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Environmental Compliance for the Safety Manager

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Introduction

In this age of consolidation and personnel reduction, regulatory personnel are also feeling the pinch. Businesses are trying to do more with less – less inventory, less lead-time, less overhead. For locations with both a safety and an environmental person, more and more often, these positions are being consolidated into one. While there is much overlap between these areas, there are sufficient differences. Typically, at the base level, safety compliance, since it deals with cultural change and people issues, tends to be more people-oriented. Environmental compliance, on the other had, tends to be more of an exercise in intellect. That is not to say that environmental professionals are smarter than safety professionals – far from it. However, environmental compliance tends to focus on meeting specific regulatory limits, using specifically identified methodology. Safety compliance, on the other hand, deals with behaviors of the individual, and therefore, the successful safety professional must, in my opinion, be more empathetic. So, with these differences being what they are, what does the safety professional need to know to make sure you are the one who remains if consolidation of responsibilities does occur? Using what Darwin teaches, you must be "the fittest" to survive. You must be more adaptable than your counterpart, and to do that, you must have the most useful knowledge.

What are the Major Environmental Programs?

As anyone who has looked at the Code 40 of the Federal Regulations, there are many, many different regulations. As with 29 CFR, it knowing what does and does not apply takes time and understanding. However, there are 6 primary regulatory areas that everyone should have an understanding of:

- Resource Conservation and Recovery Act (RCRA)
- Air Emissions Control
- Risk Management Plans (RMP)
- Spill Prevention, Countermeasure and Control (SPCC)
- National Pollution Discharge Elimination System (NPDES)
- Emergency Planning and Community Right-To-Know Act (EPCRA)

You must understand – the information presented in this paper merely scratches the surface of what you must know. To be fully informed of all the requirements would involve many hours of

training. This information is designed to provide you with a broad-brush understanding of the requirements.

The Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act, known as RCRA, was passed in 1976. It was designed to ensure that hazardous wastes are controlled, limited, and minimized from "Cradle to Grave" – in other words, from the moment that the material becomes a waste (no longer able to be used or sold), until its is no more. These regulations are covered in 40 CFR 262 – 265.

One mistake that many have experienced when dealing with RCRA regulations is the understanding of what we mean when we say "GRAVE" in "cradle to grave". Many have assumed that once the material has been sent to the disposal company, their responsibilities are over. There is nothing further from the truth. Just look at the number of companies that get identified as Primary Responsible Parties, or PRP's, in major environmental cleanups. The same fate can be avoided by others by ensuring to do due diligence checks of their waste vendors.

To know if and how this regulation applies to you, you first need to know if you generate hazardous waste.

According to EPA, a solid waste is "any discarded material". Also according to EPA, "any discarded material is any material which is:

(i) Abandoned; or
(ii) Recycled; or
(iii) Considered inherently waste-like

EPA also considers materials as solid waste if they are "recycled-or accumulated, stored, or treated before recycling", if certain conditions are met.[1]

To be considered **Hazardous**, the waste must be *characteristic* or *listed*. To be characteristic, it must meet one of the following criteria:

1. Ignitable – flashpoint less than 140^{o}F.
2. Corrosive – pH less than 2, or greater than 12.5
3. Reactive – normally unstable, water or air reactive, explosive, cyanide or sulfide containing
4. Toxic – contains levels of any listed chemical above the identified threshold using the Toxicity Characteristic Leaching Procedure (TCLP).

Listed wastes are materials generated from non-specific sources, such as spent solvents from degreasing (F-listed); from specific sources, such as wastewater treatment sludge from the production of chrome green pigments (K-listed); discarded commercial chemical products, off-specification materials, and container and spill residues, such as sodium cyanide (P-listed); and commercial chemical products, such as aura mine (U-listed).

