

CHAPTER 7

Hazardous and Recycled Waste



This chapter describes the accumulation, tracking, and transport of hazardous wastes from generation to ultimate disposal. It includes:

- *Guidelines for determining if a waste is Resource Conservation and Recovery Act (RCRA) hazardous*
- *Three categories of hazardous waste generators that are regulated according to the amount of waste they generate monthly*
- *A summary of the more lenient requirements for hazardous waste that is recycled (such as used oil and universal waste)*
- *The waste minimization certification requirement*

7.1 Regulatory Background

The hazardous waste management program is continuously modified through new regulations, policies, and congressional mandates. This chapter presents an overview of some of the most complex regulations developed by the U.S. Environmental Protection Agency (EPA).

In 1976, Congress passed RCRA because of the national problems with waste disposal. Several goals of RCRA were to protect human health and the environment, reduce waste, conserve energy and natural resources, and reduce or eliminate the generation of hazardous waste as quickly as possible. To satisfy the RCRA directive, EPA developed regulations for three categories of hazardous waste handlers: **generators, transporters, and treatment, storage, disposal and recycle facilities (TSDRFs)**. This chapter presents an overview of the regulations applicable to hazardous waste generators in Title 40 of the *Code of Federal Regulations*, Parts 261 and 262 (40 CFR 261 and 262). If you manage a TSDRF, there are additional requirements (for example, daily, weekly and monthly inspections) that are not outlined in this chapter.

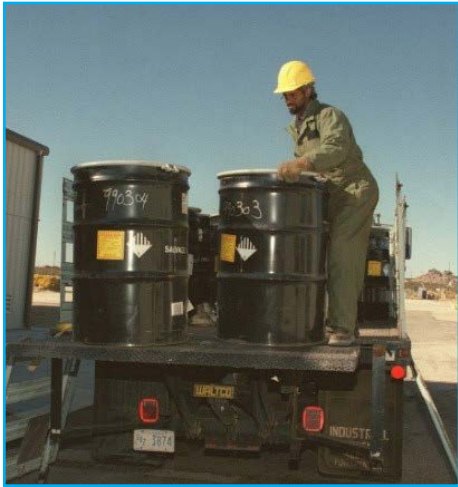
The framework of the hazardous waste regulations was developed for industrial process waste. These regulations were not intended to regulate contaminated media and other waste resulting from cleanups. EPA regulations for the management of contaminated media (soil and groundwater) and other remediation waste took effect June 1, 1999. Most states have adopted the federal requirements for the management of hazardous remediation waste or their own more stringent programs. Refer to [Chapter 8, Assessment and Cleanup](#) for more information on site assessment and cleanup.



The Law Says

- *All generators of solid waste, including fuel facilities, must determine if any of their waste is hazardous (40 CFR 262.11).*
- *A solid waste is a hazardous waste if it exhibits a characteristic of a hazardous waste or is listed as a hazardous waste (40 CFR 261 Subparts C and D).*
- *Mixtures of solid and hazardous wastes can still be hazardous wastes (40 CFR 261.3(a)(2)(iv)).*
- *Per 40 CFR 262, all large and small quantity generators must:*
 - *Get an EPA identification (ID) number.*
 - *Follow accumulation and storage requirements.*
 - *Meet pretransportation requirements of packaging, labeling, and marking.*
 - *Prepare for accidental releases.*
 - *Use e-Manifest and land disposal notification forms to track hazardous wastes.*
 - *Keep records and report data.*
- *If you decide to discard or dispose of your used oil, batteries, fluorescent lamps, or cathode ray tubes rather than recycle them, you may have to meet more stringent hazardous waste regulations (40 CFR 279.10, 40 CFR 273.1, and 40 CFR 261.4(a)(22)).*





7.1.1 Hazardous Waste Determination

A hazardous waste is a discarded solid, semisolid, liquid, or contained gas that can be described as follows:

Because of its quantity, concentration, or its physical, chemical, or infectious characteristics, it poses a present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed, or otherwise managed.

Examples of potentially hazardous wastes that may be generated at DLA Energy facilities include tank-bottom sludge and wastewaters, unusable waste fuel, waste solvent, waste paint (non-latex), sandblasting residue, mercury switches, fluorescent bulbs, aerosol cans, used oil, spill cleanup residues, and expired chemicals.

Waste determination begins at the point the waste is first generated. In the RCRA regulatory framework, hazardous waste must first be identified as solid waste. The term **solid waste** refers to any discarded material (in a solid, liquid, semisolid, or contained gaseous state) that is abandoned, accumulated, recycled, or inherently waste-like (poses a threat to human health and/or the environment) (refer to 40 CFR 261.2). A discarded material also can be a military munition identified as a solid waste in 40 CFR 266 Subpart M.

You are responsible for determining if any solid waste generated at your facility is hazardous by taking the steps listed in *Exhibit 7-1*.

EXHIBIT 7-1

Steps to Determine if Your Solid Waste is Hazardous

1.	Verify if the waste is excluded from regulation under 40 CFR 261.4 and 261 Subpart E. If it is not excluded, then go to Step 2.
2.	Verify if the waste is listed as a hazardous waste in 40 CFR 261 Subpart D. Continue to step 3.
3.	Determine if the waste exhibits any of the characteristics identified in 40 CFR 261 Subpart C by either by: <i>Sending a sample of the waste to an accredited laboratory for testing according to specific EPA methods, or</i> <i>Using your knowledge of the waste and how it was generated to determine if it meets the definition of characteristic hazardous waste.</i>
4.	Determine if it is one of the specific hazardous wastes that has been exempted from regulation under 40 CFR 261.6 (refer to the Recycled Hazardous Waste section later in this chapter).

For analytical testing services, DLA Energy has access to about 150 U.S. contract laboratories through the DLA Installation Management for Energy. For more information, call the Environmental Division at (571) 767-5482 (DSN 427).

EPA assigns four-character alphanumeric waste codes to specific hazardous waste (for example, D001). All applicable hazardous waste codes must be identified for each individual waste. The flow charts in *Appendix 7-1* will help you determine whether your waste is hazardous and what regulations apply to your waste.

7.1.2 Listed Hazardous Waste

EPA lists approximately 500 wastes that it considers hazardous to human health or the environment. **Listed hazardous wastes** are those that appear on any one of the following four lists contained in the RCRA regulations (40 CFR 261.30 through 261.33).

F-listed wastes commonly produced by various industrial processes and generated from non-specific sources, such as solvents used for cleaning and degreasing (not process-specific).

K-listed wastes generated from industry-specific manufacturing processes (such as wood preserving and petroleum refining). None of the K-listed wastes are typically generated at fuel facilities.

P-listed wastes discarded or off-specification **commercial chemical products** and resulting residues from containers and spills. This list is applicable to technically pure-grade chemicals once they are discarded, spent, or spilled. Note that if there is another chemical in addition to the P-listed chemical in the product and the P-listed chemical is not the sole active ingredient, then any waste product is NOT a P-listed waste. The P-listed wastes are called **acute hazardous wastes (H) or (AHW)** and are more strictly regulated than other hazardous wastes.

U-listed wastes—also pure-grade discarded or off-specification commercial chemical products, residues, and spills. The U-listed wastes are identified as **toxic wastes (T)**.

Any wastes that meet the listing criteria or mixtures of listed waste and other waste generated at your facility are considered hazardous waste.

7.1.2.1 Hazardous Waste Characteristics

If a solid waste exhibits one or more of four physical or chemical properties deemed hazardous to human health or the environment by EPA, it is a **characteristic hazardous waste** (40 CFR 261.20 through 261.24). The four hazardous waste characteristics are **ignitability, corrosivity, reactivity, and toxicity**.

Ignitability

A solid waste is ignitable if it can readily catch fire and sustain combustion. A liquid waste is ignitable if it has a **flash point** (the temperature at which combustion occurs) of less than 140°F Fahrenheit (°F). Examples of ignitable wastes include oil-based paint wastes, non-halogenated degreasers, thinners and solvents (petroleum distillates), stripping agents, epoxy resins, adhesives, rubber cements and glues, and some waste inks. An ignitable waste is given the EPA Hazardous Waste Number D001.



