



Clean Water Best Management Practices

SPCC and SWPPP Compliance

31st Annual Sustainability & Environmental Health & Safety Symposium
March 30, 2022

Anita Evenson – Trinity
Chris Kahn – Frost Brown Todd LLC



trinityconsultants.com

Anita Evenson – Senior Consultant

- ▶ Came to Trinity in December 2017 via acquisition of QSEM Solutions
- ▶ Experience providing multi-media support to a wide range of industries and clients in several states
- ▶ B.S. Chemical Engineering
 - Rose-Hulman Institute of Technology



Chris Kim Kahn

- Member in the Environmental Practice Group at Frost Brown Todd LLC
- Counsels clients on regulatory matters and regularly counsels buyers, sellers, and lenders on environmental risks in real estate and corporate transactions. Defends clients in federal and state enforcement actions.
- Conducts environmental audits and internal investigations for industrial clients, including root cause analyses and voluntary self-disclosures under state and federal audit policies and statutes.
- Prior to joining FBT, Assistant Attorney General at the Ohio Attorney General's Office.



Agenda

- ▶ CWA, SWPPP, and SPCC Entwined
- ▶ SWPPP Overview
- ▶ SPCC Overview
- ▶ SPCC Enforcement
- ▶ Spot the Issues



CWA, SWPPP, and SPCC Entwined

Key Definitions

- ▶ CWA – Clean Water Act
 - Primary US EPA law governing water pollution to restore and maintain chemical, physical, and biological integrity of WOTUS
- ▶ SWPPP – Stormwater Pollution Prevention Plan
 - Outlines actions a facility will take to minimize and prevent potential negative impact on storm water quality
- ▶ SPCC – Spill Prevention Control and Countermeasure Plan
 - Establishes procedures, methods, and equipment for prevention, minimization and response to oil discharges

CWA Relationship to SPCC and SWPPP

- ▶ CWA gives US EPA authority to implement pollution control programs
 - Ohio, Indiana, and Kentucky are delegated to issue permits to protect WOTUS
 - Each state has general stormwater permits and issues NPDES that require SWPPP
 - 40 CFR 112, SPCC regulations, is a federal program



SWPPP Applicability

- ▶ Requirement of Ohio, Kentucky, and Indiana general stormwater permits
- ▶ Industrial activities that require stormwater permits include –
 - Loading and unloading operations
 - Outdoor storage and process activities
 - Dust/particulate generating processes
 - Waste management activities

SPCC Applicability

- ▶ Federal Regulation – 40 CFR 112
- ▶ Applicability determination made by facility
 - No 40 CFR 112 requirement to submit under typical circumstances
- ▶ Facilities with an aggregate aboveground oil storage capacity of greater than 1,320 U.S. gallons AND “reasonable expectation of an oil discharge” to waterway or adjoining shoreline
 - Includes only oil containers with a capacity of 55 gallons or greater
 - Includes oil-filled operational equipment
 - ◆ Transformers, gear boxes, hydraulic reservoirs, etc.

SWPPP Overview

Intent of SWPPP

- ▶ Identify potential sources of stormwater pollution
- ▶ Describe practices/methods to reduce pollutants reaching stormwater discharges
- ▶ Detail procedures a facility will implement to comply with conditions of stormwater permit



Contents of SWPPP

- ▶ Pollution prevention team identified
- ▶ Site description
- ▶ Summary of potential stormwater pollution sources
- ▶ Description of control measures and best management practices (BMP)
- ▶ Schedules and procedures
- ▶ Certification by facility management



SWPPP Pollution Prevention Team

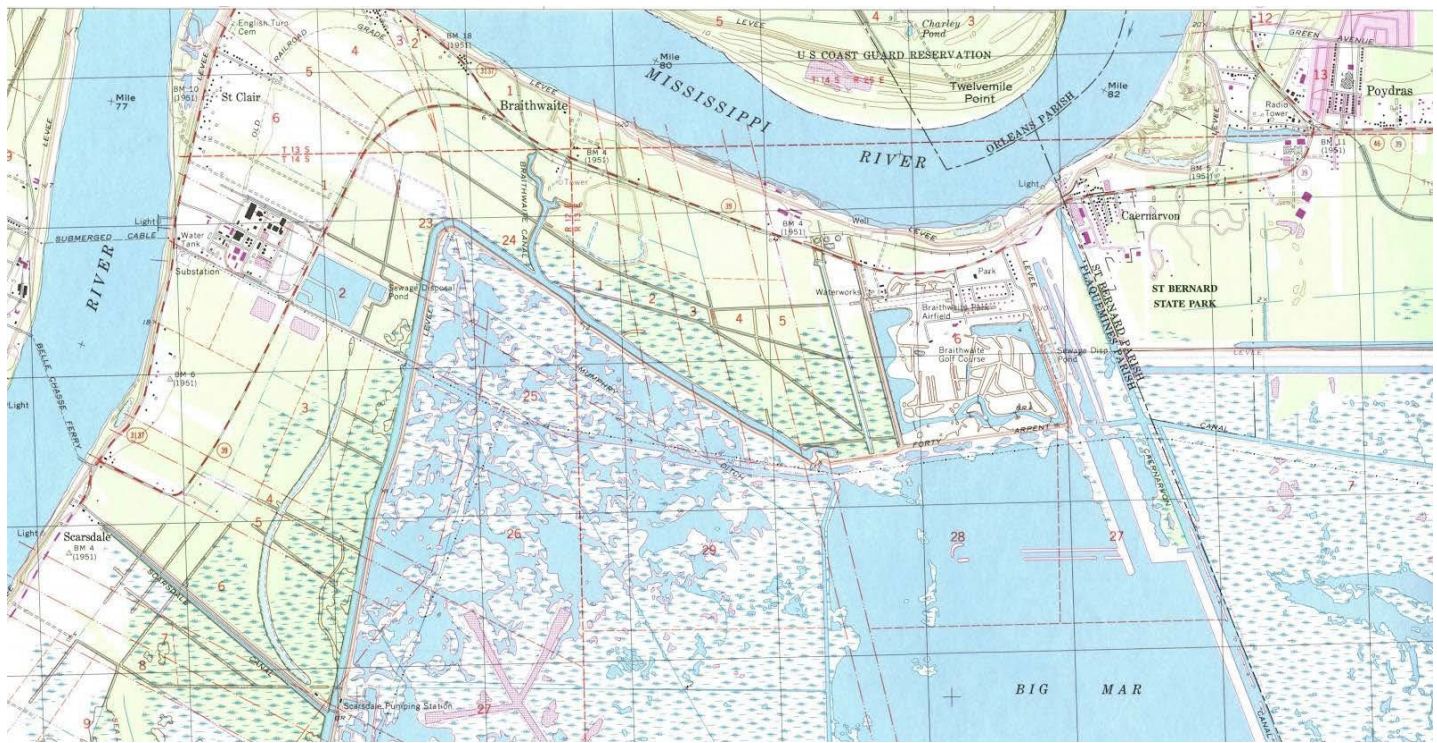
- ▶ Identify facility staff on team
 - By NAME and TITLE
 - Individual responsibilities
- ▶ Team responsibilities
 - Overseeing development of and updates/modifications to SWPPP
 - Implementing and maintaining control measures
 - Completing corrective actions
- ▶ SWPPP team support other programs



SWPPP Site description

- ▶ Activities performed at the facility – emphasis on outdoors
- ▶ “Zoomed-out” general location map
- ▶ Summary of potential pollutant sources
- ▶ Detailed site/facility map
 - Property boundaries and structures/buildings
 - Surface types (pervious, impervious)
 - Direction of stormwater flow
 - Potential stormwater pollutant sources with control measures
 - Stormwater outfalls with monitoring points

