Common SPCC and FRP Deficiencies

Summary of Findings

Webinar Speakers

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Why did EPA Conduct the Review?

- To provide compliance assistance and improve compliance with SPCC and FRP requirements at regulated facilities by
  - Highlighting common deficiencies
  - Identifying areas deserving additional clarification, outreach, and guidance
  - Promoting more consistent program implementation
- Follows recommendations of the Office of Inspector General in "EPA Needs to Further Improve How It Manages Its Oil Pollution Prevention Program" (Report No. 12-P-0253) February 6, 2012

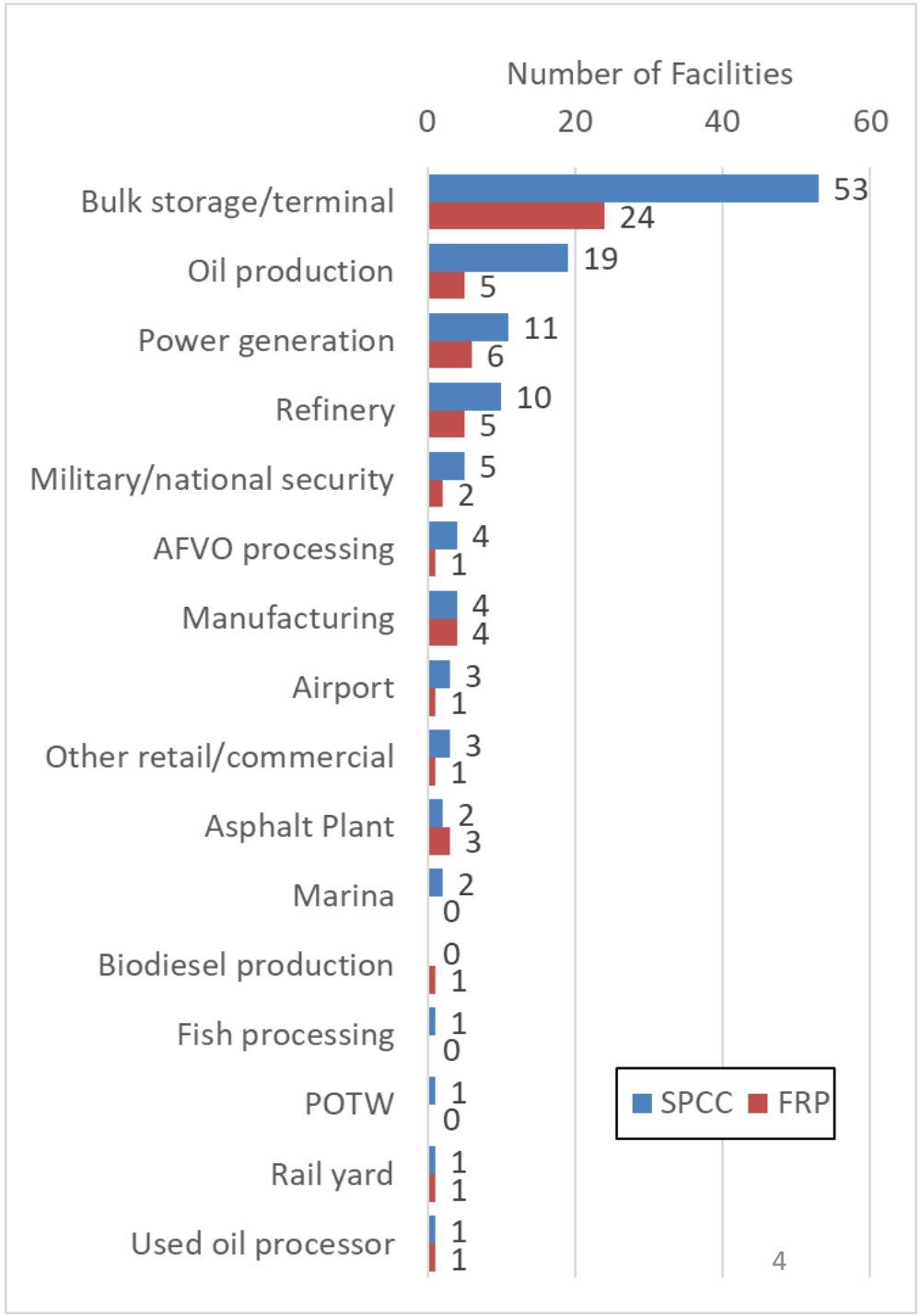
Data Collection Approach

- Surveyed EPA regional staff in all 10 regions
- Selected facilities for review:
  1. HQ staff selected facilities for which the Oil Program Database documented non-compliance
  2. HQ staff then targeted a subset of facilities that were both SPCC and FRP regulated, where possible.
  3. Regional staff reviewed inspection reports for selected facilities and used a standardized survey form to identify deficiencies and provide input on their broader inspection experience.
- HQ staff analyzed survey responses across regions to assess the quality and consistency of SPCC and FRP Plans and field implementation.
- Survey elements:
  - Facility sample:
    - Plan deficiencies
    - Field implementation deficiencies
  - Broader inspector experience relative to additional inspections not included in the specific sample analyzed:
    - Common deficiencies
    - Best practices

Survey Data

- Facility-specific reviews from sample of facilities across industry sectors:
  - 120 SPCC-regulated facilities
  - 55 FRP-facilities
- Focused on relatively large facilities that are also FRP-subject
  - Aggregate aboveground storage capacity: approximately 4,000 to 231 million gallons
  - Mostly bulk storage/terminal, followed by oil production, and power generation facilities
- Compared to SPCC-regulated facilities overall*
  - Similar sectors: Oil production (44%), followed by power generation (12%). Few bulk storage/terminal (1%)
  - SPCC facilities are generally smaller: Estimated 85% have 1,320-42,000 gallons aggregate aboveground storage capacity

* The survey sample is more similar to the FRP-regulated universe, which is characterized by larger aggregate storage capacities and a greater share of bulk storage/terminals



Survey Data Analysis Methodology

1

Code and standardize rule citations and categorize rule provisions

2

Group Plan and field implementation deficiencies by SPCC or FRP provision category

Categorize best practices based on rule provision

3

Summarize number of sampled facilities for each SPCC or FRP provision category

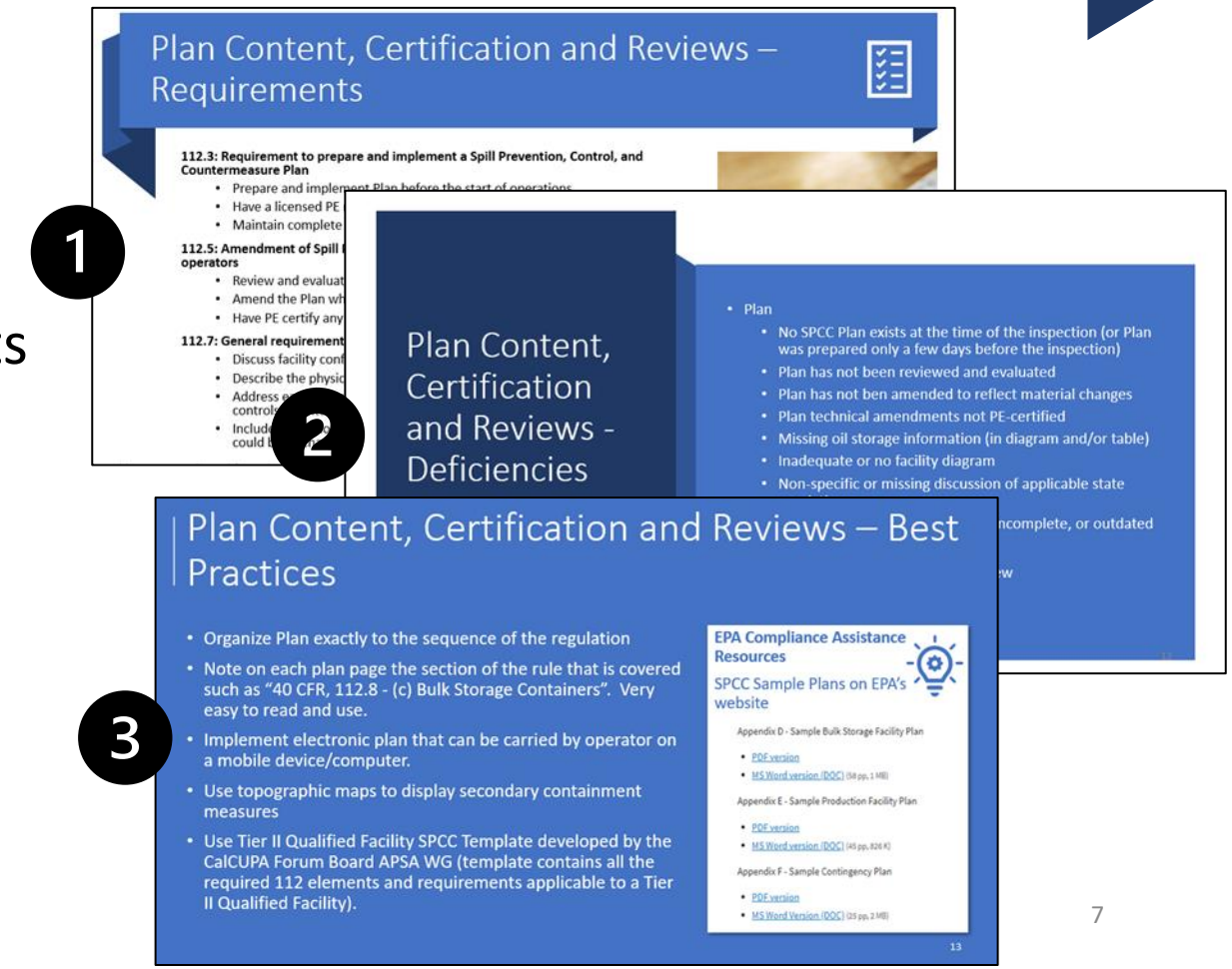
Extract inspector experience highlights or best practices by SPCC or FRP provision category

Example Coding and Standardizing of Sample Facility Review

Rule citation used by Reviewer	Review notes	Standardized Rule Citation	Provision Category (Facility Count)
112.3(a)	Facility in operation since 1967. First version of the SPCC Plan was prepared eight days prior to the date of the inspection. The plan had not been fully implemented at the time of the inspection.	**112.3 Plan Requirements**	**Plan content, certification, and reviews**
112.3(e)(1)	Plan not available at the nearest field office.	**112.3(e) Plan Availability**	
112.7(b)	Plan does not include prediction of direction, rate of flow, and total quantity of oil that could be discharge for types of major equipment failures where experience indicates a reasonable potential for equipment failure.	**112.7(a) Plan Content**	
112.7(a)(4)	Plan does not include information or a procedure for reporting a discharge to relate information: incorrect telephone numbers for the EPA R7 Spill Line and other emergency contacts.		
112.7(a)(3)(v)	Plan does not describe any methods for disposal of recovered materials.		
112.7(a)(3)	Plan diagram does not indicate locations of all crude oil and produced water tanks, production wellheads, fuel tanks and generators for production pumps, injection wellheads, pipelines and flowlines, and transfer areas.		
112.9(c)(3)	The facility does not visually inspecting bulk storage containers for deterioration and maintenance needs, including foundation and supports for each container.	**112.9(c)(3) Integrity Testing/Inspections**	**Testing and inspection: Integrity testing**
112.9(c)(3)	The plan does not address procedures for visually inspecting bulk storage containers for deterioration and maintenance needs, including foundation and supports for each container.		
112.7(e)	No inspection records were available for review.	**112.7(e) Inspections, Tests, Records**	**Testing and inspection: Records**
112.7(e)	The inspection procedures are detailed in the plan do not include the requirements to sign/date inspection records and retain them for three years.		
112.7(f)(1-3)	The facility had not provided training on discharge procedure protocols, applicable pollution control laws, and how to activate the 109 Contingency Plan in the event of a discharge. There is no person at the facility accountable for discharge prevention.	**112.7(f) Training**	**Training**

Outline of Findings

- Deficiency area rankings
- Details of top deficiency areas
  1. Summary of rule requirements
  2. Observed Plan and field implementation deficiencies
  3. Examples of best practices (where available)