Corrosivity

A waste is corrosive if it is a liquid and dissolves metals and other materials, or burns the skin or eyes on contact. Liquids with a **pH** of 2 or less, or 12.5 or more, are corrosive. Examples of corrosive wastes include alkaline degreasers, corrosive cleaning solutions, rust removers, waste acids, and bleach compounds (peroxide and chlorine compounds). A corrosive waste is assigned the EPA Hazardous Waste Number D002.





Reactivity

A waste is reactive if it is normally unstable and undergoes rapid or violent chemical reactions, such as catching fire, exploding, or giving off fumes when exposed to water or air. Examples of reactive wastes are bleaches and hypochlorites from water treatment processes, aerosol cans with pressure remaining, lithium batteries, and discarded munitions or explosives. A reactive waste has the EPA Hazardous Waste Number D003.



Toxicity

A waste exhibits the toxicity characteristic if it has concentrations of heavy metals or certain organic compounds above specified levels (*Appendix 7–2*) that may cause illness or death if inhaled, swallowed, or absorbed through the skin. Long-term effects of a toxic waste on human health may include cancer, birth defects, reproductive anomalies, brain and kidney damage, and diseases of the skin, lungs, and heart. The analytical procedure used to determine if a waste is toxic is the **Toxicity Characteristic Leaching Procedure (TCLP)**.

Examples of toxic wastes are inks and sludges containing certain heavy metals, batteries containing lead, certain pesticides, and paint wastes containing heavy metals, such as chromium or lead. A toxicity characteristic waste has the EPA Hazardous Waste Number that corresponds to the toxic contaminant causing it to be hazardous (D004 through D043).

7.1.2.2 Mixtures

Nonhazardous wastes mixed with hazardous wastes become hazardous wastes (with a few regulatory exceptions). Mixing nonhazardous waste with hazardous wastes to dilute hazardous waste is *not* allowed. Mixing these types of wastes simply creates a larger volume of hazardous waste to manage. Make sure you separate nonhazardous and hazardous wastes.

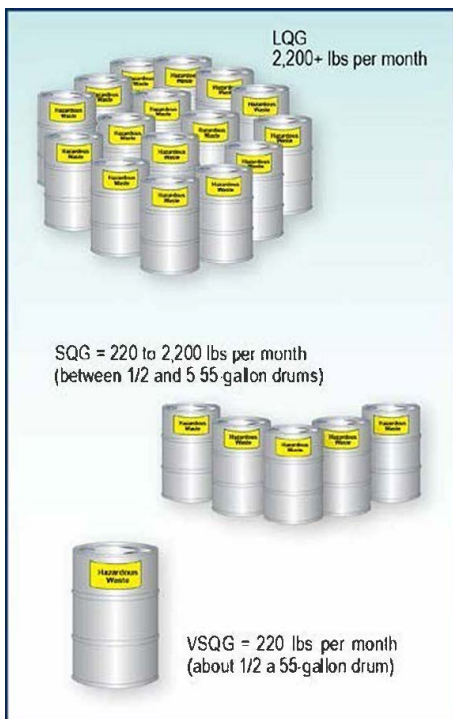
7.1.3 Hazardous Waste Generators

Under RCRA, hazardous waste generators are classified according to how much hazardous waste they generate in a calendar month. The three categories of hazardous waste generators are:

- Large quantity generators (LQGs)
- Small quantity generators (SQGs)
- Very small quantity generators (VSQGs)

[Appendix 7–3](#) helps define your generator category and compares requirements for the three types of generators.

The following text summarizes generator categories and regulatory requirements (see 40 CFR 260 and 262 for detail on large and small quantity generators). State regulations can vary in the definitions and requirements for the three generator categories. Be sure to check with your state hazardous waste program.



7.1.3.1 Large Quantity Generators

LQGs generate 1,000 kilograms (kg) (about 2,200 pounds [lb] or five 55-gallon drums) or more hazardous waste per month, over 1 kg (2.2 lb) of AHW per month, or over 100 kg of any residue or contaminated soil or debris resulting from an AHW spill in a month.

7.1.3.2 Small Quantity Generators

SQGs generate over 100 kg (about 220 lb or half of a 55-gallon drum) but under 1,000 kg of hazardous waste per month, and accumulate no more than 6,000 kg (about twenty-eight 55-gallon drums) at any one time. SQGs also generate no more than 1 kg of AHW or 100 kg of AHW-contaminated debris per month and may accumulate no more than 1 kg of AHW or 100 kg of AHW-contaminated debris at any one time. If the quantity of hazardous waste you produce in a month exceeds these limits, you become an LQG for that month and must meet LQG requirements.

7.1.3.3 Very Small Quantity Generators

VSQGs generate no more than 100 kg of hazardous waste, no more than 1 kg of AHW, and no more than 100 kg of any AHW-contaminated debris in a calendar month. Special requirements for VSQGs are listed in 40 CFR 262.14. Though exempt from full regulation, VSQGs must still:

- Determine if any wastes generated are hazardous.
- Accumulate no more than 1,000 kg of hazardous waste, 1 kg of AHW, or 100 kg of AHW-contaminated debris at any one time.
- Treat or dispose of the hazardous waste or AHW in an on-site facility or ensure delivery to an off-site commercial treatment or disposal facility. These facilities must be one of the following:
 - Permitted or interim status-permitted under RCRA;
 - Permitted, licensed, or registered to manage municipal or industrial solid waste;
 - A large quantity generator under the control of the same person as the very small quantity generator; or
 - Recycling facilities.

If you are a VSQG and, at any time, accumulate over 1,000 kg of hazardous waste, all of the accumulated waste is subject to SQG regulations. If you are a VSQG and generate over 1 kg of AHW or 100 kg of AHW-contaminated debris in a month (or accumulate over 1 kg of AHW or 100 kg of AHW-contaminated debris at any one time), all quantities of the AHW are subject to LQG regulations.

7.1.3.4 Episodic Generation

SQGs and VSQGs are allowed to maintain their existing generator category in the event of planned or unplanned episodic generation (that is, generators do not have to count hazardous waste managed as part of the episodic event when making their monthly generator status determination) [40 CFR 262.13(c)(8)]. However, notifications, specific container marking and labeling, and recordkeeping are required to use this exception (262 Subpart L – Alternative Standards for Episodic Generation). In addition, a VSQG would be required to obtain an EPA ID number.



Did You Know?

VSQGs do not have to get an EPA ID number or use a manifest to ship wastes, but some states (and transporters) may require it.

7.1.4 Large and Small Quantity Generator Requirements

For the most part, the regulations that apply to LQGs also apply to SQGs. The only regulatory relief given to SQGs is that several administrative and training requirements are not formally required.

7.1.4.1 EPA ID Number and Generator Status

As an LQG or SQG, you must get an EPA ID number. You cannot treat, store, dispose of, or turn over for transport any hazardous waste without first receiving an **EPA ID number**. You also cannot deliver your waste to transporters or TSDRFs that have not received an EPA ID number.

To obtain an EPA ID number, call or write your state hazardous waste agency or EPA regional office and ask for a copy of EPA Form 8700–12, Notification of RCRA Subtitle C Activity Instructions and Form, or check online. Some states use a different form than the EPA form, so contact your state agency first. Also, you are required to notify EPA of any changes to the information on the original notification form, including changes in the facility contact person named, waste codes identified, and generator status (LQG, SQG, or VSQG).

7.1.4.2 Re-notification EPA ID Number and Generator Status

An LQG must re-notify EPA or authorized state by March 1 of each even-numbered year thereafter using EPA Form 8700-12 and may submit this renotification as part of its Biennial Report required under 262.41.

An SQG must renotify EPA or authorized state starting in 2021 and every four years thereafter using EPA Form 8700–12. This notification must be submitted by September 1 of each year in which re-notifications are required.

7.1.5 Accumulation of Wastes Without a Permit

Hazardous waste may be accumulated on-site prior to transportation and disposal. However, RCRA regulations limit the period of accumulation.

7.1.5.1 Large Quantity Generators

As an LQG, you may accumulate hazardous waste for up to 90 days if you meet the following requirements:

- *Proper storage* – Comply with storage standards for containers and tanks, including air emission standards. Note that the tank design requirements are detailed and require Professional Engineer (PE) certification (see [Chapter 4, Aboveground Storage Tanks and Containers](#)). Mark containers with the words “Hazardous Waste,” the hazards of the waste, and the date accumulation began. Conduct and document proper operating, maintenance, and inspection procedures.
- *Preparedness and prevention* – Operate and maintain your facility to minimize the possibility of a fire, explosion, or spill that could threaten human health or the environment. The kind of wastes you store will determine the type of equipment you need, such as communication devices, fire control equipment, and spill control and decontamination equipment.