[1] 40 CFR 261.2

Once you know that you are generating waste, the next step in compliance is to determine how much you generate. If you generate more than 2,200 pounds of hazardous waste in a calendar month, you are a Large Quantity Generator (LQG). Between 220 and 2.200 pounds you are a Small Quantity Generator (SQG). Less than 200 pounds in a calendar quarter and you are a Conditionally Exempt Small Quantity Generator (CESQG). The more waste you generate, the more regulatory requirements you must meet.

If you generate hazardous waste, you are limited in the length of time that you can keep it on site before disposing of it. Generally speaking, LQG's have 90 days, SQG's have 180, and CESQG's have up to one year to have waste material transported off-site to the disposal company. Once the waste leaves your site, it must get to its final destination within 10 days. Once there, the Treatment, Storage and Disposal Facility (TSDF) has specific rules that it must follow as well.

Containers must be maintained in good condition with no leaks, and inspected frequently.

Also addressed in the RCRA regulations (40 CFR 273) is the topic of Universal Waste (UW). UW rules are applied to certain common materials determined to be too hazardous to put in regular trash, but not hazardous enough to be classified as regular Hazardous Waste. Typical materials covered by UW rules are batteries, thermometer and thermostats, certain pesticides, fluorescent lamps, electronic waste, and used oil. Because this material is non-hazardous, it has significantly smaller regulatory requirements. However, management of containers, labeling, and accumulation time requirements still apply.

A major part of the RCRA regulations revolves around Emergency Management. Facilities that generate and store hazardous waste must have a Contingency Plan, which identifies all the ways that the facility has preplanned to respond to emergencies involving hazardous wastes. Included in the Contingency Plan should be actions that facility personnel will take in response to emergencies, any contracts with Emergency Response contractors, contact information for the site emergency coordinators, spill cleanup supplies and emergency equipment, and evacuation planning information. The plan must be maintained on site, and copies have to be sent to local fire and police departments, hospitals, and other state agencies. Improper contingency plans are one of the top ten RCRA violations every year, so you should review the requirements in Subpart D of 40 CFR 265.

Finally, there are specific training requirements spelled out in the regulations for anyone working with or handling hazardous waste. This training must be maintained annually. Additionally, if the specific ways that the employee interacts with the hazardous waste has its own set of training requirements (i.e. DOT, forklift, etc.) then those training requirements must also be maintained and documented.

RCRA is one of the most cited regulations every year. The EPA earns a lot of money from these citations. As their funding becomes ever tighter, fines from citations can go a long way toward making up any shortfalls. Don't let your facility contribute.

Clean Air Act Overview

EPA passed the original Clean Air Act (CAA) in 1970. It is a comprehensive Federal law that regulates all sources of air emissions. It authorized the establishment of National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. States were required to develop state implementation plans (SIP's) – state-specific strategies with the goal of achieving the NAAQS by the specified deadline. Specifics of these regulations are found in 40 CFR Parts 50 to 99.

Because so many states had difficulty meeting the NAAQS by the deadline, the EPA amended the act in 1977 to set new goal dates. The 1977 amendment also added the Prevention of Significant Deterioration (PSD) requirements, so that we could not backslide over improvements already achieved.

The CAA was amended one more time in 1990, where it added additional programs to address problems such as acid rain, ground-level ozone, stratospheric ozone depletion, and air toxics.

Any material that is released into the air is considered to be an *air emission*. The key regulated air emissions focus on Volatile Organic Compounds (VOC), Particulate Matter (PM), and Hazardous Air Pollutants (HAP). VOC's are basically any material that can evaporate into the air. Some of the most common VOC's are solvents. PM is basically dust. PM is regulated by particle size. HAP's are made up of 188 pollutants that have been identified by the EPA. Generally, HAPS are solvents, but it also includes some heavy metals as well. Some common HAP's are Formaldehyde, Glycol Ether, and Methanol, just to name a few.