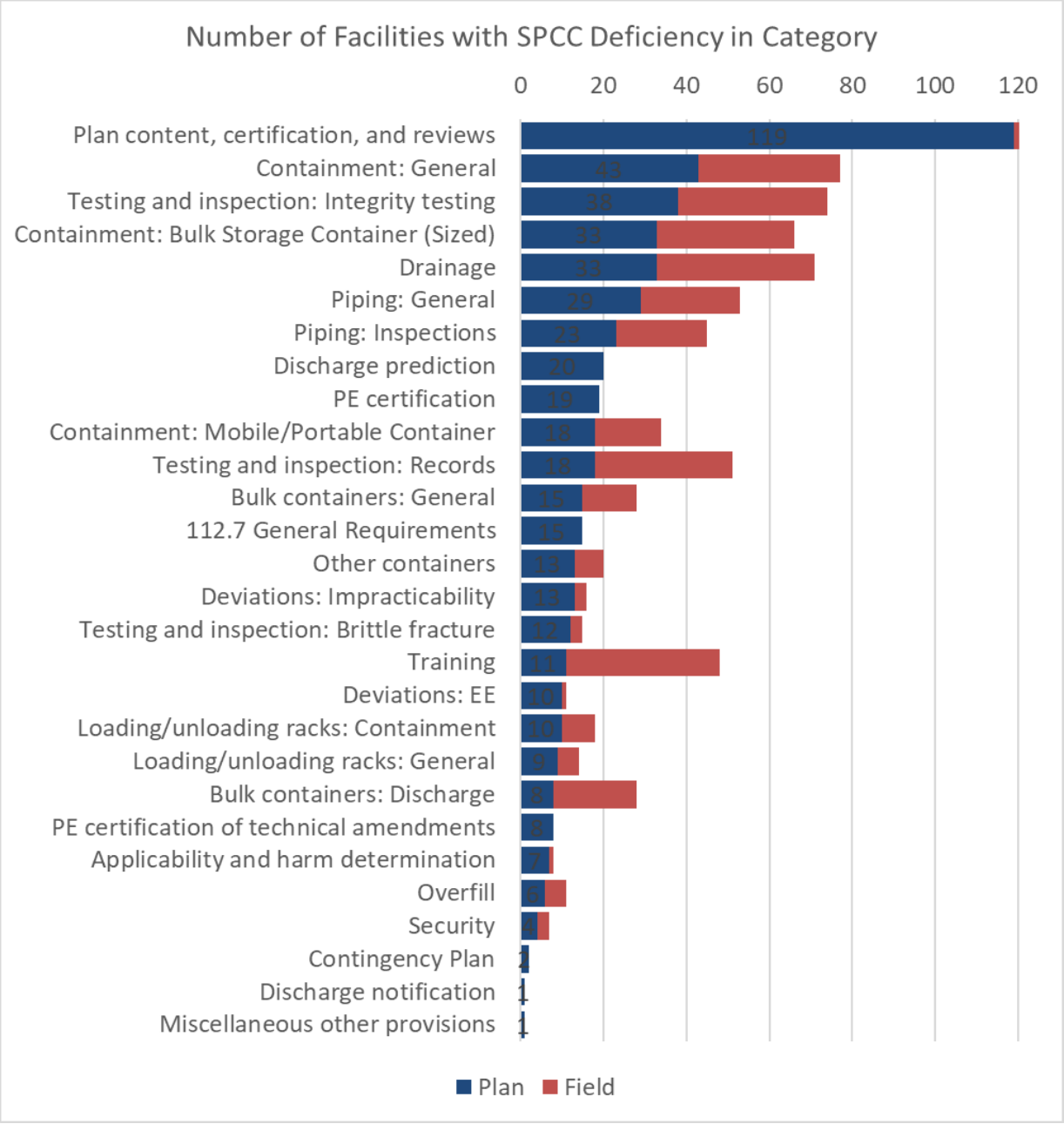


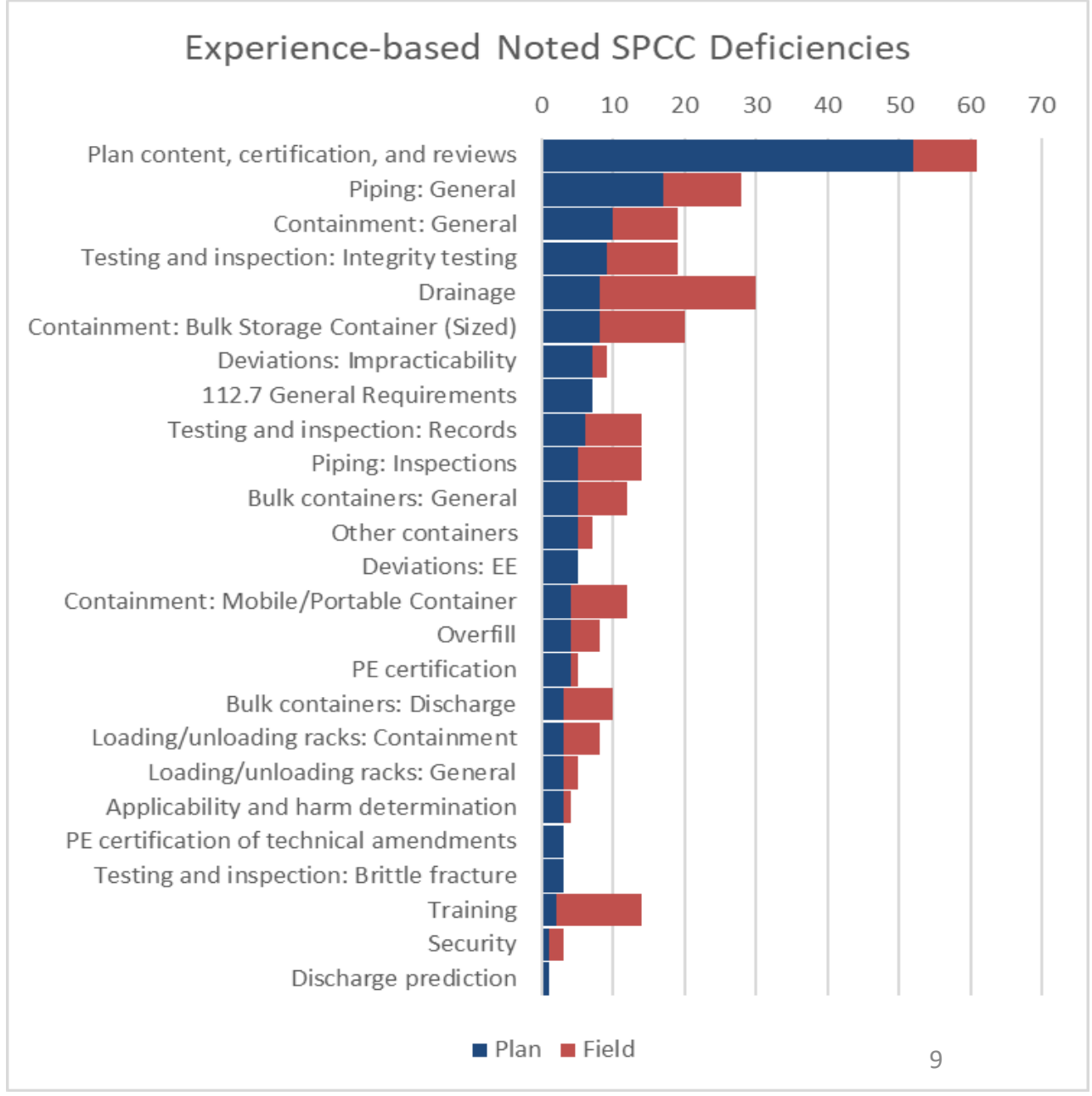
Top SPCC Deficiency Areas

Common Problems and Best practices

Most Common SPCC Deficiency Areas based on Sample of Facilities (Left) and Inspector Experience (Right)

(Listed by most-to-least frequent Plan deficiencies)





Top SPCC Deficiency Areas

- Plan Content, Certification and Reviews
- Containment: General
- Testing and Inspection: Integrity Testing
- Drainage
- Training
- Containment: Bulk Storage Container (Sized)
- Testing and Inspection: Records
- Piping

Plan Content, Certification and Reviews – Requirements

112.3: Requirement to prepare and implement a Spill Prevention, Control, and Countermeasure Plan

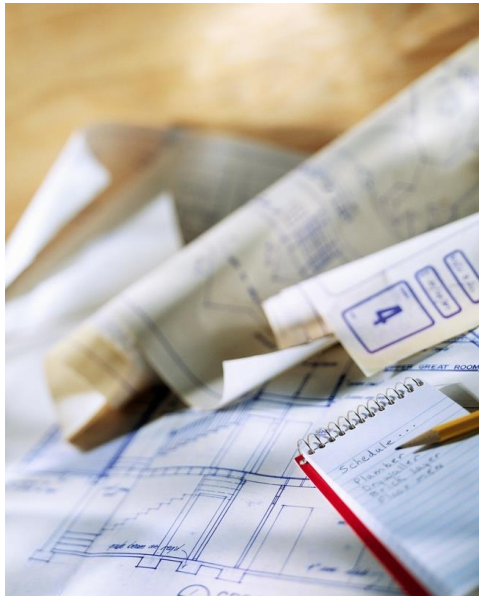
- Prepare and implement Plan **before** the start of operations
- Have a licensed Professional Engineer (PE) review and certify the Plan
- Maintain complete copy of the Plan at the facility and available for on-site review

112.5: Amendment of Spill Prevention, Control, and Countermeasure Plan by owners or operators

- Review and evaluate the Plan at least once every **five years**
- Amend the Plan when there is a change that materially affects discharge potential
- Have PE certify any technical amendments to the Plan

112.7: General requirements for Spill Prevention, Control, and Countermeasure Plans

- Discuss facility conformance with the requirements
- Describe the physical layout of the facility and include a facility diagram
- Address each container, discharge prevention measures, discharge or drainage controls, countermeasures, method of disposal, contact list and phone numbers
- Include prediction of the direction, rate of flow, and total quantity of oil which could be discharged.



Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Plan Content, Certification and Reviews - Deficiencies

- Plan
  - No SPCC Plan exists at the time of the inspection (or Plan was prepared only a few days before the inspection).
  - Plan has not been reviewed and evaluated.
  - Plan has not been amended to reflect material changes.
  - Plan technical amendments were not certified by a Professional Engineer (PE).
  - Plan is missing oil storage information (in diagram and/or table).
  - Inadequate or no facility diagram.
  - Non-specific or missing discussion of applicable state regulations.
  - Contact list details are incorrect, incomplete, or outdated.
- Field Implementation
  - Plan is not available for on-site review.