SWPPP General Location Map Example



SWPPP Summary of Potential Pollution Sources

- ▶ Describe areas at your facility where industrial materials or activities are exposed to stormwater
- ▶ For each area identified –
 - List of industrial activities exposed to stormwater
 - Pollutants that could be exposed to precipitation and discharges
 - Where potential spills and leaks could occur
 - Unauthorized non-stormwater discharges evaluation
 - Sampling data to be collected

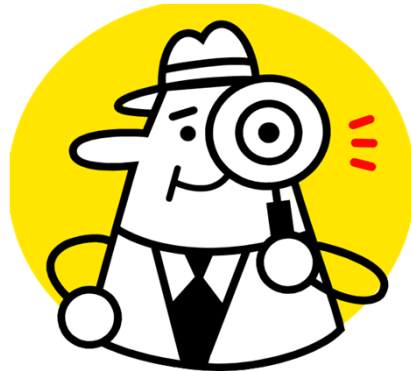


SWPPP Control Measures Description

- ▶ Look at state specific guidelines
- ▶ Good housekeeping – maintain a clean and orderly facility
- ▶ Best management practices – devise realistic maintenance program and implement
- ▶ Spill prevention and response procedures – can borrow from SPCC
- ▶ Manage runoff – reduce pollutants from discharging to stormwater
- ▶ Physical controls – containment, erosion/sediment
- ▶ Employee training – document!
- ▶ Routine inspections – typically monthly and comprehensive annually

SWPPP Procedures – Inspections and Assessments

- ▶ Routine (monthly) visual facility inspections by trained staff
- ▶ Periodic inspections of outfalls, some states require analytics
 - Carefully read permit for submittal schedule of sampling
 - Sample early!
- ▶ Document any items found on inspections are corrected promptly



SWPPP Facility Management Certification

- ▶ Facility/plant manager should understand SWPPP
- ▶ Sign state-specific certification statement
- ▶ Keep one hard copy of SWPPP with signature

I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A handwritten signature in black ink, appearing to read "R. C. [unclear]".

SWPPP and SPCC Master Inventory Workbook

- ▶ SWPPP and SPCC
- ▶ Map locations
- ▶ Process/facility area
- ▶ Type of oil-filled item
- ▶ Container identification
- ▶ Contents
- ▶ Volume
- ▶ Container material
- ▶ Year installed
- ▶ Potential failures
- ▶ Prediction of flow
- ▶ Containment type and volume
- ▶ Integrity testing
- ▶ Requirements for other plans