So why should you care about air emission? There are actually many reasons. First, as safety professionals, lower air emissions mean lower employee exposure. Second, the regulations that govern compliance in this area have heavy penalties associated with them. These penalties can be high dollar fines, or in extreme conditions, can result in an order to stop operations. In a more practical sense, air emissions translate directly into a loss of material – if something is going into the air, then it is not going into your product. You are not able to sell it to your customer, so this is a waste – material that you are spending money on that you cannot pass the cost on. This is a reason that many executives understand.

Air emissions are primarily controlled and regulated through Air Permits. Air permits set limits and/or requirements on the types of activities and emissions that can come from a facility. Typical air permits can be broken into three categories:

- Title V – A federal air permit required for "major sources" of air emissions
- FESOP – Federally Enforceable Standard Operating Permit
- SOP – Standard (or State) Operating Permit

Air permits typically spell out specific requirements that a facility must comply with in order to operate. Usually, some sort of tracking of emissions from each emission control unit must occur. Additionally, records must be maintained of all maintenance activities, as well as any upset conditions, or situations where the facility has operated outside of the limits established in the permit.

Air permits also include reporting requirements. Generally, annual summaries of emissions, called Emission Inventories must be completed. Additional reporting can also be required. Specifics of these requirements will be found on each permit.

Under the PSD requirements discussed above, EPA implemented a control strategy called Maximum Achievable Control Technology, or MACT. Under MACT, EPA assesses what technology is feasible for industries to use to control emissions and establishes the standards for compliance. MACT standards are industry specific, and apply to all manufacturing facilities that have a potential to emit (PTE) of 10 tons of any single listed HAP, or 25 tons of all combined HAP's in a year. Costs associated with these MACTS can be quite high. For example, a facility may be required to install and operate a Thermal Oxidizer. Costs associated with the installation of this equipment can run from $500,000 to $1,000,000. Additionally, to maintain and operate this equipment can cost upwards of $50,000 annually. This high cost is why many companies adopt MACT Avoidance Strategies, accepting artificial limits on what they can produce in order to keep their emissions below the major source limits listed above.

A key place that you can impact your facility is by assisting to maintain these limits. In order to do that, you have to provide oversight of all activities at your facilities. Make sure that production does not change. Adding or modifying equipment to remove road-blocks and increase production will more often than not require a permit modification. Failure to modify your permit could result in costly fines and also orders to cease operations. Additionally, practices need to be put in place and maintained to ensure that emissions are limited. Examples of this is to always keep containers closed except during material transfer; making sure that process vessels are kept closed, and using proper ventilation systems; and finally, properly maintaining your equipment.

Chemical Accident Prevention Rule - Risk Management Plans

The 1990 Amendments of the CAA included Section 112(r), which required the EPA to promulgate regulations for the prevention and mitigation of accidental releases of extremely hazardous substances. Under this section, EPA established a list of regulated substances and thresholds and issued the Chemical Accident Prevention regulations, 40 CFR Part 68. Commonly called Risk Management Plans (RMP), the goals of this program are to prevent accidental releases of chemicals that could cause serious harm to human health or the environment and to reduce the severity of releases that may occur. Covered facilities were required to develop and implement a risk management program similar to OSHA's Process Safety Management (PSM) program. Some key differences between the two are that RMP includes a five-year accident history and an offsite consequence analysis, in addition to the accident prevention program and emergency response program similar to PSM.

One of the more tricky parts of dealing with the RMP is that if a facility has listed chemicals below the regulated threshold, even though it is not covered by RMP, it can still be held accountable to the regulation through use of the General Duty Clause (GDC). The GDC mirrors the requirements established by PSM and RMP. However, a site is not required to register with the EPA. What it does require is that facilities implement *reasonable* controls to prevent the release of dangerous levels of materials into the air. There is NO THRESHOLD for compliance with the GDC.

