

Best Management Practices for Oil-Handling Activities

*National Shipbuilding Research Program
Environmental Technologies Panel
New Orleans, Louisiana*



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Presentation Outline

- SPCC Regulatory Update (15 minutes)
- Oil-Handling BMP Guidebook (45 minutes)
- BREAK (10 minutes)
- Oil-Handling BMP Guidebook (50 minutes)

SPCC Regulatory Updates

- Amended SPCC Requirements Finalized in December 2008
 - On December 5, 2008, EPA amended the SPCC rule to provide clarity, tailor requirements to particular industry sectors, and streamline certain requirements while maintaining protection of human health and the environment (73 FR 74236).
 - **Effective date postponed by 60 days, until April 4, 2009**, per White House memorandum dated January 20, 2009 entitled "Regulatory Review" and the Office of Management and Budget memorandum entitled, "Implementation of Memorandum Concerning Regulatory Review."

- Rulemaking concerning postponed compliance deadline has been withdrawn from the Federal Register and the USEPA website pending further review per the January 20, 2009 memos.
 - **Current compliance deadline remains July 1, 2009.**

SPCC Regulatory Updates

Purpose of December 5, 2008 Amendments

- Address a number of issues raised by the regulated community
- Increase clarity
- Tailor and streamline certain requirements
- Facilitate compliance by owners and operators of a facility

- Codifies many items that were previously published as guidance.

SPCC Regulatory Updates

Overview of Amendments

- Exempt hot-mix asphalt and hot-mix asphalt containers
- Exempt pesticide application equipment and related mix containers
- Exempt deferred USTs at nuclear power generation stations
- Exempt heating oil containers at single-family residences
- Clarify applicability of mobile refueler requirements to farm nurse tanks
- Amend the definition of “facility”
- Revise facility diagram requirement to provide additional flexibility
- Define and clarify requirements for a “loading/unloading rack”

(continues...)

SPCC Regulatory Updates

Overview of Amendments (continued)

- Provide further streamlined requirements for a subset of qualified facilities (“Tier I”) and allow use of an SPCC Plan template
- Modify secondary containment requirement language at §112.7(c) to provide more clarity
- Exempt non-transportation-related tank trucks from the sized secondary containment requirements
- Simplify security requirements
- Amend the integrity testing requirements to allow greater flexibility
- Amend integrity testing requirements for animal fat and vegetable oil containers that meet certain criteria

(continues...)

SPCC Regulatory Updates

Overview of Amendments (continued)

- Provide several revisions tailored for oil production facilities
- Clarify applicability of the rule to:
 - Man-made structures
 - Wind turbines used to produce electricity

SPCC Regulatory Updates

Amended/Clarified Definitions

SPCC Regulatory Updates

Amended Definition of “Facility”

- Clarifies that the definition of facility alone determines SPCC applicability
- Clarifies that containers can be separated or aggregated, based on various factors in defining “facility”
 - The owner or operator has discretion in identifying which contiguous or non-contiguous buildings, properties, parcels, leases, structures, installations, pipes, or pipelines make up the facility.
- Adds the terms “property,” “parcel,” and “lease” to the list of example terms that can be considered in determining facility boundaries
- Clarifies that the term "waste treatment" refers to oil waste treatment

SPCC Regulatory Updates

Amended Definition of “Facility”

- *Facility* means any mobile or fixed, onshore or offshore building, property, parcel, lease, structure, installation, equipment, pipe, or pipeline (other than a vessel or a public vessel) used in oil well drilling operations, oil production, oil refining, oil storage, oil gathering, oil processing, oil transfer, oil distribution, and oil waste treatment, or in which oil is used, as described in Appendix A to this part. **The boundaries of a facility depend on several site-specific factors, including but not limited to, the ownership or operation of buildings, structures, and equipment on the same site and types of activity at the site. Contiguous or non-contiguous buildings, properties, parcels, leases, structures, installations, pipes, or pipelines under the ownership or operation of the same person may be considered separate facilities. Only this definition governs whether a facility is subject to this part.**

SPCC Regulatory Updates

Definition of Loading/Unloading Rack

- EPA is finalizing a definition for loading/unloading rack which governs whether a facility is subject to §112.7(h).
 - Term “rack” replaces “area” throughout §112.7(h) requirement.
 - Provides clarity on applicability of the provision



SPCC Regulatory Updates

Definition of Loading/Unloading Rack

- *Loading/unloading rack* means a fixed structure (such as a platform, gangway) necessary for loading or unloading a tank truck or tank car, which is located at a facility subject to the requirements of this part. A loading/unloading rack includes a loading or unloading arm, and may include any combination of the following: piping assemblages, valves, pumps, shut-off devices, overfill sensors, or personnel safety devices.