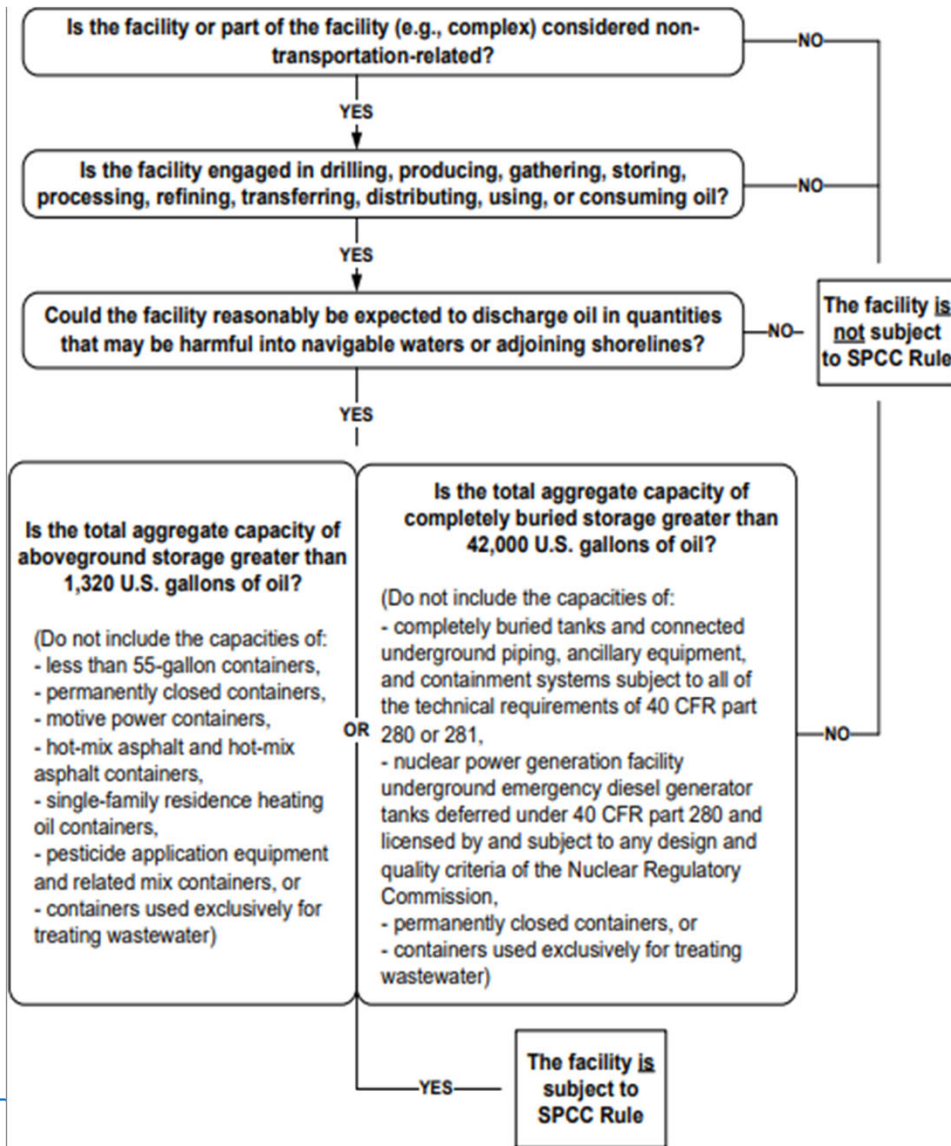


SPCC Overview

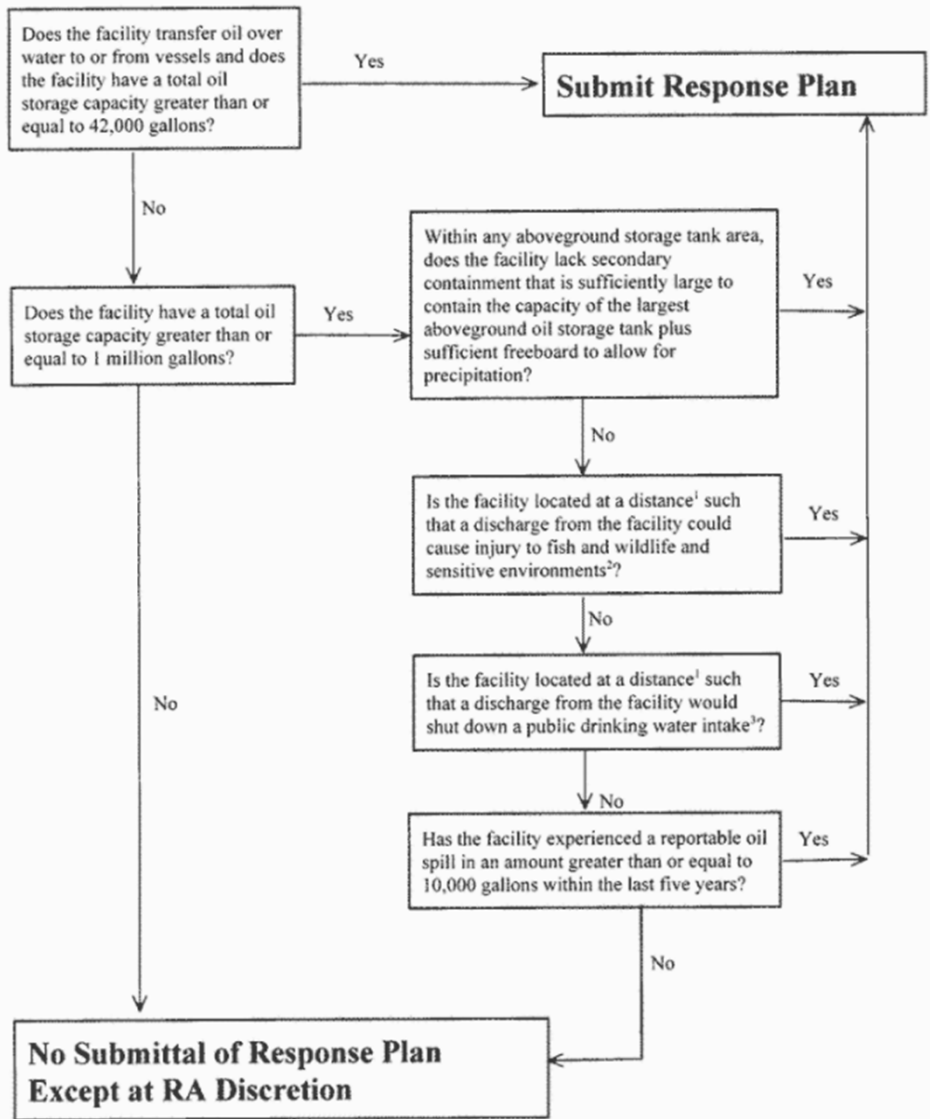
US EPA SPCC Guidance for Regional Inspectors



SPCC Guidance for Regional Inspectors, December 16, 2013 (epa.gov)



US EPA SPCC Rule Applicability Flowchart



US EPA Flowchart for Substantial Harm

SPCC “Reasonable Expectation” of Discharge

- ▶ Geography – Proximity of facility to nearby navigable waters
- ▶ Transport of “oil” offsite –
 - Ditches, creeks, streams
 - Sewers (onsite and offsite)
 - Precipitation runoff
 - Groundwater



SPCC “Reasonable Expectation” of Discharge



What is an “Oil”?

- ▶ EPA definition (40 CFR 112.2): **oil of any kind or in any form**, including, but not limited to:
 - Fats, oils, or greases of animal, fish, or marine mammal origin
 - Vegetable oils, including oils from seeds, nuts, fruits, or kernels; and
 - Other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil
 - Typically, only provides determination AFTER spills
- ▶ Rule-of-thumb: if it causes a sheen on water, consider it an oil

“Oil” Definition – EPA Guidance

- ▶ No EPA test method to demonstrate a material is SPCC regulated oil
- ▶ Facility is responsible for determining if a material is/is not oil
- ▶ List of oils and oil-like materials that EPA references now resides on the Department of Homeland Security website (same list as U.S. Coast Guard’s list)
- ▶ EPA can determine during inspection/investigation or after discharge/ incident that the material does have oil-like properties or acts like an oil
 - Site can be held accountable after the fact, was discharged material managed appropriately under SPCC regulations?
- ▶ Small amounts of “oil” in a mixture can require “oil” classification

“Oil” Examples

Oil Examples

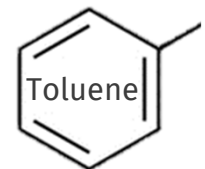
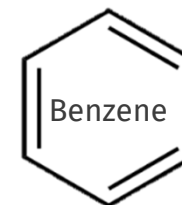
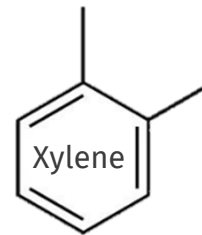
- ▶ Petroleum Oils
 - Gasoline or diesel
 - Asphalt
- ▶ Synthetic Oils
 - Heat transfer oil
 - Dielectric oil (transformers)
- ▶ Wastes
 - Oil-water mixtures
 - ◆ e.g., Produced Water, Natural Gas Condensate
 - Used Oil covered under 40 CFR 279
 - Hazardous waste containing some oil

▶ Miscellaneous

- Denatured Ethanol
- Biodiesel
- Mineral Spirits (C7-C12 hydrocarbons)
- Vegetable Oils
- Fatty Acids

Not an Oil

- ▶ Propane or Liquid Natural Gas
- ▶ Clean Water Act Hazardous Substances (40 CFR 116)
 - Benzene
 - Toluene
 - Xylenes



Oil Inventory – Items to Include

- ▶ Bulk storage containers – shell capacity
- ▶ Mobile/portable storage containers
 - Drums
 - Totes
- ▶ Oil-filled operational equipment (OFOE)
 - Transformers
 - Hydraulic equipment
 - Heat transfer systems
- ▶ Oil-filled manufacturing equipment
 - Flow-through process vessels
 - Reactors
- ▶ Oil-handling areas
 - Bulk oil loading/unloading operations



Calculating Total Volume “Oil” Stored – DO NOT Include

- ▶ Containers less than 55 gallons
- ▶ Permanently closed containers – defined in 112.2
 - All liquid and sludge removed from container and connecting line **AND**
 - All connecting lines/piping disconnected/blanked off from container **AND**
 - All valves (except for ventilation valves) closed and locked **AND**
 - Conspicuous signs posted on each container stating permanently closed container with closure date
- ▶ Permanently closed does not require removal – Container may be “opened”
 - Technical update to SPCC if “closed” container is “opened”

Oil Inventory Examples

(1) Bulk Unloading Truck



(2) Haz Waste Drum ~1% Oil



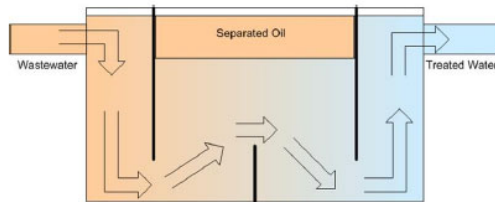
(3) Diesel-fired Engine/Generator



(4) Diesel-fired Lift



(5) Oil-water Separator



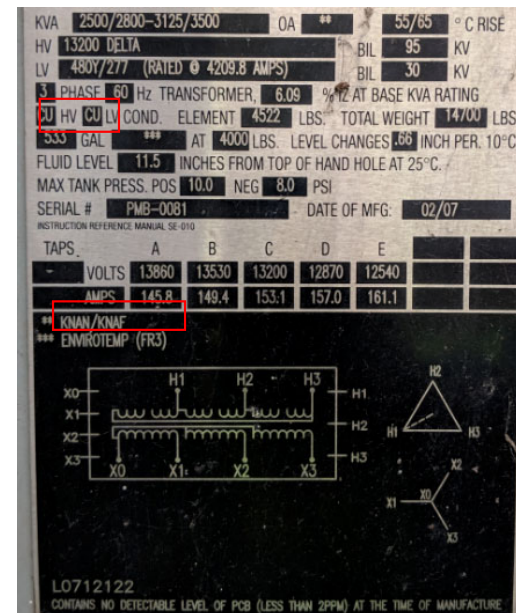
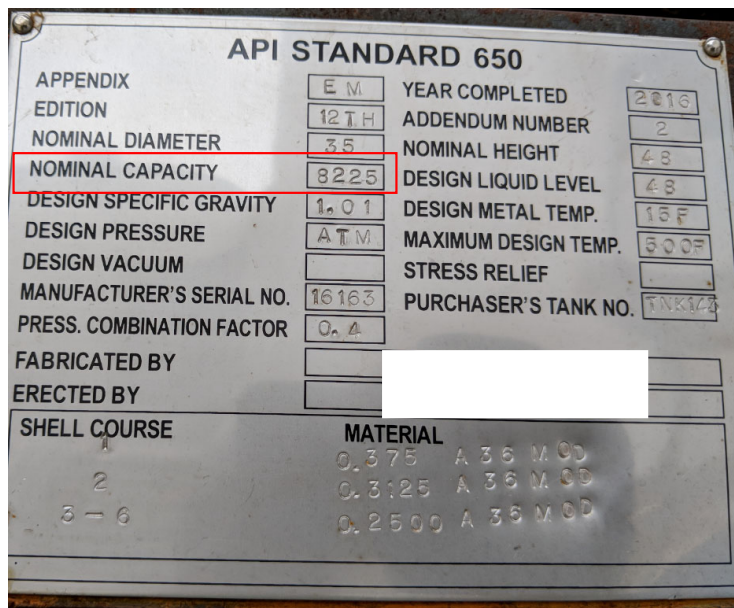
(6) 60-gallon Parts Washer



