

SPILL CONTAINMENT: 11 TRUTHS EVERY FACILITY SHOULD KNOW



Introduction

Did you know that:

- Only 3% of all the water on earth is freshwater
- Water pollution can lead to serious water shortages in the future
- Water pollution kills more than 30,000 people worldwide every week
- Approximately 700 billion gallons of waste oil enter the ocean every year
- More than half of the waste oil polluting the ocean comes from land-based sources

Clean water is not a luxury.

We all know that life on earth would cease to exist without water. But access to water also influences our economic wellbeing and quality of life. Where there's good water there's prosperity: it keeps us fed, clean, healthy and employed. In the U.S., our abundance of quality water resources has spurred industrial growth, supported agricultural expansion and provided transportation for materials and finished goods.

When water pollution became a rallying point for environmental legislation in the early 1970s, Congress passed the Clean Water Act of 1972 and charged the Environmental Protection Agency (EPA) with the job of protecting our inland waters and coastlines. For nearly fifty years, this historic legislation has:

- Stopped billions of tons of pollutants from contaminating U.S. waterways
- Significantly increased the number of waterways safe for fishing and swimming
- Paid for up to 75% of water infrastructure projects through a federal revolving fund
- Helped construct countless wastewater treatment facilities, replacing many systems and miles of pipelines built in the 1800s

The reason for all those regulations.

All environmental regulations dealing with water pollution have the same goal: Protect and preserve our water resources. That means keeping a tight rein on oil, chemicals and hazardous waste by **preventing** spills, controlling how these liquids are handled, and providing containment while they're being stored, transferred and transported.





What does all this have to do with my facility?

Plenty. If your facility is required to comply with EPA water pollution regulations, spill containment is a big part of it. But first you have to determine what regulations apply to your facility. The following questions will help you get started:

- 1. Does your facility use oil or chemicals?
- 2. If so, what volume of these liquids do you store?
- 3. Have you ever had an oil or chemical spill from your facility?
- 4. How big was the spill and where did it happen?
- 5. Does your facility generate hazardous waste?
- 6. If so, how much hazardous waste do you generate?

Got your answers?

Good. It's time to learn the truth about spill containment.





TRUTH #1 — There are two kinds of spills.

OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard — not EPA's — classifies a spill as either **incidental** or **emergency** but it's up to you to determine how spills are classified. That's because every spill is different and a lot of factors need to be considered. In some facilities, a 100-gallon spill may be incidental. In others, even an ounce can evacuate the building. Here's what OSHA says:

66 An **incidental** release is a release of a hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the worker cleaning it up, nor does it have the potential to become an emergency within a short time frame.

The HAZWOPER standard does not define an emergency in terms of the quantity of the substance spilled. The term **emergency** is dependent upon several factors, including the hazards associated with the substance, the exposure level, the potential for danger and the ability to contain the substance. **J**

These three essential components can help you determine if a spill is incidental or emergency:

- The properties of the liquids
- Where the spill is located
- The training level of the employees

Here's an example: If 30 gallons of oil spill in a warehouse and it doesn't hit a drain, you would consider it incidental. But if you spill as little as a pint of the same oil outside — and it hits a storm drain — it's probably an emergency.





Spill response takes training.

OSHA created the HAZWOPER standard to help protect employees and establish training criteria for those who could be exposed to hazardous substances during an emergency response.

Employees responding to any *emergency* **release must:**

- Be trained in accordance with HAZWOPER standard 29 CFR 1910.120
- Be able to recognize hazards
- Take the appropriate actions to protect themselves during a response

Not everyone needs to be trained under HAZWOPER. If your employees will only be cleaning up incidental spills, their response training may be incorporated into hazard communication or another type of safety training.

Anyone responding to *incidental* spills should know:

- The hazardous liquids used or stored at the facility
- How to evaluate a spill to determine whether it's incidental or an emergency based on where the liquid spilled, the type of liquid that spilled, the amount of liquid that spilled — or all three
- How to properly protect themselves while responding
- How to clean up a spill properly
- What to do with used absorbents and other cleanup materials
- How to initiate an evacuation or call in trained responders if the spill is an emergency





TRUTH #2 If you use and store oil, you might need a written spill plan.