SPCC Regulatory Updates

Loading Arm

- Loading/unloading arm is a key component of a loading/unloading rack.
- A loading/unloading arm is typically a movable piping assembly that may include fixed piping or a combination of fixed and flexible piping, typically with at least one swivel joint (that is, at least two articulated parts that are connected in such a way that relative movement is feasible to transfer product via top or bottom loading/unloading to a tank truck or rail car).
- Certain loading/unloading arm configurations present at loading racks may include a loading/unloading arm that is a combination of flexible piping (hoses) and rigid piping without a swivel joint. In this case, a swivel joint is not present on the loading arm because flexible piping is attached directly to the rigid piping of the loading arm and the flexible hose provides the movement needed to conduct loading or unloading operations in lieu of the swivel joint.

SPCC Regulatory Updates

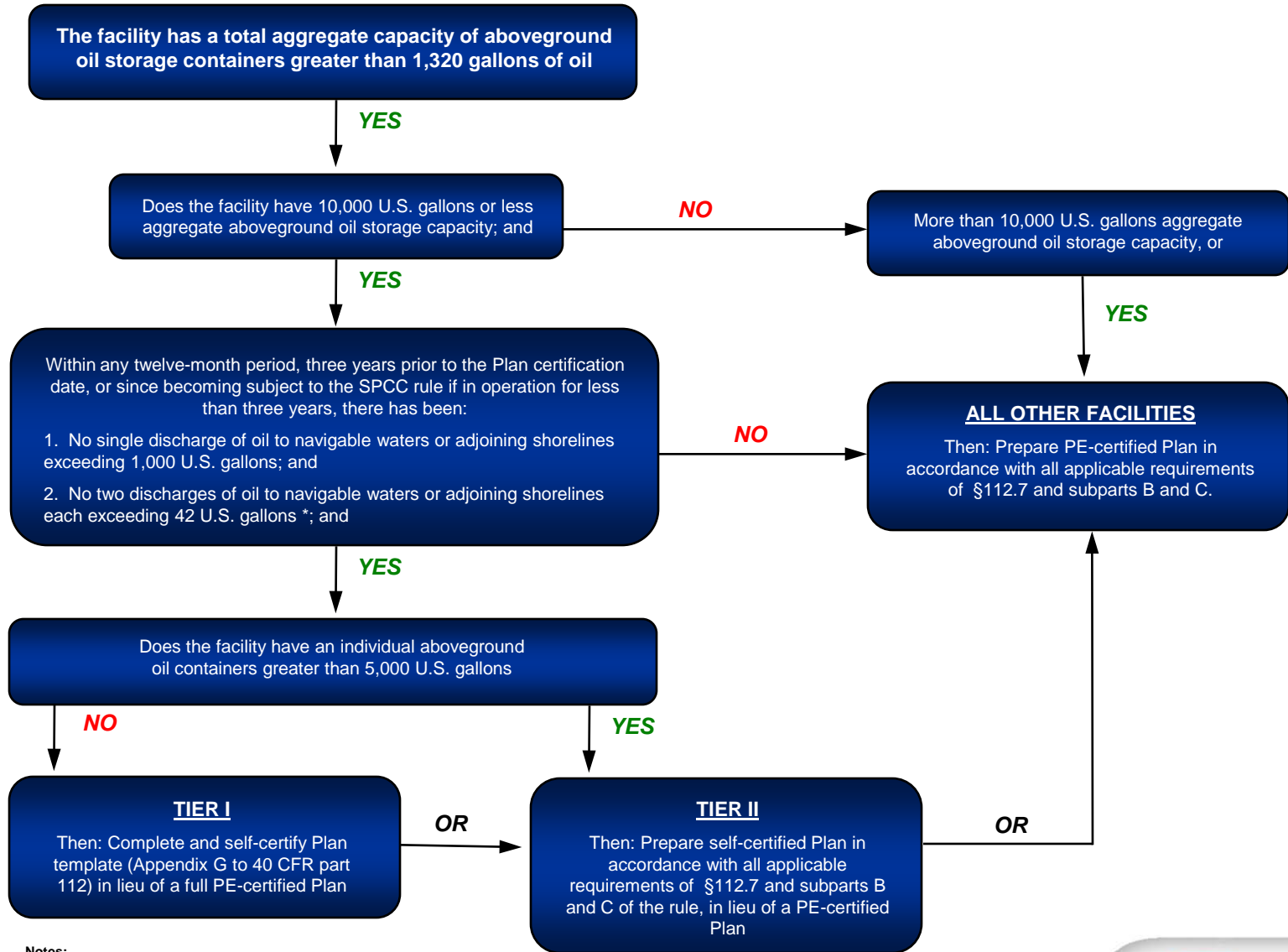
Tier I and Tier II Qualified Facilities

SPCC Regulatory Updates

Qualified Facilities: Overview

- “Qualified facilities” were addressed in the 2006 SPCC Amendments.
- 2008 rule amendments further streamline and tailor the SPCC requirements for a subset of qualified facilities.
- "Tier I" qualified facilities have an additional option to complete and implement a streamlined, self-certified SPCC Plan template (Appendix G to the rule).
- All other qualified facilities are designated “Tier II” qualified facilities.
- Limited to those facilities that:
 - Do not use environmentally equivalent measures,
 - Do not determine secondary containment to be impracticable, and
 - Do not need PE certification to comply with any rule requirements (e.g., produced water exemption or skimming option, described later).

