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OIL FACILITY LOADING/ UNLOADING RACKS

Sized Spill Containment Required

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Introduction

The general requirements for Spill Prevention, Control, and Countermeasure (SPCC) plans at 40 CFR 112.7 include provisions at Section 112.7(h) that apply specifically to "facility tank car and tank truck loading/unloading racks (excluding offshore facilities)." Mainly, Section 112.7(h) seeks to ensure that loading/unloading racks (loading racks) are provided with either a catchment basin or treatment system designed to handle discharges or secondary containment that meet capacity requirements. Additional requirements for loading racks are intended to prevent vehicles from departing before a supervised disconnect is completed and to ensure that all vehicle outlets are securely closed before departure.

All measures taken to prevent and control a release of oil from loading racks must be described in the SPCC Plan itself.

Loading rack definition

Simple loading and unloading between a tank and a tanker truck may occur in many places in an SPCC-covered facility. In its controversial 2002 SPCC amendments, the U.S. Environmental Protection Agency (EPA) included language that potentially subjected any area where this activity took place to capacity-specific secondary containment, also called sized secondary containment. Following discussions with industry, the EPA amended the language to require sized secondary containment only when loading/unloading occurred at loading racks. (Loading/unloading involving a regulated container and occurring outside a loading rack—in what the EPA calls "simple loading or unloading configurations"—is subject to the general secondary containment provisions at Section 112.7(c); secondary containment under this section is broadly defined and includes drip pans and sorbent materials.)

Including requirements specific to loading racks caused additional confusion since the EPA had not provided a definition of a loading rack. The problem was addressed in the December 5, 2008 SPCC amendments in which the Agency added the absent definition:

> "*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."

The key element of this "equipment-based" definition—what makes a structure a loading rack—is the "loading or unloading arm." In the preamble to the 2008 amendments, the EPA states: "The Agency does not intend this definition to include simple loading or unloading configurations, but rather to only include the associated equipment and structure associated with loading/unloading arms as part of a rack. Equipment present at a loading/unloading area where a pipe stand connects to a tank car or tank via flexible hose, which is not equipped with a loading or unloading arm, is not considered a loading/unloading rack as defined in this action. However, the presence of flexible hoses on oil transfer equipment does not always indicate that the equipment is exempt from the definition of loading/unloading rack, as some top and bottom loading racks are made up of a combination of steel loading arms connected by flexible hosing."

‘Loading arm’ definition

While the EPA clearly states that a structure is subject to Section 112.7(h) only if it possesses a loading arm, the Agency neglected to include a definition of loading arm when it proposed the 2008 amendments and hence, could not include any definition in the final regulations. However, consistent with comments on the proposal, the EPA states in the preamble:

“… a loading 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 railcar). However, 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.”

Loading rack requirements

Section 112.7(h) consists of the following requirements for loading racks:

(1) Where loading/unloading rack drainage does not flow into a catchment basin or treatment facility designed to handle discharges, use a quick drainage system [see note below] for tank car or tank truck loading/unloading racks. You must design any containment system to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the facility.

(2) Provide an interlocked warning light or physical barrier system, warning signs, wheel chocks, or vehicle brake interlock system in the area adjacent to a loading/unloading rack to prevent vehicles from departing before complete disconnection of flexible or fixed oil transfer lines.

(3) Before filling and departure of any tank car or tank truck, closely inspect for discharges from the lowermost drain and all outlets of such vehicles, and if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit.

Note: A "quick drainage system" is a device that drains oil away from the loading/unloading area to some means of secondary containment or returns the oil to the facility.

Key compliance points

In meeting loading rack requirements, the following points should be considered:

- Tank cars and tank trucks are subject only to the requirements of Section 112.7(h) when conducting loading or unloading operations associated with a loading/unloading rack as defined above. Otherwise, they are subject to the general secondary containment requirements at Section 112.7(c).
- The loading rack definition typically will not include oil-filled equipment; however, transfers associated with oil-filled operational equipment where a rack is not present are still required to meet the general containment requirements of Section 112.7(c).

- Section 112.7(h) (including the sized secondary containment provision) applies to transfers at any loading/unloading rack associated with any type of container.
- Transfers at loading racks and transfer areas associated with exempted underground storage tanks (USTs) are considered regulated activities at an otherwise regulated SPCC facility and are subject to the requirements of Section 112.7(h).
- The EPA specifically excluded onshore oil production facilities and farms from the loading rack requirements at Section 112.7(h) because the Agency and commenters alike believe that loading racks are not typically associated with these types of facilities. Oil transfer areas, such as loading/unloading areas at farms and oil production facilities that are subject to the SPCC rule, remain subject to the general secondary containment requirements of Section 112.7(c).
- As indicated in Section 112.7(d), an operator may determine that secondary containment at a loading rack is impracticable due to geographic limitations, fire codes, etc. In such cases, the SPCC Plan must clearly explain why secondary containment is not practicable and specify how the additional regulatory requirements will be met.

Other SPCC Plan elements

A high-quality SPCC Plan should include the following elements regarding loading racks:

- Details of the sized secondary containment system. For example, if a rollover berm is used, the Plan should include a calculation of how the berm will provide containment for the largest compartment of the tank truck loading or unloading, plus additional space for precipitation.
- Provision of drip pans to catch small leaks from piping/hose connections.
- Spill cleanup kits that include absorbent material, booms, and other portable barriers in close proximity to the loading rack. Include the schedule for ensuring that all essential supplies are present and in good condition; a monthly inventory review is recommended.
- An engineering description of surface drainage outside the loading rack area and where released oil will be directed.
- A description of any oil-water separator and how it will accommodate the maximum amount of oil and water captured in the sized containment. Include an inspection schedule for the oil-water separator consistent with maintenance history and equipment age.
- A description of security provisions. Typical security includes fencing, locked gates, locked valves, location of keys to locks, illumination, locked cabinets,

and electrical starter controls.

- Spill scenarios and how they would be addressed.
- Loading and unloading procedures. For example:
  - Suppliers must meet the minimum requirements for tank truck loading/unloading established by the U.S. Department of Transportation.
  - Vendors must understand the site layout and follow specific procedures regarding entering the facility and uploading the product and possess the equipment needed to respond to a discharge from the vehicle or fuel delivery hose.
  - Facility manager or designee must supervise oil deliveries for all new suppliers and periodically observe deliveries for existing, approved suppliers.
  - Loading/unloading of tank vehicles takes place only at the designated loading rack.
  - Vehicle filling is performed by facility personnel trained in discharge prevention procedures.
  - Truck driver or facility personnel remain with the vehicle at all times while fuel is being transferred.
- A detailed checklist of fuel transfer procedures:
  - Before loading/unloading (e.g., check hoses for leaks; secure tank vehicle with wheel chocks and interlocks),
  - During loading/unloading (e.g., monitor liquid level in receiving tank to prevent overflow; shut off vehicle when making connection unless it is used to operate a pump), *and*
  - After loading/unloading (e.g., close all tank and loading valves before disconnecting; inspect lowermost drain and all outlets on tank truck before departure).