Plan Content, Certification and Reviews – Best Practices

- Organize Plan exactly according to the sequence of the regulation.
- Note on each Plan page the section of the rule that is covered such as “40 CFR, 112.8 - (c) Bulk Storage Containers”. Very easy to read and use.
- Implement electronic Plan that can be carried by operator on a mobile device/computer.
- Use topographic maps to display secondary containment measures.
- Use Tier II Qualified Facility SPCC Template available from California’s Certified Unified Program Agency (CUPA) Aboveground Storage Tank Program (APSA). The template contains all the required 40 part 112 elements and requirements applicable to a Tier II Qualified Facility. (https://www.sandiegocounty.gov/content/dam/sdc/deh/hmd/pdf/CALFIRE-OSFM_TierII_SPCC_PlanTemplate.pdf)

EPA Compliance Assistance Resources

SPCC Guidance for Regional Inspectors

- Refer to Chapter 6, “Facility Diagram and Description”

SPCC Sample Plans on EPA’s website

Appendix D – Sample Bulk Storage Facility Plan

- PDF Version
- MS Word Version

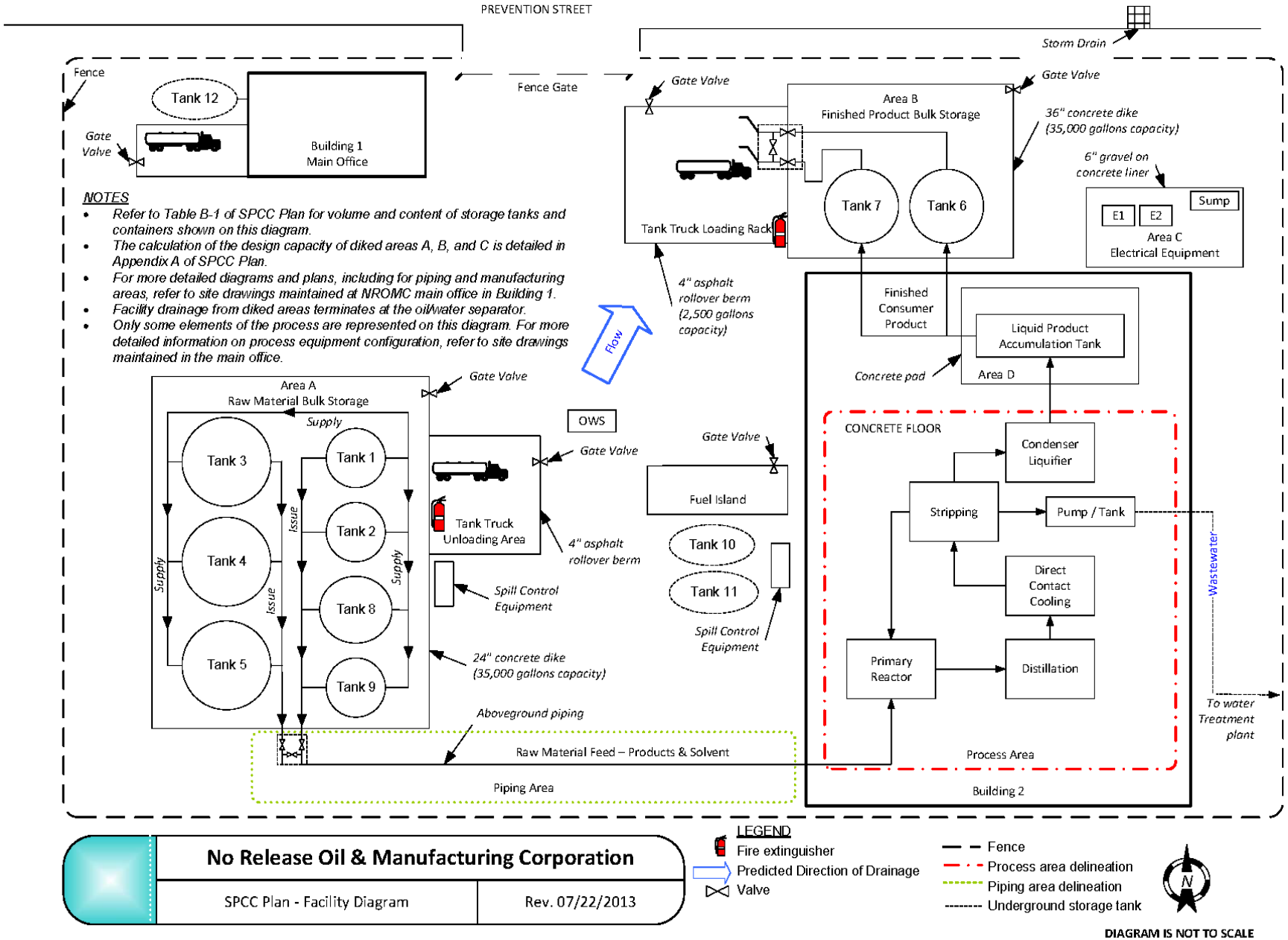
Appendix E – Sample Production Facility Plan

- PDF Version
- MS Word Version

Appendix F – Sample Contingency Plan

- PDF Version
- MS Word Version

Example of a Facility Diagram from the SPCC guidance



Containment: General – Requirements

- 112.7(c) Provide appropriate containment and/or diversionary structures or equipment to prevent a discharge as described in § 112.1(b).
- The entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs.
- At a minimum, you must use one of the following prevention systems or its equivalent:
  - (1) For onshore facilities: (i) Dikes, berms, or retaining walls sufficiently impervious to contain oil; (ii) Curbing; (iii) Culverting, gutters, or other drainage systems; (iv) Weirs, booms, or other barriers; (v) Spill diversion ponds; (vi) Retention ponds; or (vii) Sorbent materials.
  - (2) For offshore facilities: (i) Curbing or drip pans; or (ii) Sumps and collection systems.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Containment: General - Deficiencies

- Plan
  - The Plan does not address secondary containment for one or more items: loading/unloading transfer areas, piping, oil-filled operational equipment, wellheads, flowlines, etc.
  - The Plan does not provide probable spill calculations.
- Field Implementation
  - The facility lacks secondary containment for one or more items, e.g., loading/unloading transfer areas, piping, oil-filled operational equipment, or mobile refuelers.
  - Unloading area containment is not properly maintained to contain an oil spill (e.g., the containment structure has cracks).
  - The valve for the stormwater retention pond system, which is designed to contain oil spills, is left open.

Example Deficiency

Transfer area lacks adequate general secondary containment.

Example Deficiency

Production transfer area appears to lack adequate general secondary containment.

Example Deficiency

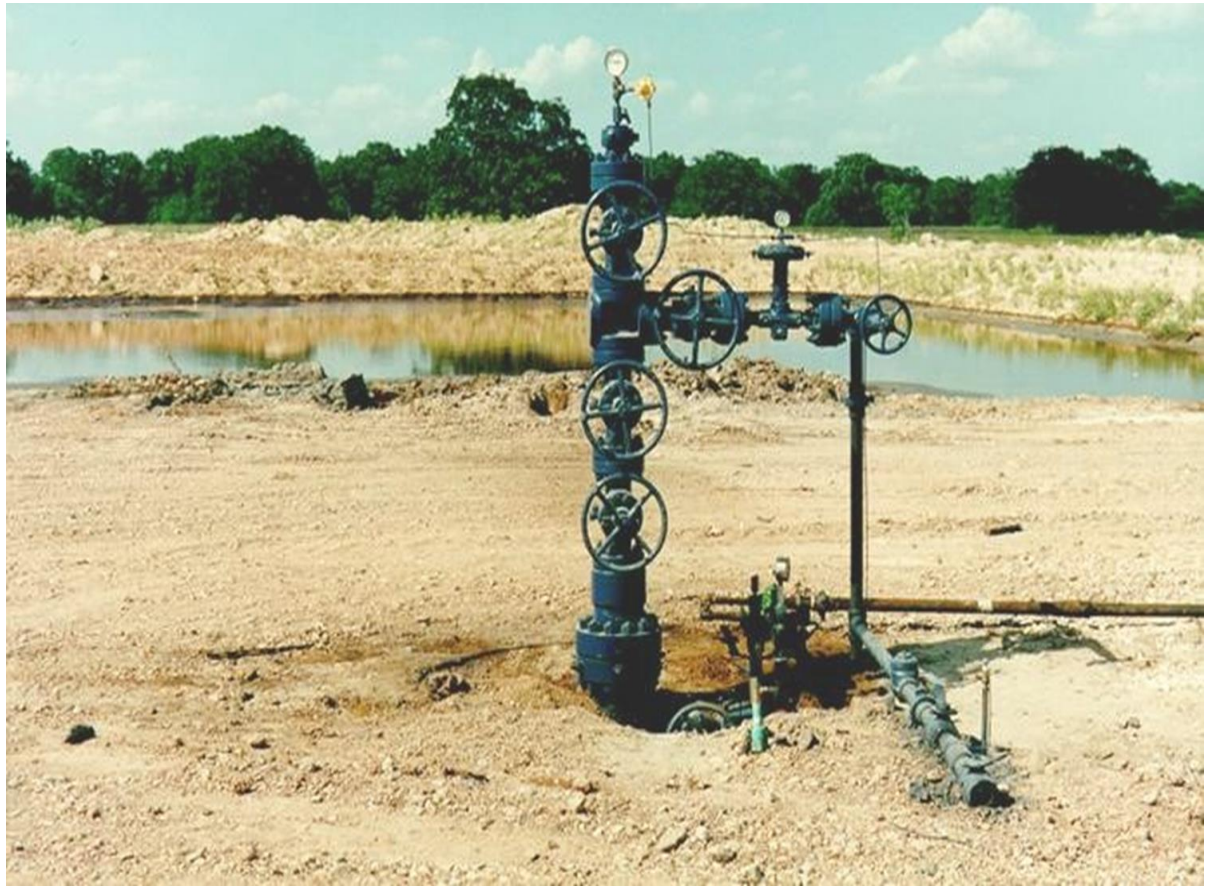
The Plan and its field implementation needs to include general containment for piping

Example Deficiency

Often, EPA finds general containment for transfers and vents associated with double walled tanks not addressed in the Plan and/or not implemented in the field.

Example Deficiency

Facilities need to either address general containment or implement contingency plans for flow lines or intra-facility gathering lines.



Example Deficiency

Often, we find general containment for equipment/piping containing oil not addressed in the Plan and/or not implemented in the field.

Example Deficiency

General secondary containment for oil transfers for the tank battery (shown in these photos) must be addressed in the plan *AND* also implemented in the field.

Containment: General – Best Practices

The facility built a storm water pond that provides additional overall secondary containment for the facility. In the event of an uncontrolled oil discharge, ensure the design of the pond, **retains the oil.**

EPA Compliance Assistance Resources

The *SPCC Guidance for Regional Inspectors* describes the various secondary containment requirements and demonstrates how these requirements apply to specific equipment and activities at an SPCC-regulated facility.

Refer to Chapter 4 "Secondary Containment and Impracticability Determinations" in the SPCC Guidance for Regional Inspectors.

Containment: General – Best Practices

This production operator built a stormwater pond that provides general secondary containment for the facility. NOTE: In the event of an uncontrolled oil discharge, ensure the design of the pond, **retains the oil.**

EPA Compliance Assistance Resources

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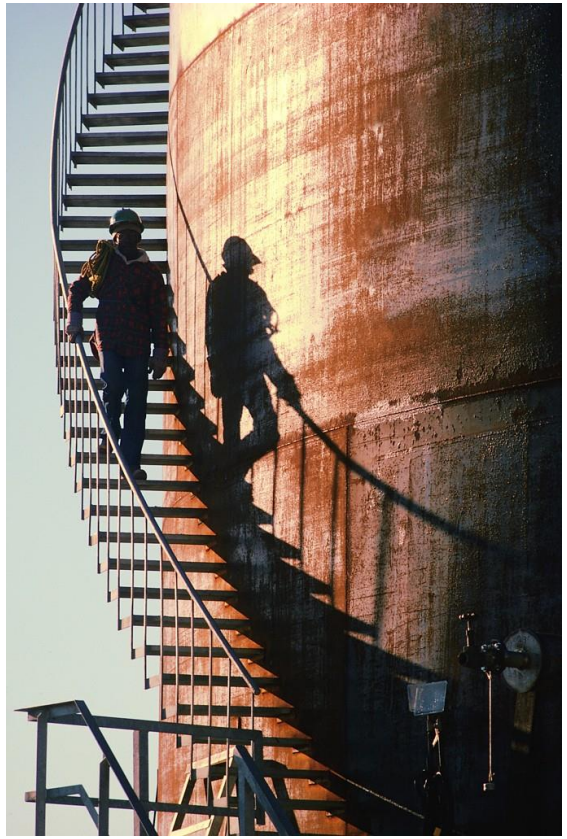
Testing and Inspection: Integrity Testing – Requirements

112.8(c)/112.12(c) Bulk Storage Containers

- (6) Test each aboveground container for integrity on a regular schedule, and whenever you make material repairs.
  - The frequency of and type of testing must take into account container size and design.
  - Combine visual inspection with another testing technique...
  - Keep comparison records.
  - Inspect the container's supports and foundations.
  - Frequently inspect the outside of the container for signs of deterioration, discharges, or accumulation of oil inside diked areas.

112.9(c) Oil production facility bulk storage containers

- (3) Periodically and upon a regular schedule visually inspect each container of oil for deterioration and maintenance needs, including the foundation and support of each container that is on or above the surface of the ground.