Spill Prevention, Control & Countermeasure

Spill Prevention, Control & Countermeasure (SPCC) regulations are part of EPA's Oil Pollution Prevention Act, which can be found in 40 CFR 112. Its purpose is to prevent spills of oils from reaching "navigable waters" of the U.S. To understand how this regulation applies to your facility, you must first know what is an "oil". According to the regulation, "*Oil* means oil of 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, fruits, 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."[2] Some examples of oils are mixes of benzene, toluene, & xylene, diesel fuel, gasoline, naphtha, mineral spirits, lacquer-based paints/varnishes, resins (solvent-based & those containing oils), and vegetable oils. Materials that are *not* oils include toluene, phenols, alcohols, benzene, ketones, glycols, and latex or water-based resins.

If a facility has a total of 1,320 gallons or more of oil on site, in containers 55 gallons and larger, then it must comply with this program. The key way that this compliance occurs is through the SPCC Plan. The SPCC Plan is the documented program by which a facility will prevent any oil from impacting the waterways of the U.S. The plan is made up of 8 key elements:

1. Management Approval & Commitment – a written statement of commitment, and approval from site management.
2. Facility Layout – a drawing that shows all oils, flow pathways, and likely spill receptors
3. Site Spill History – spills where there is a release of greater than 1,000 gallons in a single discharge or two discharges of greater than 42 gallons within a 12-month period.
4. Containment & Spill Prevention – detailed means by with spills are prevented at the site, as well as how materials are contained on site.
5. Inspections & Testing – procedures and records of visual and secondary testing (hydrostatic, ultrasonic, etc.) performed.
6. Training – detail of the training conducted for all employees working with oils on implementation of their portion of the SPCC plan.
7. Designated Individual – identification of the individual at the facility responsible for ensuring compliance with the SPCC plan.
8. Above-Ground Container Inspection – documented inspections of all outside, above-ground container storage areas.

The elements of the plan must be in the order listed. The plan must be certified by a Professional Engineer (PE), and recertified at least every 5 years.

Under the SPCC plan, facility employees have various responsibilities. Some of these responsibilities include:

- Cleaning up all spills immediately
- Keeping containers closed when not in use – especially those being transported

[2] 40 CFR 112.2

- Avoiding transferring material between containers outside, whenever possible
- Not storing material near open drains
- Periodically checking hoses, lines, etc. for leaks, wear, or other damage
- Reporting problems to supervisors immediately!

Finally, every site that falls under this regulation should have spill kits available to respond to releases, in order to prevent oil spills from reaching waters of the U.S. Each employee should be aware of where these spill kits are located. They should know what is in the spill kit and how to use the materials to properly respond to a spill.

National Pollution Discharge Elimination System (NPDES) – Stormwater Regulations

What is stormwater? Basically, it is runoff from natural precipitation, such as rain events and snow melt, or from activities such as washing cars and pets; over-watering lawns and gardens; hosing down sidewalks, etc. When this stormwater comes into contact with pollutants, they may dissolve in the stormwater, become suspended, or float on the surface. These pollutants then can run to creeks, streams, and rivers, killing fish and impacting drinking water supplies. EPA regulates this runoff in 40 CFR Part 122.

The amount of stormwater generated is based on the percentage of surface area that is "impervious". Basically, as areas are developed, roads, houses, and other structures cover the surface of the ground. Where rainwater used to be able to infiltrate into the ground, replenishing underground aquifers, it now goes into runoff, carrying whatever contaminants it has contacted with it.

In developed areas like your facility, there is the potential for runoff to contact chemicals from spills, oils from parking lots, etc. Because of this potential, most facilities are regulated under the NPDES permit program. Stormwater discharges associated with industrial activity has been divided into eleven categories, which include industrial manufacturing facilities, landfills, transportation facilities, construction (land clearing), etc. without regard to type of owner so a municipal or county government may own and operate a facility that falls into one of these eleven industrial categories. Also covered are construction activities where land is disturbed.