EPA Tiers Applicability Flowchart



Notes:

* This criterion does not include discharges as described in §112.1(b) that are the result of natural disasters, acts of war, or terrorism. Additionally, the gallon amount described in this criterion addresses the amount of the discharge that actually reaches navigable waters or adjoining shorelines.



SPCC Regulatory Updates

Other Revisions

SPCC Regulatory Updates

Facility Diagram Requirement

- Revision clarifies that the facility diagram must include all fixed (i.e., not mobile or portable) containers.
- For mobile or portable containers, the diagram must show:
 - The area of the facility on the diagram where such containers are stored
 - The number of containers, contents, and capacity of each container, unless a separate description is provided in the SPCC Plan

SPCC Regulatory Updates

Revision to General Secondary Containment Requirement

- Clarifies that the **general secondary containment requirement is intended to address the most likely oil discharge** from any part of a facility
- **Allows active and passive** secondary containment
New text: "...In determining the method, design, and capacity for secondary containment, you need only to address the typical failure mode, and the most likely quantity of oil that would be discharged. Secondary containment may be either active or passive in design."
- Modifies §112.7(c) to expand the list of example prevention systems for onshore facilities
 - Additional examples: drip pans, sumps, and collection systems

SPCC Regulatory Updates

Non-Transportation-Related Tank Trucks

- In 2006, EPA exempted mobile refuelers from the sized secondary containment requirements applicable to bulk storage containers.
- This exemption is now extended to non-transportation-related tank trucks at a facility subject to the SPCC rule.
 - Does not include mobile/portable containers that generally operate in fixed locations at a facility
 - **Does not include tanker trucks used to supplement storage and serving as a fixed tank**

SPCC Regulatory Updates

Security Requirements

- Security requirements that were finalized for qualified facilities in December 2006 are now required for all applicable facilities
 - More streamlined, performance-based
 - Tailored to the facility's specific characteristics and location
- A facility owner/operator is required to describe in the SPCC Plan how he will:
 - Secure and control access to all oil handling, processing and storage areas;
 - Secure master flow and drain valves;
 - Prevent unauthorized access to starter controls on oil pumps;
 - Secure out-of-service and loading/unloading connections of oil pipelines; and
 - Address the appropriateness of security lighting to both prevent acts of vandalism and assist in the discovery of oil discharges.

SPCC Regulatory Updates

Integrity Testing

- Streamlined integrity testing requirements that were finalized for qualified facilities in December 2006 are now required for all applicable facilities.
- Provides flexibility in complying with bulk storage container inspection and integrity testing requirements. Requires owner/operator to:
 - Test/inspect each aboveground container for integrity on a regular schedule and whenever material repairs are made
 - Determine, in accordance with industry standards, the appropriate qualifications of personnel performing tests and inspections and the frequency and type of testing and inspections, which take into account container size, configuration, and design

For More Information

- 2008 SPCC rule amendment Federal Register notice (73 FR 74236; December 5, 2008)
 - <http://www.gpoaccess.gov/fr/>
 - <http://www.epa.gov/emergencies/content/spcc/>

- Complete Oil Pollution Prevention regulation (40 CFR part 112)
 - <http://www.gpoaccess.gov/cfr/>
 - <http://www.epa.gov/emergencies/lawsregs.htm>

- EPA Emergency Management Web Area
 - www.epa.gov/emergencies
 - www.epa.gov/oilspill

Oil-Handling BMP Guidebook Training Outline

- Overview of Guidebook
- What is a BMP?
- What is an Oil Handling Activity?
- Project Methodology
- Summary of Regulatory Requirements
- Spill Containment
- Bulk Transfer Operations
- Materials Management
- Drainage and Storm Water
- Environmental Management Systems for Oil-Handling
- Q&A

Overview of Guidebook

DRAFT GUIDANCE DOCUMENT - Rev.1

Best Management Practices for Oil-Handling Activities at Shipyards



National Shipbuilding Research Program
Environmental Technologies Panel

November 2008



- *Working Draft* – will be finalized following this training
- 60 pages plus appendices; about 6.3 MB
- Will be published in Adobe PDF format, with certain appendices in Microsoft Word so they can be customized
- Book-marked for easy reference

