


Collaborative Bachelor's Degree Program of Fire Protection and Safety
Engineering Technology between Southwest Jiaotong University and
Oklahoma State University, U.S.A.




FPST 3013


Safety Management

Environmental Management

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Regulations



- Easy...land, water and air
 - Not so easy
 - Page 330

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Most publicized

<https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0201290#bkground>

CERCLA – LOVE CANAL

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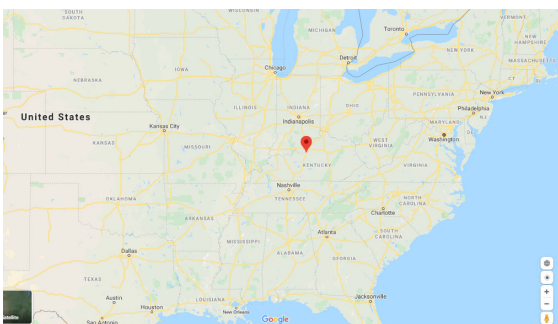
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Valley of the Drums



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<https://www.youtube.com/watch?v=sMHmy-95Mrl>
<http://www.nytimes.com/1985/08/12/us/toxic-cloud-leaks-at-carbide-plant-in-west-virginia.html>
<https://www.epa.gov/epcra/what-epcra>


EPCRA – BHOPAL

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EPCRA




- TRI
 - Toxic Release Inventory
 - Requires reporting of the manufacture, processing, or use of toxic chemicals, throughout the course of a calendar year (not just at any one point in time), in excess of the typical reporting threshold of 25,000 pounds for most chemicals manufactured or processed, or 10,000 pounds for "otherwise used". The specific toxic chemicals which need to be reported come from a list the EPA updates each year, which currently contains over 650 toxic chemicals
 - <https://www.epa.gov/toxics-release-inventory-tri-program/tri-program-fact-sheet>
- Tier II
 - Required to provide emergency planning agencies (i.e. fire department, etc.) and your community, in general, information on the hazardous materials you store at your facility
 - Required to report the presence of hazardous materials at any one time in excess of 10,000 pounds for most chemicals (be advised that others have much lower reporting thresholds).

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EPCRA





- SERC
 - State Emergency Response Commission
 - Responsible for implementing EPCRA provisions within its state
- LEPC
 - Local Emergency Planning Committee
 - Must, among other things, develop an emergency response plan and provide information about chemicals in the community to citizens
 - Plans are developed by LEPCs with stakeholder participation

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SWDA






Solid Waste Disposal Act - 1965





Established a framework for states to better control solid waste disposal and set minimum safety requirements for landfills



Established economic incentives for states to develop planning, training, research, and demonstration projects for the management of solid waste

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No specific event occurred resulting in the need for regulation

RCRA



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RCRA

- The Resource Conservation and Recovery Act (RCRA),
 - 1976 amendment to the SWDA
 - address the huge volumes of municipal and industrial solid waste generated nationwide
 - The goals set by RCRA are:
 - To protect human health and the environment from the potential hazards of waste disposal
 - To conserve energy and natural resources
 - To reduce the amount of waste generated
 - To ensure that wastes are managed in an environmentally sound manner
 - "Cradle to grave"


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RCRA




Amended several times since 1976



Significantly amended in 1984, by the Hazardous and Solid Waste Amendments (HSWA)

Many amendments but the main theme was to reduce the reliance on land disposal facilities



Main RCRA regulations: 40 CFR 260 - 299

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Types of Waste



- Home
 - Hazardous
 - Domestic sewage
 - Trash/ordinary recyclables
- Industrial
 - Hazardous
 - Universal
 - Used Oil
 - Special (non-hazardous)
 - Domestic sewage
 - Trash/ordinary recyclables

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Hazardous Waste ID



- Determine if the waste
 - A characteristic hazardous waste
 - Ignitable
 - Corrosive
 - Reactive
 - Toxic
 - A listed hazardous waste
 - Non-specific source
 - Specific source
 - Acutely toxic
 - Toxic

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Generators



- **LQG**
 - Greater than or equal to 1,000 kilograms (2200 pounds) of non-acute hazardous waste; **OR**
 - Greater than 1 kilogram (2.2 lbs) of acute hazardous waste listed in §261.31 or §261.33(e)
- **SQG**
 - Greater than 100 kilograms (220 lbs) but less than 1,000 kilograms (2200 lbs) of non-acute hazardous waste; **AND**
 - Less than or equal to 1 kilogram (2.2 lbs) of acute hazardous waste listed in §261.31 or §261.33(e)
- **VSQG**
 - Less than or equal to 100 kilograms (220 lbs) of non-acute hazardous waste; **AND**
 - Less than or equal to 1 kilogram (2.2 lbs) of acute hazardous waste listed in §261.31 or §261.33(e)

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CAA



- **Major sources** are defined as a stationary **source** or group of stationary **sources** that emit or have the potential to emit 10 tons per year or more of a hazardous **air** pollutant or 25 tons per year or more of a combination of hazardous **air** pollutants.
 - Title V Permit
- **Minor Source**
 - **NSR** Permit
- **NAAQS**
 - CO, Pb, O₃, PM, NO₂, SO₂
- Violations result in huge penalties including jail time