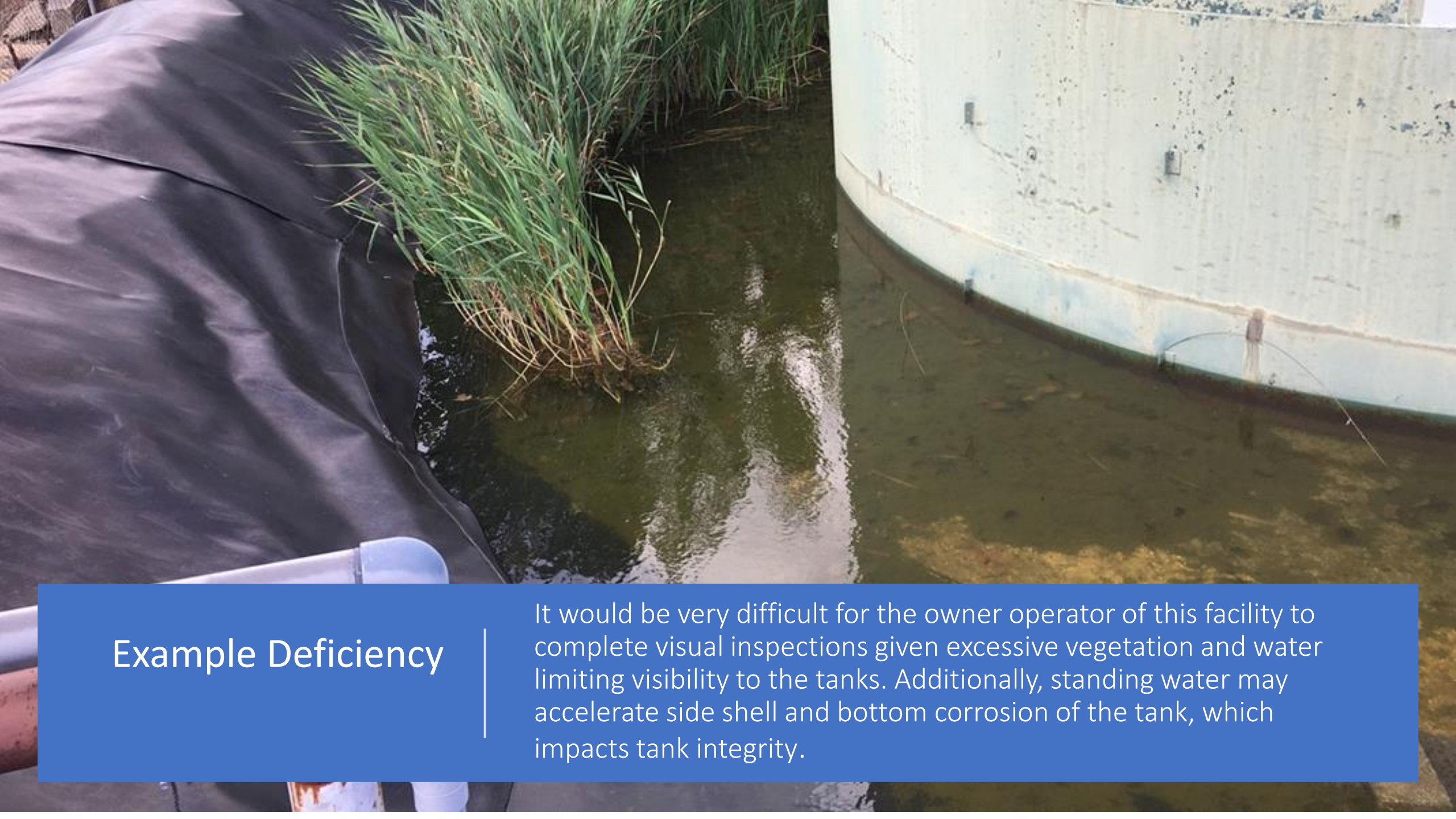
Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Testing and Inspection: Integrity Testing – Deficiencies

- Plan
  - The Plan does not describe the inspection and test procedures for all tanks.
  - … does not address industry standards (with an applicable schedule).
  - … does not describe the qualifications of personnel conducting integrity testing and inspections.
  - … does not address procedures for visually inspecting bulk containers.
- Field Implementation
  - The facility lacks evidence or records of integrity tests (no documentation available)
  - The Plan refers to the American Petroleum Institute (API) Standard 653 “Tank Inspection, Repair, Alteration, and Reconstruction,” but the inspector is not certified.

Example Deficiency

It would be very difficult for the owner operator of this production facility to complete visual inspections given excessive vegetation limiting visibility to the tanks.

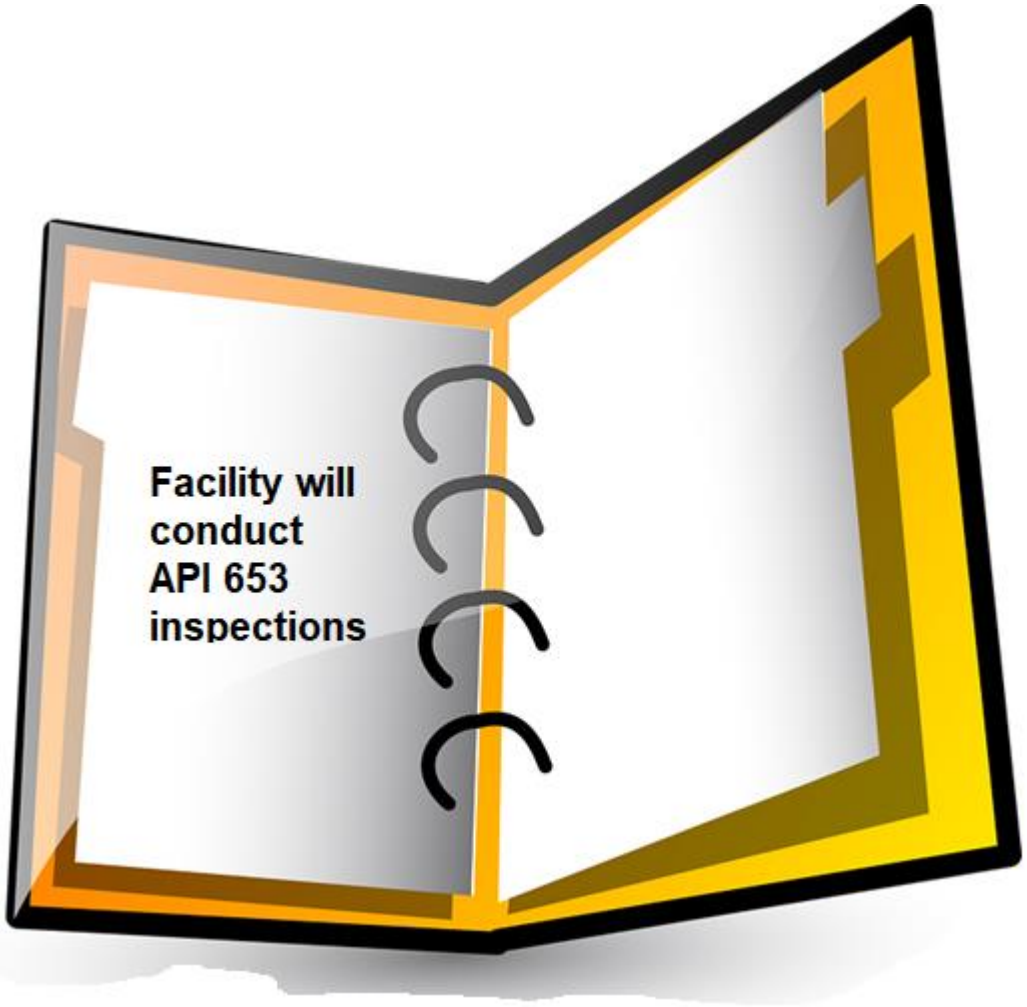


Example Deficiency

It would be very difficult for the owner operator of this facility to complete visual inspections given excessive vegetation and water limiting visibility to the tanks. Additionally, standing water may accelerate side shell and bottom corrosion of the tank, which impacts tank integrity.

Example Deficiency

Vegetation at the top of the tank may indicate water collection inside tank's insulating jacket. The facility's routine tank integrity visual inspection program appears to be flawed.



Example Deficiency

The Plan does not layout the scope and schedule of tests and inspections (generic). The PE is required to ensure the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards**, and that procedures for required inspections and testing have been established**. The inspection and testing program may not be correctly implemented or not implemented at all due to this lack of guidance in the plan.

Example Deficiency

Production tank integrity may be compromised by improper tank repairs or alternations which may not be in accordance with industry standards, recommended practices, design specifications or good engineering practices.

Example Deficiency

There appears to be no regular schedule to visually inspect each container of oil for deterioration and maintenance needs, including the foundation and support of each container that is on or above the surface of the ground.

Testing and Inspection: Integrity Testing – Best Practices

- Detailed database for tracking the integrity testing information and schedules for each tank.
  - Sends notice when tanks are due for testing/inspections.
  - Includes comparison reports for each tank.
- Visual inspections, integrity testing, and training are all captured under a facility-wide/corporate-wide system.

EPA Compliance Assistance Resources

The *SPCC Guidance for Regional Inspectors* provides an overview of the SPCC inspection, evaluation, and testing requirements, as well as how environmental equivalence may apply for these requirements.

The guidance also summarizes industry standards, code requirements, and recommended practices that apply to different types of equipment.

Refer to Chapter 7 "Inspection, Evaluation, and Testing" in the SPCC Guidance for Regional Inspectors.

Drainage – Requirements (Non-Production)

112.8(b)/112.12(b) Facility drainage.

DIKED AREA DRAINAGE

(1) Restrain drainage from diked storage areas by valves to prevent a discharge into the drainage system or facility effluent treatment system

(2) Use valves of manual, open-and-closed design, for the drainage of diked areas.

UNDIKED AREA DRAINAGE

(3) Design facility drainage systems from undiked areas with a potential for a discharge (such as where piping is located outside containment walls or where tank truck discharges may occur outside the loading area) to flow into ponds, lagoons, or catchment basins designed to retain oil or return it to the facility. You must not locate catchment basins in areas subject to periodic flooding.

(4) If facility drainage is not engineered as in paragraph (b)(3) of this section, equip the final discharge of all ditches inside the facility with a diversion system that would, in the event of an uncontrolled discharge, retain oil in the facility.

(5) Where drainage waters are treated in more than one treatment unit and such treatment is continuous, and pump transfer is needed, provide two "lift" pumps and permanently install at least one of the pumps. Whatever techniques you use, you must engineer facility drainage systems to prevent a discharge as described in § 112.1(b) in case there is an equipment failure or human error at the facility.

112.8(c)/112.12(c) Bulk storage containers.

(3) Not allow drainage of uncontaminated rainwater from the diked area into a storm drain or discharge of an effluent into an open watercourse, lake, or pond, bypassing the facility treatment system unless you: (i) Normally keep the bypass valve sealed closed; (ii) Inspect the retained rainwater to ensure that its presence will not cause a discharge as described in § 112.1(b); (iii) Open the bypass valve and reseal it following drainage under responsible supervision; and (iv) Keep adequate records of such events, for example, any records required under permits issued in accordance with §§ 122.41(j)(2) and 122.41(m)(3) of this chapter.

(9) Observe effluent treatment facilities frequently enough to detect possible system upsets.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Drainage – Requirements (Production)

112.9(b) Oil production facility drainage.

(1) At tank batteries and separation and treating areas where there is a reasonable possibility of a discharge as described in § 112.1(b), close and seal at all times drains of dikes or drains of equivalent measures required under § 112.7(c)(1), except when draining uncontaminated rainwater.

Prior to drainage, you must inspect the diked area and take action as provided in § 112.8(c)(3)(ii), (iii), and (iv).* You must remove accumulated oil on the rainwater and return it to storage or dispose of it in accordance with legally approved methods.