Typically, most states have issued 2 general permits to cover the activities; one to cover construction, and the other to cover all other industrial activities. These general permits require the implementation of a Stormwater Pollution Prevention Plan (SWPPP or SWP3). The purpose of these plans s to reduce pollutants from impacting stormwater. They address specific regulated activities, and require facilities to identify potential sources of stormwater contamination. Then, to ensure that the impact to stormwater is minimized, the plans must identify Best Management Practices (BMPs) in place at the site. Examples of good BMPs are:

- Good Housekeeping - A clean and orderly work place promotes efficiency, saves money from spilled materials - good safety measure as it decreases tripping hazards, etc.
- Preventative Maintenance - Involves regular inspections, maintenance, testing and repair or replacement of facility equipment and systems.

- Visual Inspections - Look over your facility for anything that may discharge pollutants to stormwater. Look for anything out of place. Anything corroded or damaged like tanks, drums, pipes, torn bags, etc. And if you find it - clean it up.
- Spill Prevention and Response – Have good spill plans and training at your facility. Ensure timely reporting and quick cleanup. Make sure that containers have secondary containment.
- Erosion Control – During construction activities, make sure to use all applicable methods of erosion control appropriate to your application.
- SWP3 Teams - The Storm Water Pollution Prevention Team is responsible for the development, implementation, maintenance, and revision of the SWP3.

Your General Permit will also outline required activities such as inspections and tests. Make sure to document these activities as required. Also, make sure your SWP3 Team is trained on the SWP3 and their responsibilities.

Emergency Planning and Community Right-To-Know Act (EPCRA)

In 1984, a chemical facility in Bhopal, India had an accidental release of methyl isocyanate. As a result, more than 2,000 people were killed. As a result of this and other similar incidents, EPCRA was implemented.

EPCRA established requirements that companies plan for emergencies that could happen involving chemicals at their facilities. It also requires companies to communicate what chemicals they have on site, and the amounts, so that communities are aware of what is around them, allowing them to be better prepared in the event of an emergency.

EPCRA has four major provisions:

- Emergency planning (Section 301-303) – This part of the regulation is designed to help communities prepare for and respond to emergencies involving hazardous substances. It establishes the development of State Emergency Response Commissions (SERCs) and Local Emergency Planning Committees (LEPCs). These organizations are tasked with developing the community emergency response plans.
- Emergency release notification (Section304) - This part of the regulation established that facilities who release materials designated as Extremely Hazardous Substances (EHSs) or that are Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances, must report the releases to the National Response Center, as well as to the SERC and LEPC. Both the EHSs and the CERCLA hazardous substances are found in the Title III Consolidated List of Lists - October 2006 Version.
- Hazardous chemical storage reporting requirements (Sections 311-312) – Section 311 requires facilities that have MSDSs for chemicals held above certain quantities to submit either copies of their MSDSs or a list of MSDS chemicals SERC, LEPC, and local fire department. Under Section 312, facilities that need to report under Section 311 must also submit an annual inventory report for the same chemicals. This inventory report (Tier II) must be submitted to the SERC, LEPC and local fire department by March 1 of each year.

- Toxic chemical release inventory (Section 313). The Toxics Release Inventory (TRI) is a publicly available database that contains information on toxic chemical releases and waste management activities from covered facilities. This information is generated by annual reports by companies. The TRI keeps the community informed about what is being released, and thereby empowers them to hold companies and local governments accountable.

Conclusion

This document is only the briefest glimpse into the regulations listed. Each one can take years of involvement to feel truly comfortable. However, the purpose has not been to make experts of you, but rather to give you enough information so that you can hold your own when being compared to someone else. Additionally, it provides specific areas that you can focus on for additional training should you find yourself responsible for these programs. Finally, remember that no person is an island, and there is almost always someone who knows more about a topic. Don't be afraid to ask for assistance from your peers. We only truly succeed when we share information and work together.