Which of these items should be included in the Oil Inventory?

Oil Inventory – Additional Caution

- ▶ Read tank and transformer nameplates
- ▶ “Work backwards from bulk storage tanks”



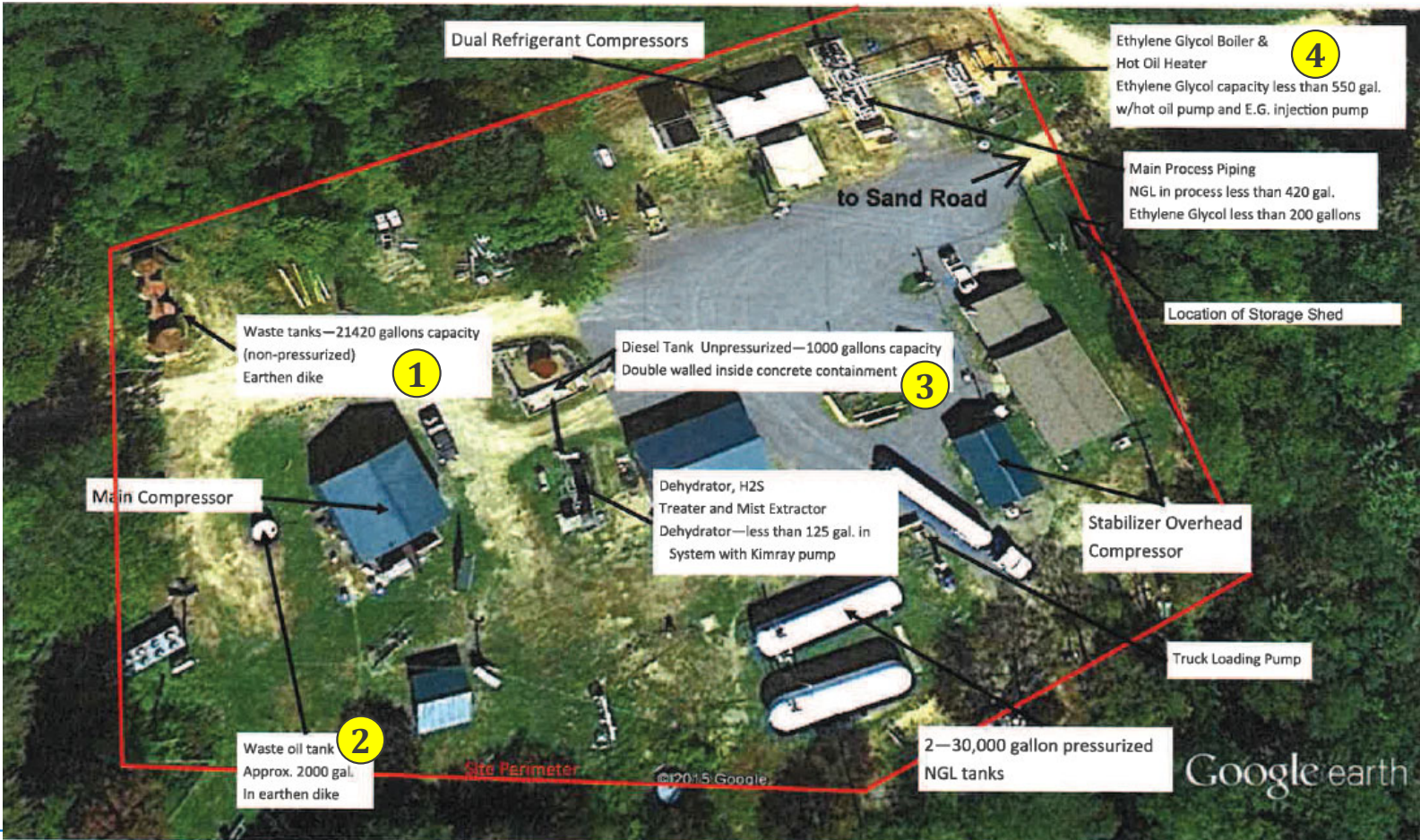
SPCC Plan – Example TOC

TABLE OF CONTENTS	
1. CERTIFICATION INFORMATION	1
2. TIMELINE FOR SPCC PLAN REVIEW [112.5]	2
3. STATEMENT OF RESPONSIBILITY & SPCC CONFORMANCE [112.7(A)(1) & (2)]	4
4. FACILITY DESCRIPTION [112.7(A)(3)]	5
5. SPILL RESPONSE PROCEDURES [112.7(A)(4) & (5)]	7
5.1. Unreportable Spill Response	9
5.2. Reportable Spill Response	9
5.2.1. External Emergency Notification Procedures	9
5.3. Methods of Disposal	10
6. PREDICTION OF FLOW [112.7(B)]	11
7. CONTAINMENT AND DIVERSIONARY STRUCTURES [112.7(C)]	12
8. OIL SPILL CONTINGENCY PLAN AND MANPOWER [112.7(D)]	14
9. INSPECTIONS [112.7(E)]	15
9.1. Inspection Program	15
9.1.1. Oil Containers and Equipment	15
9.1.2. Oil-filled Manufacturing Equipment & Operational Equipment	15
9.1.3. Pumps, Valves, and Gauges	16
9.1.4. Containment Areas	16
9.1.5. Loading/Unloading Areas	16
9.1.6. Response Equipment	16
9.2. Documentation and Recordkeeping	16
10. PERSONNEL, TRAINING, & DISCHARGE PREVENTION [112.7(F)]	17
10.1. Personnel Training [112.7(f)(1)]	17
10.2. Emergency Coordinator [112.7(f)(2)]	17
10.3. Spill Prevention Briefings [112.7(f)(3)]	17
11. SECURITY [112.7(G)]	18
11.1. Access Control	18
11.2. Flow Drains and Valves	18
11.3. Pump Starter Control	18
11.4. Connections to Pipelines	18
11.5. Facility Lighting	19
12. TANK CAR AND TANK TRUCK LOADING/UNLOADING RACK [112.7(H)]	20
12.1. Containment System [112.7(h)(1)]	20
12.2. Warning System [112.7(h)(2)]	20
12.3. Vehicle Inspections [112.7(h)(3)]	20
13. FIELD CONSTRUCTED ABOVEGROUND CONTAINER REPAIR, ALTERATION, RECONSTRUCTION, OR CHANGE IN SERVICE [112.7(I)]	21
14. CONFORMANCE WITH OTHER APPLICABLE REQUIREMENTS [112.7(J)]	22
15. QUALIFIED OIL-FILLED OPERATIONAL EQUIPMENT [112.7(K)]	23
16. SPECIFIC REQUIREMENTS [112.8 / 112.12]	24
16.1. Facility Drainage [112.8(b) / 112.12(b)]	24
16.1.1. Facility Drainage from Diked Areas [112.8(b)(1) & (2) / 112.12(b)(1) & (2)]	24
16.1.2. Facility Drainage from Undiked Areas [112.8(b)(3) & (4) / 112.12(b)(3) & (4)]	25
16.1.3. Drainage Water Treatment [112.8(b)(5) / 112.12(b)(5)]	26
16.2. Bulk Storage Containers [112.8(c) / 112.12(c)]	26
16.2.1. Compatibility of Containers and Product Stored [112.8(c)(1) / 112.12(c)(1)]	26
16.2.2. Secondary Containment [112.8(c)(2) / 112.12(c)(2)]	26
