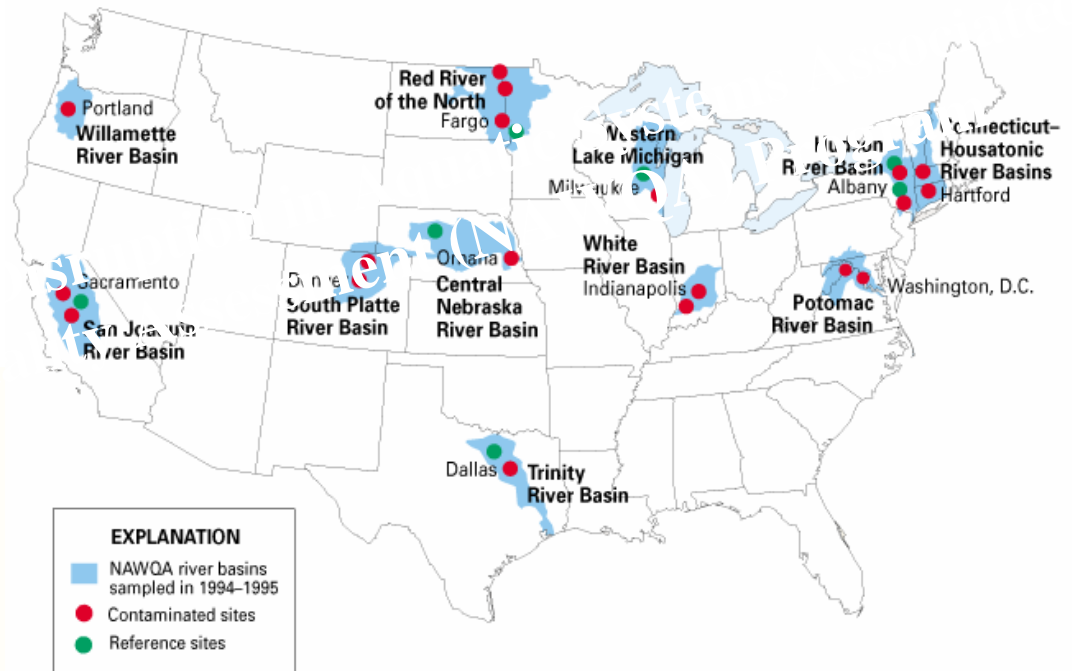
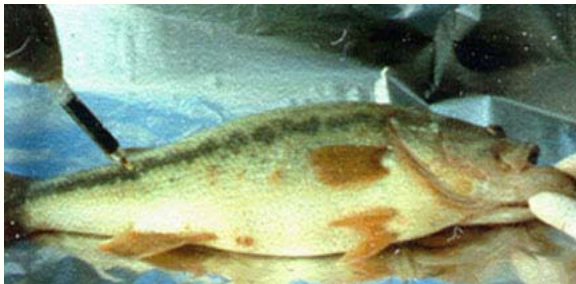


Figure 1. Sampling site locations in basins for national reconnaissance investigation, 1994. Major cities within basins are identified for reference.



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Pharmaceutical Waste Management

- Determining how this will effect you
Generator Size and State
- Characterizing your “Formulary”
- Reviewing your “Returns Program”
- Educational Labels and Signage

Pharmaceutical Waste Management

➤ Identifying new SAA's and New Waste Streams

➤ Employee Education

Pharmacy

Nursing

➤ Choosing Waste Containers

➤ Coding Systems

H-waste

H-waste

Pharmaceutical Waste Management

- Policies and Procedures
- Avoiding Multi – Media inspections from your local state inspectors
- Feel comfortable with change
- Universal Waste Pharmaceuticals

Hot Topics

Project Jumpstart



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Project Jumpstart

Understand the “big picture” of current compliance status

Focus on a corporate strategic view of current environmental, health, and safety programs



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Project Jumpstart

- Evaluate existing programs and systems from a risk management perspective
- Develop a strategic vision for an environmental, health, and safety platform
- Address identified issues of non-compliance through a corrective action plan

Project Jumpstart

- Implement the corrective action plan
- Execute customized program to ensure timely compliance
- Provide resources to ensure program sustainability and assist in safety committee creation
- Centralize EH&S function to allow employees to focus on primary job responsibilities and mission-critical projects

Project Jumpstart

➤ Disciplinary Focus

RCRA - Hazardous Waste

OSHA - employee safety

EPCRA - Community & Emergency Planning

DOT - Transportation

TSCA - Controlled Substances

NFPA/Fire Code - Local Flammable Storage

DHS - Chemicals of Interest & Security

Environmental

Safety

Wastewater

Waste Management

CAA - Air Review

CWA - Water Review

Bio-safety

Wastewater

Radiation Safety



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Oil SPCC

Oil Spill Prevention Control & Countermeasure (SPCC)



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What do you need to know?