Overview of Guidebook

Table of Contents

1. Introduction
2. Overview of Applicable Oil-Handling Regulatory Requirements
3. Methods of Spill Containment
4. Managing Bulk Transfer Operations (between vessels and shore)
5. Materials Management
6. Management of Site Drainage and Storm Water Discharges
7. Environmental Management Systems

Overview of Guidebook

Appendices

- A Regulatory Requirements Applicable to Oil-Handling Activities at Shipyards
- B Survey of Best Management Practices for Oil-Handling Activities at Shipyards and Questionnaire Summary
- C Sample Site Environmental Guide
- D Vendor Information
- E Sample Declaration of Inspection Form
- F Sample Truck Loading and Unloading Checklist
- G Sample Tank Inspection, Container Storage, and Facility Security Checklists
- H Sample Containment Area Inspection Forms
- I USEPA – EMS Implementation Guide for the Shipbuilding and Ship Repair Industry
- J Sources and References

What is a BMP?

- Originated as part of NPDES program to describe qualitative methods that could supplement quantitative discharge limits to prevent releases of pollutants into surface waters.
- Evolved to refer generally to economic and practical management methods for any environmental medium.

*In this manual, **BMP** means an administrative or structural method to prevent or minimize oil discharges to surface water – developed by shipyard managers, or obtained from industry standards and agency guidance.*

What is an “oil-handling activity”?

- *Tasks* such as the management of fuels, lubricants, coolants, waste oil or wastewater/storm water contaminated with oil.
- *Use of equipment* that require oil for fuel, heat transfer, or lubrication.
- Conducted by the shipyard, its subcontractors, or the ship owner.
- Regulated by the USEPA or the USCG.

Handout:
Table 2.1
Oil-Handling
Activities at
Shipyards

Oil-Handling Challenges at Shipyards

- Work activities change as projects progress. Oil-handling activities and their locations also change as building or repair projects progress.
- The workforce includes employees and subcontractors. Employees of the ship's owner (e.g. US Navy) may also be involved in project tasks.
- Oil-handling activities and oil-containing equipment are located at the water's edge, elevating the potential impact of even a small release of oil.

Project Methodology

- Partners with BAE-SDSR, BAE-NSR, and NGNN

- Benchmarking
 - Site visits to Partners' shipyards
 - Questionnaire emailed to 15 shipyards(Appendix B)
 - Literature Review (Appendix J)

- Draft BMP Manual

- Training and Feedback

- Finalize Manual

Regulatory Requirements

1. USEPA Oil Spill Prevention and Response Regulations (40 CFR 112)
2. USEPA NPDES Regulations pertaining to Storm Water Associated with Industrial Activities (40 CFR 122)
3. USCG Regulations relating to Oil Transfers between ships, and between ship and shore (33 CFR 154 – 158)

All derive their statutory authority from the federal Clean Water Act.

Regulatory Requirements

Relevant regulatory requirements are presented in tabular format at the end of each section, and in full in Appendix A.

Regulatory Citation	Type of Activity or Equipment	Minimum Requirement
33 CFR 154.530 and 154.540	Onshore Hose Connections used in Transfers to/from Vessels (Small Discharge Containment)	<p>Provide fixed catchments, curbing, or other fixed means to contain a discharge of oil in each hose handling and loading arm area, each hose connection manifold area, and each hose connection that will be coupled or uncoupled during transfer operations.</p> <p>Each containment must have a capacity of at least two barrels for hoses or loading arms of 6" diameter or smaller, three barrels for hoses or loading arms between 6" and 12", and four barrels for hoses or loading arms or 12" or greater.</p> <p>Portable containment may be used for hose connections, and for other areas if approved by the COTP.</p> <p>Each facility must have a means to safely remove the material from the containment within one hour of completion of the transfer without discharging oil into the water.</p>
33 CFR 155.310(a)	Onboard Hose Connections and Transfer Points (Small Discharge Containment)	<p>Maintain under each loading manifold and each transfer connection point a fixed container or enclosed deck area that in all conditions of list or trim has a capacity of ½ barrel for hoses or loading arms of 2 inches or less, one barrel for hoses or loading arms between 2 and 4 inches; two barrels for hoses or loading arms between 4 and 8 inches, three barrels for hoses or loading arms between 8 and 12 inches; and four barrels for hoses or loading arms of 12 inches or more.</p> <p>Have a means of draining or removing discharged oil from each container or enclosed area without discharging oil to the water.</p> <p>Have a mechanical means of closing each drain and scupper in the container or enclosed deck area.</p>
33 CFR 155.805	Closure devices	Ensure the availability of enough closure devices to blank off each hose or loading arm not connected for material transfer.
33 CFR 155.815	Tank vessel integrity	All closure mechanisms on expansion trunk hatches, ullage openings, sounding ports, tank cleaning operations, and other openings must be properly closed to prevent a release of oil. Closure mechanisms may not be opened except when authorized by a licensed officer or tankerman.
40 CFR 112.8(c)(11)	Drums, Totes, and other Portable Containers	Position or locate mobile or portable oil storage containers in a manner in which a discharge is prevented. Provide secondary containment with sufficient freeboard to provide for precipitation.

