

The slide features a collage of three images. The top-left image shows a stream flowing through a lush green forest. The top-right image shows a cityscape with a large, snow-capped mountain in the background under a blue sky. The bottom-left image is a close-up of a rocky stream with white water rapids.

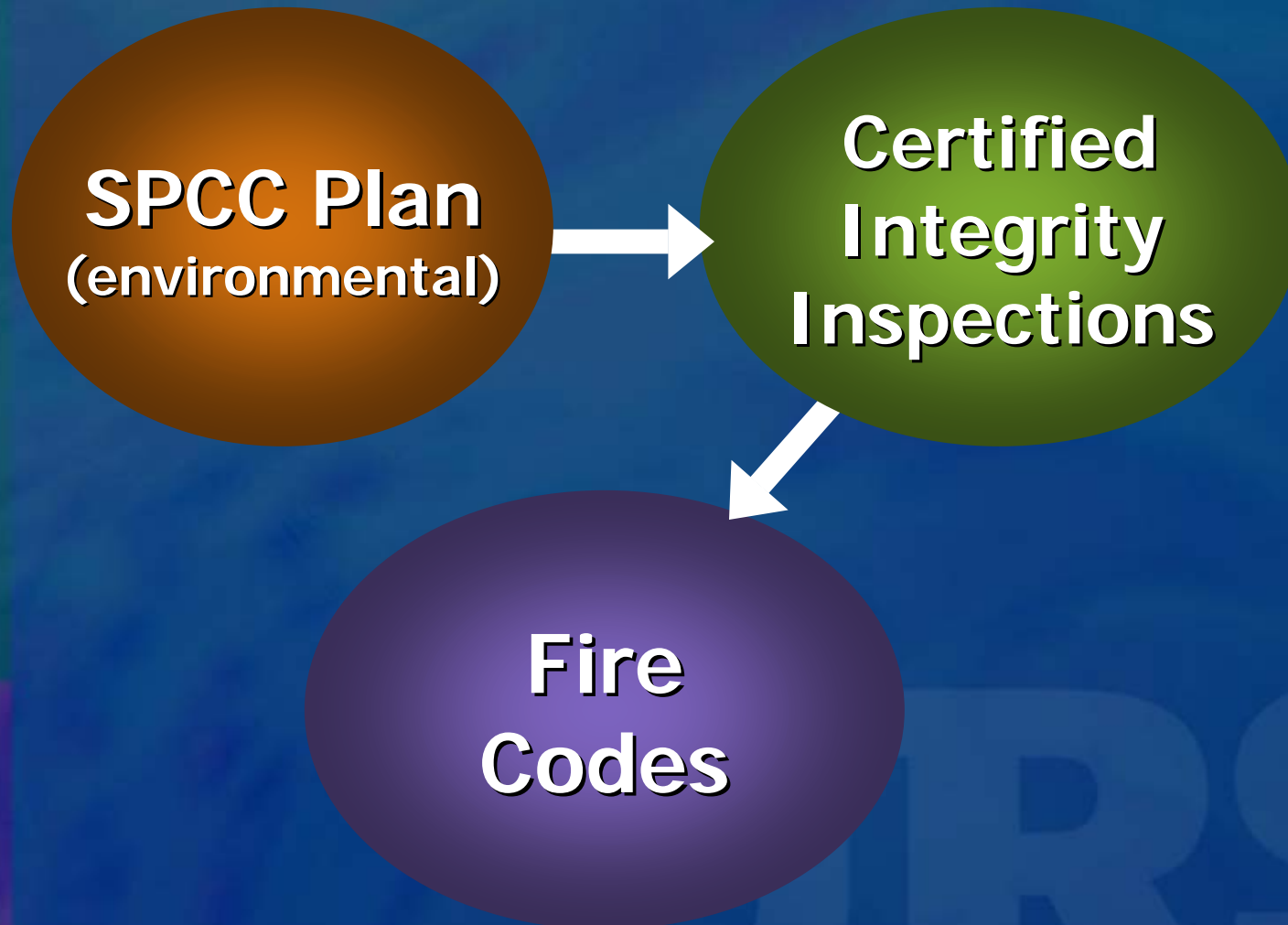
**Confusion for Tank Owners:  
When Integrity Testing  
Finds Tank Deficiencies  
Not Directly Referenced  
in the SPCC Rule**

FRESHWATER SPILLS SYMPOSIUM 2006

presented by  
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**URS**

# Link Between SPCC Plan and Fire Codes





# Purpose of Presentation

- Describe the relationship between government regulations and industry guidance.
- Describe the confusion tank owners may have when integrity testing discovers tank deficiencies not discussed in the SPCC Rule.
- Show the advantages for tank owners to receive more information about fire codes from SPCC Plan preparers and tank inspectors.

