IMPLEMENTING SPILL PREVENTION CONTROL
AND COUNTERMEASURES PLANS

by Amy Reed, PE

Developing and following a Spill Prevention Control and Countermeasures program is critical to many industries for avoiding public health hazards and preventing environmental crises. Yet many facilities aren’t implementing or following programs, a common problem the EPA is discovering during inspections.
The original Spill Prevention Control and Countermeasures (SPCC) regulations were promulgated in 1973 under the Clean Water Act and became effective in 1974. The regulations, designed to prevent discharges of oil into the navigable waters across the United States, have evolved over the years, with the latest iteration being finalized in 2010.

The goal of 40 CFR 112 is to prevent the occurrence of oil spills and develop countermeasures to contain, clean up and mitigate the effects should a spill occur at any number of places — from a hospital to a tank farm, from a university to an airport or even a food manufacturing plant.

The regulations apply to facilities that have total aboveground storage capacity of oil greater than 1,320 gallons in containers 55 gallons or larger and — because of their location — could impact navigable waters or adjoining shorelines. The rules also apply to facilities that have a completely buried storage capacity of oil greater than 42,000 gallons in underground storage tanks that are not regulated by a state program.

SPCC plans must be reviewed and certified by a professional engineer (PE). The U.S. Environmental Protection Agency (EPA) has made an exception for facilities that have a total oil storage capacity of less than 10,000 gallons and with no single discharge of oil greater than 1,000 gallons or two discharges of oil greater than 42 gallons within a 12-month period.

The EPA allows these “qualified facilities” to self-certify their SPCC plans, but only if the certifying agent has physically visited the facility. It should be noted that several engineering boards nationwide prohibit self-certification. In these states, SPCC plans are considered engineering documents that require certification by a licensed PE in the state, no matter the total oil storage capacity at a facility. Additionally, while the EPA does not require the certifying PE to be licensed in the state the facility is located in, most state engineering boards do require the PE to be registered within that state in order to practice engineering.

Since the SPCC rule was finalized in January 2010, Burns & McDonnell has prepared and updated hundreds of SPCC plans and had conducted audits of clients’ SPCC plans throughout the United States. The results show that many facilities don’t have a plan in place, are missing plan components, or are not consistently meeting inspection or training requirements.

A review of your SPCC plan can make your facility more prepared for an EPA inspection, helping you avoid potential violations with heavy fines.

Violations can cost companies anywhere from $500 per infraction at the lowest level to $10,000 per day for more serious violations of the Clean Water Act.

**EXPLORING DEFICIENCIES**

Oils include a wide range of materials such as gasoline, diesel fuel, grease, motor oil, asphalt, animal fats and vegetable oils. Animal fats and vegetable oils include tallow, coconut oil and soybean oil.
Our team uses a list of petroleum and nonpetroleum oils published by the U.S. Coast Guard as a guide for determining if materials at your facility are considered an oil regulated under 40 CFR 112. Challenges arise when materials aren’t listed. A best practice for including these materials in your SPCC plan is to check the safety data sheet and list any materials that are not water-soluble or float on water.

Because of the broad range of oils, a wide range of sectors fall under the regulation of 40 CFR 112, including food manufacturing, power generation, aviation, local municipalities, hospitals and universities.

We’ve discovered that many of the facilities we’ve audited meet the threshold requirements for oil storage, but there is no SPCC plan in place because the facility does not believe that a release could impact navigable waterways simply because secondary containment is in place for the tanks. According to the regulations, when a facility evaluates whether releases could affect navigable waterways, no manmade structures can be taken into account. Additionally, the impact of tributaries to navigable waters, such as drainage ditches, intermittent streams and storm sewers, must be considered.

The fact is, the majority of U.S. facilities that meet the oil storage threshold likely require an SPCC plan. If a facility believes that a release will not affect navigable water, this should be documented in a memo and saved in the facility’s environmental files.

Another common misconception regarding navigable waterways is that if a release enters a combined sewer system, an SPCC plan is not necessary or required. In general, if a release enters a drain that flows to a publicly owned treatment works (POTW), a navigable water will not be impacted. For example, consider a release from a motor oil drum that enters a floor drain in a shop. If the floor drain discharges to the sanitary sewer and flows to a POTW, a navigable waterway will not be impacted. However, if the facility is located in an area with combined sewers, the situation is different. Combined sewers collect sanitary wastewater and stormwater. Typically, a combined sewer discharges to a POTW. In periods of high rainfall, the combined sewers may discharge to a stream or river. Therefore, because a release that discharges to a combined sewer could potentially affect a navigable water, an SPCC plan may be necessary.

For facilities that have prepared and implemented SPCC plans, oil-filled equipment with oil capacities larger than 55 gallons must be included in the SPCC plan. Such equipment includes oil-filled operating equipment, oil-filled manufacturing equipment, and oil-filled electrical equipment. For example, if a facility owns and maintains oil-filled transformers with capacities greater than 55 gallons, these must be included in the SPCC plan. Batch-mixing equipment used for combining various vegetable oils while manufacturing food products and elevator hydraulic reservoirs also should be included in SPCC plans.