The EPA's Oil Pollution Prevention regulation has two sets of requirements: the **Spill Prevention, Control, and Countermeasure (SPCC)** rule and the **Facility Response Plan (FRP)** rule. What's the common thread here? If you use or store oil, you might need a **written plan**. Here's a short description of each rule to help you determine if you need to comply.

SPCC: How will you prevent a spill?

If you have aboveground oil storage capacity greater than 1,320 gallons or underground tank storage capacity greater than 42,000 gallons, SPCC requires you to have a written plan outlining the products, countermeasures and procedures you have in place to prevent discharges of oil.

This is some of the information you need to include in your SPCC Plan:

- A description of the physical layout of your facility
- A diagram showing the location and contents of each oil container, any buried tanks and all transfer stations and connecting pipes
- The type of oil in each container and its storage capacity
- Discharge prevention measures and procedures for routine loading, unloading and liquid transfers
- Discharge or drainage controls such as secondary containment around containers, structures and equipment, plus procedures for controlling discharges
- Countermeasures for the discovery, response and cleanup of discharges
- Methods for disposing of recovered materials like used absorbents or contaminated soil that comply with legal requirements
- Contact list and phone numbers for your facility response coordinator, the National Response Center, any spill response contractors you work with and all federal, state, and local agencies who must be contacted in case of a discharge

FRP: How will you respond to a spill?

If your facility handles oil and could cause *substantial harm* you need to have a written Facility Response Plan (FRP) that demonstrates your readiness to respond to a worst-case spill. Compliance with FRP may be self-determined or directed by your EPA Regional Administrator. You need to have an FRP if your facility:

- Has a total oil storage capacity of 42,000 gallons or more and it transfers oil over water to or from vessels or —
- Has a total oil storage capacity of one million gallons or more and meets one of the following conditions:
 - Does not have sufficient secondary containment for each aboveground storage area
 - Is located where a discharge from the facility could damage fish and wildlife populations and sensitive environments
 - □ Is located where a discharge from the facility would shut down a public drinking water intake
 - U Within the past five years has had a reportable discharge of 10,000 gallons or more



TRUTH #3 You need two kinds of containment.

If you don't have **secondary containment**, you need **spill containment**. If you do have secondary containment, you still need spill containment. Read on to understand the role of each type of containment and why you need both.

Stopping a spill = spill containment.



The act of stopping a spill is **spill containment**. It's part of *spill response*. Spill response plans often contain different types of spill containment to address different types of spills, including absorbent socks or booms, nonabsorbent dikes or even drainage sumps designed to collect spilled liquids. For example, spill containment for a 5-gallon oil spill in a warehouse with no floor drains might call for a few socks and absorbent mats, but spill containment for a 30,000-gallon fuel spill heading toward a nearby river is going to take a full arsenal of booms, absorbents, vacuums and sumps to control.

Nonabsorbent dikes are an effective way to stop the spread of spills.

Preventing a spill = secondary containment.

Drums, totes and tanks are primary containers. If they fail, the mess can end up all over your floors – or in the nearest drain.

Secondary containment can be anything from spill pallets or decks to a sloped room that allows the liquid to accumulate at one end until it can be cleaned up. It could be dikes, berms or concrete walls that create a moat around the primary container. In some cases it can even be absorbents. It's up to you.



Semi-permanent barriers are easy to customize.

It's not an either/or situation.

Even super-sturdy secondary containment systems can fail and cause a spill, so the EPA requires you to be prepared for spills with appropriate spill containment — even if every container at your facility has secondary containment.



TRUTH #4 You need a Plan B.



Any container that's holding a liquid — whether it's a 55-gallon drum or a 275-gallon tote — is a **primary container**. And the problem with primary containers is that they can leak, crack, tip over or otherwise fail without warning. Usually at the worst possible moment. That's why you need a Plan B.