Spill Containment

What type is appropriate?

- Depends on the nature of activity
- May be dictated by regulatory requirements
- Consider the containment's
 - Capacity
 - Structural strength or integrity
 - Impermeability
- Containment may be passive or active

Spill Containment

Passive Containment

- Necessary for
 - Hose connections
 - Oil storage containers and tanks, including portable containers and mobile equipment with belly tanks or fuel cells

- Appropriate for
 - Any permanent use or storage location
 - Remote areas where leaks or ruptures would not be immediately detected

Spill Containment

Types of Passive Containment

- Fixed containment structures
- Portable and temporary containment devices
- Facility drainage systems

Spill Containment

Fixed Containment Structures

- Dikes and retaining walls
- Double-walled tanks
- Quick drainage systems
- Buildings
- Curbing and berms



Spill Containment

Fixed Containment Structures – Advantages/Disadvantages

➤ Advantages:

- With proper maintenance, fixed containment structures require minimum human attention to function properly.
- Fixed containment structures are the most cost cost-effective way of providing containment for large numbers of containers or pieces of equipment that can be staged together in a central area.

➤ Disadvantages:

- Maintenance activities, including regular inspections and management of rainwater require labor hours, training, and proper documentation.

Spill Containment

Fixed Containment Structures – Advantages/Disadvantages

➤ Alternatives:

- For fixed aboveground storage tanks, the only alternatives are the use of double-walled tanks or reliance on the facility drainage system.
- For portable containers and mobile equipment, portable and temporary containment devices may be more practical.
- Devices such as “oil-stop valves” may be used to reduce labor time required for inspecting and draining containment areas.

Spill Containment

Portable or Temporary Containment Devices

- Drip pans and buckets



- Spill pallets and portable containment devices

- Collapsible or temporary containment systems



Spill Containment

Portable & Temporary Devices – Advantages/Disadvantages

➤ Advantages

- Portable containment devices are flexible and can accommodate frequent movement of containers that must be staged outdoors near the point of use.
- Portable and temporary containment devices can be fabricated from materials available onsite.

➤ Disadvantages

- If ordered commercially, portable and temporary containment devices are expensive.
- The devices must be properly deployed each time equipment or containers are moved.
- Rainwater that accumulates in the containment devices must be promptly removed.

Spill Containment

Portable & Temporary Devices – Advantages/Disadvantages

➤ Disadvantages (continued)

- The devices should be frequently inspected to ensure that they are standing up to wear.
- Portable devices may be borrowed. May be hard to keep track of sufficient number to meet demands at all times.

➤ Alternatives

- For containers and equipment that must be frequently moved to various points of use, the only SPCC-compliant alternative to the use of portable containment devices is reliance on facility drainage system.

Spill Containment

Facility Drainage System

- Design to capture the largest uncontained container of oil in the drainage system before it leaves the facility.
- If drainage flows to an oil/water separator (OWS), the OWS may be used for containment as long as the recovered oil container is large enough to contain the largest container of oil in the drainage area.
- Consider storm water volume.
 - We will discuss further under *Management of Site Drainage and Storm Water Discharges*

Spill Containment

Facility Drainage System – Advantages/Disadvantages

➤ Advantages

- Reliance on the facility drainage system eliminates the need to deploy portable containment devices for smaller bulk storage containers.

➤ Disadvantages

- Potentially large volume of storm water must be collected and examined, and possibly treated prior to discharge.

➤ Alternatives

- Active measures can be used for all scenarios except hose connections and bulk storage containers.
- For bulk containers, if both secondary containment and reliance on the facility drainage system are impracticable for engineering reasons, the facility must prepare an oil response plan and perform integrity inspections on an increased frequency. (40 CFR 112.7(d))

Spill Containment

Active Containment

- Appropriate for
 - Fuel dispensing (except loading/unloading racks)
 - Leaks from aboveground piping
 - Leaks and releases from oil-filled equipment such as transformers and hydraulic equipment

- Consider the nearest location of the spill supplies and the time required to deploy them.

- Spill supplies must be adequate to contain the most likely spill scenario. Consider
 - Type of spill anticipated (oil only, oily water, etc.)
 - Volume (containment vs. cleanup)

Spill Containment

Active Measures – Advantages/Disadvantages

➤ Advantages

- Flexible

➤ Disadvantages

- Not appropriate for bulk storage tanks and containers.
- Must be combined with a regular inspection program
- Must ensure that spill response kits are always properly situated and stocked.
- Must rely on trained and vigilant personnel to properly deploy.