16.2.3. Drainage of Rainwater [112.8(c)(3) / 112.12(c)(3)]	26
16.2.4. Buried Metallic Storage Containers [112.8(c)(4) / 112.12(c)(4)]	26
16.2.5. Partially Buried Metallic Storage Containers [112.8(c)(5) / 112.12(c)(5)]	26
16.2.6. Periodic Integrity Testing [112.8(c)(6) / 112.12(c)(6)]	26
16.2.7. Internal Heating Coils [112.8(c)(7) / 112.12(c)(7)]	27
16.2.8. Liquid Level Control [112.8(c)(8) / 112.12(c)(8)]	27
16.2.9. Facility Effluent Discharged into Navigable Waters [112.8(c)(9) / 112.12(c)(9)]	27
16.2.10. Correction of Container Deficiencies [112.8(c)(10) / 112.12(c)(10)]	27
16.2.11. Mobile/Portable Oil Storage Containers [112.8(c)(11) / 112.12(c)(11)]	28
16.3. Facility Transfer Operations, Pumping, & Facility Process Design and Procedures [112.8(d) / 112.12(d)]	28
16.3.1. Buried Piping Installations [112.8(d)(1) / 112.12(d)(1)]	28
16.3.2. Out-of-Service Piping [112.8(d)(2) / 112.12(d)(2)]	28
16.3.3. Piping Support Design [112.8(d)(3) / 112.12(d)(3)]	28
16.3.4. Inspection of Aboveground Valves and Pipelines [112.8(d)(4) / 112.12(d)(4)]	28
16.3.5. Potential for Damage to Aboveground Piping [112.8(d)(5) / 112.12(d)(5)]	28
APPENDIX A: FACILITY MAPS	A-1
APPENDIX B: OIL INVENTORY	B-1
APPENDIX C: SUBSTANTIAL HARM DETERMINATION CERTIFICATION	C-1
APPENDIX D: OUTSIDE AGENCIES' CONTACT INFORMATION	D-1
APPENDIX E: NOTIFICATION PROCEDURES	E-1
APPENDIX F: CONTAINMENT CALCULATIONS	F-1
APPENDIX G: SPCC INSPECTION PROCEDURES	G-1
APPENDIX H: TRAINING LOGS	H-1
APPENDIX I: UNLOADING/LOADING PROCEDURES	I-1
APPENDIX J: BRITTLE FRACTURE ANALYSES	J-1
APPENDIX K: DIKE DRAINAGE LOGS	K-1
APPENDIX L: ACTION PLAN	L-1

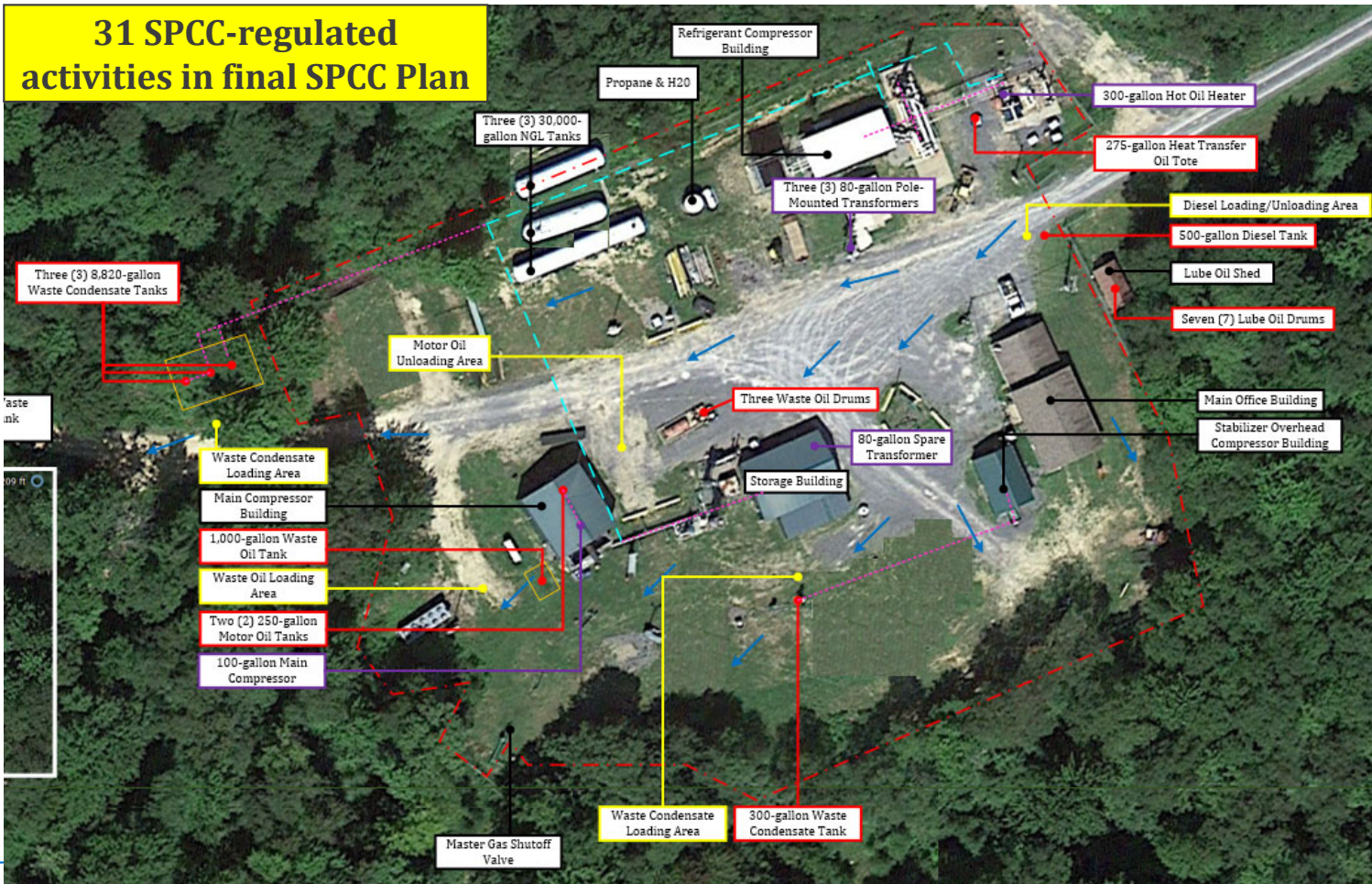
SPCC Site Map Requirements

- ▶ 40 CFR 112.7(a)(3)
- ▶ Describe in your Plan the physical layout of the facility and include a facility diagram, which must:
 - Mark the **location and contents of each fixed oil storage container**, and
 - Mark the storage area where **mobile or portable containers** are located
 - Identify the location of and mark as “exempt” underground tanks
 - Include all **transfer stations and connecting pipes**, including intra-facility gathering lines that are otherwise exempted

SPCC Site Map Example – Before



SPCC Site Map Example – After



Legend

- Material Transfer Operation...
- SPCC-regulated Storage Container...
- Oil-Filled Operational Equipment...
- Storm Water Flow...
- Fenced Area...
- Earthen Berm...
- Buried Oil Piping...
- Aboveground Oil Piping...