** Relevant excerpt from § 112.8(c)(3):*

- *(ii) Inspect the retained rainwater to ensure that its presence will not cause a discharge as described in § 112.1(b);*
- *(iii) Open the bypass valve and reseal it following drainage under responsible supervision; and*
- *(iv) Keep adequate records of such events, for example, any records required under permits issued in accordance with §§ 122.41(j)(2) and 122.41(m)(3) of this chapter.*

(2) Inspect at regularly scheduled intervals field drainage systems (such as drainage ditches or road ditches), and oil traps, sumps, or skimmers, for an accumulation of oil that may have resulted from any small discharge. You must promptly remove any accumulations of oil.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Drainage – Deficiencies

- Plan
  - The Plan does not discuss the SPCC drainage requirements or is not specific (e.g., no description of drainage of diked areas, inspections prior to discharge, or record keeping).
  - The Plan does not address effluent treatment facilities.
- Field Implementation
  - There are no visual inspections of field drainage systems for accumulations of oil.
  - There is no procedure for controlling discharges of stormwater discharges from undiked areas.
  - Drainage from undiked areas flows to storm sewer.
  - Stormwater is not inspected before discharge; dischargess are not recorded.
  - The production facility is missing the required sumps on the production slabs.

Example Potential Deficiency

Does the quick drainage system at a loading/unloading rack or the drain from a transfer area go to a stormwater drain which is not designed to contain an oil discharge?
Drainage systems must be designed to retain the oil discharge.

Example Deficiency

Must keep the containment valve closed? There is no valve…there is no containment.

Example Deficiency

Before draining water from containment, the owner/operator must inspect the rainwater and remove any oil. The opening and resealing of the drainage must be under supervision.

Drainage – Best Practices

- Facility installed highly visible metallic signs on dike drain valves that ‘show/signal’ when the valves are closed and when they are open (would be able to see if a valve is closed or open from 100 yards away).

EPA Compliance Assistance Resources

The *SPCC Guidance for Regional Inspectors* provides an overview of the drainage requirements and its relationship to secondary containment and impracticability determinations.

Refer to Chapter 4 “Secondary Containment and Impracticability Determinations” in the SPCC Guidance for Regional Inspectors.

Training – Requirements

- **112.7(f) Personnel, training, and discharge prevention procedures**.
  - (1) **Train your oil-handling personnel** in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan.
  - (2) **Designate a person** at each applicable facility who is accountable for discharge prevention and who reports to facility management.
  - (3) **Schedule and conduct discharge prevention briefings for your oil-handling personnel at least once a year** to assure adequate understanding of the SPCC Plan for that facility. Such briefings must highlight and describe known discharges as described in § 112.1(b) or failures, malfunctioning components, and any recently developed precautionary measures.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Training – Deficiencies

Plan

- No description of training program, frequency of training, and topics of training. Plan restates the provisions of the regulations.
- Training of oil-handling personnel does not cover all required elements: contents of SPCC Plan, applicable pollution control laws, rules, and regulations, etc.

Field Implementation

- Yearly discharge prevention briefings not conducted (i.e., at least once every 365 days).
- Training on the SPCC Plan and discharge prevention briefings not delivered annually (e.g., last employee training was three years ago).

Training – Best Practices

- Facility developed an “SPCC Quiz” that oil-handling personnel must take as a part of their annual training/briefings.
- The SPCC training module is included as part of a broader facility-specific annual training series.
- Facility implements a computer-based training system that allows for personnel to efficiently track all their training and when it was due.
- The facility offers both online and offline/in-person training.
- Driver training certifies drivers before they access loading/unloading areas/racks. Training done via onsite e-module covers site loading/unloading/handling/site requirements. First loading/unloading operations by newly trained driver are supervised by facility personnel.
- Personnel training in SPCC are also training in the FRP drills and exercises.

EPA Compliance Assistance Resources

The preamble to the 2002 SPCC rule (67 FR 47108) provides guidance on SPCC training requirements.

Regarding content, “the training must include, at a minimum:

- the operation and maintenance of equipment to prevent the discharge of oil;
- discharge procedure protocols;
- applicable pollution control laws, rules, and regulations;
- general facility operations; and,
- the contents of the facility Plan.”

The annual discharge prevention briefing must include the contents of the facility Plan and:

- refresh employees’ memories on facility Plan provisions; and
- update employees on the latest prevention and response techniques.

Containment: Bulk Storage Container (Sized) – Requirements

Bulk storage containers must meet general secondary containment requirements at 112.7(c)

- […] The entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank, will not escape the containment system before cleanup occurs […]

…and applicable sized secondary containment requirements

112.8(c)/112.12(c) Bulk storage containers.

- (2) Construct all bulk storage container installations to provide a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation.
- Ensure that diked areas are sufficiently impervious to contain discharged oil. Dikes, containment curbs, and pits are commonly employed for this purpose. You may also use an alternative system consisting of a drainage trench enclosure that must be arranged so that any discharge will terminate and be safely confined in a facility catchment basin or holding pond.

112.9(c) Oil production facility bulk storage containers

- (2) Provide all tank battery, separation, and treating facility installations with a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation.
- Safely confine drainage from undiked areas in a catchment basin or holding pond.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Containment: Bulk Storage Container (Sized) – Deficiencies

Plan

- Discussion is inadequate:
  - No discussion and no calculations for sufficient freeboard.
  - No discussion on whether diked areas are sufficiently impervious to contain discharged oil.
- The facility secondary containment is not sufficiently impervious per the PE that signed the plan.
- Plan states that the permeability of the earthen dike walls and floors is unknown.
- Plan inaccurately described the volume of secondary containment for one or more tanks.

Field Implementation

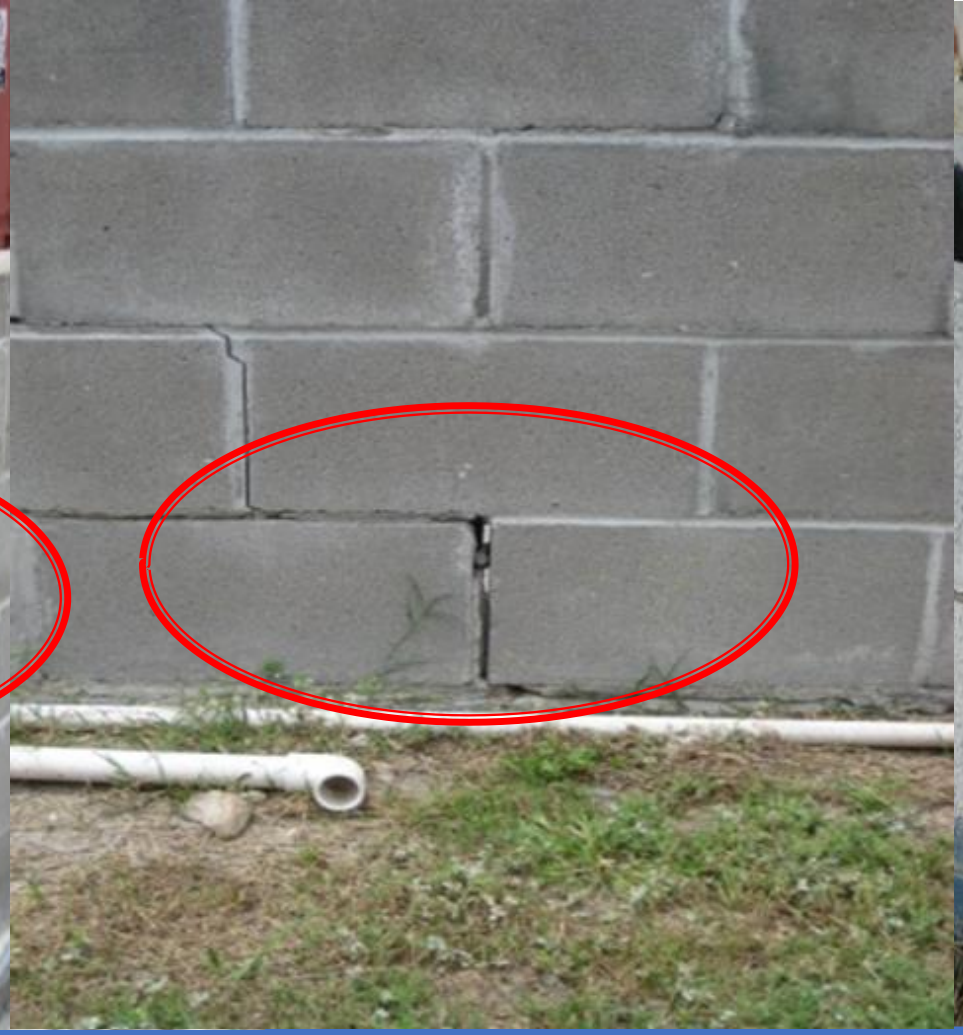
- Excessive vegetation in main containment dike.
- Eroded berms.
- Secondary containment does not appear to be sufficiently impervious.

Example Deficiency

Erosion and animal burrowing through the containment wall renders the berm ineffective at containing oil.

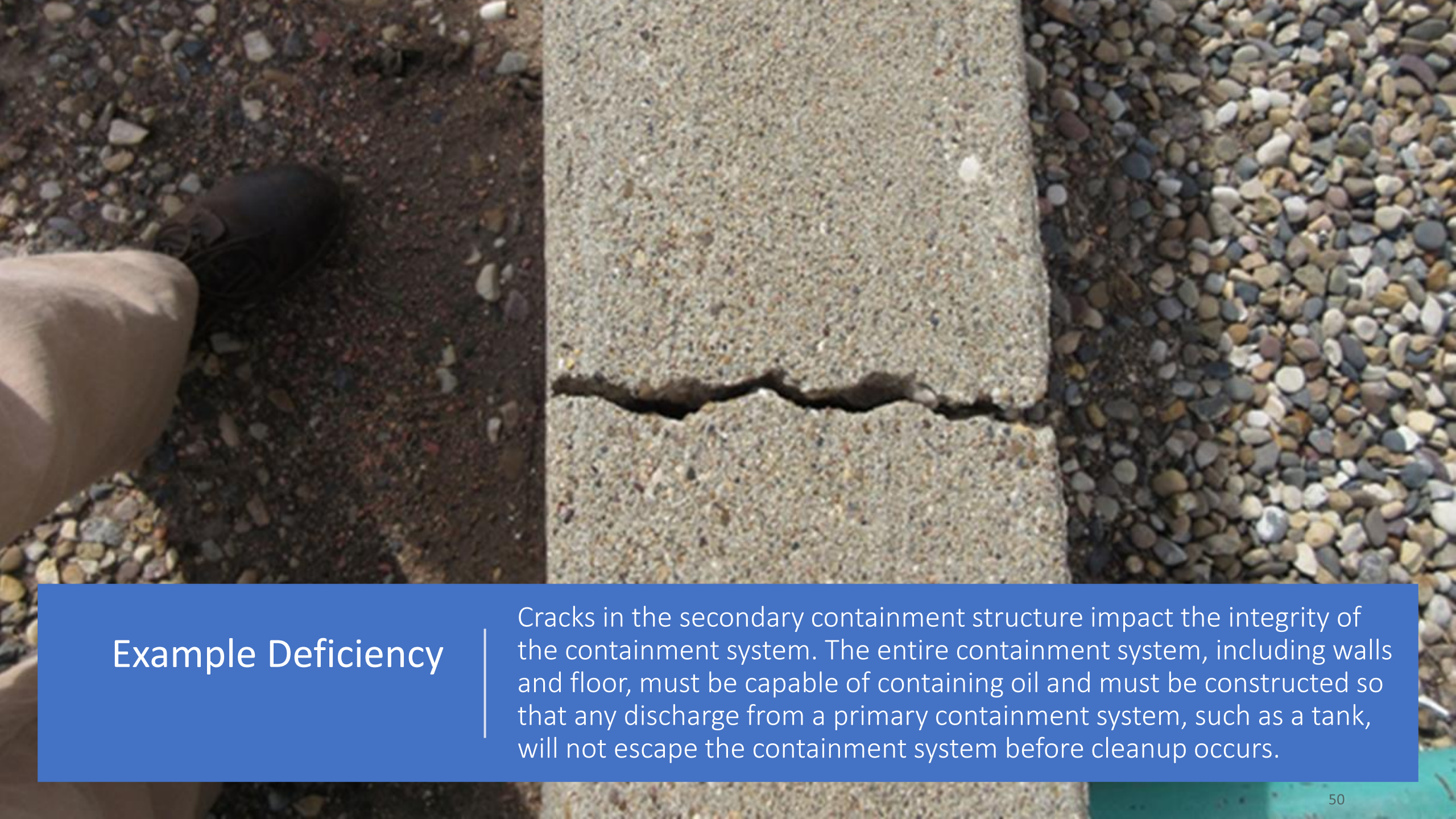
Example Deficiency

Erosion and animal burrowing through the containment wall renders the berm ineffective at containing oil.