Contain your containers.

Secondary containment is your backup system — a container for your container. It can be as simple as a tray or as complex as concrete berms, but the result is the same: The liquid from your primary container remains under control, even in a worst-case scenario.

Here are the seven basic points of secondary containment:

- **1.** Your secondary containment system should be composed of materials that are chemically compatible with the liquid in your primary container.
- 2. Your system should be impermeable and be free of cracks or gaps.
- 3. You must be able to remove spilled liquid without getting it on the ground using drains, pumps or vacs.
- **4.** Your primary containers shouldn't sit in spilled liquid. Pallets and containment units typically position the sump under a grate to solve this problem.
- 5. You must have enough capacity to contain the spilled liquid.
- **6.** Your system should prevent stormwater accumulation (run on). Storage sheds and covered containment units keep rain and snow out of the sump, but in an uncovered outdoor system you need to anticipate how much weather-related liquid accumulation you need to add to your overall capacity.
- **7.** You can't let your secondary containment sump overflow. If any liquid spills or leaks into your system, or if you have accumulating rain or snow, you need to remove it as soon as possible.

You can use whatever works — just make sure it does.

The EPA doesn't specify exactly what type of secondary containment you should use — just what it needs to do. You can choose the best method for your facility. Here are some options:

- Dikes, berms or retaining walls
- Weirs, booms or other barriers
- Curbing or drip pans
- Spill diversion ponds
- Sumps and collection systems
- Retention ponds
- Culverts, gutters or other drainage systems
- Absorbents



Covered pallets are an effective way to keep rain and snow out of the sump.



TRUTH #5 If it holds oil, it's a container.

We all know what a container is, right? EPA even defines it, stating that a bulk container is "*any container with a capacity of 55 gallons or more storing oil at a facility. Bulk oil storage containers may include, but are not limited to tanks, containers, drums, and mobile or portable totes.*" That makes creating your secondary containment systems pretty straightforward. You can use anything that works for your facility, including:

- Pallets and decks
- Dikes, berms or retaining walls
- Curbing or drip pans
- Sumps and collection systems
- Culverts, gutters or other drainage systems
- Weirs, booms or other barriers
- Spill diversion and retention ponds
- Absorbents

Wait. I need secondary containment for...what?

Here's where it gets tricky. Oil-filled equipment like transformers,

hydraulic systems, lubricating systems, gear boxes, machining coolant systems, heat transfer systems, circuit breakers and electrical switches are also considered containers. Think back to the basics of secondary containment. In this case, your primary container is a machine, a transformer or a cooling system, but the same considerations apply:

- Where would the liquid go if the container failed?
- How much liquid would spill in a worst-case scenario?
- What kind of system will contain the entire spill until I can clean it up?

Think outside the pallet.

Do you have a storage tank near a storm drain? Spill berms or curbing may be the answer. Do you need to replace a transformer? Transport the old one in a portable containment bag. Will a few gallons of hydraulic fluid spill if you blow a line? Keep a spill dike near the machine. The main thing is to plan for equipment failures and have your secondary containment ready to go.

Need to move a leaking transformer? Use a portable containment bag.







TRUTH #6 It's your job to do the math.

So, you know you need secondary containment. But do you know how much you need? f you're a transportation, storage and disposal facitlity, (TSDF) 40 CFR 264.175(b)(3) regulating the use and management of **hazardous waste** containers says that your secondary containment system "must have sufficient capacity to contain at least 10% of the total volume of the containers or 100% of the volume of the largest container, whichever is greater."

Confused?

Here's an example:

If you're storing two 55-gallon drums you need 55 gallons of capacity.

10% of all containers = 11 gallons or 10% of 110 gallons

100% of the largest = 55 gallons — which is the larger of the two values

Just be aware that capacity requirements can vary state to state and you may need 110% containment.

Different reg. Different requirements.