Notes

- All unloading and loading areas are for operations.
- Diesel Tank is Double-Walled.

SPCC Secondary Containment Requirement

- ▶ Secondary containment requirements are separated into two categories: general and sized
- ▶ “General” secondary containment must be designed to prevent an offsite discharge of oil – 40 CFR 112.7(c)
 - Applies to all SPCC-regulated containers and oil-handling areas (e.g., oil inventory list), except qualified OFOE
- ▶ “Sized” secondary containment must be designed to hold the **entire capacity of the largest single container and sufficient freeboard** to contain precipitation – 40 CFR 112.7(h)(1), 112.8(c)(2), 112.8/12(c)(11)
 - Applies only to loading/unloading racks, bulk storage containers, and mobile/portable containers

SPCC Sufficient Freeboard

- ▶ EPA did not establish sufficient freeboard in 40 CFR 112
 - 110% of largest tank
 - 25-year, 24-hour precipitation event
- ▶ Good engineering practice (PE certifying SPCC) makes determination
- ▶ Important factors include
 - NOAA data
 - Height of dike wall
 - Volume of container
 - Footprint of containment area
 - Frequency of dike drainage/inspection

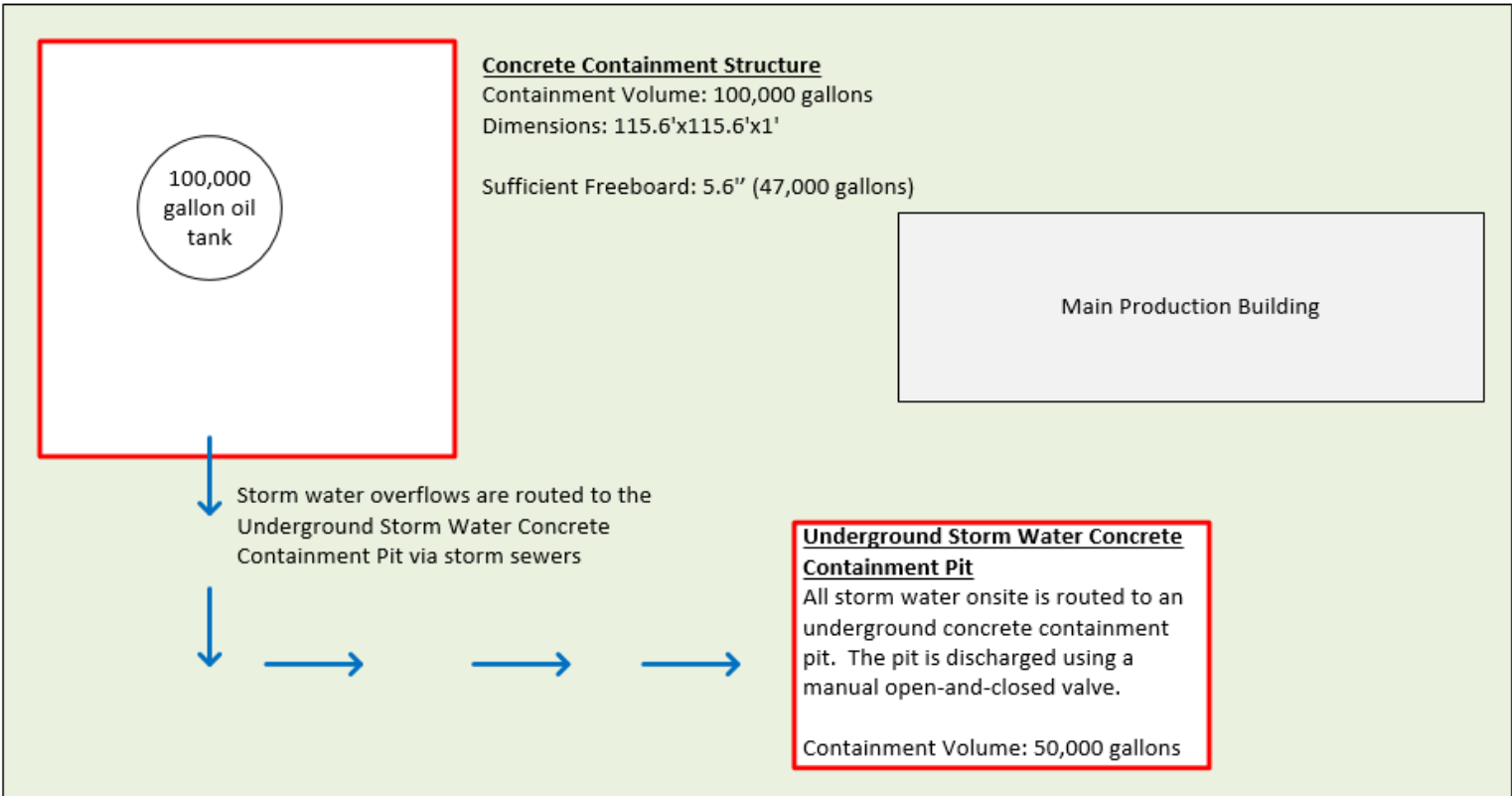


SPCC Common Containment Issues

- ▶ Insufficient secondary containment
 - Not aware of requirements
 - Not understanding “General” vs. “Sized”
- ▶ No means of monitoring interstitial spaces of double-walled tanks
- ▶ Sufficient freeboard not adequately addressed
- ▶ Issues with containment area
 - Containment valves left open
 - Cracks in containment walls
 - Oil present in containment area
- ▶ **Documentation of containment capacity with freeboard**

SPCC Containment Example

Property Boundary



Does the 100,000 gallon tank have adequate secondary containment?

SPCC Integrity Testing – Common Standards

- ▶ Steel Tank Institute Standard SP001, *Standard for the Inspection of Aboveground Storage Tanks*
 - Typically shop-fabricated steel tanks storing stable, flammable and combustible liquids at atmospheric pressure (e.g., diesel, gasoline, etc.)
- ▶ American Petroleum Institute Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*
 - Typically for larger tanks built to API 650 or 12C



SPCC Integrity Testing – Common Concerns

- ▶ Not understanding the inspection frequencies
 - “ACME Company follows the integrity testing requirements of STI SP001 for all ASTs”
 - ◆ STI requires **monthly and annual** visual inspections
- ▶ Assuming the inspection requirements of 40 CFR 112.7(e) meets the integrity requirements
- ▶ Any divergence from industry standards requires PE review and approval

SPCC Inspection – Requirements and Tips

- ▶ Required for all containers, transfer areas/racks, containment areas, and piping
- ▶ Trained and knowledgeable employees perform and document inspection, typically monthly
 - Verify action items from previous inspection completed
 - Checklist/form with all items to inspect, such as –
 - ◆ Excess water in dike/containment areas
 - ◆ Valves are securely closed
 - ◆ Stocked spill kits
 - ◆ Exteriors for deterioration, leaks, instable supports
 - ◆ Gauges, overflow protection systems
 - ◆ Double walled tank interstitial space



SPCC Training of Personnel

- ▶ Conduct annual training for all personnel that handle SPCC materials
- ▶ Can be combined with training for other facility plans
- ▶ Conduct spill kit deployment exercises if required
- ▶ **MUST** be documented