- *Maintenance of adequate aisle space* – Make sure you have enough room for unobstructed movement of personnel or emergency equipment. Set up prior emergency arrangements with the police, fire department, emergency response teams, and local hospitals.
- *Contingency plan and emergency procedures* – Write a contingency plan describing the actions personnel take in response to emergencies. Have an Emergency Coordinator on-call at all times to implement the plan. Refer to [Chapter 1, Environmental and Emergency Response Planning](#).
- *Personnel training* – Train all facility personnel in hazardous waste management and emergency procedures, equipment, and systems. (Refer to [Chapter 10, Training](#)).
- *Closure* – When the hazardous waste central accumulation areas are no longer needed, close them in a manner that minimizes the need for further maintenance and protects human health by controlling, minimizing, or eliminating the escape of hazardous constituents to the ground, surface water, or atmosphere. There are specific closure notifications and performance standards that must be met; see 40 CFR 262.17(a)(8). During the closure period, all contaminated equipment, structures, and soil must be properly disposed of or decontaminated. All hazardous waste generated in the closure process must be handled in accordance with all applicable requirements. As an LQG, if you store hazardous wastes for more than 90 days, you are considered a storage facility and need a costly and time-consuming permit. But if your wastes are on-site for more than 90 days under temporary and uncontrollable circumstances, you can request an extension of up to 30 days from EPA or your state agency without becoming a storage facility.

7.1.5.2 Small Quantity Generators

As an SQG, you can accumulate hazardous wastes on-site for up to 180 days without a permit if you meet all of the following requirements:

- Do not accumulate more than 6,000 kg on-site (13,200 lb or about twenty-eight 55-gallon drums).
- Accumulate wastes properly in containers or tanks marked with the words “Hazardous Waste,” identify the hazards of the waste, and indicate the date accumulation began.
- Meet preparedness and prevention procedures outlined above for an LQG.
- Have an Emergency Coordinator on-call at all times to implement the contingency plan. [Chapter 1, Environmental and Emergency Response Planning](#).
- Post basic safety information near the phone where hazardous waste is stored, including phone numbers and locations of fire and spill control material.
- Train employees in waste handling and emergency procedures (Refer to [Chapter 10, Training](#)).

Note: If you are an SQG and must transport your waste over 200 miles for off-site treatment, storage, or disposal, you may accumulate your waste on-site for 270 days or less without a permit if you meet the stated criteria.

As an SQG, if you accumulate hazardous waste for more than 180 or 270 days, you are considered the operator of a storage facility and need a permit. Under temporary, uncontrollable circumstances, EPA or your state agency may grant an extension of up to 30 days beyond the 180- or 270-day period without becoming a storage facility.



7.1.6 Satellite Accumulation

Federal regulations allow limited quantities of hazardous waste to accumulate at or near the point of generation (called **satellite accumulation areas [SAAs]**) for more than the 90- or 180-day periods specified previously, provided the wastes are properly managed. At a SAA, generators are allowed to:

- Up to 55 gallons of hazardous waste per waste stream (process generating waste) or 1 quart of AHW at or near the point of generation, as long as the container is generally visible to the person generating the waste.
- Accumulate wastes in containers or drums that are in good condition; are compatible with the material stored; are kept closed during accumulation except to add, remove, consolidate waste, or, when venting the container is necessary, prevent a dangerous situation; and are marked with the words "Hazardous Waste" and other words that identify the hazard(s) of the contents.

Once the 55-gallon or 1-quart limit has been reached, immediately mark the container with the current date and transfer the waste within 3 days to a 90-day (LQG) or 180-day (SQG) central accumulation area or off-site to a TSDRF. The 90- or 180-day accumulation period begins when the satellite accumulation container is full and dated.

7.1.7 Inspections

LQGs and SQGs are required to inspect, at least *weekly*, areas in which hazardous waste is accumulated (central accumulation areas: 90- or 180-day accumulation areas). Curbs, diking, and concrete surfaces must be checked for signs of cracking or deterioration. Containers must be inspected to ensure that they are not leaking, that all containers are secured, and that they have lids and bungs tight and in place. Results of the inspection must be documented, and the inspector is responsible for making sure problems are corrected immediately. Although not a federal or state requirement, generators may inspect SAAs on a weekly or monthly basis, refer to your site's hazardous waste management plan.

LQGs and SQGs must inspect emergency systems and equipment near hazardous waste accumulation areas to ensure proper operations during an accidental spill. This consists of checking facility communications systems or alarm systems, fire protection equipment, spill control supplies, and decontamination equipment.

7.1.8 Land Disposal Restrictions

Land disposal restriction (LDR) rules, found in 40 CFR 268, restrict the disposal of hazardous wastes in landfills unless the waste meets certain treatment standards or a waiver has been obtained. Typically, the TSDRF treats the wastes before placing them in the landfill. If you are an LQG or SQG, you must send an LDR notification or certification form with the initial shipment of the hazardous waste to a specific TSDRF. In general, this form identifies the proper treatment standard. Many TSDRFs provide these forms, but it is the generator's responsibility to make sure the form is accurate and complete. If the waste, process, or receiving TSDRF changes, another LDR notification is required.

If you choose to treat your waste on-site (for example, neutralization) to meet the LDRs before sending the waste for disposal, you will also need to prepare and comply with a waste analysis plan (40 CFR 268.7(a)(5)). Note that most hazardous waste treatment requires getting a permit. Check with your state before treating your waste at your installation. Note that most hazardous waste treatment requires a permit. Check with your state before treating your waste at your facility.

7.1.9 Air Emissions

Air emissions from hazardous waste containers, tanks, equipment leaks, and process vents are regulated under 40 CFR 265 Subparts AA, BB, and CC (40 CFR 265.1030–1091). For most DLA Energy facilities, the requirements of 40 CFR 265 Subpart CC, Air Emissions Standards for Tanks, Surface Impoundments, and Containers, will be most applicable. These Subpart CC regulations apply to hazardous wastes with a volatile organic (VO) concentration of 500 parts per million by weight (ppmw) at the point of generation. Gasoline and many solvents exceed this VO threshold. The concentration of the VOs in the waste does not need to be determined analytically; the facility can assume that the concentration exceeds the 500 ppmw and implement the requirements.

Hazardous waste containers (such as drums) with a capacity greater than 26 gallons must:

- Be a U.S. Department of Transportation (DOT)-approved container
- Operate with no detectable organic emissions or be vapor tight
- Have covers, lids, and closure devices for each opening that are in place at all times (except when adding, removing, or consolidating waste)

Open-top containers can be used if they have an organic vapor-suppressing barrier or foam over the VO material. In addition, containers could be vented to a control device (such as a combustion unit or flare) or in a building with a closed-vent system to a control device. You must maintain records of the inspections and the VO concentrations at your facility.

These regulations do *not* apply to containers used for satellite accumulation or SQGs of hazardous waste.

There are similar air emissions control requirements for hazardous waste tanks; see 40 CFR 265.1085 for specific requirements.

7.1.10 Pre-transport Requirements

To ensure safe transportation of hazardous waste, EPA has adopted DOT hazardous materials transportation regulations (see 49 CFR 171–180). The transporter cannot accept hazardous waste for transport unless the waste has been properly packaged, labeled, and marked and the transporter’s vehicle has been properly identified with **placards** (signs), as noted in the following regulations:

- Package all waste as specified in 49 CFR 173, 178, and 179.
- Label each container as specified in 49 CFR 172 Subpart E. Generally, the label is diamond-shaped and shows the hazard class of the waste.
- Mark each package of hazardous waste as specified in 49 CFR 172 Subpart D. As specified in 40 CFR 262.32, mark each container of 119 gallons or less with the following words and information, according to the requirements of 49 CFR 172.304, either on the package surface or on a label or tag (see *Exhibit 7–2*).

EXHIBIT 7–2

Hazardous Waste Marking Requirements

HAZARDOUS WASTE —Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

Generator’s Name and Address _____

Generator’s EPA Identification Number _____

Manifest Tracking Number _____

EPA Hazardous Waste Codes _____

- Mark the transport vehicle with, or offer the initial transporter, the appropriate placards as specified in 49 CFR 172 Subpart F. The design of these placards is usually similar to the package labels.