- ✚ Oil SPCC Plans are required under the Clean Water Act
- ✚ Objective: To minimize the potential for releases to “waters of the U.S.”
- ✚ Regulations: 40 CFR Part 112
- ✚ Federal vs. State regulation
- ✚ Applicable to most, but not all facilities

What are “waters of the U.S.”

- Wetlands
- Rivers
- Lakes
- Streams (including intermittent streams)
- Ponds
- Ocean



What is the applicability criteria?

Based on containers or equipment with capacity 55 gallons or greater:

✚ Underground Storage Tanks (USTs) - greater or equal to 42,000 gallons

✚ Aboveground Storage Tanks (ASTs) - greater or equal to 1,320 gallons

Note: Refers to aggregate amounts of oil onsite

40 CFR 112.1 General Applicability

What is regulated?

-Categories of Oil

➤Petroleum oils

Crude and refined petroleum products, asphalt, gasoline, fuel oils, mineral oils, naphtha, sludge, oil refuse, oil mixed with wastes

➤Animal fats and vegetable oils

Lard, tallow, cod liver oil, corn oil, grapeseed oil, coconut oil, palm oil, peanut oil

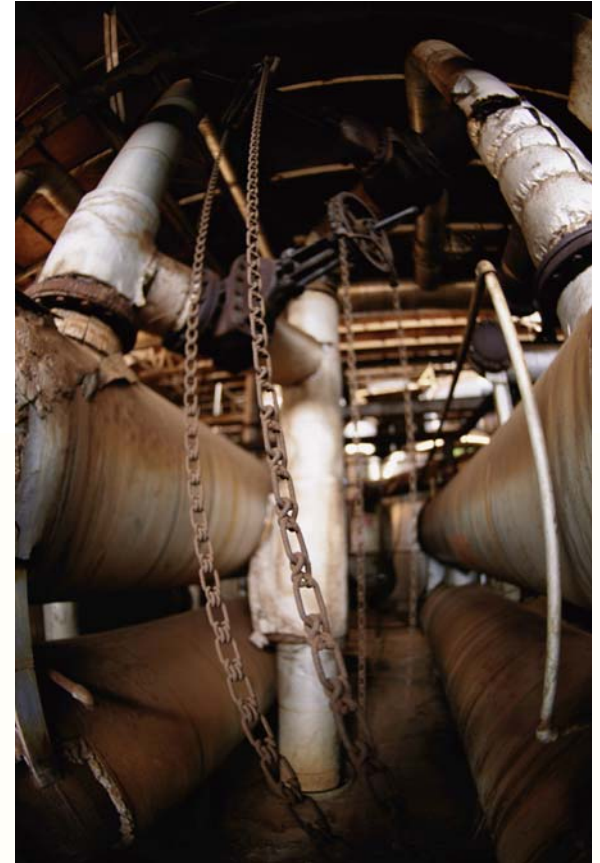
➤Other non-petroleum oils

Coal tar, silicon fluids, pine oil, turpentine, tall oils

40 CFR 112.2 Definitions

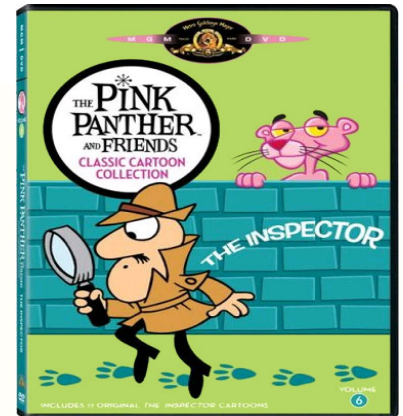
What are examples of oil-filled operational equipment?

- Hydraulic elevators
- Transformers
- Circuit breakers and electrical switches
- Emergency generators (gen-sets)
- Machining coolant systems
- Gear boxes
- Heat transfer systems



How often are inspections of oil storage containers and equipment performed?

- In accordance with the schedule set forth in the facility's Oil SPCC Plan
- Dependent on volume and location
- Per industry standards (ANSI, etc.)
- PE recommendation



How are inspections performed?

✚ Per good engineering standards:

On an established, routine schedule to determine leaks, spills, other deficiencies

Deficiencies are documented and reported

Corrective measures are taken asap and documented

✚ Records must be kept for 3 years

What is the Professional Engineer's role?

- Must certify that the plan meets regulatory requirements (secondary containment) and industry standards (tank integrity testing)
- Note: Self-Certification is allowed if total storage quantity is <10,000 gallons

So what is in an Oil SPCC Plan?

- ✚ Complete oil storage container, tank and equipment inventory
- ✚ Site plan with locations of all tanks, container and equipment
- ✚ Procedures for bulk deliveries or transfers
- ✚ Oil spill emergency response procedures
- ✚ Emergency contacts
- ✚ Spill reporting procedures
- ✚ Inspection schedule
- ✚ Description of employee training
- ✚ Professional Engineer Certification or Self-Certification

Thank You!!

➤Triumvirate Environmental Inc.

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