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SPCC Compliance Solutions

Simple ways to comply with EPA's Stormwater Pollution Control and Countermeasures (SPCC) Requirements

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Executive Summary

Spill Prevention Control and Countermeasure (SPCC) Regulations require many facilities to create plans to prevent the discharge of oil into national waters. Unlike other spill response or contingency plans that only detail the steps to be taken after a spill, SPCC Plans also focus on proactive measures that the facility will take to prevent spills and discharges.

Good housekeeping, the development of standard operating procedures and establishing preventative maintenance schedules are considered to be "good engineering practices" under the Plan requirements.

Because even the best plans sometimes fail, being prepared for spills is also part of a complete SPCC Plan. Stocking the appropriate spill response equipment and providing the proper training for all employees are essential preparations under this regulation.

SPCC History

Industry thrives on fluids. They are required to create products, lubricate machines, cool parts and to perform myriads of other tasks. When left unchecked, however, they can become sources of air, water and soil pollution.

In the mid to late 1800s, industry boomed in the US, and pollution increased considerably. It was common practice to dump production wastes in a nearby stream or behind the facility. As time went on, Congress did create a few regulations designed to stop this trend, but none were able to fully abate pollution.

By the late 1960s and early 1970s, the general public demanded controls on air, water and soil pollution. In response to these growing concerns, Congress created the Environmental Protection Agency (EPA). The EPA was tasked with creating plans to repair the damage that had already been done to the environment and establishing rules and programs to prevent further pollution.

As part of this charge, the EPA created the Clean Water Act (CWA) in 1972. This Act created a framework for regulating pollutants being discharged into waters of the United States and set quality standards for all surface waters. The overall goal of the CWA, according to the EPA, is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters so that they can support the protection and propagation of fish, shellfish, and wildlife; and recreation in and on the water."

The Ashland Oil Spill in 1988 followed by the Exxon Valdez Oil Spill in 1989 were catalysts for additional regulations, including the Oil Pollution Act in 1990 and the Spill Prevention Control and Countermeasures (SPCC) Rule Proposal in 1991.

The SPCC regulations have been modified many times since their inception, with major revisions occurring in 2002, 2006 and 2008.

The SPCC Rule requires certain facilities to evaluate oil spill hazards and develop plans to prevent oil spills from entering navigable waters of the United States.

Who is Subject to SPCC Requirements?

SPCC regulations apply to large oil processing facilities and industrial, commercial, agricultural or public facilities that use or store large quantities of oil or oil products. [40 CFR 112.1(b)] Facility owners or operators are responsible for creating SPCC plans in writing if they are a non-transportation related entity that meets both of the following criteria:

(1) They have an above ground oil storage capacity over 1,320 gallons or have completely buried tanks with a capacity greater than 42,000 gallons;
(2) "There is a reasonable expectation of discharge into or upon navigable waters of the United States or adjoining shorelines." [40 CFR 112.1(b)]

In addition to these requirements, regional administrators may require <u>any</u> facility "subject to jurisdiction of EPA under section 311(j) of the CWA to prepare and implement an SPCC Plan or any applicable part, to carry out the purpose of the CWA." [40 CFR 112.1(f)]

When determining the amount of oil stored above ground, all 55-gallon drums and larger containers or tanks used for oil storage must be counted. Any container smaller than 55 gallons does not need to be counted. [40 CFR 112.1(c)(5)]

It is important to note that it is the storage *capacity* of a tank or container and not the actual amount of oil being stored that triggers regulation. For example, if the facility has a 2,000 gallon above ground oil tank but only keeps 500 gallons of oil in it, they would be subject to regulation because the tank has a *capacity* greater than 1,320 gallons.

Oil-filled equipment is also subject to regulation. Some examples of oil filled equipment (40 CFR 112.2) include:

- hydraulic systems
- lubricating systems
- gear boxes
- pumps
- compressors
- coolant systems
- heat transfer systems
- transformers
- circuit breakers
- switches

In the 2006 SPCC amendments, the EPA clarified that oil-filled equipment that meets oil discharge history criteria does not require secondary containment, but does still require a monitoring program, a contingency plan and a commitment of resources in the event of a discharge. [40 CFR 112.7(k)]

Underground storage tanks in compliance with 40 CFR 280 regulations or state programs (40 CFR 281), containers that are permanently closed, and parts of a facility used solely for wastewater treatment do not need to be counted.