➤ Alternatives

- Quick drainage system or drainage system
- Portable or temporary containment devices

Spill Containment

Summary

Handouts:

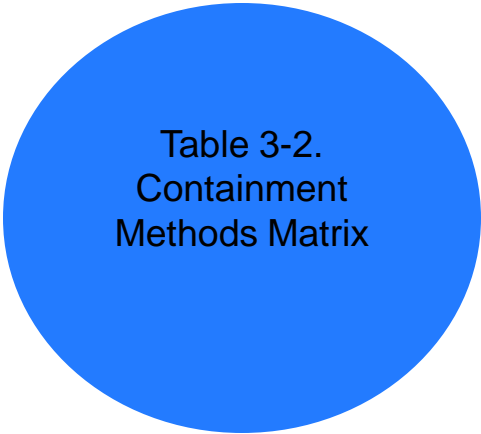


Table 3-2.
Containment
Methods Matrix




Table 3-3.
Spill Prevention
Guide

BREAK

Please return in 10 minutes

... or else!

Bulk Transfer Operations

Equipment BMPs

- Transfer Hoses and Loading Arms
- Couplings and Connections
- Pump Starter Controls
- Overfill Prevention
- Must meet applicable regulatory requirements, withstand service conditions, and minimize risks from human error.

Procedural BMPs

- Warning Signs and Traffic Control
- Declaration of Inspection
- Truck Loading/Unloading

(Labeling and inspection requirements are covered under Materials Management.)

Bulk Transfer Operations

Equipment

- Transfer Hoses and Loading Arms
 - Long enough to permit movement of vessel within its moorings
 - Compatible with oil –metallic, or nonmetallic (nitrile)
 - Support hoses using slings, near connections at sharp edges.
 - Do not permit hoses to drop between the dock and the ship.
 - Store hoses straight not coiled. Always drain and cap prior to storage.
 - Loading arms permanently marked with manufacturer specifications and meet ANSI standards.
 - Others?

Bulk Transfer Operations

Equipment

- Couplings and Connections
 - Threaded hoses or quick disconnect hoses for hoses of 6” diameter or less.
 - Flanged couplings for larger hoses. Ensure flanges are bolted properly.
 - Always use caps – to prevent releases and to prevent dirt from interfering with the connection.
 - Inspect prior to use for cracks, worn threads, defective valves.
 - Use lockouts to prevent unauthorized opening or closing of valves.

Bulk Transfer Operations

Equipment

- Pump Starter Controls and Emergency Shutoff
 - *Lock* in the off position when not in use.
 - Emergency shutoff within 60 seconds of activation (including voice communication). Locate the pump shutoff as close as possible to the manifold.

- Overfill Prevention
 - Use either equipment or procedures. Consider the probability and severity of the potential spill.
 - Use level indicators on all receiving tanks. Use manual stick gauging occasionally to check the accuracy of the level gauge.

Bulk Transfer Operations

Equipment

- Overfill Prevention (continued)
 - High level alarms and automatic shutoffs?
 - Alarms are required for flammable liquids, per NFPA
 - Not required by USEPA or USCG
 - Should be used in high-risk situations (e.g. where receiving tank is smaller than source container)
- ✓ Alarms should function independently of the level gauge.
 - ✓ Consider redundant alarms, alarms in series, and automatic shutoff for complex situations.
 - ✓ Automatic shutoff devices should shut off the pump rather than a closure devices to avoid hydraulic strain in the hose or pipeline.

Bulk Transfer Operations

Procedures

- Warning signs
 - Warning signs are required per USCG.
 - Should be used for all bulk transfer operations.
 - The transfer operation includes the coupling and uncoupling events.

- Traffic control
 - To avoid collisions with oil-handling equipment
 - To allow unimpeded access by emergency response personnel
 - Secondary containment can serve as a traffic barrier.

Bulk Transfer Operations

Procedures

- Declaration of Inspection (DOI)
 - Required by USCG for over-water transfers.
 - Minimum requirements cited in regulations



**Handout:
Sample DOI**

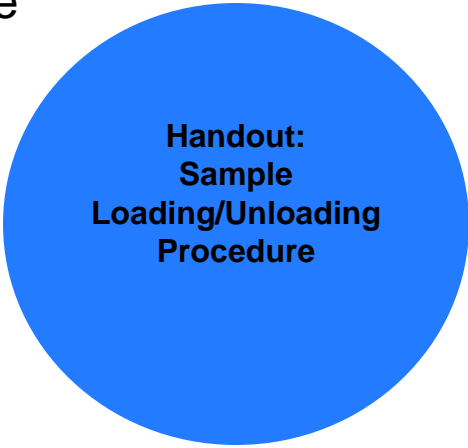
Common DOI violations:

- 🔗 One person in charge (PIC) for more than one transfer simultaneously.
- 🔗 PIC changes and DOI does not reflect a change.
- 🔗 Loading/unloading continues after a release has occurred.