# Overview of Presentation

- Overview of Regulations
- Compliance with Regulations
- Tank Inspections
- Tank Owner Confusion
- Potential Consequences of Tank Deficiencies
- Conclusions

# Overview of Regulations

- Environmental
  - ◆ Spill prevention
  - ◆ Spill countermeasures and containment
- Fire Prevention
  - ◆ Oil tank spill reaching ignition source
  - ◆ Fire Code issues



Photo courtesy of  
Core Engineered  
Solutions

Dual Compartment Convault Protected AST (U.L. 2085)

*There is an overlap between environmental and fire prevention issues.*

## Overview of Regulations

# Federal

- 40CFR112 – Spill Prevention, Control, and Countermeasures (SPCC) Rule
  - ◆ SPCC Plan required if facility has aboveground storage capacity greater than 1,320 gallons of oil.
  - ◆ A revision of the SPCC rule became effective August 16, 2002.
  - ◆ The current SPCC compliance date to revise and implement Plan is October 31, 2007.

## Overview of Regulations

# Federal

- 29CFR1910.106 – OSHA Standards for Flammable and Combustible Liquids
  - ◆ Applicable to any business with containers storing materials that meet flammability and combustibility definitions
  - ◆ Includes gasoline and diesel fuel
  - ◆ Provisions similar to industry fire codes



## Overview of Regulations

# State / Local

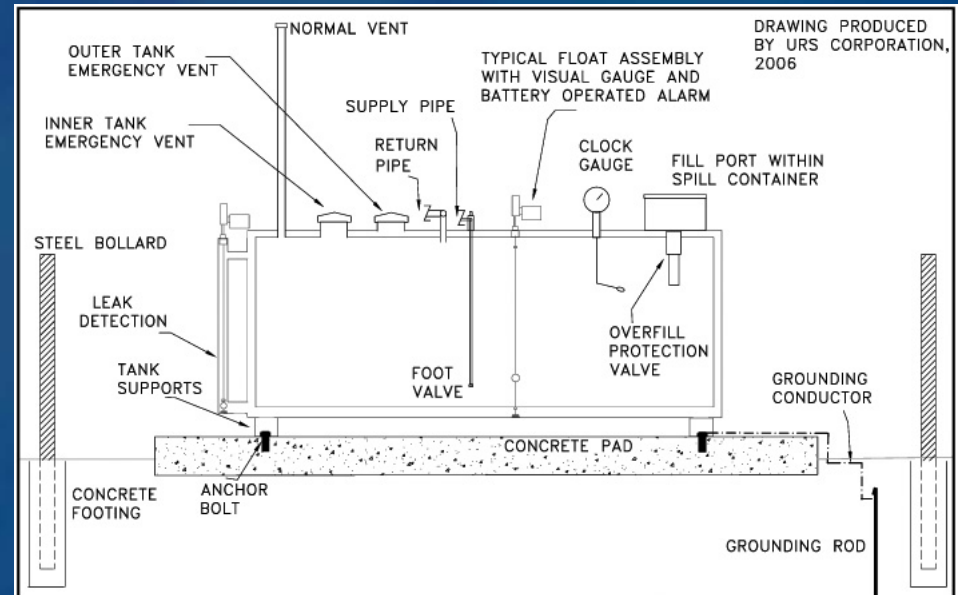
- State and local AST regulations generally address:
  - ◆ tank installation and registration
  - ◆ spill containment
  - ◆ release reporting
  - ◆ fire prevention
  - ◆ corrective action procedures
  - ◆ tank closure requirements
- State / local fire marshal usually has important oversight role.



# Overview of Regulations

## Industry Standards and Codes

- Commonly, industry standards are partially or wholly adopted by state or local government oil control programs.
- Standards are not legally enforceable unless adopted or referenced by an applicable government regulation.



Typical U.L. 142 Double-Wall Aboveground Oil Storage Tank

# Compliance with Regulations

- Potentially significant number of aboveground tank systems do not meet regulatory or industry standards.
- Tank deficiencies are due to a variety of causes such as:
  - ◆ Poor structural integrity
  - ◆ Improper installation
  - ◆ Tank placement
  - ◆ Missing or broken tank equipment
  - ◆ Poor maintenance



Clock gauge

# Compliance with Regulations

## Common Tank Deficiencies

- Environmental issues:
  - ◆ Failure of structural integrity or tank tightness test
  - ◆ No overfill protection / spill control
  - ◆ Broken tank gauge
  - ◆ Malfunctioning overfill or leak detection alarms
  - ◆ No or undersized secondary containment
  - ◆ No integrity testing program / no baseline data