The qualification for "reasonable expectation of discharge" is not defined in the rule. Facility owners or operators must determine this potential. Geography and location of a facility are two factors that need to be considered. The distance to streams, ditches, gullies, storm sewers, or navigable waters; as well as the amount of oil stored, worst-case weather conditions, history of previous spills, etc, must also be taken into account. Man-made dikes, equipment and other diversionary structures cannot be taken into consideration for exclusion from planning requirements. [40 CFR 112.1(d)(1)(i)]

What is Oil?

Oil is "any kind or in any form including, but not limited to, fats, oils or greases of animal, fish or marine mammal origin; vegetable oils, including oils from seeds, nuts, trees or kernels; and other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse or oil mixed with wastes other than dredged spoil." [40 CFR 112.2]

Petroleum oils include:

- crude oil
- refined petroleum products
- asphalt
- gasoline
- fuel oils
- mineral oils
- naphtha
- mixtures of these oils

Animal fats and oils include:

- fats, oils or greases of animal, fish or marine mammal origin
- vegetable oils, including oils from seeds, nuts, fruits, or kernels

Plan Basics

The goal of an SPCC Plan is to define <u>proactive</u> methods that a facility will take to prevent oil from being discharged into navigable waters or onto adjoining shorelines. In this regard, it is different from an oil spill contingency plan that lists the <u>reactive</u> measures that will be taken in the event of a spill – although such contingency plans may be incorporated as part of the facility's SPCC plan.

Plans must be prepared in writing and have the full approval of management "at a level of authority to commit the necessary resources to fully implement the Plan." [40 CFR 112.7]

Plans may also need to be reviewed and certified by a licensed Professional Engineer. [40 CFR 112.3(d)] The Engineer must attest:

1. "that he is familiar with the requirements"
2. "that he or his agent has visited and examined the facility"
3. "that the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of this part"
4. "that procedures for required inspections and testing have been established"
5. "that the Plan is adequate for the facility" [40 CFR 112.3(d)]

Facilities with aggregate above ground storage capacities of 10,000 gallons or less that have not had a discharge above permissible limits and that meet the criteria in 40 CFR 112.6 are permitted to self-certify their plans. [40 CFR 112.3(g)]

Plan Elements

Although an SPCC Plan is specific to a facility, all Plans must contain the following information: [40 CFR 112.7(a)-(h)]

- A description of the physical layout of the facility that denotes the location and contents of each container, tank, transfer station and all piping.
- Routine oil handling procedures and discharge prevention measures.
- Discharge and drainage control measures.
- Procedures for discovery, response and cleanup of any discharged materials, as well as disposal methods for recovered materials.
- A contact list, including phone numbers for facility response coordinators, the National Response Center, clean up contractors (if applicable), and all other appropriate federal, state and local agencies that would need to be contacted in the event of a discharge.
- A Facility Response Plan or
    - Information that would enable a person to properly report a discharge.
    - Documented procedures that can be used in an emergency that involves a discharge.
    - A prediction on the direction, rate of flow and total quantity of oil that could be discharged.
    - Appropriate containment or diversionary structures for oil-filled equipment.
- Documentation of when routine inspections and tests will be conducted. (Records of these inspections and tests must be signed and kept for three years.)
- Provisions for proper training of all oil-handling personnel, documentation of training and a schedule for refresher briefings.
- Security measures for the facility, including fencing, shut-offs, and lighting
- Procedures to prevent discharges during tank car or tank truck offloading (if appropriate).

Amending SPCC Plans

Within six months of a change to facility "design, construction, operation or maintenance that affects its potential for a discharge," facility owners or operators must amend their SPCC Plans. [40 CFR 112.5(a)]

Even if no change has occurred at the facility, plans must be reviewed at least once every five years. [40 CFR 112.5(b)] As part of this review, facilities must look for "more effective prevention and control technologies" that may have been introduced or have been proven to be more effective than current technologies outlined in the Plan.