Dealing with containers of oil? SPCC requirements are a little different. You need to contain the entire capacity of the largest container OR largest single compartment PLUS "sufficient freeboard" to contain precipitation. That means you need to figure in any rainwater, snowmelt or other liquid that could get into your system, take up sump capacity and cause the unit to overflow if the containers also discharge.

How to calculate DIY containment.

If you're thinking about building a berm system, you need to calculate the sump capacity based on the dimensions of the berm.

The following formula can help you determine the amount of liquid your system will contain:

Length (L') x Width (W') x Height (H') x 7.48 = Sump Capacity (Gallons)

You'll also need to account for the volume displaced by containers or other items. After you know the starting capacity of your system, subtract the volume of liquid that could be displaced by objects that will be placed within the containment area. The result is your available sump capacity.





TRUTH #7 You've got to be active AND passive.

Active and passive containment are two ways to comply with SPCC general secondary containment requirements dealing with smaller spills.

Active is about people.

Active containment means that someone has to take action to put the containment devices in place. The containment may be deployed before an activity begins or in reaction to a discharge, but it requires people.



If a person has to deploy it, it's active.

Active containment measures include:

- Placing drain covers over storm drains before an oil transfer
- Placing drain covers over storm drains during spill response
- Using a spill kit in the event of an oil spill
- Using a spill response team in the event of an oil spill
- Closing a gate valve prior to an oil discharge

Just remember that when active containment measures are outlined in your SPCC plan, they must clearly specify the people who are available to deploy the solutions listed.

Passive is about prevention.

Passive containment is something you put into place to contain spills before they happen. These devices can control the situation all by themselves and don't need you to babysit. This is important if you have remote sites that are not regularly staffed or long periods when employees are not on duty at your facility.

Passive containment devices can include:

- Containment pallets
- Berms
- Retaining walls
- Drip pans
- Spill diversion and retention ponds

Passive containment — like this drilling site berm — doesn't have to be permanent, just effective.





TRUTH #8 There's no such thing as "too big to fail."

In January 1988, a 4-million-gallon storage tank that had been dismantled, moved and reassembled at the Ashland Oil Company storage facility in Floreffe, Pennsylvania, collapsed while it was being filled to capacity for the first time. The tank failure spilled diesel oil over containment dikes, across an adjacent property and into a storm drain that emptied directly into the Monongahela River. Within minutes, the oil went over two dam locks and dispersed throughout the river. When it reached the Ohio River, it contaminated drinking water for nearly one million people in Pennsylvania, West Virginia and Ohio. The spill harmed river ecosystems, killed wildlife, damaged property and impacted businesses throughout the area.

Moral of the story: Size does not matter. When it comes to containment, there's no such thing as "too big to fail." If you're managing thousands or millions of gallons of oil, keeping it under control is critical. Here are four ways to help you do it.

1. Construct retention ponds.

Retention ponds are often used as a best management practice (BMP) for Stormwater compliance but you can use them as secondary containment for spills indoors or outdoors. You can build them from earthen materials, but regs may require use of a liner or other impervious material to prevent chemicals from leaching through the pond and into the environment.

2. Build berms.

Large tank farms often use earthen berms. These are made from well-packed soil so they're low-cost and easily installed. However, in the event of a spill, they often become contaminated and must be remediated or replaced. Concrete berms cost more to install but offer impermeable containment.

3. Use double-walled tanks and equipment.

Tanks and oil-filled equipment are available with doublewalled secondary containment. If the primary tank or equipment wall develops a leak, the second wall contains the spill so it won't release into the environment. Some tanks and equipment have alarms or gauges to alert if the inner wall has been breached.

4. Deploy collapsible containment.

If your secondary containment needs vary from one month or job to the next, collapsible containment may be the perfect solution. A collapsible system is similar to an aboveground swimming pool, but it's designed to be very rugged and compatible with many common industrial fluids. Collapsible containment deploys very quickly and the walls fold down to allow vehicle traffic. When finished, you can fold up the system and transport it to the next job or store it until it's needed.