7.1.11 Hazardous Waste Electronic Manifest (e-Manifest)

The **hazardous waste electronic manifest (e-Manifest)** is a national system for tracking hazardous waste shipments electronically. Users of the e-Manifest will need an EPA ID number and must register with e-Manifest.

The e-Manifest system allows for three types of hazardous waste manifest creation options:

- Paper (generator, transporter, and receiving facility all sign on paper)
- Hybrid (starts as paper manifest signed by the generator and then is signed electronically by the transporter and receiving facility)
- Electronic (created in e-Manifest and electronically signed by all entities listed on the manifest)

The e-Manifest contains the following:

- Name, address, and EPA ID number of your facility and the TSDRF receiving the waste



- Name and EPA ID number of the transporter(s)
- Types, quantities, and packaging of waste being transported
- Emergency contact information and procedures

If you are an LQG, you must certify on each manifest that your facility has a hazardous waste minimization program in place and that you have selected the most practical method of treatment, storage, or disposal to minimize the threat to human health and the environment. If you are an SQG, you must certify that you have made a good faith effort to minimize hazardous waste generation and to select the best waste management method available.

To track the waste, the e-Manifest must be electronically signed each time the waste is transferred (from your facility to a transporter, from transporter to transporter, and from transporter to the designated facility). Your facility, each transporter, and the designated facility should each keep a copy of the manifest (some states also require a copy to be mailed to them). After the waste has reached the designated facility, the owner or operator of that facility must send an electronic copy to EPA. Generators are required to track their shipments in the e-Manifest database to ensure their waste was received at the destination facility in a timely fashion.

Note that in 2012, EPA issued a final rule that modifies the polychlorinated biphenyl (PCB) management rules so that the inclusion of PCBs, which are not considered RCRA hazardous wastes, on the waste manifest is consistent with RCRA regulations.

7.1.12 Recordkeeping and Reporting

The three main recordkeeping and reporting requirements include:

- Biennial reporting (sometimes annual or quarterly)
- Manifest exception reporting
- Records retention (inspections, reports, manifests, waste analyses, and land disposal notices and certifications)

7.1.12.1 Biennial Report

If you are an LQG that ships any hazardous waste off-site to a TSDRF, you must submit a **biennial report** (every 2 years) to your state agency by March 1 of each even-numbered year. The report covers your activities for the previous year and includes the following:

- EPA ID number, name, address, and other general and waste information for your facility
- Calendar year covered by the report
- Each TSDRF to which waste was shipped during the year and each transporter used
- Description and volume of each hazardous waste shipped off-site
- All hazardous waste received from a VSQG
- Efforts to reduce the volume and toxicity of the waste generated, including a comparison of the reductions against the previous years' waste generated



Did You Know?

On October 5, 2012, the Hazardous Waste Electronic Manifest Establishment Act was signed into law, paving the way for a final electronic manifest (e-Manifest) rule. The act authorizes EPA to 1) develop an electronic hazardous waste manifest system and 2) impose user fees. EPA required the use of the e-Manifest on June 30, 2018.

Note that some states require annual or even quarterly generator hazardous waste reports. [Appendix 7-4](#) shows the state-specific hazardous waste reporting requirements.

7.1.12.2 Manifest Exception Report

If you are an LQG and you do not find a copy of the signed manifest from the designated TSDRF in the e-Manifest database within 35 days of the date the waste was accepted by the initial transporter, try to determine the status of the hazardous waste shipment. If the signed manifest is not in the e-Manifest system within 45 days of the date the waste was accepted by the initial transporter, you must submit an exception report to your state agency. Include a copy of the manifest and a letter explaining what you have done after 35 days to locate the hazardous waste.

If you are an SQG and you do not find a copy of the signed manifest from the designated TSDRF in the e-Manifest database within 60 days of the date the waste was accepted by the initial transporter, send a copy of the manifest and a statement that confirmation of delivery was not received to your state agency.

7.1.12.3 Schedule for Keeping Records

Keep a copy of each biennial report (or in some states, the annual or quarterly report) and exception report for at least 3 years from the due date of the report. Keep records of any notices, certifications, waste analyses data, and other hazardous waste determination documentation for at least 3 years from the date that the waste was last sent to an on-site or off-site TSDRF. Also, keep a copy of all manifests until you receive a signed copy from the designated facility via e-Manifest. The manifest from the designated facility must then be kept for at least 3 years from the date the waste was accepted by the initial transporter.



7.2 Recycled Hazardous Waste

The objectives of RCRA are “to promote the protection of health and the environment and to conserve valuable material and energy resources.” With these goals in mind, EPA took several steps to encourage hazardous waste minimization and to promote the reuse and reclamation of useful materials in a manner that is safe and protective of human health and the environment. One step was to require hazardous waste LQGs and TSDRFs to certify that they have a waste minimization program in place that reduces the quantity and toxicity of hazardous waste generated to the extent economically practicable.

Secondly, EPA wanted to provide incentives to reduce the amount of hazardous waste needing disposal by encouraging recycling of certain hazardous waste in a protective manner. Over the years, EPA published special management regulations for select hazardous waste that are recycled. A material is recycled if it is used, reused, or reclaimed. The process of recycling is still regulated by EPA to protect against “sham” recycling operations. The recycling regulations in 40 CFR 261 are too complicated and too numerous to summarize in the guide, but a few examples are noted below.

This section summarizes the less stringent regulations for recycled:

- Hazardous Secondary Materials (40 CFR 260.43, 261.2 and 261.4)
- Spent Lead Acid Batteries (40 CFR 266.80)
- Universal Waste (40 CFR 273) (lead acid batteries also can be managed under these rules)
- Cathode Ray Tubes (40 CFR 261.39 and 261.40)
- Used Oil (40 CFR 279)
- Solvent-contaminated Wipes (40 CFR 260.10, 261.4(a)(26) and 261.4(b)(18))

Vendors who recycle waste must be certified by the state and should provide a copy of the certification to the generator prior to sending waste to that vendor.

If these waste materials are not recycled, and they would otherwise meet the definition of hazardous waste, they are subject to full hazardous waste regulations.

7.2.1 Recycling Hazardous Secondary Materials

In 2008, EPA modified the definition of solid waste to encourage recycling of certain secondary materials (for example, spent material, by-product, or sludge) that would otherwise be hazardous waste if not being recycled. Generators have to demonstrate that the recycling is legitimate by documenting that it produces a valuable intermediate or final product or ingredient and that it is recovered or regenerated in the recycling process. Secondary materials can be legitimately reclaimed on-site, recycled off-site by the same company, or recycled off-site under a tolling agreement or contract between companies.

There are notification requirements and recordkeeping requirements that have to be complied with if the exemption is being used. It is important that, if this exemption is being used, compliance with the speculative accumulation storage limits is not exceeded (that is, you are not just accumulating the material because you don't want to dispose of it). Not all states have adopted this exemption; therefore, be sure to check your state regulations.

7.2.2 Spent Lead Acid Batteries

Lead acid batteries are usually collected and sent for recycling under the exemption found in 40 CFR 266.80. While being collected, lead acid batteries should be kept off the floor and should be protected from weather so that you don't have a spill of battery acid.

If you collect your lead acid batteries and the battery vendor picks them up for recycling or you transport the battery to the vendor for recycling, you need to make sure the batteries are managed properly and sent to a facility that can treat the batteries to meet the LDR standards.

7.2.3 Universal Waste

Certain commonly generated hazardous wastes are classified as **universal waste** when recycled and can be managed under the more lenient universal waste regulations (40 CFR 273). Universal wastes consist of:

- Recalled and unused pesticides
- Hazardous waste batteries (such as nickel-cadmium, alkaline, silver-oxide, lithium, and nickel-metal hydroxide. Lead-acid batteries can also be recycled under the universal waste rules)
- Mercury-containing equipment (such as thermostats, barometers, manometers, temperature and pressure gauges, and mercury switches)
- Lamps (such as fluorescent, neon, mercury vapor, high pressure sodium, high intensity discharge, and metal halide)

Under these regulations, you must label, date, and store the universal wastes so that they will not break or release material to the environment. Universal wastes can be stored on-site for 1 year. **Small quantity handlers** can store no more than 11,000 pounds (lb) (5,000 kg) of universal wastes; **large quantity handlers** can store over 11,000 lb. Both small and large quantity handlers must record the dates that the universal wastes are placed in storage and the dates that they are transported off-site, along with a record of the off-site shipment. Generators who store universal waste must notify their states of this activity using EPA Form 8700–12.