Bulk Transfer Operations

Procedures

- Onshore Loading/Unloading Procedure
 - Not required by USEPA
 - Recommended as a BMP



**Handout:
Sample
Loading/Unloading
Procedure**

Materials Management

Categories of Materials Management BMPs

- Construction materials and features
- Labeling and marking
- Periodic inspections
- Inspection of materials and equipment on arrival
- Inventory control
- Security

Materials Management

Construction Materials and Features

➤ Tanks

- Make sure the fabrication date and the construction standard to which the tank was built is permanently marked on the nameplate.
- Tanks without legs must be subjected to periodic integrity testing (other than visual). Ensure that they are placed on an impermeable foundation.
- Tanks that are elevated (on legs or saddles) and less than 30,000 gallons may be visually inspected for integrity.

Materials Management

Construction Materials and Features

- Drums, IBCs, and other portable containers
 - Generally manufactured to meet USDOT Specifications for Packaging (40 CFR 178)
 - Often reused again and again. If reused by the shipper, he must comply with 49 CFR 180 *Continuing Qualification and Maintenance of Packaging*.

Materials Management

Construction Materials and Features

- Hard piping
 - Usually steel
 - Install above the pier where possible
 - Maintain a corrosion-resistant coating.

- Dock hoses
 - Metallic, or nonmetallic – vinyl-coated nitrile with steel reinforcement

Materials Management

Labeling and Marking

- Tanks and Ancillary Equipment
 - Mark or tag tanks, pumps, and meters to correspond with an accurate flow schematic per USCG.
 - Pump controls should be labeled to correspond to a manifold or storage tank.
 - Stencil each tank with capacity, tank contents, and ID number.
 - Consider a label with a schematic indicating fill limit, strapping chart, and whether it is double-walled.
 - Label inlets to distinguish them from the interstitial space portals.
 - Require subcontractors to follow these procedures for their tanks.

Materials Management

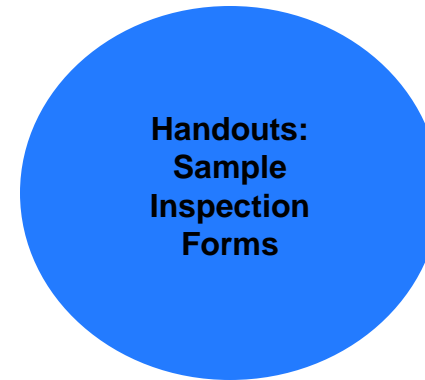
Labeling and Marking

- Hoses and Pipelines
 - USCG requires hoses and pipelines to be marked with the words “OIL SERVICE,” the MAWP, and an ID number that can be referenced to records showing
 - ✓ the equipment’s date of manufacture,
 - ✓ date of most recent pressure test, and
 - ✓ burst and test pressure.
 - Since paint fades or wears off, use metal bands engraved with the hose’s MAWP and ID number.

Materials Management

Periodic Inspections

- Storage Tanks
- Portable Containers
- Hoses and Pipelines
- Equipment Reservoirs



Materials Management

Periodic Inspections

➤ Storage Tanks

- Shop-Built Steel Tanks: STI-SP001
 - ✓ Monthly, quarterly, and annual inspections by the tank owner.
 - ✓ Formal external and internal inspections by an API or STI-certified inspector at intervals determined by the tank size and configuration.
 - ✓ Also inspect ancillary equipment (e.g. level sensors).

- Fiberglass Tanks: API, ASME, ASTM, and FTPI standards
 - ✓ Monthly visual inspection by tank owner.
 - ✓ Annual exterior inspection by a qualified FRP inspector.

Materials Management

Periodic Inspections

Portable Tanks
USDOT 49 CFR 180
*Continuing Qualification and
Maintenance of Packaging*

Every 2 ½ years:

- ✓ External inspection
- ✓ Leak test (pressure depends on specification number)

Drums:

STI SP001

Monthly visual inspections

- ✓ Welds on seams and rims
- ✓ Lids for accumulated liquid
- ✓ Bung holes are not damaged

IBCs

USDOT 49 CFR 180
*Continuing Qualification and
Maintenance of Packaging*

Every 2 ½ years:

- ✓ External inspection
- ✓ Leak test

Every 5 years:

- ✓ Internal inspection
- ✓ Mark with date of most recent test

Materials Management

Periodic Inspections

Hoses and Pipelines

- Overwater - USCG
 - Annual
 - ✓ Pressure testing to 1.5 x MAWP
 - ✓ Visual prior to every transfer
- Onshore - Use API 570 Inspection, Repair, Alteration, and Rerating of In-Service Piping Systems
 - Every 10 years minimum
 - ✓ Thickness testing
 - ✓ Consider more frequently for piping at water's edge
 - Regular (monthly) inspections by owner for
 - ✓ Signs of abrasion, corrosion, expansion and contraction at supports
 - ✓ Corrosion along the bottom surface, where piping goes underground, and at joints

Materials Management

Periodic Inspections

Equipment Reservoirs

- Inspection frequency depends upon
 - Age of equipment
 - Service demand
 - Proximity to surface water
 - ✓ Consider visual inspections monthly.
 - ✓ For transformers, an annual maintenance inspection will help identify problems that could result in a release.