Concrete berms can contain catastrophic tank failures.



Collapsible containment.



TRUTH #9 It's your job to know if you generate hazardous waste.

The Resource Conservation Recovery Act (RCRA) regulates the proper storage, handling, recycling, disposal and transportation of hazardous waste and defines it as:

66 A solid waste, or combination of solid waste, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

You make the call.

If your facility creates any kind of waste, you must determine if that waste is hazardous.

The hazardous waste identification process consists of four questions:

- Is the material a solid waste?
- Is the waste specifically excluded from RCRA? See 40 CFR Part 261.4
- Is the waste a listed hazardous waste? See 40 CFR Part 261.30
- Does the waste exhibit a characteristic of hazardous waste? See 40 CFR Part 261.20-.24

If you already know your facility uses hazardous materials and generates hazardous waste, then you have obligations under RCRA. These EPA requirements apply to generators and transporters of hazardous waste as well as Transportation, Storage and Disposal Facilities (TSDFs).

Don't forget containment.

If you're a TSDF storing hazardous waste, RCRA states that, *"container storage areas must have a secondary containment system...that provides a backup system to prevent a release into the environment should primary containment (i.e., the container) fail."*

Containment options include:

- Dikes
- Berms
- Pallets
- Curbs
- Retaining walls
- Collapsible systems





TRUTH #10 Not all satellites are in orbit.

If you generate hazardous waste, **satellite accumulation** allows you to collect and store as much as 55 gallons (or one quart of acutely hazardous waste) at or near the point of generation for 90 days or less without a permit. Simple enough. But to stay in compliance you need to manage your container properly. Here are some points to consider:

The container must be kept closed when it's not in use.

You need to keep a lid on the container when you're not transferring hazardous waste. If you remove the bungs on a closed-head drum or the bolt ring and lid from an open-head drum, you must put them back on properly as soon as your transfer is done. It's not as easy as it sounds. Bungs and bolt rings are a hassle to remove and reinstall — so much so that employees often take short cuts or leave them off entirely. And that's a violation of EPA's closed container regs that will get you a hefty fine. A <u>PIG Latching Lid</u> is the easiest way to get in and out of your open-head drum and seal it tight between uses to comply with closed container regs. When pouring liquids into a closed-head drum, a <u>PIG Burpless Funnel</u> eliminates splashbacks and spills and keeps your drum sealed and compliant.

The container must be properly labeled.

This sounds like a no-brainer, but your label must clearly state what's in your drum and you need to use labels made for the job. Some labels can become illegible if they make contact with certain solvents or chemicals. Or the liquid can affect the adhesive and cause the label to fall off.

You're limited to 55 gallons of accumulated waste per satellite area, but you can have more than one area.

According to EPA, only one waste should be accumulated at each satellite area, and the total volume accumulated must be limited to 55 gallons. What EPA doesn't limit is the number or size of containers you can use for accumulation or the number of satellite areas within your facility.

A few more tips.

When you're setting up satellite accumulation:

- Keep the container away from floor drains, walkways and exits
- Make sure the container is stored in an area where it can't be tipped over or damaged and spill its contents
- Make sure you provide adequate secondary containment
- Padlock drum lids and funnels to restrict access



Locking roll top hardcover pallets are perfect for satellite accumulation.



TRUTH #11 Big brother IS watching.

They've all heard it: Ignorance of the law is no excuse.

Recently, federal prosecutors fined Walmart \$81.6 million for letting employees at several of their retail stores toss hazardous wastes and pesticides into trash cans or dump them into drains instead of disposing of them properly. And that doesn't include the \$30 million in other expenses associated with the violations.

But don't fool yourself into thinking the EPA only goes after the big guys. If your facility is required to comply with environmental regs, you're going to be inspected. And if you're out of compliance, you will be fined.



Here are some recent examples:

An oil company that had insufficient containment and failed to develop a Facility Response Plan was hit with a \$27,920 federal fine and a \$2,080 state fine. The company was also required to complete \$200,000 in secondary containment system upgrades.