7.2.4 Cathode Ray Tubes

Cathode ray tubes (CRTs) are vacuum tubes made primarily of glass. They are part of the video display components of older model televisions and computer monitors. EPA has determined that lead (along with mercury, cadmium, and arsenic) has been used in the manufacture of these CRTs. The lead in color monitors has been shown to be at concentrations to make the CRTs hazardous waste. The EPA established a conditional exclusion from the hazardous waste management regulations for CRTs destined for reuse and recycling. Used or unused CRTs destined for *disposal* would continue to be solid wastes, and likely hazardous wastes. If they are hazardous waste, then LDRs for this waste would also be applicable.

Used CRTs from any source sent somewhere else for use “as is” or after minor repairs, such as rewiring or replacing defective parts, are considered products “in use” and are not wastes. However, to avoid sham recycling, used intact CRTs stored for more than 1 year are regulated as hazardous waste.

Many CRTs that cannot be reused are sent for recycling, which consists of disassembling them to recover valuable materials from the CRT, such as lead or glass. Used, broken CRTs are not regulated as hazardous waste as long as they are:

- Destined for recycling or undergoing glass processing
- In containers clearly labeled regarding contents
- Safely transported in containers designed to minimize releases
- Stored in a building or container designed to minimize releases
- Stored on-site less than 1 year before recycling them

Processed glass from used CRTs is also excluded from the definition of solid waste if it is sent to a glass manufacturer for recycling or to a lead smelter, provided the glass is stored at your facility for less than 1 year and it has not been placed outdoors on the ground.

If your facility is classified as a VSQG, the requirements for CRTs do not apply to you.

Check your state regulations to see if they have adopted this rule or have different requirements.

7.2.5 Used Oil

Used oil includes oils refined from crude and synthetic oil. It covers lubricating oils, engine oils, transmission and hydraulic fluids, gear oils, water-soluble cutting oil (known as oil coolants), and electrical oils. In 1992, because of improper disposal of used oil on the ground, in water, or into sewers, EPA established used oil management standards in 40 CFR 279 to encourage recycling of used oil. These regulations establish specific storage, tracking, and handling requirements for used oil that is recycled in any manner. Burning as a fuel (for example, in cement kilns and industrial boilers) and re-refining are the two major methods for recycling.



Other examples of used oil managed under the management standards include:

- Mixtures of used oil with fuels or other fuel products. However, if the used oil is mixed on-site with diesel fuel for use in your own vehicles, it is not subject to used oil regulations once it is mixed
- Used oil produced on vessels during normal operations once it is transported ashore. If you accept used oil from a vessel, you are a co-generator of the used oil, and both you and the vessel's owner or operator are responsible for properly managing the waste
- Materials containing or otherwise contaminated with used oil that are burned for energy recovery

Wastewater that contains *de minimis* quantities (for example, from small leaks, spills, or drippings) of used oil are exempt from these standards.

Used oil destined for **recycling** is regulated under 40 CFR 279, regardless if it is a characteristic hazardous waste. Some oil may exceed hazardous waste toxicity characteristic limits because they contain additives that are hazardous constituents or metals, such as arsenic, barium, chromium, zinc, and lead. You will be required to manage your used oil as a hazardous waste if:

- It exhibits a hazardous waste characteristic and is destined for disposal (instead of recycling).
- It is intentionally mixed with hazardous waste (for example, mixed with solvents).
- It contains more than 1,000 part per million (ppm) total halogens (for example, chlorinated compounds). At that concentration, it is *presumed* to be hazardous waste by EPA. Generators may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (waste codes F001 or F002) or only contains small quantities of the halogenated hazardous constituents in 40 CFR 261 Appendix VIII.

7.2.5.1 Used Oil Storage

In addition to the requirements outlined below, used oil generators must comply with all applicable Spill Prevention, Control, and Countermeasure (SPCC) requirements (40 CFR 112), as well as underground storage tank (UST) standards (40 CFR 280) for used oil that is stored in underground tanks. Refer to [Chapter 3, Underground Storage Tanks](#) and [Chapter 4, Aboveground Storage Tanks and Containers](#) for more information.



- *Proper storage* – Store used oil in tanks or containers that are in good condition and marked with the words “Used Oil.” Other materials should not be mixed with used oil.
- *Spill response* – Stop, contain, and clean up any release of used oil not subject to the UST release response requirements. Repair or replace any leaking used oil storage containers or tanks before returning them to service.
- *Secondary containment* – Make sure used oil containers have secondary containment, such as a dike or curb, to hold 10% of the contents of all the containers or 100% of the contents of the largest container, whichever is greater. If stored outside, the containment must have added capacity for rainfall (for example, 24-hour, 25-year storm).

7.2.5.2 Transportation Requirements

You may not deliver your used oil to transporters who have not obtained an EPA ID number. You may transport your own used oil without an EPA ID number provided the following requirements are met:

- Transport the used oil in a company-owned or employee-owned vehicle.
- Transport no more than 55 gallons of used oil at any one time.
- Deliver the used oil to a used oil collection center that is registered, licensed, permitted, or recognized by a state or local government to manage used oil.

You may transport, without an EPA ID number, used oil generated at your facility to an aggregation point that you own or operate provided you transport it in a company-owned or employee-owned vehicle and you transport no more than 55 gallons at any time.

7.2.5.3 Disposal of Non-recyclable Used Oil

Used oils that cannot be recycled must be properly disposed of. Used oil may not be used as a dust suppressant. Hazardous used oils must be managed in accordance with the hazardous waste management requirements. Non-hazardous used oils that cannot be recycled must be disposed of at an appropriate solid waste disposal facility. In some states, non-hazardous used oil is banned from being disposed of as a solid waste in municipal landfills.

Materials contaminated with used oil (such as rags, wipes, and absorbent materials) are to be managed under the used oil standards if they are still dripping with oil. If the material no longer contains free-flowing used oil, you need to determine if it is a hazardous waste. Test the material, or use your knowledge of the material and type of oil, to determine whether it exhibits a hazardous waste characteristic (primarily, the toxicity characteristic for metals or benzene). If it is deemed hazardous, it must be handled as a hazardous waste. If the rags or

materials are not hazardous, they may be sent to a municipal landfill depending on your state requirements.

7.2.5.4 Used Oil Filters

EPA prefers that used oil filters be recycled once they are properly drained. Many used oil filters are excluded from the hazardous waste regulations if they are hot-drained, which means they are drained near engine operating temperatures or above 60°F. Filters can be hot-drained using one of the following methods:

- *Gravity draining* – Puncture the filter’s anti-drain valve or dome end and allow to drain.
- *Crushing* – Squeeze out the used oil and compact the remaining filter material.
- *Disassembly* – Separate the filter into its different parts (metal canisters, rubber gaskets, and paper filter).
- *Other equivalent methods* – Such as using air pressure to force the oil out of the filter.



Filters should be stored in covered, rainproof containers. Drained, used oil filters can usually be recycled in several ways. For instance, the entire filter can be burned for fuel or the different components can be recycled separately. Some steel mills and scrap metal recyclers may also accept the filters as feedstock.

Terne-plated oil filters are included within EPA’s hazardous waste regulations and can be recycled. Terne is an alloy of tin and lead. The lead in the terne plating makes the filter a characteristic hazardous waste.

7.2.6 Solvent-contaminated Wipes

Rags, shop towels, absorbent pads, swabs, and other materials contaminated with certain hazardous waste solvents (for example, F-listed solvents or wipes exhibiting the ignitability characteristic) used as wipes are conditionally excluded from the hazardous waste regulations provided you clean or launder them or dispose of them properly.

To be excluded as hazardous waste, wipes must be:

- Managed in non-leaking, closed containers labeled “Excluded Solvent-Contaminated Wipes.”
- Sent for cleaning or disposal within 180 days from the date of initial accumulation in the container, and the wipes or container cannot contain free liquids when being sent for cleaning or disposal.
- Sent for reuse to a laundry or dry cleaner that is regulated by the Clean Water Act (CWA) if they have wastewater discharges.
- Sent for disposal to a permitted municipal waste landfill or a combustion facility regulated by the Clean Air Act (CAA).