SPCC Technical Amendments

- ▶ Technical – PE certification required
 - Any modification in design, construction, storage capacity, operation, or maintenance that makes existing SPCC inadequate
 - Commissioning or de-commissioning of container
 - Reconstruction, replacement, or movement of containers
 - Reconstruction, replacement, or installation of piping systems
 - Construction or demolition that might alter secondary containment structure
 - Changes of product or service
 - Revision of standard operation or maintenance procedures
- ▶ SPCC must be updated within 6 months

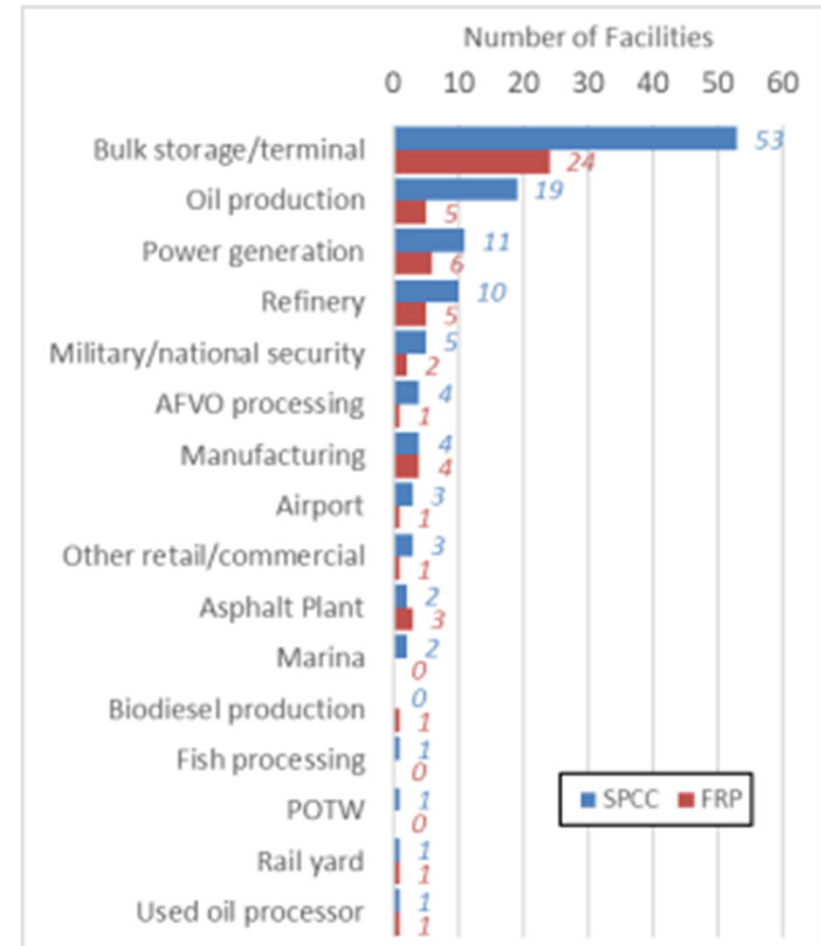


SPCC Enforcement

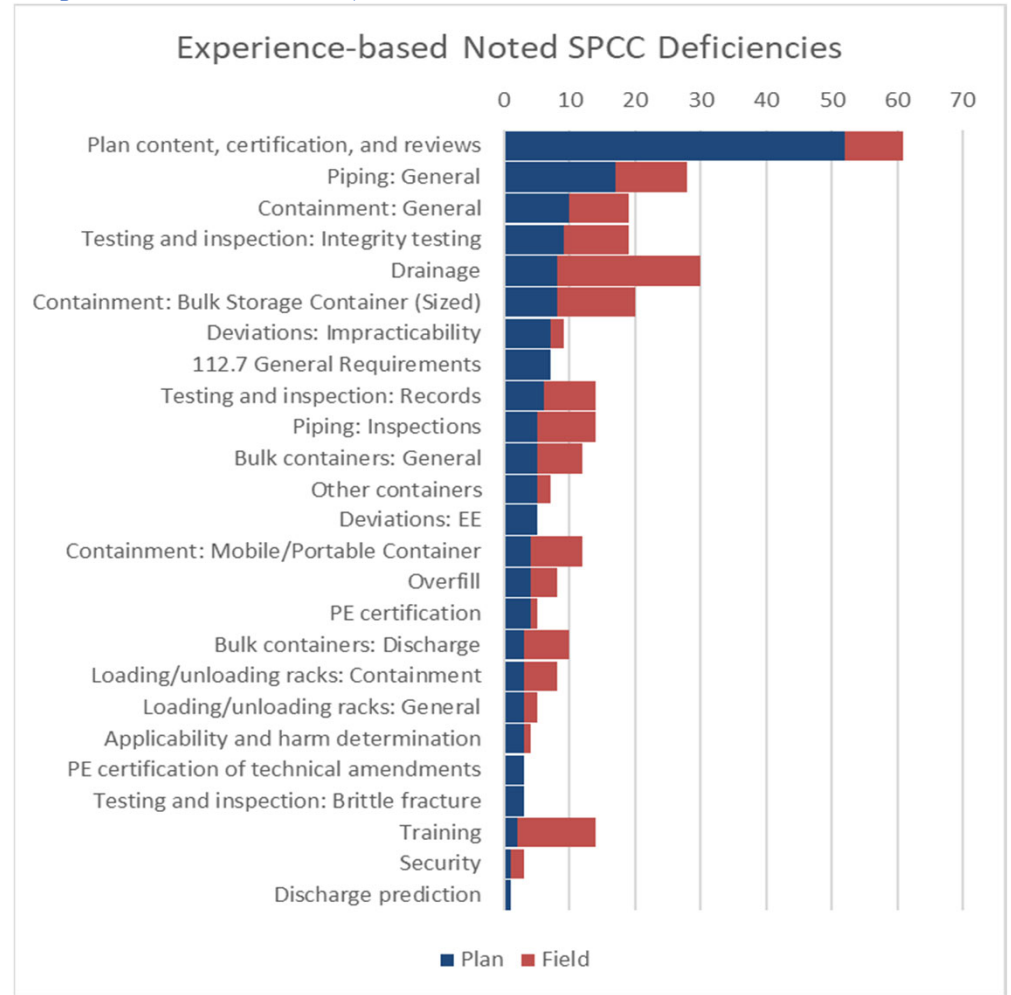
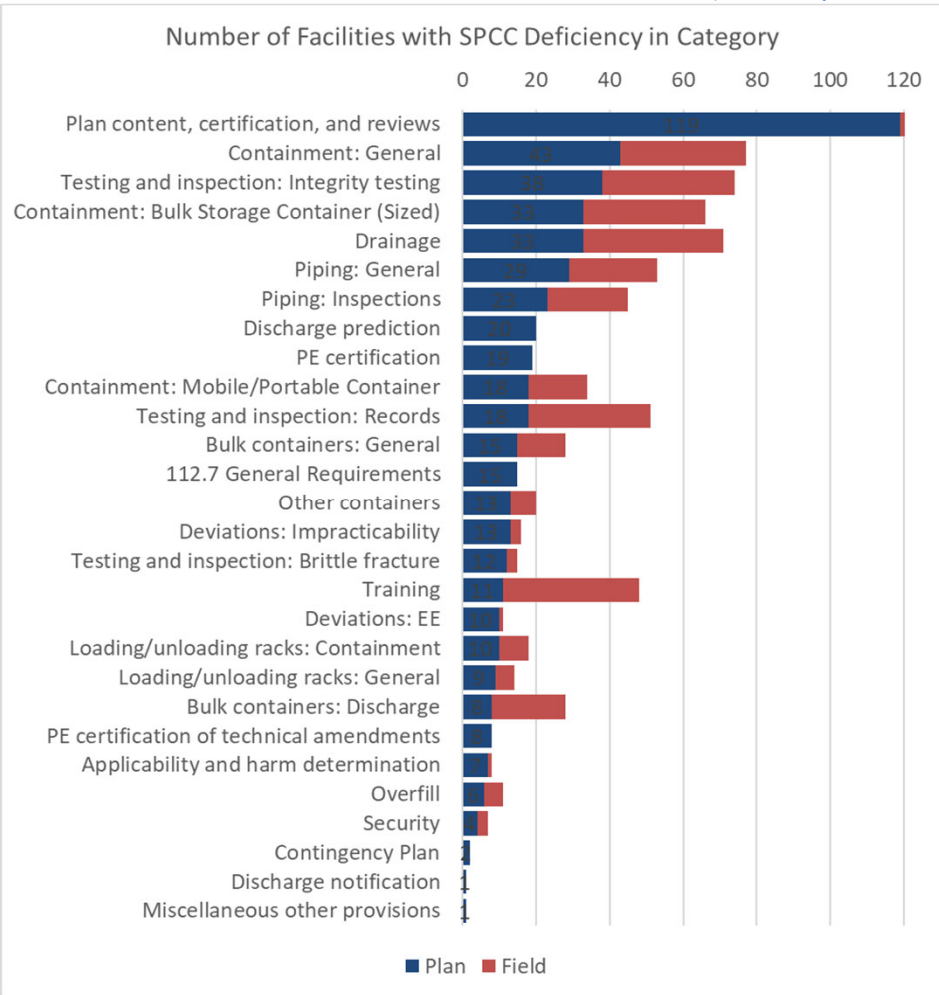
US EPA Factsheet Summary