Example Deficiency

Concrete block failure and damage impacting secondary containment integrity. The entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank, will not escape the containment system before cleanup occurs. Additionally, concrete block dikes need to be sufficiently impervious to contain discharged oil.

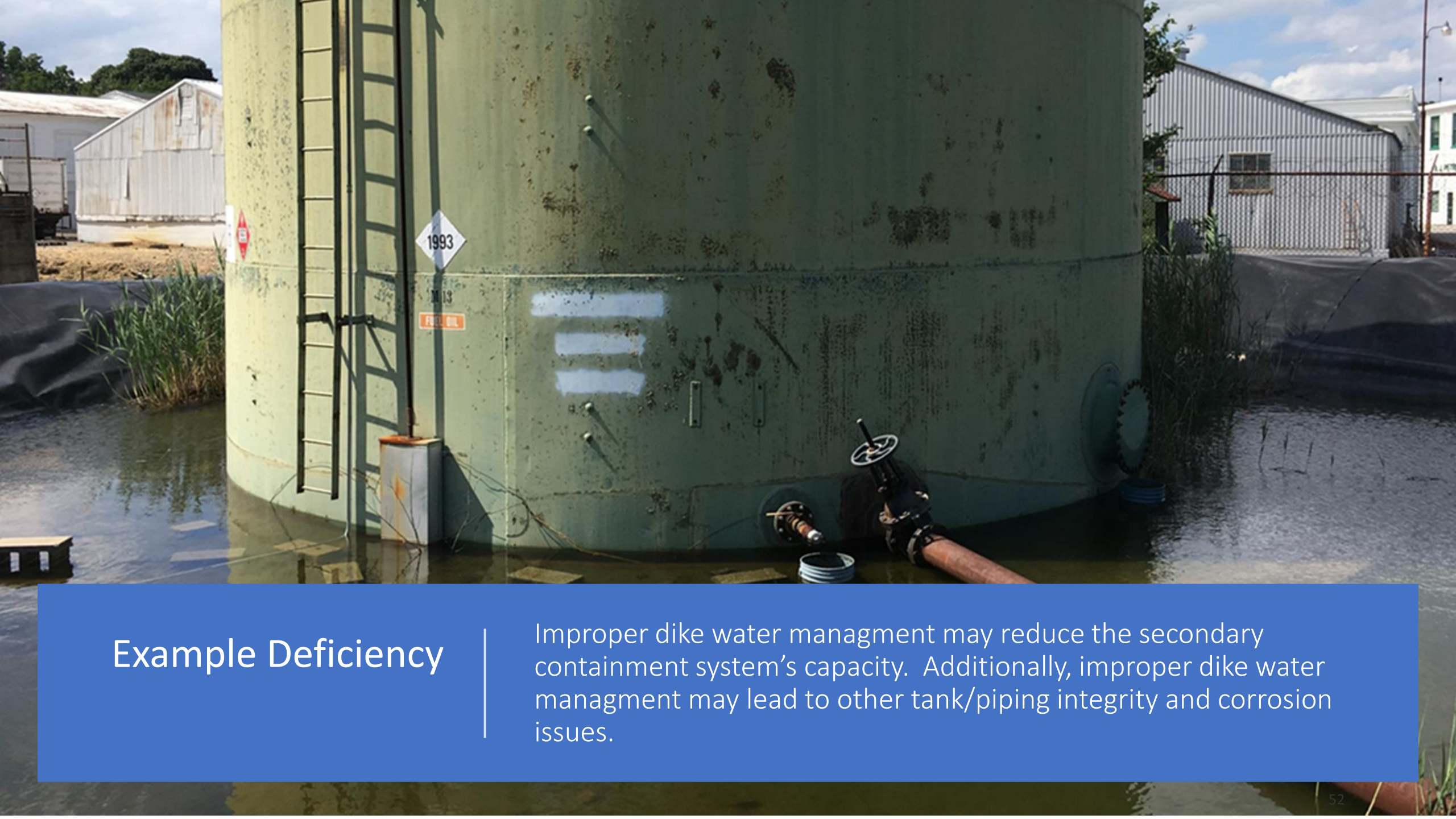


Example Deficiency

Cracks in the secondary containment structure impact the integrity of the containment system. The entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank, will not escape the containment system before cleanup occurs.

Example Deficiency

Dike wall penetrations must be engineered such that oil can't escape. Situations like those depicted above may lead to a significant reduction in the secondary containment dike capacity relative to the height of the pipe penetration where oil may escape.



Example Deficiency

Improper dike water managment may reduce the secondary containment system's capacity. Additionally, improper dike water managment may lead to other tank/piping integrity and corrosion issues.

Containment: Bulk Storage Container (Sized) – Best Practices

- Owner/operator lined entire tank farm to avoid potential permeability issues with concrete.

EPA Compliance Assistance Resources

The *SPCC Guidance for Regional Inspectors* describes the various secondary containment requirements and demonstrates how these requirements apply to specific equipment and activities at an SPCC-regulated facility.

The guidance includes examples of containment measures.

Refer to Chapter 4 "Secondary Containment and Impracticability Determinations" in the SPCC Guidance for Regional Inspectors.

Testing and inspection: Records – Requirements

112.7(e) Inspections, tests, and records.

- Conduct inspections and tests required by this part in accordance with written procedures that you or the certifying professional engineer (PE) develop for the facility.
- Keep these written procedures and a record of the inspections and tests, signed by the appropriate supervisor or inspector, with the SPCC Plan for a period of three years.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Testing and inspection: Records – Deficiencies

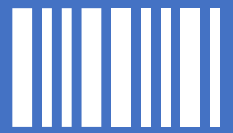
Plan

- Plan does not describe inspection procedures, record keeping, or record maintenance.
- Inspection procedures detailed in the plan do not require to sign/date inspection records and retain them for three years.
- Tank testing procedures and schedules are not up-to-date.

Field Implementation

- No inspection records were available for review.
- Visual inspections not in accordance with written procedures, e.g., the facility is utilizing a generic inspection form that does not cover details discussed in the inspection procedures of their SPCC Plan.
- Plan refers to Steel Tank Institute (STI) Standard SP001, but there are no records of the requisite 20-year formal external inspections for aboveground storage tanks.

Testing and inspection: Records – Best Practices



- Facility placed UPC type codes on different inspection points throughout a facility. Personnel log their inspection at each point daily with a UPC code scanner.
- Facility uses electronic visual inspection checklists, e.g., Tablet or handheld device is used to record tank/piping inspections.
- Facility captures tank inspections in online database which enables remote monitoring, record management, and records recovery in the event of a catastrophe.
- Inspection records created on handheld device trigger additional review by management and follow-up actions upon submission.

EPA Compliance Assistance Resources

The *SPCC Guidance for Regional Inspectors* provides an overview of the SPCC inspection, evaluation, and testing requirements, as well as how environmental equivalence may apply for these requirements.

Refer to Chapter 7 "Inspections, Evaluation, and Testing" in the SPCC Guidance for Regional Inspectors.

For example checklists and records, see also:

- Steel Tank Institute SP001 Standard for the Inspection of Aboveground Storage Tanks
- API Standard 653 Tank Inspection, Repair, Alteration, and Reconstruction

Piping – Requirements

112.8(d)/112.12(d) Facility transfer operations, pumping, and facility process.

- (1) Provide buried piping with a protective wrapping and coating. Cathodically protect such buried piping installations or otherwise satisfy the corrosion protection standards for piping in part 280 or a State program approved under part 281. If a section of buried line is exposed for any reason, inspect it for deterioration. If corrosion damage is found, undertake additional examination and corrective action.
- (2) Cap or blank-flange the terminal connection at the transfer point and mark it as to origin when piping is not in service or is in standby service for an extended time.
- (3) Properly design pipe supports to minimize abrasion and corrosion and allow for expansion and contraction.
- (4) Regularly inspect all aboveground valves, piping, and appurtenances. Assess the general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces. Conduct integrity and leak testing of buried piping at the time of installation, modification, construction, relocation, or replacement.
- (5) Warn all vehicles entering the facility to be sure that no vehicle will endanger aboveground piping or other oil transfer operations.

112.9(d) Facility transfer operations, oil production facility.

- (1) Periodically and upon a regular schedule inspect all aboveground valves and piping associated with transfer operations for the general condition of flange joints, valve glands and bodies, drip pans, pipe supports, pumping well polish rod stuffing boxes, bleeder and gauge valves, and other such items.
- (2) Inspect saltwater (oil field brine) disposal facilities often, particularly following a sudden change in atmospheric temperature, to detect possible system upsets capable of causing a discharge.
- (3) Have a program of flowline maintenance to prevent discharges from each flowline.
- (4) Prepare and implement a written program of flowline/intra-facility gathering line maintenance.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text of the rule.

Piping – Deficiencies

Plan

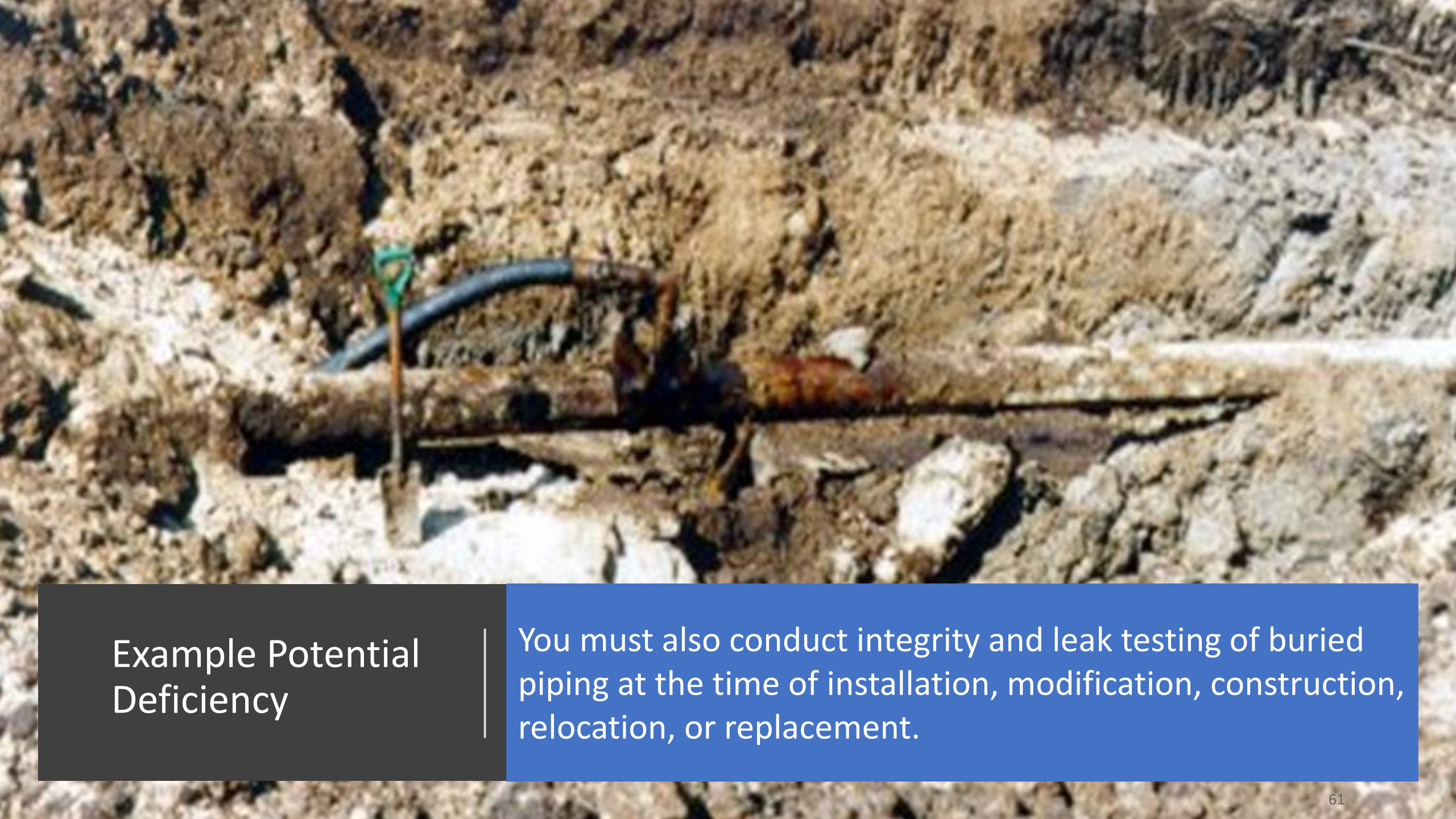
- Plan does not address piping inspections and/or integrity testing.
- Plan lacks discussion of warning mechanisms for aboveground piping.
- Plan refers to a flowline maintenance program but there is no description of the program elements or how it is implemented.