Free liquids may be removed from the wipes by any number of methods, such as screen-bottom containers, mechanical wringing, centrifuging, or vacuum extraction.

A test method called the Paint Filter Liquids Test (EPA Method 9095B) may be used to determine if solvent-contaminated wipes contain no free liquids. Free liquids removed from the wipes or the container holding the wipes must be properly managed as hazardous waste or recycled, as applicable.

The following documentation is required to be maintained at your facility for 3 years from each shipment:

- Name and address of the laundry, dry cleaner, landfill, or combustion facility
- Evidence that the 180-day accumulation time limit is being met (log sheets, regularly scheduled pickup arrangements, initial accumulation dates on container labels,
- Description of the process used to meet the “no free liquids” condition



Wipes that contained listed hazardous waste other than solvents, or exhibit a hazardous waste characteristic of reactivity, corrosivity, or toxicity due to contaminants other than solvents, are not eligible for the exclusion. In addition, wipes sent for off-site disposal that contain trichloroethylene are not exempt and are considered hazardous waste.

Note that exclusions and exemptions from the hazardous waste regulations may not be available in all states. State hazardous waste programs may be stricter than the federal rules. Always check your state rules to see if they adopted this or any other exemption.

7.3 Hazardous Waste Minimization

By signing a hazardous waste manifest and submitting the annual, biennial, or quarterly report, the generator certifies that there is a **waste minimization** program in place. EPA issued guidance in 1993 describing the elements of a hazardous waste minimization program. This consists of:

- Preparing a written waste minimization policy and plan
- Establishing explicit and achievable goals and tracking system
- Training and recognizing employees
- Exchanging technical information, ideas, and strategies
- Allocating the cost of waste management to the activity that generated the waste

Be sure to check with your state hazardous waste program to see if they have additional waste minimization requirements.

Promoting reuse, recycling, and reclamation of hazardous waste, if properly conducted, can avoid environmental hazards, protect scarce natural resources, and reduce the nation's reliance on raw materials. The following pollution prevention (P2) or waste minimization options must be considered in your hazardous waste minimization program:

- Recycling
- Material substitution
- Engineering controls
- Best management practices (BMPs)

7.3.1 Recycling

Recycle unusable fuel, used oil, sludges, and other materials if possible. Specific suggestions include:

- Re-refine unusable fuel and oil to virgin specification so it can be reused as motor oil and fuel. You may want to re-refine at an off-site recycling program through a broker or directly with a re-refining facility.
- Drain used oil filters and recycle in several ways: the entire filter can be burned; scrap metal recyclers may accept filters as feedstock, etc.
- Return bulk petroleum, oil, and lubricants (POL) facility filters to the manufacturer to be recycled. Check with your state regulations to make sure this is not considered treatment, and coordinate any such efforts with the filter manufacturer.
- Burn used fuel, that is not up to specification for use in aircraft or automobiles, in generators or industrial heaters rather than disposing of it as a waste. Generators and heaters can typically burn many types of fuel (such as diesel, JP-8, or JP-4).

7.3.2 Material Substitution

To reduce the amount of hazardous waste to be disposed, substitute appropriate materials for sandblast residue, absorbent material, and parts-cleaning solvents.

- *Sandblast residue* – Use latex paints to replace oil-based paints. This reduces the amount of hazardous sandblast residue because, unlike oil-based paints, most latex paint waste can be disposed of as non-hazardous waste.
- *Absorbent material* – Use large rolls of absorbent pads. Tear off only the amount needed and use the pads until they no longer absorb the spilled material. Because they absorb more and weigh less than other absorbents, such as vermiculite, pads are cheaper to ship off-site after use.
- *Parts-cleaning solvents* – Use environmentally friendly parts-cleaning solvents and recycle parts-cleaning solvents when possible.



7.3.3 Engineering Controls

Use engineering controls, such as downstream blending of fuel system icing inhibitor (FSII), self-supporting geodesic domes on tanks, and improved floating-roof seals to reduce or eliminate FSII in tank-bottom wastewater.

7.3.4 Best Management Practices

Use BMPs to reduce the amount of hazardous waste you generate:

- *Good housekeeping* – Maintain a clean and orderly work environment to reduce the possibility of accidental spills caused by mishandling of equipment and materials.
- *Visual inspection* – Perform routine visual inspections of the facility to uncover conditions that could cause discharge of hazardous waste. Look for signs of leaks, corrosion, or other deterioration of all containers that store hazardous waste.

- *Employee training* – Provide training in hazardous waste management, waste minimization, and P2 to personnel who handle, or are routinely exposed to, hazardous waste. (Refer to [Chapter 10, Training](#)).
- *Storage container handling* – Always handle, open, and store a container with POL or hazardous waste so the container cannot leak or break.

Waste handling precautions include the following:

- Check for the maximum allowable storage temperatures for wastes on Safety Data Sheets (SDSs) or waste profile data.
- Use extreme caution when operating forklifts or other heavy equipment around waste accumulation and storage points.



State Requirements

7.4 State Requirements

Most state agencies (with the exception of Iowa and Alaska) have received authorization from EPA to administer hazardous waste programs. Some states have adopted the federal program outright while others have developed their own programs that are more stringent or broader in scope than the federal requirements. It is critical for you to check your state hazardous waste regulations because of the regulatory variability. Refer to [Appendix E](#) for a list of state agency contacts. Below are some examples where states have stricter and differing requirements than EPA.

7.4.1 Waste Identification

- Some state agencies may identify certain waste types as hazardous, special waste, or industrial waste that would not necessarily be identified and regulated as such under the federal program. In California, wastes that kill fish, PCB wastes, oily wastes, and friable asbestos are hazardous waste. California, Texas, and Washington have a definition for solid corrosive hazardous waste. Washington regulates persistent hazardous waste (halogenated compounds and polycyclic aromatic hydrocarbons [PAHs]). Some other states that regulate additional wastes include Colorado, Illinois, Indiana, Maine, Maryland, Michigan, Missouri, New Hampshire, Oregon, Rhode Island, South Carolina, Utah, and Vermont. Always check with your state agency for regulations relating to waste.
- States can also use differing terminology. For example, Washington uses the terminology of “dangerous” and “extremely hazardous,” and regulates “persistent” and a more broadly defined “toxic” waste. In Washington, 50% of the hazardous (dangerous) waste generated is state-only hazardous waste.
- Some states may have used oil regulations stricter than federal requirements. In California, used oil is a hazardous waste even when it is recycled. Be aware of both your state and federal requirements and abide by the most stringent regulations.

7.4.2 Generator Categories

- Washington regulates generators of between 100 and 1,000 kg per month as “medium” quantity generators and calls generators of less than 100 kg per month small quantity generators. Other states, such as Kansas, Maine,

Maryland, Massachusetts, Minnesota, New Hampshire, Rhode Island, and Washington, have generator classes that vary from the federal definitions of the generator categories. California has a “silver-only generator” status for generators of only silver who must comply with the VSQG regulations. Kansas requires VSQGs to use state-certified laboratories. Also, some states (such as Kansas and West Virginia) require VSQGs to get state ID numbers.

- There are no VSQG exemptions in some states, such as New York, Nevada, Missouri, Montana, Maine, and Connecticut.

7.4.3 Recordkeeping and Reporting

- Refer to [Appendix 7-4](#) for a summary of state-specific hazardous waste reporting frequencies.
- Some states require that the Form 8700–12, RCRA Subtitle C Identification Form, be updated annually and submitted with the biennial or annual hazardous waste report or on a regular schedule. In addition, some states (such as Alabama, New Jersey, and Iowa) charge a fee to process Form 8700–12.
- Some states, such as California, Maine, Maryland, Rhode Island, South Carolina, Utah, Vermont, and Washington, have additional requirements regarding the use of the manifest, such as state-specific waste codes and requirements that stipulate copies must be submitted to the state agency.
- Note that some states require hazardous waste records to be kept for longer than 3 years. For instance, Washington requires generators to keep manifest records for 5 years.
- California, New York, Kansas, New Jersey, Washington, and other states require payment of annual hazardous waste generator management fees.