- Internal quality and consistency review by Office of Emergency Management for SPCC and FRP
 - Factsheet April 2021
 - Webinar May 2021, recording available
- Most common SPCC deficiencies
 - Inadequate documentation of every 5-year review
 - No review/stamp by PE
 - Facility diagrams/map missing information
 - Secondary containment (general and sized) demonstration
 - Integrity testing not addressed thoroughly

Figure 1: Reviewed SPCC and FRP facilities by sector



Most Common SPCC Deficiency Areas based on Sample of Facilities (Left) and Inspector Experience (Right) (Listed by most-to-least frequent Plan deficiencies)



Civil/Administrative Enforcement Cases

Filed/Issued Year	Region 4	Region 5	Nationally
2022	1	0	15
2021	0	0	32
2020	5	1	82
2019	8	2	82
2018	4	5	87

Potential Civil Penalties

- Expedited Settlement Agreements
- U.S. EPA Civil Penalty Policy for Section 311(b)(3) and Section 311(j) of the Clean Water Act

Recent SPCC Enforcement Cases

- Heath Oil, Inc. (Region 3)
 - \$148,000 Civil Penalty
- Buckeye Terminals, Inc. (Region 3)
 - \$67,856 Civil Penalty
- Arlo Moberg 3 Tank Battery (Region 8)
 - \$50,000 Civil Penalty
- Lanai Oil Company (Region 9)
 - \$71,166 Civil Penalty

**Settlements for violations that do not involve spills/releases*

Potential Criminal Enforcement

- Cin-Air LP, S.D. Ohio 2020
 - One year of probation and \$90,000 fine
- Cedyco Corporation, E.D. Louisiana 2012
 - 12 months probation and \$557,000 fine
- Milem, Biggio, Snow, S.D. Indiana 2010
 - 36 months probation and federal fines of \$5,000-\$15,000

Spot the Issue

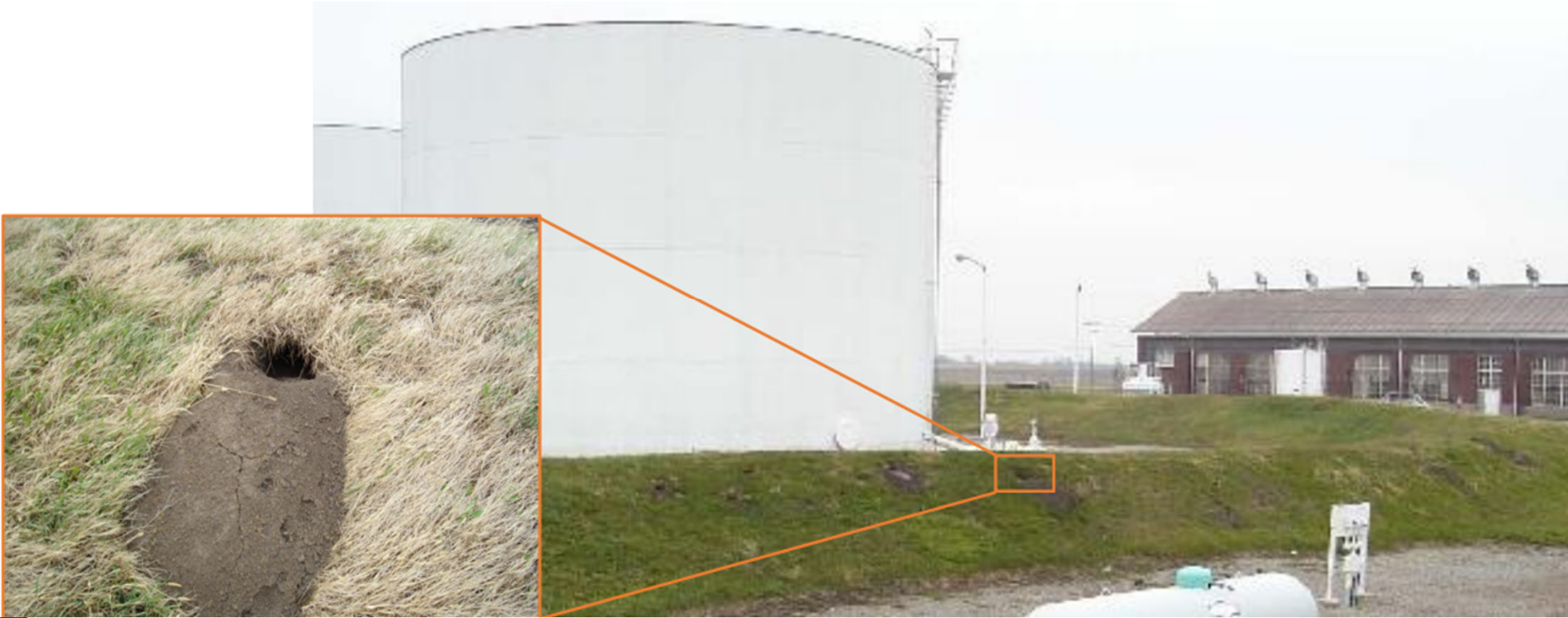
Spot the Issues?



Spot the Issues?



Spot the Issues?



Spot the Issues?



Spot the Issues?



Spot the Issues?





EHS is a Dynamic, Changing Field

Always be certain to obtain the latest forms, policies, and regulations from the appropriate regulatory authority before determining permitting and compliance needs for your site. The information provided in this manual, while up-to-date when printed, is subject to change as regulatory authorities update forms, policies and regulations. You are encouraged to use this manual as an educational reference, but it is not a substitute for independent research and verification, and the application of sound professional judgment and analysis in real-time permitting and compliance situations.

Questions?

Anita Evenson

Senior Consultant – Trinity

Mobile: (513) 391-0521

aevenson@trinityconsultants.com



Chris Kahn

Member – Frost Brown Todd, LLC

Direct: (513) 651-6782

ckahn@fbtlaw.com