Field Implementation

- Aboveground valves and piping are not inspected regularly.
- Pipe supports are inadequate and/or not designed to minimize abrasion and corrosion (e.g., use cinder block and wood).
- Out-of-service piping are not marked or capped.
- Pipe terminals and valves are poorly marked.
- Facility is not implementing its flowline maintenance program.
- There is no containment for flowlines and the Contingency Plan is incomplete.

Example Deficiency

Pipe supports are inadequate and not designed to minimize abrasion and corrosion.



Example Potential Deficiency

You must also conduct integrity and leak testing of buried piping at the time of installation, modification, construction, relocation, or replacement.

Example Potential Deficiency

Facility must know the location of flow and gathering lines and must implement their flow/gathering line maintenance programs. Also, containment must be addressed or a contingency plan must be implemented.

Example Potential Deficiency

Facility must periodically and upon a regular schedule inspect all aboveground valves and piping associated with transfer operations for the general condition of flange joints, valve glands and bodies, drip pans, pipe supports, pumping well polish rod stuffing boxes, bleeder and gauge valves, and other such items.

Example Potential Deficiency

Leaking and poorly designed flowlines.

Example Potential Deficiency	Leaking piping and valves. Inspection program is questionable.

Piping – Best Practices

- Following a discharge in 2018, the facility had new gasoline pumps and underground piping installed along with new chase piping. Chase piping leads to sumps that are monitored electronically with automatic alarms.

EPA Compliance Assistance Resources

The *SPCC Guidance for Regional Inspectors* describes the various secondary containment requirements and demonstrates how these requirements apply to specific equipment and activities at an SPCC-regulated facility.

The guidance includes examples of containment measures for piping.

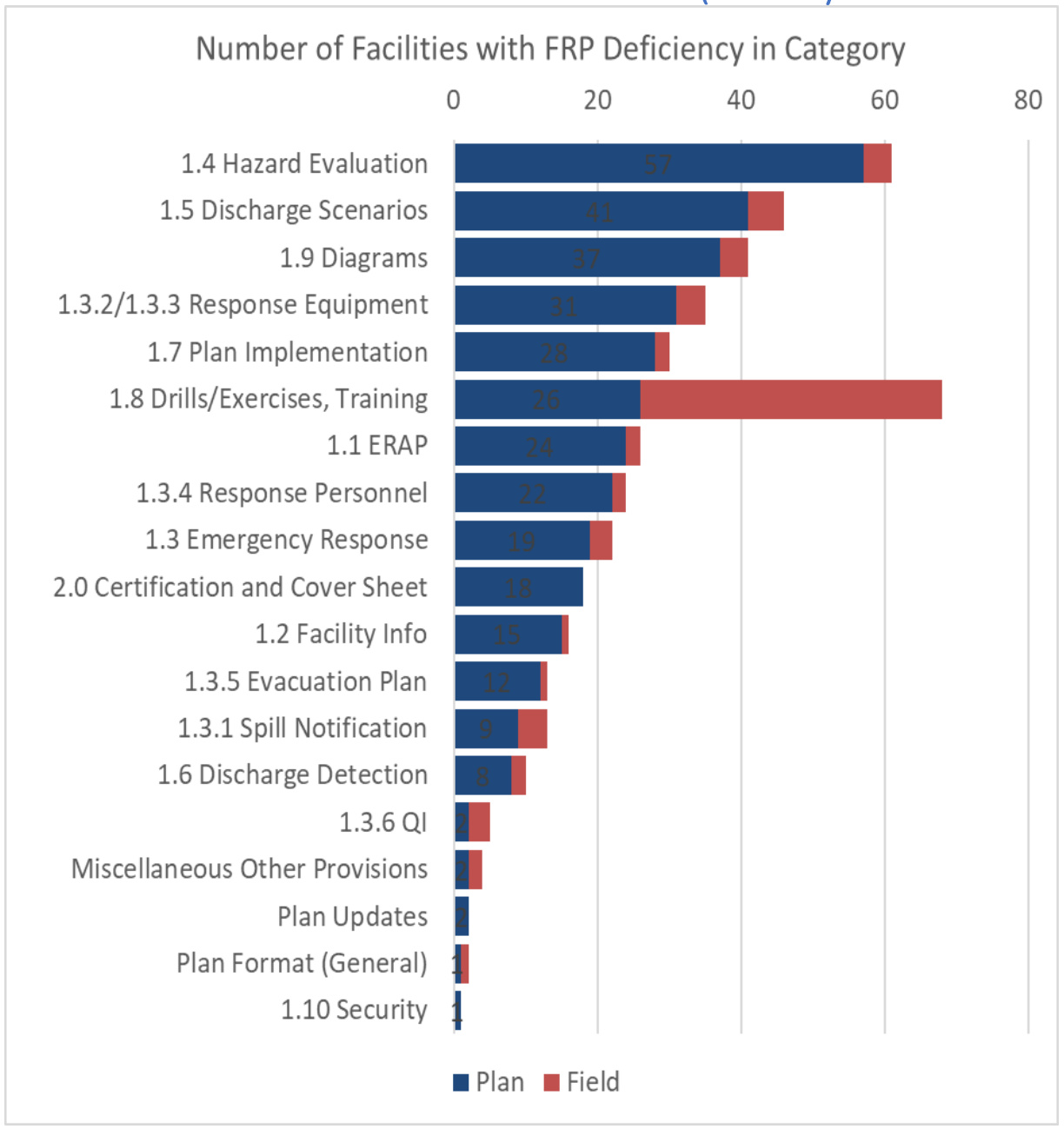
Refer to Chapter 4 "Secondary Containment and Impracticability Determinations" in the SPCC Guidance for Regional Inspectors.

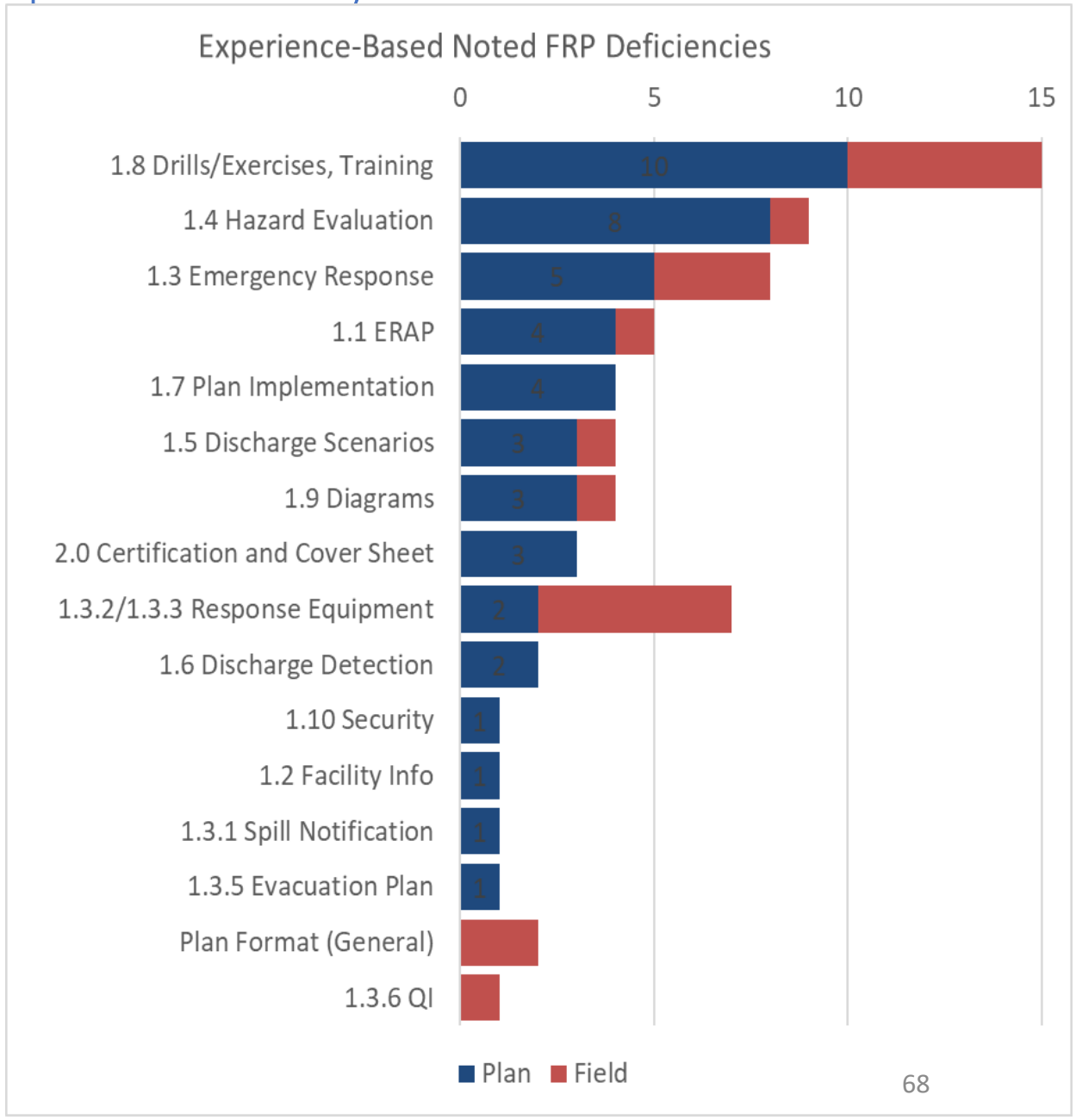
Top FRP Deficiency Areas

Common Problems and Best practices

Most Common FRP Deficiency Areas based on Sample of Facilities (Left) and Inspector Experience (Right)

(Listed by most-to-least frequent Plan deficiencies)





Top FRP Deficiency Areas

- Self-inspection, Drills and Exercises
- Hazard Evaluation (including Vulnerability Analysis)
- Discharge Scenarios
- Response Equipment
- Plan Implementation
- Diagrams

Self-Inspection, Drills and Exercises – Requirements

112.20(h)(8) Self-inspection, drills/exercises, and response training (see also Appendix F, Section 1.8)

The response plan shall include:

- (i) A checklist and record of inspections for tanks, secondary containment, and response equipment;
- (ii) A description of the drill/exercise program to be carried out under the response plan as described in § 112.21;
- (iii) A description of the training program to be carried out under the response plan as described in § 112.21; and
- (iv) Logs of discharge prevention meetings, training sessions, and drills/ exercises. These logs may be maintained as an annex to the response plan.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text.