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CWA



- NPDES
 - National Pollution Discharge Elimination System
 - Permit required for direct discharge to the environment
- POTW
 - Publically Owned Treatment Works
 - Way less stringent permit when discharging to a city treatment facility
- SWPPP
 - Storm Water Pollution Prevention Plan
 - Permit required to discharge storm water from property and requires plan

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<https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act>

TSCA



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OPA

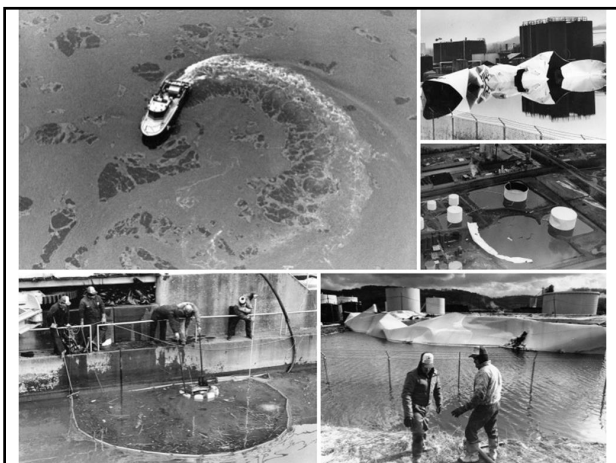
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Background

- 1972
 - Congress passed the Federal Water Pollution Control Act
 - Amended in 1977 as Clean Water Act
 - Primary Federal statute for protection of water resources in U.S.
- 1973 Initial **SPCC** regulations adopted by U.S. EPA.
- January 1988
 - Ashland Oil Company's four million gallon aboveground storage tank collapsed spilling 3.8 million gallons of diesel fuel into Monongahela and Ohio Rivers. Drinking water supplies were impacted for one million people in Pennsylvania, Ohio and West Virginia.

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Background (cont.)



- In response to the '88 Ashland spill, EPA formed an SPCC Task Force:
 - Focus on the prevention of large, catastrophic oil spills
 - Make recommendations on the SPCC program

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Where is this?



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Background (cont.)

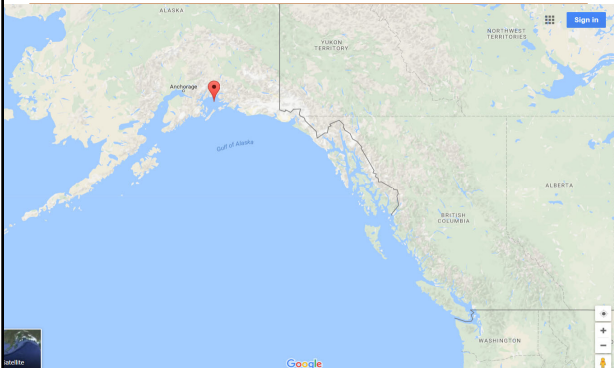


- In response to the '88 Ashland spill, EPA formed an SPCC Task Force:
 - Focus on the prevention of large, catastrophic oil spills
 - Make recommendations on the SPCC program
- March 24, 1989
 - Exxon Valdez
 - How much spilled?
 - 11 million gallons of crude

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Prince William Sound, Alaska



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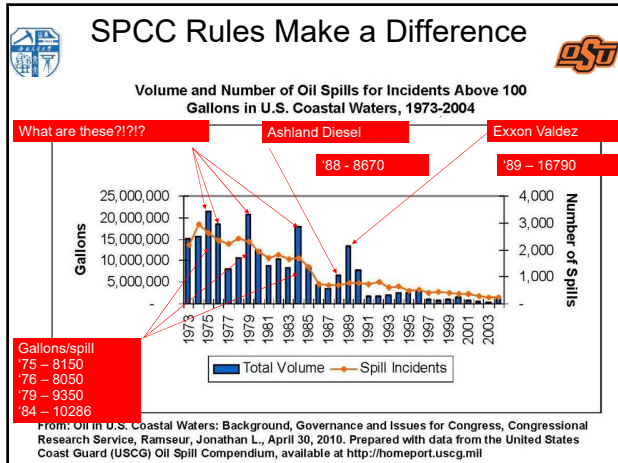


Background (cont.)



- The new law led to complete overhaul of SPCC rules. Series of new rules proposed 1991, 1993, 1994, 1997, and 1999.
- 2002
 - New SPCC rules adopted by U.S. EPA.
 - EPA sued by the American Petroleum Institute et al.
- EPA adopted revised rules in 2006, 2008 and 2009 but repeatedly delayed compliance dates....
- January 2010
 - All rules became effective.
- November 10, 2010
 - Compliance date for all facilities (except new oil production)
 - New oil production facilities have up to 6 months after completion of facility
 - **21+ Years after Exxon Valdez**

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SPCC

- Spill Prevention Control and Countermeasures
- 1,320 gallons of oil storage capacity onsite
- "Oil" is any petroleum based product
- Must be in a 55 gallon container or bigger
 - Containers smaller than 55 gallons are not included in the total for "oil storage capacity"

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ENVIRONMENTAL MANAGEMENT

LAND, AIR AND WATER

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