7.4.4 Waste Accumulation

- Some states, such as Alabama, have detailed generator storage area closure requirements in their regulations.
- Alabama’s satellite accumulation regulations have a safety exemption for the “located near the point of generation” requirements if storage of a waste at or near the point of generation is unsafe. This means the waste can be placed in a location that might not be visible but is quickly and easily accessible to the operator generating the waste.
- Some states, such as California, Florida, Minnesota, and Texas, do not allow oil filters to be placed in landfills.

7.4.5 Recycled Hazardous Waste

- Note that some states have additional wastes that they regulate as universal waste, such as aerosol cans (California and Colorado), antifreeze (Louisiana and New Hampshire), CRTs (Maine, New Hampshire, and Rhode Island), electronics (Arkansas, Louisiana, Connecticut, Michigan, and Nebraska), or paint waste (Texas). In addition, Montana has additional requirements for the treatment of electronic lamps. Contact your state agency to determine what is regulated in your state.

- In California, non-functioning CRTs are hazardous waste and cannot be disposed of in municipal landfills. California does not exempt CRTs from VSQGs. CRTs in California that are donated for continued use as monitors or televisions are not identified as hazardous waste.
- The state of Washington requires separate P2 plans for LQGs, excluding commercial TSDRFs (remember that hazardous waste is called dangerous waste in Washington).
- Alaska, Iowa, Idaho, Illinois, New Jersey, Pennsylvania, U.S. territories, and tribal lands have adopted the hazardous secondary materials exemption.

7.5 For More Information



For More Information

For Information On...	See...
Waste-Related Agencies	
EPA Office of Solid Waste	www.epa.gov/epawaste/index.htm
EPA Hazardous Waste Home Page	www.epa.gov/wastes/hazard/index.htm
Sector-specific Compliance Assistance Centers (that address real-world issues in understandable language for you to understand federal environmental requirements and how to save money through pollution prevention techniques)	https://www.epa.gov/compliance/compliance-assistance-centers
EPA Used Oil Management Program	https://www.epa.gov/hw/managing-used-oil-answers-frequent-questions-businesses
Universal waste	https://www.epa.gov/hw/universal-waste
Electronic waste	www.epa.gov/wastes/conserves/materials/ecycling
Cathode ray tubes	https://www.epa.gov/hw/cathode-ray-tubes-crts-0
Documents and References	
RCRA Orientation Manual, EPA (introductory information on the solid and hazardous waste management programs under RCRA)	https://www.epa.gov/hwgenerators/resource-conservation-and-recovery-act-rcra-orientation-manual
Hazardous Waste Generator Regulations: A User-Friendly Reference document, Version 6 – August 2012	https://www.epa.gov/hwgenerators/hazardous-waste-generator-regulations-user-friendly-reference-document
RCRA Tools and Resources	https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-tools-and-resources
Hazardous waste minimization – Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program: 58 <i>Federal Register</i> 31114–31120. May 28, 1993.	https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=10001D8P.TXT
RCRA online database (to locate documents, including publications and other outreach materials that cover a wide range of RCRA issues and topics)	https://rcrapublic.epa.gov/rcraonline/

7.6 Action Items



Action Items

Item	Date Started	Date Completed	N/A	Comment(s)
<i>Identify</i> all routine and non-routine wastes generated at your facility and characterize them as either hazardous or non-hazardous through testing or knowledge.			<input type="checkbox"/>	
<i>Calculate</i> the amount of hazardous waste generated monthly and meet the requirements for your generator category (LQG, SQG, or VSQG).			<input type="checkbox"/>	
<i>Train</i> your staff in the proper management of hazardous waste on an ongoing basis and on ways they can minimize pollution generation in their daily activities.			<input type="checkbox"/>	
<i>Inspect</i> your central accumulation areas weekly to ensure that the wastes are fully contained while in storage.			<input type="checkbox"/>	
<i>Properly mark, label, and identify</i> the hazards of the waste on the containers and tanks that you use for hazardous waste storage.			<input type="checkbox"/>	
<i>Make sure</i> a professional engineer evaluates any tank systems used for hazardous waste storage.			<input type="checkbox"/>	
<i>Use</i> a Hazardous Waste Manifest or e-Manifest for all shipments of hazardous waste from the facility. Take action if your disposal facility fails to submit a copy of the manifest to EPA that documents the final disposal of the waste.			<input type="checkbox"/>	
<i>Maintain</i> adequate preparedness and prevention measures, including adequate communications capability, fire-fighting equipment, and other emergency response equipment. Prepare and implement a Hazardous Waste Contingency Plan if you are an LQG.			<input type="checkbox"/>	
<i>Manage</i> universal waste properly (storage, labeling).			<input type="checkbox"/>	

Item	Date Started	Date Completed	N/A	Comment(s)
<p><i>Mark</i> your used oil tanks and containers with the words "Used Oil," ensure that secondary containment is in place, and ensure that you are recycling your used oil at a facility that is permitted to receive it.</p>			<input type="checkbox"/>	
<p><i>Maintain</i> detailed records of your waste management activities, including waste characterizations, manifest activities, training records, and self-inspections.</p>			<input type="checkbox"/>	
<p><i>Evaluate</i> all materials that move through your site on a life cycle basis. Ensure that only those materials that will minimize pollution are brought on-site (for example, selecting non-lead paint coatings to prevent future generation of hazardous waste).</p>			<input type="checkbox"/>	



CHAPTER 7 Appendices



Appendix 7–1 Hazardous Waste Determination Overview

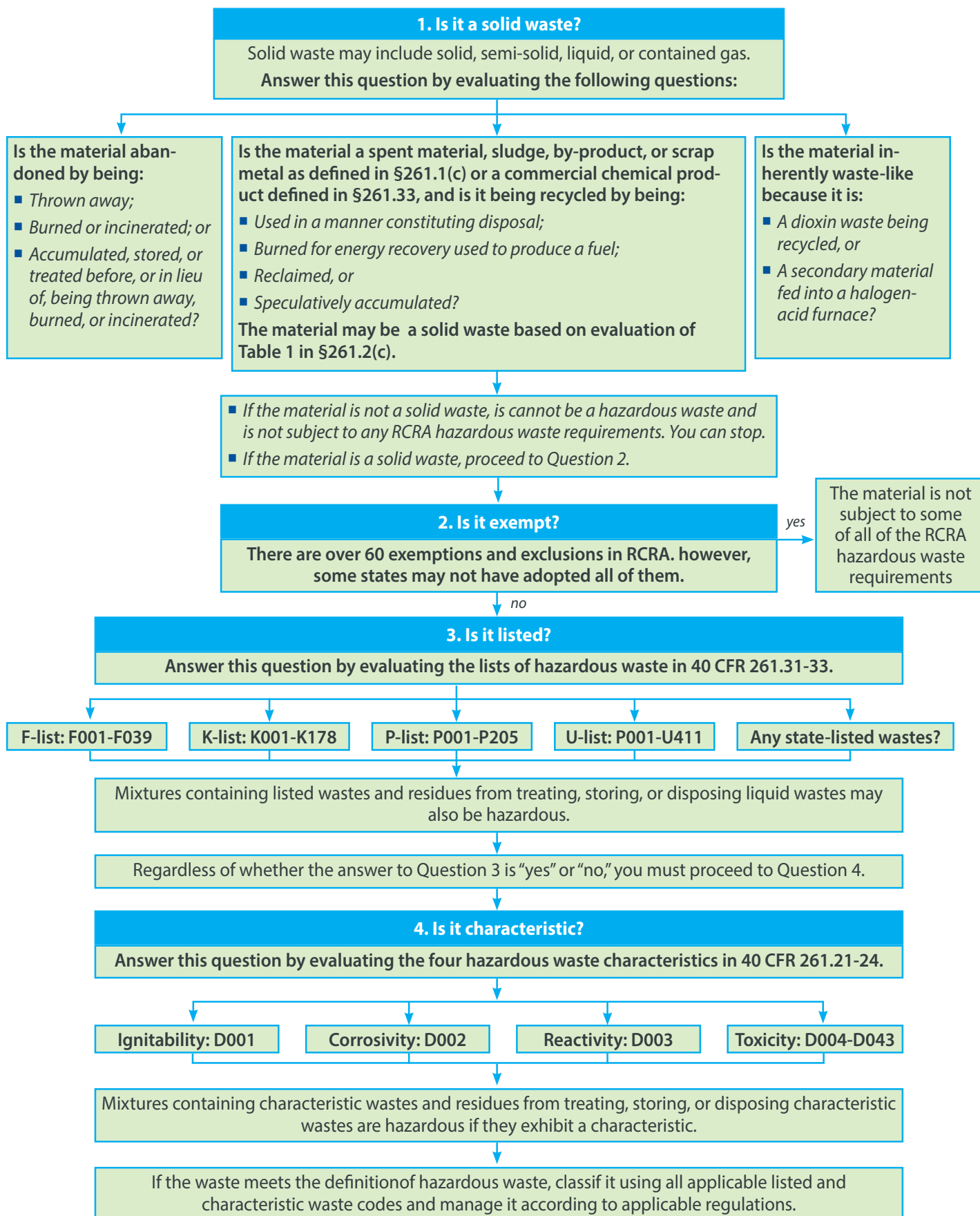
Appendix 7–2 Hazardous Waste Toxicity Characteristic Regulatory Limits