Many facilities have tanks that are out of service, yet they have not been permanently closed. In order for a tank to meet the EPA’s definition of a permanently closed tank, the tank must be emptied of all contents, the piping to and from the tank must be blind flanged, and the tank must be labeled “permanently closed” and marked with the date the tank was permanently closed. If a tank is temporarily out of service, it must remain in the facility’s SPCC plan. Permanently closed tanks don’t need to be included.

In addition to rivers, lakes and oceans, navigable waters also include tributaries thereof, including:
- Combined sewer systems
- Drainage ditches
- Wetlands
- Intermittent streams

IN ADDITION TO RIVERS, LAKES AND OCEANS, NAVIGABLE WATERS ALSO INCLUDE TRIBUTARIES THEREOF, INCLUDING:
PROGRAM IMPLEMENTATION AND OPERATION

The SPCC plan regulations require specific training for oil-handling personnel, and this training must be documented. Oil-handling personnel often receive a one-time training, but facilities also need to provide an annual refresher training specific to its SPCC plan and maintain record of the training for three years. These records may be maintained in hard copy or electronic format. Including a training schedule in the facility’s preventative maintenance software helps make sure that annual training will not be missed.

Regular documented inspections of the tanks, equipment, secondary containment and appurtenances must also be conducted. Generally, these inspections should be conducted monthly, which should be defined in the SPCC plan. Conducting an inventory of on-site spill response equipment is also advised during inspections.

In many cases, facilities conduct their own inspections, but they aren’t documented in either hard copy or electronic formats, which negates their worth because they do not provide a track record for the EPA or other investigating agencies. Creating a detailed inspection form that identifies each tank, drum storage area or piece of equipment inspected and providing a checklist of items to look for during the inspection improves the quality of the monthly inspection. Including the typical inventory of spill response equipment on the monthly inspection form also helps the facility make sure its inventory is up to date.

Regular inspections should document items, on the inspection form, where corrective action is required. Often these forms get rubber-stamped and SPCC issues are overlooked. The condition of secondary containment is one of the most overlooked items during an inspection.

Facilities should pay special attention to the maintenance of secondary containment areas during these inspections. Maintenance is often needed to make sure the containment is sufficiently impervious. Cracks in concrete containment walls, corrosion of steel containment basins, critter holes in earthen berms, and vegetation growing inside containment structures are all examples of common oversights during SPCC inspections. Again, a detailed inspection form that provides a checklist of items to observe assists with the thoroughness of the monthly inspection.

While observing the condition of secondary containment areas, facilities should pay special attention to stormwater in containment areas. Especially with small containment structures, such as concrete or shop-fabricated steel, facilities often fail to discharge stormwater from the containment and the tank begins to corrode, affecting its integrity. It should be noted that prior to discharging stormwater from containment, the stormwater needs to be inspected for an oil sheen. If an oil sheen is present, the stormwater should not be discharged and should be managed in other ways. A record documenting this inspection must be on file and maintained for three years.

Tank integrity testing is another requirement of the SPCC regulations. Most facilities with field-erected tanks have implemented American Petroleum Institute (API) 653 inspections. API 653 is the industry standard used to establish a tank integrity testing program for field-erected tanks.

Many facilities have not established a tank integrity testing program for smaller, shop-fabricated tanks. In 2002, the EPA issued a memorandum that said if a tank is less than 30,000 gallons and all sides are visible, monthly inspections were environmentally equivalent to conducting tank integrity testing. Many facilities still operate based on this memorandum, and assume that if a professional engineer has certified the plan, it’s in good standing. However, since the Steel Tank Institute (STI) issued tank integrity testing standards (Standard SP001) for shop-fabricated tanks in 2011, following the STI SP001 is preferred. The most recent version is the sixth edition, dated January 2018.

When following STI SP001, any tank less than 5,000 gallons that has adequate containment generally requires only documented monthly and annual inspections. For tanks larger than 5,000 gallons or for tanks without adequate secondary containment, additional integrity testing and leak testing by a certified inspector is required at intervals specified in STI SP001.
CONCLUSION

With a deep understanding of regulations and a solid reputation with the EPA, our team continues to help develop SPCC plans and provide a suite of related services for clients. Whether it’s conducting our own inspections of emergency generators on college campuses or writing plans for tank farms for our aviation and oil and gas clients, we recognize the importance of SPCC compliance for you.

Beyond auditing and reviewing your plans, we’ll help you develop tank integrity programs and train your staff on how to comply with federal and state regulations to avoid costly mistakes and potential environmental hazards. We also can assist with establishing tank integrity testing programs based on API 653 and STI SP001.

From plants that produce food and consumer products to power plants, our multimedia audits have a proven track record for bringing our clients into compliance.

Should you experience a spill, we specialize in spill response and mitigation.

BIOGRAPHY

AMY REED, PE, is a senior environmental engineer, compliance audit team member and project manager in the Environmental Services Group at Burns & McDonnell. A chemical engineer by training with over 20 years of experience, she specializes in OPA 90 and SPCC regulations for industrial and utility clients, as well as stormwater regulations. She has prepared, reviewed or certified hundreds of SPCC plans and has prepared more than 40 Facility Response Plans (FRP). Reed has served as a compliance auditor for individual and team compliance assessments at several industrial facilities. Reed earned her Bachelor of Science in chemical engineering from the University of Missouri and a Master of Business Administration from the University of Kansas. She is a registered professional engineer in 18 states.

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