Materials Management

Inventory Control

- Keep inventories of materials low.
- Request delivery immediately prior to use.

Inspection on Arrival

- Inspect *and tag* rented equipment on arrival to ensure integrity.
- Write POs for leased equipment specifying that the vendor ensures integrity upon delivery.



Materials Management

Security

- Fencing (no longer full fencing)
- Locked starter controls and valves
- Lighting

Site Drainage and Storm Water

Regulatory Requirements

- SPCC regulations:
 - Facility must be capable of retaining spills from areas without any form of containment before they reach navigable water.
 - Drainage from diked areas must be inspected prior to discharge.
- NPDES regulations:
 - Shipyards must obtain industrial storm water permits. The USEPA's MSGP (Sector R) contains a numerical limit for TSS. BMPs may also be written into storm water permits.

Site Drainage and Storm Water

BMPs

- Prepare a facility drainage map.

- Structural controls
 - Curbs and berms
 - Cover storage and handling areas
 - Drain covers and filters
 - Dry dock trenches – Collection of first flush

- Non-structural controls
 - Good housekeeping
 - Preventive Maintenance
 - Inspections
 - Communications with employees and subcontractors

Site Drainage and Storm Water

BMPs

- Prepare a facility drainage map noting
 - Each drainage area, including piers, wharves, and dry docks
 - Location of every catch basin and storm drain
 - Ultimate point of discharge for each drainage area
 - Material storage and handling areas in each drainage area
 - Structural controls

- Consider labeling storm drains: “No dumping – Drains to Bay,” or “Rain Only.”

Site Drainage and Storm Water

BMPs

- Structural controls
 - Curbs and berms
 - To prevent storm water run-on and minimize the volume of potentially contaminated water.
 - Cover storage and handling areas
 - Drain covers and filters
 - Catch basin covers
 - Polymer embedded filters
 - Grate inlet skimmer boxes containing carbon adsorption
 - Dry dock trenches – Collection of first flush



Site Drainage and Storm Water

BMPs

- Non-structural controls
 - Good housekeeping
 - Clean leaks and drips immediately.
 - Place drop cloths and floor coverings to prevent oil from contacting the dry dock floor.
 - Keep oil-handling areas away from high pedestrian traffic.
 - Preventive Maintenance
 - Keep equipment clean and working properly.
 - Inspections
 - Regular walk-throughs.
 - Communications with employees and subcontractors.

**Handout:
Site
Environmental
guide**

Site Drainage and Storm Water

Containment Area Draining Operations

- Inspect accumulated precipitation for oil sheen prior to discharge to the site drainage system (unless the drainage is treated.)
- Document each discharge event.

- Alternatives:
 - Allow accumulated water to evaporate.
 - Oil-stop valves, in-line filtration devices, oil spill monitors and alarms – maintain in proper working order and keep records.

Environmental Management Systems

Management Challenges

- Ensuring training is given and documented
- Ensuring inspections are performed and documented
- Ensuring requirements are communicated to subcontractors and communication is documented
- Ensuring spill events are promptly communicated to management and reported.

Environmental Management Systems

Benefits of an EMS

- Commitment and accountability
- Defined organizational structure for effective program implementation
- Consistent and transparent processes
- Integration with company safety and risk management
- Commitment to high level of expertise for EHS staff
- Integration with general management strategies
- Regular, timely, and uniform reporting from the work floor through management to the board of directors

Having an EMS is a Best Management Practice.

Environmental Management Systems

PDCA

PLAN

- Create an Environmental Policy Statement
- Identify Legal and Other Requirements
- Identify Environmental Aspects Associated with Operations
- Identify Performance Objectives and Targets
- Establish Environmental Management Programs

Environmental Management Systems

PDCA

DO

- Define Organizational Structure
- Establish Requirements for Training, Awareness, and Competence
- Establish Communication Processes
- Establish Document Control Procedures
- Maintain Documentation
- Establish Operational Control Procedures
- Develop Emergency Preparedness and Response Procedures

Environmental Management Systems

PDCA

CHECK/ACT

- Perform Monitoring and Measurement
- Ensure Nonconformance and Corrective and Preventive Action
- Maintain Records
- Perform EMS Audits
- Management Review

Environmental Management Systems

USEPA Collaboration with Shipbuilding and Ship Repair Industry



Presenter's Contact Information

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