Appendix 7–3 Hazardous Waste Generator Requirements

Appendix 7–4 State and U.S. Territory Hazardous Waste Reporting Frequency

**THIS PAGE LEFT
INTENTIONALLY BLANK**

Appendix 7-1: Hazardous Waste Determination Overview



CFR = Code of Federal Regulations
 RCRA = Resource Conservation and Recovery Act
 Source: 40 CFR 261

**THIS PAGE LEFT
INTENTIONALLY BLANK**

Appendix 7-2: Hazardous Waste Toxicity Characteristic Regulatory Limits

TCLP Regulatory Limit			
Metals	mg/L	µg/L	EPA HW #
Arsenic	5.0	5,000	D004
Barium	100.0	100,000	D005
Cadmium	1.0	1,000	D006
Chromium	5.0	5,000	D007
Lead	5.0	5,000	D008
Mercury	0.2	200	D009
Selenium	1.0	1,000	D010
Silver	5.0	5,000	D011
Pesticides			
Chlordane	0.03	30	D020
Endrin	0.02	20	D012
Heptachlor (and its epoxide)	0.008	8	D031
Lindane	0.4	400	D013
Methoxychlor	10.0	10,000	D014
Toxaphene	0.5	500	D015
Herbicides			
2,4-D	10.0	10,000	D016
2,4,5-TP (Silvex)	1.0	1,000	D017
VOCS			
Benzene	0.5	500	D018
Carbon tetrachloride	0.5	500	D019
Chlorobenzene	100.0	100,000	D021
Chloroform	6.0	6,000	D022
1,2-Dichloroethane	0.5	500	D028
1,1-Dichloroethylene	0.7	700	D029
Methyl ethyl ketone (2-Butanone)	200.0	200,000	D035
Tetrachloroethylene	0.7	700	D039
Trichloroethylene	0.5	500	D040
Vinyl chloride	0.2	200	D043

TCLP Regulatory Limit			
SVOCs	mg/L	µg/L	EPA HW #
o-Cresol (2-Methylphenol)	200.0	200,000	D023
m-Cresol (3-Methylphenol)	200.0	200,000	D024
p-Cresol (4-Methylphenol)	200.0	200,000	D025
Total cresols	200.0	200,000	D026
1,4-Dichlorobenzene	7.5	7,500	D027
2,4-Dinitrotoluene	0.13	130	D030
Hexachlorobenzene	0.13	130	D032
Hexachloro-1,3-butadiene	0.5	500	D033
Hexachloroethane	3.0	3,000	D034
Nitrobenzene	2.0	2,000	D036
Pentachlorophenol	100.0	100,000	D037
Pyridine	5.0	5,000	D038
2,4,5-Trichlorophenol	400.0	400,000	D041
2,4,6-Trichlorophenol	2.0	2,000	D042

Source: 40 CFR 261.24, Table 1
EPA HW# = The Hazardous Waste Number or code assigned by EPA to wastes with chemical concentrations above the specified limit.
µg/L = microgram per liter
mg/L = milligram per liter
SVOC = Semivolatile Organic Chemical
TCLP = Toxicity Characteristic Leaching Procedure
VOC = Volatile Organic Chemical

Appendix 7-3: Hazardous Waste Generator Requirements

Requirement ¹	Citation in 40 CFR	VSQG	SQG	LQG
Determination of whether waste is hazardous	261 Subpart B	Required	Required	Required
Delivery of waste to permitted TSDRF	262.20	Required	Required	Required
Quantity limit generated per month:				
Hazardous waste	262.13	100 kg or less	100 kg – 1,000 kg	1,000 kg or more
Acute hazardous waste	262.13	1 kg or less	1 kg or less	Over 1 kg
AHW-contaminated debris	262.13	100 kg	100 kg	Unlimited
On-site accumulation limit:				
Hazardous waste	262.13	1,000 kg	6,000 kg	Unlimited
Acute hazardous waste	262.14	1 kg	1 kg	Unlimited
AHW-contaminated debris	262.16	100 kg	100 kg	Unlimited
Storage time without a permit	262.13 262.14 262.16 262.17	90 days acute waste 180 days or less (270 days or less for 200 miles or more)	180 days or less (270 days or less for 200 miles or more)	90 days or less
EPA ID number	262.18	Not required	Required	Required
Manifest	262 Subpart B (262.20–27)	Not required	Required	Required
Container management	262.16	Not required	Required	Required
Tank systems	262.16 261.17	Not required	Required	Required
Air emission standards for tanks and containers	265 Subpart CC (265.1080–.1091)	Not required	Not required	Required
Hazardous waste label and identify the hazards of the waste	262.16 262.17	Recommended	Required	Required
Accumulation date label	262.16 261.17	Recommended	Required	Required
Packaging, labeling, marking, and placarding requirements	262 Subpart C (262.30–.35)	Not required	Required	Required
Preparedness and prevention	262 Subpart M	Not required	Required	Required
Contingency plan	262.17	Not required	Not required	Required
Emergency procedures	262.16 262.17	Not required	Required	Required
Personnel training	262.16 262.17	Not required	Required	Required
Closure	262.17	Not required	Not required	Required
Reporting requirements:				
Biennial report	262.41	Not required	Not required	Required
Exception report	262.42	Not required	Required > 60 days	Required > 45 days
Recordkeeping requirements: Manifests and LDR notice				
Biennial report (or annual or quarterly)	262 Subpart D	Not required	3 years	3 years
Exception report		Not required	Not required	3 years
Waste analysis		Not required	3 years	3 years
Land disposal restriction notice	268.7(a)	Not required	Required	Required

VSQG=Very Small Quantity Generator, CFR=Code of Federal Regulations, LQG=Large Quantity Generator, SQG=Small Quantity Generator, TSDRF=Treatment, Storage, and Disposal Facility, AHW = Acute Hazardous Waste, LDR = Land Disposal Restriction

¹Check with your state agency to determine if their requirements are more stringent than federal regulations.

**THIS PAGE LEFT
INTENTIONALLY BLANK**

Appendix 7-4: State and U.S. Territory Hazardous Waste Reporting Frequency

Annual Hazardous Waste Report (may include the biennial report and plus another state required report in alternating years)	Biennial Hazardous Waste Report	Other Reporting Frequency
Arizona	Alabama	New Hampshire (quarterly manifest report)
Arkansas	Alaska	South Carolina (quarterly report)
California	Colorado	Oklahoma (quarterly manifest report)
Delaware	Connecticut	
District of Columbia	Florida	
Georgia	Hawaii	
Guam	Iowa	
Idaho	Kansas	
Illinois	Maryland	
Indiana	Massachusetts (recyclers report annually)	
Kansas	Nebraska	
Kentucky	Nevada	
Louisiana	New Mexico	
Maine	North Carolina	
Michigan	North Dakota	
Minnesota	Ohio	
Mississippi	Pennsylvania	
Missouri	Rhode Island	
Montana	South Dakota	
New Hampshire	Utah	
New Jersey	Vermont	
New York	Virginia	
Oklahoma	West Virginia	
Oregon	Wyoming	
Tennessee	Commonwealth of Northern Mariana Islands	
Texas	Puerto Rico	
Washington	United States Virgin Islands	
Wisconsin	American Samoa	

**THIS PAGE LEFT
INTENTIONALLY BLANK**