Two other oil companies that failed to install sufficient containment were fined over \$28,000 each.

A pulp mill was fined \$126,000 for violating the Clean Water Act, including failure to maintain and implement its SPCC Plan.

The compliance conundrum.

You may be thinking, *Great. I have no idea what regs apply to our site, much less how to understand what the heck they're talking about!* Go back to the questions on page 3 and use your answers as a starting point. Remember that the regulations are concerned with the types of liquids you use, the amount of those liquids you store, and how to keep them under control.

Even though it's up to you to figure it out whether you need a written spill plan or just a spill kit, there are ways to get help:

- Check the EPA website for information
- Call your state fire marshal, local fire department or hazmat team
- Hire an environmental consultant

Still scratching your head? Call the experts.

If you hit a dead end about what kind of secondary containment you need or how much containment you need, call the Tech Department at New Pig. Our specialists have more than 25 years of experience with regulatory questions and they stay up to date with the latest regulation amendments. So whether it's deciphering a regulation, advising about a product, or figuring out how to address your containment needs, they can help point you in the right direction.



A quick look at the regs.

Clean Water Act/Oil Pollution Act

In 1972, the EPA set goals for eliminating pollution in the "waters of the United States" or "navigable waters," including streams, rivers, oceans and lakes, in the Clean Water Act. In 1990, the Oil Pollution Act was passed and EPA issued the Oil Pollution Prevention regulation "to prevent oil spills and to assure that oil facility personnel are prepared to respond if a spill occurs."

The Oil Pollution Prevention regulation has two sets of requirements: the Spill Prevention, Control, and Countermeasure (SPCC) rule and the Facility Response Plan (FRP) rule. SPCC is the basis of the EPA's oil spill prevention program and FRP requires that facilities handling large amounts of oil have adequate spill response supplies and training.

The Resource Conservation Recovery Act (RCRA)

The Resource Conservation Recovery Act (RCRA) is the primary law governing the disposal of solid and hazardous waste. Congress passed RCRA on October 21, 1976 to address problems from the increasing volume of municipal and industrial waste and set national goals for:

- Protecting human health and the environment from the potential hazards of waste disposal
- Conserving energy and natural resources
- Reducing the amount of waste generated
- Managing waste in an environmentally sound manner

Hazardous Waste Operations and Emergency Response (HAZWOPER)

OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard outlines the safety requirements employers must meet in order to respond to and clean up spills. HAZWOPER establishes training criteria for those who could be exposed to hazardous substances during an emergency response. The standard deals with the "how" of spill response and works in tandem with the "what" covered by EPA environmental regulations.



Spill Response



PIG Universal Absorbent Mat Absorbs and holds in liquids to help you clean up spills fast.



<u>PIG SpillBlocker Dike</u> Confines and diverts spills without absorbing them, making cleanup or reclamation simpler.



PIG Rapid Response DrainBlocker Meet regs with a cover that's affordable enough to place near drains in all your spill-prone areas.

Secondary Containment



PIG Build-A-Berm Barrier Lets you create permanent custom secondary containment anywhere you need it.



<u>PIG Roll Top Hardcover Spill Pallet</u> Secure, weatherproof drum storage provides secondary containment to help you comply.



<u>PIG Poly Spill Containment Pallet</u> The strongest standard pallet you can buy. Molded-in sump helps you comply with regs.



<u>PIG Collapse-A-Tainer Spill Berm</u> Portable, drive-in secondary containment that sets up in minutes.



PIG Poly IBC Spill Containment Pallet Strong enough for long-term storage of totes. Molded-in sump helps you comply with regs.

The world's best stuff for spill containment.



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Hazwaste Compliance



PIG Latching Drum Lid with Fast-Latch Ring Opens and closes with one hand for easy hazardous waste compliance.



PIG Burpless One-Hand Steel Drum Funnel Provides no-splash filling and latching lid for easy hazardous waste compliance.