Overfill protection valve

## Compliance with Regulations

# Common Tank Deficiencies

- Fire code issues:
  - ◆ Tank support structure inadequate
  - ◆ Venting indoors
  - ◆ No grounding
  - ◆ No emergency vent on inner or outer tank
  - ◆ Vent / vent pipe not adequately sized
  - ◆ Pipe not properly supported
  - ◆ Shared vent with another tank
  - ◆ Tank too close to adjacent tank
  - ◆ Tank unprotected from damage by vehicular traffic
  - ◆ Combustible materials in dike area



# Compliance with Regulations

- Environmental and fire code deficiencies discovered by:
  - ◆ Tank failure or evidence of leak
  - ◆ Tank inspection by government inspector
  - ◆ Tank evaluation as part of SPCC Plan preparation
  - ◆ Certified inspections as per the SPCC rule or state regulations

# Tank Inspections

- Federal SPCC Rule:
  - ◆ Test each bulk storage aboveground container for integrity on a regular schedule and whenever material repairs made.
  - ◆ After the new Integrity Testing requirements go into effect on 10-31-07, integrity testing will require visual inspection combined with another testing technique.
  - ◆ A Professional Engineer (P.E.) may use Environmental Equivalence (EE) or create a hybrid integrity testing program in accordance with good engineering practice.

# Tank Inspections

- State/local integrity testing regulations are in some cases more stringent than the federal SPCC rule.
- The scope and interval of the certified integrity testing will depend on factors such as tank type, volume, configuration, age, and condition.
- The SPCC Guidance for Regional Inspectors by EPA provides detailed guidance concerning tank inspection and integrity testing.
- A certified (integrity) inspection must be performed as per industry standard(s) referenced in the SPCC Plan.

# Tank Inspections

- Examples of Environmental Equivalence (*for new Integrity Testing requirements going into effect 10-31-07*)
  - ◆ Shop-built containers with a shell capacity of 30,000 gallons or less, combining visual inspection with either:
    1. elevation of container in a manner that decreases corrosion potential and makes all sides of container visible, or
    2. placement of a non-permeable barrier between container and ground,would be considered equivalent to non destructive testing methods.



# Tank Inspections

- Examples of Environmental Equivalence (continued)
  - ◆ For tanks that meet these conditions, a P.E. must document an EE determination in the SPCC plan, and the equivalent test method must be in accordance with good engineering practices.
  - ◆ At a minimum, periodic visual inspections are needed by a qualified inspector (as determined in the standard).

## Tank Inspections

# Industry Standards

- STI SP001 (July 2005)
  - ◆ Provides an inspection schedule based on tank size and configuration
  - ◆ Formal inspections include tank foundation, supports, secondary containment, drain valves, ancillary equipment, piping, vents, gauges, grounding system, stairways, and coatings
- API 653 (November 2005):
  - ◆ Requires certified inspections based on a tank's service history
  - ◆ Certified inspection intervals of 5–20 years depending on the tank size and configuration

# Tank Owner Confusion

- Once a SPCC Plan signed by a P.E., the next step is for the owner / operator to implement the Plan.
- This may include tank upgrades, employee training, and integrity testing.
- However, because fire code issues are not generally discussed in SPCC Plans, there may be no expectations on the part of the tank owner that fire code issues are relevant.

# Tank Owner Confusion

- Incorrect expectations and confusion concerning integrity testing:
  - ◆ Many SPCC Plans may lack sufficient detail about integrity testing.
  - ◆ Owners may not be aware that certified inspection requires more than just a structural integrity test.
  - ◆ A certified inspection report is likely to discuss tank deficiencies in terms of industry codes and regulatory citations but may not provide a direct link between the applicable regulations and the industry standard which covers the actual deficiency.



# Potential Consequences of Tank Deficiencies

- Tank failure resulting in oil spill, fire, or loss of generator power
- Possible fines from government inspections for fire code violations
- Increase in cost or loss of tank insurance
- Underestimated and inefficient spending for tank upgrades
  - ◆ In some cases, the decision to upgrade a tank or replace it could change based on additional upgrades required to meet fire codes

## Conclusion

- Certified inspections should be a significant route through which tank deficiencies are discovered.
- A general understanding of fire code issues during the SPCC Plan stage will better enable tank owners to address tank deficiencies and thus avoid subsequent problems.

## Conclusion

- SPCC Plan preparers should provide tank owner some context concerning fire codes.
- Companies that perform certified integrity testing should explain to their clients the relationship between the integrity test industry standards they must adhere to and government regulations.

# Questions?

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