Self-inspections, Drills and Exercises – Deficiencies

Plan

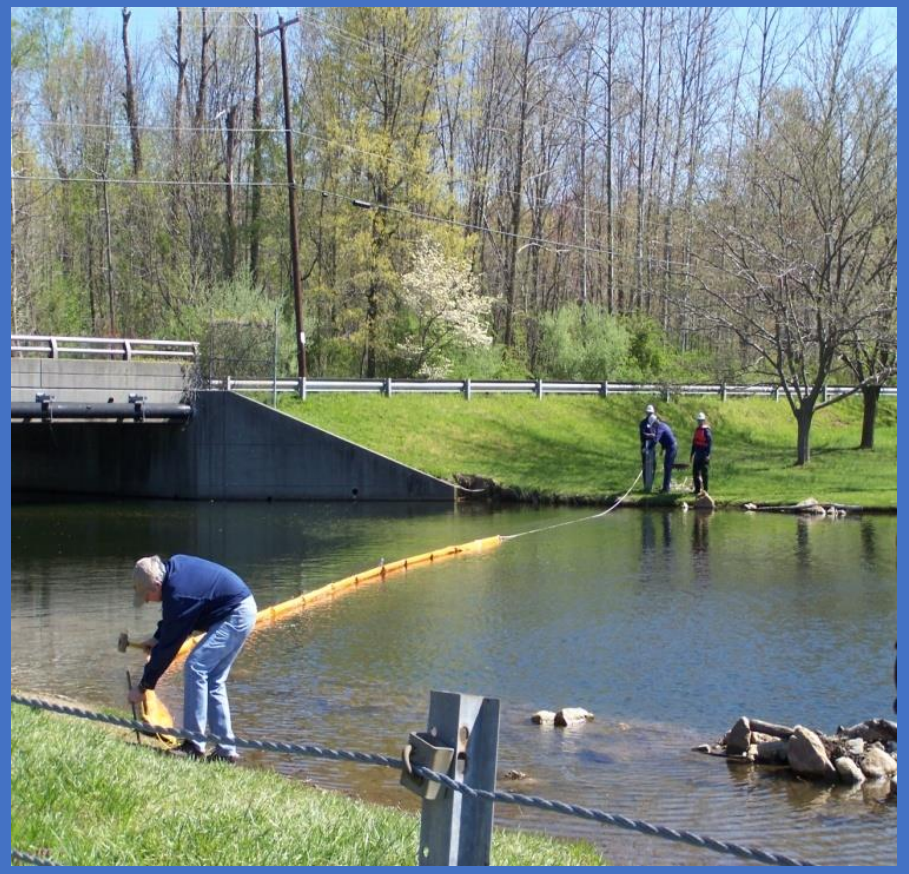
- The Plan is missing required elements, e.g., response equipment inspection, description of response training program.
- Plan does not include training forms or logs.

Field Implementation

- Facility personnel have not conducted drills and exercises in accordance with the Preparedness for Response Exercise Program (PREP) Guidelines or another documented program.
- Facility lacks records of Qualified Individual drills, table-top exercises, discharge prevention meeting logs, unannounced exercises, etc.

Self-inspections, Drills and Exercises – Best Practices

- Facility invites local emergency responders and regional EPA On-Scene Coordinators (OSCs) and/or USCG OSCs for Tabletop and/or Equipment Deployment Exercises
- Facility is an active member of a local oil spill/response Cooperative (Coop) and participates in meetings and local exercises
- Facility uses software during spill response (actual incident and exercises) that automates the notification process, allowing personnel to assist in other areas of the response or exercise
- The contracted Oil Spill Removal Organization (OSRO) conducts annual or frequent site visit and participates in exercise/training/drill to stay current on facility and appropriate response actions



Hazard Evaluation and Vulnerability Analysis – Requirements

112.20(h)(4) Hazard evaluation (see also Appendix F, Section 1.4)

- The response plan shall discuss the facility's known or reasonably identifiable history of discharges reportable under 40 CFR part 110 for the entire life of the facility and shall identify areas within the facility where discharges could occur and what the potential effects of the discharges would be on the affected environment.
- To assess the range of areas potentially affected, owners or operators shall, where appropriate, consider the distance calculated in paragraph (f)(1)(ii) of this section to determine whether a facility could, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text.

Hazard Evaluation and Vulnerability Analysis – Deficiencies

Plan

- Plan does not describe the spill history and tank age in the analyses for a potential oil spill.
- Plan is missing discussion of the most likely cause of failure of aboveground storage containers.
- Plan is missing evaluation of the vulnerability to natural disaster.
- Vulnerability analysis is inadequate (e.g., Plan does not identify all potential receptors).
- Planning distance is calculated incorrectly, or the Plan lacks evidence of planning distance calculations.

Field Implementation

- Tank inventory list in plan does not match actual tanks, e.g., number of tanks, contents, volumes.
- Discharge volumes are incorrect.

Hazard Evaluation and Vulnerability Analysis – Best Practices

- Facility conducted a full downstream reconnaissance of discharge pathway to evaluate and identify receptors and inform the development of tactical response plans.

EPA Compliance Assistance Resources

EPA's Area Contingency Planning page describes the content of Area Contingency Plans (ACPs) and provides links to ACPs for each EPA region.

Discharge Scenarios – Requirements

112.20(h)(5) Response planning levels (see also Appendix F, Section 1.5)

The response plan shall include discussion of specific planning scenarios for:

- (i) A worst case discharge, as calculated using the appropriate worksheet in Appendix D to this part. In cases where the Regional Administrator determines that the worst case discharge volume calculated by the facility is not appropriate, the Regional Administrator may specify the worst case discharge amount to be used for response planning at the facility. For complexes, the worst case planning quantity shall be the larger of the amounts calculated for each component of the facility;
- (ii) A discharge of 2,100 gallons or less, provided that this amount is less than the worst case discharge amount. For complexes, this planning quantity shall be the larger of the amounts calculated for each component of the facility; and
- (iii) A discharge greater than 2,100 gallons and less than or equal to 36,000 gallons or 10 percent of the capacity of the largest tank at the facility, whichever is less, provided that this amount is less than the worst case discharge amount. For complexes, this planning quantity shall be the larger of the amounts calculated for each component of the facility.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text.

Discharge Scenarios – Deficiencies

Plan

- Plan lacks facility-specific small and medium discharge scenarios and average probable discharge.
- Plan is missing required information on discharge scenarios (e.g., probability of chain reaction of failures, location of the discharge, effects of response efforts).
- The small, medium and/or worst-case discharge volumes are incorrect.

Field Implementation

- Discharge scenarios (sources and impacts) do not match actual site conditions.

Plan Implementation – Requirements

112.20(h)(7) Plan implementation (see also Appendix F, Section 1.7)

The response plan shall describe:

- (i) Response actions to be carried out by facility personnel or contracted personnel under the response plan to ensure the safety of the facility and to mitigate or prevent discharges described in paragraph (h)(5) of this section or the substantial threat of such discharges.
- (ii) A description of the equipment to be used for each scenario;
- (iii) Plans to dispose of contaminated cleanup materials; and
- (iv) Measures to provide adequate containment and drainage of discharged oil.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text.

Plan Implementation – Deficiencies

Plan

- Plan lacks details for how the facility would implement response actions to small, medium, and worst-case discharges of oil (e.g., lacks information about boat ramp locations, pre-determined containment boom and recovery points along the planning distance).
- Plan is missing key elements, e.g., worksheets from 40 CFR Appendix E, disposal plan, containment and drainage plan.

Field Implementation

- Actual spill response does not match response strategies, response actions and temporary storage described in the Plan.
- Facility personnel do not demonstrate awareness of disposal plans.

Response Equipment – Requirements

112.20(h)(1), 112.20(h)(3) and Appendix F, Sections 1.3.2 and 1.3.3

- 112.20(h)(3)(i) The identity of private personnel and equipment necessary to remove to the maximum extent practicable a worst case discharge and other discharges of oil described in paragraph (h)(5) of this section, and to mitigate or prevent a substantial threat of a worst case discharge (To identify response resources to meet the facility response plan requirements of this section, owners or operators shall follow Appendix E to this part or, where not appropriate, shall clearly demonstrate in the response plan why use of Appendix E of this part is not appropriate at the facility and make comparable arrangements for response resources);
- (ii) Evidence of contracts or other approved means for ensuring the availability of such personnel and equipment;
- (vi) A description of the facility's response equipment, the location of the equipment, and equipment testing;

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text.

Response Equipment – Deficiencies

Plan

- Plan does not describe the amount of oil the emergency response equipment can handle and its limitations.
- The response equipment listing is missing items (e.g., sorbents).

Field Implementation

- Equipment is missing (e.g., facility does not have the required 1,000 feet of boom as identified in the plan).
- The facility does not have logs for response equipment regular inspections.

Diagrams – Requirements

112.20(h)(9) Diagrams

The response plan shall include site plan and drainage plan diagrams.

Appendix F, Section 1.9

The appendix lists the required content of the Site Plan Diagram and Drainage Plan Diagram, as well as the Site Evacuation Plan Diagram which shall, as appropriate, include: (A) site plan diagram with evacuation route(s); and (B) location of evacuation regrouping areas.

Note: This text was adapted from the rule. Refer to 40 CFR part 112 for the full text.

Diagrams – Deficiencies

Plan

- The site drainage diagram is missing some of the required items (e.g., tank contents and storage capacities, drainage direction, evacuation routes).
- Site evacuation plan is missing some of the required items (e.g., lacks evacuation routes, ingress and egress for personnel).

Field Implementation

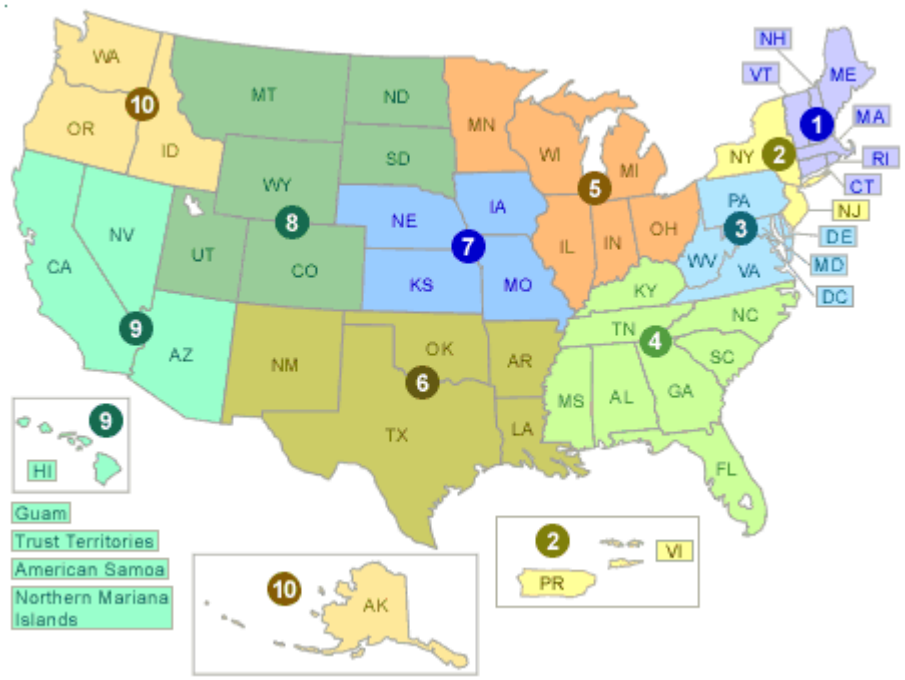
- Site diagram is not current.

Summary and Next Steps

- Study identified several common SPCC and FRP deficiency areas across the subset of facilities reviewed.
- The common deficiencies were consistent with inspector experience at other regulated facilities.
- The findings highlight areas for additional outreach and communication to improve understanding of, and consistency with, regulatory requirements.
- See fact sheet summarizing findings on EPA's website:
  - https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/quality-and-consistency-review-spcc-and-frp-2
- Public Webinars scheduled:
  - Tuesday, May 4, 2021 from 2:00 PM - 3:30 PM EDT
  - Wednesday, May 19, 2021 from 1:00 PM - 2:30 PM EDT
  - Thursday, May 20, 2021 from 3:30 PM - 5:00 PM EDT

For More Information

- EPA Reference Material, Guidance, and Hotline:
  - https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations
- EPA Regional Oil Program Contacts:
  - https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/contact-us-about-oil-spill-prevention-and
- EPA Oil Program National Subject Matter Experts:
  - Mark Howard (howard.markw@epa.gov)
  - Troy Swackhammer (swackhammer.j-troy@epa.gov)
  - Kristine Pordesimo (pordesimo.kristine@epa.gov)



Questions and Feedback on the Presentation

- Please use the chat function
- Do you have any questions about the material covered?
- Do you have any suggestions for improving the presentation?
  - Appropriateness of the content
  - Level of detail
  - Duration
  - Deficiencies that should be emphasized
  - Missing information