Facility Response Plans

Facilities that could reasonably be expected to cause "substantial harm" to the environment as defined in [40 CFR 112.20(f)] must submit a Facility Response Plan (FRP) as part of their SPCC Plan.

In the event that the facility's processes or procedures fail to prevent a discharge, FRPs detail the steps that the facility will take to mitigate the spill or discharge. Planning guidelines include:

- Must be consistent with the requirements of the National Oil and Hazardous Substance Pollution Contingency Plan. [40 CFR 300]
- Should be coordinated with the Local Emergency Planning Committee (LEPC,) who should also maintain a copy of the Plan.
- Must be reviewed periodically.
- Must include the name and phone number of a qualified individual who has the authority to make decisions regarding response; as well as contact information for other individuals or organizations that would need to be contacted in the event of a discharge.
- Must describe the equipment that the facility has available to respond to the discharge, as well as its location.
- Must contain a list of response personnel, their qualifications, capabilities and duties during a response.
- Must contain information about the physical facility and its owners.
- Must detail the steps that will be taken to mitigate discharges.
- Must include a hazard evaluation that discusses any discharge history, if applicable.
- Should include a checklist or record of inspections for tanks, secondary containment and response equipment; a description of how and when drills or exercises will be conducted, and how responders will be trained; as well as logs of training sessions, drills, and other pollution prevention meetings.

When Spills Do Occur

If the facility discharges more than 1,000 gallons of oil in a single incident or has two or more discharges of more than 42 gallons of oil per incident in a 12-month period, the Regional Administrator must be notified within 60 days of the occurrence. [40 CFR 112.4(a)]

Even with the best plans and procedures, spills can still happen. This is one of the reasons that facilities are required to have response plans and adequate supplies and equipment to properly mitigate spills; as well as trained personnel and/or a contracted team who can handle response and mitigation efforts.

The term "worst case scenario spill" is often used to help a facility identify the largest spill that could occur at the facility. Knowing this potential helps a facility determine what tools and equipment will be needed for a proper response.

Spill Response Tools

A combination of absorbents, portable containment devices, vacuums, pumps and other equipment are all common tools used during spill response.

Containing spills as soon as possible helps to minimize the area impacted by the spill and is one of the first steps in facilitating cleanup. Oil-only absorbent socks and booms help to contain and absorb spills on land or in water. After containing the spill with socks or booms, absorbent mats and pillows can be used to absorb the contained liquids.

For larger spills on water, it is sometimes desirable to contain the spill without absorbing it. Non-absorbent containment booms assist in this effort and are commonly used with pumps or vacuums to recover spilled liquids from the contained area.

Larger spills on concrete or asphalt can be kept in check with non-absorbent dikes and drain covers such as the SPILLBLOCKER® Dike and DDRAINBLOCKER® Drain Covers. Both create a liquid-tight seal to stop spills and contain liquids for cleanup.

Spill response kits containing the specific items that a facility will need in a response are a good asset and an inexpensive insurance policy. Maintaining stocked kits at spill-prone locations increases the likelihood that responders will be able to handle a spill before it becomes reportable. Although absorbing a "worst-case scenario" spill may not be practical, facilities should plan for kits with enough absorbency to properly control a large spill until other equipment and tools can be used to continue clean up operations.

No response kit is complete without patch and repair tools and personal protective equipment (PPE). Patch and repair tools can include quick-setting epoxies, spare clamps, wrenches, or any other items that may be needed if a machine, pipeline or tank fitting fails. In many cases, responders may already be wearing PPE that is appropriate for response. If not, stocking appropriate gear can help responders react more quickly.

Good Engineering Practices

The EPA requires SPCC Plans to be established with Good Engineering Practices (GEPs). These practices can vary greatly depending on the nature of the facility, as well as the potential for environmental harm that will be avoided by the stated Practice. Similar to Standard Operating Procedures (SOPs,) GEPs are procedures or processes that occur on a routine basis.

One example of a GEP would be following the instructions provided in the owner's manual for equipment. Installing and using a piece of equipment as it is intended is one way to help avoid problems associated with the equipment malfunctioning or failing during service. Likewise, following the manufacturer's recommended servicing schedule or establishing a routine schedule for preventative maintenance will also decrease the likelihood of equipment or tools failing prematurely.

In some cases, an established national standard may exist that can be referenced as a GEP. For example, ANSI, ASTM, and NFPA have published a variety of standards that apply to general industry as well as some industry-specific guidelines. Although most of these publications are voluntary compliance standards, many are accepted as GEPs throughout industry.

Owner's manuals and industry standards, however, don't cover every situation at a facility. Because of this, and because of the EPA's desire to encourage flexibility, specific GEPs are not listed in the body of the SPCC regulations.

Some common industrial scenarios that call for GEPs can include:

- Bulk offloading operations
- Isolating leak-prone processes and fluid storage areas
- Containing leaks and spills in fluid transfer areas
- Filtering runoff from equipment or products stored outdoors

Bulk Offloading

Transferring large quantities of oil products from rail cars or tanker trucks creates the potential for large spills. Even well-trained and seasoned carriers can have residual fluids leak from hoses.

Because loading docks can be difficult to outfit with containment walls, many facilities have chosen flexible containment systems, such as the Collapse-a-tainer® Containment System for these areas. The flexible system enables tanker trucks to pull into a "pool" during offloading. In the event of a spill, fluids are contained within the pool, which facilitates fast response and prevents discharges.

When full containment isn't practical or needed, smaller portable pools are sometimes used under hose connections to capture smaller leaks that sometimes occur when hoses are disconnected.

Portable DRAINBLOCKER® Drain Covers are another common option. Because they form a leak-proof seal over drains, discharge of spilled liquids can be captured before entering waterways.

Isolating Processes and Storage Areas

By isolating leak-prone machines or processes with overspray, oils can be contained to prevent discharge into floor drains or other sensitive areas. Likewise, providing containment in oil storage areas helps to keep fluids from reaching drains or other areas of the facility. Containing fluids also enables them to be recovered for recycling or reuse at the facility.

PIG® BUILD-A-BERM® Barrier Systems create versatile, flexible curbing to enclose leak- and spill-prone areas while still allowing forklift, cart and pedestrian access. In addition to this accessibility, the system can grow or change with the needs of the facility. Unlike concrete barriers that take a considerable amount of time to remove and replace, this system can be removed and reused quickly and easily as needs change.

Containing Leaks and Spills

Tanks and containers kept in good condition have low failure rates. When liquids are transferred, however, the likelihood of leaks and spills increases greatly.

Modular spill decks capture nuisance leaks and drips, preventing them from spreading to floor drains or other sensitive areas.

Stocking absorbents in fluid transfer areas and close to production lines helps workers respond to leaks and spills immediately to keep the facility safer and cleaner.

PIG® Burpless Funnels help prevent back-ups and stay closed, even when the container is tipped – keeping contents safely inside to prevent spills and avoid pollution.

Filtering Runoff and Outdoor Storage

The appearance of an oil sheen on water is enough to trigger discharge reporting. When oil-covered products or oil-filled equipment is stored outside, leaks and drips can be carried to storm drains when it rains.

HydroKleen® Drain Inserts and PIG® Drain Inserts capture these trace amounts of oil and allow rain water to flow freely into storm drains. Both are easy to maintain and have by-pass ports to allow water to flow freely in the event of large storms to prevent flooding.

Storing drums and totes of oil outside subjects the containers to environmental degradation and can raise security concerns. Covered containment systems can help resolve both issues.

SPCC Compliance

The EPA is committed to protecting the environment. SPCC is one set of regulations to achieve that goal. Although these regulations have been amended numerous times since their inception, the EPA has been diligent in providing facilities with great flexibility in complying with the requirements.

“Good Engineering Practices” do not need to be highly engineered or expensive solutions – they just need to be practical and suitable to the situation. Preventing oil discharges is the ultimate goal.